



# ENVIRONMENTAL IMPACT ASSESSMENT REPORT

## TEN-T Priority Route Improvement Project, Donegal Volume A Non-Technical Summary



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

EIAR

March 2026



## Table of Contents

<b>1</b>	<b>INTRODUCTION .....</b>	<b>1</b>
1.1	Proposed Development Objectives .....	2
1.2	EIA Requirement .....	6
<b>2</b>	<b>BACKGROUND &amp; NEED FOR THE PROPOSED DEVELOPMENT .....</b>	<b>7</b>
<b>3</b>	<b>PLANNING &amp; POLICY CONTEXT .....</b>	<b>9</b>
3.1	International Policy Context .....	9
3.2	European Policy Context.....	10
3.2.1	Trans-European Transport Network Regulations .....	10
3.2.2	Alternative Fuel Infrastructure Regulation Article 3 .....	10
3.2.3	The European Green Deal.....	10
3.3	National Policy Context .....	10
3.4	Regional Policy Context .....	12
3.5	Local Policy Context.....	12
<b>4</b>	<b>PROJECT DESCRIPTION .....</b>	<b>13</b>
4.1	Overview .....	13
4.2	Design .....	13
4.3	Programme.....	14
4.4	Advance/ Enabling Works .....	14
4.5	Construction .....	15
4.6	Section 1 .....	15
4.7	Section 2 .....	17
4.8	Section 3 .....	19
4.9	Operation.....	21
<b>5</b>	<b>ASSESSMENT OF ALTERNATIVES .....</b>	<b>22</b>
5.1	Non-road and Demand-Management Alternatives .....	23
5.2	Road-based Alternative Options for the Proposed Development .....	23
5.3	Do Nothing .....	23
5.4	Do Minimum .....	23
5.5	Do Something.....	23
5.6	Route Corridor Alternatives: General Process .....	24
5.6.1	Section 1 .....	25
5.6.2	Section 2 .....	26
5.6.3	Section 3 .....	27
5.7	Phase 3 Design Development: All Sections of the Proposed Development.....	27
<b>6</b>	<b>TRAFFIC &amp; TRANSPORTATION .....</b>	<b>28</b>
<b>7</b>	<b>POPULATION .....</b>	<b>30</b>
7.1	Baseline Environment .....	30
7.2	Impact Assessment and Mitigation Measures .....	30
7.2.1	Construction Phase .....	30
7.2.2	Operational Phase .....	31
<b>8</b>	<b>HUMAN HEALTH.....</b>	<b>33</b>
8.1	Methodology.....	33
8.2	Baseline Environment .....	33
8.3	Impact Assessment.....	33
<b>9</b>	<b>BIODIVERSITY .....</b>	<b>35</b>
9.1	Chapter 9A: Biodiversity – Terrestrial .....	35
9.1.1	Methodology .....	35

9.1.2	Baseline Environment .....	35
9.1.3	Impact Assessment .....	36
9.1.4	Mitigation Measures .....	36
9.1.5	Residual impacts .....	37
9.1.6	Conclusion .....	37
9.2	Chapter 9B: Biodiversity – Aquatic .....	38
9.2.1	Methodology .....	38
9.2.2	Baseline Environment.....	38
9.2.3	Impact Assessment and Mitigation Measures .....	39
9.2.4	Residual Impacts .....	39
<b>10</b>	<b>LAND, SOILS &amp; HYDROGEOLOGY .....</b>	<b>40</b>
<b>11</b>	<b>WATER .....</b>	<b>41</b>
11.1	Baseline Environment .....	41
11.2	Water Quality.....	42
11.3	Flooding.....	42
11.4	Residual Impacts.....	42
<b>12</b>	<b>AIR QUALITY.....</b>	<b>43</b>
<b>13</b>	<b>CLIMATE.....</b>	<b>44</b>
<b>14</b>	<b>NOISE &amp; VIBRATION .....</b>	<b>46</b>
<b>15</b>	<b>MATERIAL ASSETS: AGRICULTURE .....</b>	<b>47</b>
<b>16</b>	<b>MATERIAL ASSETS: NON-AGRICULTURE.....</b>	<b>49</b>
16.1	Utilities.....	49
16.2	Waste .....	49
16.3	Non-Agricultural Land take.....	51
<b>17</b>	<b>CULTURAL HERITAGE .....</b>	<b>52</b>
<b>18</b>	<b>LANDSCAPE &amp; VISUAL .....</b>	<b>55</b>
<b>19</b>	<b>INTERACTIONS &amp; CUMULATIVE EFFECTS.....</b>	<b>57</b>
19.1	Methodology.....	57
19.2	Interactions.....	57
19.3	Cumulative Effects .....	58
19.4	Transboundary Effects .....	58
<b>20</b>	<b>RISKS OF MAJOR ACCIDENTS AND DISASTERS.....</b>	<b>59</b>
20.1	Stage 1 Screening.....	59
20.2	Stage 2 Scoping .....	59
20.3	Stage 3 Assessment .....	60
20.4	Mitigation Measures .....	60
20.5	Monitoring.....	60
20.6	Residual Effects .....	60
<b>21</b>	<b>SCHEDULE OF ENVIRONMENTAL COMMITMENTS.....</b>	<b>61</b>

