



# Information for Screening for Appropriate Assessment

## TEN-T Priority Route Improvement Project, Donegal



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Information for Screening for AA

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## GLOSSARY

| Term  | Meaning  |
|---|--|
| Annex I habitat                             | Habitat types listed on Annex I of the EU Habitats Directive whose conservation requires the designation of Special Areas of Conservation.   |
| Annex II species                            | Species listed on Annex II of the EU Habitats Directive whose conservation requires the designation of Special Areas of Conservation.  |
| Appropriate Assessment                      | An assessment carried out under Article 6(3) of the Habitats Directive as to whether or not a Proposed Development would adversely affect the integrity of a European site.  |
| Appropriate Assessment Conclusion Statement | The determination by the competent authority under Article 6(3) of the Habitats Directive on an Appropriate Assessment and the reasons for the determination.  |
| Biodiversity                                | The variability among living organisms from all sources including, inter alia, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, between species and of ecosystems (UN Convention on Biological Diversity 1992). |
| Birds Directive                             | Council Directive 2009/147/EC on the conservation of wild birds.   |
| Catchment                                   | An area of land contributing to a river, lake or other waterbody.  |
| Competent Authority                         | The term 'Competent Authority' is construed in accordance with section 177S of the Planning and Development Act 2000 as amended.   |
| Cumulative Impacts                          | The addition of many minor or significant effects, including effects of other plans and projects, to create larger, more significant effects.  |
| Designated sites                            | Sites which have special status as protected areas because of their natural and cultural importance.   |
| Disruption                                  | Disruption caused to species or habitats for which the European site is selected.  |
| Disturbance                                 | Disturbance caused to species or habitats for which the European site is selected.   |
| Ecology                                     | The study of the inter-relationships between living organisms and their environment.   |
| Effect                                      | The consequence of the impact on the environment.  |
| European Commission                         | The Commission of the European Communities.  |
| European site                               | 'European site' has the meaning given to it by section 177R of Part XAB of the Planning and Development Act. Collective term used when referring to nature conservation sites protected under the Habitats or Birds Directives (SACs or SPAs).   |
| Fragmentation                               | Impacting the connectivity of the site due to the works fragmenting the area which will have a direct impact on species or habitats.   |
| Groundwater Vulnerability                   | Groundwater vulnerability denotes the intrinsic geological and hydrogeological characteristics that determine the ease at which groundwater may be contaminated by human activities  |
| Habitat                                     | A place in which a particular plant or animal lives. Often used in a wider sense, referring to major assemblages of plants and animals found together such as woodlands or grassland.  |
| Habitats Directive                          | Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora (EU Habitats Directive).   |
| Impact                                      | Changes to the environment resulting from the implementation of project.   |
| Indirect Impact                             | Impacts on the environment, which are not a direct result of the project, often produced away from (the site) or as a result of a complex pathway.   |
| Loss  | Impact relating to loss of habitat, significance directly relating to the percentage of loss.  |
| Magnitude                                   | The size, extent and duration of an impact.  |

| Term                                      | Meaning   |
|---|---|
| Mitigation Measures                       | Measures designed to avoid, reduce, remedy or offset impacts. These measures can mitigate impacts.  |
| Monitoring                                | The observation, measurement and evaluation of environmental data over a period of time, to assess the efficiency of control measures. This is typically a repetitive and continued process carried out during construction, operation or decommissioning of a project.   |
| Natura 2000                               | The Natura 2000 network is defined under the Habitats Directive 92/43/EEC (Article 3) and the Birds Directive 2009/147/EC (Article 4) as a coherent European ecological network of Special Areas of Conservation (SAC) and Special Protection Areas (SPA).  |
| Natura Impact Statement (NIS)             | 'Natura Impact Statement' shall be construed in accordance with section 177T of the Planning and Development Act 2000 (as amended). The report of a scientific examination of a plan or project and the relevant European sites, to identify and characterise any possible implications for the site in view of the site's conservation objectives, to enable a consent authority to carry out an Appropriate Assessment. |
| Non-statutory stakeholder                 | Organisations with whom the regulatory authorities may choose to engage who are not designated in law but are likely to have an interest in a proposed development.   |
| Pathway                                   | The route by which an effect is conveyed between a source and a receptor.   |
| Precautionary principle                   | A principle underlying the concept of sustainable development which implies that prudent action be taken to protect the environment even in the absence of scientific certainty.  |
| Prescribed bodies                         | Organisations that are required to be consulted by the Regulatory Authorities, and who also have a duty to respond to that consultation within a set deadline. This includes consultees that the Applicant is required to consult with. Not all consultees will be statutory consultees.  |
| Priority Annex I habitat                  | Annex I habitat types which are in danger of disappearance, and for which the European Community has particular responsibility in view of the proportion of their natural range which falls within the territory. Priority habitats are indicated by an asterisk (*) in Annex I of the Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora.                    |
| Priority species                          | Species for the conservation of which the Community has particular responsibility in view of the proportion of their natural range which falls within the territory, these priority species are indicated by an asterisk (*) in Annex II of the Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora. At present, Ireland does not have any priority species.   |
| Qualitative effect                        | An effect on the environment which cannot be measured precisely but can be determined by expert judgement.  |
| Quantitative effect                       | An effect on the environment that can be stated in figures/measurements.  |
| Receptor                                  | The Special Conservation Interests (SCI) of SPAs or Qualifying Interests (QI) of SACs for which conservation objectives have been set for the European sites being assessed.  |
| Screening for Appropriate Assessment (AA) | The screening of a plan or project to establish if an Appropriate Assessment of the plan or project is required. The Screening for AA assesses whether, in view of best scientific knowledge, if the proposed development, individually or in combination with other plans or projects is likely to have a significant effect on a European site.   |
| SEVESO Site                               | The catastrophic accident in the Italian town of Seveso in 1976 prompted the adoption of legislation the so-called Seveso-Directive (Directives 82/501/EEC - 2012/18/EU). The Chemicals Act (Control of Major Accident Hazards involving Dangerous Substances) Regulations 2015 (S.I. No. 209 of 2015 ) (the "COMAH Regulations"), implement the Seveso III Directive (2012/18/EU).                                       |
| Significant Effect                        | An effect which, by its character, magnitude, duration or intensity alters a sensitive aspect of the environment.   |
| Source                                    | The individual element of the proposed works that has the potential to impact on a European site, its qualifying features and its conservation objectives.  |
| Source-Pathway-Receptor model             | A source-pathway-receptor model is a standard tool used in environmental assessment. In order for an effect to be likely, all three elements of this mechanism must be in place. The  |

| Term                                 | Meaning   |
|--------------------------------------|---|
|                                      | absence or removal of one of the elements of the mechanism results in no likelihood for the effect to occur.  |
| Special Areas of Conservation (SACs) | SACs are sites designated under European Communities Directive 92/43/EEC known as the 'Habitats Directive'. This requires the conservation of important, rare or threatened habitats and species across Europe. SACs are composed of sites hosting the Qualifying Interest (QI) habitat types listed in Annex I and/or species listed in Annex II (under Habitats Directive Article 3).                       |
| Special Protection Areas (SPAs)      | SPAs are sites designated under the European Communities Directive 2009/147/EC, known as the 'Birds Directive', to conserve the habitats of certain migratory or rare birds. SPAs are composed of sites supporting Special Conservation Interests (SCI) comprising Annex I bird species, regularly occurring migratory species and the supporting wetland habitats (under Article 4 Birds Directive).         |
| Water Framework Directive (WFD)      | The Water Framework Directive (2000/60/EC) requires all member states of the EU protect and improve the quality of their water within their respective states. This aims to achieve ecological status of at least good by 2027 at the latest. It applies to rivers, lakes, groundwater, transitional and coastal waters.  |
| Zone of Influence (ZOI)              | The ZOI of the Proposed Development is determined by assessing the project's requirements and deliverables against the sensitive environmental receptors within the project footprint, in addition to environmental receptors that could be connected to and subsequently impacted by the project through abiotic and biotic vectors. The ZOI is identified using a source-pathway-receptor model of effects. |

# 1 INTRODUCTION

This report has been prepared for Donegal County Council (DCC) to inform Screening for Appropriate Assessment (AA) for the Trans-European Network – Transportation Priority Route Improvement Project, Donegal (TEN-T PRIPD), hereafter referred to as “the Proposed Development” or “Project”.

This report to inform Screening for AA for the Proposed Development has been prepared to provide the competent authority, Donegal County Council, with the relevant scientific information required to conduct the AA Screening, and to determine in view of best scientific knowledge, if the proposed project, individually or in combination with other plans and projects is likely to have a significant effect on the European site.

## 1.1 Statement of Authority

This report has been prepared by William Lishman BSc (Hons), CSci, MCIEEM, MIEEnvSc and reviewed by Siobhán Atkinson PhD, CSci, MIEEnvSc. William is a Principal Ecologist with RPS, holds a BSc (Hons) in Ecology, is a Charter Scientist (CSci) with the Institution of Environmental Sciences (IES) and is a and full member of CIEEM (MCIEEM), with 18 years’ experience in ecological assessment and AA. Siobhán is a Senior Ecologist with RPS and holds a PhD in Aquatic Ecology. Siobhán is a Chartered Scientist (CSci) and full member of The Institution of Environmental Sciences (MIEEnvSc), with 9 years’ experience.

## 2 LEGISLATIVE CONTEXT FOR APPROPRIATE ASSESSMENT

### 2.1 European Sites

The Council Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Fauna and Flora, 'the Habitats Directive', provides protection for habitats and species of European importance. Articles 3 to 9 provide the legislative means to protect habitats and species of Community interest through the establishment and conservation of a European Union (EU) wide network of sites known as Natura 2000 (hereafter referred to as 'European sites'). Articles 6(3) and 6(4) of the Habitats Directive set out the decision-making tests as they relate to Appropriate Assessment (AA).

Articles 6(3) states:

*"Any plan or project not directly connected with or necessary to the management of the [European] site but likely to have a significant effect thereon, either individually or in combination with other plans or projects, shall be subjected to appropriate assessment of its implications for the site in view of the site's conservation objectives. In light of the conclusions of the assessment of the implications for the site and subject to the provisions of paragraph 4, the competent national authorities shall agree to the plan or project only after having ascertained that it will not adversely affect the integrity of the site concerned and, if appropriate, after having obtained the opinion of the general public."*

Article 6(4) states:

*"If, in spite of a negative assessment of the implications for the [European] site and in the absence of alternative solutions, a plan or project must nevertheless be carried out for imperative reasons of overriding public interest, including those of a social or economic nature, Member States shall take all compensatory measures necessary to ensure that the overall coherence of Natura 2000 is protected. It shall inform the Commission of the compensatory measures adopted."*

Each European site has assigned conservation objectives (COs) and a list of Qualifying Interests (QI's) and/or Special Conservation Interest (SCI) species. The CO concept appears in the eighth recital of the Habitats Directive which reads: "whereas it is appropriate, in each area designated, to implement the necessary measures having regard to the conservation objectives pursued." Article 1 then explains that "conservation means a series of measures required to maintain or restore the natural habitats and the populations of species of wild fauna and flora at a favourable status."

In so far as the Proposed Development here is concerned, the provisions of the Habitats Directive have been transposed into Irish legislation by the European Union (Birds and Natural Habitats) Regulations 2011 (S.I. No. 477 of 2011) (as amended). This report to inform Screening for AA has been prepared with reference to the primary and domestic legislation.

With regard to COs, the National Parks and Wildlife Service (NPWS) publish COs for European sites on their website. NPWS advise in the general introductory notes of their site-specific conservation objectives series publications, that an AA based on their "published conservation objectives will remain valid even if the conservation objective targets are subsequently updated, providing they were the most recent objectives available when the assessment was carried out." NPWS advise that to assist in that regard, it is essential that the date and version are included when objectives are cited.

### 2.2 Former Natura 2000 Network Sites in Northern Ireland

Following the UK's departure from the EU, SACs and SPAs in Northern Ireland are no longer mapped as part of the EU's Natura 2000<sup>1</sup> network. However, these former Natura 2000 sites in Northern Ireland have

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<sup>1</sup> [Natura 2000 data and maps - Environment - European Commission \(europa.eu\)](https://ec.europa.eu/eia/natura2000/) (Accessed December 2025)

been included as still being part of the EU Natura 2000 network within this assessment for completeness and out of an abundance of caution.

For ease of reference, they are considered under the term 'European sites' in this assessment.

## 2.3 Guidance and Approach

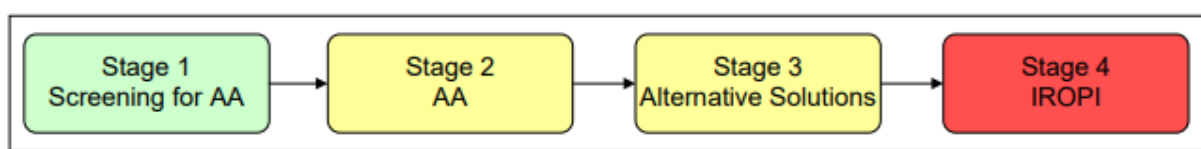
The principal national and European guidelines have been followed in the preparation of this document. The following list identifies these and other pertinent guidance documents:

- European Commission (EC) (2021) Assessment of Plans and proposed developments in relation to Natura 2000 Sites – Methodological Guidance on Article 6(3) and (4) of the Habitats Directive 92/43/EEC.
- Office of the Planning Regulator (OPR) (2021) Practice Note (PN01) 'Appropriate Assessment Screening for Development Management'.
- EC Notice C (2018) 7621 'Managing Natura 2000 Sites: the provisions of Article 6 of the 'Habitats' Directive 92/43/EEC', Office for Official Publications of the European Communities, Luxembourg.
- EC (2013) EC Interpretation Manual of European Union Habitats. Version EUR 28. European Commission.
- Department of Environment, Heritage and Local Government (DEHLG,2010a) Appropriate Assessment of Plans and Projects in Ireland. Guidance for Planning Authorities. Department of the Environment, Heritage and Local Government, Dublin.
- DEHLG (2010b) DEHLG Government Circular - National Parks and Wildlife Service (NPWS) 1/10 and PSSP 2/10 on Appropriate Assessment under Article 6 of the Habitats Directive – Guidance for Planning Authorities. Department of Environment, Heritage and Local Government.
- NRA (2009) *Guidelines for Assessment of Ecological Impacts of National Roads Schemes. Revisions 2, 1st June 2009.* National Roads Authority.
- EC (2000) Communication from the Commission on the Precautionary Principle. Office for Official Publications of the European Communities, Luxembourg.

The Commission's 2018 Notice (EC Notice (2018)), and European and national case law have been reviewed and have informed the approach and content of this document in relation to key issues including the interpretation of concepts of site integrity, the absence of lacunae and the use of mitigation measures among others.

## 2.4 Stages of Appropriate Assessment

The Department of the Environment Heritage and Local Government guidance for planning authorities (DEHLG, 2010a) outlines a potential four-stage process to complete the AA and outlines the issues and tests at each stage. An important aspect of the process is that the outcome at each successive stage determines whether a further stage in the process is required. The four stages are summarised diagrammatically in **Figure 2.1** below, and an outline of the steps and procedures involved in completing each stage follows.



**Figure 2.1: Potential Four Stages of Appropriate Assessment (as per DEHLG (2010a))**

### 2.4.1 Stage 1: Screening/ Test of Significance

This process identifies whether the Proposed Development is directly connected to or necessary for the management of a European site(s) and identifies whether the proposed development, in the absence of mitigation is likely to have significant effects upon a European site(s) either alone or in combination with other plans or projects.

For the avoidance of doubt, it is confirmed that no measures intended to avoid or prevent any potential harmful effects of the Proposed Development on any European Site have been considered when carrying out this screening exercise.

The output from this stage is a determination of not significant, significant, potentially significant, or uncertain (which recognises the guidance that where a project is overly complicated it is taken forward) effects. The latter three determinations will cause the project to be taken forward to Stage 2 of the assessment process.

### 2.4.2 Stage 2: Appropriate Assessment (Natura Impact Statement)

This stage considers the impact of the Proposed Development on the integrity of a European site(s), either alone or in combination with other projects or plans, with respect to: (i) the site's conservation objectives; and (ii) the site's structure, function and its overall integrity. Additionally, where there are adverse effects, an assessment of the potential mitigation of those effects is undertaken.

The output from this stage is a Natura Impact Statement (NIS). This document must include sufficient information for the competent authority to carry out the AA. If the assessment is negative, i.e. adverse effects on the integrity of a site cannot be excluded, despite the application of measures to reduce or eliminate adverse effects, then the process must consider alternatives (Stage 3), or the plan or project should be abandoned.

### 2.4.3 Stage 3: Assessment of Alternatives

If a negative assessment arises under Stage 2, this stage examines any alternative solutions or options that could enable a project to proceed without adverse effects on the integrity of the European site(s) in question. If same are identified, then the process must return to Stage 2 as alternatives will require AA in order to proceed. Demonstrating that all reasonable alternatives have been considered and assessed, and that the least damaging option has been selected, is necessary to progress to Stage 4. If no alternatives exist or all alternatives would result in negative impacts to the integrity of the European sites, then the process either moves to Stage 4 or the project is abandoned.

### 2.4.4 Stage 4: Assessment where Adverse Impacts Remain

Stage 4 is the main derogation process of Article 6(4) which examines whether there are imperative reasons of overriding public interest (IROPI) for allowing a plan or project that will have adverse effects on the integrity of a European site to proceed in cases where it has been established that no less damaging alternative solution exists. This stage includes the proposal and assessment of compensatory measures which must be shown to be practical, implementable, likely to succeed, proportionate and enforceable and they must be approved by the relevant body. If Annex I priority habitats as listed in the Habitats Directive are present in the European Site whose integrity is adversely affected, then approval will only issue following the obtaining of an opinion from the European Commission. In any event the European Commission must be informed of the compensatory measures.

## 3 PROJECT DESCRIPTION

### 3.1 Project Overview

The N13, N14 and N15 (part of) national primary roads form part of the TEN-T in Donegal, which is a selection of strategic transport corridors throughout the European Union (EU) that have been identified to play a key role in the mobility of goods and passengers through the EU. *Regulation (EU) 2024/1679 of the European Parliament and of the Council of 13 June 2024 on Union guidelines for the development of the trans-European transport network, amending Regulations (EU) 2021/1153 and (EU) No 913/2010 and repealing Regulation (EU) No 1315/2013*, sets the requirements for the TEN-T network.

Letterkenny, the largest town in Donegal (22,549 (CSO, 2022)), is connected to Derry via the N13, to Lifford (the County Town) via the N13-N14 and to Ballybofey/ Stranorlar via the N13-N15. The TEN-T routes in Donegal are broadly described below:

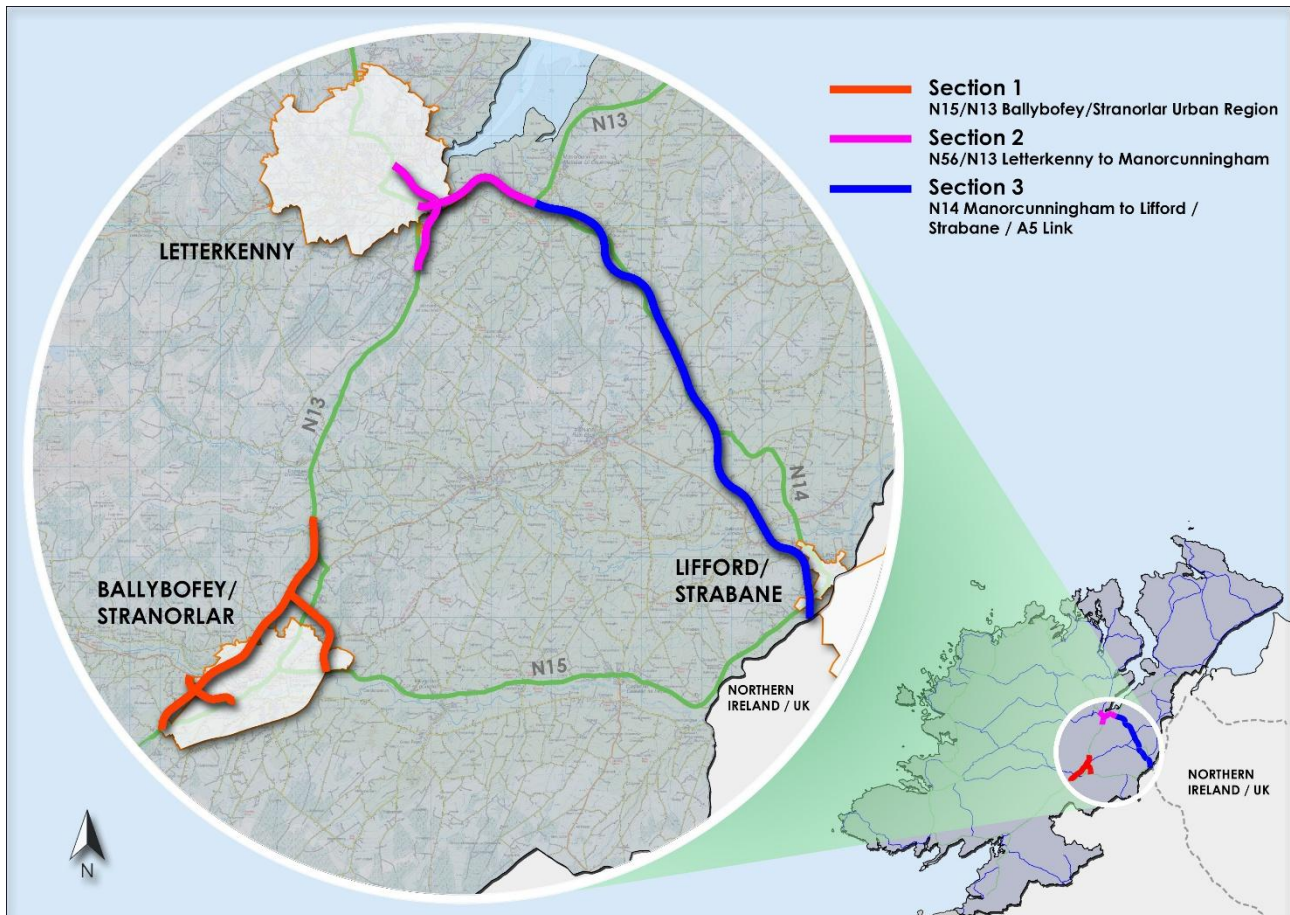
- **N13:** A strategic route that connects Letterkenny with Derry City, Northern Ireland, to the north and via the N15 Ballybofey/ Stranorlar to Sligo and Galway/Limerick (via N17) to the south. The N13 connects with three other national routes including: the N14 to Lifford, the N56 (national secondary route) to Letterkenny and north Donegal and the N15 in Ballybofey/Stranorlar.
- **N14:** A strategic route that connects Letterkenny to Lifford and links via the Lifford bridge over the River Foyle to the existing A5 and Strabane in County Tyrone, Northern Ireland. The existing A5 in Northern Ireland, on the Derry City to Dublin route, passes to the west of Strabane, adjacent to the county boundary with Donegal, and is the key route linking the northwest of Ireland and Donegal via the N14 and N15 to the N2 in Monaghan and on to Dublin.
- **N15:** A strategic route that connects from Sligo to Donegal Town and continues north easterly through Ballybofey/ Stranorlar to Lifford where it connects to the N14 and links to Strabane in County Tyrone, Northern Ireland. The section between Stranorlar and Lifford does not form part of the TEN-T network.

These TEN-T strategic routes in Donegal connect to the principal road network north and eastward in Northern Ireland and southeast to Dublin (via the A38 crossing of the River Foyle and the current A5) and south to Limerick/Galway (via the N17 and N15 to Sligo). The routes are core strategic and critical economic infrastructure. They are particularly important for both tourism and industry, and are the only access to regional and international hubs. The routes provide the only available transport option to the northwest due to the lack of rail infrastructure (with Sligo and Derry being rail passenger only) or access to Tier 1 ports or airports within 100 km of the region.

The Proposed Development consists of the following sections of road network in Donegal (see **Figure 3.1**):

- **Section 1** – N15/N13 Ballybofey/ Stranorlar Urban Region
- **Section 2** – N56/N13 Letterkenny to Manorcunningham
- **Section 3** – N14 Manorcunningham to Lifford/Strabane/A5 Link.

For the avoidance of doubt, the Proposed Development constitutes all three sections together.



**Figure 3.1: Proposed Development Location**

Drawings showing the General Arrangements for the Proposed Development are presented in **Appendix 1**. The drawings for the three sections are numbered as follows:

- Section 1: EIAR Drawing 4.1, sheet 1 though 8;
- Section 2: EIAR Drawing 4.2, sheet 1 though 5;
- Section 3: EIAR Drawing 4.2, sheet 1 though 10;

The following sections provide a brief description of the Proposed Development for each individual section, highlighting areas that are of most relevance to this report. The full Project Description can be found at **Appendix 2: Project Description**.

It is expected that the Proposed Development will be constructed under a Design & Build Contract pursuant to which the contractor will further develop and adapt the design. The design of the Proposed Development has been developed to the point where all the potential environmental impacts can be identified and assessed. Donegal County Council will be required to ensure that the Proposed Development is constructed and operated in accordance with the conditions of any Order that may be granted by An Coimisiún Pleanála.

## 3.2 Section 1 N15 Ballybofey/Stranorlar Urban Region

### 3.2.1 Overview

The Project boundary of Section 1 commences in the townland of Meencaragh (Mainline Section 1.1) to the southwest of Ballybofey on the existing N15 and extends northeast to the townland of Callan (Mainline Section 1.3) where it joins with the existing N13.

In the townland of Cappry, the Ballybofey Link Road North/South extends from the Mainline Section 1.2 to tie-in with the existing R252 (existing Glenfin Road) and the existing N15 in the townland of Cappry (Graham).

At Tevickmoy, the N15 Primary Road Connector will be constructed linking Mainline Section 1.2 with the existing N15 east of Stranorlar at Treanamullin.

Section 1 is bounded to the north by uplands comprising Liskeran Hills and to the south by the foothills of the Bluestack Mountains, including Croaghierin and Lough Hills. The River Finn flows through the middle of the mainline of Section 1, and is crossed by a proposed new clear-span bridge upstream of Ballybofey/Stranorlar. The River Finn is a Special Area of Conservation (SAC) for most of its length from the headwaters to where it joins Lough Foyle, including at the crossing point of the Proposed Development.

### 3.2.2 Design

The Section 1 mainline is approximately 9.7 km long and runs from south to north and to the west of Ballybofey/Stranorlar. Additionally, there are two link roads located to the south and the north of the towns providing connections from the Proposed Development to the existing N15 and R252 (Ballybofey), N13 (north of Stranorlar) and N15 (to Lifford) respectively.

The interfaces with the existing roads include:

- Tie-in to N15 south of Dooish.
- Tie-in to R252 Glenties Road at Cappry from Ballybofey Link Road North.
- Tie-in to N15 Ballybofey/ Cappry (Graham) from Ballybofey Link Road South.
- Tie-in to N13 north of Meenavoy.
- Tie-in to N13 at Tircallan.
- Tie-in to N15 at Treanamullin.

Section 1 including the nomenclature given to its major components is illustrated below in **Figure 3.2**. For more detail on Section 1 including the alignment please refer to the general arrangement EIAR Drawings 4.1, sheets 1-8, in **Appendix 1** and the Project Description in **Appendix 2**.

The Proposed Development in Section 1 can be summarised under the following elements. The lengths of the individual sections are approximate and rounded up or down to the nearest one decimal place.

#### Roads:

- Mainline Section 1.1 which is 0.5 km of Type 1 Single Carriageway cross section between the existing N15 southern tie in and Dooish Junction (EIAR Drawing 4.1, sheet 1 of 8).
- Mainline Section 1.2 which is 8.6 km of Type 2 Divided Road bypassing Ballybofey/Stranorlar between Dooish Junction and Meenavoy Junction (EIAR Drawing 4.1, sheets 1, 2, 4, 5, 6 and 7 of 8).

- Mainline Section 1.3 which is 0.6 km of Type 1 Single Carriageway cross section between Mainline Section 1.2 (Meenavoy Junction) and the existing N13 to the north of the Proposed Development (EIAR Drawing 4.1, sheet 7 of 8).
- Ballybofey Link Road North/ South which is 2.1 km Type 2 Single Carriageway connecting Mainline Section 1.2 to the local road network at Ballybofey (EIAR Drawing 4.1, sheets 2 and 3 of 8).
- N15 Primary Road Connector which is 3.1 km of Type 3 Divided Road connecting Mainline Section 1.2 to the existing N15 Lifford Road (Teevickmoy Junction to Treanamullin Junction) (EIAR Drawing 4.1, sheets 6 and 8 of 8).
- Provision of approximately 10.6 km of additional Type 1, Type 2 and Type 3 Single Carriageway roads not already mentioned above (includes new and realigned).

**Junctions:**

- Three grade-separated junctions, one each at Cappry (EIAR Drawing 4.1, sheet 2 of 8), Teevickmoy, and Tircallan/ Dunwiley (both shown on EIAR Drawing 4.1, sheet 6 of 8), including structures, link roads and roundabouts.
- Three at-grade roundabout type junctions at tie-in transition points at Dooish (EIAR Drawing 4.1, sheet 1 of 8), Meenavoy (EIAR Drawing 4.1, sheet 7 of 8), and Treanamullin (EIAR Drawing 4.1, sheet 8 of 8).

**Structures:**

- 360 m long, seven span bridge (ref: N15R024) over the River Finn and flood plain at Ballybofey/ Stranorlar (clear span over the river channel).
- Two river/stream bridges.
- Seven overbridges.
- Five underbridges.
- Three underpasses (including active travel / mammal underpass).
- Culverts, gantries and environmental barriers.

**Active Travel:**

- Provision of active travel infrastructure. This includes connections to existing infrastructure and three new Park and Share / Cycle facilities, one each near Dooish, Cappry, and Meenavoy EIAR Drawing 4.1.

**Other Works:**

- Access roads.
- Provision of attenuation ponds, flood compensation measures, watercourse diversions and associated drainage infrastructure.
- Provision of existing utility diversions and new utility infrastructure.
- Provision of landscape planting, signage, lighting, safety barrier, and other works ancillary to the construction and operation of the Proposed Development.

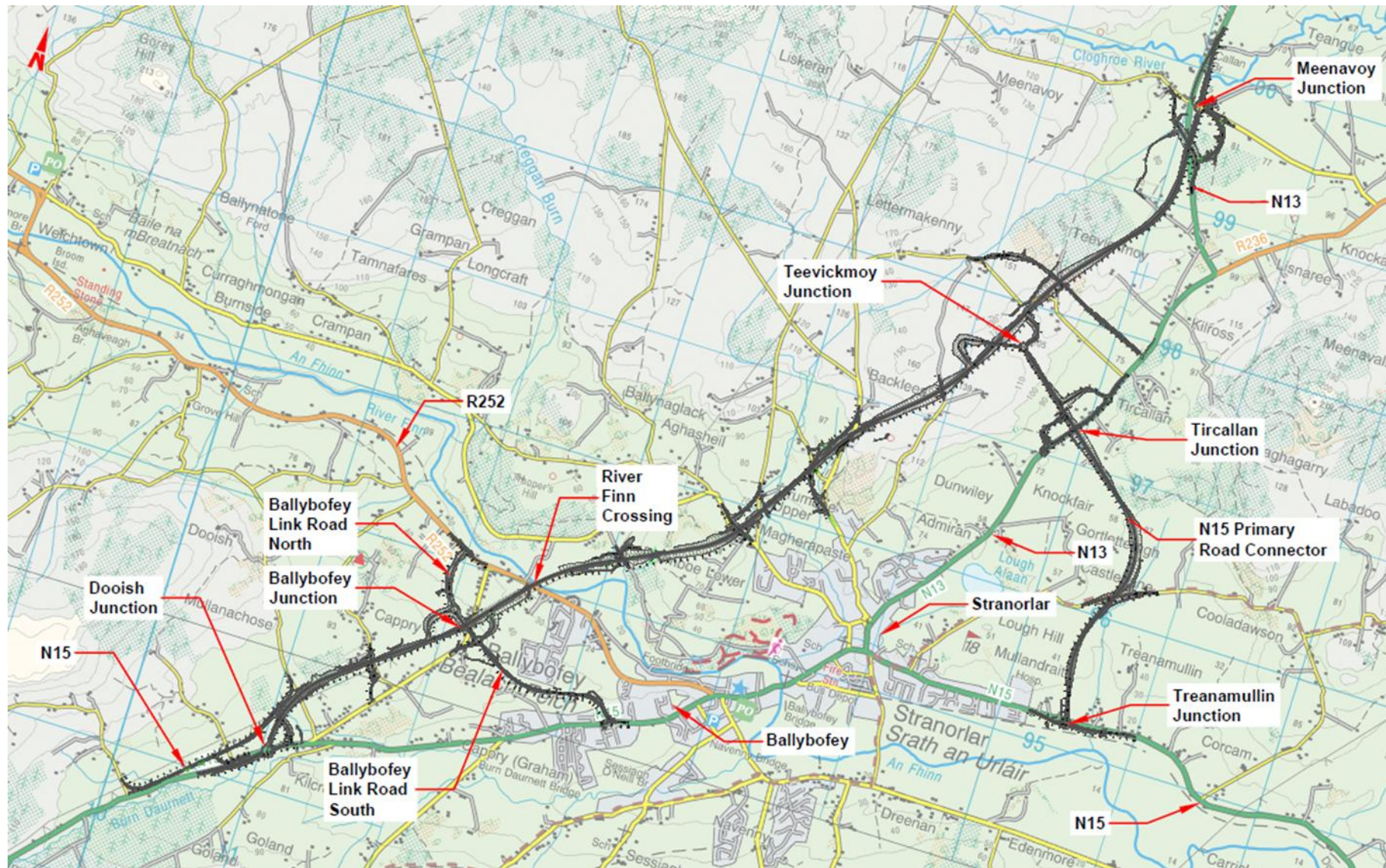


Figure 3.2: Section 1 Proposed Development

### 3.3 Section 2 N56/N13 Letterkenny to Manorcunningham

#### 3.3.1 Overview

The Project boundary of Section 2 commences in the townland of Listellian (Mainline Section 2.1) to the south of Letterkenny on the existing N13 and extends north to Dromore (Mainline Section 2.2) before crossing through Bonagee (Mainline Section 2.5), crossing the River Swilly (Mainline Section 2.6) and tying in with the existing roundabout on the N56/ R245 at Ballyrairie (known locally as the Creamery Roundabout). Additionally, Section 2 includes an upgrade and improvement of the existing dual carriageway between Dry Arch Roundabout to Dromore (Mainline Section 2.3), continuing east (Mainline Section 2.4) to the existing Pluck Roundabout where the N13 (to Derry) and N14 (to Lifford) roads meet. This is the tie-in between Section 2 and Section 3 of the Proposed Development.

The River Swilly flows through Letterkenny and Mainline Section 2.6 crosses the river just east of Ballyrairie. The River Swilly is also a SAC at this point and a proposed new clear-span bridge over the River Swilly is proposed as part of the Project. The Leslie Hill Stream/ Isle Burn are located just west of the existing Pluck Roundabout and an existing culverted bridge carries the existing N13 dual carriageway over this watercourse. The River Swilly SAC boundary commences just north of the existing N13 dual carriageway and follows the Leslie Hill Stream to Lough Swilly. The Lough Swilly Special Protection Area (SPA) is located just north of the Proposed Development.

#### 3.3.2 Design

The Section 2 mainline is approximately 9.0 km long and runs from south to north and to the east of Letterkenny. It includes new sections of divided road north from Listellian, a proposed crossing of the River Swilly east of Ballyrairie, and improvements to the existing dual carriageway between Dry Arch Roundabout and N13/N14 Pluck Roundabout. The interfaces with the existing roads include:

- Tie-in to existing N13 at Listellian (proposed online junction).
- Tie-in to existing N13/N56 at Bonagee (existing Dry Arch roundabout to be improved).
- Tie-in to existing N56/R245 at Ballyrairie (existing roundabout to be improved).
- Tie-in to the existing N13 dual carriageway at Dromore (proposed online junction).
- Tie-in to the existing N13/N14 near Pluck roundabout at Raymoghly (Section 3 interface).

Section 2 including the nomenclature given to its major components is illustrated below in **Figure 3.3**. For more detail on Section 2 including the alignment please refer to the general arrangement EIAR Drawings 4.2, sheets 1-5, in **Appendix 1** and the Project Description in **Appendix 2**.

The proposed works can be summarised under the following elements. The lengths of the individual sections are approximate.

#### Roads:

- Mainline Section 2.1 which is 0.3 km of Type 1 Single Carriageway extending from the N13 southern tie-in to the Listellian Junction (EIAR Drawing 4.2, sheet 1 of 5).
- Mainline Section 2.2 which is 2.1 km of Type 2 Divided Road extending from the Listellian Junction to the Dromore Junction (EIAR Drawing 4.2, sheets 1 and 2 of 5).
- Mainline Section 2.5 which is 0.6 km of Type 2 Divided Road extending from the Dromore Junction to the Bonagee Junction (EIAR Drawing 4.2, sheet 2 of 5).
- Mainline Section 2.6 which is 1.4 km of Type 2 Divided Road extending from the Bonagee Junction to Ballyrairie junction (EIAR Drawing 4.2, sheets 2 and 3 of 5).
- Mainline Section 2.3 which is 0.7 km of Type 1 Dual Carriageway (realigned and improved) extending from Dry Arch Junction to Dromore Junction (EIAR Drawing 4.2, sheet 2 of 5).

- Mainline Section 2.4 which is 3.5 km of Type 1 Dual Carriageway (realigned and improved) extending from Dromore Junction to the interface with Section 3 west of the existing N13/N14 Pluck Roundabout (EIAR Drawing 4.2, sheets 4 and 5 of 5).
- Bonagee Link which is 0.4 km of Type 2 Divided Road extending from the Dry Arch Junction to the Bonagee Junction (EIAR Drawing 4.2, sheet 2 of 5).
- Provision of approximately 12.1 km of additional Type 1, Type 2 and Type 3 Single Carriageway roads not already mentioned above (includes new and realigned).

**Junctions:**

- One grade-separated junction at Trimragh (EIAR Drawing 4.2, sheet 4 of 5): this includes an overbridge structure, two roundabouts, slip roads and connections to realigned local roads. This junction replaces the existing at grade legacy junction with significant poor accident history.
- Five new at-grade roundabout junctions at:
  - Listellian (EIAR Drawing 4.2, sheet 1 of 5).
  - Dromore (EIAR Drawing 4.2, sheet 2 of 5).
  - Bonagee (EIAR Drawing 4.2, sheet 2 of 5).
  - Modified and upgraded roundabout at the existing Dry Arch roundabout (EIAR Drawing 4.2, sheet 2 of 5) and
  - Modified and upgraded roundabout at the existing Creamery roundabout (townland of Ballyraine) (EIAR Drawing 4.2, sheet 3 of 5).
- The tie-in at the Pluck Roundabout (interface between Section 2 and Section 3 is addressed in Section 3).

**Structures:**

- One signature three-span bridge crossing over the River Swilly at Letterkenny (235 m long).
- Three overbridges.
- Three underbridges.
- One active travel road overbridge.
- One active travel river bridge.
- Two active travel / accommodation underpasses near Dromore Junction.
- Various culverts, gantries, environmental noise barriers and retaining wall structures.

**Active Travel:**

- Provision of active travel infrastructure: this includes connections to existing infrastructure and a new Park and Share / Cycle facility located at Dry Arch Junction as illustrated in (EIAR Drawing 4.1).

**Other Works:**

- Access roads.
- Provision of attenuation ponds, flood compensatory measures, watercourse diversions and associated drainage infrastructure.
- Provision of existing utility diversions and new utility infrastructure.
- Provision of landscape planting, signage, lighting, accommodation works ancillary to the construction and operation of the Proposed Development.

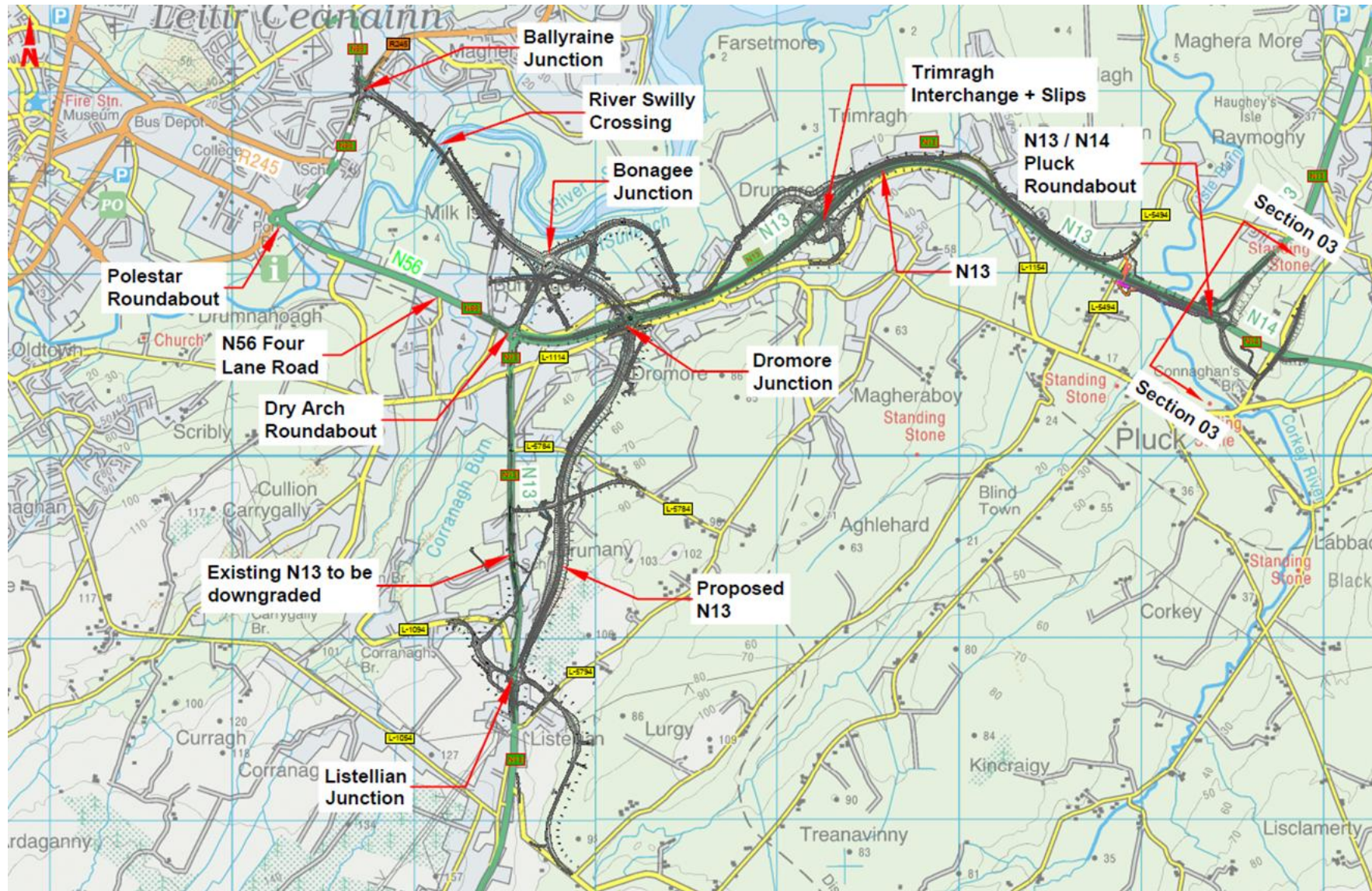


Figure 3.3: Section 2 Proposed Development

## 3.4 Section 3 N14 Manorcunningham to Lifford/Strabane/A5 Link

### 3.4.1 Overview

Section 3 extends from the Pluck Roundabout (N13/N14 junction at Manorcunningham, interface with Section 2) to Lifford. It will replace the existing N14 linking Letterkenny to Lifford/ Strabane. The existing Pluck Roundabout in the townland of Raymoghly, where the existing N13 and N14 meet, will be replaced by a new roundabout and link to the proposed Section 2 approximately 100 m to the west. Section 3 will meet the existing N15 to the south of Lifford at a new roundabout, the N14/N15 Lifford Junction, in the townland of Curragalane. At this junction there will be a proposed new cross border link with the A5 (N14/N15 to A5 Link), that will connect to the proposed Trunk Road T3 in Northern Ireland which in turn connects to the proposed A5 Western Transport Corridors (WTC) in Strabane, Co. Tyrone.

In the northern part of Section 3, the Pluck and Labbadish streams flow into the Leslie Hill Stream which in turn flows into Lough Swilly. In the southern part of Section 3, the Swilly Burn and Deelee River separately flows through the Project boundary before meeting the River Foyle to the north of Lifford. The River Finn (SAC) flows northeast, parallel and to the east of the existing N15 to Lifford. The Proposed Development includes a new proposed clear-span crossing of the River Finn to the south of Lifford, the N14/N15 to A5 Link. The River Foyle and Tributaries SAC in Northern Ireland is contiguous with the River Finn SAC in Ireland.

### 3.4.2 Design

The Section 3 mainline route corridor is approximately 18.1 km long and extends from approximately 0.3 km west of the proposed N13/N14 Pluck Roundabout (interface with Section 2) to the border with Northern Ireland on the River Finn to the south of Lifford. This section includes the cross border link with the A5 (N14/N15 to A5 Link), that will connect to a proposed Trunk Road T3 in Northern Ireland which will in turn connect to the proposed A5 WTC to be pursued by Roads Service Northern Ireland (RSNI).

The interfaces with the existing road network include:

- N13 at Manorcunningham (interface with Section 2) (N13/N14 Pluck Roundabout).
- “Left-in Left-out” northbound connection to existing N14 Local Road at Drumoghill (Drumoghill Junction).
- “Left-in Left-out” southbound connection to existing N14 at Doorable (Drumoghill Junction).
- R236 / existing N14 east of Raphoe (R236 Ballinalecky Junction).
- Existing L2444 local road, to be upgraded to the R264 at Ballinadrait and existing N14 at Rossgair (Balindrait Junction).
- Tie-in to N15 south of Lifford.
- N14/N15 to A5 Link.

Section 3 including the nomenclature given to its major components is illustrated below in **Figure 3.4**. For more detail on Section 3 including the alignment please refer to the general arrangement EIAR Drawings 4.3, sheets 1-10, in **Appendix 1** and the Project Description in **Appendix 2**.

The Proposed Development can be summarised under the following elements. The lengths of the individual sections are approximate.

#### Roads:

- 17.5 km of Type 2 Divided Road extending from Manorcunningham (N13/N14 Pluck Roundabout) to Lifford (N14/N15 Lifford Junction) (EIAR Drawing 4.3, sheets 1 to sheet 10 of 10).

- 0.3 km of Type 1 Dual Carriageway (realigned and improved) extending from the proposed N13/N14 Pluck Roundabout westwards to the interface with Section 2 (EIAR Drawing 4.3, sheet 1 of 10).
- 0.3 km of Type 2 Divided Road extending from Lifford (N14/N15 Lifford Junction) to the Northern Ireland Border (N14/N15 to A5 Link Bridge) (EIAR Drawing 4.3, sheet 10 of 10).
- 15.9 km of Type 1, Type 2 and Type 3 Single Carriageway roads being realigned as part of the Proposed Development.

**Junctions:**

- N13/ N14 Pluck Roundabout.
- Drumoghill Junction (northbound left in/left out at Drumoghill and southbound left in/left out at Doorable).
- R236 Ballinalecky Junction.
- Ballindrait Junction.
- N14/N15 Lifford Junction.

**Structures:**

- 1 No. 260 m long, clear-span bridge over the River Finn, south of Lifford (the N14/N15 to A5 Link).
- 2 No. river bridges.
- 7 No. road overbridges.
- 8 No. road underbridges.
- 2 No. active travel underpasses.
- 4 No. accommodation underpasses.
- 1 No. active travel overbridge.
- Various culverts, gantries, and environmental noise barriers.

**Active Travel**

- Provision of active travel infrastructure: this includes connections to existing infrastructure and four new Park and Share / Cycle facility located at Pluck Roundabout, R236 Ballinalecky Junction, Ballindrait Junction and N14/N15 Lifford Junction. as illustrated in EIAR Drawing 4.3.

**Other Works:**

- Access roads and accommodation roads.
- Provision of attenuation ponds, flood compensatory measures, watercourse diversions and associated drainage infrastructure.
- Provision of existing utility diversions and new utility infrastructure.
- Provision of landscape planting, signage, lighting, accommodation works ancillary to the construction and operation of the Proposed Development.

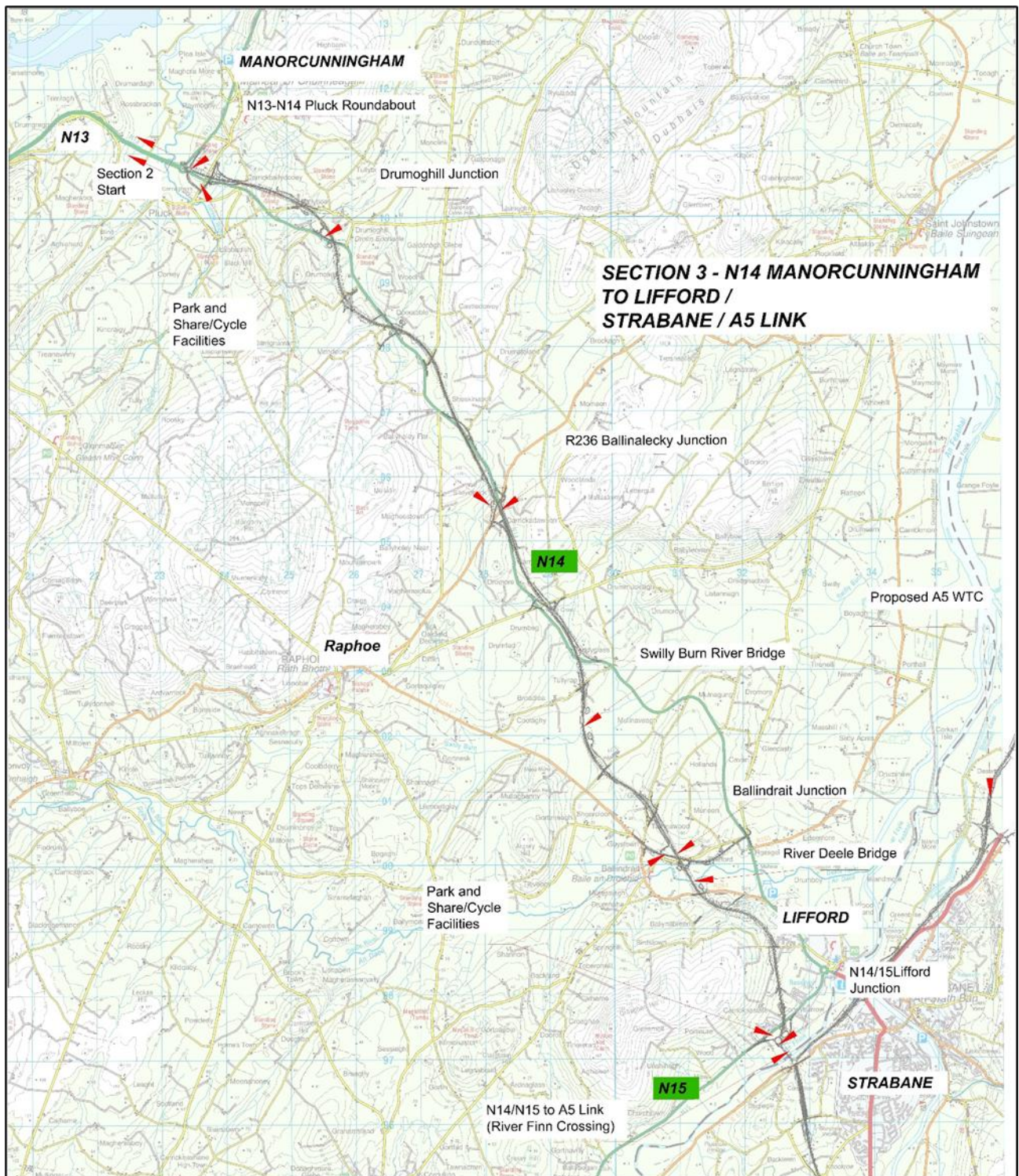


Figure 3.4: Section 3 Proposed Development

## 4 ECOLOGY BASELINE

### 4.1 Methodology

#### 4.1.1 Desk Study

A desk study was completed in order to identify relevant European sites and information regarding their QI, conservation objectives etc. In addition, while the distributions of the QI habitats for which the sites are selected are typically restricted to the individual site, QI/ SCI species can range well beyond the boundaries of the site e.g., bird species or otter. The desk study established, from available publications and other publicly available resources, the known distributions and potential presence of such species beyond the defined boundaries of the European sites for which they are listed as QIs/SCIs. The exercise collated information available from the sources summarised in **Table 4-1**. The latest update of the desktop study baseline was carried out in October 2025.

**Table 4-1: Summary of Desktop Resources**

| Title   | Publication year                                     | Author/Source  |
|---|--|--|
| <i>Map of Irish Wetlands</i>  | 2025   | <i>Wetlands of Ireland</i> <sup>2</sup>  |
| <i>Sampling Fish for the Water Framework Directive (WFD) Summary Report 2024</i>  | 2025   | <i>Inland Fisheries Ireland</i> <sup>3</sup>   |
| <i>Current and Historical mapping</i>   | 2025   | <i>Tailte Éireann</i> <sup>4</sup>   |
| <i>Bedrock, subsoil and groundwater data and mapping</i>  | 2025   | <i>Geological Survey of Ireland</i> <sup>5</sup>   |
| <i>Surface and ground water quality status, and river catchment boundaries</i>  | 2025   | <i>EPA</i> <sup>6</sup>  |
| <i>NPWS designated areas spatial data</i>   | 2025   | <i>National Parks and Wildlife Services (NPWS)</i> <sup>7</sup>  |
| <i>Distribution records for protected species and habitats (including suitability index for bats) held online by the National Biodiversity Data Centre (NBDC)<sup>8</sup>, NPWS, UCD, and the Heritage Council.</i> | 2011-2025  | NBDC<br>NPWS<br>Heritage Council<br>Lundy <i>et al.</i> (2011).  |
| <i>Checklists of protected and threatened species in Ireland</i>  | 2019   | Nelson <i>et al.</i> (2019)  |
| <i>Red Lists</i>  | 2006, 2009, 2010, 2011, 2012, 2016, 2019, 2020, 2021 | Fitzpatrick <i>et al.</i> (2006); Marnell <i>et al.</i> (2009); Regan <i>et al.</i> (2010); King <i>et al.</i> (2011); Clarke <i>et al.</i> (2016); Wyse Jackson |

<sup>2</sup> Available at <http://www.wetlandsurveysireland.com/wetlands/map-of-irish-wetlands--/>. Accessed December 2025.

<sup>3</sup> Available at [https://www.fisheriesireland.ie/sites/default/files/2025-07/wfd\\_summary\\_report\\_2024.pdf](https://www.fisheriesireland.ie/sites/default/files/2025-07/wfd_summary_report_2024.pdf). Accessed December 2025.

<sup>4</sup> Available at <https://www.geohive.ie/>. Accessed December 2025.

<sup>5</sup> Available at <https://www.gsi.ie/en-ie/data-and-maps/Pages/default.aspx>. Accessed December 2025.

<sup>6</sup> Available at <https://gis.epa.ie/EPAMaps/>. Accessed December 2025.

<sup>7</sup> Available at <https://www.npws.ie/maps-and-data/designated-site-data/sac-and-spa-datasheets-downloads>. Accessed December 2025.

<sup>8</sup> Accessed December 2025. The records for 10 km grid squares that the Proposed Development overlaps were consulted to investigate the likelihood of the presence of rare, protected, and threatened species within the Proposed Development boundary of such species (mammals, fish, invertebrates, amphibians, birds, reptiles, plants, etc.). The following records were excluded from this assessment:

- Plant records greater than 25 years old;
- Mobile animal species records greater than 10 years old (bird species greater than 15 years old);
- Records of species identified as Extinct in the Wild (EW), Regionally Extinct (RE), or Extinct (EX) in national red lists and records of birds;
- Any species listed as Not Evaluated (NE), Data Deficient (DD), Least Concern (LC), or Near Threatened (NT) in national red lists; and
- Any species listed as being on the Waiting List in national red lists.

| Title   | Publication year | Author/Source   |
|---|------------------|---|
|   |                  | <i>et al.</i> (2016); Marnell <i>et al.</i> (2019); Gilbert <i>et al.</i> (2021). |
| <i>Status of EU Protected Habitats and Species in Ireland, Volume 1, 2, and 3</i>   | 2019             | NPWS (2019a, b, c)  |
| <i>Interpretation Manual of European Union Habitats</i>   | 2013             | European Commission <sup>9</sup>  |
| <i>Ireland's 4<sup>th</sup> National Biodiversity Action Plan 2023-2030</i>   | 2024             | Department of Housing, Local Government and Heritage (DHLGH)                      |
| <i>Donegal Development Plan 2024-2030</i>   | 2024             | Donegal County Council (DCC, 2024a) <sup>10</sup>                                 |
| Donegal County Council Climate Action Plan 2024-2029  | 2024             | Donegal County Council (DCC, 2024b) <sup>11</sup>                                 |
| County Donegal Heritage Plan (2023-2030)  | 2024             | Donegal County Council (DCC, 2024c) <sup>12</sup>                                 |
| Ramsar Sites  | 2023             | Irish Ramsar Wetlands Committee <sup>13</sup>                                     |
| Protected Sites in Ireland (National Heritage Areas (NHA), proposed National Heritage Areas (pNHA), Nature reserves, wildfowl sanctuaries, and OSPAR sites) | 2019             | NPWS <sup>14</sup>  |

### 4.1.2 Field Survey

In addition to the desktop studies, a number of habitat and protected species surveys of the Proposed Development site have been undertaken by RPS ecologists on various dates and across seasons between 2017 and Q3 2025. Surveys confirmed that there was no presence of habitats with the affinity to Annex I habitat outside the European sites, within the footprint of the Proposed Development, however surveys confirmed a number of invasive alien plant species (IAPS) located within and adjacent to the Proposed Development. Comprehensive bird surveys have also been undertaken as well as comprehensive aquatic surveys and fisheries assessments.

### 4.1.3 Limitations

The receiving environment (i.e. baseline condition) may naturally vary through seasons and between years (NRA, 2008). This limitation is acknowledged and considered as part of this report.

Sources of desk study information are neither exhaustive nor necessarily easily available, and every effort was made to obtain ecological data in the public domain to inform the description of the receiving environment and its assessment. This limitation to the assessment is acknowledged and incorporated into the assessment.

## 4.2 Relevant European Sites

The identification of relevant European sites to be included in this report was based on the identification of the Zone of Influence (ZoI) of the Proposed Development, a Source-Pathway-Receptor (S-P-R) model of effects, and the likely significance of any identified effects.

As stated in Section 2.2, former Natura 2000 network sites in Northern Ireland, have been included as still being part of the EU Natura 2000 network within this assessment for completeness and out of an abundance of caution.

<sup>9</sup> Accessed at [Document - Interpretation Manual of European Union Habitats, version EUR 27](#). Accessed December 2025.

<sup>10</sup> Available at <https://www.donegaldevplan.ie/>. Accessed December 2025.

<sup>11</sup> Available at <https://www.donegalcoco.ie/media/s2cpk5y5/climate-action-plan-english-web-version-v2-1.pdf>. Accessed December 2025.

<sup>12</sup> Available at <https://www.donegalculture.ie/media/4wxnwcure/gh61-county-donegal-heritage-plan-2023-2030-final-1.pdf>. Accessed December 2025.

<sup>13</sup> Available <https://www.irishwetlands.ie/irish-ramsar-sites/> (2019).

<sup>14</sup> Available at <https://www.npws.ie/protected-sites>. Accessed December 2025.

### 4.2.1 Source-Pathway-Receptor Model

The likely effects of the Proposed Development on any European site have been assessed using a source-pathway-receptor model, where:

- A 'source' is defined as the individual element of the proposed works that has the potential to impact on a European Site, its qualifying features, and its conservation objectives.
- A 'pathway' is defined as the means or route by which a source can affect the ecological receptor.
- A 'receptor' is defined as the QIs of SACs or the SCIs of SPAs for which conservation objectives have been set for the European Sites being screened.

A source-pathway-receptor model is a standard tool used in environmental assessment. In order for an effect to be likely, all three elements of this mechanism must be in place. The absence or removal of one of the elements of the mechanism results in no likelihood for the effect to occur. The source-pathway-receptor model was used to identify European sites and their QIs/SCIs with potential links to the Proposed Development. These are termed as 'relevant' European sites/QIs/SCIs throughout this report.

### 4.2.2 Zone of Influence

The proximity of the Proposed Development to European sites and, more importantly, QIs/SCIs of the European sites, is of importance when identifying potentially likely significant effects (LSEs). A conservative approach has been used, which minimises the risk of overlooking distant or obscure effect pathways, while also avoiding reliance on buffer zones (e.g., 15 km), within which all European sites should be considered. This approach assesses the complete list of all QIs/SCIs of European sites in Ireland (i.e., potential receptors), instead of listing European sites within buffer zones. This follows Irish departmental guidance on AA:

*“For projects, the distance could be much less than 15 km, and in some cases less than 100m, but this must be evaluated on a case-by-case basis with reference to the nature, size and location of the project, and the sensitivities of the ecological receptors, and the potential for in combination effects” (DEHLG, 2010a; p.32, para 1).*

*“The zone of influence of a Proposed Development is the geographical area over which it could affect the receiving environment in a way that could have significant effects on the Qualifying Interests of a European Site. This should be established on a case-by-case basis using the Source-Pathway-Receptor framework and not by arbitrary distances (such as 15 km).” (OPR, 2021; p.8).*

Following the guidance set out by the NRA (2009), the Proposed Development has been evaluated based on an identified Zol with regard to the potential impact pathways to ecological features (e.g., mobile and static). The Zol of the Proposed Development on mobile species (e.g., birds, mammals, and fish), and static species and habitats (e.g., saltmarshes, woodlands, and flora) is considered differently. Mobile species have a 'range' outside of the European site in which they are QI/SCI. The range of mobile QI/SCI species varies considerably, from several metres (e.g., in the case of whorl snails *Vertigo* spp.), to hundreds of kilometres (in the case of migratory wetland birds). Whilst static species and habitats are generally considered to have Zols within close proximity of the Proposed Development, they can be significantly affected at considerable distances from an effect source; for example, where an aquatic QI habitat or plant is located many kilometres downstream from a pollution source.

Hydrological linkages between the Proposed Development and a European site (and their QIs/SCIs) can occur over significant distances; however, any effect will be site specific depending on the receiving water environment and nature of the potential impact. As a precautionary measure, a reasonable worst-case Zol for water pollution from the Proposed Development area is considered to be the surface water catchment. In this report, the surface water catchment is defined at the scale of Catchment Management Unit (CMU), as adopted in the Water Action Plan 2024 A River Basin Management Plan for Ireland 2022-2027 (DEHLG, 2024). The Zol then extends into the first coastal water body.

Hydrogeological linkages between the Proposed Development and European sites (and their QIs/SCIs) are highly variable based on the characteristics of the groundwater body, methodologies used, and the presence

of groundwater-dependant habitats and species. As a precautionary measure, a reasonable worst-case Zol for water pollution from the Proposed Development area is considered to capture the entirety of each groundwater body the Proposed Development area overlies.

### 4.2.3 European Sites

The desk study has identified 24 European sites within a potential Zol of the Proposed Development (see **Appendix 1 AA Screening Drawings: (Drawing 04 European Designated Sites)**). European sites identified, their respective QIs/SCIs, Conservation Objectives (COs), and a measure of the distance and direction of the European sites from the Proposed Development and their hydrological and hydrogeological connectivity are detailed in **Table 4-2**.