## Tables

Table 17.1 Construction Stage Impacts on the Cultural Heritage resource .....	52
Table 17.2 Operation Stage Impacts on the Cultural Heritage resource .....	52
Table 17.3 Significance of Effect on the Cultural Heritage resource .....	53
Table 17.4 Residual Significance of Effect on the Cultural Heritage resource .....	54

## Figures

Figure 1-1: TEN-T Priority Route Improvement Project, Donegal .....	1
Figure 1-2: Connectivity to the northwest from national cities, regional centres and within NWCR .....	4
Figure 1-3: Location map, multimodality and blended intervention option .....	5
Figure 1-4: Extensive active travel network in Proposed Development (63km) .....	5
Figure 3-1: UN Sustainability Development Goals .....	9
Figure 4-1: Section 1 Proposed Development layout .....	16
Figure 4-2: Section 2 Proposed Development layout .....	17
Figure 4-3: Section 3 Proposed Development Layout .....	20
Figure 5-1: Section 1 Preferred Option - Option 1G including Ballybofey Link Option E .....	25
Figure 5-2: Section 2 Preferred Option - Option 2D .....	26
Figure 5-3: Section 3 Preferred Option - Option 3B2 .....	27

**List of Acronyms within the Non-Technical Summary.**

Acronym	Meaning
AADT	Annual Average Daily Traffic
AAV	Average Agriculture Area
ABP	Activity Based Planning
CDDP	County Donegal Development Plan 2018-2024.
CIA	Cumulative Impact Assessment
DAERA	Department of Agriculture, Environment and Rural Affairs.
DCC	Donegal County Council
DHLGH	Department of Housing, Local Government and Heritage
DMRB	Design Manual for Roads and Bridges
DN	Do Nothing
DS	Do Something
DVO	District Veterinary Office
EIAR	Environmental Impact Assessment Report
EIS	Environmental Impact Statement
END	Environmental Noise Directive
EOP	Environmental Operations Plan
EPA	Environmental Protection Agency
EU	European Union
GWB	Groundwater Body
IEF	Important Ecological Features
IEL	Industrial Emissions License
IPC	Integrated Pollution Control
MCA	Multi Criteria Analysis
NRDO	National Road Design Office
NWRA	Northern and Western Regional Assembly
KPH	Kilometre Per Hour
LAP	Local Area Plan
LCA	Landscape Character Area
LI	Locally Important
LiDAR	Light Detection and Ranging
LLO	Land Liaison Officer
LVIA	Landscape Visual Impact Assessment
NIFTI	National Investment Framework for Transport in Ireland
NI	Northern Ireland

Acronym	Meaning
NWCR	Northwest City Region
NRA	National Road Authority
OPW	Office of Public Works
PAGs	Project Management Guidelines
PLO	Project Liaison Officer
PMG	Project Management Guidelines
POR	Preliminary Options Assessment Report
ROI	Republic of Ireland
SAC	Special Areas of Conservation
SPA	Special Protection Area
SUDs	Sustainable Drainage Systems
TEN-T	Trans European Transport Network
TTM	Temporary Traffic Management
TII	Transport Infrastructure Ireland
UK	United Kingdom
WTC	Western Transport Corridor
WFD	Water Framework Directive