**Table 4-2: European Sites Located Within the Potential Zone of Influence of the Proposed Development**

| European Site (Code)  | Qualifying Interest(s) (*Priority Habitat) and Special Conservation Interest(s)   | Conservation Objective(s)   | Distance and Direction from Proposed Development (closest point to Proposed Development boundary) <sup>15</sup>  |
|---|---|---|--|
| Lough Swilly SAC (002287) (NPWS, 2011a –Version 1)                    | [1130] Estuaries<br>[1150] Coastal lagoons*<br>[1330] Atlantic salt meadows ( <i>Glauco-Puccinellietalia maritima</i> )<br>[1351] Harbour Porpoise ( <i>Phocoena phocoena</i> )<br>[1355] Otter ( <i>Lutra lutra</i> )<br>[6410] <i>Molinia</i> meadows on calcareous, peaty or clayey-silt-laden soils ( <i>Molinion caeruleae</i> )<br>[91A0] Old sessile oak woods with <i>Ilex</i> and <i>Blechnum</i> in the British Isles | To maintain or restore the favourable conservation condition of the species and habitats listed as Qualifying Interests for this SAC. | <b>Straight-Line Distance:</b> 0 km (located within the Proposed Development)<br><b>Hydrological Connectivity:</b> Yes 0 m (located within the Proposed Development)<br><b>Hydrogeological Connectivity:</b> likely hydrogeological connectivity via the Swilly Ground Water Body (GWB) and Manor Cunningham GWB |
| River Finn SAC (002301) (NPWS, 2017 – Version 1)                      | [1106] Salmon ( <i>Salmo salar</i> )<br>[1355] Otter ( <i>Lutra lutra</i> )<br>[3110] Oligotrophic waters containing very few minerals of sandy plains ( <i>Littorelletalia uniflorae</i> )<br>[4010] Northern Atlantic wet heaths with <i>Erica tetralix</i><br>[7130] Blanket bogs (* if active bog)<br>[7140] Transition mires and quaking bogs  | To maintain or restore the favourable conservation condition of the habitats and species listed as Qualifying Interests for this SAC. | <b>Straight-Line Distance:</b> 0 km (located within the Proposed Development)<br><b>Hydrological Connectivity:</b> Yes 0 km (located within the Proposed Development)<br><b>Hydrogeological Connectivity:</b> likely hydrogeological connectivity via the Ballybofey GWB   |
| River Foyle and Tributaries NI SAC (UK0030320) (NIEA 2024 -Version 4) | [3260]: Water courses of plain to montane levels with the <i>Ranunculion fluitantis</i> and <i>Callitriche-Batrachion</i> vegetation  | To maintain (or restore where appropriate) the <ul style="list-style-type: none"> <li>Atlantic Salmon <i>Salmo salar</i></li> </ul>   | <b>Straight-Line Distance:</b> 0 km (located within the Proposed Development)<br><b>Hydrological Connectivity:</b> Yes 0 m   |

<sup>15</sup> Note: N= North; South =South; E = East; W = West; NE = Northeast; NW = Northwest; SE = Southeast; SW = Southwest.

| European Site (Code)                                | Qualifying Interest(s) (*Priority Habitat) and Special Conservation Interest(s)   | Conservation Objective(s)  | Distance and Direction from Proposed Development (closest point to Proposed Development boundary) <sup>15</sup>  |
|---|---|--|--|
|   | <p>[1106]: <i>Salmo salar</i> (Atlantic Salmon)</p> <p>[1355] : <i>Lutra lutra</i> (Otter)</p> <p><b>(Notable Species<sup>16</sup>)</b></p> <p><i>Petromyzon marinus</i> (Sea Lamprey) [1095]</p> <p><i>Lampetra fluviatilis</i> (River Lamprey) [1099]</p> <p><i>Lampetra planeri</i> (Brook Lamprey) [1096]</p> <p><i>Margaritifera margaritifera</i> (Freshwater Pearl Mussel) [1029]</p>  | <ul style="list-style-type: none"> <li>Water courses of plain to montane levels with the <i>Ranunculus fluitans</i> and <i>Callitriche-Batrachion</i> vegetation</li> <li>Otter <i>Lutra lutra</i> to favourable condition.</li> </ul> | <p>(located within the Proposed Development)</p> <p><b>Hydrogeological Connectivity:</b> likely hydrogeological connectivity via the Swilly GWB and Manor Cunningham GWB</p>   |
| Leannan River SAC (002176) (NPWS, 2019 – Version 1) | <p>[1029] Freshwater Pearl Mussel (<i>Margaritifera margaritifera</i>)</p> <p>[1106] Salmon (<i>Salmo salar</i>)</p> <p>[1355] Otter (<i>Lutra lutra</i>)</p> <p>[1833] Slender Naiad (<i>Najas flexilis</i>)</p> <p>[3110] Oligotrophic waters containing very few minerals of sandy plains (<i>Littorelletalia uniflorae</i>)</p> <p>[3130] Oligotrophic to mesotrophic standing waters with vegetation of the <i>Littorelletea uniflorae</i> and/or <i>Isoeto-Nanojuncetea</i></p> | To maintain or restore the favourable conservation condition of the habitats and species listed as Qualifying Interests for this SAC.  | <p><b>Straight-Line Distance:</b> approx. 7.2 km (N)</p> <p><b>Hydrological Connectivity:</b> no hydrological connectivity</p> <p><b>Hydrogeological Connectivity:</b> potential hydrogeological connectivity via the Lough Swilly GWB</p> |
| Ballyarr Wood SAC (000116) (NPWS, 2021 – Version 1) | [91A0] Old sessile oak woods with <i>Ilex</i> and <i>Blechnum</i> in the British Isles  | To maintain the favourable conservation condition of Old sessile oak woods with <i>Ilex</i> and <i>Blechnum</i> in the British Isles   | <p><b>Straight-Line Distance:</b> approx. 7.6 km (N)</p> <p><b>Hydrological Connectivity:</b> no hydrological connectivity</p> <p><b>Hydrogeological Connectivity:</b> potential hydrogeological connectivity via the Lough Swilly GWB</p> |
| Moneygal Bog SAC (UK0030211 (NIEA 2015—Version 2)   | [7110] Active Raised Bog  | To maintain (or restore where appropriate) the active raised bog to favourable condition.  | <p><b>Straight-Line Distance:</b> approx. 11.5km (SW)</p> <p><b>Hydrological Connectivity:</b> no hydrological connectivity</p>  |

<sup>16</sup> Species are not QIs of the SAC, however they are listed within the Conservation Objectives Documents of the site.

| European Site (Code)  | Qualifying Interest(s) (*Priority Habitat) and Special Conservation Interest(s)   | Conservation Objective(s)   | Distance and Direction from Proposed Development (closest point to Proposed Development boundary) <sup>15</sup>  |
|---|---|---|--|
| Cloghernagore Bog and Glenveagh National Park SAC (002047) (NPWS, 2017 – Version 1) | <p>[1029] Freshwater Pearl Mussel (<i>Margaritifera margaritifera</i>)</p> <p>[1106] Salmon (<i>Salmo salar</i>)</p> <p>[1355] Otter (<i>Lutra lutra</i>)</p> <p>[1421] Killarney Fern (<i>Trichomanes speciosum</i>)</p> <p>[3110] Oligotrophic waters containing very few minerals of sandy plains (<i>Littorelletalia uniflorae</i>)</p> <p>[3260] Water courses of plain to montane levels with the <i>Ranunculion fluitantis</i> and <i>Callitricho-Batrachion</i> vegetation</p> <p>[4010] Northern Atlantic wet heaths with <i>Erica tetralix</i></p> <p>[4030] European dry heaths</p> <p>[4060] Alpine and Boreal heaths</p> <p>[6410] <i>Molinia</i> meadows on calcareous, peaty or clayey-silt-laden soils (<i>Molinion caeruleae</i>)</p> <p>[7130] Blanket bogs (* if active bog)</p> <p>[7150] Depressions on peat substrates of the <i>Rhynchosporion</i></p> <p>[91A0] Old sessile oak woods with <i>Ilex</i> and <i>Blechnum</i> in the British Isles</p> | To maintain or restore the favourable conservation condition of the habitats and species listed as Qualifying Interests for this SAC. | <p><b>Hydrogeological Connectivity:</b> no hydrogeological connectivity</p> <p><b>Straight-Line Distance:</b> approx. 14 km (NW)</p> <p><b>Hydrological Connectivity:</b> no hydrological connectivity</p> <p><b>Hydrogeological Connectivity:</b> potential hydrogeological connectivity via the Lough Swilly GWB</p> |
| Meentygrannagh Bog SAC (000173) (NPWS, 2017 – Version 1)                            | <p>[6216] Slender Green Feather-moss (<i>Hamatocaulis vernicosus</i>)</p> <p>[7130] Blanket bogs (* if active bog)</p> <p>[7140] Transition mires and quaking bogs</p> <p>[7230] Alkaline fens</p>  | To maintain or restore the favourable conservation condition of the habitats listed as Qualifying Interests for this SAC.             | <p><b>Straight-Line Distance:</b> approx. 13.7 km (NW)</p> <p><b>Hydrological Connectivity:</b> no hydrological connectivity</p> <p><b>Hydrogeological Connectivity:</b> potential hydrogeological connectivity via the Lough Swilly GWB</p>   |
| Mulroy Bay SAC (002159) (NPWS, 2012 – Version 1.0)                                  | <p>[1140] Mudflats and sandflats not covered by seawater at low tide</p> <p>[1160] Large shallow inlets and bays</p>  | To maintain or restore the favourable conservation condition of the habitats and species listed as Qualifying Interests for this SAC. | <p><b>Straight-Line Distance:</b> approx. 15.6 km (N)</p> <p><b>Hydrological Connectivity:</b> no hydrological connectivity</p>  |

| European Site (Code)  | Qualifying Interest(s) (*Priority Habitat) and Special Conservation Interest(s)   | Conservation Objective(s)   | Distance and Direction from Proposed Development (closest point to Proposed Development boundary) <sup>15</sup>   |
|---|---|---|---|
|   | [1170] Reefs<br>[1355] Otter ( <i>Lutra lutra</i> )   |   | <b>Hydrogeological Connectivity:</b> no hydrogeological connectivity  |
| Croaghonagh Bog SAC (000129) (NPWS, 2017 – Version 1)                   | [7130] Blanket bogs (* if active bog)   | To restore the favourable conservation condition of Blanket bogs (* if active bog)  | <b>Straight-Line Distance:</b> approx. 5.1 km (SW)<br><b>Hydrological Connectivity:</b> no hydrological connectivity<br><b>Hydrogeological Connectivity:</b> no hydrogeological connectivity  |
| Lough Eske and Ardnamona Wood SAC (000163) (NPWS, 2019 – Version 1)     | [1029] Freshwater Pearl Mussel ( <i>Margaritifera margaritifera</i> )<br>[1106] Salmon ( <i>Salmo salar</i> )<br>[1421] Killarney Fern ( <i>Trichomanes speciosum</i> )<br>[3110] Oligotrophic waters containing very few minerals of sandy plains ( <i>Littorelletalia uniflorae</i> )<br>[7220] Petrifying springs with tufa formation ( <i>Cratoneurion</i> )*<br>[91A0] Old sessile oak woods with <i>Ilex</i> and <i>Blechnum</i> in the British Isles | To maintain or restore the favourable conservation condition of the habitats listed as Qualifying Interests for this SAC. | <b>Straight-Line Distance:</b> approx. 12.6 km (SW)<br><b>Hydrological Connectivity:</b> no hydrological connectivity<br><b>Hydrogeological Connectivity:</b> no hydrogeological connectivity |
| Meenaguse Scragh SAC (001880) (NPWS, 2019 – Version 1)                  | [4010] Northern Atlantic wet heaths with <i>Erica tetralix</i>  | To maintain the favourable conservation condition of Northern Atlantic wet heaths with <i>Erica tetralix</i>              | <b>Straight-Line Distance:</b> approx. 17.2 km (W)<br><b>Hydrological Connectivity:</b> no hydrological connectivity<br><b>Hydrogeological Connectivity:</b> no hydrogeological connectivity  |
| Lough Nillan Bog (Carrickatlieve) SAC (000165) (NPWS, 2016 – Version 1) | [3110] Oligotrophic waters containing very few minerals of sandy plains ( <i>Littorelletalia uniflorae</i> )<br>[7130] Blanket bogs (* if active bog)   | To maintain or restore the favourable conservation condition of the habitats listed as Qualifying Interests for this SAC. | <b>Straight-Line Distance:</b> approx. 19.3 km (W)<br><b>Hydrological Connectivity:</b> no hydrological connectivity<br><b>Hydrogeological Connectivity:</b> no hydrogeological connectivity  |
| Dunragh Loughs/Pettigo Plateau SAC (001125) (NPWS, 2017 – Version 1)    | [4010] Northern Atlantic wet heaths with <i>Erica tetralix</i><br>[7130] Blanket bogs (* if active bog)   | To restore the favourable conservation condition of the habitats listed as Qualifying Interests for this SAC.             | <b>Straight-Line Distance:</b> approx. 15.5 km (S)<br><b>Hydrological Connectivity:</b> no hydrological connectivity<br><b>Hydrogeological Connectivity:</b> no                               |

| European Site (Code)                                       | Qualifying Interest(s) (*Priority Habitat) and Special Conservation Interest(s)   | Conservation Objective(s)  | Distance and Direction from Proposed Development (closest point to Proposed Development boundary) <sup>15</sup>  |
|--|---|--|--|
|  |   |  | hydrogeological connectivity   |
| Lough Nageage SAC (002135) (NPWS, 2021 – Version 1)        | [1092] White-clawed crayfish ( <i>Austropotamobius pallipes</i> )   | To maintain the favourable conservation condition of White-clawed Crayfish   | <b>Straight-Line Distance:</b> approx. 19.3 km (S)<br><b>Hydrological Connectivity:</b> no hydrological connectivity<br><b>Hydrogeological Connectivity:</b> no hydrogeological connectivity   |
| Meenaguse/Ardbane Bog SAC (000172) NPWS, 2017 – Version 1) | [7130] Blanket bogs (* if active bog)   | To restore the favourable conservation condition of Blanket bogs (* if active bog)   | <b>Straight-Line Distance:</b> approx. 19.2 km (W)<br><b>Hydrological Connectivity:</b> no hydrological connectivity<br><b>Hydrogeological Connectivity:</b> no hydrogeological connectivity   |
| Lough Swilly SPA (004075) (NPWS, 2011a – Version 1)        | [A005] Great Crested Grebe ( <i>Podiceps cristatus</i> )<br>[A028] Grey Heron ( <i>Ardea cinerea</i> )<br>[A038] Whooper Swan ( <i>Cygnus cygnus</i> )<br>[A043] Greylag Goose ( <i>Anser anser</i> )<br>[A048] Shelduck ( <i>Tadorna tadorna</i> )<br>[A050] Wigeon ( <i>Anas penelope</i> )<br>[A052] Teal ( <i>Anas crecca</i> )<br>[A053] Mallard ( <i>Anas platyrhynchos</i> )<br>[A056] Shoveler ( <i>Anas clypeata</i> )<br>[A062] Scaup ( <i>Aythya marila</i> )<br>[A067] Goldeneye ( <i>Bucephala clangula</i> )<br>[A069] Red-breasted Merganser ( <i>Mergus serrator</i> )<br>[A125] Coot ( <i>Fulica atra</i> )<br>[A130] Oystercatcher ( <i>Haematopus ostralegus</i> )<br>[A143] Knot ( <i>Calidris canutus</i> )<br>[A149] Dunlin ( <i>Calidris alpina</i> )<br>[A160] Curlew ( <i>Numenius arquata</i> )<br>[A162] Redshank ( <i>Tringa totanus</i> )<br>[A164] Greenshank ( <i>Tringa nebularia</i> ) | To maintain the favourable conservation condition of the species and their supporting habitat listed as Special Conservation Interests for this SPA. | <b>Straight-Line Distance:</b> 0 km (located within the proposed development)<br><b>Hydrological Connectivity:</b> Yes 0 m (located within the Proposed Development)<br><b>Hydrogeological Connectivity:</b> likely hydrogeological connectivity via the Swilly GWB and Manor Cunningham GWB |

| European Site (Code)                                    | Qualifying Interest(s)<br>(*Priority Habitat) and<br>Special Conservation<br>Interest(s)   | Conservation Objective(s)   | Distance and Direction<br>from Proposed<br>Development (closest<br>point to Proposed<br>Development<br>boundary) <sup>15</sup>  |
|---|--|---|---|
|   | [A179] Black-headed Gull<br>( <i>Chroicocephalus<br/>ridibundus</i> )  |   |   |
|   | [A182] Common Gull ( <i>Larus<br/>canus</i> )  |   |   |
|   | [A191] Sandwich Tern ( <i>Sterna<br/>sandvicensis</i> )  |   |   |
|   | [A193] Common Tern ( <i>Sterna<br/>hirundo</i> )   |   |   |
|   | [A395] Greenland White-<br>fronted Goose ( <i>Anser<br/>albifrons flavirostris</i> )   |   |   |
|   | [A999] Wetlands  |   |   |
| Lough Foyle SPA<br>(004087) (NPWS, 2014 –<br>Version 1) | [A001] Red-throated Diver<br>( <i>Gavia stellata</i> )<br>[A005] Great Crested Grebe<br>( <i>Podiceps cristatus</i> )<br>[A037] Bewick's Swan<br>( <i>Cygnus columbianus<br/>bewickii</i> )<br>[A038] Whooper Swan<br>( <i>Cygnus cygnus</i> )<br>[A043] Greylag Goose ( <i>Anser<br/>anser</i> )<br>[A046] Light-bellied Brent<br>Goose ( <i>Branta bernicla<br/>hrota</i> )<br>[A048] Shelduck ( <i>Tadorna<br/>tadorna</i> )<br>[A050] Wigeon ( <i>Anas<br/>penelope</i> )<br>[A052] Teal ( <i>Anas crecca</i> )<br>[A053] Mallard ( <i>Anas<br/>platyrhynchos</i> )<br>[A063] Eider ( <i>Somateria<br/>mollissima</i> )<br>[A069] Red-breasted<br>Merganser ( <i>Mergus<br/>serrator</i> )<br>[A130] Oystercatcher<br>( <i>Haematopus ostralegus</i> )<br>[A140] Golden Plover<br>( <i>Pluvialis apricaria</i> )<br>[A142] Lapwing ( <i>Vanellus<br/>vanellus</i> )<br>[A143] Knot ( <i>Calidris canutus</i> )<br>[A149] Dunlin ( <i>Calidris alpina</i> )<br>[A157] Bar-tailed Godwit<br>( <i>Limosa lapponica</i> )<br>[A160] Curlew ( <i>Numenius<br/>arquata</i> ) | To maintain the favourable<br>conservation condition of the<br>species and their supporting<br>habitat listed as Special<br>Conservation Interests for this<br>SPA. | <b>Straight-Line Distance:</b><br>approx. 26.1 km (NE)<br><b>Hydrological<br/>Connectivity: Yes</b><br>approximately 35km<br>downstream<br><b>Hydrogeological<br/>Connectivity: No</b><br>hydrogeological<br>connectivity |

| European Site (Code)                                      | Qualifying Interest(s)<br>(*Priority Habitat) and<br>Special Conservation<br>Interest(s) | Conservation Objective(s)                           | Distance and Direction<br>from Proposed<br>Development (closest<br>point to Proposed<br>Development<br>boundary) <sup>15</sup>  |
|---|--|---|---|
| Lough Foyle SPA<br>(UK9020031) (NIEA 2015<br>– Version 4) | [A162] Redshank ( <i>Tringa<br/>totanus</i> )  | To maintain each feature in<br>favourable condition | <b>Straight-Line Distance:</b><br>approx. 26.1 km (NE)<br><b>Hydrological<br/>Connectivity: Yes</b><br>approximately 35km<br>downstream<br><b>Hydrogeological<br/>Connectivity: No</b><br>hydrogeological<br>connectivity |
|   | [A179] Black-headed Gull<br>( <i>Chroicocephalus<br/>ridibundus</i> )                    |   |   |
|   | [A182] Common Gull ( <i>Larus<br/>canus</i> )  |   |   |
|   | [A184] Herring Gull ( <i>Larus<br/>argentatus</i> )                                      |   |   |
|   | [A999] Wetlands  |   |   |
|   | [A005] Great Crested Grebe<br>( <i>Podiceps cristatus</i> )                              |   |   |
|   | [A037] Bewick's Swan<br>( <i>Cygnus columbianus<br/>bewickii</i> )                       |   |   |
|   | [A038] Whooper Swan<br>( <i>Cygnus cygnus</i> )  |   |   |
|   | [A043] Greylag Goose ( <i>Anser<br/>anser</i> )  |   |   |
|   | [A046] Light-bellied Brent<br>Goose ( <i>Branta bernicla<br/>hrota</i> )                 |   |   |
|   | [A048] Shelduck ( <i>Tadorna<br/>tadorna</i> )   |   |   |
|   | [A050] Wigeon ( <i>Anas<br/>penelope</i> )   |   |   |
|   | [A052] Teal ( <i>Anas crecca</i> )   |   |   |
|   | [A053] Mallard ( <i>Anas<br/>platyrhynchos</i> )   |   |   |
|   | [A063] Eider ( <i>Somateria<br/>mollissima</i> )   |   |   |
|   | [A069] Red-breasted<br>Merganser ( <i>Mergus<br/>serrator</i> )                          |   |   |
|   | [A130] Oystercatcher<br>( <i>Haematopus ostralegus</i> )                                 |   |   |
|   | [A140] Golden Plover<br>( <i>Pluvialis apricaria</i> )                                   |   |   |
|   | [A142] Lapwing ( <i>Vanellus<br/>vanellus</i> )  |   |   |
|   | [A143] Knot ( <i>Calidris canutus</i> )  |   |   |
|   | [A149] Dunlin ( <i>Calidris alpina</i> )   |   |   |
|   | [A157] Bar-tailed Godwit<br>( <i>Limosa lapponica</i> )                                  |   |   |
|   | [A160] Curlew ( <i>Numenius<br/>arquata</i> )  |   |   |
|   | [A162] Redshank ( <i>Tringa<br/>totanus</i> )  |   |   |
|   | [A999] Wetlands  |   |   |

| European Site (Code)   | Qualifying Interest(s) (*Priority Habitat) and Special Conservation Interest(s)   | Conservation Objective(s)   | Distance and Direction from Proposed Development (closest point to Proposed Development boundary) <sup>15</sup>   |
|--|---|---|---|
| Derryveagh and Glendowan Mountains SPA (004039) (NPWS, 2024 – Version 1) | [A001] Red-throated Diver ( <i>Gavia stellata</i> )<br>[A098] Merlin ( <i>Falco columbarius</i> )<br>[A103] Peregrine ( <i>Falco peregrinus</i> )<br>[A140] Golden Plover ( <i>Pluvialis apricaria</i> )<br>[A466] Dunlin ( <i>Calidris alpina schinzii</i> ) | To maintain or restore the favourable conservation condition of the species listed as Special Conservation Interests for this SPA.                              | <b>Straight-Line Distance:</b> approx. 12.8 km (NW)<br><b>Hydrological Connectivity:</b> no hydrological connectivity<br><b>Hydrogeological Connectivity:</b> potential hydrogeological connectivity via the Lough Swilly GWB |
| Lough Fern SPA (004060) (NPWS, 2025 -- Version 1)                        | [A059] Pochard ( <i>Aythya ferina</i> )<br>[A999] Wetlands  | To maintain or restore the favourable conservation condition of the species and their supporting habitat listed as Special Conservation Interests for this SPA. | <b>Straight-Line Distance:</b> approx. 15.7 km (N)<br><b>Hydrological Connectivity:</b> no hydrological connectivity<br><b>Hydrogeological Connectivity:</b> potential hydrogeological connectivity via the Lough Swilly GWB  |
| Lough Nillan Bog SPA (004110) (NPWS, 2025 – Version 1)                   | [A098] Merlin ( <i>Falco columbarius</i> )<br>[A140] Golden Plover ( <i>Pluvialis apricaria</i> )<br>[A395] Greenland White-fronted Goose ( <i>Anser albifrons flavirostris</i> )<br>[A466] Dunlin ( <i>Calidris alpina schinzii</i> )                        | To maintain or restore the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA:                         | <b>Straight-Line Distance:</b> approx. 19.3 km (W)<br><b>Hydrological Connectivity:</b> no hydrological connectivity<br><b>Hydrogeological Connectivity:</b> no hydrogeological connectivity                                  |
| Lough Derg (Donegal) SPA (004057) (NPWS, 2025 – Version 1)               | [A183] Lesser Black-backed Gull ( <i>Larus fuscus</i> )<br>[A184] Herring Gull ( <i>Larus argentatus</i> )  | To maintain or restore the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA:                         | <b>Straight-Line Distance:</b> approx. 16.5 km (S)<br><b>Hydrological Connectivity:</b> no hydrological connectivity<br><b>Hydrogeological Connectivity:</b> no hydrogeological connectivity                                  |
| Pettigo Plateau Nature Reserve SPA (004099) (NPWS, 2025 – Version 1)     | [A395] Greenland White-fronted Goose ( <i>Anser albifrons flavirostris</i> )  | To maintain or restore the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA:                         | <b>Straight-Line Distance:</b> approx. 18 km (SW)<br><b>Hydrological Connectivity:</b> no hydrological connectivity<br><b>Hydrogeological Connectivity:</b> no hydrogeological connectivity                                   |

## 4.3 Summary of Relevant Receptors

The results from the desk study and the field surveys have been broken down into a section-by-section appraisal of the relevant receptors as described in the following sections.

### 4.3.1 Section 1

#### 4.3.1.1 Terrestrial Habitat

The dominant habitat within Section 1 was improved agricultural grassland (GA1), followed by wet grassland (GS4), interspersed with areas of road and residential dwellings (BL3 buildings and artificial surfaces). These grasslands were bounded by hedgerows (WL1), treelines (WL2), and grassy verges (GS2) habitats.

The north of the Proposed Development boundary is composed of improved agricultural grassland interspersed with areas of wet grassland. Scattered patches of broadleaf woodland (WD1) are located throughout the landscape, with occasional tracts of conifer woodland (WD4). There are significant areas of broadleaf woodlands at Drumboe and Dunwiley.

Six depositing watercourses (FW2) cross the Proposed Development boundary: Burn Durnett\_010 (IE\_NW\_01B020200); Finn (Donegal)\_050 (IE\_NW\_01F010600); Finn (Donegal)\_060 (IE\_NW01F010800); Finn (Donegal) (IE\_NW\_01F010910); Deelee (Donegal) (IE\_NW\_01D010500); and Cloghroe\_010 (IE\_NW\_01C050400).

Section 1 intersects with the River Finn SAC. The Annex I habitats for which the River Finn SAC is selected are:

- Oligotrophic waters containing very few minerals of sandy plains (*Littorelletalia uniflorae*) [3110]
- Northern Atlantic wet heaths with *Erica tetralix* [4010]
- Blanket bogs (\* if active bog) [7130]
- Transition mires and quaking bogs [7140]

The first is an aquatic habitat, discussed in **Section 4.3.1.4**. The latter three are bog/mire habitats. Only one area of wet heath (HH3) was observed at the northern end of Section 1. However, no cross-leaved heather (*Erica tetralix*) was observed, and it is approximately 4.6 km north of the SAC. The primary point of interaction between Section 1 and European sites is the 360 m long, seven span bridge over the River Finn SAC and flood plain at Ballybofey/Stranorlar. At this location, the terrestrial habitats within the floodplain are composed of riparian woodland (WN5), (mixed) broadleaved woodland (WD1), improved agricultural grassland (GA1), and conifer plantation (WD4).

None of the habitats within Section 1 had affinity to Annex 1 habitats.

#### 4.3.1.2 Otter

The NBDC data search returned 11 records of otter for the C10 grid square, one for the H09 grid square and ten for the H19 grid square. Otter are a QI species for the River Finn SAC that is located within Section 1. NPWS records show evidence of otters at numerous locations along the River Finn (Reid *et al.*, 2013). However, no records are located within the Section 1 Proposed Development boundary.

Otter surveys carried out between 2017 to 2025 established that otters are active both upstream and downstream of the proposed crossing of the River Finn and its tributaries. Evidence of otter was recorded in the form of possible holts, live sightings, prints, couches, spraint, and slides and therefore it is assumed that they are present throughout the system.

#### 4.3.1.3 Birds

The findings of the overwintering surveys completed in 2018/2019 and further verified in September and October 2025 found that the potential field feeding areas do not support significant numbers of regularly occurring overwintering birds and, in particular, any SCI species for nearby SPAs. The findings of these surveys found occasional and sporadic occurrences of small mixed species flocks of mute swan, coot (*Fulica*

*atra*), great crested grebe, shoveler (*Anas clypeata*), mallard, moorhen (*Gallinula chloropus*), and grey heron within these expansive agricultural fields. The most frequently occurring wintering species were found at Lough Alaán located approximately 580 m to the west of Section 1.

Due to the lack of wintering bird activity and habitat to support significant numbers of wintering birds especially those that are associated with the closest SPAs, full wintering bird surveys of this area have not been undertaken since a pilot survey in the 2018/2019 winter survey season. Verification surveys that the habitats have not changed significantly since this time have been undertaken in 2022, 2023 and 2025. Additional drive through surveys were undertaken in September and October 2025 to confirm that no significant populations of wintering birds were present. There were no species of conservation concern recorded to be utilising lands within the Proposed Development boundary.

#### 4.3.1.4 Aquatic Ecology

Mapping provided in the Conservation Objectives Document (NPWS 2017a) indicates that the distribution of the aquatic habitat that the River Finn is designated for “oligotrophic waters containing very few minerals of sandy plains (*Littorelletalia uniflorae*) [3110]”, does not extend beyond several upland lakes located in the upper reaches of the river system. The habitat type does not occur within any area adjacent to, or downstream of the Proposed Development.

#### 4.3.1.5 Atlantic salmon

In addition to its designation as an SAC (for which Atlantic Salmon is a QI), the River Finn is also designated a Salmonid Water (S.I. No. 293, 1988). The relevant reach, upstream of Ballybofey, is an important salmonid nursery area (1+ fish (one year old fish)), but holding and spawning potential is limited owing to impaired water quality and low proportion of spawning gravel habitat. The River Finn is known as a spring salmon river and the grilse arrive in late June and July.

Fish surveys are carried out on the River Finn by the Loughs Agency. Two sites are monitored: Stranagoppoge and Clady Bridge, c.20 km upstream and downstream of Ballybofey respectively. Available data (summer 2016) showed good numbers of 0+ and reasonable numbers of 1+ salmon at both surveillance sites using single pass electrofishing over 100 m<sup>2</sup>. Brown trout (*Salmo trutta*) were very scarce at both sites. Lampreys (species not defined) were recorded at Clady Bridge and eel (*Anguilla anguilla*) at both stations. The Clady Bridge site was at High Status for fish stocks, while Stranagoppoge was Moderate (Niven and McCauley, 2017). Salmon run on the Finn is throughout the season (1 March – 15 Sept.) and is particularly good in spring. Sea trout (*Salmo trutta trutta*) run July to mid-August (Loughs Agency, 2019). Loughs Agency operate a fish counter on the Finn at Killygordon, c. 10km downstream of Ballybofey. Fish counts for 2020, 2021, 2022, 2023 and 2024 were: 2,302, 2,409, 1,194<sup>17</sup>, 1,750, 1025, respectively (Loughs Agency 2025<sup>18</sup>). The management target for the Finn is 5,410 upstream moving salmon annually. The fish counts show the river is consistently not meeting its management target and has failed to do so for many years (Niven *et al.*, 2016, Niven and Clarkin, 2018).

### 4.3.2 Section 2

#### 4.3.2.1 Terrestrial Habitat

Section 2 of the Proposed Development crosses the River Swilly and the SAC site boundary at Ballyrairie in Letterkenny and crosses the Isle Burn at the boundary of the SAC west of the N13/N14 Pluck Roundabout, to the east of Letterkenny.

The Annex I habitats for which the River Swilly SAC is selected are:

- Estuaries [1130]
- Coastal lagoons [1150]

<sup>17</sup> 2022 fish count included an average count added from Feb-May 2023 due to one of the channels not being operational.

<sup>18</sup> Loughs Agency fish count data available at: <https://www.loughs-agency.org/what-we-do/protection/fish-counter-programmes>

- Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*) [1330]
- *Molinia* meadows on calcareous, peaty or clayey-silt-laden soils (*Molinion caeruleae*) [6410]
- Old sessile oak woods with *Ilex* and *Blechnum* in the British Isles [91A0]

The first three are halophytic habitats and the latter two are terrestrial habitats. By definition, halophytic habitats could not occur within the Proposed Development boundary, aside from the Swilly Estuary crossing, which is discussed in **Section 4.3.2.2**. Neither of the terrestrial QI habitats occur within the Proposed Development boundary. Wet grassland (GS4), which was found at numerous locations throughout Section 2, can have affinity to *Molinia* meadows on calcareous, peaty or clayey-silt-laden soils (*Molinion caeruleae*) [6410]. However, the wet grasslands in the Proposed Development boundary share no common species with the *Molinia* meadows [6410] habitat description (EC, 2013). Therefore, QI *Molinia* meadows [6410] was not identified within the Proposed Development boundary.

At the Swilly Estuary crossing, the habitats on the eastern bank are composed of a mosaic of GA1 improved agricultural grassland and GS4 wet grassland with GS2 Dry meadows and grassy verges on the flood embankment. The area is subject to intermittent grazing and supports a short sward. GA1 comprises a species-poor grassy sward of typical agricultural grassland cultivars, including a dominance of perennial ryegrass (*Lolium perenne*) with occasional to frequent occurrences of white clover (*Trifolium repens*), creeping buttercup (*Ranunculus repens*), common mouse-ear (*Cerastium fontanum*), and broad-leaved dock (*Rumex obtusifolius*). GS4 comprises soft rush with locally abundant yellow iris (*Iris pseudacorus*) and occasional to frequent marsh thistle (*Cirsium palustre*), creeping bent (*Agrostis stolonifera*), silverweed (*Potentilla anserina*) and creeping buttercup.

GS2 is found on the flood embankments on both banks of the Swilly Estuary and is within the boundary of the SAC. As these grasslands appear to be rarely fertilised and only occasionally mown and grazed, they have developed a good diversity of grassland species including false oat-grass, cock's-foot (*Dactylis glomerata*), rough meadow grass (*Poa trivialis*), creeping bent, meadow foxtail (*Alopecurus pratensis*), tall fescue (*Schedonorus arundinaceus*) and Yorkshire fog. In general, there is not a good diversity or abundance of herbaceous species, however, species such as spear thistle (*Cirsium vulgare*), creeping thistle (*Cirsium arvense*), ragwort (*Senecio jacobaea*), meadow vetchling (*Lathyrus pratensis*), white clover, red clover, hogweed (*Heracleum sphondylium*), upright hedge parsley (*Torilis japonica*), and hedge bindweed (*Calystegia sepium*) have established well in these conditions. Due to the lack of ongoing management, many of these grassland habitats are being encroached by bramble (*Rubus fruticosus* agg.) and gorse scrub. This habitat type commonly forms mosaics with improved agricultural grassland and wet grassland habitats.

The dominant habitat within the Section 2 Proposed Development boundary was improved agricultural grassland (GA1), followed by wet grassland (GS4) and mixed broadleaved woodland (WD1). These habitats were bounded by hedgerows (WL1) and treelines (WL2). There were also areas of road, residential dwellings, and industrial sites (BL3 build and artificial surfaces) located throughout the Proposed Development boundary.

None of the habitats within Section 2 had affinity to Annex 1 habitats outside the estuarine habitat described below.

#### 4.3.2.2 Estuarine Habitats

The intertidal area within the route corridor of the proposed crossing of the lower River Swilly is uniform and typical of upper estuarine systems. The intertidal soft sediment consists primarily of soft, liquid muds as shown in **Figure 4.1**, sloping into the river from dry, compact mud located at the top of the shore adjacent to the terrestrial area of the crossing (**Figure 4.2**.) Diatoms are common across this soft, intertidal muddy area. The anoxic layer across the site is located just beneath the sediment surface.



**Figure 4.1: River Swilly – Overview of the intertidal area within the Proposed Development boundary (11 July 2018)**



**Figure 4.2: River Swilly – Intertidal bank habitat at crossing location (11 July 2018)**

The fauna present in the area consists primarily of oligochaetes within the sloping mud, and the polychaete ragworm (*Hediste diversicolor*), which is present in the firmer, compacted mud near the top of the shore. The brown algae, *Fucus* sp. is present across the shoreline. The site has been classified as typical of the Polychaete/Oligochaete-dominated upper estuarine mud shores habitat – LS.Lmu.Uest (JNCC, 2015)<sup>19</sup> which has been described as ‘Upper estuarine sandy mud and mud shores, in areas with significant freshwater influence’. Littoral mud typically forms mudflats, though dry compacted mud can form steep and even vertical structures, particularly at the top of the shore adjacent to saltmarshes. Little oxygen penetrates these cohesive sediments, and an anoxic layer is often present within millimetres of the sediment surface. The upper estuarine mud communities support few infaunal species and are principally characterised by a restricted range of polychaetes and oligochaetes’. This description corresponds well with the results from the present survey of the Proposed Development boundary. Estuarine habitat downstream of the existing culverts at the Manorcunningham roundabout, where there are no additional instream works, is similarly classed as ‘Upper estuarine sandy mud and mud shores, in areas with significant freshwater influence’.

The proposed lower River Swilly crossing area is over the Annex I habitat, Estuaries [3110], and the community complex present is typical of the Mud Community Complex identified in the Lough Swilly SAC Conservation Objectives supporting document (NPWS, 2011a), although the faunal diversity and abundances are low.

#### 4.3.2.3 Otter

The NBDC data search returned 11 records of otter for the C10 grid square, 15 records for the C11 grid square, and no records for the C20 and C21 grid squares. NPWS records show evidence of otter along the Dooballagh Burn\_010 (IE\_NW\_39D020200) river, which flows into Leslie Hill Stream\_020 (IE\_NW\_39L050660), which then discharges into Swilly Estuary (IE\_NW\_220\_0100) and Lough Swilly coastal waterbody (IE\_NW\_220\_0000) (Reid *et al.*, 2013). No records are located within the Proposed Development boundary.

The Proposed Development is in close proximity to a number of designated sites. The closest site designated for otter is Lough Swilly SAC. Otter are a QI species for the Lough Swilly SAC. This site is located in the same WFD catchment as the Proposed Development boundary (Lough Swilly WFD Catchment) and intersects the boundary. Otters feed on a range of aquatic species. The River Swilly

<sup>19</sup> JNCC (2015) The Marine Habitat Classification for Britain and Ireland Version 15.03. [Accessed November 2022]. Available from: <https://mhc.jncc.gov.uk/>

supports a range of fish species including salmon, eel, and brown trout. There is therefore potential for otter to occur in the Proposed Development boundary.

The surveys undertaken between 2017 and 2025, established that the species is using the area upstream and downstream of the proposed crossing of the River Swilly and is likely to be utilising the estuary in this location. Evidence of otter was recorded in the form of possible holts, live sightings, prints, couches, spraint, and slides.

#### 4.3.2.4 Birds

Systematic surveys of wintering waterbirds in the area of the Swilly Estuary and its hinterland were undertaken over a number of winter periods from 2017 to 2025 to assess the significance of the site in the context of Lough Swilly.

The winter bird surveys confirmed that the vast majority of species in the area were utilising the areas to the north of the Letterkenny airfield and the area towards Big Isle. The surveys did record SCI birds utilising the areas in close proximity to the River Swilly Bridge crossing and fields in close proximity to the Proposed Development.

### 4.3.3 Section 3

#### 4.3.3.1 Terrestrial Habitat

The landscape within the Proposed Development boundary of Section 3 is predominantly gently undulating with scattered low drumlin hills. The majority of the land is intensively managed agricultural grasslands (GA1) subdivided by hedgerows (WL1) and treelines (WL2). There are occasional small blocks and strips of wet woodland (WN6) and scrub (WS1) scattered throughout the Proposed Development boundary, many of these occurring along watercourses.

#### 4.3.3.2 Otter

Evidence of otter activity was recorded during the surveys undertaken in 2020 at W3-08 (Ch4+550) on a tributary of the Leslie Hill Stream, where a spraint was present under the existing bridge on the N14. Tracks, spraints and trails were recorded along the River Finn (W3-21) indicating regular activity, though no holts or couches were recorded in the vicinity of the proposed crossing. Dense vegetation along the southern river bank upstream of the crossing point may however, conceal holts or couches. No other field signs of otter were recorded during the mammal survey undertaken for the Project, and their distribution is likely limited by the poor water quality and lack of fish on most of the smaller watercourses. Nonetheless, periodic movement can be expected to occur on all watercourses crossed by the proposed development.

#### 4.3.3.3 Birds

With the exception of the Swilly Burn floodplain, which was found to support a wintering flock of whooper swan (see below), there were no important bird areas identified within the Proposed Development boundary; and the habitats present are unsuited to supporting significant aggregations of wintering birds or likely flyways for wintering species. Flocks of golden plover, listed on Annex I of the EU Birds Directive and lapwing, a Red Listed species on Birds of Conservation Concern 2014-2019, may utilise agricultural grasslands throughout the Proposed Development boundary during the winter. Areas of wet grassland will also provide suitable habitat for dispersed populations of wintering snipe (*Gallinago gallinago*).

Small numbers of wintering water-birds (including mallard, teal, widgeon and redshank) are also likely to occur along the River Deelee (W3-17 / KER13) in the vicinity of the proposed road development where the tidal variation in the river provides a limited area of intertidal habitat for foraging by birds.

Whooper swan are known to utilise low-lying fields of improved agricultural grassland along the Swilly Burn floodplain in the townlands of Mulnaveagh and Tullyrap. A series of monthly surveys were undertaken during the winter periods 2018/2019 and 2020/2021 to determine whooper swan occurrence within the vicinity of the proposed route alignment. The results of the surveys found that Swilly Burn floodplain is the only significant foraging area in the vicinity of the scheme with the foraging being concentrated approximately 1 km to the east of the proposed development. There were no sightings or records of swans foraging along or in the immediate vicinity of the proposed alignment at the Swilly Burn crossing. A number of other sites in

the general vicinity of the Swilly Burn are also used on a sporadic basis, with occurrence dependant on foraging suitability in any one year as determined by the farming activity (i.e. whether under grassland, tillage, potatoes, etc.). A field regularly planted with potatoes immediately east of the proposed alignment at Tullyrap is foraged over by whooper swan after harvesting.

#### 4.3.3.4 Aquatic Ecology

The River Finn rises in the Blue Stack mountain range in central Donegal and flows in a predominantly easterly direction through Ballybofey /Stranorlar to its confluence with the tidal River Foyle in Lifford/Strabane approximately 1 km downstream of the Section 3 River Finn Bridge Crossing.

The main channel of the River Finn is a designated Salmonid Water and is considered one of Ireland's premier spring salmon waters and the Finn is important in an international context in that its populations of spring salmon appear to be stable, while they are declining in many areas of Ireland and Europe. While there is no salmon spawning habitat in the vicinity of the crossing point of the River Finn in Section 3 or downstream, there is expected to be regular passage of adult fish moving upstream to spawn and smolts moving downstream to the sea. Salmon may use the area as a lie-up while waiting for increased flows before moving upstream. Migration of adult salmon upstream can occur at any time of the year. Spring fish (those that spend more than one year at sea and thus are typically larger) tend to move upstream in April and May while grilse (those that spend a single winter at sea) move upstream in the latter part of the summer and through autumn with spawning occurring in autumn or winter. Smolts migrate to sea mainly during April to June under cover of darkness. All movements are mainly undertaken during periods of high flow (Hendry *et al.*, 2003).

## 5 APPROPRIATE ASSESSMENT SCREENING

### 5.1 Methodology

The identification of relevant European sites to be included in this report was based on the identification of the Zone of Influence (Zol) of the Proposed Development (as described at **Section 4.2.2**), a Source-Pathway-Receptor (S-P-R) model of effects as described at **Section 4.2.1**), and the likely significance of any identified effects.

#### 5.1.1 Scoping of European Sites

Following the identification of European sites within the initial Zol, a secondary scoping was carried out before European sites were taken forward to the assessment stage. Disturbance buffers, hydrological, and hydrogeological linkages extending from the Proposed Development area were assessed to determine if pollution sources arising from the Proposed Development, used during the construction and operation of the Proposed Development, could come into contact with QI/SCI habitats and species.

Where it was deemed that there is potential for one QI or SCI habitat/species from a European Site within the Zol to be potentially impacted by any of the sources, the entire European site is brought into the assessment stage.

#### 5.1.2 Identification of Likely Significant Effects

The Commission's Notice (EC, 2018) advises that the AA procedure under Article 6(3) is triggered not by the certainty but by the likelihood of significant effects, arising from plans or projects, regardless of their location inside or outside a protected site. Such likelihood exists if significant effects on the European site cannot be excluded. The significance of effects should be determined in relation to the specific features and environmental conditions of the European site concerned by the plan or project, taking particular account of the European site's conservation objectives and ecological characteristics.

The threshold for a LSE is treated in the screening exercise as being above a de minimis level<sup>20</sup>. The opinion of the Advocate General in CJEU case C-258/11 outlines:

*"The requirement that the effect in question be 'significant' exists in order to lay down a de minimis threshold. Plans or projects that have no appreciable effect on a European Site are thereby excluded. If all plans or projects capable of having any effect whatsoever on the site were to be caught by Article 6(3), activities on or near the site would risk being impossible by reason of legislative overkill."*

In this report, therefore, 'relevant' European sites are those within the potential Zol of activities associated with the construction of the Proposed Development, where LSEs on European sites were identified through the source-pathway-receptor model.

A significant effect is triggered when any or a combination of the following occur:

- There is a probability or a risk of a plan or project having a significant effect on a European site.
- The plan is likely to undermine the European site's conservation objectives.
- A significant effect cannot be excluded on the basis of objective information.
- Measures to prevent or offset risk [mitigation measures] would be required.

<sup>20</sup> Sweetman v. An Bord Pleanála (Court of Justice of the EU, case C-285/11). A de minimis effect is a level of risk that is too small to be concerned with when considering ecological requirements of an Annex I habitat or a population of Annex II species present on a European Site necessary to ensure their favourable conservation condition. If low level effects on habitats or individuals of species are judged to be in this order of magnitude and that judgment has been made in the absence of reasonable scientific doubt, then those effects are not considered to be likely significant effects.

## 5.2 Directly Connected with or Necessary to the Management of European site(s)

AA Screening is not required where a plan or project is connected with, or necessary to the management of any European site(s). The proposed development, as described in **Section 3** and provided in full at **Appendix 2: Project Description**, is not directly connected with or necessary to the management of any European sites.

## 5.3 European sites

### 5.3.1 Potential Sources

The sources of impact in this case are the activities required to construct the Proposed Development and the resultant operation activities which will arise following the completion of construction such as the use and maintenance of the road and associated structures (e.g., bridges, culverts and surface water drainage) and features (e.g., landscaping). The sources of impact are all located within the Proposed Development boundary as illustrated in the general arrangement drawings contained in **Appendix 1: EIAR Drawings 4.1, 4.2 and 4.3**. It is from these impacts that all ecological effects will arise. The sources of impact will generate direct effects within the Proposed Development boundary (e.g., removal of vegetation) and indirect effects which extend beyond the boundary (e.g., construction/operational noise/vibration disturbance effects and downstream hydrological effects). The range of impacts and effects<sup>21</sup> that potentially arise as a result of the activities are described in the following sections.

#### 5.3.1.1 Construction

The earthworks required to enable construction. These include the removal of vegetation within the Proposed Development boundary, the stripping of soils/subsoils etc., the cut/fill works necessary to establish the levels required for the Proposed Development surfaces and the excavation of borrow pits. Such activities will result in the direct removal of habitat, the potential for incursion into habitat outside the Proposed Development boundary and indirect effects as arising from noise and vibrational disturbance together with dust-generating activities and losses of silt and other pollutants to watercourses.

The construction of the road and associated structures, including the bridges and culverts, outfalls, surface water drainage infrastructure and the road surface itself. Such activities will result in the potential for incursion of vehicles, personnel and construction materials into habitat outside the Proposed Development boundary and indirect effects as arising from noise and vibrational disturbance together with dust-generating activities and losses of silt and other pollutants to watercourses.

The disturbance associated with the construction of the Proposed Development. Sources of disturbance include the noise and vibration associated with construction traffic and activities and the disturbance arising from the presence and activities of construction personnel. These effects are likely to extend into areas beyond the Proposed Development boundary.

Potentially polluting activities such as dust-generating activities, the use of construction materials (including environmentally toxic materials such as cement, hydrocarbons and silt-generating materials (e.g. soils and aggregates)), and the requirement for construction compounds which would include material storage, re-fuelling activities and welfare facilities (including temporary foul drainage requirements).

#### 5.3.1.2 Operation

The disturbance associated with the operation of the Proposed Development including the noise and vibration from road users whose effect are likely to extend beyond the Proposed Development boundary and the periodic requirement for maintenance activities associated with new structures, surface water attenuation and landscaping located within the Proposed Development boundary.

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<sup>21</sup> Definition of "impact" and "effect" as per CIEEM (2024) *Guidelines for Ecological Impact Assessment in the UK and Ireland – Terrestrial, Freshwater, Coastal and Marine*

Changes in water quality owing to road run-off pollutants.

The risk of road traffic accidents resulting in pollution incidents which could result in effects on the habitats established within the surface water drainage features within the Proposed Development boundary and result in downstream effects beyond the Proposed Development boundary on waterbodies into which the surface water drainage features of the Proposed Development discharge.

The risk of collisions between the users of the roads and wildlife due to the additional “barrier effect” of the Proposed Development within the landscape.

### 5.3.2 Potential Pathways

The potential pathways for effect are summarised as follows:

- Direct removal of habitat within the Proposed Development boundary during construction. The extent of this pathway is restricted to within the Proposed Development boundary.
- Direct disturbance and/or deterioration of habitat adjacent to the Proposed Development boundary during construction, e.g. incursion of construction personnel, vehicles or materials. The extent of this pathway is difficult to determine since it is dependent on the extent of incursion, however it is reasonable to consider that this could be within c. 200 m of the Proposed Development boundary.
- Indirect deterioration of habitat adjacent to the Proposed Development boundary during construction due to dust or vehicle emission-generating activities smothering or adversely affecting adjacent vegetation. The extent of the effects of dust are determined to be localised and within 200 m of the Proposed Development boundary (TII, 2022).
- Surface or groundwater hydrological changes because of the construction and operational activity within the Proposed Development boundary. The extent of this pathway is restricted to the Ground Water Body where the works are undertaken, and any down stream flow paths.
- Downstream changes in surface water quality and flow during construction and operation of the Proposed Development particularly with respect to silts, hydrocarbons, cements and other potentially environmentally toxic materials or accidental spillages of such materials in the environment. The extent of this pathway is determined by hydrological pathways of the surface water drainage system outside of the Proposed Development boundary and its connection to activities within the Proposed Development boundary.
- Direct removal or modification during construction of habitat upon which QI or SCI species or populations are dependent for part of their lifecycle, e.g. breeding, foraging or resting sites for certain bird species. The extent of this pathway is restricted to within the Proposed Development boundary.
- Indirect disturbance from noise or vibration on habitat upon which QI or SCI species or populations are dependent for part of their lifecycle outside the Proposed Development boundary e.g. breeding, foraging or resting sites for certain bird species. The upper extent of potential noise disturbance is considered to be 500 m from the Proposed Development boundary (worst case) for the construction phase, and 500 m from new scheme roadway centrelines (worst case) during the operational phase of the proposed development. 500 m was determined based on a threshold of construction and operational noise of 50 dB  $L_{Aeq, 24hr}$  below which it is anticipated that it will have no disturbance effect<sup>22</sup>. The distance is based on noisy construction equipment operating at site boundaries, and a high estimate of potential noise from roads of this type and speed limit, with distance attenuation neglecting the effects of air and ground absorption and assuming no topographical screening. With respect to vibration disturbance, its extent is considered to be 50 m from the Proposed Development boundary (worst case) during the construction and operational phases, respectively. The vibration disturbance 50 m distance is based upon

<sup>22</sup> Figure 2 from Cutts, N. *et al.* (2009) *Construction and Waterfowl: Defining Sensitivity, Response, Impacts and Guidance*

measurements listed within BS5228-2:2009 Code of practice for noise and vibration control on construction and open sites – Part 2: Vibration.

- Direct disturbance of QI or SCI species or populations because of their movement through or use of habitat within the Proposed Development boundary for part of their lifecycle e.g. movement of otter or salmonids along watercourses, the disturbance of breeding sites for certain bird species.
- Indirect disturbance of QI or SCI species or populations because of their movement through or use of habitat outside the Proposed Development boundary for part of their lifecycle. The sources of disturbance are noise and vibration due to construction and operation activities.
- Direct and indirect disturbance of QI or SCI species or deterioration of QI habitats due to use of artificial lighting during the operation of the proposed development. The extent of such an effect is considered to be within the immediate vicinity of where such lighting would be located.
- Direct and indirect deterioration of habitats within and outside of the Proposed Development boundary during the construction and operational activities resulting in the spread and establishment of invasive species in areas currently not occupied by such species. The extent of such an effect is mainly determined through downstream hydrological connections, however there is potential for the spread of invasive species through other pathways e.g. on materials imported/exported from the Proposed Development boundary during construction or operation of the proposed development.

### 5.3.3 Potential Receptors (European sites)

In order to identify European sites (*i.e.* the receptors with respect to S-P-R model) which could be subject to LSEs from the Proposed Development, all European sites were initially considered including former Natura 2000 Network sites in Northern Ireland that are no longer mapped as part of the Natura 2000<sup>23</sup> network. However, for completeness those former Natura 2000 sites have been included within this assessment. For ease of reference, the collective term “European sites” has been used for the remainder of this report to cover the Natura 2000 network sites in Ireland as well as the former Natura 2000 network sites in Northern Ireland.

The Zol “rules” which have been developed specifically for this Proposed Development were then applied with reference to available databases and mapping for the Natura 2000 network. As detailed above, the rules have been defined following a consideration of the potential sources of impact and defining the potential pathways of effects arising from these impacts upon the receptors. If no such pathway existed or the pathway did not extend sufficiently based on scientific analysis to impinge on the European site (in whole or part) then no pathway for LSE was considered to exist.

Based on the pathways determined and, where possible, quantified above, the European sites that lie within or intersect with the following pathways and their associated extents will be identified for consideration of LSEs based on the following Zol “rules”:

1. Any European sites within the Proposed Development boundary are automatically considered with regard to potential for LSE within the Stage 1 – Screening Assessment. This is to take account of direct impacts and effects.
2. Any European sites which lie within a 200 m straight-line measurement of the Proposed Development boundary are automatically considered with regard to potential for LSE within the Stage 1 – Screening Assessment. This to account for:
  - a. The potential incursion of construction personnel, vehicles or materials beyond the Proposed Development boundary during construction
  - b. The extent of potential dust-generating effects and pollution from vehicle emissions.

<sup>23</sup> [Natura 2000 data and maps - Environment - European Commission \(europa.eu\)](https://ec.europa.eu/eia/natura2000/) (Access March 2025)

3. Any European sites which lie within 50 m of the Proposed Development boundary are considered with respect to any vibration disturbance effects on QI or SCI species during construction and operation.
4. Any European sites which lie within 500 m of the Proposed Development boundary are considered with respect to any noise disturbance effects on QI or SCI species during construction and operation.
5. Any European sites within the subcatchment(s) of the Proposed Development which support QIs/SCIs which are sensitive to hydrological change (flow or quality) and are downstream of the Proposed Development boundary are automatically considered with regard to potential for LSE within the Stage 1 – Screening Assessment.
6. Any European sites which are upstream the Proposed Development boundary and hydrologically connected to it are considered with regard to potential for LSE within the Stage 1 – Screening Assessment if they support mobile aquatic QI/SCI species which could move through the Proposed Development boundary to/from the European Site as part of their lifecycle or aquatic species whose life cycle is dependent on mobile aquatic species (e.g. freshwater pearl mussel).
7. Any European Site which supports QI or SCI species which have been shown through survey to be present in ex-situ habitats within 500m to the Proposed Development boundary. This is particularly focussed on ornithological QIs and SCIs mindful of the proximity of the Proposed Development to Lough Swilly and its interaction with Lough Foyle. The importance of the ornithological connection between Lough Swilly and Lough Foyle came out of consultation discussions with NPWS.

## 5.4 Likely Significant Effects Alone

Applying the ZoI “rules” defined above, to the SACs and SPAs identified in **Table 5-1**, three SACs and three SPAs are considered further within the Stage 1 – Screening Assessment since, through the application of the ZoI “rules”, the Proposed Development is considered likely, at this stage, to have a significant effect on the European sites identified.

The Leannan River SAC, Ballyarr Wood SAC, Cloghernagore Bog and Glenveagh National Park SAC, Moneygal Bog SAC, Meentygrannagh Bog SAC, Derryveagh and Glendowan Mountains SPA, and Lough Fern SPA are located within Lough Swilly Ground Water Basin (GWB.) However, as the main discharges of the GWB are to rivers and streams crossing the GWB, which reflects short groundwater flow paths, the potential for significant effect on the aforementioned European sites has been excluded on the basis of a lack of connectivity between watercourses in the vicinity of those European sites and those watercourses relevant to the Proposed Scheme area.

An analysis of the application of the ZoI “rules” is summarised in **Table 5-1** below, and the spatial context of the European sites to the Proposed Development are illustrated in **Appendix 1: AA Screening Drawings (Drawing 04 European Sites)**.

**Table 5-1: Analysis of Zol Rules for the Proposed Development**

| European Site (Code)  | Qualifying Interest(s) (*Priority Habitat) and Special Conservation Interest(s)  | Conservation Objective(s)  | Analysis of Zol rules for the Proposed Development                            |
|---|--|--|---|
| Lough Swilly SAC (002287) (NPWS, 2011a –Version 1)                    | [1130] Estuaries<br>[1150] Coastal lagoons*<br>[1330] Atlantic salt meadows ( <i>Glauco-Puccinellietalia maritima</i> )<br>[1351] Harbour Porpoise ( <i>Phocoena phocoena</i> )<br>[1355] Otter ( <i>Lutra lutra</i> )<br>[6410] <i>Molinia</i> meadows on calcareous, peaty or clayey-silt-laden soils ( <i>Molinion caeruleae</i> )<br>[91A0] Old sessile oak woods with <i>Ilex</i> and <i>Blechnum</i> in the British Isles  | To maintain or restore the favourable conservation condition of the species and habitats listed as Qualifying Interests for this SAC.  | <b>Screened In</b><br><u>Due to application of Zol Rules: 1,2,3,4,5 and 6</u> |
| River Finn SAC (002301) (NPWS, 2017 – Version 1)                      | [1106] Salmon ( <i>Salmo salar</i> )<br>[1355] Otter ( <i>Lutra lutra</i> )<br>[3110] Oligotrophic waters containing very few minerals of sandy plains ( <i>Littorelletalia uniflorae</i> )<br>[4010] Northern Atlantic wet heaths with <i>Erica tetralix</i><br>[7130] Blanket bogs (* if active bog)<br>[7140] Transition mires and quaking bogs   | To maintain or restore the favourable conservation condition of the habitats and species listed as Qualifying Interests for this SAC.  | <b>Screened In</b><br><u>Due to application of Zol Rules: 1,2,3,4,5 and 6</u> |
| River Foyle and Tributaries NI SAC (UK0030320) (NIEA 2024 -Version 4) | [3260]: Water courses of plain to montane levels with the <i>Ranunculion fluitantis</i> and <i>Callitricho-Batrachion</i> vegetation<br>[1106]: <i>Salmo salar</i> (Atlantic Salmon)<br>[1355]: <i>Lutra lutra</i> (Otter)<br><br><b>(Notable Species<sup>24</sup>)</b><br><i>Petromyzon marinus</i> (Sea Lamprey) [1095]<br><i>Lampetra fluviatilis</i> (River Lamprey) [1099]<br><i>Lampetra planeri</i> (Brook Lamprey) [1096]<br><i>Margaritifera margaritifera</i> (Freshwater Pearl Mussel) [1029] | To maintain (or restore where appropriate) the <ul style="list-style-type: none"> <li>• Atlantic Salmon <i>Salmo salar</i></li> <li>• Water courses of plain to montane levels with the <i>Ranunculus fluitans</i> and <i>Callitricho-Batrachion</i> vegetation</li> <li>• Otter <i>Lutra lutra</i></li> </ul> | <b>Screened In</b><br><u>Due to application of Zol Rules: 1,2,3,4,5 and 6</u> |

<sup>24</sup> Species are not QIs of the SAC, however they are listed within the Conservation Objectives Documents of the site.

| European Site (Code)  | Qualifying Interest(s) (*Priority Habitat) and Special Conservation Interest(s)  | Conservation Objective(s)   | Analysis of Zol rules for the Proposed Development  |
|---|--|---|---|
| Leannan River SAC (002176) (NPWS, 2019 – Version 1)                                 | [1029] Freshwater Pearl Mussel ( <i>Margaritifera margaritifera</i> )<br>[1106] Salmon ( <i>Salmo salar</i> )<br>[1355] Otter ( <i>Lutra lutra</i> )<br>[1833] Slender Naiad ( <i>Najas flexilis</i> )<br>[3110] Oligotrophic waters containing very few minerals of sandy plains ( <i>Littorelletalia uniflorae</i> )<br>[3130] Oligotrophic to mesotrophic standing waters with vegetation of the <i>Littorelletea uniflorae</i> and/or <i>Isoeto-Nanojuncetea</i> | To maintain or restore the favourable conservation condition of the habitats and species listed as Qualifying Interests for this SAC. | to favourable condition.<br><br><b>Screened Out</b><br>Site is at a distance that LSE will not occur and is not hydrologically connected to the Proposed Development. Although potential hydrogeological connectivity through the GWB the distance and upstream gradient remove potential for LSE |
| Ballyarr Wood SAC (000116) (NPWS, 2021 – Version 1)                                 | [91A0] Old sessile oak woods with <i>Ilex</i> and <i>Blechnum</i> in the British Isles   | To maintain the favourable conservation condition of Old sessile oak woods with <i>Ilex</i> and <i>Blechnum</i> in the British Isles  | <b>Screened Out</b><br>Site is at a distance that LSE will not occur and is not hydrologically connected to the Proposed Development. Although potential hydrogeological connectivity through the GWB the distance and upstream gradient remove potential for LSE                                 |
| Moneygal Bog SAC (UK0030211 (NIEA 2015— Version 2)                                  | [7110] Active Raised Bog   | To maintain (or restore where appropriate) the active raised bog to favourable condition.   | <b>Screened Out</b><br>Site is at a distance that LSE will not occur and is not hydrologically connected to the Proposed Development. Although potential hydrogeological connectivity through the GWB the distance and upstream gradient remove potential for LSE                                 |
| Cloghernagore Bog and Glenveagh National Park SAC (002047) (NPWS, 2017 – Version 1) | [1029] Freshwater Pearl Mussel ( <i>Margaritifera margaritifera</i> )<br>[1106] Salmon ( <i>Salmo salar</i> )<br>[1355] Otter ( <i>Lutra lutra</i> )<br>[1421] Killarney Fern ( <i>Trichomanes speciosum</i> )<br>[3110] Oligotrophic waters containing very few minerals of sandy plains ( <i>Littorelletalia uniflorae</i> )<br>[3260] Water courses of plain to montane levels with the <i>Ranunculion fluitantis</i> and   | To maintain or restore the favourable conservation condition of the habitats and species listed as Qualifying Interests for this SAC. | <b>Screened Out</b><br>Site is at a distance that LSE will not occur and is not hydrologically or hydrogeologically connected to the Proposed Development.  |

| European Site (Code)  | Qualifying Interest(s) (*Priority Habitat) and Special Conservation Interest(s)  | Conservation Objective(s)   | Analysis of Zol rules for the Proposed Development  |
|---|--|---|---|
|   | <p><i>Callitricho-Batrachion</i> vegetation</p> <p>[4010] Northern Atlantic wet heaths with <i>Erica tetralix</i></p> <p>[4030] European dry heaths</p> <p>[4060] Alpine and Boreal heaths</p> <p>[6410] <i>Molinia</i> meadows on calcareous, peaty or clayey-silt-laden soils (<i>Molinion caeruleae</i>)</p> <p>[7130] Blanket bogs (* if active bog)</p> <p>[7150] Depressions on peat substrates of the <i>Rhynchosporion</i></p> <p>[91A0] Old sessile oak woods with <i>Ilex</i> and <i>Blechnum</i> in the British Isles</p> |   |   |
| Meentygrannagh Bog SAC (000173) (NPWS, 2017 – Version 1)            | <p>[6216] Slender Green Feather-moss (<i>Hamatocaulis vernicosus</i>)</p> <p>[7130] Blanket bogs (* if active bog)</p> <p>[7140] Transition mires and quaking bogs</p> <p>[7230] Alkaline fens</p>   | To maintain or restore the favourable conservation condition of the habitats listed as Qualifying Interests for this SAC.             | <p><b>Screened Out</b></p> <p>Site is at a distance that LSE will not occur and is not hydrologically connected to the Proposed Development.</p> <p>Although potential hydrogeological connectivity through the GWB the distance and upstream gradient remove potential for LSE</p> |
| Mulroy Bay SAC (002159) (NPWS, 2012 – Version 1.0)                  | <p>[1140] Mudflats and sandflats not covered by seawater at low tide</p> <p>[1160] Large shallow inlets and bays</p> <p>[1170] Reefs</p> <p>[1355] Otter (<i>Lutra lutra</i>)</p>  | To maintain or restore the favourable conservation condition of the habitats and species listed as Qualifying Interests for this SAC. | <p><b>Screened Out</b></p> <p>Site is at a distance that LSE will not occur and is not hydrologically or hydrogeologically connected to the Proposed Development.</p>   |
| Croaghonagh Bog SAC (000129) (NPWS, 2017 – Version 1)               | [7130] Blanket bogs (* if active bog)  | To restore the favourable conservation condition of Blanket bogs (* if active bog)  | <p><b>Screened Out</b></p> <p>Site is at a distance that LSE will not occur and is not hydrologically or hydrogeologically connected to the Proposed Development.</p>   |
| Lough Eske and Ardnamona Wood SAC (000163) (NPWS, 2019 – Version 1) | <p>[1029] Freshwater Pearl Mussel (<i>Margaritifera margaritifera</i>)</p> <p>[1106] Salmon (<i>Salmo salar</i>)</p> <p>[1421] Killarney Fern (<i>Trichomanes speciosum</i>)</p> <p>[3110] Oligotrophic waters containing very few minerals of sandy plains (<i>Littorelletalia uniflorae</i>)</p>   | To maintain or restore the favourable conservation condition of the habitats listed as Qualifying Interests for this SAC.             | <p><b>Screened Out</b></p> <p>Site is at a distance that LSE will not occur and is not hydrologically or hydrogeologically connected to the Proposed Development.</p>   |

| European Site (Code)  | Qualifying Interest(s) (*Priority Habitat) and Special Conservation Interest(s)   | Conservation Objective(s)  | Analysis of Zol rules for the Proposed Development   |
|---|---|--|--|
|   | [7220] Petrifying springs with tufa formation ( <i>Cratoneurion</i> )*<br>[91A0] Old sessile oak woods with <i>Ilex</i> and <i>Blechnum</i> in the British Isles  |  |  |
| Meenaguse Scragh SAC (001880) (NPWS, 2019 – Version 1)                  | [4010] Northern Atlantic wet heaths with <i>Erica tetralix</i>  | To maintain the favourable conservation condition of Northern Atlantic wet heaths with <i>Erica tetralix</i>   | <b>Screened Out</b><br>Site is at a distance that LSE will not occur and is not hydrologically or hydrogeologically connected to the Proposed Development. |
| Lough Nillan Bog (Carrickatlieve) SAC (000165) (NPWS, 2016 – Version 1) | [3110] Oligotrophic waters containing very few minerals of sandy plains ( <i>Littorelletalia uniflorae</i> )<br>[7130] Blanket bogs (* if active bog)   | To maintain or restore the favourable conservation condition of the habitats listed as Qualifying Interests for this SAC.                            | <b>Screened Out</b><br>Site is at a distance that LSE will not occur and is not hydrologically or hydrogeologically connected to the Proposed Development. |
| Dunragh Loughs/Pettigo Plateau SAC (001125) (NPWS, 2017 – Version 1)    | [4010] Northern Atlantic wet heaths with <i>Erica tetralix</i><br>[7130] Blanket bogs (* if active bog)   | To restore the favourable conservation condition of the habitats listed as Qualifying Interests for this SAC.  | <b>Screened Out</b><br>Site is at a distance that LSE will not occur and is not hydrologically or hydrogeologically connected to the Proposed Development. |
| Lough Nageage SAC (002135) (NPWS, 2021 – Version 1)                     | [1092] White-clawed crayfish ( <i>Austropotamobius pallipes</i> )   | To maintain the favourable conservation condition of White-clawed Crayfish   | <b>Screened Out</b><br>Site is at a distance that LSE will not occur and is not hydrologically or hydrogeologically connected to the Proposed Development. |
| Meenaguse/Ardbane Bog SAC (000172) NPWS, 2017 – Version 1)              | [7130] Blanket bogs (* if active bog)   | To restore the favourable conservation condition of Blanket bogs (* if active bog)   | <b>Screened Out</b><br>Site is at a distance that LSE will not occur and is not hydrologically or hydrogeologically connected to the Proposed Development. |
| Lough Swilly SPA (004075) (NPWS, 2011a – Version 1)                     | [A005] Great Crested Grebe ( <i>Podiceps cristatus</i> )<br>[A028] Grey Heron ( <i>Ardea cinerea</i> )<br>[A038] Whooper Swan ( <i>Cygnus cygnus</i> )<br>[A043] Greylag Goose ( <i>Anser anser</i> )<br>[A048] Shelduck ( <i>Tadorna tadorna</i> )<br>[A050] Wigeon ( <i>Anas penelope</i> ) | To maintain the favourable conservation condition of the species and their supporting habitat listed as Special Conservation Interests for this SPA. | <b>Screened In</b><br><u>Due to application of Zol Rules: 1,2,3,4,5, 6 and 7</u>   |

| European Site (Code)                              | Qualifying Interest(s) (*Priority Habitat) and Special Conservation Interest(s)   | Conservation Objective(s)  | Analysis of Zol rules for the Proposed Development              |
|---|---|--|---|
|   | [A052] Teal ( <i>Anas crecca</i> )<br>[A053] Mallard ( <i>Anas platyrhynchos</i> )<br>[A056] Shoveler ( <i>Anas clypeata</i> )<br>[A062] Scaup ( <i>Aythya marila</i> )<br>[A067] Goldeneye ( <i>Bucephala clangula</i> )<br>[A069] Red-breasted Merganser ( <i>Mergus serrator</i> )<br>[A125] Coot ( <i>Fulica atra</i> )<br>[A130] Oystercatcher ( <i>Haematopus ostralegus</i> )<br>[A143] Knot ( <i>Calidris canutus</i> )<br>[A149] Dunlin ( <i>Calidris alpina</i> )<br>[A160] Curlew ( <i>Numenius arquata</i> )<br>[A162] Redshank ( <i>Tringa totanus</i> )<br>[A164] Greenshank ( <i>Tringa nebularia</i> )<br>[A179] Black-headed Gull ( <i>Chroicocephalus ridibundus</i> )<br>[A182] Common Gull ( <i>Larus canus</i> )<br>[A191] Sandwich Tern ( <i>Sterna sandvicensis</i> )<br>[A193] Common Tern ( <i>Sterna hirundo</i> )<br>[A395] Greenland White-fronted Goose ( <i>Anser albifrons flavirostris</i> )<br>[A999] Wetlands |  |   |
| Lough Foyle SPA (004087) (NPWS, 2014 – Version 1) | [A001] Red-throated Diver ( <i>Gavia stellata</i> )<br>[A005] Great Crested Grebe ( <i>Podiceps cristatus</i> )<br>[A037] Bewick's Swan ( <i>Cygnus columbianus bewickii</i> )<br>[A038] Whooper Swan ( <i>Cygnus cygnus</i> )<br>[A043] Greylag Goose ( <i>Anser anser</i> )<br>[A046] Light-bellied Brent Goose ( <i>Branta bernicla hrota</i> )<br>[A048] Shelduck ( <i>Tadorna tadorna</i> )<br>[A050] Wigeon ( <i>Anas penelope</i> )<br>[A052] Teal ( <i>Anas crecca</i> )<br>[A053] Mallard ( <i>Anas platyrhynchos</i> )<br>[A063] Eider ( <i>Somateria mollissima</i> )<br>[A069] Red-breasted Merganser ( <i>Mergus serrator</i> )  | To maintain the favourable conservation condition of the species and their supporting habitat listed as Special Conservation Interests for this SPA. | <b>Screened In</b><br><u>Due to application of Zol Rules: 7</u> |

| European Site (Code)                                      | Qualifying Interest(s) (*Priority Habitat) and Special Conservation Interest(s)   | Conservation Objective(s)                        | Analysis of Zol rules for the Proposed Development              |
|---|---|--|---|
|   | [A130] Oystercatcher<br>( <i>Haematopus ostralegus</i> )<br>[A140] Golden Plover ( <i>Pluvialis apricaria</i> )<br>[A142] Lapwing ( <i>Vanellus vanellus</i> )<br>[A143] Knot ( <i>Calidris canutus</i> )<br>[A149] Dunlin ( <i>Calidris alpina</i> )<br>[A157] Bar-tailed Godwit ( <i>Limosa lapponica</i> )<br>[A160] Curlew ( <i>Numenius arquata</i> )<br>[A162] Redshank ( <i>Tringa totanus</i> )<br>[A179] Black-headed Gull<br>( <i>Chroicocephalus ridibundus</i> )<br>[A182] Common Gull ( <i>Larus canus</i> )<br>[A184] Herring Gull ( <i>Larus argentatus</i> )<br>[A999] Wetlands   |  |   |
| Lough Foyle SPA<br>(UK9020031) (NIEA 2015 –<br>Version 4) | [A005] Great Crested Grebe<br>( <i>Podiceps cristatus</i> )<br>[A037] Bewick's Swan ( <i>Cygnus columbianus bewickii</i> )<br>[A038] Whooper Swan ( <i>Cygnus cygnus</i> )<br>[A043] Greylag Goose ( <i>Anser anser</i> )<br>[A046] Light-bellied Brent Goose<br>( <i>Branta bernicla hrota</i> )<br>[A048] Shelduck ( <i>Tadorna tadorna</i> )<br>[A050] Wigeon ( <i>Anas penelope</i> )<br>[A052] Teal ( <i>Anas crecca</i> )<br>[A053] Mallard ( <i>Anas platyrhynchos</i> )<br>[A063] Eider ( <i>Somateria mollissima</i> )<br>[A069] Red-breasted Merganser<br>( <i>Mergus serrator</i> )<br>[A130] Oystercatcher<br>( <i>Haematopus ostralegus</i> )<br>[A140] Golden Plover ( <i>Pluvialis apricaria</i> )<br>[A142] Lapwing ( <i>Vanellus vanellus</i> )<br>[A143] Knot ( <i>Calidris canutus</i> )<br>[A149] Dunlin ( <i>Calidris alpina</i> )<br>[A157] Bar-tailed Godwit ( <i>Limosa lapponica</i> )<br>[A160] Curlew ( <i>Numenius arquata</i> )<br>[A162] Redshank ( <i>Tringa totanus</i> ) | To maintain each feature in favourable condition | <b>Screened In</b><br><u>Due to application of Zol Rules: 7</u> |

| European Site (Code)   | Qualifying Interest(s) (*Priority Habitat) and Special Conservation Interest(s)   | Conservation Objective(s)   | Analysis of Zol rules for the Proposed Development   |
|--|---|---|--|
|  | [A999] Wetlands   |   |  |
| Derryveagh and Glendowan Mountains SPA (004039) (NPWS, 2024 – Version 1) | [A001] Red-throated Diver ( <i>Gavia stellata</i> )<br>[A098] Merlin ( <i>Falco columbarius</i> )<br>[A103] Peregrine ( <i>Falco peregrinus</i> )<br>[A140] Golden Plover ( <i>Pluvialis apricaria</i> )<br>[A466] Dunlin ( <i>Calidris alpina schinzii</i> ) | To maintain or restore the favourable conservation condition of the species listed as Special Conservation Interests for this SPA.                              | <b>Screened Out</b><br>Site is at a distance that LSE will not occur and is not hydrologically or hydrogeologically connected to the Proposed Development.   |
| Lough Fern SPA (004060) (NPWS, 2025 -- Version 1)                        | [A059] Pochard ( <i>Aythya ferina</i> )<br>[A999] Wetlands  | To maintain or restore the favourable conservation condition of the species and their supporting habitat listed as Special Conservation Interests for this SPA. | <b>Screened Out</b><br>Site is at a distance that LSE will not occur and is not hydrologically or hydrogeologically connected to the Proposed Development.   |
| Lough Nillan Bog SPA (004110) (NPWS, 2025 – Version 1)                   | [A098] Merlin ( <i>Falco columbarius</i> )<br>[A140] Golden Plover ( <i>Pluvialis apricaria</i> )<br>[A395] Greenland White-fronted Goose ( <i>Anser albifrons flavirostris</i> )<br>[A466] Dunlin ( <i>Calidris alpina schinzii</i> )                        | To maintain or restore the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA:                         | <b>Screened Out</b><br>Site is at a distance that LSE will not occur and is not hydrologically or hydrogeologically connected to the Proposed Development.<br>Rule 7 ruled out as Conservation Objectives document (NPWS, 2025 – Version 1) states that a single flock of white fronted geese utilises the SPA is a discreet flock from Sheskinmore Lough population. They have also not been recorded within the SPA since the winter of 2013-14. |
| Lough Derg (Donegal) SPA (004057) (NPWS, 2025 – Version 1)               | [A183] Lesser Black-backed Gull ( <i>Larus fuscus</i> )<br>[A184] Herring Gull ( <i>Larus argentatus</i> )  | To maintain or restore the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA:                         | <b>Screened Out</b><br>Site is at a distance that LSE will not occur and is not hydrologically or hydrogeologically connected to the Proposed Development.   |
| Pettigo Plateau Nature Reserve SPA (004099) (NPWS, 2025 – Version 1)     | [A395] Greenland White-fronted Goose ( <i>Anser albifrons flavirostris</i> )  | To maintain or restore the favourable conservation condition of the bird species listed as Special Conservation   | <b>Screened Out</b><br>Site is at a distance that LSE will not occur and is not hydrologically or hydrogeologically connected to the Proposed Development.<br>Rule 7 ruled out as Conservation Objectives  |

| European Site (Code) | Qualifying Interest(s) (*Priority Habitat) and Special Conservation Interest(s) | Conservation Objective(s) | Analysis of ZoI rules for the Proposed Development  |
|----------------------|---|---------------------------|---|
|                      |   | Interests for this SPA:   | document (NPWS, 2025 – Version 1) states that a single flock of white fronted geese utilises the SPA is a discreet flock from the Durnesh Lough Population. |

Following the identification of the European sites which could be subject to LSEs, a detailed analysis was then completed with reference to the Project Description set out in **Section 3** and provided in full at **Appendix 2** to identify the relevant LSEs which could arise from the Proposed Development on each of the identified European sites. The analysis is set out below in **Table 5-2**.

**Table 5-2: Likely Significant Effects on European Sites**

| European Site   | Likely Significant Effects  |
|---|---|
| <b>River Finn SAC (Site Code: 002301)</b>                                     | <p><b>LSEs identified.</b> The River Finn flows through the Proposed Scheme development area. The River Finn is designated an SAC for much of its length, including where the Proposed Scheme crosses the River Finn just north of Ballybofey/ Stranorlar. Therefore, the footprint of the construction and operational activities could result in the source of impacts and effects upon the River Finn SAC.</p> <p>All QI habitats of the SAC lie upstream of the Proposed Development.</p> <p>Presence of both QI species (otter and salmon) known for river within Proposed Development boundary and downstream of Proposed Development boundary.</p> <p>There is the potential for the following LSEs:</p> <p><b>Construction</b></p> <p>Habitat deterioration due to unintended incursion by construction personnel, equipment or materials associated with the construction phase</p> <p>Surface water deterioration: release of sediments during the construction phase</p> <p>Surface water deterioration: release of cement and/or hydrocarbons during the construction phase</p> <p>Inappropriate timing of works</p> <p>Impacts and effects on groundwater</p> <p>Air pollution: generation of dust by construction processes</p> <p>Air pollution: emissions from construction traffic</p> <p>Dispersal of invasive species</p> <p><b>Operational</b></p> <p>Changes in water quality due surface water drainage of the road.</p> <p>Changes in water quality due to accidental hazardous spillages.</p> <p>Air pollution caused by operational phase traffic</p> <p>Habitat fragmentation for QI and SCI species.</p> |
| <b>River Foyle and Tributaries NI SAC (UK0030320) (NIEA 2024 - Version 4)</b> | <p><b>LSEs identified.</b> The River Finn flows through the Proposed Scheme development area. The River Finn forms part of the River Foyle and Tributaries SAC (Northern Ireland), including where the Proposed Scheme crosses the River Finn just south of Lifford/ Strabane. Therefore, the footprint of the construction and operational activities could result in the source of impacts and effects upon the River Foyle and Tributaries SAC.</p> <p>QI habitat of the SAC lies upstream of the Proposed Development.</p>  |

| European Site                                      | Likely Significant Effects   |
|--|--|
|  | <p>Presence of both QI species (otter and salmon) known for river within Proposed Development boundary and downstream of Proposed Development boundary.</p> <p>There is the potential for the LSEs:</p> <p><b>Construction</b></p> <p>Habitat deterioration due to unintended incursion by construction personnel, equipment or materials associated with the construction phase</p> <p>Surface water deterioration: release of sediments during the construction phase</p> <p>Surface water deterioration: release of cement and/or hydrocarbons during the construction phase</p> <p>Inappropriate timing of works</p> <p>Impacts and effects on groundwater</p> <p>Air pollution: generation of dust by construction processes</p> <p>Air pollution: emissions from construction traffic</p> <p>Dispersal of invasive species</p> <p><b>Operational</b></p> <p>Changes in water quality due surface water drainage of the road.</p> <p>Changes in water quality due to accidental hazardous spillages.</p> <p>Air pollution caused by operational phase traffic.</p> <p>Habitat fragmentation for QI and SCI species.</p>   |
| <p><b>Lough Swilly SAC (Site Code: 002287)</b></p> | <p><b>LSEs identified.</b> The River Swilly flows through the Proposed Scheme development area. The Lough Swilly SAC includes a portion of the River Swilly including where the Proposed Scheme crosses the River Swilly just east of Ballyraine, Letterkenny. Therefore, the footprint of the construction and operational activities could result in a source of impacts and effects upon the Lough Swilly SAC.</p> <p>The following QI habitats lie within and downstream of the Proposed Development boundary and the construction works lie within the catchment of the river:</p> <p>Estuaries [1130]</p> <p>Coastal lagoons [1550]</p> <p>Atlantic salt meadows (<i>Glauco-Puccinellietalia maritima</i>) [1330]</p> <p>Old sessile oak woods with <i>Ilex</i> and <i>Blechnum</i> in the British Isles [91A0] and <i>Molinia</i> meadows on calcareous, peaty or clayey-silt-laden soils (<i>Molinia caerulea</i>) [6410] lie outside of the Proposed Development boundary and is not hydrologically connected to the Proposed Development.</p> <p>Otter, a QI species of the SAC, is known to be active within the Proposed Development boundary for Section 2.</p> <p>Harbour Porpoise a new QI for the Lough Swilly SAC are not known from within the Proposed Development boundary but are downstream of the Proposed Development.</p> <p>There is the potential for the following LSEs:</p> <p><b>Construction</b></p> <p>Habitat Fragmentation.</p> <p>Unintended incursion by construction personnel, equipment or materials associated with the construction phase.</p> <p>Surface water deterioration: release of sediments during the construction phase.</p> <p>Surface water deterioration: release of cement and/or hydrocarbons during the construction phase.</p> |

| European Site                                      | Likely Significant Effects  |
|--|---|
|  | <p>Impacts and effects on groundwater.</p> <p>Air pollution: generation of dust by construction processes.</p> <p>Air pollution: emissions from construction traffic.</p> <p>Dispersal of invasive species.</p> <p><b>Operational</b></p> <p>Changes in water quality due surface water drainage of the road.</p> <p>Air pollution caused by operational phase traffic.</p> <p>Dispersal of invasive species</p> <p>Habitat fragmentation for QI and SCI species.</p>   |
| <p><b>Lough Swilly SPA (Site Code: 004075)</b></p> | <p><b>LSEs identified.</b> The Proposed Scheme boundary overlaps with an area of the Lough Swilly SPA, but the SPA is outside of the proposed footprint of the construction and operational activities. However, given the close proximity and that the SPA is downstream, the construction activities could result in a source of impacts and effects upon the habitats of the SPA upon which the Special Conservation Interests (SCI) are dependent. The construction activities may also cause occasional disturbance of SCI populations within parts of the SPA within 500 m of the Proposed Scheme boundary and potential SCI populations which occasionally use ex-situ habitats within 500 m of the Proposed Scheme boundary.</p> <p>There is the potential for the following LSEs:</p> <p><b>Construction</b></p> <p>Habitat Fragmentation.</p> <p>Disturbance from construction activities (noise and vibration).</p> <p>Unintended incursion by construction personnel, equipment or materials associated with the construction phase.</p> <p>Surface water deterioration: release of sediments during the construction phase.</p> <p>Surface water deterioration: release of cement and/or hydrocarbons during the construction phase.</p> <p>Impacts and effects on groundwater.</p> <p>Air pollution: generation of dust by construction processes.</p> <p>Air pollution: emissions from construction traffic.</p> <p>Dispersal of invasive species.</p> <p><b>Operational</b></p> <p>Disturbance due to operational activities (noise).</p> <p>Changes in water quality due to surface water drainage of the road.</p> <p>Air pollution caused by operational phase traffic.</p> <p>Dispersal of invasive species</p> <p>Habitat fragmentation for SCI species.</p> |
| <p><b>Lough Foyle SPA (Site Code: 004087)</b></p>  | <p><b>LSEs identified.</b> The disturbance of ex-situ SCI bird populations which, based on survey, use land within and adjacent to the Proposed Development for foraging and roosting which could move between this land and Lough Foyle (and Lough Swilly) as part of their lifecycle. Their de-placement from this land due to disturbance during construction and operation could result in a LSE on the SCI populations of Lough Foyle SPA.</p> <p>Potential for the following LSEs:</p> <p><b>Construction</b></p> <p>Habitat Fragmentation.</p> <p>Disturbance from construction activities (noise and vibration).</p>  |

| European Site   | Likely Significant Effects   |
|---|--|
|   | <p>Unintended incursion by construction personnel, equipment or materials associated with the construction phase.</p> <p><b>Operational</b></p> <p>Disturbance due to operational activities (noise).</p> <p>Habitat fragmentation for SCI species.</p>  |
| <p><b>Lough Foyle SPA (UK9020031) (NIEA 2015 – Version 4)</b></p> | <p><b>LSEs identified.</b> The disturbance of ex-situ SCI bird populations which, based on survey, use land within and adjacent to the Proposed Development for foraging and roosting which could move between this land and Lough Foyle (and Lough Swilly) as part of their lifecycle. Their de-placement from this land due to disturbance during construction and operation could result in a LSE on the SCI populations of Lough Foyle SPA.</p> <p>Potential for the following LSEs:</p> <p><b>Construction</b></p> <p>Habitat fragmentation.</p> <p>Disturbance from construction activities (noise and vibration).</p> <p>Unintended incursion by construction personnel, equipment or materials associated with the construction phase.</p> <p><b>Operational</b></p> <p>Disturbance due to operational activities (noise).</p> <p>Habitat fragmentation for SCI species.</p> |

## 5.5 Likely Significant Effects In-combination

Legislation, guidance and case law requires that in-combination effects with other plans or projects are considered. On this basis, a range of other plans and projects were considered in terms of their potential to have in-combination effects with the Proposed Development. The assessment of in-combination effects has regard for existing and planned developments potentially affecting European sites with which a potential pathway has been identified in the foregoing sections of this report to inform Screening for AA.

A desk study was undertaken to source publicly available information on plans, projects and activities within the defined Zol using internet searches, planning databases and other available sources to identify other plans, projects and activities falling within the Zol, which may have the potential to give rise to cumulative effects with the Proposed Development. A search was conducted of national, regional and local plans which were deemed relevant to the Proposed Development. This list is not exhaustive of all plans and programmes but instead focuses on those which may result in potential for likely significant in-combination effects.

### 5.5.1 Plans

#### 5.5.1.1 National Development Plan

The Department of Public Expenditure and Reform (DPER) have published the National Development Plan (NDP), which covers the period from 2021-2030 and is the primary infrastructure investment plan adopted by the Government (DPER, 2021). The NDP is aligned with the delivery of the National Planning Framework: Ireland 2040 objectives and sets out the State's investment priorities to 2030 within the context of a changing demographic, the need for Ireland to move to a low carbon society, Brexit and the sustainable growth opportunities brought about by a growing population. The NDP 2021-2030 designates a number of national strategic outcomes and priorities of the plan including enhanced regional accessibility, compact growth and sustainable mobility.

The NDP recognises that the national roads network is a key backbone for both sustainable mobility and private transport provision across the country. It highlights the need for targeted investment in transport and road infrastructure, including the development of inter-urban roads and by-passes of regional town centres. Investment priorities over the period 2021-2030 assign €8 billion to the protection and renewal of national,

regional and local roads, with continued investment in major road projects from the previous plan. Since 2018, a number of important national road projects have been built and completed under the NDP.

The strategic priorities of the NDP carry the potential for in-combination impacts with the Proposed Development on a variety of potential receptors, through pathways of habitat fragmentation / loss, increased disturbance, and surface/groundwater pollution. Such individual projects arising from these priorities will, however, be subject to their own AA requirements. The NDP 2021-2030 also sets biodiversity as a priority (i.e. Enhanced Amenity and Heritage – National Strategic outcome 7).

Thus, in-combination impacts from the National Development Plan 2021-2030 with the Proposed Development are not predicted.

### 5.5.1.2 National Planning Framework: Ireland 2040

The *National Planning Framework: Ireland 2040* (herein referred to as NPF 2040) is the primary articulation of spatial, planning and land use policy in Ireland (DHLGH, 2018). It is a long-term strategy for the next 20 years and it will focus on ensuring compatibility between future growth of cities / towns within Ireland alongside environmental sustainability. It is intended that the NPF 2040 will both provide the focus to guide and inform future planning and set the framework for integrated investment decisions. The framework is based on directing development to existing settlements rather than allowing the continual expansion and sprawl of cities and towns. It provides each region with a set of objectives and key principles from which detailed plans are to be developed.

The NPF 2040 defines ten National Strategic Outcomes (NSOs) that represent a shared set of goals for every community across the country. NSOs of relevance to the TEN-T Priority Route Improvement and potential for in-combination effects with the Proposed Development are:

**NSO 1: Compact Growth.** This objective seeks to manage the sustainable growth of cities, towns, and villages to create compact and attractive places in which people can live and work. NSO 1 seeks to achieve effective densities and consolidation of built form rather than further sprawl of urban development;

**NSO 2: Enhanced Regional Accessibility.** This objective seeks to achieve better accessibility between the four cities and to the Northern and Western region to enable unrealised potential to be activated as well as better preparing for potential impacts from Brexit. The Proposed Development will facilitate the development of the Northern region through greater accessibility and connectivity between Donegal and Northern Ireland and the Republic of Ireland. Enhancing the accessibility of the North West will enhance the competitiveness and attractiveness of areas most exposed to the potential impacts of Brexit and this is stated in the NPF as follows:

*“Upgrading access to the North West border area utilising existing routes (N2/A14/A5).”*

**NSO 3: Strengthening Rural Economies and Communities.** This requires development and diversification of the rural economy. The NPF specifically identifies the need to:

*“Invest maintaining regional and local roads and strategic road improvement projects in rural areas to ensure access to critical services such as education, healthcare and employment.”*

The Proposed Development involves the targeted and appropriate intervention on three sections of the TEN-T Priority Route and national road network in Donegal. The intervention includes online improvements and upgrades, the bypassing of three urban centres, route realignment and the development of a complete, independent and integrated active travel network.

**NSO 4: Sustainable Mobility.** This objective is identified as being central to enhancing competitiveness, sustaining economic progress, and enabling mobility choices for citizens. Under NSO 4, the NPF 2040 aims to expand the range of public transport services available and to reduce congestion and emissions. The Proposed Development will facilitate greater options for the local community in Donegal including

enhanced pedestrian and cycling routes and space, links to wider facilities in the north and west region of Ireland.

The NPF also contains National Policy Objectives (NPOs) for the protection of the environment and specifically European sites:

**NPO 59:** Enhance the conservation status and improve the management of protected areas and protected species by:

*“Implementing relevant EU Directives to protect Ireland’s environment and wildlife;*

*“Developing and utilising licensing and consent systems to facilitate sustainable activities within Natura 2000 sites.”*

There is potential for future development arising from the NPF, and the NSOs mentioned above, to give rise to in-combination effects with the Proposed Development through pathways such as habitat fragmentation / loss, increased disturbance, and surface / groundwater pollution. Individual projects, however, will be subject to their own AA requirements and specific mitigation measures will need to be identified and implemented at the project-level AA stage.

With the incorporation of these AA requirements, and the implementation of NPO 59 for the protection of European sites, the NPF is not foreseen to have any adverse effects to the integrity of any European site. Thus, there are no predicted in-combination impacts from the NPF 2040 with the Proposed Development.

### 5.5.1.3 National Investment Framework for Transport in Ireland 2021

The Department of Transport, Tourism and Sport (DTTAS) has developed a successor high-level strategic framework to its Strategic Investment Framework for Land Transport (2015), the National Investment Framework for Transport in Ireland (NIFTI), for prioritising future investment in the land transport network. This is underpinned by and supports the spatial objectives and NSOs outlined in the NPF 2040. The new framework was published in December 2021. The NIFTI recognises the population growth targets outlined in the NPF and also the objectives of the Climate Action Plan. Investment under the NIFTI therefore aims to prioritise transport investment while enabling the delivery of a high-performing transport system. Four investment priorities are identified as follows:

- Decarbonisation
- Protection and Renewal
- Mobility of People and Goods in Urban Areas
- Enhanced Regional and Rural Connectivity

The ‘modal hierarchy’ favours active travel, followed by public transport, and then private vehicles. The ‘intervention hierarchy’ is structured as ‘maintain, optimise, improve, new.’

The Proposed Development addresses many transport needs in the Donegal region. It improves the balance of the various travel modes and seeks to make alternative modes more attractive to both local residents and visitors.

The preparation and implementation of NIFTI must meet the provisions of the EU Habitats Directive (92/43/EEC) and transposing regulations (European Communities (Birds and Natural Habitats) Regulations 2011 (S.I. No. 477 of 2011)). The conclusion of the NIS for NIFTI is that, following detailed assessment and appropriate mitigation for protecting European sites and their associated species and habitats, there will be no adverse effects on the integrity of any European sites, either alone or in-combination with other plans or projects. Significant individual infrastructure developments arising from the NIFTI will be subject to their own AA requirements and specific mitigation measures will need to be identified and implemented at the project-level AA stage. Furthermore, the Strategic Environmental Assessment (SEA) prepared for the NIFTI outlines the following objective for the protection of biodiversity, flora and fauna:

*‘Protect and, where appropriate, enhance terrestrial, aquatic and soil biodiversity, particularly EU and national designated sites and protected species, and associated ecological corridors.’*

With the incorporation of these AA requirements and mitigation commitments, and the implementation of the objectives for the protection of European sites, the NIFTI is not foreseen to have any adverse effects to the ecological integrity of any European site. Thus, there are no predicted in-combination impacts from the NIFTI with the Proposed Development.

#### 5.5.1.4 National Roads 2040

National Roads 2040 (NR2040) is TII's strategy for realising the Project Ireland 2040, while also aligning to the DTTAS's NIFTI. It was published in full in April 2023. TII's vision for the strategy is that it will support the transport system while maintaining innovation, accessibility and safety. The strategy contains thirty commitments across a number of areas such as decarbonisation, urban congestion, technological change, population growth, and safety.

As part of the preparation of NR2040, environment assessments such as Appropriate Assessment (AA) have been undertaken in tandem with the development of the strategy to identify, at a strategic level, potential effects on the environment as a result of the strategy commitments/ actions. This assessment ensures the high-level of protection of the environment with a view to promoting sustainable development. The NR2040 recognises that the development and management of transport infrastructure must assess, avoid, reduce and mitigate adverse environmental impacts, including direct and indirect impacts to biodiversity and/or habitats. Significant individual road projects arising from the NR2040 will be subject to their own AA requirements and specific mitigation measures will need to be identified and implemented at the project-level AA stage.

With the incorporation of these AA requirements and mitigation commitments, the NR2040 is not foreseen to have any adverse effects on the ecological integrity of any European site. Thus, there are no predicted in-combination impacts from the NPF 2040 with the Proposed Development.

#### 5.5.1.5 National Biodiversity Action Plan 2023 - 2030

The *National Biodiversity Action Plan for 2023-2030* (DHLGH, 2024) demonstrates Ireland's continuing commitment to meeting and acting on its obligations to protect biodiversity through a series of targeted strategies and actions. Investment under the NDP is being provided to support the objectives of the National Biodiversity Action Plan, and its successor plan, including accelerating measures to conserve and restore peatlands and wetlands, combat the spread of invasive alien species, implement Local Biodiversity Action Plans and invest in agri-environment schemes.

This report and some of the mitigation measures proposed are considered consistent with specific objectives of the plan. For example, this report considers conservation objectives of relevant European sites (Outcome 2A) in order to ensure the conservation status of sites are met, while mitigation measures include for the protection of watercourses (Outcome 2D: Action number 2D1) and the control of invasive alien plant species (Outcome 2H). Relevant objectives include:

##### Outcome 2D Action number 2D1:

*"By 2027, protection and restoration measures detailed in Ireland's third RBMP are implemented to ensure that our natural waters are sustainably managed, that freshwater resources are protected so that there is no further deterioration; and where required, Ireland's rivers, lakes and coastal water bodies are restored to at least good ecological status."*

##### Outcome 2H:

*"Invasive alien species (IAS) are controlled and managed on an all-island basis to reduce the harmful impact they have on biodiversity and measures are undertaken to tackle the introduction and spread of new IAS to the environment."*

##### Outcome 2A:

*"The protection of existing designated areas and protected species is strengthened and conservation and restoration within the existing protected area network are enhanced."*

As the overall aim of the plan is to protect biodiversity and to continue and improve the transposition of the EU Habitats Directive and the EU Birds Directive into national legislation, there are no predicted in-combination impacts from the National Biodiversity Action Plan 2023 - 2030 with the Proposed Development.

### 5.5.1.6 Letterkenny Plan and Local Transport Plan 2023-2029

The *Letterkenny Plan and Local Transport Plan 2023-2029* (herein referred as Transport Strategy) (DCC, 2024c) has been developed to be consistent with regional policies including the *Northern and Western Regional Assembly Regional and Spatial Economic Strategy 2020-2032*. During the period of the Strategy, it is intended that the national road network will be further developed in which the TEN-T Priority Route Improvement Project and associated public realm and sustainable transport enhancements in Donegal is noted. The Transport Strategy sets out primary objectives, including the strategic roads programme:

**Objective LTP-T-O-2: “It is a policy of the council to:**

- a) *Support and facilitate the appropriate development, extension and improvement of Letterkenny’s transport network*
- b) *Not to permit development that would prejudice the implementation of a strategic roads project*
- c) *Protect the corridors and routes and acquire the lands necessary for new roads and road improvement projects as identified.*

The Transport Strategy has been subject to SEA and AA, which were carried out in accordance with the strategy objectives set out in the Strategy and the strategic environmental objectives. All recommendations arising from the SEA and AA processes have been integrated into the Strategy and compliance with these measures will facilitate environmental protection and management.

All projects and plans arising from the Strategy will be screened for the need to undertake AA under Article 6 of the Habitats Directive. No projects giving rise to adverse effects on the integrity of European sites (cumulatively, directly or indirectly) shall be permitted on the basis of this Strategy (either individually or in combination with other plans or projects).

The NIS in support of the AA for the Transport Strategy concludes that with the incorporation of mitigation measures that will prioritise the avoidance of effects in the first place and mitigate effects where they cannot be avoided, the Strategy is not foreseen to give rise to any significant adverse effects on the integrity of the Natura 2000 network, alone or in combination with other plans or projects. Thus, the in-combination impacts from Letterkenny Plan and Local Transport Plan 2023-2029 with the Proposed Development are not predicted.

### 5.5.1.7 County Donegal Development Plan 2024 - 2030

The *County Donegal Development Plan 2024 - 2030* (DCC, 2024a) came into effect on 16 May 2024 and sets out an overall strategy for the proper planning and sustainable development of County Donegal over a six-year period. The Development Plan sets out guiding principles in relation to physical growth and renewal, economic, social and cultural activity, and environment protection and enhancement. The Development Plan sets out a vision to identify, protect, conserve and manage the cultural and natural heritage of the County and to encourage its sensitive integration into the sustainable development of the County for the benefit of present and future generations.

The Development Plan notes that “A key consideration for the spatial strategy is the preparation of a common framework for spatial and environmental planning setting a context for a joint landscape character assessment, flood risk management, adaptive design approaches to development, increase awareness of the potential of the sea as a resource of renewable energy, and sustainable governance of maritime resources in the context of new legislation.” It then sets out a number of policy objectives to ensure the protection of biodiversity in the County. Specific policies are included to protect European sites (SPAs and SACs) in addition to Natural Heritage Areas (NHAs) notably:

**BIO-O-1**

*“To preserve and enhance the biodiversity of the County in accordance with the relevant EU policies and national legislation.”*

**BIO-P-1**

*“To require all developments to comply with the requirements of the EU Habitats Directive and EU Bird Directive, including ensuring that development proposals: a. Do not adversely affect the integrity of any European/Natura 2000 site (i.e. Special Areas of Conservation and Special Protection Areas) including effects on ex-situ but functionally linked habitats, and species (e.g. Pearl Mussel) save where a plan must be carried out for imperative reasons of overriding public interest (IROPI).”*

**BIO-P-2**

“Ensure that all developments seek to conserve/protect the qualifying interests of Ramsar Sites, Nature Reserves, Natural Heritage Areas (NHA), proposed Natural Heritage Areas (pNHA)... and any species protected under the Wildlife Act save to the extent necessary to provide for strategic infrastructure projects including but not restricted to the TEN-T Priority Route Improvement Project, Donegal... subject to such projects being in accordance with all relevant statutory and regulatory provisions. Otherwise, where no statutory or regulatory provisions apply this policy will be implemented by the Council in so far as same can be practicably and reasonably achieved within the context of such projects.”

**T-O-1**

*“To promote sustainable development and transportation strategies in urban and rural areas including the promotion of measures to: a. reduce energy demand in response to the likelihood of increases in energy and other costs due to long-term decline in non-renewable resources; b. reduce anthropogenic greenhouse gas emissions; and c. address the necessity of adaptation to climate change.”*

The “TEN-T Priority Route Improvement Project” is listed in Section 3.7 of the Development Plan where it is described:

**CS-O-6**

*“To coordinate and promote the delivery of key roads and access infrastructure (including the A5 Western Transport Corridor and A6 road projects, the TEN-T Priority Route Improvement Project, Donegal and improvements to the TEN-T network generally and the Bridgend Bypass Project) with the other relevant authorities including partners in the North West Strategic Growth Partnership and within the Northern and Western Regional Assembly so as to result in effective strategic connections to and throughout the County”*

Chapter 8 of the Development Plan sets out the Infrastructure Strategy for the County which aims to provide for the maintenance and delivery of an efficient, integrated and coherent transport network in line with national and regional policies. The Development Plan provides an overview of the TEN-T Priority Route Improvement Project in this chapter, and it is recognised as a Development of National and Regional Strategic Importance. It is an objective of the Council to:

**T-O-11**

*To deliver improvements to the Trans European Transport Network (TEN-T), (as required by EU Regulation (EU) No.1 58315/2013 "Guidelines for the development of the Trans European Transport Network as part of the core and comprehensive transport network of Ireland.”*

The Proposed Development works will not interfere with the design objectives of the Development Plan. The benefits of the TEN-T Priority Route Improvement Project are significant and wide-ranging including economic, safety, environmental, quality of life, enhancing regional accessibility, and strategic/cross border.

Due to the strategic nature of plans and the inclusion of policy objectives for protection of European sites and protected species within the County Donegal Development Plan 2024-2030, in-combination impacts with the Proposed Development are not predicted.

### 5.5.1.8 Draft Donegal Biodiversity Action Plan 2025 – 2030

The *Draft Donegal Biodiversity Action Plan 2025 – 2030* (DCC, 2024d) is the first local biodiversity action plan (LBAP) for the county. The upcoming Donegal Biodiversity Action Plan aims to align with Ireland's 4th National Biodiversity Action Plan (2023-2030) and address various threats to ecosystems at a local level. The Donegal LBAP will provide a framework and series of actions to conserve, enhance and raise awareness of the county's rich biodiversity. It will aim to maximise the contribution that it makes to the social, economic and environmental wellbeing of the county, taking into account local, national and international, including European priorities.

The Donegal LBAP will set out objectives and accompanying actions to conserve and create awareness about Donegal's biodiversity, which all contribute towards the protection of European sites and the species and habitats for which they are designated. As the overall aim of the Donegal LBAP will be to protect the natural environment and prevent biodiversity loss, in-combination impacts from the Donegal Biodiversity Action Plan 2025 - 2030 with the Proposed Development are not predicted.

### 5.5.1.9 County Donegal Heritage Plan 2023 – 2030

The County Donegal Heritage Plan 2023 - 2030 aims to raise awareness, understanding and appreciation of the rich and diverse heritage of Donegal (DCC, 2024b). It sets out a series of actions to interpret, conserve, manage and promote the county's natural heritage over the plan period and beyond.

The Heritage Plan contains several policies, objectives and actions to protect and aid biodiversity, natural heritage and European sites. In addition, the Heritage Plan was subject to AA Screening in accordance with the Habitats Directive, which concluded that the uses, development and effects arising from the plan (either individually or in combination with other plans and proposed developments) shall not give rise to significant impacts on the integrity of any European sites. Thus, in-combination impacts from the County Donegal Heritage Plan 2023-2030 with the Proposed Development are not predicted.

### 5.5.1.10 Water Action Plan 2024

The Water Framework Directive (WFD) provides a framework for the protection and improvement of rivers, lakes, marine and groundwaters in addition to water-dependent habitats. The aim of the WFD is to prevent any deterioration in the existing status of water quality, including the protection of good and high-water quality status where it exists. The Water Action Plan 2024 sets out a proposed framework for the protection and improvement of Ireland's water environment in line with WFD objectives.

There are binding obligations on all Irish local authorities, including Donegal County Council, to achieve at least good status of surface waters, under the terms of the EU Water Framework Directive 2000/60/EC. The implementation of the Water Action Plan 2024 seeks compliance with the environmental objectives set under the plan, which will be documented for each water body. This includes compliance with the European Communities (Surface Waters) Regulations S.I. No. 272 of 2009 (as amended). The implementation of the Water Action Plan 2024 and achievement or maintenance of environmental objectives which will be set for the receiving water bodies will have a positive impact on water dependent habitats and species within European sites.

The Water Action Plan 2024 is the third River Basin Management Plan for Ireland, and it outlines the measures the Irish government and other sectors are taking to improve water quality in Ireland's groundwater, rivers, lakes, estuarine and coastal waters and provide sustainable management of our water resources. It sets out a roadmap to restore Ireland's water bodies to the equivalent of 'good status' or better and to protect water from any further deterioration. The plan focuses on protecting and restoring water quality by preventing and reducing pollution, by restoring the natural ecosystem functions of rivers and by continuing to invest in water infrastructure.

The Water Action Plan 2024 outlines the approach that Ireland will take to protect waters. As the overall aim of the Water Action Plan is to protect and / or restore waters in Ireland, there are no predicted in-combination effects from the Water Action Plan with the Proposed Development on any European site(s).

## 5.5.2 Proposed Developments

In order to assess likelihood of significant effects of the Proposed Development in-combination with other proposed developments and approved developments, those identified through planning searches as outlined in **Chapter 19: Interactions and Cumulative Effects** of the Environmental Impact Assessment Report (EIAR) were reviewed with respect to the 'Threats and Pressures' of the River Finn SAC, Lough Swilly SAC, River Foyle and Tributaries SAC, Lough Swilly SPA and the two Lough Foyle SPAs and their respective QIs/SCIs, as outlined in the European sites data forms and NPWS Article 17 reporting (NPWS, 2019a,b,c). The threats and pressures both high [H] and medium [M] related to these four European sites are outlined in **Table 5-3**.

**Table 5-3: Threats and Pressures of European Sites**

| European Site   | Threats and Pressures <sup>25</sup>  |
|---|--|
| <b>River Finn SAC (Site Code: 002301)</b>             | A04.01 [H] – Intensive grazing<br>B02.02 [H] – Forestry clearance<br>C01.01 [H] – Sand and gravel extraction<br>C01.03.01 [H] - Hand cutting of peat<br>E03.01 [M] - Disposal of household / recreational facility waste<br>H01.05 [M] - Diffuse pollution to surface waters due to agricultural and forestry activities<br>K01.01 [M] – Erosion   |
| <b>Lough Swilly SAC (Site Code: 002287)</b>           | E01.01 [H] - Continuous urbanisation<br>F01 [H] - Marine and Freshwater Aquaculture<br>G01 [H] – Outdoor sports and leisure activities, recreational activities<br>H01 [H] – Pollution to surface waters (limnic, terrestrial, marine & brackish)<br>J01 [H] - Fire and fire suppression<br>F02 [M] – Fishing and harvesting aquatic resources<br>F02.02.05 [M] - Benthic dredging                                   |
| <b>River Foyle and Tributaries NI SAC (UK0030320)</b> | B02 [H] - Forest and Plantation management & use<br>M01 [H] - Changes in abiotic conditions<br>CO3 [M] - Renewable abiotic energy use<br>C01 [M] - Mining and quarrying<br>H01 [H] - Pollution to surface waters (limnic & terrestrial, marine & brackish)<br>I01 [H] - Invasive non-native species<br>J02 [H] - Human induced changes in hydraulic conditions<br>F02 [M] - Fishing and harvesting aquatic resources |
| <b>Lough Swilly SPA (Site Code: 004075)</b>           | A01 [H] – Cultivation<br>F02.03 [M] – Leisure fishing<br>G01.01 [M] – Nautical sports<br>A04 [H] – Grazing<br>E01 [M] – Urbanised areas, human habitation<br>A08 [H] – Fertilisation   |
| <b>Lough Foyle SPA (Site Code: 004087)</b>            | E01 [H] - Urbanised areas, human habitation  |
| <b>Lough Foyle SPA (Site Code: UK9020031)</b>         | A02 [M] - Modification of cultivation practices<br>F03 [M] - Hunting and collection of wild animals  |

<sup>25</sup> M = medium importance; H = high importance; identified via NPWS Article 17 reporting.

| European Site | Threats and Pressures <sup>25</sup>  |
|---------------|--|
|               | I01 [M] - Invasive non-native species  |
|               | M01 [H] - Changes in abiotic conditions  |
|               | D02 [M] - Utility and service lines  |
|               | M02 [H] - Changes in biotic conditions   |
|               | D04 [M] - Airports, flightpaths  |
|               | G01 [M] - Outdoor sports and leisure activities, recreational activities       |
|               | J03 [H] - Other ecosystem modifications  |
|               | H03 [M] - Marine water pollution   |
|               | H01 [H]- Pollution to surface waters (limnic & terrestrial, marine & brackish) |

With respect to the threats and pressures in **Table 5-3**, a number of proposed developments and consented developments were identified as having the potential for cumulative impacts with the Proposed Development on the six European sites considered in this assessment. These include:

- Proposed road developments.
- Active travel development.
- Utilities (Water/Wastewater, Energy, Waste, Telecommunications).
- Forestry development.
- Quarries.
- Planning applications.
- Other proposed developments.

An assessment of relevant proposed developments is provided in **Table 5-4**.

**Table 5-4: Proposed Developments and Developments with Potential for Cumulative Impact on European Sites**

| Proposed Development/ Planning Application Ref.   | Potential for in-combination effects?   |
|---|---|
| <b>A5 Western Transport Corridor (WTC) including the N14 / N15 to A5 Link</b>             | Adherence to the overarching policies and objectives of the DCC Development Plan 2024-2030 ensure that proposed road developments comply with their planning approvals and core strategy of proper planning and sustainability and with the requirements of relevant EU Directives (i.e. Habitats Directive and AA process) and environmental considerations. |
| <b>LK Green Connect</b>   |   |
| <b>Station Road, Lifford- Community Park and Pedestrian / Cycle Bridge (HA05E.311468)</b> |   |
| <b>N51 Corcam Bends Active Travel and Road Realignment</b>                                | Appropriate Assessment Stage 1 and 2 where necessary were carried out for the projects. The likely effects were reviewed and where LSE were identified mitigation measures are outlined and undertaken.   |
| <b>Glenmore Estate Biogas Plant</b>   |   |
| <b>Lettergull Windfarm (ABP No. 304685)</b>   | These have been assessed and no further in-combination effects are deemed likely when combined with the Proposed Development.   |
| <b>Letterkenny Water Supply Zone Upgrade</b>  |   |
| <b>Kiltole Quarry (EUQY39)</b>  |   |
| <b>ABP No. 317354- Bulk LPG Filling Facilities</b>  |   |
| <b>ABP No. 2350669- Building and Sewage Treatment Plant</b>                               |   |

| Proposed Development/ Planning Application Ref. | Potential for in-combination effects?  |
|---|--|
| ABP No 2460379- Warehouse Storage Facility      |  |
| ABP No. 2350429- Six Dwellings                  |  |
| ABP No. 2350662- IDA Business Park              |  |
| <b>General dwellings</b>                        | <p>Adherence to the overarching policies and objectives of the DCC Development Plan 2024-2030 ensure that proposed developments comply with their planning approvals and core strategy of proper planning and sustainability and with the requirements of relevant EU Directives (i.e. Habitats Directive and AA process) and environmental considerations.</p> <p>As such, there will be no potential for in-combination effects with the Proposed Development.</p> <p>Appropriate Assessment Stage 1 and 2 where necessary were carried out for the projects. The likely effects were reviewed and where LSE were identified mitigation measures are outlined and undertaken.</p> <p>These have been assessed and no further in-combination effects are deemed likely when combined with the Proposed Development.</p> |

### 5.5.3 In-combination conclusion

River waterbodies provide the key pathways for impact on European sites. The search did not return any records of SID, SHD, or Part 8's with the potential for in-combination impacts along this pathway. Additional planning applications were largely absent from the immediate footprint of the proposed works and surrounding lands.

The applications listed in **Table 5.4** have been subject to AA processes and have incorporated mitigation into their design. Therefore, where described measures are effectively incorporated, no in-combination likely significant effects can be predicted from the proposed works. The plans additionally listed in **Section 5.5.1** provide objectives and aims that adequately rule out implications for in-combination effects. Therefore, no likely significant effects can be predicted from these plans or projects.

No other pathways have been identified by which any plan or project could have a likely significant in-combination effect on any of the European sites. It is concluded that there is no potential for cumulative or in-combination effects.

## 6 SCREENING CONCLUSION

This report has been prepared to inform Screening for AA to assess whether the Proposed Development, individually or in-combination with other plans or projects, and in view of best scientific knowledge, is likely to have a significant effect on any European site(s).

The screening exercise was completed in compliance with the relevant European and national legislation, guidance and current case law. The potential impacts of the Proposed Development have been considered in the context of the European sites potentially affected, their QI or SCI and their conservation objectives.

Through an assessment of the source-pathway-receptor model, which considered the ZoI of effects from the Proposed Development and the potential in-combination effects with other plans or projects, the assessment concludes the following:

- The Project is not directly connected with or necessary to the management of a European site;
- Applying the precautionary principle, alone, the Proposed Development is likely to result in LSEs on a number of European sites;
- It is not possible to rule out LSE in combination with other plans and projects.

There is potential for direct and indirect effects on Lough Swilly SAC, Lough Swilly SPA, River Finn SAC and River Foyle and Tributaries NI SAC. There is also potential for ex-situ foraging effects to the UK and Irish components of the Lough Foyle SPA.

Therefore, it cannot be excluded, on the basis of objective information, that the proposed Trans-European Network – Transportation Priority Route Improvement Project, Donegal (TEN-T PRIPD) individually or in combination with other plans or projects, will have a significant effect on a European Site.

Therefore, it is concluded that a Natura Impact Statement is required to inform **Stage 2 Appropriate Assessment**.

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# Appendix 1

## Drawings

# Appendix 1.1

## European Sites

## **Appendix 1.2**

### **Section 1 General Arrangement**

#### **EIAR Drawings 4.1**

## **Appendix 1.3**

### **Section 2 General Arrangement**

#### **EIAR Drawings 4.2**

## **Appendix 1.4**

### **Section 3 General Arrangement**

#### **EIAR Drawings 4.2**

# Appendix 2:

## Project Description

## Appendix 2: Project Description

### Information for Screening for Appropriate Assessment

#### TEN-T Priority Route Improvement Project, Donegal



TT\_MGT0337-RPS-P3-ZZ-RP-E-EN0001

December 2025

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## List of Abbreviations

The following is a list of abbreviations used within this report.

| List of Abbreviations |  |
|-----------------------|--|
| A5 WTC                | A5 Western Transport Corridor                              |
| AADT                  | Annual Average Daily Traffic                               |
| AEP                   | Annual Exceedance Probability                              |
| AOD                   | Above Ordnance Datum                                       |
| BMP                   | Biodiversity Management Plan                               |
| CGSJ                  | Compact Grade Separated Junction                           |
| CIRIA                 | Construction Industry Research and Information Association |
| CPO                   | Compulsory Purchase Order                                  |
| CSO                   | Central Statistics Office                                  |
| CUL                   | Culvert  |
| DMURS                 | Design Manual for Urban Roads and Streets                  |
| EIA                   | Environmental Impact Assessment                            |
| EIAR                  | Environmental Impact Assessment Report                     |
| EOP                   | Environmental Operating Plan                               |
| EPA                   | Environmental Protection Agency                            |
| ESB                   | Electricity Supply Board                                   |
| HGV                   | Heavy Goods Vehicle  |
| IFI                   | Inland Fisheries Ireland                                   |
| ISMP                  | Invasive Species Management Plan                           |
| MAC                   | Maritime Area Consent                                      |
| MARA                  | Maritime Area Regulatory Authority                         |
| MED                   | Material Extraction and/or Deposition                      |
| NIS                   | Natura Impact Statement                                    |
| NMU                   | Non-Motorised User   |
| NPF                   | National Planning Framework                                |
| NRA                   | National Roads Authority (now TII)                         |
| OPW                   | Office of Public Works                                     |
| PAG                   | Project Appraisal Guidelines                               |
| PMG                   | Project Management Guidelines                              |
| PRC                   | Primary Route Connector (N15 in Section 1)                 |
| RCD                   | Road Construction Detail                                   |
| RSA                   | Road Safety Audit  |
| RSIA                  | Road Safety Impact Assessment                              |
| RSNI                  | Roads Service Northern Ireland                             |
| SAC                   | Special Area of Conservation                               |
| SCD                   | Standard Construction Detail                               |
| SPA                   | Special Protection Area                                    |
| SSD                   | Stopping Sight Distance                                    |
| TEN-T                 | Trans European Network - Transport                         |
| TII                   | Transport Infrastructure Ireland                           |
| TMP                   | Traffic Management Plan                                    |

## 2 PROJECT DESCRIPTION

### 2.1 Introduction

This chapter provides a description of the Proposed Development, details of engineering design, land requirements and construction and operational requirements. The design of the Proposed Development has been developed to the point where all the potential environmental impacts can be identified and assessed. The contractor will be required to implement the environmental commitments as set out in the EIAR and NIS and as required by any approval as may be granted.

This report is supported by the drawings included in **Appendix 1** which contains design and technical drawings to illustrate the location of key features.

### 2.2 Overview of Proposed Development

The N13, N14 and N15 (part of) national primary roads form part of the TEN-T in Donegal, which is a selection of strategic transport corridors throughout the European Union (EU) that have been identified to play a key role in the mobility of goods and passengers through the EU. *Regulation (EU) 2024/1679 of the European Parliament and of the Council of 13 June 2024 on Union guidelines for the development of the trans-European transport network, amending Regulations (EU) 2021/1153 and (EU) No 913/2010 and repealing Regulation (EU) No 1315/2013*, sets the requirements for the TEN-T network.

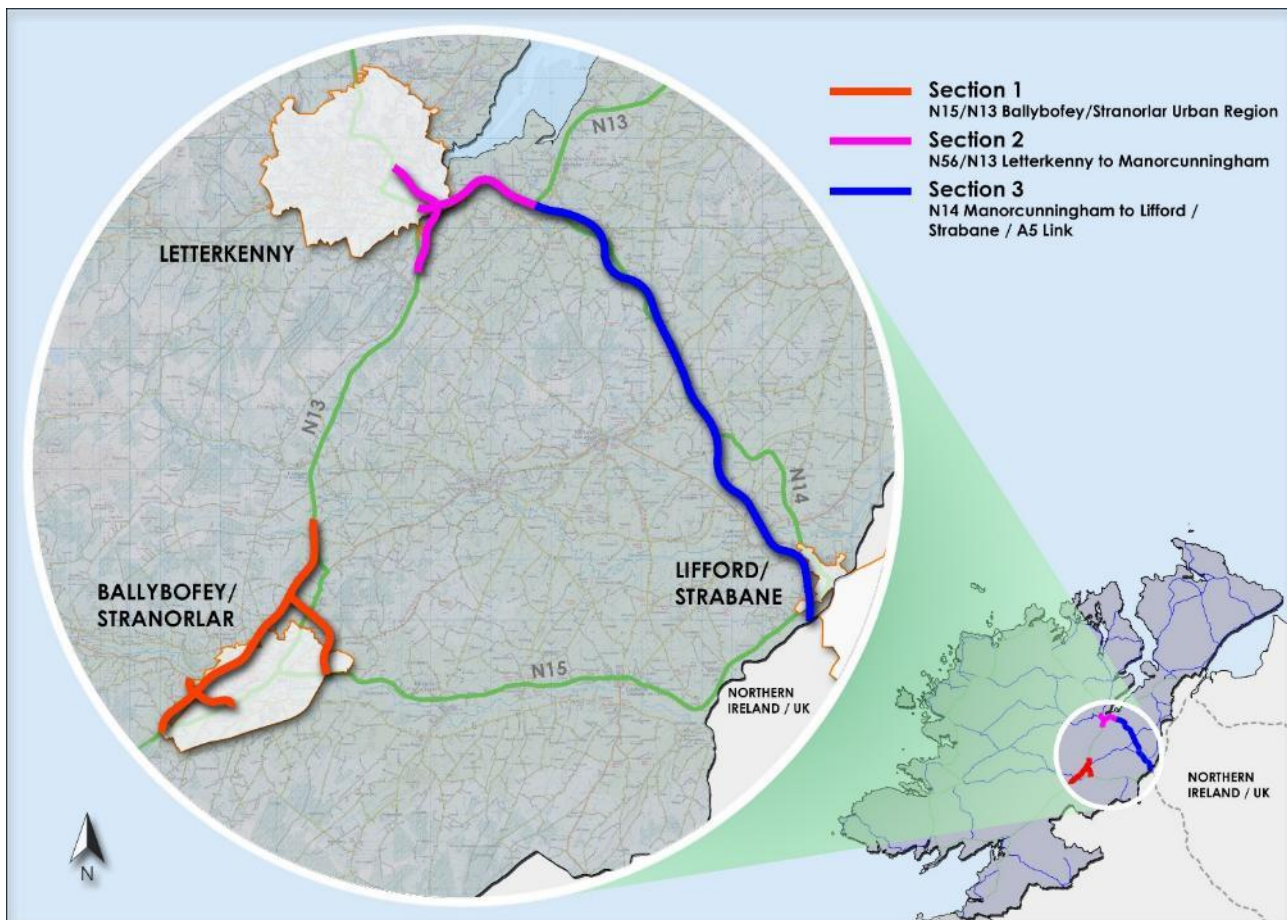
Letterkenny, the largest town in Donegal (22,549 (CSO, 2022)), is connected to Derry via the N13, to Lifford (the County Town) via the N13-N14 and to Ballybofey/ Stranorlar via the N13-N15. The TEN-T routes in Donegal are broadly described below:

- **N13:** A strategic route that connects Letterkenny with Derry City, Northern Ireland, to the north and via the N15 Ballybofey/ Stranorlar to Sligo and Galway/Limerick (via N17) to the south. The N13 connects with three other national routes including: the N14 to Lifford, the N56 (national secondary route) to Letterkenny and north Donegal and the N15 in Ballybofey/Stranorlar.
- **N14:** A strategic route that connects Letterkenny to Lifford and links via the Lifford bridge over the River Foyle to the existing A5 and Strabane in County Tyrone, Northern Ireland. The existing A5 in Northern Ireland, on the Derry City to Dublin route, passes to the west of Strabane, adjacent to the county boundary with Donegal, and is the key route linking the northwest of Ireland and Donegal via the N14 and N15 to the N2 in Monaghan and on to Dublin.
- **N15:** A strategic route that connects from Sligo to Donegal Town and continues north easterly through Ballybofey/ Stranorlar to Lifford where it connects to the N14 and links to Strabane in County Tyrone, Northern Ireland. The section between Stranorlar and Lifford does not form part of the TEN-T network.

These TEN-T strategic routes in Donegal connect to the principal road network north and eastward in Northern Ireland and southeast to Dublin (via the A38 crossing of the River Foyle and the current A5) and south to Limerick/Galway (via the N17 and N15 to Sligo). The routes are core strategic and critical economic infrastructure. They are particularly important for both tourism and industry, and are the only access to regional and international hubs. The routes provide the only available transport option to the northwest due to the lack of rail infrastructure (with Sligo and Derry being rail passenger only) or access to Tier 1 ports or airports within 100 km of the region.

The TEN-T Priority Route Improvement Project, Donegal (thereafter referred to as the “Proposed Development” or “Project” consists of the following sections of road network in Donegal (see **Figure 2.1**):

- **Section 1** – N15/N13 Ballybofey/ Stranorlar Urban Region
- **Section 2** – N56/N13 Letterkenny to Manorcunningham
- **Section 3** – N14 Manorcunningham to Lifford/Strabane/A5 Link



**Figure 2.1: Proposed Development Location**

The Project for the purposes of this EIA, and the Environment Impact Assessment (EIA) to be carried out by An Coimisiún Pleanála (hereinafter referred to as the Commission) includes the three sections of the Proposed Development referenced above.

An overview of the Proposed Development and each section is provided in the drawings in **Appendix 1**.

- Section 1 General Arrangement Drawings are EIA Drawing 4.1 (Sheets 1 to 8)
- Section 2 General Arrangement Drawings are EIA Drawing 4.2 (Sheets 1 to 5)
- Section 3 General Arrangement Drawings are EIA Drawing 4.3 (Sheets 1 to 10)

## 2.3 Design Standards

The Proposed Development is designed to comply with Transport Infrastructure Ireland (TII) design standards for national roads. The most relevant standards are included in **Section 2.15** at the end of this Appendix 2.

The Proposed Development is also designed in accordance with Department of Transport (DoT) Traffic Signs Manual (2021, updated 2025) and Design Manual for Urban Roads and Streets (DMURS) (Department of Transport, 2013, updated 2025).

## 2.4 Development of the Design and Design Parameters

The alignment designs have been developed in cognisance of the environmental and engineering constraints that exist within each section of the Proposed Development.

The design development has been an iterative process undertaken in parallel with the environmental assessment. As environmental impacts are identified and quantified, refinements have been made to the design where feasible to avoid or reduce significant environmental impacts.

Consideration has also been given to the need to reduce the carbon footprint of the Proposed Development and to encourage modal shift away from motorised vehicles in favour of non-motorised forms of transport, to reduce fossil fuel usage. In addition, the integration of the TII's Circular Economy Strategy and TII's Sustainability Implementation Plan further contributes towards the Project's sustainability through optimisation of the design and generation and use of materials to minimise the volume of material required to be imported and exported for construction and the establishment of an active travel network throughout the project, including park and share / cycle facilities.

As all sections provide an upgrade to the national primary road network and TEN-T network in the county, design speeds of 100 km/h have been selected as appropriate for the mainline with varied design speeds selected for the side roads and link roads ranging between 30 km/h and 100 km/h. **Section 2.6**, **Section 2.7** and **Section 2.8** discuss the cross-section proposed for each section of the Proposed Development.

The selection of road type and access to the Proposed Development has been developed to comply with the relevant Regulations, Standards and Policies, including but not restricted to the TEN-T Regulation, TII design standards and Ireland's Government Road Safety Strategy current at the time of the design.

### 2.4.1 Road Design – Cross Sections

#### 2.4.1.1 Mainline Cross Section

The cross sections for the Proposed Development were determined using the steps and guidance in the TII publications DN-GEO-03031 (Rural Road Link Design Standards, May 2023) and DN-GEO-03036 Cross Sections and Headroom Standards, May 2023) and with cognisance with other policies and regulatory requirements. The mainline cross section configurations are illustrated in **Figure 2.2** and **Figure 2.3**.

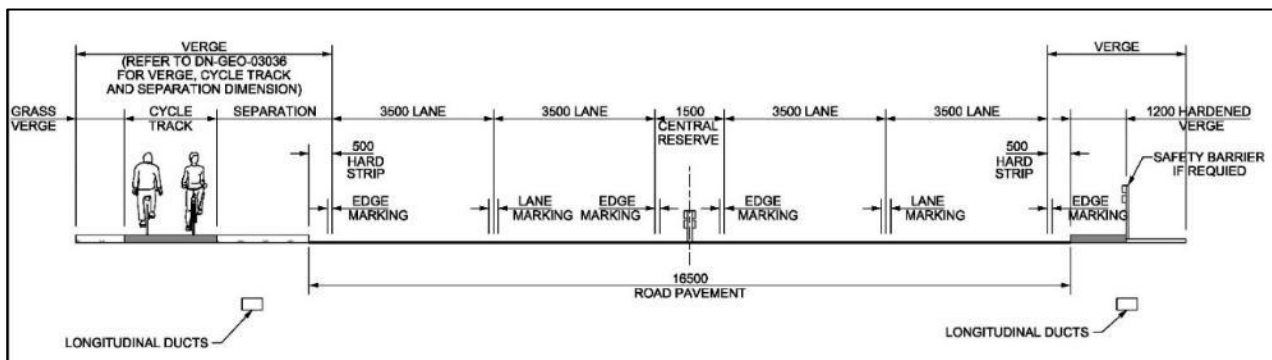


Figure 2.2: Type 2 Divided Road Cross Section

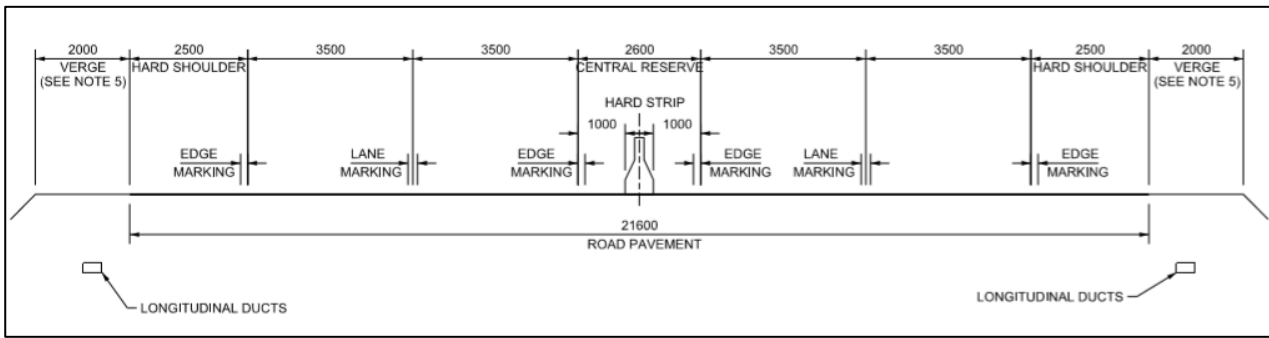


Figure 2.3: Type 1 Dual Carriageway Cross Section

### 2.4.1.2 Tie-ins to Existing National Roads

At the tie-ins to the existing national road network, Type 1 Single Carriageway cross section will be used, as shown in **Figure 2.4**.