### Units used in Non-Technical Summary Report

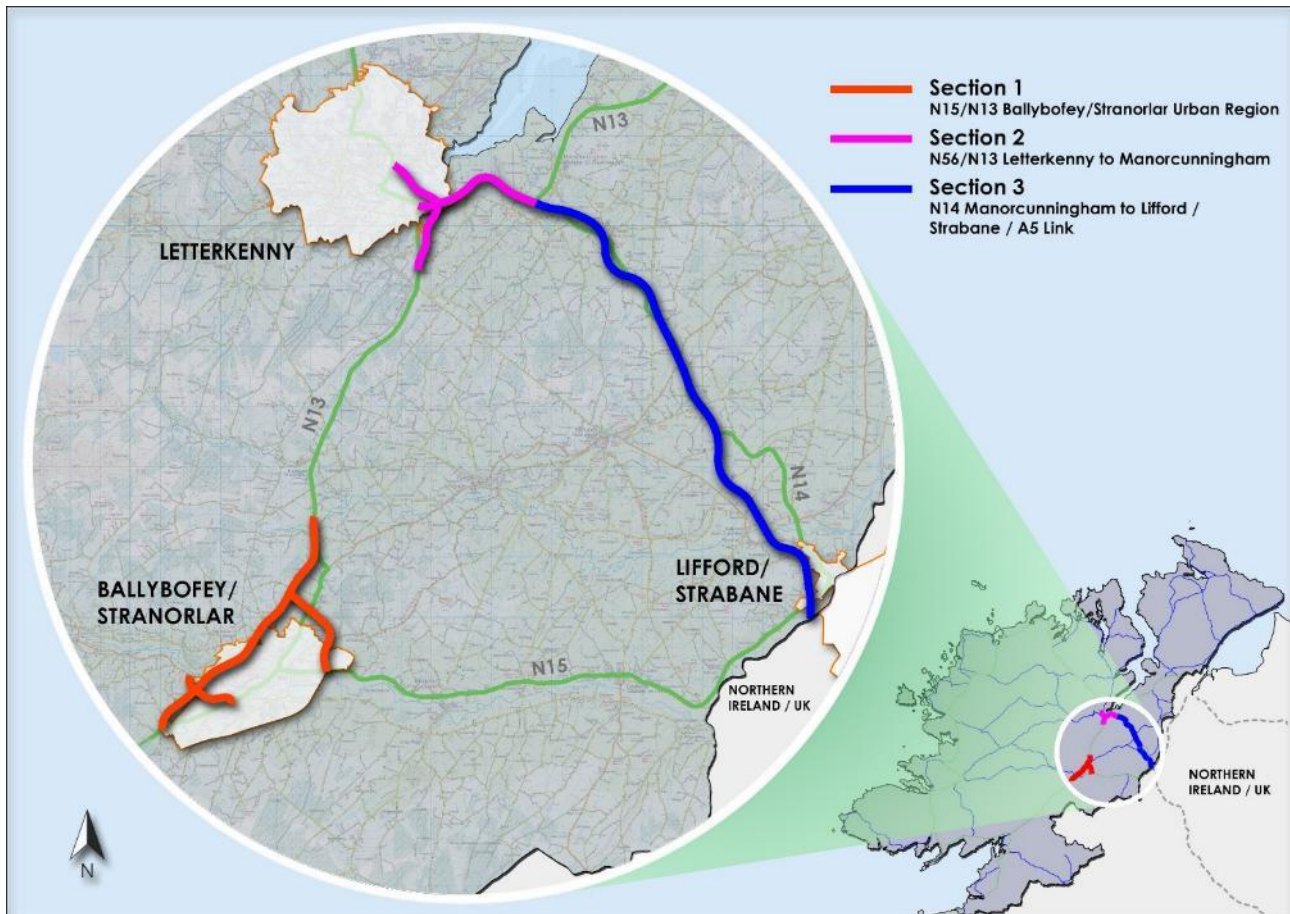
Parameter Measurement	Unit
Area	Hectares
Long Distances	Kilometre (km)
Short Distances	Metre (m)
Sound Intensity	Decibels (dB)

# 1 INTRODUCTION

The TEN-T Priority Route Improvement Project, Donegal (the Proposed Development) involves the targeted and appropriate intervention on three sections of the TEN-T/ national road network in Donegal. The intervention includes online improvement and upgrade, bypass of three urban centres, route realignment and includes a substantial, segregated active travel network.

The Proposed Development consists of three sections as summarised below and illustrated in Figure 1-1:

- **Section 1 – N15/N13 Ballybofey/ Stranorlar Urban Region**  
*Active travel, modal hubs, urban bypass*
- **Section 2 – N56/N13 Letterkenny to Manorcunningham**  
*Active travel, online/upgrade, route realignment, urban bypass (Letterkenny), modal hub*
- **Section 3 – N14 Manorcunningham to Lifford / Strabane/ A5 Link**  
*Active travel, route realignment, urban bypass (Lifford) and access to border connection (Lifford/Strabane), modal hubs*



**Figure 1-1: TEN-T Priority Route Improvement Project, Donegal**

The three sections were identified as the highest priority sections of the TEN-T network in Donegal requiring intervention. Transport Infrastructure Ireland (TII) is the Approving Authority for the Proposed Development. The Sponsoring Agency is Donegal County Council with Donegal National Roads Design Office (NRDO) performing the role of Project Manager.

The Proposed Development is being implemented in accordance with the TII Project Management Guidelines (PMGs), last updated in 2025.