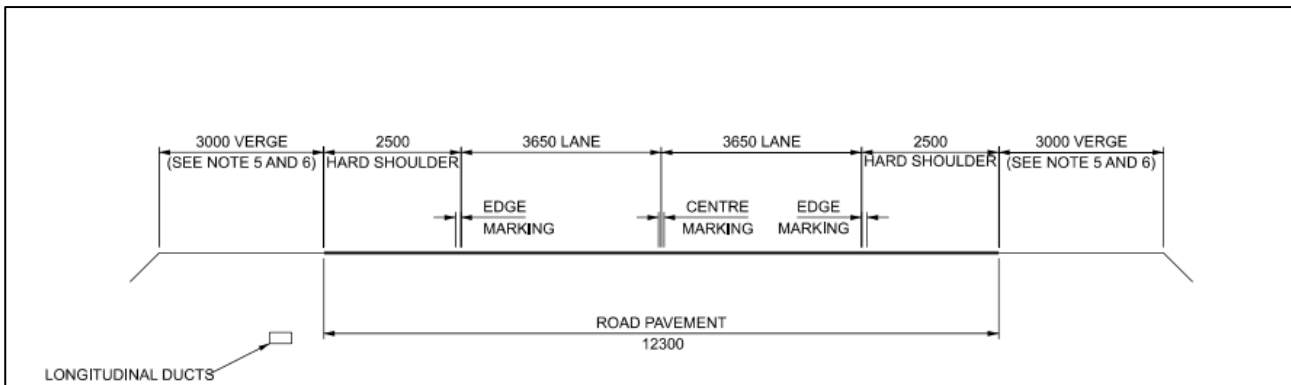


Figure 2.4: Type 1 Single Carriageway

### 2.4.1.3 Link Roads and Slip Road Cross Section

At some locations, the actual cross sections have been amended where necessary based on design and development requirements, particularly along the transition to the existing road network. Link roads and slip roads are illustrated in the General Arrangement drawings, EIA Drawings 4.1, 4.2 and 4.3, in **Appendix 1**:

- **Link Roads** – Link roads are connector roads separate from the mainline carriageway, which are used to connect the mainline carriageway to the local, regional and other national road network. The link road section configurations are illustrated in **Figure 2.5** and **Figure 2.6**.
- **Slip Roads** – Slip roads are connector roads within a junction between a mainline carriageway and the local or regional road network, or vice versa, which meets the local road/regional road network at-grade. Traffic using a slip road usually has to yield to traffic already on the mainline or on the local/regional road network.

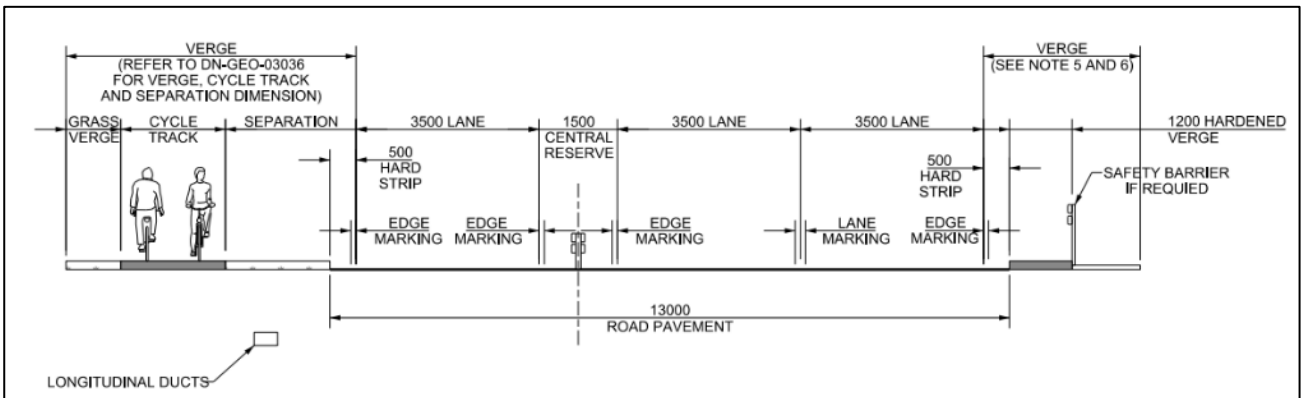


Figure 2.5: Type 3 Divided Road Cross Section

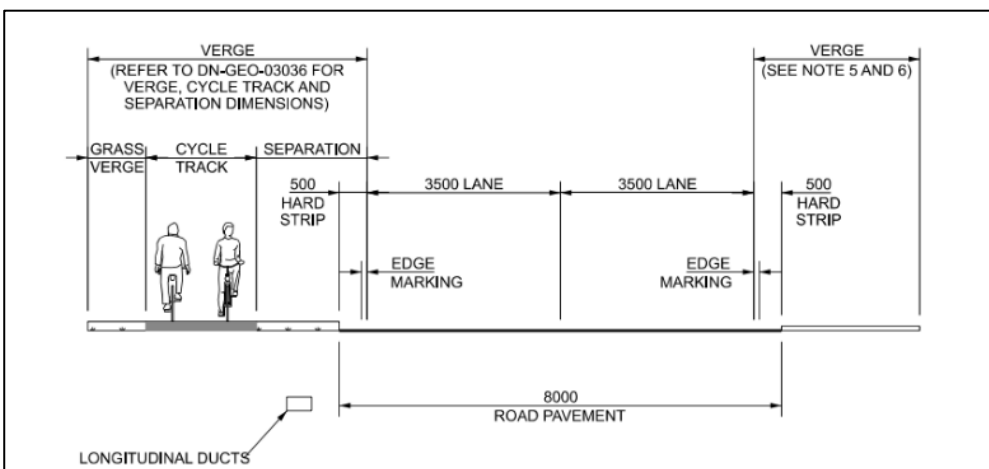


Figure 2.6: Type 2 Single Carriageway Cross Section

### 2.4.1.4 Side Road Cross Section

Side roads were designed in accordance with TII publication DN-GEO-03031. The minimum carriageway width provided for realigned side roads is 5.5 m with 2.5 m verges. Public side roads will generally be bridged over or under the mainline route where it is necessary or extinguished where there is no significant adverse impact or significant community severance. A typical cross section of realigned side roads is illustrated in Figure 2.7.

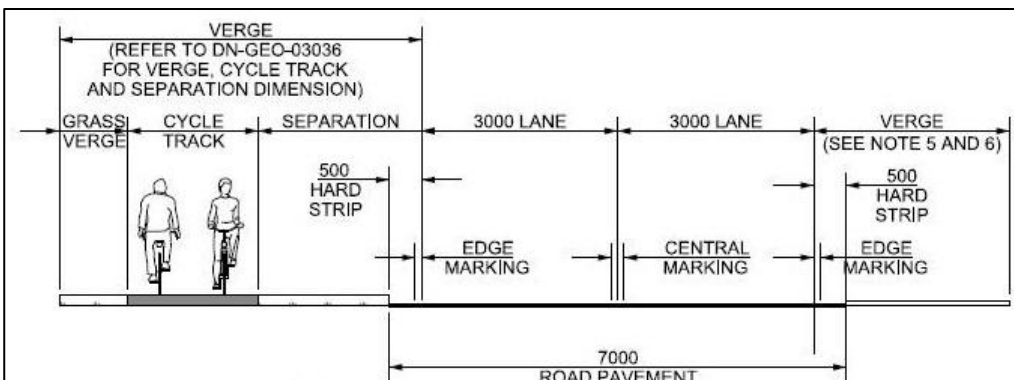


Figure 2.7: Type 3 Single Carriageway Side Road Cross Section

The type and location of side roads for each section are further described in **Section 2.6.3**, **Section 2.7.3** and **Section 2.8.3**.

Details regarding drainage proposed on side roads, as well as drainage associated with cycleways is provided in **Section 2.4.8.2**.

## 2.4.2 Horizontal and Vertical Alignment

The horizontal and vertical alignments for the three sections have been developed in accordance with TII standard DN-GEO-03031.

The horizontal and vertical alignments consider all identified constraints and have avoided and sought to minimise impacts in so far as practicable. Desirable minimum design standards have been applied with relaxations and departures from minimum standards only applied where necessary.

Vertical alignments have evolved to achieve a balance in earthwork quantities where feasible, to minimise the import and export of material, and thus contribute to the reduction of the environmental impact and carbon footprint for the project.

The horizontal and vertical alignments of the roads and design features shown herein have been designed to an advanced level to allow for a full assessment of the environmental impacts associated with same. Minor variations including of horizontal or vertical alignments may occur in response to any specific issues arising during detailed design and construction but subject in all cases to no additional environmental impacts being likely to arise as a result of same.

## 2.4.3 Junction Design

A junction strategy has been carried out with consideration of tie-in locations/ constraints to the existing road network, traffic analysis and consistency.

The traffic analysis examined the preliminary engineering, traffic, safety and economic justifications for junction access strategies for the Proposed Development and recommended the preferred location and form of these junctions to assist with preliminary costing analysis.

In determining suitable junction locations consideration is given to:

- The tie-in locations of each section.
- The level of demand for vehicles wishing access to and from the surrounding area.
- The level of demand for access to other principal routes.

TII publications provide guidance on the type of junction recommended for different design flows. The selection process of junctions depends on the volume of traffic and the proportion of minor road flow compared with major road flow.

### 2.4.3.1 Single Carriageways

Single carriageways allow for the following types of junctions:

- Priority junctions.
- Roundabouts.
- Compact grade separated junctions.

### 2.4.3.2 Type 2 Divided Roads

Type 2 Divided Roads allow for the following types of junctions:

- Roundabouts.
- Compact Grade Separated Junctions.
- Left-in/Left-out.

### 2.4.3.3 Type 3 Divided Roads

Type 3 Divided Roads allow for the following types of junctions:

- Left-in/Left-out or ghost island priority
- U-turn facility with right turn.
- At grade roundabouts.
- Compact grade separation Junctions.

### 2.4.3.4 Type 1 Dual carriageways

Type 1 dual carriageways allow for the following types of junctions:

- Roundabouts.
- Grade Separated Junctions.
- Left-in/Left-out.

Access to private lands and dwellings off the proposed mainline carriageways have been avoided by diverting existing accesses onto the local road network. By removing all accesses onto the proposed mainline carriageway the overall safety of the road is improved. Where, in a small number of cases, almost exclusively at the transition to the existing national road network, access cannot be provided to private lands and dwellings via local roads or access tracks, access will be maintained to the National Road.

Type and location of junctions for each road section are further described in **Sections 2.6.2, Section 2.7.2** and **Section 2.8.2**.

## 2.4.4 Active Travel Network

### 2.4.4.1 Active Travel Objectives

The inclusion and promotion of active travel forms a key component of the Project. This responds to the need to promote physical and mental health benefits, and to encourage a modal shift towards cycling and walking modes of transport. To achieve this promotion of health benefits, dedicated shared pedestrian/ cycling facilities are provided as part of the Proposed Development. This provision is also a key element in addressing national policy including in respect to climate action and delivery of the National Cycle Network.

### 2.4.4.2 Active Travel Facility

Each section includes a Type 2 Divided Road cross-section which includes a 3 m wide active travel facility (shared cycleway/ footway) providing extensive, longitudinal facilities for non-motorised users. The active travel facility is separated from the nearest edge of the closest traffic lane by a minimum of 6 m, except at structure locations where the separation distance is reduced to 3 m.

Additionally, there are Type 1 Single Carriageway and Type 1 Dual Carriageway and Type 3 Divided Road cross sections included within Sections 1 and 2 respectively. To provide a holistic active travel network, cycle/ pedestrian facilities have been included with these Type 1 road elements. This includes the active travel facility located adjacent to the Type 1 Single Carriageway Road and Type 3 Divided Road in Section 1 and the active travel facility located remotely from the Type 1 Dual Carriageway in Section 2.

Connections to the existing road network, from the above facilities, are provided where appropriate in each section.

### 2.4.4.3 Park and Share / Cycle Facilities

Park and share/ cycle facilities are provided at designated locations in the Proposed Development and form hubs at which motorists can park their own car and car share with other motorists or avail of public transport (public bus) in order to complete an ongoing journey or park their car while they utilise the active travel facilities for commuting, exercise or amenity usage. Immediate access to the wider active travel network is provided at each park and share/ cycle facility.

The proposed location and layout of the Park and Share facilities are shown in the drawings in **Appendix 1**.

The park and share/ cycle facilities are equipped with car parking spaces, cycles stands and picnic areas. Provision for HGV and bus parking are also provided within the Lifford and Pluck Roundabout park and share / cycle sites. While it is not proposed to provide toilet facilities with this project, each park and share/ cycle area will have service connections to utilities to enable the potential inclusion of such facilities in the future. Charging facilities for electric vehicles will also be provided which will support the DoT's Electric Vehicles Charging Infrastructure Strategy 2022-2025.

### 2.4.4.4 Access to Amenities

Access to local amenities and the local active travel network (existing footways, cycleways) will be provided at interface points with the proposed active travel network for the Project to ensure connectivity between proposed and existing networks.

## 2.4.5 Pavement Design

A flexible pavement has been designed for the Proposed Development in accordance with TII publication DN-PAV-03021 for a 40-year design life. Low noise surfacing has been proposed in the design.

## 2.4.6 Watercourse Crossings / Other Structures

### 2.4.6.1 Watercourse Crossings

The proposed structures that cross watercourses for the Project are categorised as:

- **Major River Bridges** - comprising major bridge structures crossing the River Finn (one each in Section 1 and Section 3), River Swilly (Section 2) and the River Deele (Section 3).
- **River Bridges** - comprising standardised bridge structures crossing small rivers, tributaries and small watercourses, that are unsuitable/ too large to be accommodated by culverts.
- **Culverts** - comprising structures that accommodate small watercourses that pass beneath the Proposed Development either on their current alignment or on a diverted alignment.

Proposed structures have been designed in accordance with TII publication AM-STR-06008, NRA Guidelines for the crossing of watercourses during the construction of National Road Schemes, and Loughs Agency Guidelines for fisheries protection during development works (Foyle and Carlingford areas).

The type and location of river/ watercourse structures for each road section are further described in **Sections 2.6.9, Section 2.7.9 and Section 2.8.9**.

### Major River Bridges

'Major River Bridges' are defined as road-over-river bridges with spans greater than 50 m and are classified as Category 3 Structures. The following major river bridges form part of the Proposed Development:

- River Finn Crossing (Section 1) River Bridge N15R024.

- River Swilly Crossing (Section 2) River Bridge N56R005.
- River Finn Crossing (N14/N15 to A5 Link) (Section 3) River Bridge.
- Deele River Bridge (Section 3) River Bridge N14R144.

Further details of these Major River Bridges are provided in **Section 2.6.6**, **Section 2.7.6** and **Section 2.8.6**.

## River Bridges

River Bridges are defined as road-over-river bridges and are Category 2 structures where the spans range from 7 m to 50 m. These are summarised individually in the sections below. The sites are generally rural countryside locations with agricultural grassland, scattered buildings and a few nearby villages and small towns.

## Culverts

Culverts are described under the 'Minor Structures' heading in the following section.

### 2.4.6.2 Other Structures

#### Overbridges and Skewed Overbridges

The overbridges have been designed as standard overbridges (0 to 37 degrees skew) and skewed overbridges (>37 degrees skew).

Each of the standard proposed overbridge structures are three span integral bridges. The bridge decks are formed from precast prestressed concrete W-beams acting compositely with a cast in-situ reinforced concrete deck slab.

The end supports will take the form of reinforced concrete bank-seats. The intermediate pier supports will take the form of reinforced concrete circular piers. It is expected that spread foundations will be adequate for the proposed structures. Where necessary, compacted 6N fill (a well-graded granular material) will be provided between the foundation and the natural ground strata to achieve the required bearing capacity.

The standard overbridges vary in width from 12 m to 17.5 m and in skew from 0 degrees to 37 degrees. There are 14 no. standard overbridges proposed.

Each of the skewed overbridge structures are also three span bridges. The bridge decks are formed from precast prestressed concrete W-beams acting compositely with a cast in-situ reinforced concrete deck slab. The superstructures will be monolithic with the intermediate piers supports but will be supported by structural bearings at the abutments.

The end supports will take the form of reinforced concrete abutments with inspection galleries. The intermediate pier supports will take the form of reinforced concrete circular columns. It is expected that spread foundations will be adequate for the proposed structures. Where necessary, compacted 6N upfill will be provided between the foundation and the natural ground strata to achieve the required bearing capacity.

The skewed overbridges vary in width from 13 m to 16 m and in skew from 43 degrees to 54 degrees. There are 3 skewed overbridges proposed.

## Underbridges

'Underbridges' are defined as bridges which carry the mainline carriageway over various regional, local and link roads. There are 16 no. underbridges proposed.

The required square clear spans are 9 m to 20 m. Approximately half the sites have roads crossing at skew greater than 30 degrees. All the underbridges are single span.

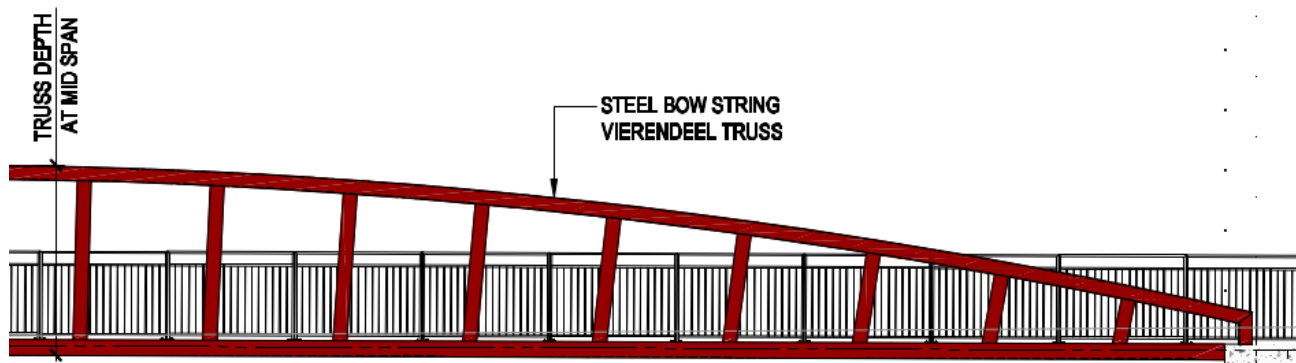
Spread foundations will be adequate for the proposed underbridge structures. Where necessary, compacted 6N fill will be provided between the foundation and the natural ground strata to achieve the required bearing capacity.

Three different structural arrangements are proposed depending on the span, skew, and cover depth at the underbridge sites:

- Buried box / portal.
- Precast (PC) beam deck on integral abutments.
- PC beam deck with dead deck areas on integral abutments.

### Active Travel Bridges

Three active travel overbridges are included in the Proposed Development. The proposed bridge superstructure is a bow-string arch, Vierendeel steel truss (typical elevation shown in **Figure 2.8**).



**Figure 2.8: Elevation of Proposed Active Travel Bridge Superstructure (Midspan to Abutment)**

- The proposed bridge superstructure consists of steel, bow string arch Vierendeel trusses. The rise of the bow-string arch truss would be approx. 3 m at midspan. The footbridges over carriageways achieve min. 5.7 m headroom.
- 1.45 m tall pedestrian/ cycle parapets will be bolted to the steel superstructure. This facilitates replacement after the 30 to 50-year design life of steel parapets has expired.
- 1.45 m tall pedestrian/ cycle parapets will also be provided along active travel path approaches to the active travel bridges where there is a wall adjacent, or where there are slopes falling to a watercourse or road.
- Away from the active travel path, timber fencing in accordance with CC-SCD-00300 shall be provided along the top of retaining walls and wingwalls, and along maintenance access walkways at the crest of slopes falling to a road or watercourse.
- For Section 2, weathering steel is proposed for the crossing of the Isle Burn. A paint protection system is proposed for the bridges over the proposed N14, and the bridge over the existing N13 due to the likelihood of salt spray from the road underneath.
- The internal width on the active travel bridge is 4 m, which consists of 3.0 m active travel facility plus 2 x 0.5 m lateral clearance to parapets.
- The prefabricated truss decks would be quick to install, which would minimise road closure durations.

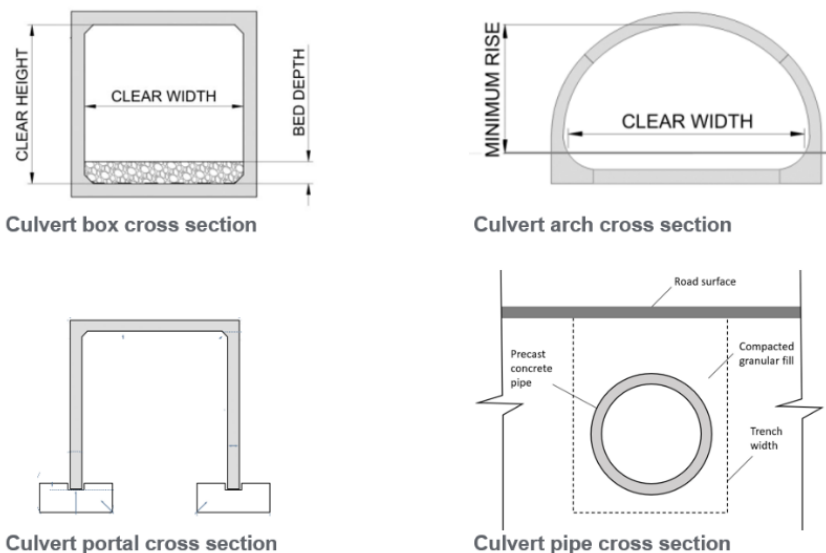
- Embankment fill ramp approaches are proposed, as it is low cost and blends into the landscape. For the active travel overbridge crossing the N13, on the northern side, where space is constrained, reinforced soil slopes are proposed between the legs of the zigzag ramp approaches as the grass finish is preferable to a hard engineered solution such as concrete or steel.

## Minor Structures

**Culverts** - Numerous culverts and cross drains are proposed along the road development, either for existing watercourses or for road drainage, boundary ditches or swales. Culverts with a clear span or internal diameter greater than 2.0 m are classified as structures in accordance with DN-STR-03001 (TII, April 2019). All culverts 2m or less in diameter or span are dealt with under the Drainage section.

The details and locations of all (drainage and structures) culverts are shown in **Section 2.6.9** for Section 1, **Section 2.7.9** for Section 2 and **Section 2.8.9** for Section 3.

Culverts consist of buried concrete box, arch, portal or pipe type cross sections as shown in **Figure 2.9**.



**Figure 2.9: Culvert Types**

Precast construction is preferable to in-situ concrete construction to reduce the risk of watercourse contamination, and for buildability and economic reasons.

Wingwalls can either be precast or in-situ concrete construction depending on contractor preferences. Wingwalls are generally flared at a 30 to 70-degree angle to the watercourse axis. An apron slab is generally provided for scour protection and overturning stability. Spread foundations are generally adequate for culvert structures.

**Environmental noise barriers** - Environmental noise barriers are proposed alongside the mainline carriageway where noise attenuation is needed for sensitive receptors, e.g., residential areas, along the route. The height, length, and reflective / absorptive requirements of each environmental noise barrier run is determined according to specific locations. The structural configuration shall be in accordance with TII Standard Construction Detail No. CC-SCD-00323

**Gantries** - The advanced directional sign gantries for the Proposed Development will adopt the standardised structural configurations given in DN-STR-03010 (TII, February 2017).

**Active Travel Underpasses** - Several active travel underpasses are required to accommodate active travel facilities under the mainline carriageways. The width of the active travel facility is generally 3.0 m, although a reduced width at structure cross sections is justified in constrained locations. There is a requirement for

0.5 m lateral clearance on both sides. Generally, an internal box width of 4 m and internal height 3 m is adequate. Precast box, precast UAN or in-situ box/portal structural types are generally appropriate for these underpasses.

The details of Active Travel Underpasses are described in **Section 2.6.7** for Section 1, **Section 2.7.7** for Section 2 and **Section 2.8.7** for Section 3.

The locations of Active Travel Underpasses are shown on the general arrangement drawings in **Appendix 1**:

- Section 1: EIAR Drawing 4.1.
- Section 2: EIAR Drawing 4.2.
- Section 3: EIAR Drawing 4.3.

**Accommodation Underpasses** - Initial consultations with landowners have taken place to agree the principle of accommodation roads and underpasses and to identify land take requirements. A precast UAN box, precast joined portal or in-situ concrete buried box is viable at most sites. The internal box width varies between 3 m and 5 m and the internal box height varies between 2.5 m and 5 m.

The details of Accommodation Underpasses are provided in **Section 2.6.7** for Section 1 and **Section 2.8.7** for Section 3. There are no Accommodation Underpasses in Section 2.

The locations of Accommodation Underpasses are shown on the general arrangement drawings in **Appendix 1**:

- Section 1: EIAR Drawing 4.1.
- Section 2: EIAR Drawing 4.2.
- Section 3: EIAR Drawing 4.3.

**Retaining walls** - Retaining walls are proposed on Sections 1 and 2 of the Proposed Development. A gravity retaining wall in the form of a proprietary modular system such as Redi-Rock or a similar alternative will be used at all locations. The details of retaining walls are provided in **Section 2.6.7** for Section 1 and **Section 2.7.7** for Section 2. There are no retaining walls proposed in Section 3.

### 2.4.6.3 OPW Section 50 consent

Where required, OPW Section 50 consent has been obtained for watercourse crossings.

### 2.4.7 Maritime Area

The Proposed Development interacts with parts of the Maritime Area in Letterkenny and Lifford, where the high-water mark extends from, respectively, Lough Swilly and Lough Foyle. In accordance with the requirements of the Maritime Area Planning Act 2021, as amended, Donegal County Council applied to the Maritime Area Regulatory Authority (MARA) for a Maritime Area Consent (MAC) for the state-owned part of the Maritime Area that is required for the purpose of the Proposed Development at the proposed River Swilly bridge crossing. MARA granted the MAC, reference MAC20240012, on 28 November 2025<sup>1</sup>. MARA cannot grant a MAC in respect of registered privately owned lands in the Maritime Area. Where registered privately owned lands, or private rights or interests in relation to lands, in the Maritime Area are required for the purposes of the Proposed Development, any such privately owned lands, rights, and interests will be acquired via the Compulsory Purchase Order (CPO) process.

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<sup>1</sup> Available: [MAC20240012 - MARA - Maritime Area Regulatory Authority](#)

## 2.4.8 Drainage

The drainage system is designed in accordance with sustainable drainage design principles and guidance provided in the following documents:

- TII Publication Standards
- CIRIA C648 Control of water pollution from linear construction projects.
- CIRIA C532 Control of water pollution from construction sites: guidance for consultants and contractors.

The treatment of surface water run-off prior to outfall discharge, spill containment measures and attenuation treatment facilities will be provided at all locations prior to discharge.

### 2.4.8.1 Management of Flood Risk

Flood Risk Assessments have been completed for all major river crossings where the Proposed Development is located.

### 2.4.8.2 Drainage Approach

The following sections describe the design approach to drainage for the Proposed Development.

#### Interceptor Ditches

Interceptor ditches will be located to fully intercept the overland flow from the natural catchments adjacent to the Proposed Development, both during construction and the operational phases. The interceptor ditches will collect surface water runoff at the top of the cuttings or the base of the embankments where the adjacent land falls towards the Proposed Development. The interceptor ditches will prevent surface water from adjacent land from flowing onto the proposed works and prevent ponding of water at the toe of the embankments. Any land drains that are interrupted by the new works will be diverted or discharged into an interceptor ditch. Interceptor ditches will generally discharge into existing land drains, streams, and rivers when possible. Cross-drains will be provided to convey flow from the interceptor ditches beneath the Proposed Development to the outfall/discharge locations where required.

#### Mainline Surface Water Drainage

A drainage system for the Proposed Development has been designed such that surface water drainage and sub-grade drainage will be provided for the mainline carriageway, link roads and all new sections of local and regional roads. The design approach across all three sections ensures that mainline road surface drainage is carried by means of a road drainage network to surface attenuation features before discharging to watercourses at greenfield run-off rates. The design also includes other road alignments to be captured by the mainline drainage network and fully attenuated.

For the mainline and sideroads the drainage systems that will be used are in accordance with the following criteria:

- Cuttings and low embankments in non-sealed areas: filter drains and/or grassed surface water channels.
- Cuttings and low embankments in sealed areas (due to vulnerable aquifers): concrete surface water channels with separate sub surface drain/filter drain.
- Embankments-non sealed areas: over the edge or surface water channels.
- Embankments in sealed areas: concrete surface water channels.
- Kerbed junctions: drainage kerbs/kerbs and gullies.

## Viaducts and Bridge Structures

For the river bridges, a sealed drainage system will capture the runoff on the bridge deck and connect to the road drainage network. From here, it will be conveyed to an attenuation pond before discharging to the respective rivers. These rivers are: River Finn (SAC) (Sections 1 and 3), River Deelee (Section 3), River Swilly Burn (Section 3) and River Swilly (Section 2).

## Side Roads and Link Roads

Side roads include regional, local and minor access roads. Some of them require kerbs at locations such as at bridge or junction locations. In these situations, the road will be drained using gullies or drainage kerbs with carrier drains and a separate filter drain in areas where groundwater drainage problems exist, in areas with large cuttings or in shallow embankments. Surface water channels will be placed in cases where these embankments are higher than 1.5 m. Piped drains will collect the water and discharge it to an outfall, interceptor ditch or to the mainline drainage system. The final outfalls will be to existing watercourses or infiltration trenches where no watercourses are accessible or near the outfall.

Minor access roads and access tracks will be drained over the edge to interceptor ditches and will be conveyed to a final outfall as mentioned above.

Some side roads or some sections of them are attenuated before discharging to watercourses depending on the type of road (traffic, catchments,) and the area available to provide ponds.

All proposed new link roads are provided with attenuation facilities to ensure that there is no worsening of peak flow rates at site boundaries up to the 1 in 100-year flood event in accordance with DN-DNG-03022-(HD33) Drainage Systems for National Roads.

## Active Travel Network

Drainage for active travel was designed in accordance with the TII Publication DN-DNG-03065 Road drainage and the water environment.

The active travel network will be drained by the one of the following three methods:

- Over the edge to adjacent interceptor ditches.
- Into mainline and sideroad drainage systems. Where convenient, adjacent drainage systems for the mainline and sideroads in the form of filter drains and surface water channels will take pavement runoff from the cycle tracks.
- Where neither of the above methods are suitable, a unique filter drain or surface water channel will be provided specifically for the active travel drainage.

## Outfalls and Attenuation Ponds

Attenuation ponds will be provided at all major surface water outfalls. They are designed in accordance with DN-DNG-03063-(HD 103) Vegetated Drainage Systems for Road Runoff. Additionally, where discharge is to ground via infiltration, infiltration basins/ trenches are provided as the outfall.

Surface water discharge from attenuation facilities will be released at a rate so as not to increase flooding downstream of any discharge point up to the 1 in 100-year return period storm event. Discharge will be provided from the attenuation measures at the green-field runoff rate.

Attenuation ponds are designed to cater for storm water storage up to and including the 1 in 100-year return period storm event with a 20% increase in flows to cater for the effects of climate change. An additional 300 mm freeboard is included at all attenuation facilities. An overflow discharge facility will be provided for storms in excess of the freeboard. Where attenuation ponds are located in areas liable to flooding, e.g. river floodplains, ponds will be designed for a 1 in 100-year return period and an assessment of the impact of the

pond on the hydraulic regime of the watercourse shall be undertaken and the pond bunded to a level 500 mm above the adjacent 1 in 100 year flood level.

A total of 50 major outfalls across the mainline and link road drainage networks have been identified all of which require attenuation measures prior to being discharged to either an existing watercourse or to ground.

There are numerous smaller drainage networks associated with side roads. Where it was possible and where they represent high trafficked roads with large catchments, they have been attenuated. Some of them have been connected to the mainline drainage network and therefore attenuated through one of the mainline ponds. When this was not possible, small attenuation ponds have been located in areas available where some side road networks can be attenuated before discharging to surface watercourses.

There is one infiltration basin within Section 1 where the attenuation pond outfalls to ground. The infiltration basin will cater for storm water storage up to and including the 1 in 100-year return period storm event with a 20% increase in flows to cater for the effects of climate change. An additional 300 mm freeboard is included at all attenuation facilities.

### **Pond Access & Maintenance**

Access shall be provided to attenuation pond facilities for maintenance. Accesses are designed in accordance with CC-SCD-02754 (RCD/2700/101) Accommodation Works Field Access and the access tracks are in accordance with CC-SCD-00706 (RCD/700/6) Access Road/ Service Road. Where there is potential for risk of entry to open water bodies, e.g. at attenuation ponds, secure fencing will surround the body of open water to prevent unauthorised access.

### **2.4.8.3 Pollution Control**

Potential pollution impacts posed by the Proposed Development on the receiving water environment have been assessed in accordance with DN-DNG-03065- (HD 45) Road drainage and the water environment. The method employed assesses the effects of routine runoff on surface water bodies and also groundwater bodies.

## **2.4.9 Services and Utilities**

### **2.4.9.1 General**

The Proposed Development traverses a significant area of both rural, suburban and urban environments. There will be impacts to existing utilities and services during construction which will require temporary and/or permanent diversions. Temporary disruptions during construction will be minimised and there will be no permanent disruption to services.

### **2.4.9.2 Ducting**

ITS (Intelligent Transport System) infrastructure will be provided as part of the road development. This will include provision of ITS communications ducting and chambers in accordance with DN-ITS-03029 (TII, May 2019). Ducting will consist of a total of six 100 mm diameter ducts in each verge of the mainline (i.e. four TII Communication ducts and two TII Unassigned ducts). Chambers (1.75m x 0.75m in plan) are provided every 250m. Transverse ducts underneath the mainline and linking the verge ducting on both sides of the mainline will be provided every 500m.

### **2.4.9.3 Public Lighting**

It is proposed to provide lighting at mainline junctions for reasons of safety, in accordance with the TII guidance in DN-LHT-03038 Design of Road Lighting for the National Road Network.

Where the unlit distance between lit sections of adjacent mainline junctions is less than four times the desirable minimum stopping sight distance (SSD) then mainline lighting over the full extents shall be provided.

The lighting design shall also follow best practice in relation to environmental issues, particularly in strictly limiting light to areas where required for traffic safety thereby limiting nuisance light spill. Among the measures to be employed in this regard shall be:

- The use of LED lanterns which are very energy-efficient, which focus light accurately where it is required, and minimise spill light.
- LED lanterns have long maintenance intervals, thus reducing maintenance costs and carbon-generating maintenance journeys and transport.
- The design shall employ lanterns mounted at zero degrees tilt to the horizontal, so that no light is emitted above the horizontal plane, thus minimising sky glow.
- In general, lighting columns no higher than ten metres shall be used to further limit light spill and enhance the daytime appearance of the installation. In some instances, such as at larger roundabouts, columns of 12 m height will be necessary.
- As far as possible, fully recyclable materials shall be specified.
- Lighting will not be provided for the active travel network in rural areas, in accordance with TII guidance DN-GEO-03047- Rural Cycleway Design (Offline and Greenways).
- In Section 2 the active travel underpasses will be lit due to their proximity to urban areas.
- Lighting will be provided at the following park and share / cycle facilities only, due to their proximity to urban areas and junctions with lighting proposed. The lighting infrastructure will be lower intensity than the road lighting described above.
  - Facility 1.02 (Ballybofey Link Road South Roundabout in Section 1).
  - Facility 2.01 (Dry Arch Roundabout in Section 2).
  - Facility 3.01 (N13/N14 Pluck Roundabout in Section 3).
  - Facility 3.02 (Ballinalecky Junction in Section 3).
  - Facility 3.04 (Lifford Junction – N14/N15 Roundabout in Section 3).

#### 2.4.9.4 Signals, Controls and Signage

There are no traffic signals, junction controls or variable message signs proposed however the spare duct provisions shall future proof the road infrastructure in urban locations and as part of the wider Intelligent Transportation System (ITS) network should the need arise.

Directional and Regulatory road signage shall be provided in accordance with the Traffic Signs Manual, and amendments, as published by the Department of Transport. Sign faces for the Mainline will be for the 100 kph design speed proposed.

Road Markings, Reflective Markings and Road Studs will be provided in accordance with the Traffic Signs Manual and in accordance with Series 1200 of the Specification for Road Works as published by TII.

Directional signage will be provided along the new national roads to provide advance warning to users of the approaching junctions and routes to key destinations. The design of tourist signage and the confirmation of destinations to be included along the route shall be agreed in conjunction with Donegal County Council and Fáilte Ireland and in accordance with the TII document 'Policy on the Provision of Tourist and Leisure Signage on National Roads' March 2011.

Where existing official authorised signage requires removal or updating arising from the Proposed Development (for example due to construction works associated with the Proposed Development, or outside of the Proposed Development where a route is downgraded or realigned), such signage will be replaced appropriately by a separate contractor and in agreement with Donegal County Council in accordance with standard practice following the main construction works.

Temporary traffic signs during construction will comply with Chapter 8 of the Traffic Signs Manual.

All road signage shall comply with the requirements of the Traffic Signs Manual in relation to the use of the Irish Language.

## 2.4.10 Hazards

The TII *Project Appraisal Guidelines for National Roads Unit 7.0 – Multi Criteria Analysis (PE-PAG-02031)* guidance document identifies two principal road safety criteria:

- Collision reduction
- Security of road users

The assessment also includes the findings of the following two safety reports:

- Road Safety Audit (RSA) Stage F Part 1 Report completed as a comparative assessment of the options from a road safety perspective, in accordance with the requirements of GE-STY-01024.
- Road Safety Impact Assessment (RSIA) undertaken in accordance with PE-PMG-02001, to compare the options in terms of potential road safety implications of each option, while considering the safety benefits and dis-benefits arising from each option.

Forgiving roadside measures incorporated into the design include:

- Locating headwalls outside of the Clear Zone, i.e. an obstacle-free area with a flat and gently graded ground. This provides motorists with room and opportunity to regain control of their vehicle in case of a run-off.
- Roadside features such as signs and lighting columns within the clear zone to be provided with passively safe poles.
- Embankments shall be provided with 1:3 slopes where space permits.
- Cut slopes to be no steeper than 1:2 within the clear zone.

The Design has been subjected to independent Road Safety Audits. Any safety concerns identified in the Road Safety Audits have been addressed to the satisfaction of the audit team so that the safety of all road users is prioritised. The following presents a general description of these hazards and the measures taken within the design development to mitigate them.

### 2.4.10.1 Single Fixed Hazards

Single fixed hazards include non-deformable objects or obstacles that could cause harm to road users.

The Proposed Development has been designed to incorporate a clear zone where possible adjacent to live traffic lanes. This will enable a vehicle that has left the carriageway unintentionally to be able to slow down and stop, or re-join the carriageway safely, without meeting any fixed obstacles. Such hazards include culvert headwalls, bridge abutments, gantries, other signage and lighting columns.

Where it is not possible to keep an obstacle out of the clear zone, vehicle restraint systems (barriers) are used to protect errant vehicles from coming into contact directly with a fixed hazard and are designed with

passive safety to absorb the kinetic energy of the vehicle to reduce the severity of the impact or deflect the vehicle away from the hazard. Where objects do need to be placed in the clear zone, they may be designed to be deformable, providing passive safety to bend easily when impacted, to remove energy from the collision.

### 2.4.10.2 Continuous Hazards

Continuous hazards include linear features or hazards over a continuous length of the Proposed Development that could cause harm to road users. These typically include, but are not limited to:

- Embankments greater than 2 m in height and cutting faces.
- Rock faces
- Pedestrian / cycle lanes adjacent to the Proposed Development.
- Watercourses parallel to the Proposed Development.

The Proposed Development has been designed with forgiving road edges (including the clear zone described above) that reduce the risk of impact for vehicles that have left the carriageway. Examples of such measures include:

- Embankments with 1:3 slopes or shallower where space permits and cuttings with 1:2 slopes within the clear zone or shallower grade that reduce the risk of errant vehicles overturning after leaving the carriageway.
- Cutting slopes, particularly rock faces, sufficiently set back from the live traffic lanes to enable an errant vehicle that has left the carriageway unintentionally to be able to slow down and stop, or re-join the carriageway safely.
- Rock traps on rock faces to prevent loose material from rolling down the rock face and onto the carriageway.
- Earth bunds or barriers to prevent road users unintentionally leaving the road or footway / cycleway and entering watercourses.
- Central median with barrier to prevent road users coming into contact with oncoming traffic.
- Generally, a six metres separation between shared footway / cycleway and live traffic lane to reduce risk of vehicular traffic coming into contact with vulnerable road users.

### 2.4.10.3 Dynamic Hazards

Dynamic hazards would include hazards where there is a risk of moving vehicles or road users coming into contact with each other. These typically include:

- Vulnerable road users coming into contact with vehicles, such as locations where the active travel network crosses the Proposed Development.
- Road users (all kinds) coming into contact with other moving objects, such as objects falling from overbridges.
- Vehicles coming into contact with other moving vehicles.

The Proposed Development has been designed in accordance with TII geometric design standards to ensure sufficient visibility is provided for all road users to enable them to be aware of other road users and oncoming traffic.

Local traffic movements on side roads that cross the mainline have been accommodated by the provision of side road overbridges and underbridges that maintain local connectivity without the need to interface with the mainline, avoiding the risk of conflict and potential accidents.

On the proposed divided roads/ dual carriageways, vehicles are separated from on-coming traffic by the presence of a barrier within the central reserve.

#### 2.4.10.4 Deer

A deer collision risk assessment has been undertaken for the project.

In Section 1, two locations were identified as moderate risk and one as low risk. The mitigation proposed is cutting of roadside vegetation up to 15m from the road edge plus the provision of fixed warning signs.

In Section 2, one location was identified as low risk. The mitigation proposed is cutting of roadside vegetation up to 15m from the road edge plus the provision of fixed warning signs.

In Section 3, one location was identified as high risk. The mitigation proposed is cutting of roadside vegetation up to 15m from the road edge, the provision of fixed warning signs, deer fencing and a deer underpass at approximate chainage 4+500m. Details of the deer underpass are provided in **Table 2.32** (N14A045).

## 2.5 No Net Biodiversity Loss

The County Donegal Development Plan 2024-2030 contains policy BIO-P-3 that states the following:

*[...]“d. Require that large-scale developments result in no net biodiversity loss and include a site-specific comprehensive Biodiversity Management Plan (BMP), as part of any planning proposal.*

*This policy will be implemented by the Council in so far as same can be practicably and reasonably achieved within the context of Strategic Infrastructure Projects including, but not restricted to, the TEN-T Priority Route Improvement Project, Donegal, the Bridgend to County border project scheme, the Buncrana Inner relief Road and Greenways.”*

Similarly, in 2023 TII published their Biodiversity Plan that contains the following under Objective 4:

*Medium Term: Strive to achieve no net loss of biodiversity on all new projects by 2025.*

*Long Term: Strive to achieve a net gain for biodiversity on all new projects by 2030.*

In the absence of a published Irish metric in advance of the preparation of the EIAR to calculate biodiversity loss, a bespoke metric has been developed by RPS in-house ecologists for this Project. This Biodiversity Metric can be used to calculate the pre-construction and post-construction biodiversity value of the Project to demonstrate that there is no net biodiversity loss as a result of the construction of the Proposed Development.

Within the Biodiversity Metric, habitats within the development footprint are used as a proxy for biodiversity. Different habitat types can be assigned a specific value based on their area, distinctiveness and condition to calculate a biodiversity value. The biodiversity values can then be combined to calculate the overall biodiversity value. This is done for both the pre-construction and post-construction habitats to determine what if any loss in biodiversity value has occurred. This is the no net loss calculation.

As a first step, the biodiversity value is calculated for each of the pre-construction habitats within the boundary of the Proposed Development. This is the pre-construction baseline ‘biodiversity value.’ Separate calculations were undertaken using the Biodiversity Metric for each individual section of the Proposed Development as well as the whole of the Project, i.e. all three sections combined. This is the current biodiversity value of all of the habitats present within the CPO boundary.

As part of the construction works, the existing habitats within the CPO boundary will be retained, reinstated, modified, or lost. Habitats not impacted or necessary for the construction works will, where possible, be retained. Habitats physically disturbed by the construction works will be reinstated or modified and this includes the verges, embankments, attenuation ponds and other landscape designs within the CPO boundary. Habitats under the permanent infrastructure will be lost.

Retained and reinstated habitats will have no net change in biodiversity value. Therefore, to achieve a no net loss in biodiversity, the modified habitats must be replaced with habitats of a higher ecological value to offset the habitats that are lost. The ecologists and the landscape architect have worked together to develop a post-construction landscape and biodiversity habitat design that, where possible, provides higher value habitats to offset any lost habitats. The Biodiversity Metric was then used to calculate a post-construction biodiversity value. Again, this was undertaken for each individual section of the Proposed Development as well as the whole of the Project. This is the post-construction biodiversity value of all of the habitats present within the CPO boundary.

The difference between the pre- and post-construction biodiversity values then indicates that no net loss in biodiversity has been achieved.

Further information on the methodology and the calculations is contained in the separate Biodiversity No Net Loss report.

As detailed in the Biodiversity No Net Loss report, the calculations undertaken using the design and the Biodiversity Metric demonstrate that no net loss in biodiversity has been achieved for the Proposed Development.

Additionally, a Biodiversity Management Plan (BMP) has been developed for the Proposed Development, in accordance with BIO-P-3. This BMP takes details the management measures required to integrate the post-construction habitats with the landscape design (including landscape mitigation measures) to achieve no net loss in biodiversity for the Proposed Development.

## 2.6 Design- Section 1 N15/N13 Ballybofey/Stranorlar Urban Region

The Section 1 mainline is approximately 9.7 km long and runs from south to north and to the west of Ballybofey/ Stranorlar. Additionally, there are two link roads located to the south and the north of the towns providing connections from the Proposed Development to the existing N15 and R252 (Ballybofey), N13 (north of Stranorlar) and N15 (to Lifford) respectively.

The interfaces with the existing roads include:

- Tie-in to N15 south of Dooish.
- Tie-in to R252 Glenties Road at Cappry from Ballybofey Link Road North.
- Tie-in to N15 Ballybofey/ Cappry (Graham) from Ballybofey Link Road South.
- Tie-in to N13 north of Meenavoy.
- Tie-in to N13 at Tircallan.
- Tie-in to N15 at Treanamullin

Section 1 including the nomenclature given to its major components is illustrated below in **Figure 2.10**. For more detail on Section 1 including the alignment please refer to the general arrangement drawings in **Appendix 1**, EIAR Drawing 4.1.

The Proposed Development in Section 1 can be summarised under the following elements. The lengths of the individual sections are approximate.

### Roads:

- Mainline Section 1.1 which is 0.5 km of Type 1 Single Carriageway cross section between the existing N15 southern tie in and Dooish Junction (EIAR Drawing 4.1, sheet 1 of 8).
- Mainline Section 1.2 which is 8.6 km of Type 2 Divided Road bypassing Ballybofey/ Stranorlar between Dooish Junction and Meenavoy Junction (EIAR Drawing 4.1, sheets 1, 2, 4, 5, 6 and 7 of 8).
- Mainline Section 1.3 which is 0.6 km of Type 1 Single Carriageway cross section between Mainline Section 1.2 (Meenavoy Junction) and the existing N13 to the north of the Proposed Development (EIAR Drawing 4.1, sheet 7 of 8).
- Ballybofey Link Road North/ South which is 2.1 km Type 2 Single Carriageway connecting Mainline Section 1.2 to the local road network at Ballybofey (EIAR Drawing 4.1, sheets 2 and 3 of 8).
- N15 Primary Road Connector which is 3.1 km of Type 3 Divided Road connecting Mainline Section 1.2 to the existing N15 Lifford Road (Teevickmoy Junction to Treanamullin Junction) (EIAR Drawing 4.1, sheets 6 and 8 of 8).
- Provision of approximately 10.6 km of additional Type 1, Type 2 and Type 3 Single Carriageway roads not already mentioned above (includes new and realigned).

### Junctions:

- Three grade-separated junctions, one each at Cappry (EIAR Drawing 4.1, sheet 2 of 8), Teevickmoy, and Tircallan/ Dunwiley (both shown on EIAR Drawing 4.1, sheet 6 of 8), including structures, link roads and roundabouts.
- Three at-grade roundabout type junctions at tie-in transition points at Dooish (EIAR Drawing 4.1, sheet 1 of 8), Meenavoy (EIAR Drawing 4.1, sheet 7 of 8), and Treanamullin (EIAR Drawing 4.1, sheet 8 of 8).

**Structures:**

- 360 m long, seven span bridge (ref: N15R024) over the River Finn and flood plain at Ballybofey/ Stranorlar (clear span over the river channel).
- Two river/stream bridges.
- Seven overbridges.
- Five underbridges.
- Three underpasses (including active travel / mammal underpass).
- Culverts, gantries and environmental barriers.

**Active Travel:**

- Provision of active travel infrastructure. This includes connections to existing infrastructure and three new Park and Share / Cycle facilities, one each near Dooish, Cappry, and Meenavoy as illustrated in **Appendix 1** (EIAR Drawings 4.1).

**Other Works:**

- Access roads.
- Provision of attenuation ponds, flood compensation measures, watercourse diversions and associated drainage infrastructure.
- Provision of existing utility diversions and new utility infrastructure.
- Provision of landscape planting, signage, lighting, safety barrier, and other works ancillary to the construction and operation of the Proposed Development.

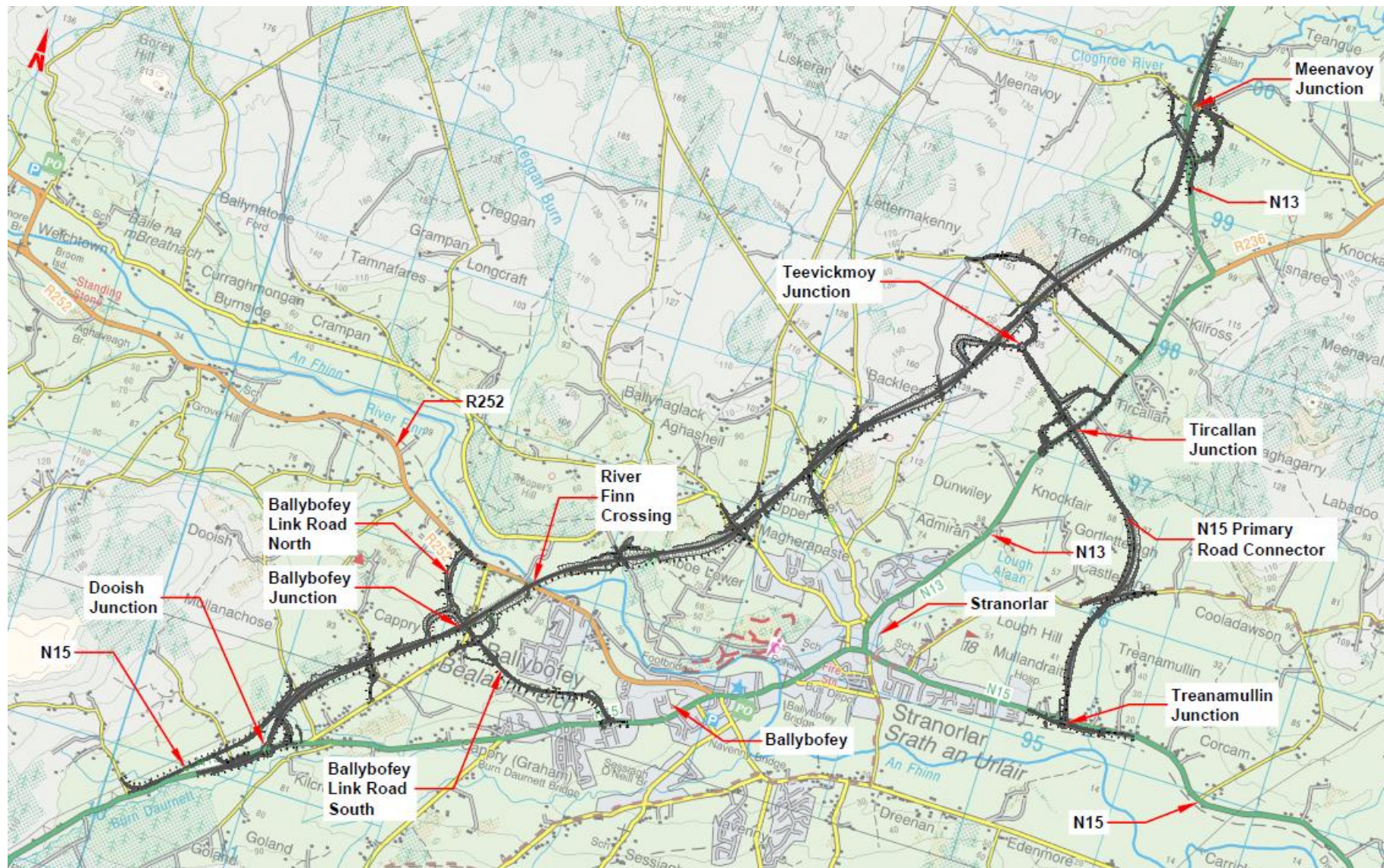


Figure 2.10: Section 1 Proposed Development

## 2.6.1 Roads

To achieve the best possible user safety, journey time reliability, average speed targets and capacity for freight, passenger and public transport, a Type 2 Divided Road is proposed along approximately 8.6 km of the mainline. **Figure 2.2** illustrates the Type 2 Divided Road cross section. This road cross section also fully accommodates segregated Active Travel facilities enabling modal shift and further aiding Park and Share and Park and Cycle/ Walk alternatives on the network. Predicted traffic volumes are considered while the transition to alternative fuels is augmented by regular and strategically positioned EV Charge hubs along the TEN-T network as per Regulation (EU) 2023/1804 on the deployment of alternative fuels infrastructure.

The traffic flows on the proposed N15/ N13 are predicted to grow, in the central growth scenario, to approximately 12,200 AADT for the scheme Opening Year 2032 with higher flows in future years (approximately 13,200 in 2047 – the Design Year). This includes the government target of 30% EVs on the Irish road network by 2030 with a much greater percentage expected by the Proposed Development in the design year.

For link roads and other roads, a combination of traffic volumes, route consistency/ tie-in, safety and design requirements determined the most appropriate cross section.

The main cross sections used on Section 1 are discussed below.

### 2.6.1.1 Section 1 – Road Cross Sections

Section 1 mainline cross section is shown in **Table 2.1**.

**Table 2.1: Type of Road – Section 1 Mainline**

| Road Name                                | Type of Road from DN-GOE-03031 Table 6.1              | Design / Posted Speed (km/hr) |
|--|---|-------------------------------|
| <b>Mainline Section 1.1 (N15 tie-in)</b> | Type 1 Single (7.3m Carriageway)                      | 100 / 100                     |
| <b>Mainline Section 1.2</b>              | Type 2 Divided Road 2+2 Lanes (2 x 7.0m Carriageways) | 100 / 100                     |
| <b>Mainline Section 1.3 (N13 tie-in)</b> | Type 1 Single (7.3m Carriageway)                      | 100 / 100                     |

Link road cross-sections for Section 1 are provided in **Table 2.2**.

**Table 2.2: Type of Road – Section 1 Link Roads**

| Road Name                                | Type of Road from DN-GOE-03031 Table 6.1                 | Design / Posted Speed (km/hr) |
|--|--|-------------------------------|
| <b>Ballybofey Link Road and Junction</b> | Type 2 Single (7.0m Carriageway)                         | 85 / 80                       |
| <b>N15 Primary Road Connector</b>        | Type 3 Divided Road (1 x 7.0m and 1 x 3.5m Carriageways) | 100 / 100                     |

Table 2.3 lists the slip roads within Section 1.

**Table 2.3: Design Speed – Section 1 Slip Roads**

| Road Name          | Junction Type           | Design / Posted Speed (km/hr) |
|--------------------|-------------------------|-------------------------------|
| Ballybofey NB Link | Compact Grade Separated | 30 / 50                       |
| Ballybofey SB Link | Compact Grade Separated | 30 / 50                       |
| Teevickmoy NB Link | Compact Grade Separated | 30 / 50                       |
| Teevickmoy SB Link | Compact Grade Separated | 30 / 50                       |

### 2.6.1.2 Alignment

The proposed mainline includes three parts, as shown in the general arrangement drawings in **Appendix 1**, EIA Drawing 4.1 (Sheets 1 to 8).

The longest part of the proposed mainline is Mainline Section 1.2 (approximately 8.6 km long) which comprises a Type 2 Divided Road cross section. Mainline Section 1.2 starts at Dooish Junction, where it joins Mainline Section 1.1 and continues in a north-westerly direction through Cappy to Ballybofey Junction, after which it crosses the River Finn, continuing to Teevickmoy Junction and then onto Meenavoy Junction where it joins Mainline Section 1.3.

The two other parts of the proposed mainline are Mainline Section 1.1 and Section 1.3 (0.5 km and 0.6 km respectively) which transition to the existing N15 and N13 National Roads at either end of Section 1. Both are Type 1 Single Carriageway cross section. Mainline Section 1.1 extends from the southern N15 tie-in to the Dooish Junction. Mainline Section 1.3 extends from Meenavoy Junction to the northern N13 tie-in.

In addition to the mainline alignments described above, connections will be provided to the existing local road network at existing and proposed junctions by means of new proposed single carriageway local roads and realignments of existing roads.

The Proposed Development includes a link road on the southern side of the River Finn connecting the Mainline Section 1.2 to both Ballybofey town and also the R252. There are two sections to the link road, namely, Ballybofey Link Road North and Ballybofey Link Road South. The Ballybofey Link Road North connects from Mainline Section 1.2 north to the existing R252 tie-in, and the Ballybofey Link Road South connects from Mainline Section 1.2 south to the existing N15 at Cappy (Graham) in Ballybofey town. The Ballybofey Link Road North/ South runs under the mainline at Cappy via underbridge N15U018 with a roundabout either side of the mainline. The total length of the Ballybofey Link Road North/South is approximately 2.1 km and is a Type 2 Single Carriageway cross section.

The N15 Primary Road Connector connects the Teevickmoy Junction on Mainline Section 1.2 to Treanamullin Junction on the existing N15. The length of the N15 Primary Road Connector is approximately 3.1 km and it is a Type 3 Divided Road cross section

Where the proposed mainline severs existing side roads, side road connectivity will be maintained where practicable including the inclusion of proposed bridges over or under the mainline as shown in EIA Drawing 4.1.

### 2.6.2 Junctions

Six junction locations have been identified for Section 1, at the following locations:

- **Dooish Junction** (EIA Drawing 4.1, sheets 1 of 8) – Southwestern tie-in of Section 1 to the existing N15. Transition between Mainline Section 1.1 and Mainline Section 1.2.

- **Ballybofey Link Road North/South** (EIAR Drawing 4.1, sheets 2 and 3 of 8) – Located to the southwest of the River Finn Bridge, the Ballybofey Link Road (a Type 2 Single Carriageway 2.1 km long) provides a junction to Mainline Section 1.2 at Cappry, and to the local road network including the R252 (north of Mainline Section 1.2) and the N15 (south of the Mainline Section 1.2).
- **Teevickmoy Junction** (EIAR Drawing 4.1, sheet 6 of 8) – Intermediate junction between the proposed Mainline Section 1.2 and the proposed N15 Primary Road Connector (a Type 3 Divided Road 3.1 km long).
- **Meenavoy Junction** (EIAR Drawing 4.1, sheet 7 of 8) – Northern tie-in between the Mainline Section 1.2 and the existing N13 at Callan Bridge, north of Kilross. Transition between Mainline Section 1.2 and Mainline Section 1.3.
- **Tircallan Junction** (EIAR Drawing 4.1, sheet 6 of 8) – Intermediate junction between Teevickmoy Junction and Treanamullin Junction on the N15 Primary Road Connector where it crosses the existing N13.
- **Treanamullin Junction** (EIAR Drawing 4.1, sheet 8 of 8) – The junction between the proposed N15 Primary Road Connector and the existing N15 east of St Joseph’s Hospital, Stranorlar.

### 2.6.2.1 Dooish Junction

A roundabout has been chosen for the following reasons:

- The junction ties in with the existing N15 from the south.
- The N15 approaches have different cross sections. The N15 northeast of the junction is a Type 2 Divided Road and the N15 south-west of the junction is a single carriageway. A roundabout provides a safe transition between single and Type 2 Divided Road (2+2 lanes).
- A roundabout facilitates connectivity to the local road network and local settlements/attractions (the community at Cappry).
- A roundabout is consistent with junction types already operating on the Donegal national primary road network.

### 2.6.2.2 Ballybofey Link Road North/ South

A compact grade separated junction has been chosen for the following reasons:

- The proposed location at Cappry enables access to be provided to both the busy regional road R252 and existing N15 into Ballybofey via a new link to the south of the town centre.
- This junction will provide the main access to Ballybofey. There is a high volume of traffic turning at this junction and a compact grade separated junction provides a safe way of providing this turning manoeuvre while not interrupting the mainline traffic flow.
- The mainline will be separated vertically from the existing road network in order to accommodate a grade separated junction, cross the existing R252 and cross the River Finn. The compact grade separated junction allows for the mainline TEN-T traffic to proceed unimpeded, providing better journey time savings and segregating local and strategic traffic.

### 2.6.2.3 Teevickmoy Junction

A compact grade separated junction has been chosen for the following reasons:

- The proposed location at Teevickmoy enables the Proposed Development to tie in with a nearby straight section of the existing N13.

- This junction will provide the main access to Stranorlar, and to the N15 leading to Lifford. There is a high volume of traffic turning at this junction and a compact grade separated junction provides a safe way of providing this turning manoeuvre while not interrupting the mainline TEN-T / National Primary traffic flow.
- The mainline is elevated at this point as it crosses high ground, while the link road approaching from the N13 is climbing from lower land. The difference in levels between the link road and the mainline will facilitate a grade separated junction without the need to place the mainline in a cutting, which would significantly increase earthworks and impact on landscape if an at-grade junction (such as a roundabout) were to be used instead. The compact grade separated junction allows for the mainline TEN-T / National Primary traffic to proceed unimpeded, providing better journey time savings than a roundabout.

#### 2.6.2.4 Meenavoy Junction

A roundabout has been chosen for the following reasons:

- The N13 approaches have different cross sections. The N13 south of the junction is a Type 2 Divided Road and the N13 north of the junction is a single carriageway. A roundabout provides a safe transition between single and dual carriageways.
- A roundabout facilitates connectivity to the local road network and local attractions east and west of the junction; replacing an existing crossroad junction at Callan Bridge considered to be road safety problem.
- A roundabout is consistent with junction types already used on the Donegal TEN-T / National Primary road network.

#### 2.6.2.5 Tircallan Junction

A compact grade separated junction has been chosen for the following reasons:

- This junction will provide the main access to Stranorlar from the Proposed Development via the N15 Primary Road Connector. There is a moderate volume of traffic turning at this junction and a compact grade separated junction provides a safe way of providing this turning manoeuvre while not interrupting the N15 Primary Road Connector traffic flow.
- The mainline will be separated vertically from the existing road network in order to accommodate a grade separated junction, and the topography of the local area lends itself well to this separation. The compact grade separated junction allows for the dominant N15 Primary Road Connector traffic to proceed unimpeded, and without a forced interface with local traffic, providing better journey time savings and safety than a roundabout.

#### 2.6.2.6 Treanamullin Junction

A roundabout has been chosen for the following reasons:

- At this tie-in location, the roundabout approaches have different cross sections. The N15 Primary Road Connector north of the junction is proposed as being a Type 3 Divided Road and the N15 to the east and west is a single carriageway, without hard shoulders. A roundabout provides a safe transition between these different cross sections.
- A roundabout facilitates connectivity to the road network and local attractions.
- A roundabout is consistent with junction types already used on the Donegal TEN-T / National Primary road network.

### 2.6.3 Side Roads

The proposed mainline is connected to the existing road network through a series of junctions, slip roads and link roads. At these connections the existing road network is impacted and realignment or modification has been required.

The proposed mainline will cross the existing road network at locations without providing connection to the existing road network. At these crossings the existing road network will be impacted and realignment or modification to the existing road network has been designed. These sections of existing road network are referred to as side roads (or local roads).

## 2.6.4 Access Roads

Access roads shall be provided to allow access to lands severed by the project. They also serve properties where existing access is affected. Access Roads are generally 4.0m in width with 1.0m verges on either side and in compliance with TII Publications standard detail drawings CC-SCD-00706. Passing bays have also been provided for in accordance with the standards where the length of the access roads exceeds 250m.

New field and domestic house entrances are provided to replace existing entrances impacted by the proposed road development. Field accesses will be in accordance with TII Publications standard detail drawings CC-SCD-02754. Domestic accesses will be in accordance with TII Publications standard detail drawings CC-SCD-02753.

Surface dressing and an asphalt concrete dense binder course shall be provided for access roads on steep gradients (over 5%) and for accesses to private dwellings or farmsteads.

The details of the proposed access roads and the landowner parties they serve across the proposed road development are outlined in **Table 2.4**. Access Road and accesses are shown in EIAR Drawing 4.1.