## 1.1 Proposed Development Objectives

Some key elements in the Proposed Development and their specific role in achieving the project's objectives are:

- **4.4 km of Type 1 dual carriageway (N13) optimising and renewing of the existing network**  
These online works are major improvements to the resilience of the network and address some significant legacy safety issues.
- **30.9 km of Type 2 divided road (N13, N14, N15 and N56 Bonagee Link) creating urban by-passes of Letterkenny (Regional Centre), Ballybofey, Stranorlar, Lifford/Strabane**  
These new bypass routes enable active travel, urban regeneration and improve the environment including air and noise quality in urban zones. The bypasses also significantly contribute to journey time reliability and safety.
- **3.1 km of Type 3 divided road (N15 Primary Road Connector)**  
New divided road connecting the proposed N13 to the existing N15, to the north of Stranorlar.
- **1.8 km of new single carriageway national road**  
Improvements to the national road network where it interfaces with the Proposed Development.
- **40.3 km new single carriageway non-national road**  
Improvements to the non-national road network where it interfaces with the Proposed Development.
- **63 km new, fully segregated active travel network**  
This major modal shift infrastructure is connected to existing and proposed National Cycle Network, EuroVelo, TII Greenway and Island-wide Border Region Greenway Network. It is also widely integrated with the existing cycle/pedestrian networks and to key towns and destinations including schools, community facilities etc.), enhancing the 'last mile'.
- **Eight new modal shift hubs (park and share/ cycling facilities)**  
These are innovative and proactive developments, seamlessly and efficiently integrating active travel, public transport, and private vehicle modes for greater multimodal choice and encouraging clean and low carbon interurban travel and decarbonisation options.
- **Potential new and improved network of alternative fuel infrastructure/ access**  
Locations for facilitating or providing alternate low carbon fuel stations are being developed within the eight modal hub locations and at potential special online rest and recharge areas. Signage of the existing and proposed e-charging and alternate fuel locations is a priority.
- **Seven major river bridge crossings**  
These are in Section 1: Finn (Ballybofey), Backlees, Cloghroe; Section 2: Swilly; and Section 3: Swilly Burn, Deelee and Finn (Lifford).
- **Other structures**  
The Proposed Development includes 17 road overbridges, 16 road underbridges, 3 active travel bridges, 12 active travel and accommodation underpasses, 9 retaining walls, 12 road sign gantries, and approximately 3.7 km of environmental noise barrier across the entirety of the Proposed Development.
- **Road Tie-ins, Junctions and Road Closures**  
The Proposed Development includes tie-ins with the existing road network, the creation of 7 grade-separated junctions and 10 at-grade roundabout junctions, and the blocking, closing-up and/or removal of some existing roads to facilitate the Proposed Development.
- **Drainage**  
An extensive drainage network is included with the Proposed Development and includes attenuation ponds (hybrid wetlands), flood storage areas and outfalls.

- **Ancillary works**  
Ancillary roadworks such as lining and road studs, signage and sign gantries, safety barriers, fencing, lighting, ducting.
- **Utility diversions**  
The construction of the Proposed Development will require diversion of existing services and utilities (e.g. electricity, water, wastewater) including existing ESB 110 kV overhead lines.
- **Various environmental initiatives including mitigation and monitoring measures**  
The Proposed Development includes extensive environmental initiatives and carbon saving measures. Environmental mitigation and monitoring measures will be implemented as documented in the Environmental Impact Assessment Report (EIAR) and Natura Impact Statement (NIS).
- **No Net Biodiversity Loss:**  
The Proposed Development includes measures to achieve No Net Loss (NNL) of biodiversity in line with planning policy BIO-P-3(d) of the County Donegal Development Plan 2024-2030. The entire Proposed Development as well as each section individually has been assessed, and a separate report has been prepared for this: *No Net Biodiversity Loss Report* and a companion *Biodiversity Management Plan*.

All proposed route improvements, particularly the bypasses and new realigned section provide journey time reliability. This is a key objective of the Proposed Development and is consistent with NPF 2040 target for interurban average speed of 90 kph between the five national cities and five regional centres (including Letterkenny) (See Figure 1-2).

All route improvements support all-island connectivity through the interface with a proposed Trunk Road T3 in Northern Ireland which in turn will connect to the proposed A5 Western Transport Corridor (A5 WTC) in Northern Ireland. The Proposed Development further improves 34% of the Northwest City Region (NWCR) transport network (Letterkenny-Derry-Strabane) (See Figure 1-2). This will strongly support the growth potential of the NWCR and its economy.

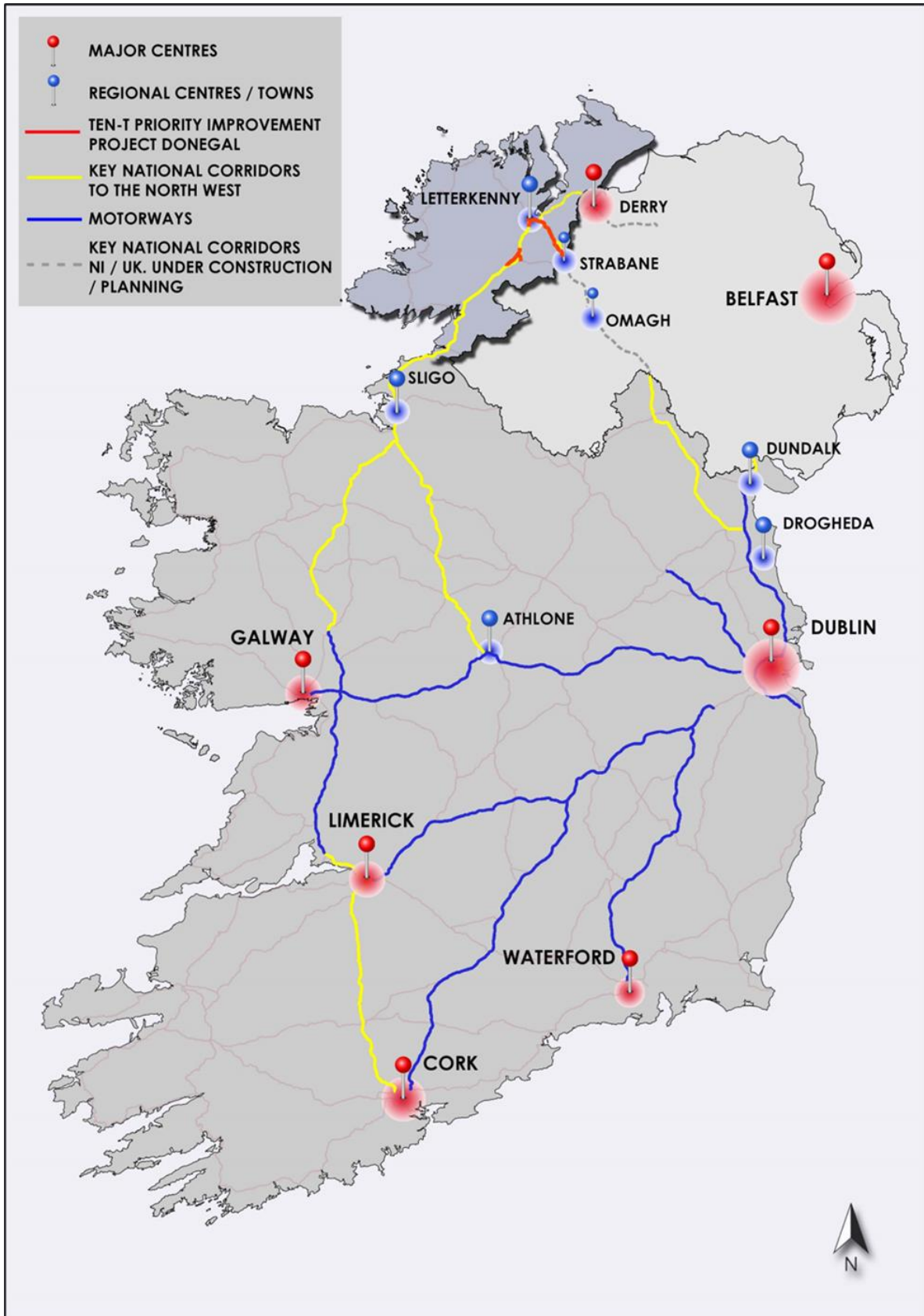


Figure 1-2: Connectivity to the northwest from national cities, regional centres and within NWC

Figure 1-3 and Figure 1-4 provide details of the Proposed Development location, multimodality and blended interventions, and extent of fully segregated active travel network.