**Table 2.4: Section 1 Access Roads**

| Reference Number | Approx. Mainline Chainage                    | Approximate Length | Plot ID / Landowner Reference | Comments  |
|------------------|--|--------------------|-------------------------------|---|
| AR 1.01          | Mainline 1.1 0+000m                          | 25m                | 1005                          | Access to park and share / cycle site   |
| AR 1.02          | Mainline 1.1 0+120m                          | 80m                | 1005                          | Access to attenuation pond and lands severed from the proposed road development |
| AR 1.03          | Mainline 1.1 0+270m<br>(On L-6564 Connector) | 280m               | 1005 & 1900                   | Access to lands from L-6564 Connector   |
| AR1.03A          | Mainline 1.1 0+270m<br>(On AR1.03)           | 40m                | 1005, 1008 & 1900             | Access to lands from access road  |
| AR 1.04          | Mainline 1.1 0+270m<br>(On L-6564 Connector) | 30m                | 1005                          | Access to dwellings severed by the proposed road development                    |
| AR 1.05          | Mainline 1.2 0+220m<br>(On L-2794 Connector) | 80m                | 1015                          | Access to lands severed by the proposed road development                        |
| AR 1.06          | Mainline 1.2 0+300m<br>(On Existing N15)     | 135m               | 1015                          | Access to attenuation ponds   |
| AR 1.07          | Mainline 1.2 0+450m<br>(On L-6564 Connector) | 140m               | 1016 & 1018                   | Access to lands severed by the proposed road development                        |
| AR 1.08          | Mainline 1.2 0+460m                          | 235m               | 1016,1018, 1013 & 1019,       | Access to lands severed by the proposed road development                        |
| AR 1.09          | Mainline 1.2 1+050m<br>(On L-6584 Connector) | 250m               | 1019, 1020, 1021, 1023 & 1024 | Access to lands severed by the proposed road development                        |

| Reference Number | Approx. Mainline Chainage                              | Approximate Length | Plot ID / Landowner Reference    | Comments  |
|------------------|--|--------------------|----------------------------------|---|
| AR.1.10          | Mainline 1.2 1+700m<br>(On Capry Road Tie In)          | 60m                | 1027                             | Access to park and share / cycle site   |
| AR 1.11          | Mainline 1.2 1+720m<br>(On Ballybofey Link Road)       | 250m               | 1036, 1029                       | Access to lands severed by the proposed road development                      |
| AR 1.12          | Mainline 1.2 1+780m<br>(On Ballybofey Link Road)       | 100m               | 1153 & 1027                      | Access to land  |
| AR 1.13          | Mainline 1.2 1+780m<br>(On Ballybofey Link Road)       | 30m                | 1038 & 1039                      | Access to lands severed by the proposed road development                      |
| AR 1.14          | Mainline 1.2 1+780m<br>(On Ballybofey Link Road)       | 50m                | 1039 & 1040                      | Access to lands severed by the proposed road development                      |
| AR 1.15          | Mainline 1.2 1+780m<br>780m (On Ballybofey Link Road)( | 320m               | 1041,1042,1043<br>1133-1141,1950 | Access to attenuation pond and dwellings                                      |
| AR 1.16          | Mainline 1.2 2+300m                                    | 150m               | 1027 & 1045                      | Access to attenuation pond and lands severed by the proposed road development |
| AR 1.17          | Mainline 1.2 3+000m<br>(On L-2754 Connector)           | 200m               | 1050                             | Access to attenuation pond and lands severed by the proposed road development |
| AR 1.18          | Mainline 1.2 3+010m<br>(On L-2754 Connector)           | 175m               | 1052                             | Access to attenuation pond  |
| AR 1.19          | Mainline 1.2 3+910m<br>(On L-2734 Connector)           | 100m               | 1054& 1060                       | Access to lands severed by the proposed road development                      |
| AR 1.20          | Mainline 1.2 4+110m<br>(On L-2754 Connector)           | 180m               | 1067 & 1068                      | Access to lands severed by the proposed road development                      |
| AR 1.21          | Mainline 1.2 4+500m<br>(On L-2724 Connector)           | 110m               | 1067 & 1068                      | Access to attenuation pond  |
| AR 1.22          | Mainline 1.2<br>4+4750m (On L-27241 Connector)         | 40m                | 1070                             | Access to dwelling  |
| AR 1.23          | Mainline 1.2 4+750m<br>(On L-2724 Connector)           | 85m                | 1075                             | Access to dwelling and lands severed by the proposed road development         |
| AR 1.23A         | Mainline 1.2 4+800M                                    | 30m                | 1145 & 1146                      | Access to dwelling and lands severed by the proposed road development         |
| AR 1.23B         | Mainline 1.2 5+050M                                    | 185m               | 1075 & 1077                      | Access lands severed by the proposed road development                         |
| AR 1.24          | Mainline 1.2 6+000m<br>(On LX-1004)                    | 220m               | 1087 & 1095                      | Access to lands severed by the proposed road development                      |

| Reference Number | Approx. Mainline Chainage                             | Approximate Length | Plot ID / Landowner Reference | Comments  |
|------------------|---|--------------------|-------------------------------|---|
| AR 1.25          | Mainline 1.2 6+210m<br>(On LX-1004)                   | 135m               | 1088                          | Access to attenuation pond  |
| AR 1.26          | Mainline 1.2 6+850m<br>(On L-7084 Connector)          | 420m               | 1082, 1083 & 1182             | Access to dwelling and lands severed by the proposed road development           |
| AR 1.27          | Mainline 1.2 6+850m<br>(On L-7084 Connector)          | 100m               | 1082, 1083, 1085 & 1903       | Access to existing road / dwellings from realigned side road                    |
| AR 1.28          | Mainline 1.2 7+950m<br>(On L-6674 Connector)          | 35m                | 1054                          | Access to attenuation pond and lands severed by the proposed road development   |
| AR 1.29          | Mainline 1.2 6+000m<br>(On LX-1004)                   | 30m                | 1183                          | Access to lands severed by the proposed road development                        |
| AR 1.30          | Mainline 1.2 8+550m<br>(On L-6674 Connector)          | 50m                | 1112 & 1147                   | Access to existing road / dwellings from realigned side road                    |
| AR 1.31          | Mainline 1.2 8+550m<br>(On LX-1007)                   | 150m               | 1125                          | Access to attenuation pond and lands severed from the proposed road development |
| AR 1.32          | Mainline 1.2 8+200m<br>(On L-6674 Connector)          | 70m                | 1049 & 1054                   | Access to lands severed by the proposed road development                        |
| AR 1.33          | Mainline 1.2 8+550m                                   | 85m                | 1125                          | Access to park and share / cycle site   |
| AR 1.34          | Mainline 1.3 0+450m                                   | 65m                | 1126                          | Access to attenuation pond and existing road from realigned side road           |
| AR 1.35          | Northern Link Road 2+100m<br>(On L-2714 Connector)    | 45m                | 1099                          | Access to attenuation pond and lands severed from the proposed road development |
| AR 1.36          | Northern Link Road 2+100m<br>(On L-2714 Connector)    | 380m               | 1099 & 1100                   | Access to attenuation pond and lands severed from the proposed road development |
| AR 1.37          | Northern Link Road 3+050m<br>(on Treanamullin Tie In) | 50m                | 1103, 1148 & 1149             | Access to existing road / dwellings from realigned side road                    |
| AR 1.37A         | Northern Link Road 3+050m<br>050m (on AR 1.37)        | 135m               | 1101                          | Access to attenuation pond  |
| AR 1.38          | Northern Link Road 3+050m<br>(on Treanamullin Tie In) | 65m                | 1103                          | Access to attenuation pond and lands severed from the proposed road development |
| AR 1.39          | Northern Link Road 3+050m<br>(on Treanamullin Tie In) | 30m                | 1104, 1101, 1102 & 1150       | Access to existing road / dwellings from realigned side road                    |
| AR 1.40          | Northern Link Road 3+050m<br>(on Treanamullin Tie In) | 110m               | 1101                          | Access to attenuation pond and lands severed from the proposed road development |

| Reference Number | Approx. Mainline Chainage                        | Approximate Length | Plot ID / Landowner Reference | Comments  |
|------------------|--|--------------------|-------------------------------|---|
| AR 1.41          | Mainline 1.2 1+780m<br>(On Ballybofey Link Road) | 55m                | 1144 & 1950                   | Access to existing road / dwellings from realigned side road                    |
| AR 1.42          | Mainline 1.2 5+100m                              | 40m                | 1071 & 1077                   | Access to existing road / dwellings from realigned side road                    |
| AR 1.43          | Mainline 1.2 2+150m<br>(On R252 Tie In)          | 165m               | 1162, 1052 & 1155             | Access to attenuation pond and lands severed from the proposed road development |

## 2.6.5 Active Travel Network

The active travel networks included throughout Section 1 include 21.4 km of shared pedestrian / cycle facilities. These facilities include pedestrian / cycle paths located adjacent to and remote from the proposed mainlines, connections to the local road network and connections to local amenity areas and areas of interest, including park and share / cycle facilities described below.

The active travel network has been designed to provide an amenity facility for leisure use, enhance local access to other amenities (such as football pitches, woodland walks) through active travel and maintain local connectivity through use of active travel.

In addition to the mainline shared cycleway/footway, Section 1 also includes active travel facilities in the following locations:

- Connection to existing active travel network at existing N15 (Dooish) at Ch 0+000 m.
- Connection to existing active travel network at existing N15 (Cappry) at Ch 0+225 m.
- Connection to existing Cappry Rovers Football Club at Ch 1+000 m.
- Connection to existing active travel network at Ballybofey at Ch 1+900 m.
- Connection into existing and proposed woodland facilities at Holywell and Drumboe Woods at Ch 3+275.
- Connection to existing active travel network at Drumboe lower at Ch 3+900 m.
- Connection to existing active travel network at Dunwiley at Ch 4+500 m.
- Connection to facilitate access to Dunwiley ring Fort at Ch 4+900 m.
- Park and Share / Cycle facilities at Ch 1+100 m, 1+750 m and 8+550 m.
- Connection to existing community along the existing N13 (downgraded) at Meenavoy at Ch 8+550 m.

## 2.6.6 Structures

The location and detail for the proposed structures included within Section 1 are presented in **Table 2.5**. Each structure family type follows a standard form described above in **Section 2.4.6**.

**Table 2.5: Section 1 Location and Detail for Proposed Overbridges**

| Structure Ref | Approx. Chainage                       | Description   | Mainline Cross-section               | Mainline Cross-section Width (m) |
|---------------|--|---|--------------------------------------|----------------------------------|
| N15O003       | Mainline Section 1.2<br>00+250 m       | Local road tie to existing N15 over mainline  | Type 2 Divided Road with cycle track | 33.0                             |
| N15O011       | Mainline Section 1.2<br>01+050 m       | Local road at Cappry over mainline  | Type 2 Divided Road with cycle track | 28.5                             |
| N15O028       | N15 Primary Road Connector<br>02+750 m | Local road at Castlebane over link road that runs from mainline to the existing N15 | Type 3 Divided Road with cycle track | 20.3                             |
| N15O040       | Mainline Section 1.2<br>03+950 m       | Local road Drumboe Lower over mainline  | Type 2 Divided Road with cycle track | 34.5                             |
| N15O057       | Mainline Section 1.2<br>05+700 m       | Farm Access at Lettermakenny over mainline  | Type 2 Divided Road with cycle track | 30.3                             |
| N13O069       | Mainline Section 1.2<br>06+850 m       | Local road at Teevickmoy over mainline  | Type 2 Divided Road with cycle track | 29.0                             |
| N13O084       | Mainline Section 1.2<br>08+275 m       | Local road at Meenavoy over mainline  | Type 2 Divided Road with cycle track | 28.5                             |

The location and detail for the proposed underbridges included within Section 1 are presented in **Table 2.6**.

**Table 2.6: Section 1 Location and Detail for Proposed Underbridges**

| Structure Ref | Approx. Chainage                      | Description   | Mainline Cross-section               | Mainline Cross-section Width (m) |
|---------------|---------------------------------------|---|--------------------------------------|----------------------------------|
| N15U014       | N15 Primary Road Connector<br>0+700 m | Grade separated Junction:<br>Old N13 under N15 Primary Road Connector                 | Type 2 Divided Road with cycle track | 28.5                             |
| N15U018       | Mainline Section 1.2<br>01+800 m      | Grade separated Junction:<br>Ballybofey Link from R252 to existing N15 under mainline | Type 2 Divided Road with cycle track | 28.5                             |
| N15U031       | Mainline Section 1.2<br>03+050 m      | Local road Drumboe Lower under mainline and watercourse diversion.                    | Type 2 Divided Road with cycle track | 28.5                             |
| N15U047       | Mainline Section 1.2<br>04+600 m      | Local road at Dunwiley under mainline   | Type 2 Divided Road                  | 21.5                             |
| N15U063       | Mainline Section 1.2<br>06+200 m      | Grade separated Junction: link under mainline from mainline to existing N13 and N15   | Type 2 Divided Road with cycle track | 28.5                             |

### 2.6.6.1 River Finn Crossing (N15R024)

The proposed River Finn Crossing is the largest structure in Section 1 of the Project and is required to carry the proposed N15 over the River Finn, flood plain and associated Special Area of Conservation (SAC) and the R252 Regional Road.

The structure comprises a seven-span arrangement. The spans are: 43 m, 55 m, 85 m, 55 m, 43 m, 39.5 m and 39.5 m giving a total bridge length of 360 m. The 85 m main span will cross the River Finn and the existing R252 regional road.

The primary environmental constraint for the bridge is the River Finn which is a SAC with six qualifying interests:

- Oligotrophic waters containing very few minerals of sandy plains (*Littorelletalia uniflorae*) [3110]
- Northern Atlantic wet heaths with *Erica tetralix* [4010]
- Blanket bogs (\* if active bog) [7130]
- Transition mires and quaking bogs [7140]
- *Salmo salar* (Salmon) [1106]
- *Lutra lutra* (Otter) [1355]

The River Finn SAC comprises almost the entire freshwater element of the River Finn and its tributaries, rising in the Bluestack mountains and flowing through Ballybofey/ Stranorlar. From its crossing with the Proposed Development just west of Ballybofey/ Stranorlar, the River Finn flows east to Castlefin and Cloughfin and then north to Lifford/ Strabane where it meets the Mourne River (Northern Ireland) and becomes the River Foyle and flows into Lough Foyle. The River Finn SAC is contiguous with the River Foyle and Tributaries SAC in Northern Ireland for the portion of the River Finn just east of Castlefin north to Lough Foyle. The River Finn is noted for being one of the most prolific salmon and grilse rivers in Donegal and the Foyle catchment.

The River Finn SAC includes the river and river banks along the section of the River Finn that overlaps with the Proposed Development. At the crossing point of the centreline of the Mainline and the River Finn, the width of SAC is approximately 75 m.

Any construction activities within the River Finn watercourse are prohibited and the 85 m main span includes setback zones to the SAC boundary. The 360 m long bridge spans the entire flood plain and will reduce any risks of flooding, and impact on the SAC and reduces the permanent land take required compared to a shorter bridge with longer approach embankments.

An existing disused railway line runs parallel to the R252 at the southern end of the proposed crossing. There is potential for this railway line to be converted into a greenway in the future. The bridge's southernmost span will cross the abandoned railway line with suitable clearance and headroom for the potential future development.

The recommended option for the bridge is a varying depth weathering steel multi-girder composite deck bridge. This option will have a structural depth of approximately 4.5 m at the main span intermediate supports and 2 m away from the supports. The substructure consists of cast in-situ reinforced concrete piers and abutments supported by bored pile foundations. Following construction of the reinforced concrete substructure, the superstructure of the steel girder option will be lifted into position in braced pairs by a large crane prior to casting the concrete deck.

The proposed bridge option has an uncomplicated form and is architecturally pleasing due to the open aspect achieved and the arched elevation of the main span girders. The plate girders fabricated from weathering steel provide a rustic appearance and there is architectural merit in a structure that does not hide its load carrying members and these are fully on display in a multi-girder bridge. The proposed solution offers clean lines and will provide an aesthetically pleasing aspect when viewed from close by or from underneath with no fussy details on display.

### 2.6.6.2 Cloghroe River Bridge (N13R085)

Cloghroe River is salmonid spawning and nursery habitat, and the riverbanks provide habitat suitable for otter. The existing river alignment is problematic as it meanders under the Proposed Development alignment, therefore a realignment is proposed to enable a perpendicular crossing. This will require robust mitigation to reinstate a channel that mimics natural habitat and ensures fish passage during construction and operation. Timing restrictions and a Permit for Removal for River Bed Material (Section 46/47) from the Loughs Agency will be needed prior to construction.

The proposed bridge abutment faces will be set back 5 m from the edge of the realigned river channel. A 3 m wide 'no working zone' each side of the river channel shall be maintained during construction. Surface run off controls such as silt fencing will be implemented during the works to avoid sediment pollution into the river.

To achieve 5 m abutment setback from the riverbank crest, the required clear square span is 18 m. This span will enable a 3 m wide 'no working zone' behind the riverbank crest during construction. The level of the proposed N13 Link Road carried by the bridge is constrained by a tie-in with a nearby road, so the headroom under the bridge is limited.

The recommended structure type is precast MY beam & solid slab on integral abutments, as this achieves a high span-to-depth ratio with maximised clearance over the riverbanks. This is needed for maintenance access and is desirable for light penetration and aesthetics.

### 2.6.6.3 Backlees River Bridge (N15R042)

Backlees River is a trout stream and fish passage is required. It is a tributary of the River Finn SAC. It is proposed to maintain the natural river alignment and natural riverbanks. However, culvert S1-CUL.14 on the Backlees River will be constructed just upstream of the proposed Backlees River Bridge (EIAR Drawing 4.1 sheet 4 of 8) under access road AR1.20.

To achieve min. 5 m environmental abutment setback from the river and accommodate the accommodation farm track alignment, the required clear skew span is 43 m at a skew of 15 degrees. This will ensure a 3 m wide 'no working zone' behind the riverbank crest during construction. Surface run off controls such as silt fencing shall be implemented during the works to avoid sediment pollution into the river.

The recommended structure type is a single span, steel girder composite deck slab on integral full height bridge abutments. Wingwalls are flared at 30-70 degrees to the river axis. The proposed bridge deck soffit level will provide adequate headroom over the accommodation farm track and adequate freeboard over flood levels. Spread foundations are likely to be suitable (see **Table 2.7** for bridge and culvert locations and measurements).

The structure type is proposed for the following reasons:

- Steel girders can be prefabricated in lengths convenient for transport, spliced together on site then lifted into position. The local roads around this site are narrow with tight corners so this flexibility is necessary.
- Weathering steel girders can achieve a 120-year design life without maintenance.
- Integral abutments avoid the need for bearings and expansion joints, which require maintenance every 30-50 years.

**Table 2.7: Section 1 Proposed River Bridges and River Culverts**

| Structure Ref  | Approx. Chainage                 | Structure Type | Description  | Mainline Cross-section                     | Mainline Cross-section Width (m) | Clear Square Span (m) |
|----------------|----------------------------------|----------------|--|--|----------------------------------|-----------------------|
| <b>N15R024</b> | Mainline Section 1.2<br>02+435 m | River bridge   | River Finn Crossing: Mainline over R252 & River Finn   | Type 2 Divided Road with cycle track       | 26                               | 227                   |
| <b>N15R000</b> | Mainline Section 1.1<br>00+200 m | Culvert        | Culvert carries link road over small tributary of Burn Daurnett. Potential for trout nursery. Box culvert with low flow channel. Timing of instream works subject to S47 consent from Loughs Agency. Near to existing box culvert (with a span of 2.4 m): DL-N15-005.5 (Golond Bridge constructed in 2015) | Type 1 Single Carriageway                  | 18.3                             | 2.4                   |
| <b>N13R085</b> | Mainline Section 1.300+300 m     | River bridge   | Cloghroe River Bridge: Carries link road over Cloghroe River. Salmonid spawning & nursery habitat. A clear span bridge with a stream realignment. Timing restrictions & S47 consent for in-stream works. Near to existing river bridge: DL-N13-001.00  | Type 1 Single Carriageway with cycle track | 17.3                             | 10                    |
| <b>N15R042</b> | Mainline Section 1.2<br>04+100 m | River bridge   | Backlees River Bridge: Carries the proposed N15 mainline carriageway & active travel path over Backlees River and a farm accommodation track   | Type 2 Divided Road with cycle track       | 28.5                             | 43                    |

## 2.6.7 Underpasses, Footbridges and Retaining Walls

The location and detail for the proposed underpasses and accommodation underpasses included within Section 1 are presented below in **Table 2.8**. There are no footbridges included in Section 1. The location of retaining walls in Section 1 are summarised in **Table 2.9**.

**Table 2.8: Section 1 Active Travel and Accommodation Underpasses**

| Structure Ref | Approx. Chainage                    | Structure Type | Description                          | Mainline Cross-section              | Mainline Cross-section Width (m) | Clear Square Span (m) |
|---------------|-------------------------------------|----------------|--------------------------------------|-------------------------------------|----------------------------------|-----------------------|
| N15A012       | N15 Primary Road Connector 00+550 m | Underpass      | Farm underpass                       | Type 2 Divided Road with cycletrack | 28.5                             | 4                     |
| N15P030       | Mainline Section 1.2 03+000 m       | Underpass      | Active travel and accommodation road | Type 2 Divided Road with cycletrack | 28.5                             | 10.5                  |
| N15P032       | Mainline Section 1.2 03+240 m       | Underpass      | Active travel & mammal underpass     | Type 2 Divided Road with cycletrack | 28.5                             | 12                    |

**Table 2.9: Section 1 Retaining Walls**

| Structure Ref | Chainage      | Approximate Length (m) | Approximate Max Effective Retained Height (m) |
|---------------|---------------|------------------------|---|
| N15W011       | N15 Ch 01+100 | 25                     | 2.6   |
| N15W020       | N15 Ch 02+000 | 295                    | 9.8   |
| N15W021       | N15 Ch 02+100 | 147                    | 2.1   |
| N15W034       | N15 Ch 03+380 | 77                     | 4.8   |
| N15W046       | N15 Ch 04+625 | 41                     | 3.2   |

## 2.6.8 Flooding and Flood Compensation Areas

Flood compensatory storage areas are proposed for a number of areas within Section 1 including:

- Burn Daurnett River at proposed tie-in to existing N15 south of Ballybofey from Mainline Section 1.1. A flood compensatory area is proposed adjacent to the N15 to offset the loss of floodplain storage associated with the road embankment. The flood compensatory area is connected to the river via a drainage pipe.
- Cloghroe River adjacent to the tie-in to existing N13 north of Stranorlar from Mainline Section 1.3. Flood compensatory storage areas are provided adjacent to the Cloghroe River to offset any loss of floodplain storage at the relevant flood levels. An underground storage tank is also provided for flood compensation storage.
- Mullaghagarry River Crossing adjacent to the tie-in to existing N15 east of Stranorlar from the N15 Primary Road Connector. Flood compensatory storage is provided adjacent to this river crossing to offset any potential loss of floodplain storage associated with the embankment.

## 2.6.9 Drainage Infrastructure

The following drainage features are proposed for Section 1:

- 39 No. culverts for watercourse crossings;
- 7 No. drainage networks on the mainline carriageway;
- 16 No. drainage networks alongside roads;
- 22 No. attenuation ponds with 22 No. outfalls;
- 1 No. Infiltration basin.

Design details regarding Section 1 proposed culverts are outlined in **Table 2.10**.

**Table 2.10: Section 1 Proposed Culvert Schedule**

| Culvert Reference | Chainage | Referenced Mainline / Side Road | Location X | Location Y | Culvert Diameter (m) / Width (m) x Height (m) | Approx. Length (m) |
|-------------------|----------|---------------------------------|------------|------------|---|--------------------|
| S1-CUL.01         | 1+300 m  | L-6564                          | 610,325.8  | 892,814.7  | 3.2 x 2                                       | 51.8               |
|                   |          | Connector                       |            |            |   |                    |
| S1-CUL.02         | 0+600 m  | L-6564                          | 610,840.2  | 893,300.1  | 1.2Ø  | 34.1               |
|                   |          | Connector                       |            |            |   |                    |
| S1-CUL.03         | 0+455 m  | Mainline Section 1.1            | 610,938.5  | 893,210    | 1.2Ø  | 30.5               |
| S1-CUL.04         | 0+550 m  | Farm Access                     | 611,106.4  | 893,808.6  | 1.2Ø  | 9.0                |
| S1-CUL.05         | 0+530 m  | Farm Access                     | 611,091.1  | 893,789.5  | 1.2Ø  | 9.0                |
| S1-CUL.06         | 0+105 m  | L-6564                          | 611,028.5  | 893,750.4  | 1.5Ø  | 21.8               |
|                   |          | Connector                       |            |            |   |                    |
| S1-CUL.07         | 0+270 m  | L-6564                          | 610,964.8  | 893,601.1  | 1.5Ø  | 15.2               |
|                   |          | Connector                       |            |            |   |                    |
|                   |          | (Farm Access)                   |            |            |   |                    |
| S1-CUL.08         | 0+355 m  | L-6564                          | 610,950.2  | 893,514.2  | 2.5 x 2.2                                     | 27.9               |
|                   |          | Connector                       |            |            |   |                    |
| S1-CUL.09         | 0+220 m  | Mainline Section 1.2            | 611,008.4  | 893,484    | 1.8Ø  | 37.4               |
| S1-CUL.10         | 0+208 m  | L-2794 Connector                | 611,121.6  | 893,424.5  | 2.5 x 2.5                                     | 34.8               |
| S1-CUL.11         | 0+200 m  | L-2794 Connector                | 611,186.9  | 893,459.5  | 2.75 x 2.25                                   | 6.9                |

| Culvert Reference | Chainage | Referenced Mainline / Side Road | Location  |           | Culvert Diameter (m) / Width (m) x Height (m) | Approx. Length (m) |
|-------------------|----------|---------------------------------|-----------|-----------|---|--------------------|
|                   |          |                                 | X         | Y         |   |                    |
|                   |          | (Farm access)                   |           |           |   |                    |
| S1-CUL.12         | 0+060 m  | L-2754 Connector                | 613,055.9 | 895,453.8 | 1.8 x 1.8                                     | 18.3               |
|                   |          | (Farm Access)                   |           |           |   |                    |
| S1-CUL.13         | 0+155 m  | L-2754 Connector                | 613,070   | 895,329.3 | 2.5 x 1.8                                     | 26.7               |
| S1-CUL.14         | 0+335 m  | L-2734 Connector                | 613,843.1 | 896,090   | 6.0 x 2.5                                     | 8.5                |
|                   |          | (Domestic Access)               |           |           |   |                    |
| S1-CUL.15         | 4+800 m  | Mainline Section 1.2            | 614,244.5 | 896,588.4 | 1.2 Ø   | 110.5              |
| S1-CUL.16         | 0+830 m  | L-2724 Connector                | 614,254.4 | 896,181.4 | 1.2Ø  | 81.9               |
| S1-CUL.17         | 0+895 m  | L-2724 Connector (Farm Access)  | 614,279.3 | 896,114.1 | 1.2Ø  | 13.9               |
| S1-CUL.18         | 0+680 m  | N15 Primary Road Connector      | 615,370   | 897,660   | 1.5Ø  | 33.1               |
| S1-CUL.19         | 0+680 m  | LX-1004                         | 616,047.2 | 897,558.8 | 2.8 x 2.1                                     | 25.1               |
| S1-CUL.20         | 0+470 m  | LX-1004 (Farm Access)           | 615,975.8 | 897,356.4 | 2.8 x 2.1                                     | 12.3               |
| S1-CUL.21         | 1+610 m  | N15 Primary Road Connector      | 616,046.8 | 897,083   | 3.5 x 2.1                                     | 56.7               |
| S1-CUL.22         | 1+765 m  | N15 Primary Road Connector      | 616,174.8 | 896,976.5 | 4.5 x 2.2                                     | 56.5               |
| S1-CUL.23         | 2+195 m  | N15 Primary Road Connector      | 616,490   | 896,688   | 1.2Ø  | 84.4               |
| S1-CUL.23A        | 1+650    | N15 Primary Road Connector      | 616543.7  | 896551.0  | 1.2Ø  | 78.9               |
| S1-CUL.24         | 2+445    | N15 Primary Road Connector      | 616571.4  | 896458.1  | 1.2Ø  | 86.9               |
| S1-CUL.25         | 0+375    | L-2714                          | 616599.0  | 896194.1  | 5.0 x 4.5                                     | 76.6               |

| Culvert Reference | Chainage | Referenced Mainline / Side Road          | Location |          | Culvert Diameter (m) / Width (m) x Height (m) | Approx. Length (m) |
|-------------------|----------|--|----------|----------|---|--------------------|
|                   |          |  | X        | Y        |   |                    |
|                   |          | Connector (Farm Access)                  |          |          |   |                    |
| S1-CUL.26         | 0+250    | L-2714 Connector                         | 616702.0 | 896291.7 | 1.5Ø  | 7.8                |
| S1-CUL.27         | 3+175    | N15 Primary Road Connector               | 616362.5 | 895774.7 | 1.5Ø  | 32.0               |
| S1-CUL.28         | 0+155    | Mullaghagarry at N15 Treanamullin Tie-in | 616597.4 | 895195.3 | Twin culverts<br>2.3 x 2.7 each               | 34.0               |
| S1-CUL.29         | 7+920    | Mainline Section 1.2                     | 616041.7 | 899079.3 | 1.5Ø  | 73.5               |
| S1-CUL.30         | 0+505    | L-6674 Connector                         | 616076   | 899417.5 | 2.4 x 2.1                                     | 87.2               |
| S1-CUL.31         | 0+025    | LX-1011<br>Connector                     | 616094.4 | 899720.4 | 4.5 x 2.2                                     | 45.4               |
| S1-CUL.32         | 0+410    | LX-1011<br>Connector<br>(Farm Access)    | 616258.2 | 899361   | 1.8Ø  | 22.5               |
| S1-CUL.33         | 0+615    | L-6674 Connector                         | 616139.1 | 899324.7 | 2.0 x 2.0                                     | 46.2               |
| S1-CUL.34         | 0+310    | L-6674 Connector                         | 615927.5 | 899542.3 | 3.5 x 2                                       | 42.2               |
| S1-CUL.35         | n/a      | LX-1004<br>(Cycleway)                    | 615981.5 | 899607.2 | 3.5 x 2                                       | 26.9               |
| S1-CUL.36         | 8+500    | Mainline Section 1.2                     | 616039.4 | 899660.4 | 3.5 x 2                                       | 30.7               |
| S1-CUL.37         | 0+040    | L-6674 Connector<br>(Domestic Access)    | 615799.9 | 899767.1 | 1.5Ø  | 6.9                |
| S1-CUL.38         | 0+095    | L-6674 Connector                         | 615841.1 | 899729.3 | 1.5Ø  | 20.0               |

Design details regarding drainage networks on the mainline carriageway and side roads is provided below in **Table 2.11**:

**Table 2.11: Section 1 Carriageway Drainage Network Details.**

| Drainage Network Ref. | Mainline / Side Road (No.) | Chainage       | Outfall    |
|-----------------------|----------------------------|----------------|------------|
| <b>S1-ML-DN-01</b>    | Mainline Section 1.2       | 6+220 to 8+550 | Outfall 01 |
|                       | L-7084 Connector           | 0+248 to 0+715 |            |
|                       | L-6674 Connector           | 0+475 to 0+612 |            |
|                       | Meenavoy Junction          | 0+000 to 0+227 |            |
|                       | Mainline Section 1.3       | 0+000 to 0+534 |            |
|                       | LX-1011 Connector          |                |            |
| <b>S1-ML-DN-02</b>    | Mainline Section 1.2       | 5+857 to 4+600 | Outfall 06 |
|                       | L-2724 Connector           | 0+000 to 0+974 |            |
| <b>S1-ML-DN-03</b>    | Mainline Section 1.2       | 4+600 to 3+250 | Outfall 08 |
|                       | L-2724 Connector           | 0+210 to 0+361 |            |
| <b>S1-ML-DN-04</b>    | Mainline Section 1.2       | 3+250 to 2+267 | Outfall 09 |
| <b>S1-ML-DN-05</b>    | Mainline Section 1.2       | 1+769 to 2+267 | Outfall 10 |
|                       | LX-1004                    | 0+000 to 0+274 |            |
|                       | L-2794 Cappry Road Tie-in  | 0+000 to 0+222 |            |
|                       | Ballybofey Link Road       | 0+700 to 0+795 |            |
| <b>S1-ML-DN-06</b>    | Mainline Section 1.2       | 0+965 to 1+769 | Outfall 11 |
|                       | L-2794 Cappry Road Tie-in  | 0+000 to 0+222 |            |
|                       | Ballybofey Link Road       | 0+000 to 0+700 |            |
|                       | Ballybofey NB Link         | 0+000 to 0+349 |            |
| <b>S1-ML-DN-07</b>    | Mainline Section 1.2       | 0+000 to 0+965 | Outfall 13 |
|                       | L-6564 Connector           | 0+000 to 0+272 |            |
|                       | Dooish Junction            | -              |            |
|                       | Mainline Section 1.1       | 0+358 to 0+530 |            |
|                       | L-6584 Connector           | 0+000 to 0+118 |            |
| <b>S1-SR-DN-01</b>    | Mainline Section 1.3       | 0+227 to 0+592 | Outfall 21 |
| <b>S1-SR-DN-02</b>    | L-6674 Connector           | 0+000 to 0+475 | Outfall 02 |
| <b>S1-SR-DN-03</b>    | L-6674 Connector           | 0+612 to 0+840 | Outfall 19 |
| <b>S1-SR-DN-04</b>    | L-7084 Connector           | 0+715 to 1+510 | Outfall 22 |
| <b>S1-SR-DN-05</b>    | L-7084 Connector           | 0+000 to 0+248 | Outfall 17 |

| Drainage Network Ref. | Mainline / Side Road (No.) | Chainage       | Outfall              |
|-----------------------|----------------------------|----------------|----------------------|
| <b>S1-SR-DN-06</b>    | Mainline Section 1.2       | 5+857 to 6+220 | Outfall 03           |
|                       | Teevickmoy NB Link         | 0+085 to 0+860 |                      |
|                       | N15 Primary Road Connector | 0+000 to 0+700 |                      |
|                       | Teevickmoy SB Link         | 0+000 to 0+300 |                      |
| <b>S1-SR-DN-07</b>    | N15 Primary Road Connector | 0+700 to 2+260 | Outfall 15           |
| <b>S1-SR-DN-08</b>    | L-2714 Connector           | 0+220 to 0+438 | Outfall 18           |
| <b>S1-SR-DN-09</b>    | L-2714 Connector           | 0+000 to 0+220 | Outfall 16           |
|                       | N15 Primary Road Connector | 2+260 to 2+858 |                      |
| <b>S1-SR-DN-10</b>    | Treanamullin Tie-in        | 0+000 to 0+294 | Outfall 04           |
|                       | N15 Treanamullin Tie-in    | 0+000 to 0+160 |                      |
|                       | Treanamullin Junction      |                |                      |
|                       | N15 Primary Road Connector | 2+858 to 3+086 |                      |
| <b>S1-SR-DN-11</b>    | N15 Treanamullin Tie-in    | 0+160 to 0+512 | Outfall 05           |
| <b>S1-SR-DN-12</b>    | L-2734 Tie-in              | 0+000 to 0+357 | Outfall 07           |
|                       | L-2784 Connector           | 0+102 to 0+210 |                      |
| <b>S1-SR-DN-13</b>    | Ballybofey Link Road       | 0+795 to 1+964 | Infiltration Pond 01 |
| <b>S1-SR-DN-14</b>    | L-6584 Connector           | 0+118 to 0+412 | Outfall 20           |
| <b>S1-SR-DN-15</b>    | L-2794 Connector           | 0+000 to 0+271 | Outfall 12           |
|                       | LX-1001                    | 0+000 to 0+223 |                      |
| <b>S1-SR-DN-16</b>    | Mainline Section 1.1       | 0+000 to 0+358 | Outfall 14           |
|                       | AR 1.41                    | 0+000 to 0+235 |                      |
|                       | L-6564 Connector           | 0+272 to 1+619 |                      |

Design details regarding attenuation pond and outfalls is provided in **Table 2.12**.

**Table 2.12: Section 1 Proposed Attenuation Pond Details and Outfall Locations**

| Ref. No. | Attenuation Pond Details |            |                                    |                              |                    |  | Outfall locations                    |            |            |
|----------|--------------------------|------------|------------------------------------|------------------------------|--------------------|--|--------------------------------------|------------|------------|
|          | Easting                  | Northing   | Total Catchment Drainage Area (ha) | Greenfield Runoff Rate (l/s) | Pavement Area (ha) | Attenuation Pond – Volume of Storage (m <sup>3</sup> ) | Invert Level of Attenuation Pond (m) | Easting    | Northing   |
| 1        | 616,085.76               | 899,846.10 | 12.65                              | 90.51                        | 5.73               | 8,051.00   | 74.15                                | 616,290.71 | 899,943.80 |
| 2        | 615,945.45               | 899,605.90 | 0.55                               | 3.92                         | 0.44               | 313.00   | 76.35                                | 616,008.33 | 899,645.63 |
| 3        | 615,964.13               | 897,049.48 | 8.06                               | 57.63                        | 4.22               | 5,072.00   | 65.03                                | 616,025.54 | 897,050.45 |
| 4        | 616,268.74               | 895,137.81 | 1.02                               | 7.29                         | 0.79               | 590.00   | 13.45                                | 616,334.30 | 895,098.87 |
| 5        | 616,788.55               | 895,188.94 | 0.37                               | 2.68                         | 0.28               | 210.00   | 12.84                                | 616,610.79 | 895,150.89 |
| 6        | 614,177.73               | 896,142.51 | 10.10                              | 72.28                        | 3.08               | 6,418.00   | 65.56                                | 614,288.09 | 896,093.34 |
| 7        | 613,823.67               | 895,992.82 | 0.42                               | 3.02                         | 0.42               | 239.00   | 64.87                                | 613,868.95 | 896,024.06 |
| 8        | 613,194.63               | 895,527.92 | 7.61                               | 54.47                        | 2.56               | 4,806.00   | 35.87                                | 613,059.73 | 895,468.45 |
| 9        | 612,772.26               | 895,281.69 | 2.48                               | 17.75                        | 2.02               | 1,541.00   | 22.50                                | 612,742.79 | 895,053.33 |
| 10       | 612,375.01               | 894,958.57 | 2.36                               | 16.84                        | 1.44               | 1,462.00   | 25.72                                | 612,442.55 | 894,995.98 |
| 11       | 611,903.76               | 895,155.84 | 6.47                               | 46.26                        | 2.98               | 3,998.00   | 24.29                                | 611,887.78 | 895,216.90 |
| 12       | 611,175.74               | 893,412.23 | 0.65                               | 4.61                         | 0.41               | 370.00   | 71.34                                | 611,208.69 | 893,488.44 |
| 13       | 611,113.58               | 893,541.17 | 5.79                               | 41.40                        | 2.80               | 3,804.00   | 72.09                                | 611,208.69 | 893,488.44 |
| 14       | 610,774.54               | 893,029.67 | 2.37                               | 16.93                        | 1.63               | 1,487.00   | 75.29                                | 610,847.52 | 893,052.81 |
| 15       | 616,454.01               | 895,931.08 | 3.20                               | 22.91                        | 1.93               | 2,027.00   | 32.87                                | 616,496.32 | 895,900.87 |

| Ref. No. | Attenuation Pond Details |            |                                    |                              |                    |  | Outfall locations                    |            |            |
|----------|--------------------------|------------|------------------------------------|------------------------------|--------------------|--|--------------------------------------|------------|------------|
|          | Easting                  | Northing   | Total Catchment Drainage Area (ha) | Greenfield Runoff Rate (l/s) | Pavement Area (ha) | Attenuation Pond – Volume of Storage (m <sup>3</sup> ) | Invert Level of Attenuation Pond (m) | Easting    | Northing   |
| 16       | 616,353.85               | 895,361.73 | 2.72                               | 19.43                        | 0.93               | 1,689.00   | 18.41                                | 616,578.64 | 895,221.80 |
| 17       | 614,734.51               | 898,155.91 | 0.35                               | 2.49                         | 0.22               | 196.00   | 138.19                               | 614,728.39 | 898,128.23 |
| 18       | 616,678.53               | 896,266.77 | 0.17                               | 1.20                         | 0.16               | 92.50  | 34.80                                | 616,711.71 | 896,278.44 |
| 19       | 616,184.46               | 899,208.96 | 0.39                               | 2.80                         | 0.20               | 221.00   | 79.29                                | 616,266.95 | 899,331.62 |
| 20       | 611,554.07               | 893,849.49 | 0.35                               | 4.50                         | 0.27               | 751.00   | 68.50                                | 611,566.04 | 893,776.56 |
| 21       | 616,053.70               | 900,126.27 | 1.37                               | 9.83                         | 0.45               | 773.00   | 76.14                                | 616,312.63 | 900,190.26 |
| 22       | 616,059.84               | 897,889.37 | 0.89                               | 6.34                         | 0.66               | 513.00   | 76.04                                | 615,989.78 | 897,849.88 |

## 2.7 Design – Section 2

Section 2 is located to the south and east of Letterkenny and comprises three distinct arms from the proposed Dromore junction as follows:

- South from the proposed new Dromore Junction to meet the existing N13 at Listellian.
- Northwest from the proposed new Dromore Junction through Bonagee Junction, a new bridge over the River Swilly, and meeting the existing N56 at the proposed new Ballyraine Junction. The existing roundabout on the N56 is known locally as the Creamery Roundabout at Ballyraine.
- East from the proposed new Dromore Junction along the existing N13 to the N13/ N14 Pluck Roundabout at Raymoghly (Section 3 interface).

The existing N13 from the proposed Dromore Junction west to the Dry Arch Junction and the proposed link road from the Dry Arch Junction north to the proposed Bonagee Junction also form the corridor.

The Section 2 mainline is approximately 9.0 km long and connects with the existing national road network as follows:

- Tie-in to existing N13 at Listellian (proposed online junction).
- Tie-in to existing N13/N56 at Bonagee (existing Dry Arch roundabout to be improved).
- Tie-in to existing N56/R245 at Ballyraine (existing roundabout to be improved).
- Tie-in to the existing N13 dual carriageway at Dromore (proposed online junction).
- Tie-in to the existing N13/N14 in proximity to Pluck roundabout at Raymoghly (Section 3 interface).

Details of existing and proposed junctions together with their connecting arms in Section 2 are provided in **Figure 2.11**. For more detail on Section 2 including the alignment please refer to the general arrangement drawings in **Appendix 1**, EIAR Drawing 4.2.

The proposed works can be summarised under the following elements. The lengths of the individual sections are approximate.

### Roads:

- Mainline Section 2.1 which is 0.3 km of Type 1 Single Carriageway extending from the N13 southern tie-in to the Listellian Junction (EIAR Drawing 4.2, sheet 1 of 5).
- Mainline Section 2.2 which is 2.1 km of Type 2 Divided Road extending from the Listellian Junction to the Dromore Junction (EIAR Drawing 4.2, sheets 1 and 2 of 5).
- Mainline Section 2.5 which is 0.6 km of Type 2 Divided Road extending from the Dromore Junction to the Bonagee Junction (EIAR Drawing 4.2, sheet 2 of 5).
- Mainline Section 2.6 which is 1.4 km of Type 2 Divided Road extending from the Bonagee Junction to Ballyraine junction (EIAR Drawing 4.2, sheets 2 and 3 of 5).
- Mainline Section 2.3 which is 0.7 km of Type 1 Dual Carriageway (realigned and improved) extending from Dry Arch Junction to Dromore Junction (EIAR Drawing 4.2, sheet 2 of 5).
- Mainline Section 2.4 which is 3.5 km of Type 1 Dual Carriageway (realigned and improved) extending from Dromore Junction to the interface with Section 3 west of the existing N13/N14 Pluck Roundabout (EIAR Drawing 4.2, sheets 4 and 5 of 5).

- Bonagee Link which is 0.4 km of Type 2 Divided Road extending from the Dry Arch Junction to the Bonagee Junction (EIAR Drawing 4.2, sheet 2 of 5).
- Provision of approximately 12.1 km of additional Type 1, Type 2 and Type 3 Single Carriageway roads not already mentioned above (includes new and realigned).

#### Junctions:

- One grade-separated junction at Trimragh (EIAR Drawing 4.2, sheet 4 of 5): this includes an overbridge structure, two roundabouts, slip roads and connections to realigned local roads. This junction replaces the existing at grade legacy junction with a collision history.
- Five new at-grade roundabout junctions at:
  - Listellian (EIAR Drawing 4.2, sheet 1 of 5).
  - Dromore (EIAR Drawing 4.2, sheet 2 of 5).
  - Bonagee (EIAR Drawing 4.2, sheet 2 of 5).
  - Modified and upgraded roundabout at the existing Dry Arch roundabout (EIAR Drawing 4.2, sheet 2 of 5) and
  - Modified and upgraded roundabout at the existing Creamery roundabout (townland of Ballyraire) (EIAR Drawing 4.2, sheet 3 of 5).
- The tie-in at the Pluck Roundabout (interface between Section 2 and Section 3 is addressed in Section 3).

#### Structures:

- One signature three-span bridge crossing over the River Swilly at Letterkenny (235 m long).
- Three overbridges.
- Three underbridges.
- One active travel road overbridge.
- One active travel river bridge.
- Two active travel underpasses near Dromore Junction.
- Modifications to an existing accommodation underpass east of Trimragh Junction.
- Various culverts, gantries, environmental noise barriers and retaining wall structures.

#### Active Travel:

- Provision of active travel infrastructure: this includes connections to existing infrastructure and a new Park and Share / Cycle facility located at Dry Arch Junction as illustrated in **Appendix 1** (EIAR Drawings 4.1 and 4.51).

#### Other Works:

- Access roads.
- Provision of attenuation ponds, flood compensatory measures, watercourse diversions and associated drainage infrastructure.
- Provision of existing utility diversions and new utility infrastructure.
- Provision of landscape planting, signage, lighting, accommodation works ancillary to the construction and operation of the Proposed Development.

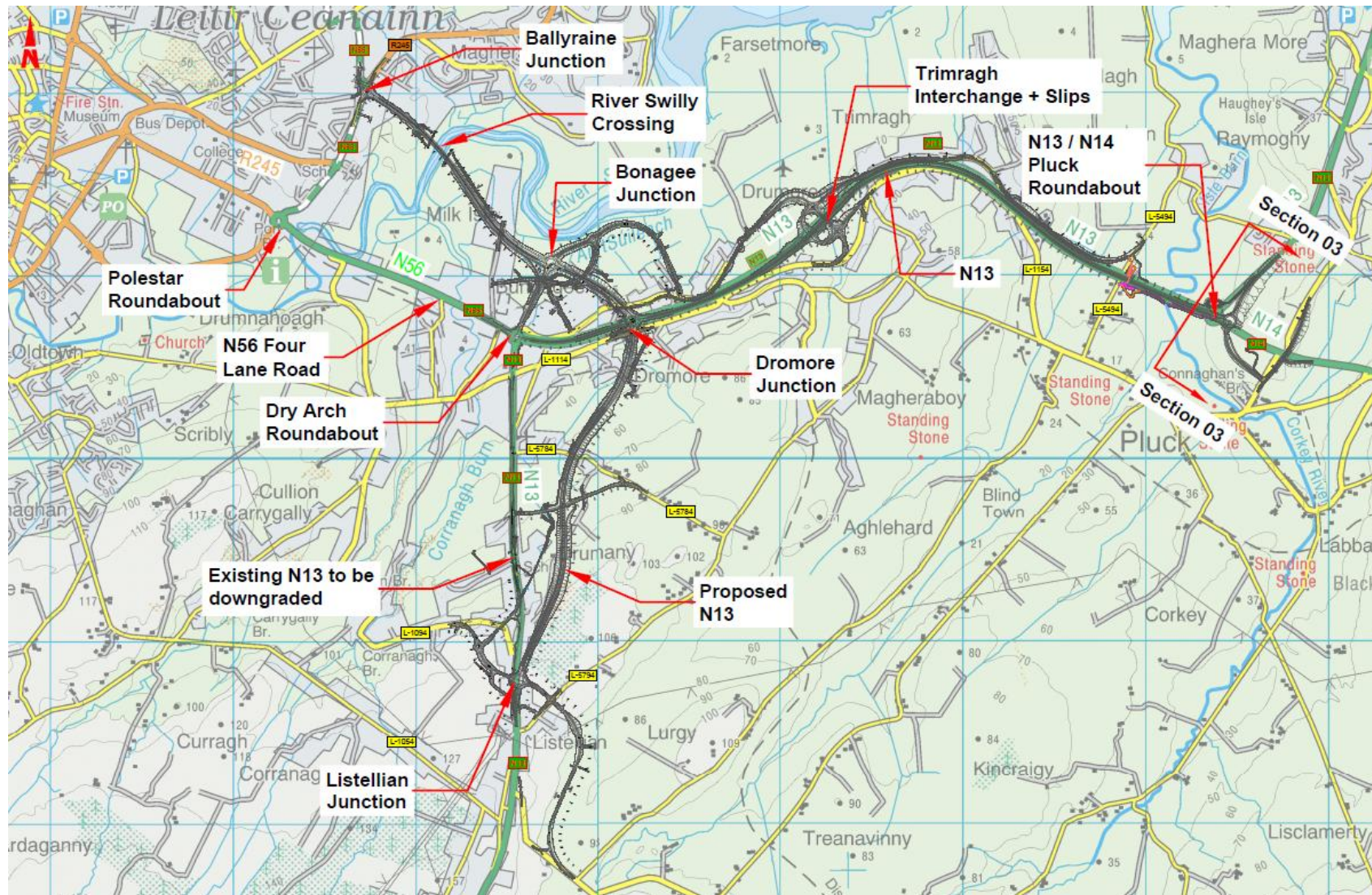


Figure 2.11: Section 2 Proposed Development

## 2.7.1 Roads

To achieve the best possible user safety, journey time reliability, average speed targets (NPF) and capacity for freight, passenger and public transport, a Type 2 Divided Road is proposed along approximately 4.1 km of the Mainline Section 2.2, 2.5 and 2.6 with an additional 0.4 km of Type 2 Divided Road between the proposed Bonagee Junction and the existing Dry Arch Roundabout (Bonagee Link). **Figure 2.2** illustrates the Type 2 Divided Road cross section. This road cross section also fully accommodates segregated active travel facilities enabling modal shift and further aiding Park and Share and Park and Cycle/Walk alternatives on the network. Predicted traffic volumes are considered while the transition to alternative green fuels is augmented by regular and strategically positioned EV Charge hubs along the TEN-T network as per Regulation (EU) 2023/1804 on the deployment of alternative fuels infrastructure.

The traffic flows on the existing N56 between Dry Arch and Polestar Roundabout (1.5 km to the west) are predicted to grow to approximately 42,000 AADT for the scheme Design Year 2047. To accommodate these predicted traffic volumes and other considerations such as safety, obstacles to road widening, current 'lifeline route' status and constructability impacts (refer to **Section 4.4.2**), and route consistency, a new offline Type 2 Divided Road and River Swilly crossing is proposed. This will improve overall network resilience within Letterkenny and onward access to northwest Donegal. It will also enable modal shift and public transport options in conjunction with park and share/walk/cycle hub at the Dry Arch Junction as well as tie-in with the N56 junction and active travel upgrades as set out in the Letterkenny Plan and Local Transport Plan 2023-2029.

The traffic flows on the existing N13 between Dry Arch Roundabout and Pluck Roundabout, Mainline Sections 2.3 and 2.4, approximately 4.5 km, are predicted to grow to approximately 26,900 AADT for the scheme Design Year 2047. To address safety issues with the existing road section (refer to **Section 4.4.2**), ensure journey time reliability, route consistency and make best use of existing legacy dual carriageway predominantly online improvements to upgrade the existing road to a modern Type 1 dual carriageway are proposed. **Figure 2.3** illustrates a Type 1 dual carriageway cross section.

### 2.7.1.1 Section 2 – Road cross section

Using the above guidance and predicted traffic volumes for the Design Year as outlined in the Transport Modelling Report (**Appendix C6.01**), Section 2 mainline cross sections have been selected as shown in **Table 2.13**.

**Table 2.13: Type of Road – Proposed Development Section 2 Mainline Carriageways**

| Road Name  | Type of Road<br>(DN-GEO-03031 Table 6.1)                      | Design / Posted<br>Speed (km/hr) |
|--|---|----------------------------------|
| Mainline Section 2.1<br>(N13 southern tie-in to Listellian junction)                         | Type 1 Single<br>(7.3 m carriageway)                          | 100 / 100                        |
| Mainline Section 2.2<br>(N13 Listellian junction to Dromore junction)                        | Type 2 Divided Road 2+2 Lanes<br>(2 x 7.0 m carriageways)     | 100 / 100                        |
| Mainline Section 2.3<br>(N13 Dry Arch junction to Dromore junction)                          | Type 1 Dual Carriageway 2+2 Lanes<br>(2 x 7.0 m carriageways) | 100 / 100                        |
| Mainline Section 2.4<br>(N13 Dromore junction to Pluck Roundabout)                           | Type 1 Dual Carriageway 2+2 Lanes<br>(2 x 7.0 m carriageways) | 100 / 100                        |
| Mainline Section 2.5<br>(N13 Dromore Junction to Bonagee Junction)                           | Type 2 Divided Road 2+2 Lanes<br>(2 x 7.0 m carriageways)     | 100 / 100                        |
| Mainline Section 2.6<br>(Bonagee Junction to N56 Ballyraine Junction at Creamery Roundabout) | Type 2 Divided Road 2+2 Lanes<br>(2 x 7.0 m carriageways)     | 100 / 100                        |

Section 2 includes Bonagee Link which connects the Dry Arch Junction and Bonagee Junction providing increased connectivity, network resilience and a direct connection to the Park and Share / Cycle facility and active travel network. Link road cross-sections have been selected as shown in **Table 2.14**.

**Table 2.14: Type of Road – Section 2 Link Roads**

| Road Name    | Type of Road<br>(DN-GEO-03031<br>Table 6.1)               | Design / Posted<br>Speed (km/hr) |
|--------------|---|----------------------------------|
| Bonagee Link | Type 2 Divided Road 2+2 Lanes<br>(2 x 7.0 m carriageways) | 100 / 100                        |

Section 2 includes Slip Roads at the Trimragh Junction. The slip roads provide full connectivity of local roads north and south of the N13 dual carriageway by means of an overbridge with roundabout junctions. The slip roads are designed in accordance with the Compact Grade Separated Junction layout in DN-GEO-03060 and are shown in **Table 2.15**.

**Table 2.15: Design Speed – Section 2 Slip Roads**

| Road Name                    | Junction Type           | Design / Posted<br>Speed (km/hr) |
|------------------------------|-------------------------|----------------------------------|
| Trimragh EB Link - Slip Road | Compact Grade Separated | 30 / 50                          |
| Trimragh WB Link - Slip Road | Compact Grade Separated | 30 / 50                          |

### 2.7.1.2 Alignment

Mainline Section 2.1 is the transition from the existing N13 National Road to the Proposed Development at Listellian Junction. It is a Type 1 Single Carriageway cross section, approximately 0.3 km in length.

A Type 2 Divided Road (2+2 lanes) is proposed between the new Listellian Junction on the existing N13 and the new Dromore Junction (Mainline Section 2.2). This proposed Type 2 Divided Road is approximately 2.1 km long between the junctions and follows a south-north alignment east of the existing N13. Starting at the southern and highest point at Listellian, the proposed new Type 2 Divided Road has a downhill gradient of between 4.5 to 5.0% travelling northward to the new Dromore Junction on the existing N13.

North of the proposed Dromore Junction a Type 2 Divided Road (2+2 lanes) is proposed which will connect the townlands of Dromore and Ballyraine via a new three-span bridge crossing of the River Swilly. This proposed Type 2 Divided Road is approximately 2.0 km long (Mainline Section 2.5 and 2.6) and will connect the new Dromore Junction (located on the existing N13) to the new Ballyraine Junction at the existing N56/R245 Creamery Roundabout at Ballyraine. An intermediate junction is proposed at the town boundary of Bonagee and Dromore which provides local connection and access to Bonagee industrial zone.

The 0.4 km Bonagee Link road from the new Bonagee Junction to the improved Dry Arch Junction will ensure network resilience and connection to the Park and Share / Cycle facility and overall active travel network.

The existing N13 between the Dry Arch roundabout and Pluck roundabout (4.4 km length) has a Type 1 dual carriageway cross section that is to be retained and improved (Mainline Section 2.3 and 2.4). Existing N13 carriageway realignment works are proposed at Trimragh to the eastbound lanes and at the Dromore Junction approaches. All existing at-grade local and private direct accesses to the N13 along this section will be closed with designated access points located at Dry Arch, Dromore, Trimragh and at Pluck (Section 3 interface). Section 2 works include works up to approximate chainage CH3+450 on Mainline Section 2.4 just

to the west of the existing Pluck Roundabout. The proposed new Pluck Roundabout, including all tie-ins, will be constructed as part of the Section 3 works.

A section of the N13 between the proposed improved Dry Arch Junction and the new Listellian Junction will be downgraded with reduced speed limit and limited access closed in parts and closed to through traffic allowing only safe local school, residential and farm access. The existing carriageway between the improved Dry Arch Junction and the L-1114 (approximately 200 m to the south), provides right-turn facilities on the approaches to the roundabout and the L-1114 local road; these facilities will be retained.

South of the L-1114 junction, the existing N13 carriageway (refer to **Section 4.4.2**) will be narrowed to a local road cross-section with pedestrian facilities. The existing vertical gradient (>7%), horizontal alignment and design standards are such that 5% gradients combined with frequent steps and/or ramps will be provided for active travel users.

In addition to the mainline alignments described above, connections will be provided to the existing local road network at existing and proposed junctions by means of new proposed single carriageway local roads and realignments of existing roads.

Where the proposed mainline severs existing side roads, side road connectivity will be maintained where practicable through the inclusion of proposed bridges over or under the mainline.

## 2.7.2 Junctions

Six junction locations have been identified for Section 2, at the following locations:

- **Listellian Junction** (EIAR Drawing 4.2, sheets 1 of 5) – Southern tie-in of Section 2 to the existing N13. Transition between Mainline Section 2.1 and Mainline Section 2.2.
- **Dromore Junction** (EIAR Drawing 4.2, sheet 2 of 5) – Tie-in between the Mainline Section 2.2 and the existing N13 at Dromore. Transition between Mainline Section 2.2 and Mainline Section 2.5.
- **Bonagee Junction** (EIAR Drawing 4.2, sheet 2 of 5) – Intermediate junction between Dromore Junction and Ballyraine Junction. Transition between Mainline Section 2.5 and Mainline Section 2.6.
- **Ballyraine Junction** (EIAR Drawing 4.2, sheet 3 of 5) – Located to the tie-in between Mainline Section 2.6 and the existing N56 and R245 at the existing Creamery Roundabout.
- **Dry Arch Junction** (EIAR Drawing 4.2, sheet 2 of 5) – The existing Dry Arch Roundabout with tie-ins to the N13 connecting to the proposed Dromore Junction, and a connection to the Bonagee Link to Bonagee Junction.
- **Trimragh Junction** (EIAR Drawing 4.2, sheet 4 of 5) – A new junction on the existing N13 dual carriageway at Trimragh. This is Mainline Section 2.4.

### 2.7.2.1 Listellian Junction

Listellian Junction is a new roundabout junction located at the southern tie-in with the existing N13 road. A roundabout junction has been chosen for the following reasons:

- The N13 southern approach is a single carriageway cross section and the N13 northern approach is a Type 2 Divided Road cross section. A roundabout provides a safe transition between single and dual carriageways.
- A roundabout facilitates connectivity to the local road network and local facilities (e.g. St Patrick's National School).
- A roundabout is consistent with junction types found nearby on the network.

### 2.7.2.2 Dromore Junction

Dromore Junction is a new junction located on the existing N13 east of the Dry Arch Junction. A roundabout design has been chosen for the following reasons:

- The existing N13 approaches from the east and west are Type 1 dual carriageways. The new realigned N13 approach from the south and the approach from the north are Type 2 Divided Roads. A roundabout provides a safe transition between these different road types.
- A roundabout solution works best with the steep local topography and the adjacent development.
- A roundabout provides connectivity to the adjacent road network and local attractions.
- A roundabout is consistent with junction types found nearby on the network.

### 2.7.2.3 Bonagee Junction

Bonagee Junction is a new junction located in the Bonagee area of Letterkenny. A roundabout design has been chosen for the following reasons:

- Proximity to SAC – an environmental constraint. A roundabout will have less land take compared to other junction arrangements for Type 2 Divided Roads such as Compact Grade Separated Junction.
- A roundabout solution works best with the local topography and the adjacent development.
- A roundabout is consistent with the junction types found nearby on the network.
- A roundabout facilitates connectivity to the local road network and local facilities (including the Park and Share / Cycle facility on the proposed Bonagee Link).

### 2.7.2.4 Ballyraine Junction (existing N56/R245 Creamery Roundabout)

Ballyraine Junction is an existing roundabout (N56/R245 Creamery Roundabout) located at the western tie-in with the existing N56/ R245 roads. An improved roundabout design has been chosen for the following reasons:

- The proposed River Swilly crossing is a new approach to the existing roundabout. This new dual carriageway cross section with traffic flows cannot be accommodated at the existing roundabout.
- The N56 and R245 are single carriageway. A roundabout provides safe transition between single and divided road cross sections.
- A roundabout facilitates connectivity to the local road network and local attractions.
- A roundabout is consistent with junction types found nearby on the network.
- Given the urban location an improved roundabout design will also facilitate signals at this junction should a need arise in the future which would be in-keeping with other nearby junctions in Letterkenny.

### 2.7.2.5 Dry Arch Junction

Dry Arch roundabout is an existing roundabout located at the western tie-in. An improved roundabout design has been chosen for the following reasons:

- The proposed Bonagee Link is a Type 2 Divided Road and new approach to the existing roundabout.
- The eastern N13 approach is a Type 1 dual carriageway. The western approach is a dual carriageway with reduced lane widths and reduced posted speed limit due to its urban setting. The southern approach will be downgraded from national road status to local relief road status. A roundabout provides a safe transition between these different road types.

- A roundabout facilitates connectivity to the local road network and local attractions (including the Park and Share / Cycle facility on the Bonagee Link).
- A roundabout is consistent with junction types found nearby on the network.

### 2.7.2.6 Trimragh Junction

Trimragh Junction is a new grade separated junction located along the existing Type 1 dual carriageway, between the proposed Dromore Junction and the new Pluck Roundabout to the east at the interface between Section 2 and Section 3 of the Proposed Development. Trimragh Junction allows the amalgamation and closure of several existing nearby legacy at-grade junctions. Trimragh Junction maintains the continuity of access for local users along this section of the dual carriageway and offers a safer road network through grade separation and improved design.

### 2.7.3 Side Roads

The proposed mainline is connected to the existing road network through a series of junctions, slip roads and link roads. At these connections the existing road network is impacted and realignment or modification has been required.

The proposed mainline will cross the existing road network at locations without providing connection to the existing road network. At these crossings the existing road network will be impacted and realignment or modification to the existing road network has been designed. These sections of existing road network are referred to as side roads (or local roads). Each side road is either bridged, realigned or closed.

### 2.7.4 Access Roads

Access roads shall be provided to allow access to lands severed by the project. They also serve properties where existing access is affected. Access Roads are generally 4.0m in width with 1.0m verges on either side and in compliance with TII Publications standard detail drawings CC-SCD-00706. Passing bays have also been provided for in accordance with the standards where the length of the access roads exceeds 250m.

New field and domestic house entrances are provided to replace existing entrances impacted by the proposed road development. Field accesses will be in accordance with TII Publications standard detail drawings CC-SCD-02754. Domestic accesses will be in accordance with TII Publications standard detail drawings CC-SCD-02753.

Surface dressing and an asphalt concrete dense binder course shall be provided for access roads on steep gradients (over 5%) and for accesses to private dwellings or farmsteads.

The details of the proposed access roads and the landowner parties they serve across the proposed road development are outlined in **Table 2.16**. Access Road and accesses are shown in EIAR Drawing 4.2.

**Table 2.16: Section 2 Access Roads**

| Reference Number | Approx. Mainline Chainage  | Approximate Length | Plot ID / Landowner Reference | Comments   |
|------------------|----------------------------|--------------------|-------------------------------|--|
| AR 2.01          | L-1064 Connector<br>0+215m | 110 m              | 2001, 2002 & 2003             | Access to existing road / lands from realigned side road |
| AR 2.02          | on Existing N13            | 165 m              | 2004 & 2005                   | Access to existing road / lands from realigned side road |
| AR 2.03          | L-1064 Connector<br>0+500m | 40m                | 2004 & 2005                   | Access to lands severed by the proposed road development |
| AR 2.04          | L-1064 Connector<br>0+560m | 30m                | 2004 & 2005                   | Access to lands severed by the proposed road development |

| Reference Number | Approx. Mainline Chainage                     | Approximate Length | Plot ID / Landowner Reference | Comments   |
|------------------|---|--------------------|-------------------------------|--|
| AR 2.05          | L-1064 Connector<br>0+690m                    | 80m                | 2006                          | Access to attenuation pond and lands severed by the proposed road development                |
| AR 2.06          | L-1064 Connector<br>0+800m                    | 85m                | 2007,2016                     | Access to lands severed by the proposed road development                                     |
| AR 2.07          | Mainline 2.2 0+500m<br>(On L-1094 Connector)  | 30m                | 2017                          | Access to attenuation pond and lands severed by the proposed road development                |
| AR 2.08          | Mainline 2.2 1+250m<br>(On L-5784 Connector)  | 35m                | 2042                          | Access to attenuation pond and lands severed by the proposed road development                |
| AR 2.09          | Mainline 2.2 1+250m<br>(On L-5784 Connector)  | 65m                | 2038, 2039                    | Access to existing road / dwelling from realigned side road                                  |
| AR 2.10          | Mainline 2.2 1+250m<br>(On L-5784 Connector)  | 45m                | 2044                          | Access to existing road / dwelling from realigned side road                                  |
| AR 2.11          | Mainline 2.2 1+960m<br>(On L-58141 Connector) | 25m                | 2126 & 2052                   | Access to existing road / dwelling from realigned side road                                  |
| AR 2.12          | Mainline 2.6 1+1200 (on<br>LX-2011)           | 70m                | 2070                          | Access to lands severed by the proposed road development                                     |
| AR 2.13          | Mainline 2.6 1+120m (on<br>LX-2011)           | 65m                | 2070                          | Access to attenuation pond and lands severed by the proposed road development                |
| AR 2.14          | Mainline 2.6 0+750                            | 500m               | 2071, 2084 & 2900             | Access to attenuation pond, existing road and lands severed by the proposed road development |
| AR 2.15          | Mainline 2.6 0+350m                           | 140m               | 2086                          | Access to attenuation pond and lands severed by the proposed road development                |
| AR 2.16          | Mainline 2.6 0+000m                           | 150m               | 2090 & 2901                   | Access to existing road / dwellings from realigned side road                                 |
| AR 2.17          | Mainline 2.4 0+300m<br>(On LX-2005)           | 45m                | 2094                          | Access to attenuation pond and lands severed by the proposed road development                |
| AR 2.18          | Mainline 2.4 0+250m<br>(On LX-2005)           | 50m                | 2093, 2105 & 2078             | Access to existing road / dwellings from realigned side road                                 |
| AR 2.19          | Mainline 2.4 0+875m                           | 30m                | 2095 & 2097                   | Access to attenuation pond and lands severed by the proposed road development                |
| AR 2.20          | Mainline 2.4 1+500m<br>(On L-5494 Connector)  | 150m               | 2107                          | Access to attenuation pond   |
| AR 2.21          | Mainline 2.4 1+960m<br>(On L-5494 Connector)  | 25m                | 2145                          | Access to existing road / dwellings from realigned side road                                 |
| AR 2.22          | Mainline 2.4 3+010m<br>(On L-5494 Connector)  | 25m                | 2116                          | Access to attenuation pond   |

| Reference Number | Approx. Mainline Chainage                | Approximate Length | Plot ID / Landowner Reference | Comments  |
|------------------|--|--------------------|-------------------------------|---|
| AR 2.23          | Mainline 2.1 0+100 (On L-5794 Tie In)    | 150m               | 2011, 2010 & 2009             | Access to lands severed by the proposed road development                      |
| AR 2.24          | Mainline 2.2 0+550 (On Lx-2004)          | 60m                | 2024, 2137 & 2140             | Access to existing road / dwellings from realigned side road                  |
| AR 2.25          | Mainline 2.2 0+550 (On Lx-2004)          | 90m                | 2119, 2067 & 2133             | Access to existing road / dwellings from realigned side road                  |
| AR 2026          | Mainline 2.1 0+050                       | 355m               | 2013 & 2113                   | Access to existing road / dwellings from realigned side road                  |
| AR 2.26A         | Mainline 2.1 0+050 (On AR 2.26)          | 125m               | 2014 & 2015                   | Access to lands from realigned side road                                      |
| AR 2.27          | Mainline 2.2 1+350 (On L-5784 Connector) | 70m                | 2038                          | Access to lands from realigned side road                                      |
| AR 2.28          | Mainline 2.3 0+250 (On LX-2009)          | 60m                | 2065                          | Access to lands severed by the proposed road development                      |
| AR 2.29          | Mainline 2.6 0+000 (On LX-2013)          | 100m               | 2134 & 2086                   | Access to lands severed by the proposed road development                      |
| AR 2.30          | Mainline 2.6 0+000 (On LX-2013)          | 40m                | 2091                          | Access to lands severed by the proposed road development                      |
| AR 2.31          | Mainline 2.5 0+200 (On LX-2011)          | 145M               | 2076                          | Access to attenuation pond and lands severed by the proposed road development |

## 2.7.5 Active Travel Network

Active travel networks included throughout Section 2 include 15.6 km of shared pedestrian / cycle facilities. These segregated facilities include pedestrian / cycle paths located either adjacent to or remote from the proposed mainlines, connections to the local road network and connections to local amenity areas and areas of interest, including park and share / cycle facilities described below.