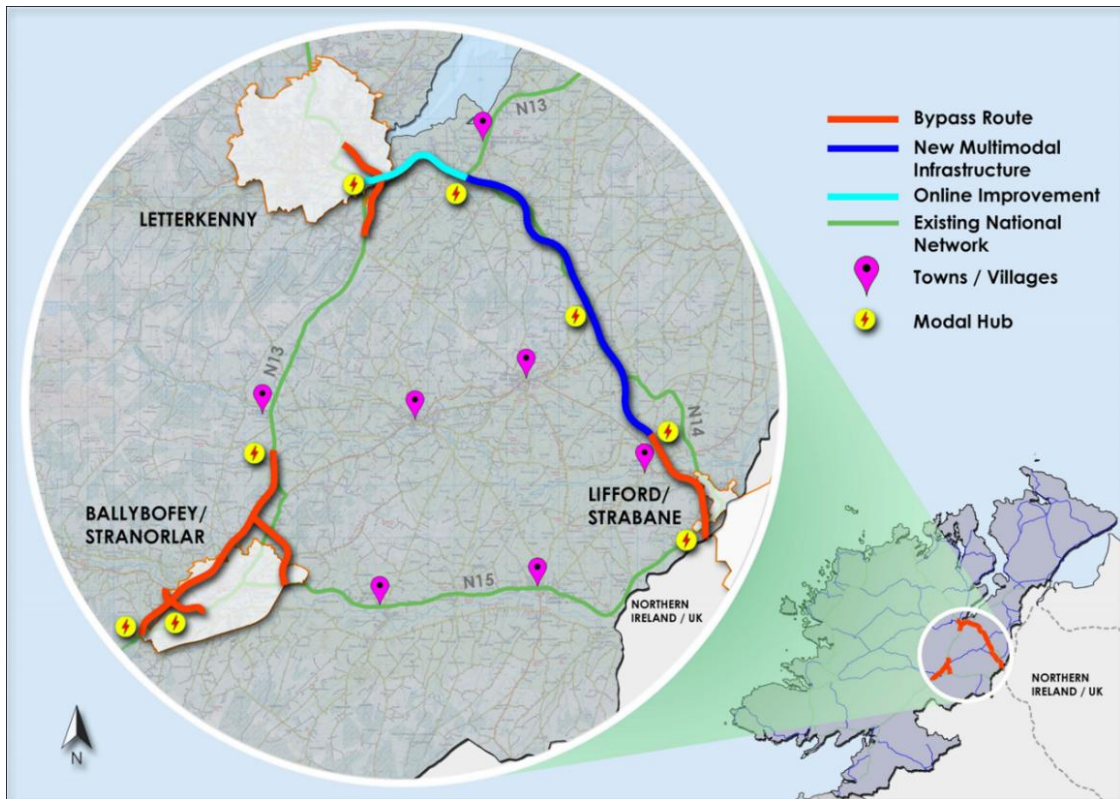


Figure 1-3: Location map, multimodality and blended intervention option

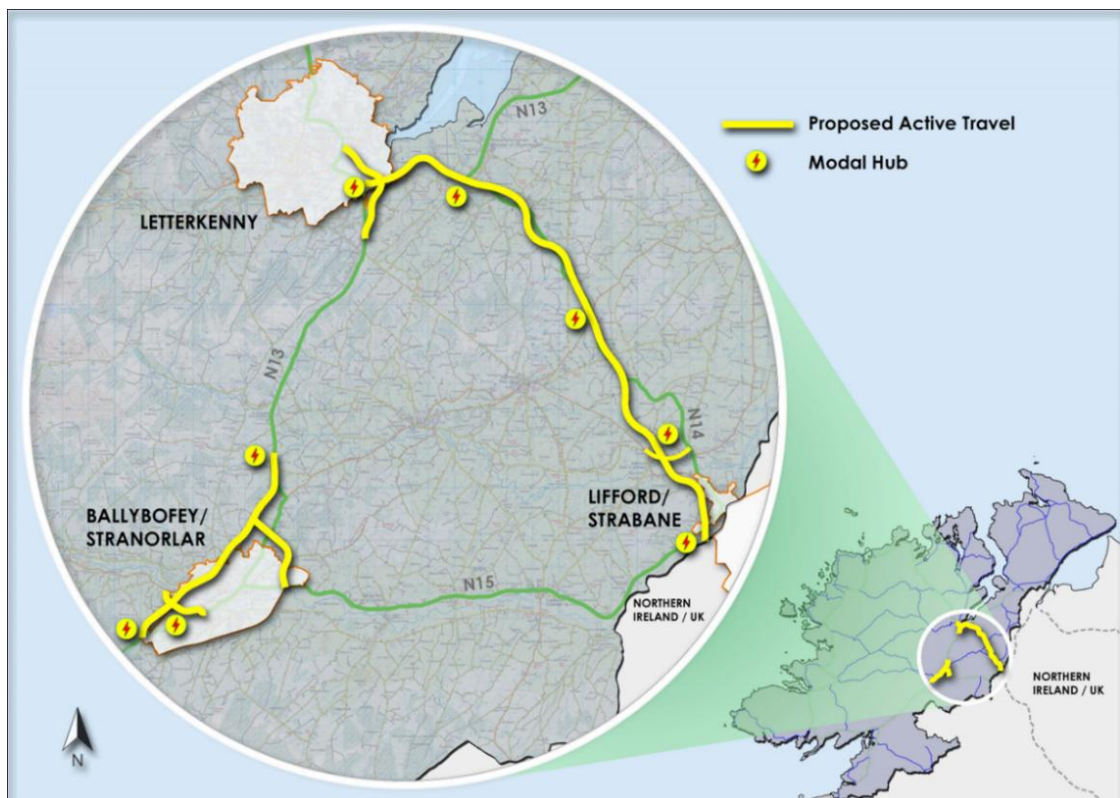


Figure 1-4: Extensive active travel network in Proposed Development (63km)

## 1.2 EIA Requirement

The Proposed Development comprises the three sections that are considered as three components of one project. An EIAR has been completed for the Proposed Development in its entirety, i.e. the three sections combined. Donegal County Council are applying under section 51(2) of the Roads Act, 1993 (as amended) to An Coimisiún Pleanála ('the Commission') for approval in relation to the Proposed Development.

The characteristics of the Proposed Development meet the legislative requirements for an EIA, specifically the definition of prescribed types of Proposed Development under Regulation 8(a) of the Roads Regulations, 1994, (as amended), and section 50(1)(a)(iv) of the Roads Act, 1993, (as amended). Each section of the Proposed Development as well as the overall Proposed Development (i.e. all three sections together) exceeds the minimum criteria for a prescribed type of proposed road development as set out in Regulation 8 and therefore an EIA is mandatory. Specific characteristics are summarised below:

- Section 1 Ballybofey/ Stranorlar includes a mainline section of dual carriageway, which is four lanes wide and is approximately 9.7 km in length. Section 1 also includes the construction of a new bridge over the River Finn approximately 360 m in length.
- Section 2 Letterkenny/ Manorcunningham includes a mainline section of dual carriageway which is four lanes wide as well as a mainline section of realigned and improved dual carriageway which is four lanes wide over a total length of approximately 8.8 km in length. Section 2 also includes the construction of a new bridge over the River Swilly approximately 234 m in length.
- Section 3 Manorcunningham to Lifford includes a mainline section of dual carriageway which is four lanes wide and is approximately 17.5 km in length. Section 3 also includes the construction of a new bridge over the River Finn approximately 260 m in length.
- All three Sections include the construction of a new road of four or more lanes and/or the realignment or widening of an existing road so as to provide four or more lanes, where such new, realigned or widened road would be greater than 8 km in length in a rural area and/ or 500 m in length in an urban area.
- All three Sections include the construction of a new bridge, each over 100 m in length.

As a prescribed road development type as described in Section 50 of the Roads Act, 1993, (as amended) the carrying out of an EIA is mandatory and requires the submission of this EIAR.

As stated in Article 3(1) of the Directive 2011/92/EU as amended by Directive 2014/52/EU (the "EIA Directive"), the EIA must consider both the direct and indirect significant effects on the following factors: population and human health, biodiversity, with particular attention to species and habitats protected under Directive 92/43/EEC and Directive 2009/147/EC, land, soil, water, air and climate, material assets, cultural heritage and the landscape, and the interaction between these factors.

## 2 BACKGROUND & NEED FOR THE PROPOSED DEVELOPMENT

Chapter 2 of this EIAR presents the background and need for the Proposed Development.

Geographical and political boundaries make Co. Donegal one of the most disconnected and peripheral regions, not only in Ireland but in Europe. Donegal and the North-West lack basic infrastructural connectivity to and within the North-West region. This includes cross-border and international connectivity between Donegal and the rest of Ireland, Northern Ireland and Europe. As a result, core economic drivers are critically affected, including the ability of the North-West to attract adequate or equivalent levels of inward investment, jobs and talent relative to the rest of Ireland. This lack of transport connectivity also adversely affects the performance of Donegal's existing core economic drivers namely tourism, farming, fishing and renewable energy industries, all of which rely heavily on reliable and effective accessibility for both passengers and freight.

Donegal is solely reliant on road transport for all journeys to key regional centres and city regions including Derry, Galway, Belfast and Dublin as well as to all international transport hubs across the island of Ireland.

Donegal's lack of connectivity stems from poor or non-existent infrastructure and infrastructure connection across all modes. County Donegal is connected to the rest of the island of Ireland via its national primary road network, the N13, N14, and N15. While some sections have been improved, significant legacy sections of the national road network in Donegal are recognised to be in a poor condition and of low standard and capacity, causing significant congestion.

Core problems of the existing infrastructure are provided include:

- Higher than average national accident statistics
- Non-standard cross-sections
- Frequent private accesses
- Sub-standard alignments
- Above average at grade and substandard junctions
- Congestion resulting in an increase in GHG and air pollution emissions
- Poor network resilience
- Below desirable average road speed

Consequently, the deficiencies along the core transport network have led to the following issues:

- Poor Safety Performance
- Town Centre Congestion
- Unreliable, Inefficient Public Transport Service
- Poor Network Resilience
- Inefficient Movement of Goods and Freight
- Environmental and Health Needs
- Lack of Modal Shift and Climate Action Options

Central to identifying the need for the Proposed Development is 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 (the "TEN-T Regulation"). The need for the Proposed Development is to deliver on Ireland's commitments under the EU TEN-T Regulation. The Proposed Development forms part of the TEN-T comprehensive network as set out in the TEN-T Regulation.