All pedestrian/cycle crossings of the mainline carriageway are grade separated.

The active travel network has been designed to provide an amenity facility for leisure use, enhance local access to other amenities (such as football pitches, woodland walks) through active travel and maintain local connectivity through use of active travel.

It is also critical for modal shift and moving towards greener transport solutions.

In addition to the mainline shared cycleway/footway, Section 2 also includes active travel facilities in the following locations:

- Connection to St. Patrick's National School at Ch 0+850.
- Connection to existing community at Cullion Road at Ch. 0+550 m.

- Connection to the existing community along the existing N13 Lurgybrack section, also includes a second connection to St Patrick's School.
- Connection to existing Donegal cycle route at Dromore at Ch 2+300 m.
- Connection to an old inactive rail bed and potential future greenway at Dromore.
- Connection to the existing active travel segregated facilities along the N56 Four Lane Road at Dry Arch roundabout.
- Connection to the existing active travel segregated facilities at Ballyraine Junction.
- Connection with a proposed Park and Share / Cycle facility and proposed bus stop adjacent to the Dry Arch Roundabout at Ch 0+200 m.
- Connection from Dromore to the N13/N14 Pluck Roundabout along the local road network linking communities from Ch 0+000m to 3+650 m.

## 2.7.6 Structures

The location and detail for the proposed overbridges included within Section 2 are presented in **Table 2.17**. Each structure family type follows a standard form described above in **Section 2.4.6**.

**Table 2.17: Section 2 Proposed Overbridges**

| Structure Ref | Approx. Chainage                 | Description   | Mainline Cross-section               | Mainline Cross-section Width (m) |
|---------------|----------------------------------|---|--------------------------------------|----------------------------------|
| N13O012       | Mainline Section 2.4<br>01+200 m | Grade separated Junction, Local road crossing over mainline | Type 1 Dual Carriageway              | 41.2                             |
| N13O013       | Mainline Section 2.2<br>01+250 m | Drumany local road crossing over mainline                   | Type 2 Divided Road with cycle track | 34.0                             |
| N13O023       | Mainline Section 2.2<br>02+300 m | L-1114 local road crossing over mainline                    | Type 2 Divided Road with cycle track | 33.7                             |

The location and detail for the proposed underbridges included within Section 2 are presented in **Table 2.18**.

**Table 2.18: Section 2 Proposed Underbridges**

| Structure Ref | Approx. Chainage                 | Description   | Mainline Cross-section              | Mainline Cross-section Width (m) |
|---------------|----------------------------------|---|-------------------------------------|----------------------------------|
| N56U011       | Mainline Section 2.6<br>01+080 m | Local road crossing under mainline (for both NMU and MU)        | Type 2 Divided Road with cycletrack | 32.3                             |
| N56U014       | Bonagee Link<br>00+350 m         | Proposed local road crossing under mainline (for both NMU & MU) | Type 2 Divided Road with cycletrack | 25.5                             |
| N56U016       | Mainline Section 2.5<br>00+180 m | Proposed local road crossing under mainline (for both NMU & MU) | Type 2 Divided Road                 | 24.5                             |

### 2.7.6.1 River Swilly Crossing (N56R005)

The River Swilly Crossing is required to carry the proposed N56 route over the River Swilly. The River Swilly is designated part of the Lough Swilly Special Area of Conservation (SAC) and Special Protection Area (SPA).

The structure comprises a three-span varying depth post-tensioned concrete box girder bridge. The span arrangement of 63 m, 108 m, and 63 m gives a total bridge length of 234 m. The river is prone to flooding and there is a flood berm located on the southern bank at the proposed crossing location. The primary environmental constraint at this location is the River Swilly which is designated part of the Lough Swilly SAC and SPA. The SAC has five qualifying interests including otter. The SPA is designated for multiple special conservation interest bird species. The Lough Swilly SPA is downstream of the proposed bridge crossing however it is within the flight path of commuting birds such as black headed gull and curlew upstream in the estuary outside of the SPA. There was therefore a preference for a low-level bridge which did not interfere with the commuting birds' flightpath.

The 108 m main span crosses both the river and the flood berm as well as providing setback zones to the SAC boundaries and construction activities within the watercourse will be prohibited. At the crossing point of the centreline of the Mainline and the River Swilly, the width of SAC is approximately 85 m.

The depth of the box girder varies from 5.3 m at the intermediate supports to 2.3 m away from the supports. The substructure consists of cast in-situ reinforced concrete piers and abutments supported by bored pile foundations. Following construction of the reinforced concrete sub-structure, the superstructure will be constructed via balanced cantilever method. The exposed concrete faces of this option will require nominal maintenance over its entire lifespan minimising whole life costs. Concrete is recognised as being a durable material with little maintenance required even in coastal areas such as the proposed crossing location.

The proposed bridge structure has an uncomplicated form and is architecturally pleasing due to the arched elevation of the girder. Structurally efficient and architecturally pleasing ratios of backspans to main span of 0.625 are achieved and the structure has excellent symmetry. A concrete box girder offers clean lines and is known to be aesthetically pleasing when viewed from close by or from underneath with no fussy details on display and a consistency of materials across the girder, deck slab and substructure.

### 2.7.6.2 Other Structures

N13R034 is an existing buried multi-culvert type structure that will be retained as is.

N13A016 is an existing access underpass, the northern end of which is to be demolished with a new wingwall constructed to facilitate the proposed alignment of the access travel facility.

Details of these existing structures are provided in **Table 2.19**.

**Table 2.19: Section 2 Other Structures**

| Structure Ref | Approx. Chainage         | Description   | Mainline Cross-section               | Mainline Cross-section Width (m) |
|---------------|--------------------------|---|--------------------------------------|----------------------------------|
| N13R034       | Mainline 2.4<br>03+400 m | Existing River Bridge over Isle Burn (buried multi culvert type structure). | Type 2 Divided Road with cycle track | 27.8                             |
| N13A016       | Mainline 2.4<br>01+600 m | Existing box underpass, northern section to be demolished                   | Type 2 Divided Road                  | 30.3                             |

## 2.7.7 Underpasses, Footbridges and Retaining Walls

The location and detail for the proposed active travel underpasses and footbridges included within Section 2 are presented in **Table 2.20**. The location of retaining walls in Section 2 are summarised in **Table 2.21**.

**Table 2.20: Section 2 Proposed Active Travel Underpasses, Accommodation Underpasses and Footbridges**

| Structure Ref | Approx. Chainage      | Description                                     | Mainline Cross-section  | Mainline Cross-section Width (m) |
|---------------|-----------------------|---|-------------------------|----------------------------------|
| N56P018       | Mainline 2.5 00+470 m | Active travel underpass crossing under mainline | Type 2 Divided Road     | 38.2                             |
| N56P019       | Mainline 2.3 00+620 m | Active travel underpass crossing under mainline | Type 1 Dual Carriageway | 41.2                             |
| N13F031       | Mainline 2.4 03+160 m | Active travel overbridge over mainline          | Type 1 Dual Carriageway | 41.2                             |
| N13F034       | Mainline 2.4 03+400 m | Active travel river bridge                      | N/A                     | N/A                              |

**Table 2.21: Section 2 Proposed Retaining Walls**

| Structure Ref | Chainage      | Approximate Length (m) | Approximate Max Effective Retained Height (m) |
|---------------|---------------|------------------------|---|
| N13W006       | N13 Ch 00+570 | 43                     | 2.3   |
| N13W008       | N13 Ch 00+825 | 58                     | 1.8   |
| N13W002       | N13 Ch00+175  | 125                    | 2.4   |
| N13W002       | N13 Ch00+175  | 44                     | 0.9   |

## 2.7.8 Flooding and Flood Compensation Areas

Flood storage compensation areas are proposed within Section 2 in the vicinity of the River Swilly crossing. The flood compensation areas effectively mitigate the impacts of the proposed route alignment on flood impact locally.

## 2.7.9 Drainage Infrastructure

The following drainage features are proposed for Section 2:

- 37 No. culverts for watercourse crossings.
- 2 No. drainage networks on the mainline carriageway.
- 10 No. drainage networks on side roads.
- 12 No. attenuation ponds with 12 No. outfalls.

Design details regarding Section 2 proposed culverts are outlined in **Table 2.22**.

**Table 2.22: Section 2 Proposed Culvert Schedule**

| Culvert Reference | Chainage | Referenced Mainline / Side Road      | Location X | Location Y | Culvert Diameter (m) / Width (m) x Height (m) | Approx Length (m) |
|-------------------|----------|--------------------------------------|------------|------------|---|-------------------|
| S2-CUL.01         | 0+166    | L-1064<br>Connector                  | 619703.6   | 907809.6   | 1.2Ø  | 26.3              |
| S2-CUL.02         | 0+515    | L-1064<br>Connector<br>(Farm Access) | 619719.5   | 908155.4   | 1.2Ø  | 8.0               |
| S2-CUL.03         | 0+540    | L-1064<br>Connector                  | 619762.1   | 908164.3   | 1.2Ø  | 40.8              |
| S2-CUL.04         | 0+558    | L-1064<br>Connector<br>(Farm Access) | 619795.9   | 908169.9   | 1.2Ø  | 8.3               |
| S2-CUL.05         | 0+677    | L-1064<br>Connector                  | 619816.4   | 908290.7   | 1.2Ø  | 20.1              |
| S2-CUL.06         | 0+904    | L-1064<br>Connector                  | 619831.2   | 908512.8   | 1.2Ø  | 55.4              |
| S2-CUL.07         | 0+235    | L-1094<br>Connector                  | 619394.2   | 908731.2   | 1.2Ø  | 20.4              |
| S2-CUL.08         | 0+129    | L-1094 Connector                     | 619392.5   | 908819.9   | 1.2Ø  | 20.2              |
| S2-CUL.09         | 0+024    | LX-2004                              | 619314.1   | 908971.1   | 1.2Ø  | 32.7              |
| S2-CUL.10         | 0+190    | L-5784<br>Connector                  | 619676.7   | 909646.2   | 1.2Ø  | 10.1              |
| S2-CUL.11         | 0+160    | L-5784<br>Connector                  | 619636.6   | 909698.2   | 1.2Ø  | 21.2              |
| S2-CUL.12         | 0+400    | L-5784<br>Connector                  | 619863.3   | 909773.3   | 1.2Ø  | 28.1              |
| S2-CUL.13         | 1+411    | Mainline 2.2                         | 619770.4   | 909885.8   | 1.5Ø  | 45.7              |
| S2-CUL.14         | 1+680    | Mainline 2.2                         | 619878.1   | 910133     | 1.2Ø  | 45.9              |
| S2-CUL.15         | 1+687    | Mainline 2.2<br>(Farm Access)        | 619851.1   | 910159.7   | 1.2Ø  | 10.0              |
| S2-CUL.16         | 0+130    | L-1114<br>Connector                  | 620046.6   | 910650     | 1.25 x 1.75                                   | 52.6              |
| S2-CUL.16A        | 0+625    | Mainline 2.3                         | 620101.0   | 910731.3   | 1.75 x 1.75                                   | 59.1              |
| S2-CUL.17         | n/a      | AR 2.31                              | 620033.1   | 910812.2   | 2.5 x 2.0                                     | 9.0               |
| S2-CUL.18         | 1+630    | Mainline 2.5                         | 619895.2   | 910961.2   | 2.9 x 2.1                                     | 83.1              |
| S2-CUL.19         | 0+550    | LX-2011                              | 619894.2   | 911013.5   | 2.9 x 2.5                                     | 34.5              |
| S2-CUL.20         | 0+150    | LX-2010                              | 619821.5   | 911146.7   | 2.9 x 3.3                                     | 65.0              |

| Culvert Reference | Chainage | Referenced Mainline / Side Road | Location X | Location Y | Culvert Diameter (m) / Width (m) x Height (m) | Approx Length (m) |
|-------------------|----------|---------------------------------|------------|------------|---|-------------------|
| S2-CUL.21         | 0+200    | Bonagee Link                    | 619581.6   | 910840.2   | 2.0 x 3.2                                     | 48.4              |
| S2-CUL.22         | 0+238    | LX-2011                         | 619599     | 910969.5   | 2.5 x 3.4                                     | 25.4              |
| S2-CUL.23         | 1+218    | Mainline 2.6                    | 619522.8   | 911135.7   | 3.3 x 3.5                                     | 71.0              |
| S2-CUL.24         | 0+942    | Mainline 2.6                    | 619339.1   | 911329.9   | 1.25 x 1.35                                   | 67.7              |
| S2-CUL.25         | 0+750    | Mainline 2.6                    | 619221.5   | 911499.2   | 2.0 x 2.5                                     | 95.2              |
| S2-CUL.26         | 0+056    | LX-2005                         | 619964.5   | 911226.6   | 1.5 x 2.6                                     | 41.0              |
| S2-CUL.27         | 0+325    | LX-2005                         | 620215.2   | 911241.3   | 1.2Ø  | 31.3              |
| S2-CUL.27A        | 0+458    | LX-2005<br>(Farm Access)        | 620312.4   | 911142.9   | 1.2Ø  | 13.5              |
| S2-CUL.27B        | 0+390    | LX-2005<br>(Farm Access)        | 620276.8   | 911209.2   | 1.2Ø  | 20.4              |
| S2-CUL.28         | 0+695    | LX-2005                         | 620390.3   | 910918.6   | 1.5Ø  | 35.5              |
| S2-CUL.29         | 0+151    | L-1154 Connector WB             | 621262.8   | 911076.1   | 3.5 x 2.0                                     | 26.6              |
| S2-CUL.30         | 0+120    | Trimragh WB Link                | 621216.6   | 911187.9   | 3.5 x 2.0                                     | 37.9              |
| S2-CUL.31         | 0+048    | Trimragh Link                   | 621223.0   | 911270.0   | 3.5 x 2.0                                     | 66.9              |
| S2-CUL.32         | 0+128    | L-5494 Connector                | 621221.6   | 911446.9   | 3.5 x 4.0                                     | 79.2              |
| S2-CUL.33         | 2+635    | Mainline 2.4                    | 622410.8   | 911220.6   | 1.2Ø  | 89.4              |
| S2-CUL.34         | 2+928    | Mainline 2.4                    | 622640.7   | 911068.34  | 1.8Ø  | 75.7              |

Design details regarding drainage networks on the mainline carriageway and side roads is provided in **Table 2.23**.

**Table 2.23: Section 2 Carriageway Drainage Network Details**

| Drainage Network Ref. | Mainline / Side Road (No.) | Chainage       | Outfall    |
|-----------------------|----------------------------|----------------|------------|
| S2-ML-DN-01           | Mainline 2.1 + 2.2         | 0+000 to 2.364 | Outfall 05 |
|                       | Listellian Junction        | -              |            |
|                       | L-5784 Connector           | 0+300 to 0+784 |            |
|                       | L-58141 Connector          | 0+000 to 0+458 |            |
|                       | L-11141 Connector          | 0+135 to 0+274 |            |
|                       | Dromore Junction           | -              |            |
|                       | Mainline 2.4               | 0+000 to 0+220 |            |
|                       | Mainline 2.5               | 0+205 to 0+564 |            |
|                       | L-1064 Connector           | 1+200 to 1+326 |            |
|                       | L-11141 Connector          | 0+000 to 0+250 |            |
| S2-ML-DN-02           | Mainline 2.4               | 0+700 to 1+415 | Outfall 09 |
|                       | Trimragh Junction          | -              |            |
|                       | L-1154 Connector EB        | 0+000 to 0+305 |            |

| Drainage Network Ref. | Mainline / Side Road (No.)  | Chainage   | Outfall    |
|-----------------------|---|--|------------|
|                       | L-5494 Connector  | 0+000 to 1+030   |            |
|                       | Trimragh WB Link  | 0+000 to 0+340   |            |
| S2-SR-DN-01           | L-1064 Connector<br>AR 2.34<br>Listellian Junction<br>AR 2.34                                   | 0+139 to 1+200   | Outfall 01 |
| S2-SR-DN-02           | L-1094 Connector<br>L-1094 / LX-2004 Junction<br>AR 2.28<br>LX-2004                             | 0+045 to 0+458<br>-<br>0+040 to 0+353<br>0+000 to 0+110                        | Outfall 02 |
| S2-SR-DN-03           | LX-2004<br>L-5784 Connector   | 0+110 to 0+400<br>0+078 to 0+300   | Outfall 03 |
| S2-SR-DN-04           | LX-2009<br>LX-2011  | 0+028 to 0+304<br>0+178 to 0+740   | Outfall 11 |
| S2-SR-DN-05           | Bonagee Link  | 0+114 to 0+430   | Outfall 04 |
| S2-SR-DN-06           | Mainline 2.6  | 0+440 to 1+330   | Outfall 06 |
| S2-SR-DN-07           | Mainline 2.6  | 0+160 to 0+440   | Outfall 07 |
| S2-SR-DN-08           | LX-2010<br>Dromore Junction<br>LX-2010<br>Bonagee Junction<br>Mainline 2.5<br>L-11141 Connector | 0+000 to 0+749<br>-<br>0+000 to 0+274<br>-<br>0+000 to 0+205<br>0+250 to 0+350 | Outfall 12 |
| S2-SR-DN-09           | L-11141 Connector   | 0+350 to 1+225   | Outfall 08 |
| S2-SR-DN-10           | L-5494 Connector  | 1+030 to 2+093   | Outfall 10 |

Design details regarding attenuation pond and outfalls is provided in **Table 2.24**.

**Table 2.24: Section 2 Proposed Attenuation Pond Details and Outfall Locations**

| Ref. No. | Attenuation Pond Details |             |                                    |                              |                    |  |                                      | Outfall locations |             |
|----------|--------------------------|-------------|------------------------------------|------------------------------|--------------------|--|--------------------------------------|-------------------|-------------|
|          | Easting                  | Northing    | Total Catchment Drainage Area (ha) | Greenfield Runoff Rate (l/s) | Pavement Area (ha) | Attenuation Pond – Volume of Storage (m <sup>3</sup> ) | Invert Level of Attenuation Pond (m) | Easting           | Northing    |
| 1        | 619,889.418              | 908,312.272 | 1.656                              | 16.13                        | 1.132              | 793  | 89.266                               | 620,014.4         | 908,275.508 |
| 2        | 619,218.194              | 909,029.663 | 1.776                              | 17.296                       | 0.772              | 851  | 92.822                               | 619,207.8         | 909,103.96  |
| 3        | 619,569.217              | 909,729.556 | 1.79                               | 17.438                       | 0.882              | 857  | 61.715                               | 619,583.1         | 909,764.597 |
| 4        | 619,510.998              | 910,798.814 | 0.552                              | 5.378                        | 0.48               | 243  | 1.969                                | 619,536.1         | 910,832.264 |
| 5        | 619,984.873              | 911,080.825 | 18.959                             | 184.679                      | 11.43              | 9,299  | 1.417                                | 619,978.6         | 911,202.441 |
| 6        | 619,272.069              | 911,526.450 | 2.048                              | 19.953                       | 1.862              | 985  | 1.3                                  | 619,238.2         | 911,551.28  |
| 7        | 619,032.408              | 911,816.693 | 1.062                              | 10.343                       | 0.559              | 459  | 5.333                                | 619,084.1         | 911,775.622 |
| 8        | 620,799.231              | 911,295.331 | 1.181                              | 11.503                       | 0.69               | 583  | 1.828                                | 620,843.3         | 911,429.385 |
| 9        | 621,267.942              | 911,562.239 | 7.126                              | 69.419                       | 5.07               | 3,420  | 2.417                                | 621,219           | 911,625.643 |
| 10       | 622,807.578              | 911,039.897 | 1.835                              | 17.873                       | 0.686              | 915  | 2.13                                 | 622,739.7         | 911,157.954 |
| 11       | 619,533.722              | 911,034.733 | 2.067                              | 20.134                       | 0.753              | 1,019  | 0.536                                | 619,516.7         | 911,096.939 |
| 12       | 620,241.474              | 911,266.207 | 1.915                              | 18.654                       | 1.844              | 941  | 2.051                                | 620,205.8         | 911,296.037 |

## 2.8 Design – Section 3

The Section 3 mainline route corridor is approximately 18.1 km long and extends from approximately 0.3 km west of the proposed N13/N14 Pluck Roundabout (interface with Section 2) to the border with Northern Ireland on the River Finn to the south of Lifford. This section includes the cross border link with the A5 (N14/N15 to A5 Link), that will connect to a proposed Trunk Road T3 in Northern Ireland which will in turn connect to the proposed A5 WTC to be pursued by Roads Service Northern Ireland (RSNI) (See **Figure 2.12**), and discussion in **Section 2.8.1.1** below. Refer also to **Appendix 1**, EIAR Drawing 4.3 (Sheets 1 to 10).

The interfaces with the existing road network include:

- N13 at Manorcunningham (interface with Section 2) (N13/N14 Pluck Roundabout).
- “Left-in Left-out” northbound connection to existing N14 Local Road at Drumoghill (Drumoghill Junction).
- “Left-in Left-out” southbound connection to existing N14 at Doorable (Drumoghill Junction).
- R236 / existing N14 east of Raphoe (R236 Ballinalecky Junction).
- Existing L2444 local road, to be upgraded to the R264 at Ballindrait and existing N14 at Rossgeir (Ballindrait Junction).
- Tie-in to N15.

The Proposed Development can be summarised under the following elements. The lengths of the individual sections are approximate.

### Roads:

- 17.5 km of Type 2 Divided Road extending from Manorcunningham (N13/N14 Pluck Roundabout) to Lifford (Lifford Junction) (EIAR Drawing 4.3, sheets 1 to sheet 10 of 10).
- 0.3 km of Type 1 Dual Carriageway (realigned and improved) extending from the proposed N13/N14 Pluck Roundabout westwards to the interface with Section 2 (EIAR Drawing 4.3, sheet 1 of 10).
- 0.3 km of Type 2 Divided Road extending from Lifford (Lifford Junction) to the Northern Ireland Border (N14/N15 to A5 Link Bridge) (EIAR Drawing 4.3, sheet 10 of 10).
- 15.9 km of Type 1, Type 2 and Type 3 Single Carriageway roads being realigned as part of the Proposed Development.

### Junctions:

- N13/ N14 Pluck Roundabout.
- Drumoghill Junction (northbound left in/left out at Drumoghill and southbound left in/left out at Doorable).
- R236 Ballinalecky Junction.
- Ballindrait Junction.
- N14/N15 Lifford Junction.

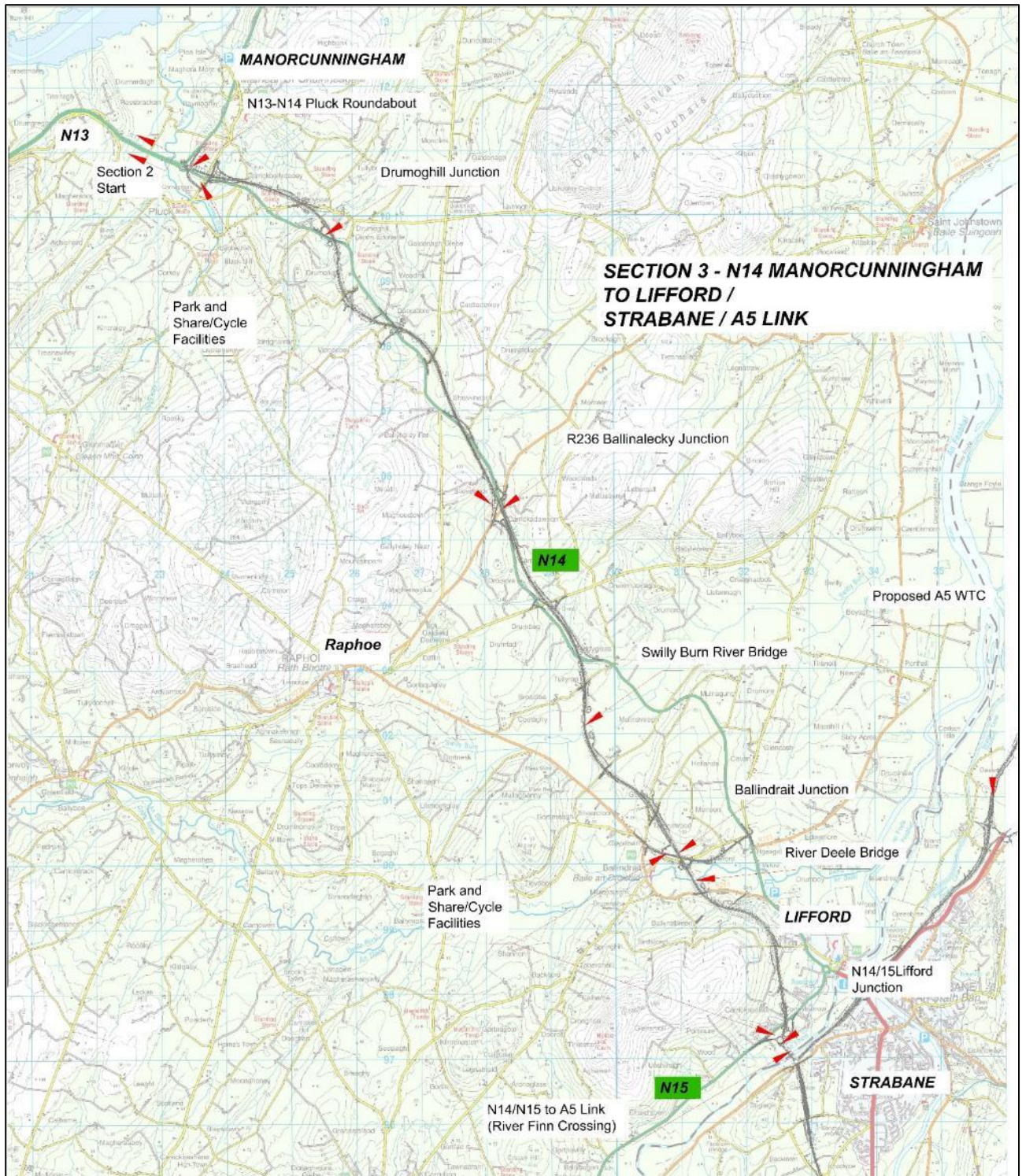


Figure 2.12: Section 3 Proposed Development

**Structures:**

- 1 No. 260 m long, clear-span bridge over the River Finn, south of Lifford (the N14/N15 to A5 Link).
- 2 No. river bridges.
- 7 No. road overbridges.
- 8 No. road underbridges.
- 2 No. active travel underpasses.
- 4 No. accommodation underpasses.
- 1 No. active travel overbridge.
- Various culverts, gantries, and environmental noise barriers.

**Active Travel**

- Provision of active travel infrastructure: this includes connections to existing infrastructure and four new Park and Share / Cycle facility located at Pluck Roundabout, R236 Ballinalecky Junction, Ballindrait Junction and N14/N15 Lifford Junction.

**Other Works:**

- Access roads and accommodation roads.
- Provision of attenuation ponds, flood compensatory measures, watercourse diversions and associated drainage infrastructure.
- Provision of existing utility diversions and new utility infrastructure.
- Provision of landscape planting, signage, lighting, accommodation works ancillary to the construction and operation of the Proposed Development.

## 2.8.1 Roads

To achieve best possible user safety, journey time reliability, average speed targets and capacity for freight, passenger and public transport, a Type 2 Divided Road is proposed for the mainline. **Figure 2.2** illustrates the Type 2 Divided Road cross section. This road cross section also fully accommodates segregated active travel facilities enabling modal shift and further aiding Park and Share and Park and Ride/Walk alternatives on the network. Predicted traffic volumes were considered particularly freight and commercial while the transition to alternative green fuels is augmented by regular and strategically positioned EV Charge hubs along the TEN-T network as per that regulation. In addition, traffic figures include the government target of 30% EVs on the Irish road network by 2030 with a much greater percentage expected by the Proposed Development design year.

The N14 Manor Cunningham to Lifford/ Strabane/ A5 Link section connects to dual carriageway roads at the northern end with the existing N13 dual carriageway to Letterkenny. At the southern end, the road will connect with the existing N15 (Lifford to Stranorlar), with a link across the River Finn to Northern Ireland, the N14/N15 to A5 Link. This link will connect to a proposed "Trunk Road T3" in Northern Ireland which in turn will connect to the proposed A5 WTC. Further details on this proposed cross-border connection are provided in the next **Section 2.8.1.1**.

Cross section analysis assessed the carriageway types under Safety, Environment, Accessibility and Social Inclusion, Integration and Physical Activity. The Type 2 Divided Road has a significant accident reduction and other safety benefits compared to the Type 1 Single Carriageway. Ireland's Government Road Safety Strategy 2021 - 2030 directs that going forward only divided national primary roads can be posted 100 kph.

The Proposed Development mainline is therefore a divided cross section. This also supports the National Planning Framework First Revision National Strategic Outcome 2 objective of 'improving average journey times targeting an average inter-urban speed of 90 kph'.

Similarly, the environmental benefits are greater for the Type 2 Divided Road. This is generally as a result of the Type 2 Divided Road being a more flexible alignment as the Single Carriageway has to provide for a minimum 50% full overtaking design standards. It is therefore easier to modify and realign the Type 2 Divided Road alignment to avoid or reduce environmental impacts. The Type 2 Divided Road is preferred over the single carriageway option.

For link roads and other roads, a combination of traffic volumes, route consistency/ tie-in, safety and design requirements were key factors in determining the most appropriate cross section.

### 2.8.1.1 N14/N15 to A5 Link

Section 3 of the Proposed Development includes the N14/N15 to A5 Link south of Lifford to the border with Northern Ireland on the River Finn where it will connect to a proposed Trunk Road T3, which in-turn will connect to the proposed A5 Western Transport Corridor (WTC). A proposed Trunk Road T3 (of approximately 79 metres of new road) will provide a link between the proposed A5 WTC in Northern Ireland and the Project, meeting at the border between Northern Ireland and Ireland.

In Northern Ireland, the proposed A5 WTC is currently divided into three sections. Section 1 of the A5 WTC will connect to a proposed Trunk Road T3 which in turn will connect to the N14/N15 to A5 Link section of the Proposed Development. Section 1 of the A5 WTC is being advanced through the statutory planning process in Northern Ireland.

In June 2025, the High Court in Northern Ireland made a judgement regarding the A5 WTC whereby the permission granted for sections 2 and 3 of the A5 WTC was quashed. That decision has been appealed to the Court of Appeal in Northern Ireland.

The proposed N14/N15 to A5 Link (which link, together with a proposed Trunk Road T3, is shown in red on **Figure 2.13** below), including the proposed bridge over the River Finn (i.e. the link between the N14/N15 Lifford Junction and a proposed Trunk Road T3) will not be constructed until such time as a proposed Trunk Road T3 / Section 1 of the A5 WTC has been constructed or is under construction. As described in the following **Section 2.8.1.2**, the section of the Proposed Development from Ballindrait Junction to the N14/N15 Lifford Junction is an essential element of the Project and can operate effectively without the N14/N15 to A5 Link should construction of the N14/N15 to A5 Link be delayed or not proceed. In the scenario without the proposed N14/N15 to A5 Link, traffic will still use the existing N14/ N15 /A38 River Foyle bridge crossing at Lifford/ Strabane for traffic travelling to and from Northern Ireland (as shown in green on **Figure 2.13** below).

The scenarios with and without the N14/ N15 to A5 Link (which is the Proposed Development's connection to a proposed Trunk Road T3 and the A5 WTC) are considered in this EIAR.

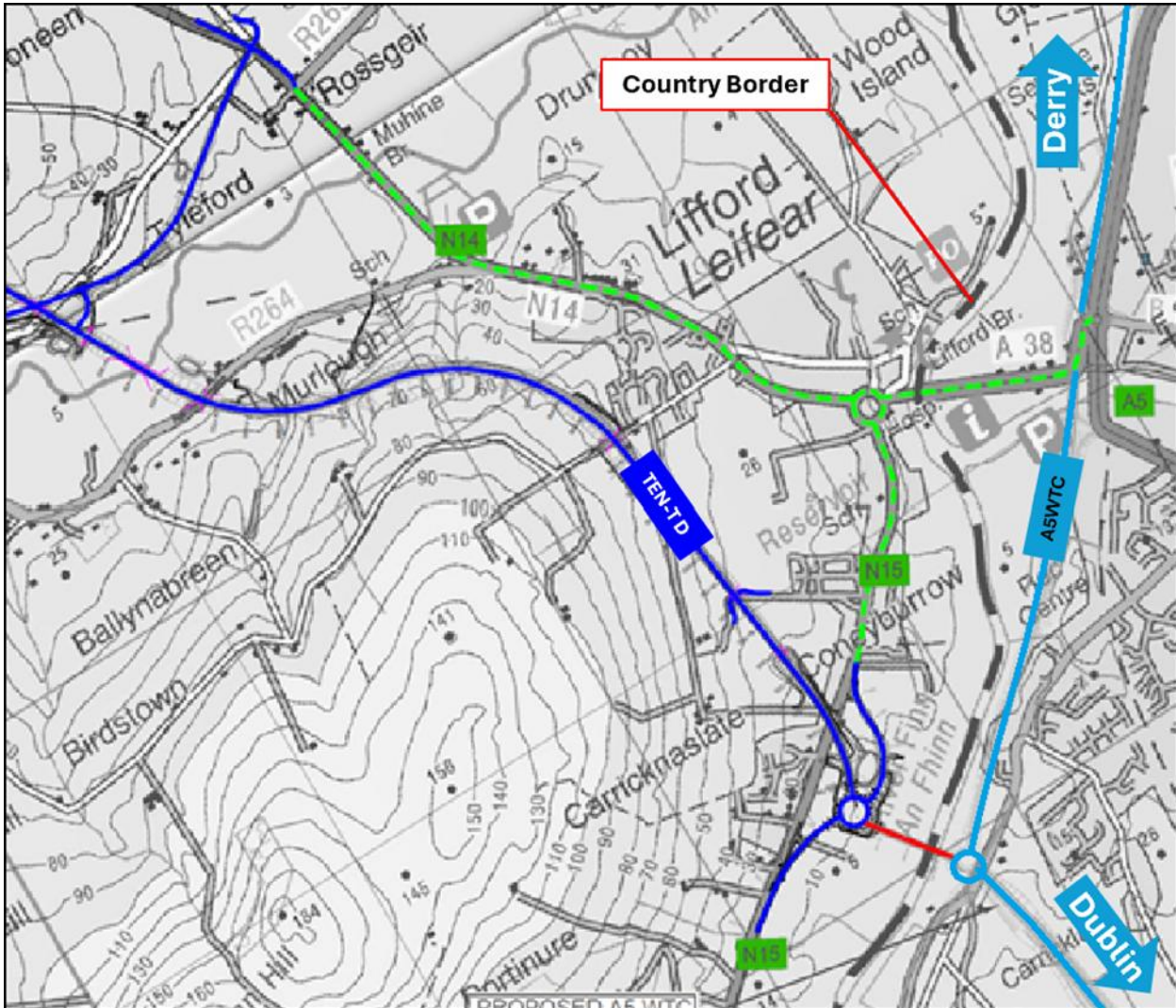


Figure 2.13: Cross Border Connections (Existing and Proposed A5WTC)

### 2.8.1.2 Ballindrait Junction to N14/N15 Lifford Junction

The proposed new Type 2 Divided Road (2+2) between the proposed Ballindrait Junction and N14/N15 Lifford Junction, even without the N14/N15 to A5 Link, is an essential element of the Proposed Development. It delivers on continued improvement of the Donegal TEN-T Comprehensive Network, as per Regulation (EU) 2024/1679. This section, bypassing Lifford and ribbon development along the existing N14, will enhance the efficiency and safety performance of the road network through a high quality TEN-T corridor while addressing legacy substandard junctions and accesses along the existing TEN-T network. The new active travel provision included as part of the Project, which forms part of the National Cycle Network, provides a coherent and linked up active travel network between Lifford/Strabane and Letterkenny (Regional Centre, NPF), connecting with existing urban facilities as well as the cross-border North West Greenway Network (Lifford-Strabane) and the Lifford to Castlefin Greenway. This will complete missing links to significantly expand the active travel network for local communities within Lifford, Strabane, Ballindrait and the wider northwest region. This section also includes the proposed modal hub at Lifford. The modal hub allows seamless and efficient integration of active travel ~ public transport ~ private vehicle modes. The modal hub is located at a strategically important interchange, approximately 500 m from the Ireland/ Northern Ireland border. Regulation (EU) 2023/1804 of the European Parliament and of the Council of 13 September 2023 on the deployment of alternative fuels infrastructure and repealing Directive 2014/94/EU requires rest areas to be provided along the TEN-T Comprehensive Network with a maximum distance of 60 km between these rest areas. Following the withdrawal of the United Kingdom from the EU, the next

section of TEN-T comprehensive network is approximately 66 km southeast of Lifford in Co. Monaghan, already exceeding the 60 km maximum requirement. Therefore, the Park and Share facility at Lifford is considered a critical element of Section 3 of the Project in order to comply with Regulation (EU) 2023/1804. The Park and Share facility will also encourage modal shift and the transition to sustainable, low carbon alternatives within the urban centres of Lifford, Ballindrait and Strabane (NI), within the Northwest City Region and along the core Northwest~Northern Ireland~Dublin transport corridor.

Furthermore, this section will contribute towards enhanced cross-border and Northwest connectivity.

### 2.8.1.3 Section 3 – Road cross section

In considering all these factors, the mainline cross sections have been selected as shown in **Table 2.25**. The segregated cycle track is a shared pedestrian/cycle facility adjacent to for remote from the Type 2 Divided Road.

**Table 2.25: Type of Road – Section 3 Mainline**

| Section | Road Name                 | Type of Road from DN-GOE-03031<br>Table 6.1               | Design / Posted<br>Speed (km/hr) |
|---------|---------------------------|---|----------------------------------|
| 3       | <b>Mainline Section 3</b> | Type 2 Divided Road 2+2 Lanes<br>(2 x 7.0 m) carriageways | 100 / 100                        |

Link road cross-sections for Section 3 have been developed based on predicted traffic volumes for the Design Year 2047 (**See Table 2.26**) as outlined in the **Transport Modelling Report (Appendix C6.01)**.

**Table 2.26: Type of Road – Section 3 Link Roads**

| Section | Road Name                          | Type of Road from DN-GOE-03031<br>Table 6.1 | Design / Posted<br>Speed (km/hr) |
|---------|------------------------------------|---|----------------------------------|
| 3       | <b>L2444 Ballindrait Link Road</b> | Type 3 Single<br>(6.0 m) Carriageway        | 85 / 80                          |

**Table 2.27** lists the slip roads within Section 3 used for the Proposed Development.

**Table 2.27: Design Speed – Section 3 Slip Roads**

| Section | Road Name                                    | Junction Type           | Design / Posted<br>Speed (km/hr) |
|---------|--|-------------------------|----------------------------------|
| 3       | <b>Drumoghill Junction – North Link</b>      | Compact Grade Separated | 30 / 50                          |
| 3       | <b>Drumoghill Junction – South Link</b>      | Compact Grade Separated | 30 / 50                          |
| 3       | <b>R236 Ballinalecky Junction Link North</b> | Compact Grade Separated | 30 / 50                          |
| 3       | <b>R236 Ballinalecky Junction Link South</b> | Compact Grade Separated | 30 / 50                          |
| 3       | <b>Ballindrait Junction Link North</b>       | Compact Grade Separated | 30 / 50                          |
| 3       | <b>Ballindrait Junction Link South</b>       | Compact Grade Separated | 30 / 50                          |

### 2.8.1.4 Alignment

The existing section of the N14 road, which is approximately 17.5 km in length, commences at the Pluck Roundabout, the junction between the N13 and N14 near Manorcunningham and continues as a single carriageway in a south easterly direction to Lifford. There is an existing border crossing into Northern Ireland at Lifford/Strabane, across the River Foyle (north of the confluence of the River Finn and Mourne River).

The mainline of Section 3 (N14) of the Proposed Development will be a Type 2 Divided Road, approximately 17.5 km long. At its northern extent it commences at the N13/ N14 Pluck Roundabout, where it connects to Section 2, and follows a similar alignment as the existing N14 for approximately 800 m. The corridor then continues in a similar westerly direction offline towards Drumoghill before turning south through Drumcairn towards the existing N14 at Sheskinapoll. The corridor then aligns in a south easterly direction for approximately 4 km to Feddyglass running close to the existing N14. At this point, the corridor crosses the existing N14 continuing to the townland of Tamnawood. From here the corridor continues in a south easterly direction to Murlough and then curves around to the east side of Croaghan Hill and subsequently extends in a southerly direction between Conneyburrow and Beechwood Park crossing the existing N15 to a proposed roundabout, the N14/N15 Lifford Junction. This junction will provide connection back to Lifford and the existing bridge crossing into Strabane, along with a connection to the existing the N15 travelling south toward Ballybofey/ Stranorlar. The junction will also provide access to the proposed N14/N15 to A5 Link creating a new bridge over the River Finn to Northern Ireland, where it will connect to a proposed Trunk Road T3 which in turn will connect to the proposed A5 WTC.

Where the proposed mainline severs existing side roads, side road connectivity will be maintained where practicable through the inclusion of proposed bridges over or under the mainline.

### 2.8.2 Junctions

The road cross section for Section 3 has been determined to be a Type 2 Divided Road. Five junction locations have been identified for Section 3 at the following locations:

- **N13/ N14 Pluck Roundabout-** Northern tie-in of Section 3 to the N13. This location overlaps with the Section 2 eastern tie-in.
- **Drumoghill Junction-** northbound left in/left out at Drumoghill and southbound left in/left out at Doorable.
- **R236 Ballinalecky Junction-** Crossing point with the R236, which aligns from Raphoe to Derry.
- **Ballindrait Junction.**
- **N14/N15 Lifford Junction-** Southern tie-in to the existing N15, providing a connection back to Lifford, and a connection to the proposed N14/N15 to A5 Link.

The choice of junction has been determined as follows:

#### 2.8.2.1 N13/N14 Pluck Roundabout

At the northern tie-in of the Proposed Development to the N13 a roundabout has been chosen for the following reasons:

- There are high levels of traffic on the N13 to the north and west.
- Each of the roads connecting at this location have a different cross section and a roundabout provides a safe transition between these links. The N13 west of the junction is a Type 1 dual carriageway, the N13 north of the junction is a single carriageway, and the proposed N14 is proposed to be a Type 2 Divided Road.
- A roundabout facilitates access to the residual local road network.

### 2.8.2.2 Drumoghill Junction

Drumoghill / Doorable Junction is the first of three intermediate junctions on Section 3, and comprises a compact grade separated junction with the existing N14 (to be downgraded) split between two locations. The Drumoghill/Doorable Junction comprises two access points in the form of “left-in/left-out” junctions in close proximity to Drumoghill Village for northbound traffic (~Ch 2+300) and Doorable for southbound traffic (~Ch 4+000).

The proposed junction configuration provides for free-flowing traffic on the mainline while accommodating access to the Proposed Development for local traffic. Local traffic movements remain unaltered from the existing arrangement by the provision made to retain the existing N14 with two underbridges N14U026 and N14U044.

### 2.8.2.3 R236 Ballinalecky Junction

At the crossing point with the R236 a compact grade separated junction has been chosen for the following reasons:

- The approximate proposed design year mainline traffic is 9,000 AADT with the side road traffic being in the order of 2,300 AADT.
- A compact grade separated junction allows for the mainline traffic, which constitutes the majority of traffic to proceed unobstructed, providing better journey time savings than a roundabout.

### 2.8.2.4 Ballindrait Junction

A compact grade separated junction has been chosen for the following reason:

- The Ballindrait Junction will maintain connectivity on the realigned L2444 and R265 avoiding the necessity for local traffic to interfere with mainline strategic traffic.
- As traffic volumes are predicted to be >2,000 AADT on this link with the proposed junction, the provision of a CGSJ allows local traffic to make the required turning movements safely.
- A compact grade separated junction allows for the mainline traffic, which constitutes the majority of traffic to proceed unobstructed, providing better journey time savings than a roundabout.

### 2.8.2.5 N14/ N15 Lifford Junction

At the southern tie-in between the N14 and the existing N15, as well as the proposed N14/N15 to A5 Link, a roundabout has been chosen for the following reasons:

- The proposed N14 mainline and N14/N15 to A5 Link have a Type 2 Divided Road cross section and the two proposed links to the existing N15 carriageway have a Type 2 Single Carriageway cross section. A roundabout provides a safe transition between Single and Dual/Divided carriageways.
- The tie-in location is constrained with a roundabout proposed at the tie-in of the N15 to the N14/N15 to A5 link. The provision of a compact grade separated junction would not be possible without significant impact on adjoining properties.
- If there are delays in the construction of the N14/N15 to A5 Link due to delays in the construction of a proposed Trunk Road T3 and A5 WTC in Northern Ireland (or same does not proceed), then the roundabout option will still facilitate connecting to the existing N15.

## 2.8.3 Side Roads

The proposed mainline is connected to the existing road network through a series of junctions, slip roads and link roads. At these connections the existing road network is impacted and realignment or modification has been required.

The proposed mainline will cross the existing road network at locations without providing connection to the existing road network. At these crossings the existing road network will be impacted and realignment or modification to the existing road network has been designed. These sections of existing road network are referred to as side roads (or local roads).

## 2.8.4 Access Roads

Access roads shall be provided to allow access to lands severed by the project. They also serve properties where existing access is affected. Access Roads are generally 4.0m in width with 1.0m verges on either side and in compliance with TII Publications standard detail drawings CC-SCD-00706. Passing bays have also been provided for in accordance with the standards where the length of the access roads exceeds 250m.

New field and domestic house entrances are provided to replace existing entrances impacted by the proposed road development. Field accesses will be in accordance with TII Publications standard detail drawings CC-SCD-02754. Domestic accesses will be in accordance with TII Publications standard detail drawings CC-SCD-02753.

Surface dressing and an asphalt concrete dense binder course shall be provided for access roads on steep gradients (over 5%) and for accesses to private dwellings or farmsteads.

The details of the proposed access roads and the landowner parties they serve across the proposed road development are outlined in **Table 2.28**. Access Road and accesses are shown in EIAR Drawing 4.3.

**Table 2.28: Section 3 Access Roads**

| Reference Number | Approx. Mainline Chainage | Approximate Length | Plot ID / Landowner Reference | Comments   |
|------------------|---------------------------|--------------------|-------------------------------|--|
| AR 3.01          | 0+300m                    | 20 m               | 3001                          | Access to existing road / land from realigned side road                              |
| AR 3.02          | 0+300m                    | 355 m              | 3125                          | Access to existing road / dwelling from realigned side road                          |
| AR 3.03          | 0+400m                    | 55m                | N/A                           | Access to attenuation pond   |
| AR 3.04          | 0+300m                    | 645m               | 3001,3004                     | Access to existing road (L6004-2) and lands severed by the proposed road development |
| AR 3.05          | 0+300m                    | 25m                | 3124                          | Access to existing road / dwelling from realigned side road                          |
| AR 3.06          | 0+300m                    | 25m                | 3002                          | Access to lands from realigned side road   |
| AR 3.07          | 1+800m                    | 240m               | 3001                          | Access to attenuation pond   |
| AR3.08           | 1+800m                    | 585m               | 3005, 3006, 3007              | Access to lands severed by the proposed road development                             |
| AR 3.09          | 1+800m                    | 150m               | N/A                           | Access to attenuation pond   |
| AR 3.10          | 1+800m                    | 42m                | 3007                          | Access to lands from realigned side road   |
| AR 3.11          | 1+800m                    | 50m                | 3006                          | Access to lands Severed by the proposed road development from realigned side road    |
| AR 3.12          | 2+300m                    | 40m                | 3008                          | Access to lands from realigned side road   |
| AR 3.13          | 2+600m                    | 53m                | N/A                           | Access to attenuation pond 04  |
| AR 3.13B         | 2+400m                    | 50m                | N/A                           | Access to attenuation pond 03  |
| AR 3.14          | 3+500m                    | 40m                | 3019                          | Access to lands severed by the proposed road development                             |
| AR 3.15          | 3+500m                    | 147m               | 3021/3022                     | Access to lands and dwellings severed by the proposed road development               |
| AR 3.16          | 3+500m                    | 10m                | 3021                          | Access to house severed by the proposed road development                             |
| AR 3.17          | 3+500m                    | 5m                 | 3021                          | Access to house severed by the proposed road development                             |

| Reference Number | Approx. Mainline Chainage | Approximate Length | Plot ID / Landowner Reference | Comments  |
|------------------|---------------------------|--------------------|-------------------------------|---|
| AR 3.18          | 3+500m                    | 48m                | 3017                          | Access to lands severed by the proposed road development                          |
| AR 3.19          | 3+500m                    | 20m                | 3017                          | Access to lands from realigned side road  |
| AR 3.20          | 3+500m                    | 253m               | 3021                          | Access to lands severed by the proposed road development                          |
| AR 3.21          | 3+500m                    | 125m               | 3017                          | Access to lands severed by the proposed road development                          |
| AR 3.22          | 4+500m                    | 180m               | 3030                          | Access to attenuation pond and lands severed by the proposed road development     |
| AR 3.23          | 4+500m                    | 42m                | N/A                           | Access to attenuation pond  |
| AR 3.24          | 4+400m                    | 32m                | N/A                           | Access to attenuation pond  |
| AR 3.25          | 4+500m                    | 30m                | 3025                          | Access to lands severed by the proposed road development                          |
| AR 3.26          | 5+200m                    | 14m                | 3033                          | Access to lands from realigned side road  |
| AR 3.27          | 5+200m                    | 20m                | 3033                          | Access to lands from realigned side road  |
| AR 3.28          | 5+200m                    | 12m                | 3033                          | Access to lands from realigned side road  |
| AR 3.29          | 6+100m                    | 12m                | 3165                          | Access to lands from realigned side road  |
| AR 3.30          | 6+400m                    | 37m                | 3165                          | Connection to existing road network   |
| AR 3.31          | 6+400m                    | 30m                | N/A                           | Access to attenuation pond  |
| AR 3.32          | 7+600m                    | 1000m              | 3130/3131/3039/3040/3041      | Access to lands severed by the proposed road development                          |
| AR 3.33          | 7+700m                    | 30m                | 3041/3130/3131                | Access to houses severed by the proposed road development                         |
| AR 3.34          | 7+700m                    | 253m               | N/A                           | Access to attenuation pond  |
| AR 3.35          | 7+900m                    | 73m                | 3042                          | Access to lands / dwelling from realigned side road                               |
| AR 3.36          | 8+200m                    | 28m                | 3044                          | Access to lands severed by the proposed road development                          |
| AR 3.37          | 9+100m                    | 417m               | 3044/3045                     | Access to lands severed by the proposed road development                          |
| AR 3.38          | 9+100m                    | 10m                | 3045                          | Access to lands severed by the proposed road development                          |
| AR 3.39          | 9+400m                    | 58m                | 3044/3045/3054/3055/3056/3057 | Access to existing road, houses and land severed by the proposed road development |
| AR 3.40          | 9+300m                    | 56m                | 3050/3051                     | Access to houses severed by the proposed road development                         |
| AR 3.41          | 10+600m                   | 250m               | 3064/3065                     | Access to lands severed by the proposed road development                          |
| AR 3.42          | 10+600m                   | 35m                | 3065                          | Access to land/ building severed by the proposed road development                 |
| AR 3.43          | 10+900m                   | 440m               | 3065                          | Access to land and attenuation pond   |
| AR 3.44          | 10+900m                   | 22m                | 3065                          | Access to land severed by the proposed road development                           |
| AR 3.45          | 12+100m                   | 550m               | 3070                          | Access to attenuation pond  |
| AR 3.46          | 12+200m                   | 30m                | 3071                          | Access to land from realigned side road   |
| AR 3.47          | 13+00m                    | 206m               | 3074                          | Access to lands severed by the proposed road development                          |
| AR 3.48          | 13+300m                   | 225m               | 3074/3075                     | Access to existing road and lands severed by the proposed road development        |

| Reference Number | Approx. Mainline Chainage     | Approximate Length | Plot ID / Landowner Reference                             | Comments   |
|------------------|-------------------------------|--------------------|---|--|
| AR 3.49          | 13+300m                       | 100m               | 3075  | Access to lands severed by the proposed road development                                   |
| AR 3.50          | 13+300m                       | 357m               | 3081  | Access to lands severed by the proposed road development                                   |
| AR 3.51          | 13+500m                       | 23m                | 3085  | Access to house from realigned side road   |
| AR 3.52          | 13+700m                       | 140m               | 3090  | Access to Houses severed by the proposed road development                                  |
| AR 3.53          | 13+800m                       | 41m                | N/A   | Access to attenuation pond   |
| AR 3.54          | 14+100m                       | 115m               | N/A   | Access to attenuation pond   |
| AR 3.55          | 14+100m                       | 33m                | 3092  | Access to attenuation pond and land Severed by the proposed road development               |
| AR 3.56          | 14+100m                       | 25m                | N/A   | Access to attenuation pond   |
| AR 3.57          | 14+100m<br>Ballindrait link   | 56m                | N/A   | Access to attenuation pond   |
| AR 3.58          | 14+600m                       | 66m                | N/A   | Access to attenuation pond   |
| AR 3.59          | 16+100m                       | 198m               | 3105/3106   | Access to lands severed by the proposed road development, access to active travel facility |
| AR 3.60          | 16+100m                       | 425m               | 3108/3109   | Access to existing road and lands severed by the proposed road development                 |
| AR 3.61          | 16+800m                       | 230m               | 3110  | Access to dwelling and lands severed by the proposed road development                      |
| AR 3.62          | 17+000m                       | 555m               | 3112  | Access to lands severed by the proposed road development                                   |
| AR 3.63          | N15 East Tie-In               | 38m                | 3113/3114   | Connection to existing road network  |
| AR 3.64          | N15 East Tie-In               | 135m               | N/A   | Access to attenuation pond   |
| AR 3.65          | N15 East Tie-In               | 70m                | 3120  | Access to lands severed by the proposed road development                                   |
| AR 3.66          | N15 West Tie-In               | 215m               | 3144/3146/3147/3148/<br>3149/3150/3151/3152/<br>3153/3154 | Access to existing road and lands severed by the proposed road development                 |
| AR 3.67          | L5524-1 Woodhill              | 60m                | 3126  | Access to existing L5524-1 from realigned L5524-1  |
| AR 3.68          | Ballindrait Link Ch<br>1+790m | 40m                | N/A   | Access to existing L-2444  |
| AR 3.69          | Ballindrait Link Ch<br>1+830m | 40m                | 3072  | Access to house and lands severed by the proposed road development                         |
| AR 3.70          | Ch 14+850                     | 175m               | 3101  | Access to lands severed by the proposed road development                                   |
| AR 3.71          | Ch 14-860                     | 185m               | 3089  | Access to lands severed by the proposed road development                                   |

## 2.8.5 Active Travel Network

The active travel networks throughout Section 3 include approximately 29 km of shared pedestrian / cycle facilities. These facilities include pedestrian / cycle paths located adjacent to and remote from the proposed mainlines, connections to the local road network and connections to local amenity areas and areas of interest, including park and share / cycle facilities described below.

The active travel network has been designed to provide an amenity facility for leisure use, enhance local access to other amenities (such as football pitches, woodland walks) through active travel and maintain local connectivity through use of active travel.

In addition to the mainline shared cycleway/footway, Section 3 also includes Non-Motorised User (NMU) facilities as part of the cross section in the following locations:

- Ballindrait Link Road Type 2 single carriageway cross-section, which connects the R264 to the existing N14 at Rossgeir.
- A connection from the mainline at Croaghan Hill to Murlough, connecting to the existing R264 near St. Patrick's Church, Murlough, and the termination point for the Northwest Greenway Route 3.
- Park and share / cycle facilities at Ch 0+100, 7+600, 14+000 and 17+500.
- Connection to the existing local road network at approximate Ch 2+200 which will facilitate any future greenway project along the disused railway line. An underpass is also being provided where the mainline crosses the disused railway line.
- Numerous connections to the local road network.

## 2.8.6 Structures

The location and detail for the proposed overbridges included within Section 3 are presented in **Table 2.29**. Each structure family type follows a standard form described in **Section 2.4.6** above .

**Table 2.29: Section 3 Proposed Overbridges**

| Structure Ref  | Approx. Mainline Chainage | Description  | Mainline Cross-section              | Mainline Cross-section Width (m)* |
|----------------|---------------------------|--|-------------------------------------|-----------------------------------|
| <b>N14O003</b> | 00+350                    | L1154 and L1294 (Type 3 Single carriageway) crossing mainline and cycle track. The overbridge will have a cycletrack within the verge. | Type 2 Divided Road with cycletrack | 29.3                              |
| <b>N14O051</b> | 05+170                    | L1214 (Galdonagh Road) over mainline. Cycletrack runs within verge of mainline (5.5 m separation from edge of road pavement)           | Type 2 Divided Road with cycletrack | 32.3                              |
| <b>N14O062</b> | 06+240                    | Existing N14 over mainline   | Type 2 Divided Road with cycletrack | 28.5                              |
| <b>N14O076</b> | 07+650                    | Grade Separated Junction: R236 over N14 Mainline. Includes cycle track within the verge of overbridge.                                 | Type 2 Divided Road with cycletrack | 28.5                              |
| <b>N14O108</b> | 10+800                    | L6104 over mainline  | Type 2 Divided Road with cycletrack | 29.8                              |
| <b>N14O132</b> | 13+240                    | L2414 over mainline (Tamnawood)  | Type 2 Divided Road with cycletrack | 31.0                              |
| <b>N14O161</b> | 16+110                    | Lifford Common Road  | Type 2 Divided Road with cycletrack | 39.2                              |

\* Total widths from back of verge to back of verge

The location and detail for the proposed underbridges included within Section 3 are presented in **Table 2.30**.

**Table 2.30: Section 3 Proposed Underbridges**

| Structure Ref | Approx. Mainline Chainage | Description  | Mainline Cross-section              | Mainline Cross-section Width (m)* |
|---------------|---------------------------|--|-------------------------------------|-----------------------------------|
| N14U018       | 01+850                    | L1274 (to Drumoghill) under mainline                           | Type 2 Divided Road with cycletrack | 28.0                              |
| N14U026       | 02+600                    | Existing N14 at Drumoghill under mainline                      | Type 2 Divided Road with cycletrack | 28.9                              |
| N14U034       | 03+480                    | L5574 under mainline   | Type 2 Divided Road with cycletrack | 32.5                              |
| N14U044       | 04+410                    | Existing N14 under mainline                                    | Type 2 Divided Road with cycletrack | 29.0                              |
| N14U094       | 09+430                    | Existing N14 under mainline. (Tullyrap / Whitecross side road) | Type 2 Divided Road with cycletrack | 25.0                              |
| N14U122       | 12+200                    | L2424 under mainline   | Type 2 Divided Road with cycletrack | 29.8                              |
| N14U140       | 14+000                    | Grade Separated Junction L2444 crossing under mainline         | Type 2 Divided Road with cycletrack | 29.6                              |
| N14U146       | 14+650                    | R264 crossing the mainline at Murlog                           | Type 2 Divided Road with cycletrack | 27.7                              |

\* Total widths from back of parapet upstand to back of parapet upstand.

### 2.8.6.1 River Finn Crossing (N14/N15 to A5 Link) N14R175

The proposed River Finn Crossing (N14/N15 to A5 Link) is at the southern end of Section 3 of the Proposed Development, south of Lifford. This crossing is required to carry the proposed N14/N15 to A5 Link over the River Finn, the floodplain, and its associated Special Area of Conservation (SAC) and to connect to a proposed Trunk Road T3 in Northern Ireland (which will connect to the proposed A5 WTC).

The link has an overall length of approximately 450 m between the proposed N14/N15 Lifford Junction in Ireland and the roundabout connecting the proposed Trunk Road T3 and the A5 WTC in Northern Ireland. The length of the N14/N15 to A5 Link within the SAC boundaries (including both the River Finn SAC in Ireland and the River Foyle and Tributaries SAC in Northern Ireland) is approximately 230m.

The Finn Valley is broad. The flood plain on the west side of the river is approx. 250 m wide while on the east side it is approx. 70 m wide.

Hydraulic analysis has been carried out and defined a minimum soffit level of 7.56 m OD to provide freeboard over flood levels, and a minimum bridge length of approximately 160 m to avoid increasing upstream flood risks. The recommended structure type satisfies these minimum requirements.

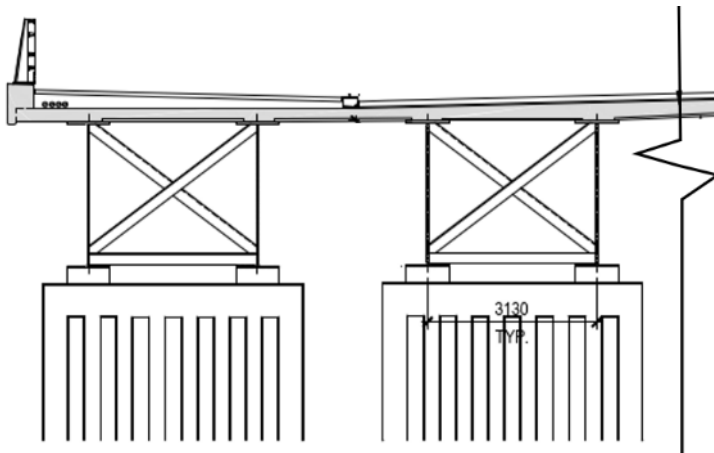
The proposed A5 WTC is on embankment where it runs parallel to the River Finn.

An 8-Span Steel Composite Bridge is proposed to be installed over the River Finn as part of the n14/N15 to A5 Link.

The overall length of the bridge is approximately 287 m with the following span arrangement:

- **West Approach Spans:** One 26 m span and five 33 m spans.
- **Main Span:** 63 m.
- **East Approach Span:** 33 m.

The proposed structural arrangement consists of four pairs of braced plate girders made composite with a Reinforced Concrete (RC) deck slab. A half cross section of the proposed structure is shown in **Figure 2.14**.



**Figure 2.14: Half Cross Section of the Proposed River Finn Crossing (N14/N15 to A5 Link)**

The proposed bridge deck is continuous over piers, with bearing supports on RC piers with RC bored pile foundations. The bridge deck end supports consist of RC columns, embedded behind Reinforced Earth (RE) walls, supported on RC bored pile foundations. The west abutment is fully articulated with bearings, movement joint and abutment gallery for maintenance access. The east abutment is fully integral due to the short end-to-inner span ratio.

The steel composite bridge deck construction provides a simple elegant crossing which will minimise impact on the landscape. The proposed structure maximises headroom clearance and achieves an open, light appearance in elevation. Weathering steel is proposed which has an aesthetically pleasing reddish-brown colour and avoids the need for paint maintenance. A pattern profile finish will be provided on large areas of exposed concrete at the abutments.

### 2.8.6.2 Swilly Burn Bridge (N14R114)

The bridge deck consists of pre-cast concrete prestressed beams composite with RC deck slab supported on a full height integral RC abutment with RC bored pile foundations. The skew angle between the road-to-river axis is 43 degrees, and the bridge accommodates this at a 30-degree skew span with a widened deck and a 'dead' deck area each side of the carriageway. This enables a fully integral abutment which avoids the maintenance and abutment gallery associated with bearings and expansion joints. The clear skew span is 30 m which is within the range for Prestressed Concrete (PC) beams. The site is adjacent to the existing N14 and R264 roads, facilitating transport and delivery of long bridge beams.

The abutments are setback 5 m from the riverbank crest to provide a natural bank and enable a 3 m wide 'no working zone' behind the riverbank crests. No instream works are required. The Swilly Burn contains a population of the invasive alien Asian Clam and therefore no instream works are allowed, no construction plant or machinery will be allowed in the river, and no abstraction will be permitted at this location. During construction biosecurity measures will be put in place to ensure no risk of transference during construction including adherence to biosecurity protocols as set out in the Water Users Code of Practice (Invasive Species Ireland, 2008). The abutment and wingwalls could consist of either an RC wall, or skeletal RC columns embedded in a RE wall.

Ground investigations indicate poor ground conditions at the site, therefore piled RC foundations are proposed. The proposed bridge deck soffit level provides adequate freeboard over flood levels with a

minimum of 2.5 m clearance over the riverbanks for inspection and maintenance access. The proposed general arrangement effectively reduces the skew span of the bridge, which enables a slimmer deck depth to be provided. The road embankment level on the bridge approach is governed by the bridge deck level so a relatively slim deck depth offers savings in embankment fill. The proposed structure is low profile which will blend into the landscape. Pattern profile finish could be provided to the large, exposed faces of the substructures.

### 2.8.6.3 Deelee River Bridge (N14R144)

The proposed Deelee River bridge will carry the proposed N14 mainline carriageway over the River Deelee and floodplain. The overall length of the bridge is approx. 108 m. It consists of three spans (24 m, 60 m and 24 m) with the central span crossing the River Deelee. The mainline carriageway on the bridge approaches is supported on a fill embankment over the floodplain. The River Deelee is canalised at this location, with berms either side to control riverbank erosion and reduce the frequency of flooding on adjacent grassland farmland.

The area is not particularly ecologically sensitive and there are no adjacent European sites, although the Deelee discharges to the River Foyle further downstream (part of the River Finn SAC in Ireland and the River Foyle and Tributaries SAC in Northern Ireland).

The overall length and span arrangement of the bridge is driven by hydraulic conveyance requirements to accommodate the River Deelee in flood conditions. Four flood relief culverts (3 m internal height and 6 m internal width) are required on the north floodplain to satisfy OPW requirements. The culverts are setback a minimum of 20 m behind the north bridge abutment.

The intermediate piers of the bridge must be setback a minimum of 5 m from the crest of the Deelee riverbanks to provide space for sediment control measures and to avoid modification to the riverbanks/berms.

The proposed bridge provides adequate clearance over the 100-yr flood levels.

Following evaluation of various options for the bridge, a three-span steel composite bridge was identified as the preferred option and is being proposed at this location. The proposed bridge consists of steel girders acting composite with an RC deck slab. The girders may be constant depth or haunched over the piers. It is an economical form of construction for this span range and is low maintenance. The proposed design is a fully integral bridge (i.e., no bearings or expansion joints) which reduces maintenance liabilities. Weathering steel girders are proposed which avoids the need for any paint maintenance, although testing would be required to confirm the atmospheric saline classification.

The elevation of the bridge is a low, slim profile and the aesthetics are unobtrusive. A pattern profile finish will be specified on any large areas of exposed concrete.

The location and detail for the proposed standard river bridges included within Section 3 are presented in **Table 2.31**.

**Table 2.31: Section 3 Proposed River Bridges**

| Structure Ref | Approx. Mainline Chainage | Description   | Mainline Cross-section                                     | Mainline Cross-section Width (m) |
|---------------|---------------------------|---|--|----------------------------------|
| N14R114       | 11+460                    | Swilly Burn River crossing. 100-year flood level 4.17 m AOD<br>Near to existing river bridge: DL-N14-011.00 | Type 2 Divided Road with cycletrack and forward visibility | 33                               |

|                |        |  |  |    |
|----------------|--------|--|--|----|
| <b>N14R144</b> | 14+400 | River Deelee river crossing. 100-year flood level 6.0 m AOD<br>Near to existing river bridge: DL-N14-012.00      | Type 2 Divided Road with cycletrack & widened central median | 25 |
| <b>N14R175</b> | 17+500 | River Finn Crossing (A5 Link). Bridge carrying N14/N15 to A5 link road over the River Finn & its SAC floodplain. | Type 2 Divided Road with cycletrack.                         | 24 |

#### 2.8.6.4 Other Structures - Bat House

A bat house is proposed to be constructed in the area of Ballindrait in order to mitigate for the loss of a building, which is a roost for soprano pipistrelles, and the potential impact of the proposed road scheme on the soprano pipistrelle maternity roost located in this area.

The proposed location of the Bat House is in within the CPO at Chainage 14+700m, north of the River Deelee, south of the abandoned railway line and west of Attenuation Pond 12.

The building will consist of the following

- 4m x 4m (internal floor space) 1½ storey (internal height of 4.5m from floor level to highest point of roof space) building constructed from concrete block rendered with plaster (insulation between the two walls).
- A-roof, constructed of natural slate.
- The ground floor entrance will be a solid door (locked).
- Facia/Soffit and drain pipes as required.

#### 2.8.7 Underpasses, Footbridges and Retaining Walls

The location and detail for the proposed underpasses and accommodation underpasses included within Section 3 are presented in **Table 2.32**.

**Table 2.32: Section 3 Proposed Underpasses and Accommodation Underpasses**

| Structure Ref  | Approx. Mainline Chainage | Description  | Mainline Cross-section Width (m) |
|----------------|---------------------------|--|----------------------------------|
| <b>N14P021</b> | 02+190                    | Installation of underpass on existing abandoned railway to facilitate any future cycle facility/Greenway | 25                               |
| <b>N14A045</b> | 04+500                    | Deer Underpass   | 40                               |
| <b>N14A027</b> | 02+740                    | Agricultural Underpass structure for Landowner 3,015   | 65                               |
| <b>N14P142</b> | 14+200                    | Active travel Underpass  | 61                               |
| <b>N14A143</b> | 14+300                    | Agricultural Underpass under link road to accommodate landowner 3,094 - beside watercourse               | 41                               |
| <b>N14A167</b> | 16+750                    | Accommodation Underpass for Croaghan House (Protected Building) and Farm (Landowner 3,110/3,111)         | 30                               |
| <b>N14A170</b> | 17+000                    | Accommodation underpass for Landowner 3,112 (Farmer) connecting dwelling to farmyard.                    | 20                               |

The location and detail for the proposed footbridge included within Section 3 are presented in **Table 2.33**.

**Table 2.33: Section 3 Proposed Footbridge**

| Structure Ref | Approx. Mainline Chainage | Description   | Mainline Cross-section | Mainline Cross-section Width (m) |
|---------------|---------------------------|---|------------------------|----------------------------------|
| N14F174       | 17+400                    | Footbridge carries active travel path over the proposed N14 mainline carriageway near to Lifford. Greenfield site. Connection between residential area to Lifford and TEN-T cycleway /footway. Proximity of SAC means embankments are preferable to structural ramps. | Type 2 Divided Road    | 21.5                             |

There are no retaining walls proposed for Section 3.

## 2.8.8 Flooding and Flood Compensation Areas

The proposed River Finn bridge is part of the N14/N15 to A5 Link in Section 3. The A5 WTC team conducted a flood modelling assessment that included the proposed TEN-T link bridge. The results showed that the TEN-T link bridge would not reduce flood storage capacity. There is therefore no requirement for flood compensation areas in Section 3.

## 2.8.9 Drainage infrastructure

The following drainage features are proposed for Section 3:

- 33 No. culverts for watercourses and minor watercourse crossings.
- 13 No. drainage networks on the mainline carriageway.
- 23 No. drainage networks on side roads.
- 24 No. attenuation ponds with 20 No. outfalls.

Design details regarding Section 3 proposed culverts are outlined in **Table 2.34**.

**Table 2.34: Section 3 Proposed Culverts Schedule**

| Culvert Reference | Chainage | Referenced Mainline / Side Road | Location X | Location Y | Culvert Diameter (m) / Width (m) x Height (m) | Approx. Length (m) |
|-------------------|----------|---------------------------------|------------|------------|---|--------------------|
| S3-CUL.01         | 0+272    | Access Road 3.03                | 223,996.6  | 410,631.1  | 4.0 x 3.0                                     | 25.80              |
| S3-CUL.02         | 0+535    | Mainline                        | 223,983.5  | 410,613.4  | 4.0 x 3.2                                     | 52.70              |
| S3-CUL.03         | 0+500    | LX 3014 Link south              | 223,950.4  | 410,554.8  | 4.0 x 4.0                                     | 66.80              |
| S3-CUL.04         | 0+722    | Mainline                        | 224,176.8  | 410,587.5  | 8.0 x 3.8                                     | 60.00              |
| S3-CUL.05         | 0+670    | Existing N14                    | 224,068.2  | 410,481.6  | 8.0 x 3.6                                     | 58.00              |
| S3-CUL.06         | 1+100    | Mainline                        | 224,520.4  | 410,451.4  | 12.0 x 3.2                                    | 60.00              |
| S3-CUL.07         | 2+035    | Mainline                        | 625,328.6  | 910,089.1  | 4.2 x 3.5                                     | 60.00              |

| Culvert Reference | Chainage | Referenced Mainline / Side Road | Location X | Location Y | Culvert Diameter (m) / Width (m) x Height (m) | Approx. Length (m) |
|-------------------|----------|---------------------------------|------------|------------|---|--------------------|
| S3-CUL.08         | 0+401    | LX 3014 Drumoghill              | 625,688.4  | 909,592.3  | 1.8 x 1.4                                     | 24.50              |
| S3-CUL.09         | 2+663    | Mainline                        | 625,614.3  | 909,542.1  | 1.8 x 1.4                                     | 60.00              |
| S3-CUL.10         | 0+100    | LX 3014 Drumoghill              | 625,401.5  | 909,757.9  | 2.0 x 1.8                                     | 53.50              |
| S3-CUL.11         | 0+021    | Access Road 3.12                | 625,368.5  | 909,786.9  | 2.0 x 1.7                                     | 19.00              |
| S3-CUL.12         | 4+100    | Mainline                        | 626,237.2  | 908,336.4  | 1.2   | 62.00              |
| S3-CUL.13         | 0+288    | LX 3014 Doorable                | 626,514.5  | 908,378.7  | 1.2   | 31.80              |
| S3-CUL.14         | 0+500    | LX 3014 Doorable                | 626,624.4  | 908,209.5  | 4.2 x 1.9                                     | 23.23              |
| S3-CUL.15         | 4+477    | Mainline                        | 626,616.0  | 908,307.6  | 3.7 x 2.2                                     | 60.00              |
| S3-CUL.16         | 0+097    | Access Road 3.22                | 626,617.9  | 908,340.2  | 3.7 x 2.3                                     | 22.71              |
| S3-CUL.17         | 5+715    | Mainline                        | 627,352.9  | 907,318.7  | 1.2   | 49.82              |
| S3-CUL.18         | 6+550    | Mainline                        | 627,652.9  | 906,538.5  | 2.0 x 1.8                                     | 48.40              |
| S3-CUL.19         | 0+683    | LX 3014 Sheshkinapoll           | 627,742.5  | 906,532.2  | 2.0 x 1.8                                     | 36.00              |
| S3-CUL.20         | 7+418    | Mainline                        | 628,033.2  | 905,744.5  | 3.2 x 1.9                                     | 60.00              |
| S3-CUL.21         | 0+271    | Access Road 3.32                | 628,367.6  | 905,092.9  | 2.8 x 1.4                                     | 16.50              |
| S3-CUL.22         | 8+185    | Mainline                        | 628,348.5  | 905,052.7  | 2.8 x 1.5                                     | 34.60              |
| S3-CUL.23         | 0+457    | R236 LX 3014 Link South         | 628,342.7  | 904,959.7  | 2.2 x 1.5                                     | 23.66              |
| S3-CUL.24         | 0+032    | L2374 Whitecross                | 628,709.5  | 904,062.1  | 6.0 x 2.5                                     | 23.00              |
| S3-CUL.25         | 0+911    | LX 3014 Tullyrap                | 629,260.6  | 903,504.7  | 2.0 x 1.9                                     | 50.20              |
| S3-CUL.26         | 10+055   | Mainline                        | 629,245.3  | 903,432.3  | 2.2 x 1.9                                     | 47.20              |
| S3-CUL.27         | 10+395   | Mainline                        | 629,404.4  | 903,144.2  | 9.5 x 2.85                                    | 36.20              |
| S3-CUL.28         | 11+930   | Mainline                        | 629,632.8  | 901,674.1  | 2.0 x 1.8                                     | 60.00              |
| S3-CUL.29         | 11+641   | Mainline                        | 629,469.3  | 901,895.5  | 2.8 x 2.2                                     | 58.00              |
| S3-CUL.30         | 1+500    | L2444 Ballindrait               | 631,572.8  | 900,091.6  | 2.0 x 1.8                                     | 66.00              |
| S3-CUL.31         | 14+935   | Mainline                        | 631,471.4  | 899,390.0  | 1.8 x 1.8                                     | 60.00              |
| S3-CUL.32         | 15+140   | Mainline                        | 631,666.6  | 899,303.9  | 1.2   | 44.50              |
| S3-CUL.33         | 15+556   | Mainline                        | 632,067.2  | 899,179.1  | 1.2   | 50.70              |

Design details regarding drainage networks on the mainline carriageway and side roads is provided in **Table 2.35**.

**Table 2.35: Section 3 Carriageway Drainage Network Details**

| Drainage Network Ref. | Mainline / Side Road (No.) | Chainage       | Outfall    |
|-----------------------|----------------------------|----------------|------------|
| S3-ML-DN-01           | Mainline                   | 0+071 to 1+880 | Outfall 02 |
| S3-SR-DN-01           | N13/N14 Pluck Roundabout   | 3+655 to 3+759 | Outfall 01 |
|                       | N13 Pluck Tie-in           | 0+000 to 0+116 |            |
|                       | LX 3014 Link North         | 0+000 to 0+452 |            |
|                       | N13 Derry Tie-in           |                |            |

| Drainage Network Ref. | Mainline / Side Road (No.)       | Chainage         | Outfall      |
|-----------------------|----------------------------------|------------------|--------------|
| S3-SR-DN-02           | L1294 Manorcunningham Local Road | 0+000 to 0+400   | Outfall 02   |
|                       | LX 3014 Link North               | 0+116 to 0+420   |              |
| S3-SR-DN-03           | L1274 Drumoghill Link            | 0+000 to 0+430   | Outfall 03   |
| S3-ML-DN-02           | Mainline                         | 1+880 to 2+625   | Outfall 04   |
| S3-SR-DN-04           | Drumoghill Junction North Link   | 0+000 to 0+156   | Outfall 05   |
|                       | LX 3014 Drumoghill               | 0+000 to 0+482   |              |
| S3-ML-DN-03           | Mainline                         | 2+625 to 3+920   | Outfall 06   |
| S3-SR-DN-05           | L5574 Mondooney Lower            | 0+000 to 0+308   | Outfall 06   |
| S3-ML-DN-04           | Mainline                         | 3+920 to 4+390   | Outfall 07   |
| S3-SR-DN-06           | Drumoghill Junction South Link   | 0+000 to 0+198   | Outfall 07   |
|                       | LX 3014 Doorable                 | 0+088 to 0+280   |              |
| S3-SR-DN-07           | Mondooney                        | 0+000 to 0+392   | Outfall 07   |
| S3-ML-DN-05           | Mainline                         | 4+390 to 5+630   | Outfall 07   |
| S3-SR-DN-08           | L1214 Galdonagh                  | 0+000 to 0+305   | Outfall 08   |
|                       |                                  | 0+000 to 0+254   |              |
| S3-ML-DN-06           | Mainline                         | 5+630 to 6+550   | Outfall 09   |
| S3-SR-DN-09           | LX 3014 Sheshkinapoll            | 0+212 to 0+710   | Outfall 09   |
| S3-ML-DN-07           | Mainline                         | 6+550 to 7+570   | Outfall 10   |
|                       | Ballinalecky Junction Link North | 0+000 to 0+083   |              |
|                       | R236 LX 3014 Link North          | 0+000 to 0+255   |              |
|                       | R235 Ballinalecky Tie-in West    | 0+385 to 0+732   |              |
| S3-SR-DN-10           | Ballinalecky Junction Link South | 0+000 to 0+183   | Outfall 10   |
|                       | R236 Ballinalecky                | 0+145 to 0+385   |              |
| S3-SR-DN-11           | R236 LX 3014 Link South          | 0+134 to 0+603   | Outfall 11   |
| S3-ML-DN-08           | Mainline                         | 7+570 to 9+400   | Outfall 12   |
| S3-SR-DN-12           | LX 3014 Tullyrap                 | 0+000 to 0+573   | Outfall 12   |
| S3-SR-DN-13           | LX 3014 Tullyrap                 | 0+573 to 1+071   | Outfall 12   |
| S3-SR-DN-14           | LX 3014 Tullyrap                 | 1+071 to 1+567   | Outfall 12   |
| S3-ML-DN-09           | Mainline                         | 9+400 to 11+400  | Outfall 13   |
| S3-ML-DN-10           | Mainline                         | 11+400 to 13+417 | Outfall 13   |
| S3-SR-DN-15           | L6104 Broadlea                   | 0+000 to 0+266   | Outfall 13   |
| S3-SR-DN-16           | L2424 Mullinavegh                | 0+000 to 0+321   | Outfall 13   |
| S3-SR-DN-17           | L2414 Tamnawood                  | 0+268 to 0+396   | Outfall 13   |
| S3-ML-DN-11           | Mainline                         | 13+417 to 14+480 | Outfall 14   |
| S3-SR-DN-18           | Ballindrait Link North           | 0+000 to 0+231   | Outfall 15   |
| S3-SR-DN-19           | L2444 Ballindrait                | 0+000 to 0+435   | S3-PED-IT-07 |
| S3-SR-DN-20           | L2444 Ballindrait                | 0+435 to 1+520   | Outfall 16   |

| Drainage Network Ref. | Mainline / Side Road (No.)      | Chainage         | Outfall    |
|-----------------------|---------------------------------|------------------|------------|
| S3-SR-DN-21           | L2444 Ballindrait               | 1+520 to 2+004   | Outfall 17 |
|                       | BLX 3014 Rossgeir               | 0+000 to 0+192   |            |
|                       | BLX 3014 Rossgeir Link North    | 0+000 to 0+148   |            |
| S3-SR-DN-22           | Ballindrait Junction Link North | 0+000 to 0+144   | Outfall 14 |
| S3-ML-DN-12           | Mainline                        | 14+480 to 15+746 | Outfall 14 |
| S3-SR-DN-23           | R264 Murlog                     | 0+000 to 0+227   | Outfall 14 |
| S3-ML-DN-13           | Mainline                        | 15+746 to 17+540 | Outfall 18 |
|                       | L6144 Lifford Common Road       | 0+000 to 0+192   |            |
|                       | Lifford Junction                | 0+000 to 0+497   |            |
|                       | ▪ N15 West Link                 | 0+000 to 0+038   |            |
|                       | ▪ N15 Lifford Tie in West       | 0+000 to 0+443   |            |
|                       | ▪ N15 Lifford Tie in East       |                  |            |

Design details regarding attenuation pond and outfalls are provided in **Table 2.36**.

**Table 2.36: Section 3 Proposed Attenuation Pond Details and Outfall Locations**

| Ref. No. | Pond Easting | Pond Northing | Total Catchment Drainage Area (ha) | Greenfield Runoff Rate (l/s) | Pavement Area (ha) | Attenuation Pond – Volume of Storage (m <sup>3</sup> ) | Invert Level of Attenuation Pond (m) | Outfall Easting | Outfall Northing |
|----------|--------------|---------------|------------------------------------|------------------------------|--------------------|--|--------------------------------------|-----------------|------------------|
| 1        | 623,314      | 910,846       | 2.65                               | 24.8                         | 1.15               | 1,261  | 6.2                                  | 623,194         | 910,783          |
| 2        | 623,857      | 910,648       | 5.4                                | 44.2                         | 3.74               | 3,089  | 3.5                                  | 623,857         | 910,484          |
| 3        | 625,200      | 910,065       | 1.72                               | 12.1                         | 1.63               | 1,060  | 24                                   | 625,225         | 910,009          |
| 4        | 625,571      | 909,563       | 4                                  | 32.7                         | 3.1                | 2,361  | 42                                   | 625,513         | 909,618          |
| 5        | 626,514      | 908,209       | 1.44                               | 12.1                         | 1.07               | 817  | 78                                   | 626,619         | 908,406          |
| 6        | 626,687      | 908,370       | 4.05                               | 35.5                         | 2.93               | 2,292  | 76                                   | 626,619         | 908,406          |
| 7        | 627,706      | 906,578       | 3.21                               | 26.6                         | 2.43               | 1,861  | 83.2                                 | 627,784         | 906,526          |
| 8        | 628,063      | 905,580       | 3.18                               | 22.9                         | 3                  | 1,949  | 71                                   | 627,973         | 905,558          |
| 9        | 628,990      | 903,989       | 5.5                                | 42.6                         | 4.03               | 3,258  | 29                                   | 629,802         | 903,097          |
| 10       | 629,519      | 902,357       | 6.06                               | 49.6                         | 4.72               | 3,536  | 3                                    | 629,509         | 902,128          |
| 11       | 629,553      | 901,975       | 6.72                               | 54.9                         | 5.25               | 3,918  | 3.9                                  | 629,509         | 902,128          |
| 12       | 630,929      | 899,922       | 3.41                               | 28.9                         | 2.5                | 1,953  | 9.6                                  | 631,177         | 899,723          |
| 13       | 631,260      | 899,643       | 5.9                                | 54.3                         | 3.74               | 3,287  | 5.5                                  | 631,177         | 899,723          |
| 14       | 631,357      | 899,995       | 2.34                               | 15.68                        | 1.35               | 959  | 7                                    | 631,462         | 899,978          |
| 15       | 631,570      | 900,196       | 1.22                               | 8.17                         | 1.01               | 742  | 8                                    | 631,462         | 899,978          |
| 16       | 632,547      | 897,349       | 9.23                               | 81.4                         | 6.83               | 7,776  | 7                                    | 632,679         | 897,086          |

## 2.9 Programme

### 2.9.1 Overview

If the three sections of the Proposed Development are constructed at the same time, then this will require a 60-month construction period (five years).

However, a phased approach may also be taken to the construction of the Proposed Development. In such circumstances, each section of the Proposed Development is estimated to take 36 months to construct (3 years each). Further, a phased approach may be taken to the procurement and construction of each section of the Proposed Development. These decisions are dependent on the detailed design process and budgetary approval that may be required after any approval as may be granted by the Commission for the Project.

For the purposes of considering and evaluating the construction impacts of the Proposed Development, the EIAR has considered the worst-case scenario, that being the construction of the three sections of the Proposed Development at the same time over a period of 60 months, where there will be overlap between the construction of the sections.

Assessment of the stages of the construction of the Proposed Development will include for the following essential preconstruction surveys and advance/ enabling works.

#### 2.9.1.1 Working times

Construction works will typically be undertaken on a six-day working week:

- Monday to Friday between 07:00 and 19:00; and
- Saturdays between 08:00 and 16:00.

No construction works, save for emergency works and/or dewatering, will be permitted outside of these hours or on Sundays or Public Holidays without the prior agreement of Donegal County Council. Examples of where agreement may be reached to work outside of the above hours include

- Transport, delivery and lifting into place of large construction elements manufactured off-site, e.g. bridge beams.
- Road or lane closures to facilitate utilities diversions.
- Other activities, e.g. office-based work, walkover surveys and/or inspections.

In addition, under certain circumstances, e.g. storm or bad weather events, construction related activity may have to take place outside of the above hours to protect the public, the environment, the works, plant, machinery, etc.

#### 2.9.1.2 Further investigations and survey works

Significant site investigation, topographical surveys, archaeological investigations and environmental surveys have been completed to date. The completed survey work has provided the information necessary to undertake a full and complete assessment of the Proposed Development as documented in this EIAR and the accompanying NIS.

Further investigations and verification surveys will be undertaken after any approval as may be granted by the Commission for the Project. These investigations and surveys are typically undertaken in advance of the mobilisation of the main works contractor to site so that the information can be taken into consideration in the planning and execution of the construction works. They include some further detailed ground investigations, archaeological investigations, topographical surveys, structural condition surveys, well surveys, ecological surveys and other environmental surveys that will be used to further inform the detailed design and verify the information presented in this EIAR. These works are further expanded upon in **Section 2.10.1**.

### 2.9.1.3 Utilities and Services Diversions

Given the potential for temporary disruption of supplies and the phasing of construction works some utilities and services diversions will, as required, be undertaken in advance of the main works contract.

### 2.9.1.4 Invasive Alien Plant Species Treatment and/or Removal

An advance works contract will, as required, be undertaken to treat and/or remove stands of invasive alien plant species, such as Japanese knotweed, within the CPO boundary. TII's standard and technical documents on the management of invasive alien plant species (GE-ENV-01104 and 01105) shall be complied with.

### 2.9.1.5 Fencing and Site Clearance

Fencing and some site clearance works will be undertaken as required in advance of the main works contract.

A fencing contract will be undertaken, as required, to delineate the extents of the Proposed Development and secure the permanent Proposed Development boundary. Where undertaken, the site boundary will be fenced-off and site access points will be constructed to provide access for construction vehicles from the existing road network. This will involve some works adjacent to existing roads and may require temporary traffic diversions.

Some site clearance works may be undertaken to meet seasonal constraints. This includes tree and hedgerow clearance outside of the bird nesting season where possible, the timing of tree felling to avoid impacts on roosting bats and closing any active badger setts in the appropriate season.

### 2.9.1.6 Mobilise Contractor to Site

The main works contractor shall utilise compound locations for storage of plant and machinery, refer to the general arrangement drawings contained in **Appendix 1**, i.e. EIAR Drawings 4.1 (Section 1), 4.2 (Section 2) and 4.3 (Section 3) to see the location of the proposed site compounds for each section.

### 2.9.1.7 Construction

The construction works will include, but are not limited to, the following main components:

- Temporary works to establish construction compounds.
- Site clearance.
- Advanced works.
- Fencing.
- Water management.
- Demolition.
- Utility diversions.
- Excavation (including blasting and mechanical rock breaking) and deposition of earthworks materials including processing of materials.
- Temporary traffic management / road diversions.
- Drainage works.
- Structures.

- Kerbing.
- Roadworks (foundations, capping, sub-base, base construction, bituminous pavement surfacing).
- Active travel (footways / cycletracks).
- Park and Share / Cycle facility areas.
- Ancillary roadworks including safety barriers, signage and road markings.
- Accommodation works for landowners such as access roads, entrances, fences, gates, walls, ducting and reconnection of severed services.
- Environmental mitigation.
- Landscaping.
- Signing and road marking.
- Remediation works during defects period.
- Handover.

#### 2.9.1.8 Demobilise Main Contractor from Site

The contractor shall demobilise from site, removing all waste and surplus materials.

### 2.9.2 Construction Section 1

The construction phase for Section 1 will last approximately 36 months. The construction can be broken down into three distinct parts:

- **Part 1** – Mainline southern tie-in to the River Finn Crossing, including the Ballybofey Link Road.
- **Part 2** – Mainline River Finn Crossing to the northern tie-in, including the proposed grade separated junction at Teevickmoy.
- **Part 3** – N15 Primary Road Connector from the mainline to the tie-in with the N15 at Treanamullin.

### 2.9.3 Construction Section 2

The construction phase for Section 2 will last approximately 36 months. The construction can be broken down into three distinct parts:

- **Part 1** – Mainline southern tie-in to the River Swilly Crossing, including the links in the vicinity of Dry Arch Roundabout / Bonagee.
- **Part 2** – Mainline River Swilly Crossing to the northern tie-in at Ballyrairie.
- **Part 3** – Realignment and improvement of the existing N56 Dual Carriageway between Dry Arch Roundabout and the interface with Section 3 at Pluck Roundabout, including the proposed grade separated junction at Trimragh.

### 2.9.4 Construction Section 3

The construction phase for Section 3 will last approximately 36 months. The construction can be broken down into four distinct parts:

- **Part 1** – Mainline northern tie-in at the interface with Section 2 to Swilly Burn River.

- **Part 2** – Swilly Burn River to River Deelee River.
- **Part 3** – River Deelee River to Lifford Junction.
- **Part 4** – N14/N15 to A5 Link including the River Finn Crossing to Northern Ireland.

### 2.9.5 Interface between Section 2 and Section 3

Section 2 and Section 3 meet just west of the existing Pluck Roundabout and east of where the dual carriageway crosses the Isle Burn, at approximate Section 2 chainage Ch 3570.

Should Section 2 proceed in advance of Section 3, then Section 2 will tie-in with the existing dual carriageway just west of the existing Pluck Roundabout and east of where the dual carriageway crosses the Isle Burn, at approximate Section 2 chainage Ch 3570. The proposed Active Travel running to the south of the existing dual carriageway will tie-in with the existing Pluck Roundabout. Other ancillary works, e.g. road markings, will also be constructed up to the existing Pluck Roundabout. Traffic from the N13 Derry direction and the N14 Lifford direction will continue to use the existing Pluck Roundabout.

Should Section 3 proceed in advance of Section 2, then Section 3 will see the construction of the new N13/N14 Pluck Roundabout including realignment of the approach roads to/from Letterkenny (N13), Derry (N13) and Lifford (N14). Section 3 will then terminate on the existing dual carriageway just west of the proposed Pluck Junction and east of where the dual carriageway crosses the Isle Burn, at approximate Section 2 chainage Ch 3570.

## 2.10 Construction phase

This section outlines the significant factors that need to be considered for the construction phase of the Proposed Development. Further details regarding the construction activities for each section can be found in the following **Section 2.11 (Section 1)**, **Section 2.12 (Section 2)** and **Section 2.13 (Section 3)**.

### 2.10.1 Site/ Ground investigations

Prior to procurement of the construction contract, it is possible that further site/ ground investigations will be necessary to confirm and verify the existing ground conditions determined as part of the investigations undertaken for the preliminary design and EIAR. Further investigations will include confirmatory ground investigations involving boreholes, trial pits, test trenching, and material sampling and testing. A specialist and experienced site/ ground investigations contractor will be procured to carry out this work prior to construction commencing.

Additional archaeological testing will also be necessary. This work will be carried out in order to further manage the risk of encountering unexpected archaeological remains during the main construction contract. The work will include topsoil stripping and excavation of archaeological test trenches, supervised by an experienced archaeologist. This process will enable any unrecorded feature of archaeological significance to be identified and resolved prior to the commencement of the main construction contract.

Confirmatory ecological surveys will be required to verify existing conditions, prior to construction commencing. These are non-invasive, walkover surveys. The ecological surveys will also provide information on mobile species and any changes, e.g. new bat roosts, active badger setts, that need to be addressed prior to construction commencing.

Verificatory structural surveys of existing buildings identified as sensitive receptors will be offered to landowners to verify their structural condition prior to construction starting. The condition of the structures will, subject to the consent of the landowners, be monitored during the construction period to record changes.

Pre-construction condition surveys will be undertaken of the public road network that will be used for the haulage of materials for the construction works. The pre-construction surveys will record details of, inter alia: the pavement condition, drainage, culverts, defects, etc. During construction, quarterly surveys (every 3-months) will be undertaken to record any deterioration of the public road that is being used for the haulage of

materials for the construction works. Where the deterioration requires intervention and the deterioration is attributable to the construction works, repairs will be carried out to rectify as appropriate.

## 2.10.2 Land requirements

There will be approximately 688 hectares of land permanently required for the construction and operation of the Proposed Development with a further approximate 8.5 hectares of land temporarily required for the construction of the Proposed Development and associated construction compounds. Within this required land, there will be the acquisition of 37 No. dwelling houses, and 8 commercial properties (including agricultural buildings) for the Proposed Development. Lands temporarily acquired for the construction of the Proposed Development will be handed back in a similar condition as acquired, aside from any construction features such as access regrading or those agreed with the landowner.

### 2.10.2.1 Site preparation works and Traffic Management

All on-site drainage, erosion and sediment control measures for the construction works will be in place and functioning prior to the commencement of any other earthworks/ site clearance.

A Traffic Management Plan (TMP) has been separately prepared and includes proposals for completing construction activities, including:

- Access to roadworks or construction site.
- Traffic Management Signage.
- Routing of Construction Traffic.
- Road Closures.
- Speed Limits.
- Road Cleaning.
- Road Condition.
- Details of Working Hours and Days.
- Details of Emergency Plan.
- Communication.
- Traffic Management diagram / drawing.
- Traffic Management implementation.
- Cessation of traffic management.
- Cleanup / Removal of works.

### 2.10.2.2 Site clearance works

Works will include for site clearance of vegetation within the lands required for construction. Prior to commencing construction, any fencing not already in place will be erected to clearly identify the site boundaries. Trees and other vegetation to be retained will be clearly marked and protected from construction activities. Local soils and seedbanks identified for re-use by the ecology/landscape specialists will be removed and stored in a suitable location.

All material stockpiles, including topsoil, subsoil, stones, gravel, sand, etc. will be stored away from watercourses, rivers, streams, and drains. Stockpiles will be built neatly and well-shaped to ensure, as far as

possible, they are weatherproof and to reduce run-off. The location of stockpiles will follow the guidelines outlined in the Guidelines on Protection of Fisheries During Construction Works in and Adjacent to Waters (IFI 2016). They will not be located under overhead lines or underground services and will maintain minimum separation distances, particularly to the outer conductors of overhead electricity lines. Topsoil and subsoil will be stored in separate stockpiles and managed in accordance with best practices and standards. See also **Section 2.10.6.2** below.

The remaining vegetation within the construction footprint (i.e. the land within the CPO boundary required to be disturbed for construction purposes) will be removed as required by the appointed contractor and in such a way as to minimise the amount of exposed soil open to the elements. Where practicable, the removal of vegetation will be undertaken outside the bird breeding season and will follow the mitigation measures proposed in the EIAR in relation to protected habitats and species. An invasive plant species survey has been undertaken and will be provided to the appointed contractor(s). Any invasive plant species identified within the lands made available will also be dealt with prior to construction works taking place in that area.

### 2.10.2.3 Reinstatement

Where the Proposed Development includes for temporary land take, lands will be made good following the completion of the construction works. In places this will comprise of reinstating the land to a similar condition as what existed prior to the construction works (e.g. levelling, re-seeding, re-erection of a fence/ gate, provision of a suitable replacement boundary treatment, closure of a temporary entrance), or as may otherwise be agreed with the landowner. However, in places altered conditions may be considered more appropriate (e.g. alternative boundary treatment or finish to that removed to accommodate the construction works) and may be necessary in cases where it is not possible to replace features on a similar basis. For example, temporary works to an entrance at some properties will result in the entrance being in the same position, but at an altered gradient to tie in with the proposed new road level when completed.

For the permanent land take new boundary treatments will be constructed in accordance with TII standards or as may otherwise be agreed with the adjoining landowner.

### 2.10.3 Demolition works

Demolition works will be required for the following types of structures impacted by the Proposed Development:

- Domestic residential properties.
- Farm buildings
- Commercial buildings.
- Existing road infrastructure at tie-in locations.

These properties will be acquired as part of the CPO process due to their proximity within and beside the Proposed Development. 12 of the acquired properties can be retained and therefore will not be demolished. However, a total of 43 residential and commercial properties will be demolished for the proposed development, as summarised in **Table 2.37**. Further detail is provided in **Section 2.11.2** (Section 1), **Section 2.12.2** (Section 2), and **Section 2.13.2** (Section 3).

While no hazardous materials have been identified, hydrocarbons (e.g. kerosene – home heating oil) and other hazardous materials may be present in existing buildings that require demolition and management of such hazardous material will be in accordance with the relevant legislation and guidance.

**Table 2.37: Summary of Properties to be Demolished**

| Section       | Residential | Commercial | Total     |
|---------------|-------------|------------|-----------|
| 1             | 14          | 3          | 17        |
| 2             | 11          | 7          | 18        |
| 3             | 9           | 0          | 9         |
| <b>Totals</b> | <b>26</b>   | <b>11</b>  | <b>43</b> |

## 2.10.4 Earthworks materials

There are three broad types of excavated material as set out in TII's *Specification for Road Works Series 600 – Earthworks*:

- **Compliant material:** Material excavated from within the Site or imported on to the Site which meets the requirements of a particular Class of material in Table 6/1 and meets the requirements of Appendix 6/1 for use in the Works. Imported material shall meet the requirements of all current legislation and may comprise the following:
  - a) Products: Earthworks materials resulting from extraction, the primary aim of which was the production of that material;
  - b) By-products: Earthworks materials resulting from a production process, the primary aim of which was not the production of that material; or
  - c) Recycled aggregates: Earthworks materials resulting from the recovery of mineral waste. The aggregate shall be classified by hand-sorting the coarse aggregate particles in accordance with I.S. EN 933-11. The content of materials including wood, plastic, rubber, plaster and metal shall not exceed 1% by mass. Organic content shall not exceed 1% by mass, or other value stated in Appendix 6/1. The haulage and processing of this material shall be fully compliant with all current legislation and guidelines, and all permits obtained as required.
- **Non-compliant material:** Material excavated from within the Site, other than unacceptable material as defined below, which does not meet the requirements of a particular Class of material in Table 6/1 or does not meet the requirements of Appendix 6/1. If it is processed by physical, mechanical, chemical or other means to meet the requirements of a Class of material in Table 6/1 and the requirements of Appendix 6/1, it may become compliant and may be used; or
- **Unacceptable material:** Unacceptable material is 'hazardous waste' or 'bio-waste' as defined in the European Union (Waste Directive) Regulations 2011-2020. Material excavated from within the Site which shall not be used in the Works.

Compliant excavated material that is not surplus to requirements will be re-used in the works for engineering purposes including fill to embankments, landscaping, placed as non-structural fill in shallow slopes or used in backfilling operations at Material Extraction and/or Deposition (MED) areas.

Non-compliant material may be processed by mechanical, chemical or other means to render the material compliant for use in the works. It is possible that some non-compliant material may become a waste if it is to be discarded.

Details on the earthworks for each section of the Proposed Development are provided in **Section 2.11.3** (Section 1), **Section 2.12.3** (Section 2), and **Section 2.13.3** (Section 3).

Should any unacceptable material be encountered during construction, it will be removed to a suitably licensed waste management facility.

In terms of a road construction project, most naturally occurring materials excavated as part of the works will not be considered a waste as they can be re-used within the works. Waste is defined as any substance or object which the holder discards or intends or is required to discard. All excavated material from the site of the Proposed Development will be managed in accordance with best practice to ensure in so far as possible that there is minimal waste generated.

Any excavated contaminated material will fall under Unacceptable material and must be removed off-site for disposal at an authorised waste management facility. Currently, there is no indication of contaminated material being present within the footprint of the Proposed Development. This was determined by historical records and consideration of potential contamination sources such as industrial developments and landfills.

MED areas have been identified within the Proposed Development boundary to provide a source for suitable material for use in the works as well as for the deposition of surplus material. Where there remains a shortfall in suitable fill material, importation of material from authorised quarries or material extraction areas outside of the site boundary or the importation of material that has been classified as a by-product and which meets the specification for compliant material may be required. MED locations are shown in the General Arrangement EIA Drawings 4.1 (Section 1), 4.2 (Section 2), and 4.3 (Section 3) **Appendix 1**.

Estimates of the likely quantities of waste that will be generated from the works have been evaluated and assessed, as well as cut/fill balance estimates associated with each section.

### 2.10.5 Compound locations and site access

For each section, construction compounds will be required during the construction phase to provide office and welfare facilities for site staff. The construction compounds will also provide facilities for material storage, laydown and maintenance of construction plant, and possibly material testing. Offices, stores, toilets and other accommodation spaces for the Employer's Representative and assistant staff will also be located within the construction compound.

Construction compound locations have been proposed at locations where they can be accessed from the existing National or Regional Road networks. The location of the construction compounds has been determined after considering:

- Environmental impact.
- Access to road network.
- Suitability of location for construction operations.
- Transport routes for construction traffic.
- Availability of utility connections e.g. water, electricity, telecommunications and foul drainage.
- Landtake required and impact on landowner.

A total of six locations for construction compounds have been identified throughout the Project (two in Section 1, two in Section 2, and two in Section 3). Compounds will be established with utility connections provided to enable satisfactory operation of the compounds without the reliance upon power generators.

The locations of construction compounds are shown in EIA Drawings 4.1, 4.2 and 4.3 in **Appendix 1**. For further details see **Section 2.11.4** (Section 1), **Section 2.12.4** (Section 2), and **Section 2.13.4** (Section 3):

Most of the construction for the Proposed Development takes place offline from the existing road network. Accordingly, the majority of materials that are generated within the site (i.e., earthworks) will be transported along haul routes within the site and will not require transportation along the National, Regional and Local Road networks. These internal site haul routes are generally located remotely from existing housing, so will avoid high volumes of HGVs transporting earthworks along the public road network, passing close to residential properties and other sensitive receptors. During construction, it will be necessary for haulage of

materials to use the local road network to avoid watercourses that do not yet have suitable crossing points, e.g. river bridge or culverts.

Construction materials that need to be imported into the sites will generally use National and Regional Road networks, and will gain access to proposed compound locations, and the internal haul roads, from access points located on the National and Regional roads.

Where haul roads contained within the site cross existing roads within the public network, traffic movements will be managed to ensure safety for all road users. Similarly, access to site compounds will be designed to operate safely and traffic management measures will be deployed.

Access points to the site haul routes will be restricted to specific locations on the National and Regional Road network.

### 2.10.6 Drainage and sediment control

Erosion control prevents runoff flowing across exposed ground and becoming polluted with sediments. Sediment control is designed to slow runoff to allow any suspended solids to settle out in situ.

Eight principles of erosion and sediment control during the construction phase of a road infrastructure project are outlined within section 18 of the CIRIA C648 document Control of water pollution from linear road projects (CIRIA, 2006). This document lists the following principles which will be applied as required during construction:

- Erosion control (preventing runoff) is much more effective than sediment control in preventing water pollution. Erosion control is less subject to failure from high rainfall, requires less maintenance and is also less costly.
- Plan erosion and sediment controls early in the project and incorporate into the works programme.
- Install drainage and runoff controls before starting site clearance and earthworks.
- Minimise the area of exposed ground.
- Prevent runoff entering the site from adjacent ground, as this creates additional polluted water.
- Provide appropriate control and containment measures on site.
- Monitor and maintain erosion and sediment controls throughout the project.
- Establish vegetation as soon as practical on all areas where soil has been exposed.

#### 2.10.6.1 Potential sources of runoff

Areas of potential runoff include:

##### Earthworks

The most significant areas of concern regarding the control of erosion and sediment on any road infrastructure project are those associated with the processes where the topsoil and subsoil surfaces have been exposed. These surfaces are most likely to have the potential for runoff and are typically exposed during the following work sequences:

- The initial site clearance and topsoil stripping along the proposed route corridor.
- Excavation works associated with steep slopes.
- Excavation works associated with road cuttings.

- Works associated with the construction of the road embankments.
- The excavation and backfilling of any soft spots encountered along the road corridor.
- The construction of haul roads to provide for construction access for the works operations.
- The stockpiling of compliant earthworks material for reuse in the project.
- The stockpiling of unacceptable earthworks material prior to removal offsite.

The greatest source of sediment loaded runoff is likely to be from pluvial runoff on exposed earthworks slopes. Once earthworks slopes are exposed (cuts) or built up (embankments), rainfall falling on the slope and runoff from land sloping towards the top of a cut travel uncontrolled down the slope – potentially at high velocities – causing suspension and resuspension of soil particles from the surface of the slope. An additional impact of uncontrolled runoff on slope faces is that erosion channels (or gullies) may form in the cut slope due to the movement of water down the cut slope allowing water penetration into the slope face which may lead to slope stability issues.

Where topsoil and other soils are to be stored on site, stockpiles with significant side slopes can create another source of sediment laden runoff. As with the earthworks slopes above, once the slopes are built up, rainfall falling on the slope and runoff from the top of the stockpile travel uncontrolled down the slope – potentially at high velocities – causing suspension of soil particles from the surface of the slope.

When construction plant such as excavators, dumpers or trucks are travelling into and out of earthworks locations, soil may become attached to the wheels and then be tracked along haul routes. When rainfall lands on these roads the runoff resuspends the sediments and the polluted runoff may be directed to drains or watercourses without treatment.

### Surface Water Crossings and Outfalls

An additional area of potential concern is the construction of structures such as over/under bridges, surface water outfalls and culverts. These works are likely to have potential for runoff and will typically carry a risk of generating runoff containing sediment and other pollutants.

Open drainage features constructed as part of the works such as interceptor drains, and attenuation ponds can also contribute to sediment runoff. Where water is introduced to these features prior to a full vegetation cover, the water can result in suspension of soil particles as the water is conveyed through the feature. It is important that any run-off falling into un-vegetated drains or attenuation pond does not have a pathway to a receiving water environment until such time as the features are vegetated and are functioning as designed.

### Concrete and Grouting Activities

Concrete, bentonite, grout and other cement-based products are highly alkaline and corrosive and can have a devastating effect upon water quality. Cement-based products generate very fine, highly alkaline silt (11.5pH) that can physically damage fish by burning their skin and blocking their gills. This alkaline silt can also smother vegetation and the bed of watercourses and can mobilise pollutants, such as heavy metals, by changing the water's pH. Concrete and grout pollution is often highly visible.

Large volumes of cementitious materials are used within the construction industry and frequently involve the batching and placement of “wet” materials in situ. Particular risks are posed to water quality when construction is taking place over or near surface waters.

#### 2.10.6.2 Erosion and sediment controls

The objectives for erosion and sediment control during the earthworks phase are to:

- Keep areas exposed to the elements to an absolute minimum.
- Minimise the quantity of surface water runoff within the site works area.

- Prevent runoff entering the site from adjacent ground, as this can create additional polluted water.
- Schedule the works operations appropriately to allow for works to commence at the low point and continue to the works towards the high point associated with the catchment area for each outfall.
- Plan the works in advance to allow for an efficient earthwork operation and ensure that any fill material is placed as soon as is practical after excavated material has been removed.
- Plan the bridge crossing works appropriately and in sufficient detail to allow operations to have a minimal impact on surface runoff.
- Ensure that all unacceptable / non-compliant material as encountered during excavation works is removed from the works area and placed in a dedicated, controlled location in as efficient a manner as possible.

The principal control measures that are prescribed for the construction phase in order to protect the water quality within the receiving catchment are as follows:

- All required construction compounds are located on dry land, and where feasible at a distance of 50 m from any river and stream channels and outside of all potential floodplain areas associated with the waterbodies. The construction compounds are also outside of SAC/SPA boundaries.
- Measures will be implemented to ensure that silt laden or contaminated surface water runoff from the compound does not discharge directly to the watercourse. These protection measures will comprise of the use of grassed buffer areas or timber fencing with silt curtains or earthen berms covered with a geotextile to prevent direct runoff of waters from the construction site to the adjacent watercourses.
- The storage of oils, fuel, chemicals, hydraulic fluids, etc. will be undertaken in accordance with current best practice for oil storage, e.g. CIRIA C736 Containment systems for the prevention of pollution (Walton, 2014) and Best Practice Guide BPGCS005 Oil Storage Guidelines (Enterprise Ireland, no date). All stored oils, fuel, chemicals, hydraulic fluids, etc. must be located in a secure, bunded and impermeable surfaced area and will be appropriately secured. As a minimum, storage must be bunded to a volume not less than 110% of the tank's maximum capacity. If more than one container is stored the system must be able to contain 110% of the largest tank or drum within the bunded area or 25% of the total tank capacity within the bund, whichever is greater.
- Protection measures will be put in place to ensure that all hydrocarbons used during the construction phase are appropriately handled, stored and disposed of in accordance with recognised standards, as laid out by the EPA. All chemical and fuel filling locations will be contained within bunded areas,
- Foul drainage from all site offices and construction facilities will be contained and disposed in an appropriate manner.
- Site clearance works, including the stripping of topsoil, will not be carried out over significantly large areas in advance of the earthworks to prevent areas from being exposed to the elements for unnecessarily long periods of time.
- Sediment ponds, silt traps and bunds will be constructed as part of the surface water management system during construction works. Temporary run-off collection systems will be channelled to the proposed attenuation pond, vortex control chambers and petrol interceptors for treatment prior to any discharge to receiving waters. Construction within watercourses will be minimised. Where pumping of water is to be carried out, sediment socks will be used at intake and discharge points.
- All control measures implemented are to be inspected daily, in particular, after rainfall or alluvial flood events. An inspection and maintenance checklist of the control measures shall be developed and records kept of the inspections and maintenance activities, such as the removal of sediment accumulated in silt traps when they are half full.

- Surface water flowing onto the construction area from areas external to the site will be minimised by the provision of the proposed interceptor channels.
- Management of material stockpiles to prevent siltation of watercourses through runoff during rainfall events will be undertaken. This may involve allowing the establishment of vegetation on the exposed soil and surrounding stockpiles, with the provision of cut-off ditches or silt fences to the base of the stockpile to contain runoff. Any stockpiles must be kept at least 50 m from the nearest SAC boundary and at least 10m from any waterbody, river, stream or drain. Works will be undertaken in accordance with the requirements of IFI/ Loughs Agency, as appropriate.
- Where construction works are carried out adjacent to a watercourse, protection of such waterbodies from silt laden runoff, as described above, will be carried out.
- The use and management of concrete close to watercourses will be carefully controlled to avoid spillage.
- Any surface water abstracted from a river for use during construction shall be through a pump fitted with a filter, to prevent the accidental intake of fish. Any surface water abstractions will conform with IFI/Loughs Agency guidelines and be agreed in advance of any works commencing. Proper biosecurity measures will be implemented at any water abstraction to ensure that any plant, footwear or other equipment is thoroughly disinfected prior to entering and after removal from the watercourse. There shall be no permitted water abstraction from the Swilly Burn in Section 3 due to the reported presence of the invasive species Asian clam within the watercourse.

## 2.10.7 Traffic Management

### 2.10.7.1 Construction Traffic

During the construction of the works, materials will be required to be imported including earthworks fill materials that cannot be sourced on-site, concrete products, steel materials, pavement materials (bituminous layers), pipes, ducts and pre-cast units, etc. Where feasible, materials excavated within the site will be hauled along the route of the Proposed Development within each individual section, without the need to use the public road network. However, where there are natural obstacles to this, e.g., rivers or major roads, then haulage on the public road network cannot be avoided.

Construction traffic, other than earthworks, will be generated by the need for other construction materials to be delivered and transported to/ from/ around the site. This will include:

- Concrete and concrete products.
- Steel reinforcement.
- Fence and barrier materials.
- Crushed stone for pavement construction that cannot be sourced from within the site.
- Pavement materials.
- Pipes, ducts, pre-cast units required for drainage and utility systems.
- Geotextiles and other membranes.
- Lighting, signage, road marking materials.
- Landscaping materials.
- Machinery, plant, fuel, supplies to the construction compound and other miscellaneous equipment and materials.

Workers, sub-contractors, site supervision staff and other staff and employees working on the Proposed Development will be accessing the sites at various locations on the road network.

The volume of traffic generated by the requirements above will vary in intensity from location to location, and from time to time during the 60-month construction period for the project. Construction activities will be limited to the permitted construction times in any consent granted for the Proposed Development.

Temporary crossing points will be required for each of the national, regional and local roads crossed by the Proposed Development. The crossings will require local traffic management, in accordance with a temporary TMP, traffic signs manual, and the Safety, Health & Welfare at Work (Construction) Regulation 2013, when required.

For each section, the additional construction traffic on the public road network has been estimated on the following basis:

- The entire Proposed Development will be constructed in one phase (60 months).
- The construction traffic is distributed over a construction period of 36 months for each Section of the Scheme.
- Works will typically be undertaken, save for emergency works or pumping out of excavations, on a six-day working week Monday to Friday between 07:00 and 19:00 and on Saturdays between 08:00 and 16:00.
- Construction traffic movements are based on one full load and one empty load (i.e. two movements for each load of materials).
- The transport of materials will be along proposed haul routes and through the site via internal haul roads.
- The increase in traffic takes account of the additional trips required for the transportation of additional fill material, pavement and concrete materials.

### 2.10.7.2 Traffic management, road closures and temporary diversions

Connectivity of the local road network will be maintained during construction by completing construction offline from the existing road networks and maintaining operation of the local road network, before final tie-in works are completed, or providing a temporary diversion of the local road network around the construction site where online construction is required.

Temporary road closures or partial closures will be required during construction in order to complete tie-in works, utility connections and accommodate other specific construction activities. In most cases, traffic management measures will enable partial closures to be implemented, rather than full closures. Where full road closures are required, diversion routes will be identified and signed.

Sufficient lands will be made available within the permanent or temporary Proposed Development Boundary to accommodate the provision of temporary road diversions.

Construction works that affect access points to businesses and residences will be scheduled in such a way as to minimise disruption. Where accesses are affected by construction activities, affected property owners/occupiers will be notified in advance.

### 2.10.8 Utilities

Utility diversions will need to be completed prior to, or early during the construction phase to facilitate construction of the main works. Consultation has taken place with utility service providers to identify feasible utility diversions for the purpose of ensuring sufficient land is included within the Proposed Development Boundary to accommodate the diversions.

All utility diversions will require allowance for lead in times within the detailed design and construction programmes. Lead in times for electricity HV (EirGrid/ ESB), water supply (Uisce Eireann) and strategic fibre-optic communications (Project Kelvin) are particularly long and consultation with these providers will continue should approval be granted for the Proposed Development.

In addition to utility diversions required for the main works, utility connections and supplies will be required for the construction compounds proposed for each section.

Temporary lighting for other areas of construction remote from the construction compounds, such as structure locations, will be provided using mobile generators.

## 2.10.9 Environmental Operating Plan (EOP)

An Environmental Operating Plan (EOP) has separately been prepared. The EOP will be updated by the appointed contractor(s) to detail any additional measures the contractor proposes as part of their environmental management of the construction works. The contractor will also be required to provide a documented account of the implementation of the environmental commitments as set out in the EIAR and NIS and in the EOP itself if same is required by any approval as may be granted by the Commission for the Project.

## 2.11 Construction – Section 1

### 2.11.1 Land use requirements

The location of the Proposed Development is predominantly rural and passes close to the settlements of Ballybofey and Stranorlar.

#### 2.11.1.1 Landtake

In total, approximately 218 hectares of land will be permanently required, and a further approximate 4 hectares of land temporarily required, to construct the Proposed Development and associated works.

### 2.11.2 Acquisitions / Demolition works

The acquisition of dwellings, commercial buildings and outbuildings required for the construction of the Proposed Development in Section 1 are presented in **Table 2.38**.

**Table 2.38: Section 1 Structures to be Acquired**

|   | Chainage (approx.) | Road Reference              | Plot ID Ref | Type                      | Demolished / Retained |
|---|--------------------|-----------------------------|-------------|---------------------------|-----------------------|
| 1 | 0+980 m            | Mainline                    | 1021        | Outbuildings              | Demolish              |
| 2 | 1+130 m            | Mainline                    | 1023        | Dwelling and outbuildings | Demolish              |
| 3 | 1+030 m            | Mainline                    | 1024        | Dwelling and outbuildings | Demolish              |
| 4 | 0+050 m            | L-2794 (Cappry Road) tie-in | 1028        | Outbuilding               | Demolish              |
| 5 | 0+690 m            | Ballybofey Link Road        | 1030        | Dwelling and outbuildings | Demolish              |
| 6 | 1+760 m            | Mainline                    | 1031        | Dwelling and outbuildings | Demolish              |
| 7 | 1+750 m            | Mainline                    | 1032        | Dwelling and outbuildings | Demolish              |
| 8 | 1+840 m            | Mainline                    | 1901        | Dwelling and outbuildings | Demolish              |

|    | Chainage (approx.) | Road Reference             | Plot ID Ref | Type                      | Demolished / Retained |
|----|--------------------|----------------------------|-------------|---------------------------|-----------------------|
| 9  | 1+950 m            | Ballybofey Link Road       | 1043        | Dwelling and outbuildings | Demolish              |
| 10 | 2+320 m            | Mainline                   | 1045        | Dwelling and outbuildings | Demolish              |
| 11 | 2+300 m            | Mainline                   | 1177        | Dwelling and outbuildings | Retain                |
| 12 | 3+870 m & 3+760 m  | Mainline                   | 1061        | Dwelling and outbuildings | Demolish              |
| 13 | 3+850 m            | Mainline                   | 1062        | Dwelling and outbuildings | Demolish              |
| 14 | 4+050 m            | Mainline                   | 1166        | Dwelling and outbuildings | Retain                |
| 15 | 5+130 m            | Mainline                   | 1077        | Dwelling and outbuildings | Demolish              |
| 16 | 6+900 m            | Mainline                   | 1107        | Dwelling and outbuildings | Demolish              |
| 17 | 6+700m             | Mainline                   | 1085        | Dwelling and outbuildings | Demolish              |
| 18 | 0+650 m            | N15 Primary Road Connector | 1090        | Dwelling and outbuildings | Retain                |
| 19 | 0+150m             | L-6674 Connector           | 1114        | Dwelling and outbuildings | Retain                |
| 20 | 0+100m             | Mainline                   | 1013        | Outbuilding               | Demolish              |
| 21 | 0+050m             | AR1.07                     | 1016        | Outbuilding               | Demolish              |
| 22 | 4+820m             | Mainline                   | 1071        | Pump House                | Retain                |
| 23 | 4+350m             | Mainline                   | 1068        | Dwelling                  | Demolish              |
| 24 | 0+640m             | L-6564 Connector           | 1008        | Outbuildings              | Demolish              |
| 25 | 3+760 m            | Mainline                   | 1057        | Outbuildings              | Demolish              |

### 2.11.3 Earthworks materials

This section outlines the existing ground conditions and earthwork quantities including details of the proposed Material Extraction and/or Deposition (MED) areas. These are based on site investigations and the design of the Proposed Development.

Excavation of approximately 2.7 million m<sup>3</sup> of earthworks is proposed, with approximately 2.06 million m<sup>3</sup> considered as suitable construction material. With regard to the re-usability of material sourced on-site, it has been determined that there is no requirement to import earthworks materials.

The earthworks types present along the proposed route of Section 1 are shown in **Table 2.39**.

**Table 2.39: Section 1 Earthwork Locations**

| Sub-Section       | Chainage    | Earthworks Type | Soil or Rock Cut (if Applicable) | Method of Removal |
|-------------------|-------------|-----------------|----------------------------------|-------------------|
| <b>S1.1</b>       | 0-50        | At Grade        | N/A                              | N/A               |
|                   | 50-450      | Fill            | N/A                              | N/A               |
| <b>S1.2/1.3</b>   | 0-150       | Fill            | N/A                              | N/A               |
|                   | 150-1,000   | Cut             | Rock Ch. 500 – Ch. 600           | Cut/Blast         |
|                   | 1,000-1,100 | At Grade        | N/A                              | N/A               |
|                   | 1,100-1,600 | Cut             | Rock Ch. 1,300 – Ch. 1,600       | Cut/Blast         |
|                   | 1,600-2,270 | Fill            | N/A                              | N/A               |
|                   | 2,680-2,990 | Fill            | N/A                              | N/A               |
|                   | 3,040-3,300 | Fill            | N/A                              | N/A               |
|                   | 3,300-4,000 | Cut             | Rock Ch. 3,400 – Ch. 3,700       | Cut/Blast         |
|                   | 4,000-4,950 | Fill            | N/A                              | N/A               |
|                   | 4,950-6,000 | Cut             | Rock Ch. 5,400 – Ch. 5,900       | Cut/Blast         |
|                   | 6,000-6,550 | Fill            | N/A                              | N/A               |
|                   | 6,550-7,450 | Cut             | Rock Ch. 6,700 – Ch. 6,900       | Cut/Blast         |
|                   | 7,450-8,550 | Fill            | N/A                              | N/A               |
| <b>S1.4</b>       | 0-300       | Fill            | N/A                              | N/A               |
|                   | 300-500     | Cut             | No Rock                          | Excavation        |
|                   | 500-600     | At Grade        | N/A                              | N/A               |
| <b>S1.N15 PRC</b> | 0-300       | Cut             | Rock Ch. 125 – Ch. 275           | Cut/Blast         |
|                   | 300-1300    | Fill            | N/A                              | N/A               |
|                   | 1,300-2,250 | Fill            | N/A                              | N/A               |
|                   | 2,250-2,900 | Cut             | No Rock                          | Excavation        |
|                   | 2,900-3,085 | Fill            | N/A                              | N/A               |

**Table 2.40** summarises the earthworks quantities assessed for Section 1 and demonstrates that there is an earthworks balance, and that all requirements to win and dispose of material can be met within the Proposed Development Boundary by the utilisation of MED areas that have been identified within the site. Accordingly, there will be no net import or export of earthworks material to / from Section 1.

**Table 2.40: Section 1 Earthwork Quantities**

| Element   | Intermediate Volumes (m <sup>3</sup> ) | Total Volumes (m <sup>3</sup> ) |
|---|--|---------------------------------|
| <b>Total Cut</b>  |  | 2,700,000                       |
| <b>Total Cut available for reuse</b>                      |  | 2,056,000                       |
| <b>Over excavation for soft areas</b>                     | 172,000                                |                                 |
| <b>Unsuitable</b>   | 473,000                                |                                 |
| <b>Cumulative volume of material requiring deposition</b> |  | 645,000                         |
| <b>Additional material to fill soft areas</b>             | 172,000                                |                                 |
| <b>Fill to meet alignment requirements</b>                | 1,873,000                              |                                 |
| <b>Capping (Import to site)</b>                           | 0                                      |                                 |
| <b>Cumulative volume of Fill required</b>                 |  | 2,045,000                       |
| <b>Excavation and backfill to deposition areas</b>        |  | 104,000                         |
| <b>Material placed as non-structural fill</b>             |  | 645,000                         |

## Notes

- (1) All excavated rock assumed to be processed into compliant fill.
- (2) Excludes capping volumes.
- (3) Non-compliant material generally comprises soft glacial till, peat and alluvium.

The Section 1 earthworks balance shows a surplus of topsoil and acceptable fill volumes. The surplus of topsoil can be accommodated within environmental bunds and landscape areas that form part of the permanent works. The surplus of compliant fill will also be re-used within environmental bunds and landscape areas. The remaining surplus will be placed within designated deposition areas. There are a total of fifteen MED areas located within the Section 1 Proposed Development boundary and the location of these MED areas are in close proximity to the permanent works in areas with the least environmental/ ecological impact. The proposed MED areas provide sufficient capacity to cater for the surplus material.

The main material extraction area within the Section 1 route corridor is south of the River Finn at the proposed construction compound (MED01) at Cappry. This extraction of material from the MED01 area has been proposed to cater for the approach embankment leading up to the River Finn so as to avoid the need for haulage from north of the river, either through the Twin Towns or across the river, to construct the southern embankment. The MED01 area has an average depth of 8m and an estimated volume recovery of 104,000 m<sup>3</sup> to 120,000 m<sup>3</sup>. Volumes have been estimated based on the proposed road level however, if additional material is required the contractor may advance deeper to win more suitable material for construction. It is proposed to fill any extraction areas with surplus and non-compliant material back to blend in with the surrounding post-construction ground levels.

#### 2.11.4 Construction compound locations

Two locations have been identified and considered for the main Section 1 construction compounds as presented in **Table 2.41**.

**Table 2.41: Section 1 Construction Compound Locations**

| Name      | Location     | Approximate Chainage                           | Approx. Site Area (ha) |
|-----------|--------------|--|------------------------|
| Section 1 | Cappry       | Mainline 1.2 Ch. 1+450 – 1+930 m               | 5.37 ha                |
| Section 1 | Treanamullin | N15 Primary Road Connector Ch. 2+500 – 2+850 m | 1.55                   |

The locations of construction compounds are shown in EIAR Drawing 4.1 sheet 2 of 8 (Cappry) and EIAR Drawing 4.1 sheet 8 of 8 (Treanamullin) in **Appendix 1**.

The construction compound location at Cappry consists of three areas located adjacent to each other at the proposed Ballybofey Link Road North/ South grade separated junction. Access/ egress to/ from the Cappry construction compound locations can be obtained from the L-2794 road until such time as the contractor has an alternative access road created, e.g. a corridor for the Ballybofey Link Road North from the R252 or a corridor from the R252 along the mainline, both within the Proposed Development boundary.

The Treanamullin compound can be accessed from the existing N15 within the Proposed Development boundary.

### 2.11.5 Drainage and sediment control

The lands associated with Section 1 are predominantly agricultural, within a semi urban landscape around Ballybofey/Stranorlar. The topography of the site is highly variable, with the lowest point within the project being the River Finn, and the highest point being the hilly terrain around Teevickmoy to the northern end of the project.

The key surface water features associated with the Proposed Development are as follows:

- River Finn (proposed crossing point).
- Burn Daunett (southern tie in).
- Cloghroe River (northern tie in).
- Various smaller watercourses that feed the above.

### 2.11.6 Construction Traffic

The River Finn severs a direct linear haul route from the south to the north of Section 1, effectively splitting the site into two:

- the southern portion between the southern tie-in and the River Finn, including the Ballybofey Link Road and
- the northern portion including the remainder of the mainline to the tie-in with the N13, and the N15 Primary Road Connector.

Given that the earthworks will be completed during the early phases of the Project, and the proposed River Finn Bridge is not expected to be completed until the final year of construction, the two portions of the Project, north and south of the river, need to be balanced in terms of earthworks to minimise the transportation of earthworks material through the Twin Towns over the existing River Finn bridge.

Analysis based on the site investigation data collected to date has shown that the above balance in both the southern and northern portions of Section 1 is achievable, as well as achieving the overall balance throughout the entire Section 1, with the use of MED areas to win suitable material and dispose of unsuitable material south of the River Finn. Confirmatory geotechnical investigations will be carried out to confirm this. In total, there will be approximately 180,000 earth moving truck movements required to construct Section 1. The majority of this earth movement will take place along haul roads within the Proposed Development corridor.

### 2.11.7 Permanent road closures

Road closures are shown on the General Arrangement drawings, EIAR Drawing 4.1 in **Appendix 1**.

### 2.11.8 Utilities

For Section 1 construction works will require works to the following utilities:

- ESB electricity: There are 30 interface points with the high voltage (38 kV and 110kV) network, and medium and LV (below 38 kV) network. The key diversion is the 110 kV transmission line between Cappry and Drumboe, including the crossing of the River Finn (Ch 1+150 to 3+100).
- Eir: There are 21 interface points with the EIR underground and overhead services affected by the Proposed Development.
- ENET: There are 2 interface points with ENET underground services affected by the Proposed Development
- Public Water and Wastewater Supply: There are 17 interface points between the Proposed Development and UÉ networks (including water supply and sewerage). This includes an Uisce Eireann water supply trunk main (375 mm diameter) between Cappry and Drumboe, including crossing of the River Finn (Ch 1+750 to 3+100).

### 2.11.9 River Finn Bridge Construction

The construction sequence for the River Finn Crossing is described below. In-stream works are not required or permitted for the construction of the River Finn Crossing. The bridge construction will take approximately 36 months to complete. Works on the south side of the river will use the proposed construction compound at the Ballybofey Link Road North/ South (approx. mainline Ch. 1600). Works from the northern side of the river will utilise the construction compound on the N15 Primary Road Connector (Ch. 2650).

1. Carry out additional ground investigation works prior to site mobilisation to confirm the expected ground conditions. There will be no ground disturbance within 10m from the River Finn main channel and there are no discharges involved with such works.
2. Carry out archaeological trenching works, only within areas marked out for the bridge pier foundation sites. The areas at proposed Pier 3 and 4 (closest to the River Finn SAC and on the floodplain) will be surrounded in temporary silt fencing prior to these test trenches being excavated. Once again, there will be no ground disturbance within 10m from the River Finn main channel for these works and there are no discharges involved.
3. Bridge construction site mobilisation.
4. Erect appropriate temporary fencing (e.g. mammal and silt) set-back from the SAC boundary to demarcate the limit of allowable working area which is outside the SAC only and to leave a width of riparian habitat undisturbed.
5. The extent of bankside and flood plain interference and vegetation removal shall be agreed, identified, documented, and demarcated with appropriate fencing.
6. Construct temporary site access tracks from the mainline haulage route to the bridge construction works area on each side of the river.

7. Areas of hardstanding / work platform will be required throughout at each bridge support location to facilitate the piling process and will need to be maintained throughout the construction stage.
8. The Southern Abutment and Piers 1 and 2 are located outside the 1% AEP flood zone and the required hardstandings will be constructed from appropriate fill (clause 804 or similar and containment geotextile layers as required). These hardstand areas will be surrounded in silt fencing and temporary cut off drains around the work platform areas will have check dams installed and be directed towards the permanent attenuation pond (No. 10), which will have been installed as part of the advance works. This pond shall be utilised to treat run off during the construction phase and shall be cleaned of any excess silt during and at the end of the construction phase, as required.
9. Piers 3, 4, 5 and 6 and the Northern Abutment are located on the River Finn floodplain and within the 1% AEP flood zone. In order to prevent the hardstanding / work platform becoming sources of suspended solids to the SAC river over the approximate 36 month construction period, they will be comprised of layers of reno-mattress (or similar) (essentially flat gabions filled with clean stone) which avoids placing large areas of clause 804 which can become entrained to the SAC river during potential flooding. The platforms shall be of the minimum thickness required to provide stability for large machinery and plant.
10. To avoid generating sources of sediment loss, there will be no excavations undertaken to install the clean-stone reno-mattress work platforms. They will be laid directly onto the vegetated ground and will comprise layers of reno-mattress filled with washed clean rockfill placed on a basal separation geotextile. A geogrid will be placed between each layer. Locally, clean rockfill can be placed and sandwiched between and upper and lower mattresses to level out hollows and provide a suitably level platform surface for large plant.
11. The rockfill will have a typical particle size of 75 mm – 150mm with the smallest typical particle size greater than the mesh size. All stone fill will arrive to site clean and pre-washed to remove any soil and residual rock dust and other fines before being transported to site. The upper most reno mattress will use rock fill with a particle size weighted towards the smaller sizes but not <75 mm. This will reduce surface roughness of the platform and improve trafficking.
12. The rockfill will be confined by the cage of the reno-mattress. Each mattress will be tethered to the next with lacing wire. In this way water will be able to pass through the work platform in the event of a flood, without entraining fines to the River Finn SAC. Typical dimensions for the proposed mattresses are 6 m (length) x 2 m (breadth) and 0.3 m (thickness). Similar to block laying, each new layer of mattress shall overlap the joints between individual mattresses present in the previous layer to provide stability.
13. Construction works to install pier foundations on the southern side of the river are above the 1% AEP flood zone and do not require additional flood protection during construction works. Robust silt fencing and surface water run-off management (as described above for work platforms) shall be employed.
14. Construction works to install pier foundations on the northern side of the river are on the floodplain and are below the 1% AEP flood level. For that reason temporary sheet pile cofferdams shall be constructed around each of the four foundation works areas for Piers 3, 4, 5 and 6. Even though these works are outside the SAC boundary, they are in close proximity to the SAC in a reach of the river where there is sensitive, highly utilised salmonid nursery habitat, hence very sensitive to sediment and pollutant washout.
15. The function of the cofferdams is to exclude soil and water from the excavations below the existing ground surface to facilitate the construction of bridge pier foundations. The cofferdam walls are made of impermeable, interlocking steel sheet piles. The sheet piles are to be installed using a hydraulic press method to form a continuous interlocking vertical wall. The top of the sheet piles will extend to a height above the ground surface which is above the peak 1% AEP (plus 20% climate change (CC) allowance + 200 mm freeboard). It is preferable that the sheet piles for the cofferdams are installed to intercept fair to good rock stratum to further limit the potential for groundwater ingress. Groundwater ingress to a cofferdam will either be through the floor of the cofferdam or from the interlock between piles, though properly constructed and maintained sheet piles will allow very little water ingress at the interlock. The majority of water ingress will be through the floor of the cofferdam. The water accumulating in the cofferdams will be pumped from a sump formed in the cofferdam to a storage bowser positioned outside

of the cofferdam. Uncontaminated water will be pumped out and removed to the nearest Attenuation Pond for settlement of suspended solids. Any sump water that is contaminated (e.g. from concrete and/or hydrocarbons) will be pumped out and removed off-site for disposal at a licenced waste management facility.

16. The top height of the temporary cofferdams will be set at 21.67 mOD Malin, which is the 1% AEP (+ 20% CC allowance + 200 mm freeboard). With the 20% CC allowance, such a top height allows sufficient freeboard for the construction period, whilst ensuring the cofferdam height is manageable to access during the construction. From existing ground levels, it is evident that the temporary cofferdams top height will extend broadly 1.5 m above existing ground (varies across the floodplain) and they can be accessed throughout the construction using ladders.
17. Implement additional measures to minimise and control the risk of siltation entering the river. This will include:
  - a. Establish site, surface drainage and silt control measures including silt fencing;
  - b. Building a diversion for water run-off from the construction areas to settlement pond No. 10 (on the southern side of the river). There shall be no temporary settlement ponds on the northern side of the river as they would be within the flood zone and become potential sources of sediment input to the SAC. The focus on the northern side of the river is to avoid and limit potential sources of sediment wash out by utilising reno-mattress hardstandings and temporary cofferdams around pier foundation constructions;
  - c. Following steps a and b above, stripping of topsoil, and where necessary, surfacing of areas with granular material on the southern side of the river. There shall be no stripping of topsoil on the northern side of the river within the construction footprint within 50 m of the SAC boundary, instead employing the method described above in terms of laying of clean stone filled layers of reno-mattress; and
  - d. Covering of any temporary stockpiles of stripped soil.
18. Oil storage tank(s) and the associated filling area and distribution pipe work will be at least 50m distant from the river banks or any connected land drain and 50 metres outside of any European Site and positioned so that no spillages can flow in the direction of the river.
19. Storage tanks will have secondary containment provided by means of an above ground bund to capture any oil leakage irrespective of whether it arises from leakage of the tank itself or from associated equipment such as filling and off-take points, sighting gauges, etc., all of which should be located within the bund.
20. Oil booms and oil soakage pad will be maintained on-site to enable a rapid and effective response to any accidental spillage or discharge.
21. Abstraction of water for dust control will be from dedicated watering points; these will be from an excavated site located outside the SAC and not closer than 20m from any SAC boundary, replenished by ground infiltration and not by stream infiltration. No abstraction will occur from watercourses.
22. The bridge will require bored pile foundations down to rock requiring a large piling rig and crawler crane to access each foundation locations. Prefabricated rebar and concrete deliveries required to all areas, material excavated during boring to be removed from site.
23. Excavate for pile caps. Implement de-watering measures as necessary. Dewatering will be required from the temporary cofferdam areas on the River Finn floodplain at Piers 3, 4, 5 and 6. This water will potentially be contaminated with silt and concrete washings and will be removed and treated.
24. Construct reinforced concrete pile caps at abutment and pier locations. Conventional construction of the reinforced concrete substructure will require plant such as concrete lorries and pumps to operate within the valley.

25. Construct remainder of reinforced concrete substructure; abutments including inspection gallery, pier columns and crossbeams on top of columns.
26. Waterproof pile caps and abutments.
27. Remove cofferdams and backfill around pile caps and behind abutments up to the abutment diaphragm construction joint level.
28. Install bridge bearings to abutments and pier crossheads.
29. The bridge deck comprises steel girders in composition with a reinforced concrete deck. The steel girders will be lifted into place in sections by crane. A very large crawler crane (Liebherr LR 1600/2 or similar) will be required to allow the main pier sections and central sections of the main span over the River Finn to be lifted into position. It is assumed that girders will be lifted in braced pairs. The crane will be located on the south side of the proposed alignment away from the high voltage cables to the north. Multiple crane set ups will be required to lift in the various sections. The hardstanding area will facilitate the crane set ups and girder assembly however additional temporary crane mats/timbers will be required to support the crane during the lifts. It is likely that some intermediate temporary supports will be required during the lifting operation, to support one end of the pier sections prior to lifting in the central sections. A smaller crane may be used to lift in some of the shorter back span sections which will be installed prior to the main pier and midspan sections.
30. Following delivery of the steelworks to site, the girders will be assembled in pairs, braced together and lifted into position and spliced together at the designated locations.
31. Install permanent formwork on the steelwork, fix reinforcement, pour deck sections and abutment/pier diaphragms.
32. Finish construction of in-situ reinforced concrete wing walls and backfilling behind abutments.
33. Complete structure finishes (expansion joints, deck waterproofing, road and verge surfacing, parapets etc.)
34. To avoid the requirement for large excavations within the SACs there will be no installation of concrete headwalls and concrete apron within the SAC or directly at the riverbank.
35. Outfalls will be set back from the channel, discharging over secured 'green' erosion protection mats, e.g., pipe to swale scenario (using vegetated armour such as Hanes ScourStop ® transition matting, or similar). The scour protection to the outfalls will run up to the riverbank edge but will comprise the geotextile, green paving type rubble mats which are pinned to the ground surface between the outfall and the riverbank, with the area revegetating over time.
36. De-mobilise from site and remove any temporary access roads and hardstanding areas.
37. Reinstate disturbed ground.

On the northern side of the river on the floodplain, as with the placement of the reno-mattresses, the last mattress put in place will be the first one lifted out so that machines are always working from the platform and not rutting the ground. Demobilisation is expected to take less than one month. The vegetation will have died off beneath the platform rendering the soil vulnerable to erosion from flooding and surface run-off. To reduce the potential for erosion, the platform will be removed in sections and will be timed to occur in spring to autumn. To reverse soil compaction the ground will be chisel ploughed to loosen soil and immediately reseeded with an appropriate grass mix. Silt fencing along the SAC boundary will remain in place until vegetation has established.

The bridge is considered to be readily constructible by a contractor suitably experienced in bridge construction of this scale and form.

## 2.12 Construction – Section 2

### 2.12.1 Land use requirements

The location of the Proposed Development is predominantly semi-urban and passes close to the east of Letterkenny.

#### 2.12.1.1 Land take

In total, approximately 165 hectares of land is permanently required, and a further approximate 3.5 hectares of land will be temporarily required to construct the Proposed Development and associated construction compounds.

### 2.12.2 Acquisitions / Demolition works

The acquisition of dwellings, commercial buildings and outbuildings required for the construction of the Proposed Development in Section 2 are presented in **Table 2.42**.

**Table 2.42: Section 2 Structures to be Acquired**

|    | Chainage (approx.) | Road Ref.                | Plot ID Ref. | Type                      | Demolished / Retained |
|----|--------------------|--------------------------|--------------|---------------------------|-----------------------|
| 1  | 0+090 m            | Mainline 2.1             | 2010         | Dwelling and outbuildings | Demolish              |
| 2  | 0+200 m            | Mainline 2.1             | 2012         | Dwelling and outbuildings | Demolish              |
| 3  | 2+325 m            | Dromore Junction         | 2057         | Dwelling and outbuildings | Demolish              |
| 4  | 2+325 m            | Dromore Junction         | 2058         | Dwelling and outbuildings | Demolish              |
| 5  | 2+325 m            | Dromore Junction         | 2059         | Dwelling and outbuildings | Demolish              |
| 6  | 1+220 m            | L-5494 Connector         | 2112         | Dwelling and outbuildings | Demolish              |
| 7  | 1+420 m            | L-5494 Connector         | 2114         | Dwelling and outbuilding  | Demolish              |
| 8  | 0+100 m            | Dry Arch roundabout      | 2900         | Dwelling and outbuildings | Demolish              |
| 9  | 0+150              | Mainline                 | 2102         | Dwelling and outbuildings | Retain                |
| 10 | 0+100 m            | Bonagee Junction LX-2010 | 2079         | Outbuilding               | Demolish              |
| 11 | 0+050 m            | Dry Arch roundabout      | 2900         | Outbuilding               | Demolish              |
| 12 | 1+000 m            | Mainline                 | 2081         | Outbuilding               | Demolish              |
| 13 | 0+150 m            | Ballyrairie Junction     | 2183         | Outbuilding               | Demolish              |
| 14 | 1+450 m            | L-5494 Connector         | 2114         | Commercial shed           | Demolish              |
| 15 | 0+050 m            | Listellian Junction      | 2801         | Outbuildings              | Demolish              |
| 16 | 0+970 m            | Mainline 2.6             | 2039         | Outbuildings              | Demolish              |
| 17 | 2+090m             | Mainline 2.2             | 2053         | Outbuildings              | Demolish              |

### 2.12.3 Earthworks materials

This section outlines the existing ground conditions and earthwork quantities including details of the proposed Material Extraction and/or Deposition (MED) areas. These are based on site investigations and the design of the Proposed Development.

Excavation of approximately 1.91 million m<sup>3</sup> of earthworks is proposed, with approximately 1.53 million m<sup>3</sup> considered suitable construction material. With regard to the re-usability of material sourced on-site, it has been determined that there is no requirement to import earthworks materials.

The earthworks types present along the Proposed Development is shown in **Table 2.43**.

**Table 2.43: Section 2 Earthwork Locations**

| Sub-Section   | Chainage    | Earthworks Type | Soil or Rock Cut (if Applicable) |
|---------------|-------------|-----------------|----------------------------------|
| <b>S2.1</b>   | 0-50        | At Grade        | N/A                              |
|               | 50-850      | Cut             | Rock Ch. 800 – Ch. 850           |
|               | 850-1,350   | Cut             | Rock Ch. 850 – Ch. 1,350         |
|               | 1,350-1,700 | Cut             | Rock Ch. 1,350 – Ch. 1,800       |
|               | 1,700-2,340 | Cut             | Rock Ch. 2,100 – Ch. 2,290       |
|               | 2,340-2,365 | At Grade        | N/A                              |
| <b>S2.2</b>   | 0-1,000     | At Grade        | N/A                              |
|               | 1,000-1,400 | At Grade        | N/A                              |
|               | 1,400-2,350 | At Grade        | N/A                              |
|               | 2,350-3,100 | At Grade        | N/A                              |
|               | 3,100-3,759 | At Grade        | N/A                              |
| <b>S2.RSL</b> | 0-150       | At Grade        | N/A                              |
|               | 150-220     | Fill            | N/A                              |
|               | 220-350     | Cut             | No Rock                          |
|               | 350-450     | Fill            | N/A                              |
|               | 600-980     | Fill            | N/A                              |
|               | 980-1,450   | Fill            | N/A                              |
|               | 1,450-1,970 | Fill            | N/A                              |
| <b>S2.BL</b>  | 0-450       | Fill            | N/A                              |
| <b>S2.DAL</b> | 0-350       | At Grade        | N/A                              |
|               | 350-670     | Fill            | N/A                              |

**Table 2.44** summarises the earthworks quantities assessed for Section 2 and demonstrates that there is an earthworks balance, and that all requirements to win and dispose of material can be met within the Proposed Development Boundary by utilisation of MED areas that have been identified within the site. Accordingly, there will be no net import or export of earthworks material to/ from Section 2.

**Table 2.44: Section 2 Earthwork Quantities**

| Element   | Intermediate Volumes (m <sup>3</sup> ) | Total Volumes (m <sup>3</sup> ) |
|---|--|---------------------------------|
| <b>Total Cut</b>  |  | 1,913,000                       |
| <b>Total Cut available for reuse</b>                      |  | 1,530,000                       |
| <b>Over excavation for soft areas</b>                     | 55,000                                 |                                 |
| <b>Unsuitable</b>   | 328,000                                |                                 |
| <b>Cumulative volume of material requiring deposition</b> |  | 384,000                         |
| <b>Additional material to fill soft areas</b>             | 56,000                                 |                                 |
| <b>Fill to meet alignment requirements</b>                | 1,469,000                              |                                 |
| <b>Capping (Import to site)</b>                           | 0                                      |                                 |
| <b>Cumulative volume of Fill required</b>                 |  | 1,525,000                       |
| <b>Excavation and backfill to deposition areas</b>        |  | 687,500                         |
| <b>Material placed as non-structural fill</b>             |  | 56,000                          |

## Notes

- (1) All excavated rock assumed to be processed into compliant fill.
- (2) Excludes capping volumes.
- (3) Non-compliant material generally comprises soft glacial till, peat and alluvium.

The Section 2 earthworks balance shows a surplus of topsoil volumes. The surplus of topsoil can be accommodated within environmental bunds and landscape areas that form part of the permanent works. There are a total of 21 material deposition areas within the Section 2 Proposed Development boundary and the location of these areas are in close proximity to the permanent works in areas with the least environmental/ecological impact. The proposed MED areas are intended to provide sufficient capacity to cater for surplus material.

The MED areas also allow for the extraction of material to cater for the deficit of suitable material within the earthworks balance. There are 16 material extraction areas located within the Section 2 CPO Boundary. The depth of extraction in the MED areas can range from 1 m to 8 m and will have a total estimated volume recovery of 687,500 m<sup>3</sup> to 790,000 m<sup>3</sup>. Volumes have been estimated based on the proposed road level however, if additional material is required the contractor may advance deeper to win more suitable material for construction.

### 2.12.4 Construction compound locations

Two locations have been identified and considered for the main Section 2 construction compounds as presented in **Table 2.45**.

**Table 2.45: Section 2 Construction Compound Locations**

| Section   | Location   | Approximate Chainage                    | Approx. Site Area (ha) |
|-----------|--|---|------------------------|
| Section 2 | Lurgy  | L-1064 Connector<br>Ch. 0+250 – 0+650 m | 4.6                    |
| Section 2 | South of Proposed Bonagee Junction between LX-2009 and LX-2011 | Bonagee Link<br>Ch. 0+300 – 0+350 m     | 0.5                    |

Access/ egress to/from the Lurgy construction compound can be obtained from the L-1064 which is a short-distance from the existing N13. After sufficient progress has been made on the proposed new L-1064 connector road to the existing N13, construction compound traffic will be able to use this new road for access/ egress.

The Bonagee Junction construction compound can be accessed from the Dry Arch Business Park.

The locations of construction compounds are shown in EIAR Drawing 4.2 sheet 1 of 5 (Lurgy) and EIAR Drawing 4.2 sheet 2 of 5 (South of Proposed Bonagee Junction between LX-2009 and LX-2011) in **Appendix 1**.

### 2.12.5 Drainage and sediment control

The lands associated with Section 2 are a predominantly urban landscape through Letterkenny and east toward Manorcunningham. There is a portion of agricultural landscape along the southern tie in of the route at Listellian. The topography of the site is highly variable between the distinct road corridors, with the lowest point within the project being the low-lying valley of the River Swilly, and the highest point being the hilly terrain around Listellian to the south of Section 2.

The key surface water features associated with the Proposed Development design are as follows:

- River Swilly (at proposed road bridge crossing point – Mainline Section 2.6).
- Isle Burn / Leslie Hill (Stream) (at proposed active travel crossing point – Mainline Section 2.4) close to eastern tie in.
- Various smaller watercourses that feed the above.

### 2.12.6 Construction Traffic

For Section 2, the main haul route will be from the southern tie-in at Listellian through the primary section of earthworks cut to the proposed roundabout location at Dromore Junction, and then crossing the live N13 carriageway to the main area of earthworks fill leading to the River Swilly crossing.

In total, there will be approximately 110,000 earth moving truck movements required to construct Section 2. The majority of this earth movement will take place along haul roads within the Proposed Development corridor. However, because the existing N13 Dual Carriageway severs the linear haul route, splitting the site, crossings of the existing N13 dual carriageway are likely at the new Dromore Junction and existing Dry Arch Roundabout to access the earthworks fill areas. The crossing at Dromore Junction is a direct crossing of the existing N13 carriageway. The crossing at Dry Arch is likely to be for trucks travelling from the site at the new realigned L-5784/N13 junction, and north on the existing N13 to Dry Arch. Given the traffic congestion already on the N56 and in Letterkenny generally, the majority of truck or HGV movements will take place at off-peak times under the appropriate traffic management conditions.

Construction traffic for the works between the Ballyraine Junction and River Swilly crossing will access from the existing N56/ R245 junction (existing Creamery Roundabout) at Ballyraine until the proposed River Swilly crossing is completed. However, as the finished road level along this section is similar to existing ground levels truck movements will be minimal.

### 2.12.7 Permanent road closures

Road closures are shown on the General Arrangement drawings, EIAR Drawing 4.2 in **Appendix 1**.

### 2.12.8 Utilities

For Section 2 construction works will require works to the following utilities:

- ESB electricity: There are 25 interface points with the high voltage (38 kV and 110kV) network, and medium and LV (below 38 kV) network.
- Eir: There are 10 interface points with the EIR underground and overhead services affected by the Proposed Development.
- ENET: There are 4 interface points with ENET underground services affected by the Proposed Development
- Project Kelvin strategic fibreoptic communication (two lines) along the existing N13 dual carriageway between Dry Arch Roundabout and Pluck Roundabout (Ch 0+000 to Ch 3+750).
- Public Water and Wastewater Supply: There are 11 interface points between the Proposed Development and UÉ networks (including water supply and sewerage). This includes an Uisce Eireann water supply trunk main (1,200 mm diameter) at Bonagee on the northern side of the River Swilly (Ch 0+450).

### 2.12.9 River Swilly Bridge Construction

The construction sequence for the River Swilly Crossing is described below. In-stream works are not required or permitted for the construction of the River Swilly Crossing. This bridge construction will take approximately 36 months to complete. Works on the western (Ballyraine) side of the river will use the proposed construction compound at Bonagee (approx. Ch. +400 on LX2011 between the Bonagee Link and Mainline 2.5). Works from the eastern side of the river will utilise the same construction compound.

1. Carry out additional ground investigation works prior to site mobilisation. There will be no ground disturbance within 10 m from the River Swilly main channel and there are no discharges involved with such works.
2. Carry out archaeological trenching works, only within areas marked out for the bridge pier foundation sites. The area at the proposed western pier (Ballyraine side), closest to the Lough Swilly SAC and on the floodplain will be surrounded in temporary silt fencing prior to the test trench being excavated. Once again, there will be no ground disturbance within 10m from the River Swilly main channel for these works and there are no discharges involved.
3. Bridge construction site mobilisation.
4. Construct temporary site access tracks from the mainline haulage route to the bridge construction works area on each side of the river.
5. Install sheet piles/temporary works outside the SAC boundary on eastern and western sides of the River Swilly where proposed foundations are in close proximity to the SAC.
6. Erect appropriate temporary fencing (e.g. mammal and silt) set-back from the SAC boundary to demarcate the limit of allowable working area which is outside the SAC only and to leave a width of riparian habitat undisturbed.

7. The extent of bankside and flood plain interference and vegetation removal shall be agreed, identified, documented, and demarcated with appropriate fencing.
8. Areas of hardstanding / work platform will be required throughout at each bridge support location to facilitate the piling process and will need to be maintained throughout the construction stage. The area on the eastern (Milk Isle) side of the river is protected from flooding in the construction phase by the OPW Swilly Embankments which protect above the 0.5% AEP coastal flood level. The hardstanding on the eastern (Milk Isle) side shall therefore be constructed from appropriate fill (clause 804 or similar and containment geotextile layers as required) as the risk of suspended solids washout during construction is low. These hardstand areas will be surrounded in silt fencing and temporary cut off drains around the work platform areas will have check dams installed and be directed back towards the permanent attenuation pond, which will have been installed as part of the advance works or at the commencement of construction in that area. This pond shall be utilised to treat run off during the construction phase and shall be cleaned of any excess silt during and at the end of the construction phase, as required.
9. The proposed western pier on the Ballyraine side is located on the Swilly floodplain and within the 0.5% AEP coastal flood zone. In order to prevent the hardstanding / work platform becoming sources of suspended solids to the SAC over the approximate 36 month construction period, the first 30 m back from the SAC boundary (i.e., until it is above the flood level of 3.84 mOD Malin) will be comprised of layers of reno-mattress (or similar) (essentially flat gabions filled with clean stone) which avoids placing large areas of clause 804 which can become entrained to Lough Swilly SAC during potential flooding. The platforms shall be of the minimum thickness required to provide stability for large machinery and plant.
10. To avoid generating sources of sediment loss, there will be no excavations undertaken to install the clean-stone reno-mattress work platforms. They will be laid directly onto the vegetated ground and will comprise layers of reno-mattress filled with washed clean rockfill placed on a basal separation geotextile. A geogrid will be placed between each layer. Locally, clean rockfill can be placed and sandwiched between and upper and lower mattresses to level out hollows and provide a suitably level platform surface for large plant.
11. The rockfill will have a typical particle size of 75 mm – 150mm with the smallest typical particle size greater than the mesh size. All stone fill will arrive to site clean and pre-washed to remove any soil and residual rock dust and other fines before being transported to site. The upper most reno mattress will use rock fill with a particle size weighted towards the smaller sizes but not <75 mm. This will reduce surface roughness of the platform and improve trafficking.
12. The rockfill will be confined by the cage of the reno-mattress. Each mattress will be tethered to the next with lacing wire. In this way water will be able to pass through the work platform in the event of a flood, without entraining fines to the River Swilly SAC. Typical dimensions for the proposed mattresses are 6 m (length) x 2 m (breadth) and 0.3 m (thickness). Similar to block laying, each new layer of mattress shall overlap the joints between individual mattresses present in the previous layer to provide stability.
13. Construction works to install pier foundations on the eastern (Milk Isle) side of the river are above the 0.5% AEP coastal flood zone (3.84 mOD) and do not require additional flood protection during construction works. Robust silt fencing and surface water run-off management (as described above for work platforms) shall be employed.
14. Construction works to install pier foundations on the western (Ballyraine) side of the river are on the floodplain and are below the 0.5% AEP coastal flood zone. For that reason temporary sheet pile cofferdams shall be constructed around the western pier. Even though the works are outside the SAC boundary, they are in close proximity to the SAC and QI habitat Estuaries 1130.
15. The function of the cofferdams is to exclude soil and water from the excavations below the existing ground surface to facilitate the construction of bridge pier foundations. The cofferdam walls are made of impermeable, interlocking steel sheet piles. The sheet piles are to be installed using a hydraulic press method to form a continuous interlocking vertical wall. The top of the sheet piles will extend to a height above the ground surface which is above the peak 0.5% AEP coastal (+ 200 mm freeboard). It is preferable that the sheet piles for the cofferdams are installed to intercept fair to good rock stratum to

further limit the potential for groundwater ingress. Groundwater ingress to a cofferdam will either be through the floor of the cofferdam or from the interlock between piles, though properly constructed and maintained sheet piles will allow very little water ingress at the interlock. The majority of water ingress will be through the floor of the cofferdam. The water accumulating in the cofferdams will be pumped from a sump formed in the cofferdam to a storage bowser positioned outside of the cofferdam. Uncontaminated water will be pumped out and removed to the nearest Attenuation Pond for settlement of suspended solids. Any sump water that is contaminated (e.g. from concrete and/or hydrocarbons) will be pumped out and removed off-site for disposal at a licenced waste management facility.

16. The top height of the temporary cofferdam will be set at 4.04 mOD Malin. This ensures the cofferdam height is manageable to access during the construction. From existing ground levels, it is evident that the temporary cofferdam top height will extend broadly 1.0 m above existing ground (varies on the inland margin) and it can be accessed throughout the construction using ladders. The western abutment is well outside the flood zone and does not require temporary cofferdam, but will have robust silt fencing and run off controls directing flow towards the permanent attenuation pond on that side of the river.
17. Implement additional measures to minimise and control the risk of siltation of entering the river. This will include:
  - a. Establish site, surface drainage and silt control measures including silt fencing;
  - b. Building a diversion for water run-off from the construction areas to settlement ponds or silt traps with over-flows directed to land rather than to a watercourse;
  - c. Stripping of topsoil, and where necessary, surfacing of areas with granular material; and
  - d. Covering of temporary stockpiles.
18. Oil storage tank(s) and the associated filling area and distribution pipe work will be at least 50 m distant from the river banks and SAC boundary positioned so that no spillages can flow in the direction of the river.
19. Storage tanks will have secondary containment provided by means of an above ground bund to capture any oil leakage irrespective of whether it arises from leakage of the tank itself or from associated equipment such as filling and off-take points, sighting gauges, etc., all of which will be located within the bund.
20. Oil booms and oil soakage pads will be maintained on-site to enable a rapid and effective response to any accidental spillage or discharge.
21. Abstraction of water for dust control will be from dedicated watering points; these will preferably be from an excavated site located outside the SAC and not closer than 20 m from any SAC boundary, replenished by ground infiltration and not by stream infiltration. No abstraction will occur from watercourses.
22. The bridge will require bored pile foundations down to rock requiring a large piling rig and crawler crane to access each foundation locations. Prefabricated rebar and concrete deliveries required to all areas, material excavated during boring to be removed from site.
23. Excavate for pile caps. Implement de-watering measures as necessary.
24. Construct reinforced concrete pile caps at abutment and pier locations. Conventional construction of the reinforced concrete substructure will require plant such as concrete lorries and pumps to operate within the valley.
25. Construct remainder of reinforced concrete substructure; abutments including inspection gallery, and piers,
26. Waterproof pile caps and abutments,

27. Remove cofferdams and backfill around pile caps and behind abutments up to the abutment diaphragm construction joint level,
28. Install bridge bearings to abutments and piers.
29. The bridge superstructure comprises a post-tensioned concrete box and cantilevers. The main box (phase 1) will be constructed by the balanced cantilever method over the River Swilly. The back span to abutment sections can be constructed by conventional methods using scaffold falsework supported on the ground (this work can be done at the same time as balanced cantilever construction or in advance). The section from the piers to middle of the back spans can be constructed either by balanced cantilever or conventional methods depending on the contractor's preference. The cantilevers (phase 2) will be constructed by travelling formwork supported from the phase 1 main box.
30. Firstly, temporary supports/falsework will be installed at the piers on both sides of the river. Formwork and reinforcement will be installed and the initial box section will be cast over the piers.
31. Following the stripping of the formwork, the travelling formwork system will be erected to begin the balanced cantilever process which will involve: fixing reinforcement, pouring concrete, applying post-tensioning once the concrete is up to strength, stripping formwork, before moving the formwork system on for next section and repeating the process.
32. Finally the closing segments between balanced cantilever and conventional sections will be cast to complete the phase 1 box. Once up to strength the formwork can be stripped and the travelling formwork and falsework removed and replaced by the travelling formwork system to construct the cantilever sections from on top of the phase 1 box deck.
33. The superstructure construction will involve concrete trucks, concrete pumps and crawler cranes operating within the hardstanding area.
34. Finish construction of reinforced concrete wing walls and backfilling behind abutments.
35. Complete structure finishes (expansion joints, deck waterproofing, road and verge surfacing, parapets etc.)
36. To avoid the requirement for large excavations within the SACs there will be no installation of concrete headwalls and concrete apron within the SAC or directly at the riverbank
37. Outfalls will be set back from the channel, discharging over secured 'green' erosion protection mats, e.g., pipe to swale scenario (using vegetated armour such as Hanes ScourStop® transition matting, or similar). The scour protection to the outfalls will run up to the riverbank edge but will comprise the geotextile, green paving type rubble mats which are pinned to the ground surface between the outfall and the riverbank, with the area revegetating over time.
38. De-mobilise from site and remove any temporary access roads and hardstanding areas.
39. Reinstate disturbed ground.

For temporary hardstanding areas, the last mattress put in place will be the first one lifted out so that machines are always working from the platform and not rutting the ground. Demobilisation is expected to take less than one month. The vegetation beneath the platform will have died off rendering the soil vulnerable to erosion from flooding and surface run-off. To reduce the potential for erosion, the platform will be removed in sections and will be timed to occur in spring to autumn. The newly exposed area will be chisel ploughed to reverse soil compaction and will be immediately reseeded with an appropriate native grass mix. Silt fencing along the SAC boundary will remain in place until vegetation has established.

The bridge type is considered to be readily constructible by a contractor suitably experienced in bridge construction of this scale and form.

## 2.12.10 Active Travel river bridge over Isle Burn Construction

### 2.12.10.1 Special Area of Conservation

The Lough Swilly SAC extends downstream from the northern side of the existing dual carriageway to Lough Swilly. The Isle Burn is also an important fisheries migration channel and the riverbanks are otter habitat.

The Active Travel river bridge crosses over the Isle Burn on the southern side of the existing dual carriageway and therefore will not directly impact on the SAC.

The proposed Active Travel river bridge design will clear span the Isle Burn to ensure there is no barrier to the passage of fish. There will also be no in-stream works at this location. Substructures will be set back at least 10 m from the edge of the river channel and construction works will minimise modification to the riverbanks. Surface water run-off sediment control measures will be in place during construction.

### 2.12.10.2 Expected construction sequence

The likely construction sequence is as follows:

1. Site mobilisation.
2. Erect appropriate temporary fencing at 5m set-back from the river channel to demarcate the limit of allowable working.
3. The extent of bankside and flood plain interference and vegetation removal shall be agreed, identified, documented, and demarcated with appropriate fencing.
4. Implement measures to minimise and control the risk of siltation entering the river. This may include such measures as:
  - a. Establish site, surface drainage and silt control measures;
  - b. Building a diversion for water run-off from the construction areas to settlement ponds or silt traps with over-flows directed to land rather than to a watercourse;
  - c. Stripping of topsoil, and where necessary, surfacing of areas with granular material; and
  - d. Covering of temporary stockpiles.
5. Oil storage tank(s) and the associated filling area and distribution pipe work will be at least 10m distant from the riverbanks and positioned so that no spillages can flow in the direction of the river.
6. Storage tanks will have secondary containment provided by means of an above ground bund to capture any oil leakage irrespective of whether it arises from leakage of the tank itself or from associated equipment such as filling and off-take points, sighting gauges, etc., all of which will be located within the bund.
7. Oil booms and oil soakage pads will be maintained on-site to enable a rapid and effective response to any accidental spillage or discharge.
8. Abstraction of water for dust control will be from dedicated watering points; these will preferably be from silt lagoons located on site or from an excavated site, replenished by ground infiltration and not by stream infiltration. No abstraction should occur from watercourses.
9. Construct temporary access roads on each side of the river.
10. Excavate for foundations. Implement de-watering measures as necessary.
11. Place upfill and construct RC spread foundations.

12. Construct abutments and wingwalls. Build up approach path embankments and backfill abutments. Install bearings.
13. Set-up temporary crane pad adjacent to the crossing.
14. Deliver steelwork to site. Assemble and connect sections to form the bridge. Crane into position.
15. Remove temporary crane pad.
16. Complete backfilling of abutments.
17. Complete finishes (parapets, expansion joints, approach path surfacing & fencing etc.)
18. De-mobilise from site and remove any temporary access roads and hardstanding areas.

## 2.13 Construction – Section 3

### 2.13.1 Land use requirements

The location of the Proposed Development is predominantly rural and passes to the south of the urban area of Lifford.

#### 2.13.1.1 Land take

In total, approximately 305 hectares of land are permanently required, and approximately a further 1 hectare of land temporarily required to construct the Proposed Development and associated construction compounds.

### 2.13.2 Acquisitions / Demolition works

The acquisition of dwellings, commercial buildings and outbuildings required for the construction of the Proposed Development in Section 3 are presented in **Table 2.46**.

**Table 2.46: Section 3 Structures to be Acquired**

|    | Mainline Chainage approx. | Road Reference   | Plot ID Ref | Type                      | Demolished / Retained |
|----|---------------------------|--|-------------|---------------------------|-----------------------|
| 1  | 0+300                     | L1294 Manorcunningham Local Road (Ch 0+150 m)                      | 3042        | outbuildings              | Demolished            |
| 2  | 2+120 m                   | Drumoghill   | 3159        | Dwelling and outbuildings | Retained              |
| 3  | 2+500 m                   | Drumoghill   | 3009        | Dwelling and outbuildings | Demolished            |
| 4  | 7+700 m                   | Adjacent to Access Road AR3.32                                     | 3130        | Dwelling and outbuildings | Retained              |
| 5  | 9+150 m                   | LX3014 Tullyrap (Ch 0+040 m)                                       | 3045        | Disused house             | Demolished            |
| 6  | 9+370 m                   | Mainline   | 3048        | Disused House             | Demolished            |
| 7  | 13+400 m                  | Ballindrait Side Road (Ch 0+030 m)                                 | 3088        | Small Open Shed           | Demolished            |
| 8  | 13+700 m                  | Ballindrait Side Road (Ch 0+250 m)                                 | 3086        | Dwelling and outbuildings | Demolished            |
| 9  | 13+700 m                  | Ballindrait Side Road (Ch 0+250 m)                                 | 3087        | Dwelling and outbuildings | Demolished            |
| 10 | 14+100 m                  | Ballindrait Side Road (Ch 0+850 m)                                 | 3092        | outbuildings              | Demolished            |
| 11 | 14+100 m                  | Ballindrait Side Road (Ch 1+000 m)                                 | 3093        | Dwelling and outbuildings | Demolished            |
| 12 | 14+100 m                  | Ballindrait Side Road (Ch 1+200 m)                                 | 3161        | Dwelling and outbuildings | Retained              |
| 13 | 14+600 m                  | R264 Murlog  | 3101        | Dwelling and outbuildings | Demolished            |
| 14 | 17+300 m                  | Access to the pond / adjacent to realigned N15 Lifford Tie-In West | 3115        | Dwelling and outbuildings | Retained              |
| 15 | 17+300 m                  | Access to the pond / adjacent to realigned N15 Lifford Tie-In West | 3116        | Dwelling and outbuildings | Retained              |

### 2.13.3 Earthworks materials

This section outlines the existing ground conditions and earthwork quantities. These are based on site investigations and the design of the Proposed Development.

Excavation of approximately 3.35 million m<sup>3</sup> of earthworks is proposed, with approximately 2.83 million m<sup>3</sup> considered suitable construction material. There will be a deficit of approximately 0.59 million m<sup>3</sup> of earthworks materials which will be sourced from Material Extraction and/or Deposition (MED) areas to be opened within the Proposed Development Boundary of Section 3. With regard to the re-usability of material sourced on-site, it has been determined that there is no requirement to import earthworks materials.

The earthwork types present along the Proposed Development is shown in **Table 2.47**.

**Table 2.47: Section 3 Earthwork Locations**

| Sub Section | Chainage        | Earthworks Type | Soil or Rock Cut (if Applicable)                             |
|-------------|-----------------|-----------------|--|
| S03.01      | 0 - 410         | Cut             | No rock  |
|             | 410 – 1,330     | Fill            | N/A  |
| S03.02      | 1,330 – 1,750   | Cut             | No rock  |
|             | 1,750 – 3,530   | Fill            | N/A  |
| S03.03      | 3,530 – 4,070   | Cut             | No rock  |
|             | 4,070 – 4,610   | Fill            | N/A  |
| S03.04      | 4,610 – 5,250   | Cut             | No rock  |
|             | 5,250 – 5,830   | Fill            | N/A  |
| S03.05      | 5,830 – 6,450   | Cut             | No rock  |
|             | 6,450 – 7,110   | Fill            | N/A  |
| S03.06      | 7,110 – 7,310   | Cut             | Rock Ch. 7,160 - Ch. 7,260                                   |
|             | 7,310 – 7,690   | Fill            | N/A  |
| S03.07      | 7,690 – 8,070   | Cut             | No rock  |
|             | 8,070 – 8,590   | Fill            | N/A  |
| S03.08      | 8,590 – 8,930   | Cut             | Rock Ch. 8,580 - Ch. 8,920                                   |
|             | 8,930 – 10,170  | Fill            | N/A  |
| S03.09      | 10,170 – 11,010 | Cut             | Rock Ch. 10,540 - Ch. 10,720                                 |
|             | 11,010 – 12,470 | Fill            | N/A  |
| S03.10      | 12,470 – 13,950 | Cut             | Rock Ch. 12,860 - Ch. 13,920                                 |
|             | 13,950 – 14,970 | Fill            | N/A  |
| S03.11      | 14,970 – 16,610 | Cut             | Rock Ch. 15,360 - Ch. 15,420<br>Rock Ch. 16,040 - Ch. 16,440 |
|             | 16,610 – 17,540 | Fill            | N/A  |

**Table 2.48** summarises the earthworks quantities assessed for Section 3 and demonstrates that there is an earthworks balance, and that all requirements to win and dispose of material can be met within the Proposed Development Boundary by the utilisation of MED areas that have been identified within the site. Accordingly, there will be no net import of earthworks material to/from Section 3.

**Table 2.48: Section 3 Earthwork Quantities**

| Element  | Intermediate Volumes       | Total Volumes            |
|--|----------------------------|--------------------------|
| <b>Total Cut</b>                                   |                            | 3,347,200 m <sup>3</sup> |
| <b>Total Cut available for reuse</b>               |                            | 2,831,750 m <sup>3</sup> |
| <b>Over excavation for soft areas</b>              | 449,300 m <sup>3</sup>     |                          |
| <b>Unsuitable</b>                                  | +66,150 m <sup>3</sup>     |                          |
| <b>Cumulative volume of soft and unsuitable</b>    |                            | 515,450 m <sup>3</sup>   |
| <b>Additional material to fill soft areas</b>      | 515,450 m <sup>3</sup>     |                          |
| <b>Fill to meet alignment requirements</b>         | + 2,980,000 m <sup>3</sup> |                          |
| <b>Capping (Import to site)</b>                    | + 75,800 m <sup>3</sup>    |                          |
| <b>Cumulative volume of Fill required</b>          |                            | 3,423,450 m <sup>3</sup> |
| <b>Excavation and backfill to deposition areas</b> |                            | 515,900 m <sup>3</sup>   |
| <b>Volume of material used in shallow slopes</b>   |                            | 315,350* m <sup>3</sup>  |

\*This material may alternatively be accommodated within the site boundary in shallow slopes or landscaped areas

There are a total of nine MED areas located within the Section 3 Proposed Development boundary and the location of these MED areas are in close proximity to the permanent works in areas with the least environmental/ ecological impact. The proposed MED areas provide sufficient capacity to cater for surplus material and the extraction of material where required.

### 2.13.4 Construction compound locations

Two locations have been identified and considered for the main Section 3 construction compounds as presented in **Table 2.49**.

**Table 2.49: Section 3 Construction Compound Locations**

| Section          | Location     | Approximate Chainage      | Approx. Site Area (ha) |
|------------------|--------------|---------------------------|------------------------|
| <b>Section 3</b> | <b>Pluck</b> | Mainline 0+000m – 0+300 m | 2.7                    |
| <b>Section 3</b> | <b>R236</b>  | Mainline 7+900 m          | 1.6                    |

The locations of construction compounds are shown in EIAR Drawing 4.3 sheet 1 of 10 (Pluck) and EIAR Drawing 4.3 sheet 5 of 10 (R236) in **Appendix 1**.

### 2.13.5 Drainage and sediment control

The lands associated with Section 3 are predominantly agricultural, within a semi urban landscape around Lifford. The topography of the site is highly variable, from high points around Mongorry Hill (284 m OD) to the southwest, Dooish Mountain (266 m OD) to the northeast, and Croaghan Hill (217 m OD) near Lifford, to the undulating areas of the Laggan Valley including those associated with the Swilly Burn and Deelee River. The key surface water features associated with the Proposed Development design are as follows:

- River Finn (proposed crossing point of N14/N15 to A5 Link).
- Swilly Burn.
- River Deelee (near Ballindrait Junction).
- Various smaller watercourses that feed the above.

### 2.13.6 Construction Traffic

For Section 3, most of the earthworks will be moved inside of the Proposed Development boundary, with other construction elements and required materials to be brought into the site. Most of the traffic will be expected from either the Lifford or Letterkenny areas, using the N13, N15 and N14 as the main haulage routes and minor traffic on the Regional and Local Roads.

In total, there will be approximately 236,000 earth moving trucks required. The majority of these movements will take place along haul roads within the Proposed Development corridor.

### 2.13.7 Permanent road closures

Road closures are shown on the General Arrangement drawings, EIAR Drawing 4.3 in **Appendix 1**.

### 2.13.8 Utilities

For Section 3 construction works will require works to the following utilities:

- ESB electricity: There are 27 interface points with the ESB high voltage (38 kV and 110 kV) network, and medium and LV (below 38 kV) network.
- Eir: There are 28 interface points with the EIR underground and overhead services affected by the Proposed Development.
- Project Kelvin strategic fibreoptic communication (two lines) along the existing N14 between Pluck Roundabout and Lifford (multiple locations between Ch 0+000 and Ch 14+300).
- Public Water and Wastewater Supply: There are 20 interface points between the Proposed Development and UÉ networks (including water supply and sewerage).

### 2.13.9 River Finn Crossing (N14/N15 to A5 Link) Construction

The expected construction sequence for the River Finn Crossing is described below. In-stream works are not required or permitted for the construction of the River Finn Crossing. This bridge construction will take approximately 18 months to complete. Works on the northern (Co. Donegal) side of the river will use the proposed construction compound at the R236 (Ch. +7900).

The river is tidal in the proposed crossing reach. The predicted designed flood level at the bridge crossing site is 6.73 mOD Malin based on combined 100 year fluvial and tide event and includes 20% climate change allowance. Existing floodplain ground level on the northern (Co. Donegal) side of the river is broadly 2.1 to 2.6 mOD Malin and 3.7 mOD on the southern (Co. Tyrone) side. It would not be feasible to build temporary cofferdams or temporary work platforms to be above the combined tidal and fluvial flood level of 6.73 mOD. For that reason, the focus of the proposed construction works is on limiting potential sources of sediment washout to the SAC river. It is therefore proposed that layers of reno-mattress (or similar) will be used to construct the temporary access and work platforms across the flood plain on the Co. Donegal side of the river (which is more susceptible to flooding as it is low-lying). See description of reno-mattress work platform construction and decommissioning above as for Section 1.

Materials delivered to site such as the prefabricated steel girders will be stored on hard standing or lay down areas. It is in these areas that the steel girders will be braced together prior to erection. The hard standings

will be of similar construction to the floating road and therefore, will protect the underlying flood plain and will be easily removed following completion of the works.

It is envisaged that the superstructure will be erected using cranes. The cranes will be supported on platforms of similar construction to the floating road, however, piled pads will be provided at crane outrigger locations to ensure the loads associated can be supported. These platforms will be removed once the structure has been erected.

The proposed bridge will be constructed following the outline construction process detailed below:

1. Carry out additional ground investigation works prior to site mobilisation. There will be no ground disturbance within 10 m from the River Finn main channel and there are no discharges involved with such works.
2. Carry out archaeological trenching works, only within areas marked out for the bridge pier foundation sites. The areas under the 2 no. piers closest to the Finn main channel will be surrounded in temporary silt fencing prior to the test trenches being excavated. Once again, there will be no ground disturbance within 10m from the River Finn main channel for these works and there are no discharges involved.
3. Erect appropriate temporary fencing at 5m set-back from the river channel to demarcate the limit of allowable working and to leave a 5m width of riparian habitat undisturbed.
4. Provide required access including construction of floating road.
5. The existing land drains on the Co. Donegal side, south of the proposed N14/N15 to A5 Link, will require temporary diversion before interacting with the works area. A new interceptor drain will be constructed parallel to the proposed N14/N15 to A5 Link to intercept the existing land drains with falls toward the River Finn. This new interceptor drain will then run between the two piers closest to the River Finn to connect to the existing land drain that is north of the proposed N14/N15 to A5 Link. This existing land drain then discharges to the River Finn, removing the need to construct any new outfall to the river. The new interceptor drain will be constructed at the outset of the works and allowed to establish vegetation before connecting to the existing drains. A series of two check dams will be installed in the land drains before the river outfall. This is work within the SAC but will be minor.
6. Attenuation pond 16 and Outfall 18 (EIAR Drawing 4.3 sheet 10 of 10) will be constructed and operational prior to commencing excavations to facilitate the treatment of uncontaminated water from the works area and the settlement of suspended solids prior to discharge.
7. Prepare work platforms on both sides of the river for craneage (including ground improvement if required – subject to the above mentioned detailed geotechnical analysis).
8. Construction works to install pier foundations on the Donegal side of the River Finn river are on the floodplain and are below the flood zone. For that reason temporary sheet pile cofferdams shall be constructed around the piers to be constructed within the flood zone.
9. The function of the cofferdams is to exclude soil and water from the excavations below the existing ground surface to facilitate the construction of bridge pier foundations. The cofferdam walls are made of impermeable, interlocking steel sheet piles. The sheet piles are to be installed using a hydraulic press method to form a continuous interlocking vertical wall. As noted above, the cofferdams cannot be constructed above the predicted tidal and fluvial flood level of 6.73 mOD. However, they will be constructed to a level that provides some flood protection, limits the potential sources of sediment washout to the SAC and which also allows the Contractor to undertake the works safely. It is preferable that the sheet piles for the cofferdams are installed to intercept fair to good rock stratum to further limit the potential for groundwater ingress. Groundwater ingress to a cofferdam will either be through the floor of the cofferdam or from the interlock between piles, though properly constructed and maintained sheet piles will allow very little water ingress at the interlock. The majority of water ingress will be through the floor of the cofferdam. The water accumulating in the cofferdams will be pumped from a sump formed in the cofferdam to a storage bowser positioned outside of the cofferdam. Uncontaminated water will be pumped out and removed to the nearest Attenuation Pond 16 for settlement of suspended

solids before discharging from Outfall 18 (EIAR Drawing 4.36 sheet 10 of 10). Any sump water that is contaminated (e.g. from concrete and/or hydrocarbons) will be pumped out and removed off-site for disposal at a licenced waste management facility.

10. Implement additional measures to control of minimise the risk of siltation of the river. This will include measures such as:
  - a. Establish site, surface drainage and silt control measures;
  - b. Building a diversion of water run-off from the construction areas to a temporary settlement pond as indicated on the drawings with silt traps with over-flows directed to land rather than to a watercourse;
  - c. Stripping of topsoil, and where necessary, surfacing of areas with granular material;
11. Oil storage tank(s) and the associated filling area and distribution pipe work will be at least 50 m distant from the SAC boundary and positioned so that no spillages can flow in the direction of the river.
12. Storage tanks will have secondary containment provided by means of an above ground bund to capture any oil leakage irrespective of whether it arises from leakage of the tank itself or from associated equipment such as filling and off-take points, sighting gauges, etc., all of which will be located within the bund.
13. Oil booms and oil soakage pads will be maintained on-site to enable a rapid and effective response to any accidental spillage or discharge.
14. Abstraction of water for dust control will be from dedicated watering points; these will preferably be from an excavated site located outside the SAC and not closer than 20 m from the SAC boundary, replenished by ground infiltration and not by stream infiltration. No abstraction will occur from watercourses.
15. Excavation, pile testing and installation of piles.
16. Construction of pile caps and intermediate piers, ground anchors and backfilling of abutments.
17. Off-site fabrication and protection of structural steel.
18. Construction of bankseats.
19. Delivery of prefabricated steel plate girders to site.
20. Backfilling behind abutment bankseats;
21. Prepare plate girders and brace together for erection.
22. Install temporary bearings at intermediate piers and end support.
23. Mobilise and erect crane south side.
24. Mobilise crane and erect structural steelwork including cantilevers for southern approach span.
25. Erect east span steelwork.
26. Mobilise and erect crane north side.
27. Erect structural steelwork for Span 6 including cantilevers for Main Span and Span 5.
28. Erect structural steelwork for Main Span.

29. Mobilise and relocate crane on north side.
30. Erect structural steelwork for west approach spans.
31. Install precast participating formwork including cantilevers.
32. Pour pier diaphragms and deck slab.
33. Finishes, including: waterproofing; parapets; drainage and ducting; footways; road pavement; lighting; road markings and signage.
34. Take down craneage;
35. To avoid the requirement for large excavations within the SACs there will be no installation of concrete headwalls directly at the river bank.
36. Outfalls will be set back from the channel, discharging over secured 'green' erosion protection mats, e.g., pipe to swale scenario (using vegetated armour such as Hanes ScourStop ® transition matting, or similar). The scour protection to the outfalls will run up to the riverbank edge but will comprise the geotextile, green paving type rubble mats which are pinned to the ground surface between the outfall and the riverbank, with the area revegetating over time.
37. Extract haul roads, reno mattresses, and craneage platforms.
38. Reinstate disturbed ground.

On the northern (Co. Donegal) side of the river - as with the placement of the reno-mattresses, the last mattress put in place will be the first one lifted out so that machines are always working from the platform and not rutting the ground. Demobilisation is expected to take less than one month. The vegetation beneath the platform will have died off rendering the soil vulnerable to erosion from flooding and surface run-off. To reduce the potential for erosion, the platform will be removed in sections and will be timed to occur in spring to autumn. The newly exposed area will be chisel ploughed to reverse any soil compaction and will be immediately reseeded with an appropriate native grass mix. Silt fencing along the river margin (5 m exclusion zone) will remain in place until vegetation has established.

The bridge is considered to be readily constructible by a contractor suitably experienced in bridge construction of this scale and form.

### **2.13.10 Scenario where the N14/N15 to A5 Link is not constructed**

In the scenario where the N14/N15 to A5 Link does not proceed at the time of construction of Section 3, the remainder of Section 3 will be constructed as described above. The roundabout at the N14/N15 Lifford Junction including the active travel elements and the part of the N14/N15 to A5 Link up to approximately chainage 0+080 will be constructed. This small section of road will be blocked-off from the roundabout to prevent traffic from entering. This small section of the N14/N15 to A5 Link is necessary to facilitate the construction of the active travel and for any potential future construction of the remainder of the N14/N15 to A5 Link to Northern Ireland.

Similarly, in this scenario Attenuation Pond 16 and Outfall 18 (EIAR Drawing 4.3 sheet 10 of 10) will be constructed and operational prior to commencing excavations and/or earthworks to facilitate the treatment of uncontaminated water from the works area and the settlement of suspended solids prior to discharge. Some minor realignment of the existing land drain closest to the N14/N15 Lifford Junction roundabout may be required to facilitate the embankment for the active travel. The realigned land drain will be reconnected to the existing land drains and a series of two check dams will be installed in the existing land drains before the river outfall. This is work within the SAC but will be minor.

## 2.14 Operation

### 2.14.1 Permanent maintenance facilities

#### 2.14.1.1 Inspection and maintenance of river bridges

The use of weathering steel for the fabrication of the steel plate girders will ensure that maintenance painting will not be required over the lifetime of the structures. The deck surfacing will need maintenance and replacement after 20 years. Bridge bearing and movement joints will need to be inspected and maintained regularly and replaced after 50 and 20 years respectively.

The configuration of the structures has been designed to afford good access for inspection and maintenance. Inspection of the bridge superstructures can be undertaken safely from the bridge itself, from the ground below the bridges and from the rivers using boat access when required. Sufficient space and headroom clearance are provided under the bridge decks at each abutment to facilitate future inspections. Shallow side slopes no steeper than 1V:2H are provided at the structures meaning access steps to the abutments are not required. Inspection galleries at the abutments allow for access, maintenance and replacement of the bridge bearings.

Temporary mats will be used to allow vehicular access to the intermediate piers to facilitate scaffold erection for bearing inspection, maintenance and replacement.

The structures will be inspected every six years or as required under the TII Eirspan Bridge Management System.

#### 2.14.1.2 Inspection and maintenance of overbridges

Due to integral nature of the overbridge structures, maintenance requirements are minimised for the design life of the structures. The configuration of the structures has been undertaken to afford good access for inspection and maintenance. Inspection of all components of the structures can be done visually from the proposed ground level.

Sufficient space and headroom clearance are provided under the bridge deck at each abutment to facilitate future inspections. Shallow side slopes no steeper than 1V:2H are provided at each of the structures meaning access steps to the abutment are not required. Access for inspections and maintenance will be from the mainline, with temporary traffic management arrangement in place as necessary or from the bridge deck as required.

The structures will be inspected every six years or as required by the TII Eirspan Bridge Management System.

#### 2.14.1.3 Inspection and maintenance of active travel bridges

The steel elements of the structure will be painted and require nominal maintenance over the first 20 years after which maintenance painting of the steel work will be required. It is expected that full repainting will be required after 25-30 years.

The deck surfacing will consist of an epoxy resin based, tar derived resin slurry and will need maintenance and replacement after 20 years. The movement joints and bearings will need maintenance and replacing after 35-40 years.

The configuration of the structure has been designed to afford good access for inspection and maintenance. Inspection of all components of the structure can be done visually from proposed ground level. Sufficient space and headroom clearance are provided under the bridge deck at each abutment to facilitate future inspections.

Shallow side slopes no steeper than 1V:2H are provided at the structure meaning access steps to the abutments are not required. Access for maintenance will be provided via the proposed pedestrian/cyclist route from the mainline.

## 2.14.1.4 Inspection and maintenance drainage

### Grassed surface water channels

Grassed channels shall be maintained as described in section 9 of TII-DN-DNG-03073-02 '*Grassed surface Water Channels*'.

To ensure optimum hydraulic performance, the mowing schedule will be developed to ensure that the grass blades are no longer than 75 mm.

The grassed surface water channel will be capable of being mowed using the same equipment that is used to maintain the verge. The maintenance regime will also include the removal of litter and other debris, as well as weed control and the repair of any damage to the channels caused by vehicles.

Access to the grassed channels will be provided from the mainline and shall include traffic management as may be necessary to carry out maintenance works.

### Filter drains

Maintenance requirements for filter drains include monthly inspections, monthly weed control, annual sediment removal and replacement of clogged filter material as required (typically ten years or more).

### Attenuation and retention ponds

Ponds shall be maintained as described in section 6 of TII DN-DNG-03063-02 '*Vegetated Drainage Systems for Road Runoff*'.

The ponds will need regular inspection as the growth of vegetation will need to be inspected and controlled to ensure the system continues to operate as designed. A maximum six-month inspection interval will be required at the start and end of the growing season. Additional inspections will be carried out after any significant storm events (greater than a one-in-one year event) to check for signs of erosion or flooding, which will indicate whether the system has been affected by the storm.

The maintenance regime will ensure that the hydraulic and treatment performance of the ponds is operating as designed.

Any sediment which is not collected upstream of the ponds is likely to settle in the base of the retention pond. This sediment, along with any plant waste, will be removed with care to avoid damage to the pond liner (if part of the pond design) and any vegetation. Information will be provided to operatives on the presence and depth of liners and on the existence of any depth markers. Consideration will be given to the impact that disturbance of the sediment will have on the short-term migration of fines and contaminants from the system and maintenance operations planned accordingly.

Sediment removal will take place as and when required, generally at least every ten-years, but this will vary by location and shall be determined by inspection during operation. The removal may need to be phased to protect the existing vegetation.

As the ponds are designed to collect and treat contaminants associated with runoff, the area in and around the pond will be considered contaminated and the maintenance regime should take account of this during the disposal of any sediment or plant waste from the ponds, as well as the de-contamination of the pond when it has reached the end of its useful life.

The inspection and maintenance of ponds will be undertaken in accordance with Table 6.1 of TII DN-DNG-03063-02 '*Vegetated Drainage Systems for Road Runoff*'.

### Vortex grit removal chambers

The Vortex grit removal chambers are standalone units, and their maintenance will be carried out in accordance with the manufacturer's recommendations.

This would normally include inspection of the unit regularly after installation, and every six months after the first year of installation. This ensures that the system is operating as intended and helps to highlight any issues.

Sediment and oil removal will be carried out, generally at least once per year and following any accidental spill in the area draining to the unit. This will vary depending on the nature and size of the catchment in question.

Vortex grit removal structures are provided at each outfall to the attenuation ponds.

### **Petrol / oil interceptors**

The petrol/oil interceptor's maintenance will be carried out in accordance with the manufacturer's recommendations and BS EN 858-2:2003 Separator systems for light liquids (e.g. oil and petrol) – Part 2.

Cleaning of the interceptor will be carried out, generally every three to six months, but this may vary depending on location and catchment area. Additional cleaning and maintenance should be undertaken after any major events that may have caused additional debris to collect in the system.

The regular maintenance schedule should include, but not be limited to:

- Check the integrity of the interceptor and all its mechanical parts.
- Inspect the filters and repair or replace, where required.
- Assess the volume of contaminants collected in the tank.
- Service all electrical systems, interceptor management systems and alarms etc.
- Have all silt and contaminants removed and disposed in accordance with environmental regulations.
- Keep logs of any inspections, maintenance, incidents, services and contaminant removal activities.
- Ensure any contaminants are removed and transported in accordance with relevant legislation.

Petrol/oil interceptors are provided at each outfall to the attenuation ponds.

### **Pavement**

The mainline pavement will require ongoing inspection, testing and maintenance. This will be carried out in accordance with TII pavement management requirements. Temporary traffic management will be provided where required to facilitate inspection, testing and maintenance.

## 2.15 List of TII Design Standards

- DN-DNG-03022 Drainage Systems for National Roads.
- DN-DNG-03061 Design of Outlets for Surface Water Channels (including Amendment No. 1 dated June 2015).
- DN-DNG-03062 Edge of Pavement Details (including Amendment No. 1 dated June 2015).
- DN-DNG-03063 Vegetated Drainage Systems for Road Runoff (including Amendment No. 1 dated June 2015).
- DN-DNG-03064 Drainage of Runoff from Natural Catchments (including Amendment No. 1 dated June 2015).
- DN-DNG-03065 Road Drainage and the Water Environment (including Amendment No. 1 dated June 2015).
- DN-DNG-03066 Design of Earthworks Drainage, Network Drainage, Attenuation & Pollution Control.
- DN-DNG-03067 Spacing of Road Gullies (including Amendment No. 1 dated June 2015).
- DN-DNG-03068 - Hydraulic Design of Road-Edge Surface Water Channels (including Amendment No. 1 dated June 2015).
- DN-DNG-03071 Design of Outfall and Culvert Details (including Amendment No. 1 dated June 2015).
- DN-DNG-03072 Design of Soakaways (including Amendment No. 1 dated June 2015).
- DN-DNG-03073 Grassed Surface Water Channels for Road Runoff (including Amendment No. 1 dated June 2015).
- DN-ERW-03083 Managing Geotechnical Risk.
- DN-GEO-03028 The location and layout of service areas.
- DN-GEO-03031 Road Link Design.
- DN-GEO-03036 Cross-sections and headroom.
- DN-GEO-03047 Rural Cycleway Design (Offline and Greenways).
- DN-GEO-03060 Geometric Design of Junctions (priority junctions, direct accesses, roundabouts, grade separated, and compact grade separated junctions).
- DN-GEO-03084 The Treatment of Transition Zones to Towns and Villages on National Roads.
- DN-ITS-03029 Traffic Control and Communications Infrastructure Design
- DN-LHT-03038 Design of Road Lighting for the National Road Network.
- DN-PAV-03021 Analytic Pavement & Foundation Design.
- DN-PAV-03026 Footway Design.
- DN-REQ-03034 The Design of Road Restraint Systems (Vehicle and Pedestrian) for Roads and Bridges.
- DN-STR-03001 Technical Acceptance of Road Structures on Motorways and Other National Roads.
- DN-STR-03002 Weathering Steel for Highway Structures.
- DN-STR-03005 Design Criteria for Footbridges.
- DN-STR-03006 Expansion Joints for Use in Highway Bridge Decks.
- DN-STR-03010 Portal and Cantilever Sign/Signal Gantries
- DN-STR-03020 The Structural Design of Road Structures.
- GE-ENV-01104 - The Management of Invasive Alien Plant Species on National Roads – Standard

## 2.16 References

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CIRIA (2006) C648 Control of water pollution from linear construction projects; London.

Department of Transport (2021) Traffic Signs Manual; Updated 2025; Available: <https://www.roadguidelines.ie/traffic-signs/tsm/> ; Accessed: November 2025.

Department of Transport (2013) Design Manual for Urban Roads and Streets (DMURS); Updated 2025; Available: <https://www.gov.ie/en/department-of-transport/publications/design-manual-for-urban-roads-and-streets/>; Accessed: November 2025.

Enterprise Ireland (no date) Best Practice Guidelines BPGCS005 Oil Storage Guidelines; Available: <https://www.leanbusinessireland.ie/includes/documents/OilStorageBPG.pdf>; Accessed: November 2025.

Invasive Species Ireland (2008), Water Users Code of Practice; Available: [https://invasives.ie/app/uploads/2021/09/Water\\_Users\\_CoP.pdf](https://invasives.ie/app/uploads/2021/09/Water_Users_CoP.pdf); Accessed: November 2025.

TII (2016) PE-PAG-02031 Project Appraisal Guidelines for National Roads Unit 7.0 – Multi Criteria Analysis (withdrawn in 2024).

TII (2017) PE-PMG-02001 - Road Safety Impact Assessment (withdrawn 2025).

Walton, I.L.W., (2014) CIRIA C736 Containment systems for the prevention of pollution: Secondary, tertiary and other measures for industrial and commercial premises, London.