Evolving national policy has identified further national needs which this Proposed Development will seek to address. The Proposed Development is included in the Government's 'Business as usual' modelling that has been carried out to inform successive Climate Action Plans and within established sectoral carbon baseline and targets. As such the Proposed Development's carbon footprint is included in all carbon target and

forecast models under national Climate Actions. Furthermore, there is a need for this Proposed Development to assist in addressing decarbonisation in the transport sector through improving areas including:

- The current poor level of modal shift opportunities
- Minimal low carbon alternate fuels provision
- Inefficient and ineffective public transport system

In summary, the Proposed Development is required to:

1. Meet the targets set in the EU TEN-T Regulation for the comprehensive network.
2. Set the foundation for a fair transition to a lower carbon transport network.
3. 'Level up' on decades of underinvestment and disparity nationally to transform the North-West Region.
4. Provide the basic core and multimodal transport improvements essential to overcome regional imbalance and economic challenges, including those arising from the UK leaving the EU.
5. Support for the growth potential of Ballybofey/ Stranorlar, Letterkenny, the North-West City Region (Letterkenny-Derry-Strabane) and the all-island economy as envisaged under the National Planning Framework First Revision (2025).

### 3 PLANNING & POLICY CONTEXT

The Proposed Development consists of the improvement of sections of three national primary roads: N13, N14 and N15, which are prioritised to address current operational and safety issues and to provide substantial active travel and transport hubs. In addition, the Proposed Development includes the strategic N56 national secondary link into Letterkenny which is prioritised for improvement to address current capacity and operational issues. The works proposed comprise improvements to the overall road transport infrastructure of several towns within the county and in the Northern and Western Region.

#### 3.1 International Policy Context

The United Nations (UN) published 17 UN Sustainable Development Goals (SDGs) in 2015 (see Figure 3-1). These SDGs were established to help ensure sustainability is integrated into policymaking on a national and international level. The SDGs were formed in recognition that *“ending poverty and other deprivations must go hand-in-hand with strategies that improve health and education, reduce inequality, and spur economic growth, all while tackling climate change and working to preserve our oceans and forests”*. (United Nations, 2015).



Figure 3-1: UN Sustainability Development Goals

SDG 9 (Industry, Innovation and Infrastructure) and SDG 11 (Sustainable Cities and Communities) are particularly relevant to the Proposed Development.

The Proposed Development includes extensive sections of new Active Travel network (e.g. 63 km of walking and cycling) together with eight multi-modal hubs (park and share/cycle facilities) at strategic locations and at the edge of existing towns. Investment in improvements on the TEN-T comprehensive network as envisaged under the Irish Government’s National Development Plan (NDP) will deliver new transport infrastructure including Active Travel network and will also promote sustainable development in the Region in accordance with SDG 9. This Proposed Development will also provide access to safe, affordable, accessible and sustainable transport systems for all, improving road safety helping to achieve SDG 11.

## 3.2 European Policy Context

### 3.2.1 Trans-European Transport Network Regulations

The Proposed Development comprises part of the TEN-T comprehensive network in Ireland. The Proposed Development targets approximately 33 km of the poorest legacy sections of the 120 km of the TEN-T comprehensive network in County Donegal.

In circumstances where the Proposed Development will improve key sections of the EU TEN-T comprehensive road network in a peripheral region in Ireland, the Proposed Development is of strategic importance in a European context, and will perform a key role in alleviating congestion, enhancing regional connectivity, providing active travel and sustainable transport options, reducing greenhouse gas emissions and building economic cohesion.

### 3.2.2 Alternative Fuel Infrastructure Regulation Article 3

Article 3 of EU Alternative Fuel Infrastructure Regulation [(EU) 2023/1804], also referred to as AFIR, sets targets for recharging infrastructure dedicated to light-duty electric vehicles. The AFIR requires publicly accessible recharging pools dedicated to light-duty electric vehicles be provided with a maximum distance of 60 km between them on the TEN-T comprehensive road network.

The Proposed Development will facilitate EV charging which can be provided at the eight multi-modal hubs proposed at strategic locations on the road network and at the edge of key towns in the county.

### 3.2.3 The European Green Deal

The Proposed Development is aligned with the objectives of the 'European Green Deal', a set of policy initiatives with the overarching aim of making Europe climate neutral by 2050. The Proposed Development is also aligned with associated, relevant EU legislation and strategies are set out below:

- The European Climate Law (2021) which establishes a legal framework for achieving the targets in the European Green Deal and sets a legally binding target of net zero greenhouse gas (GHG) emissions by 2050.
- The Sustainable and Smart Mobility Strategy (2020) that aims to put the EU on the path to creating a sustainable, smart and resilient mobility system and to bring about the fundamental changes needed to achieve the objectives of the Green Deal.
- The 'Fit for 55' package (2021), which revised all relevant policy instruments necessary to achieve the 2030 climate target.
- The New European Urban Mobility Framework (2021) which sets out guidance on how cities can reduce emissions and improve mobility including through sustainable urban mobility plans.

## 3.3 National Policy Context

The Proposed Development contributes to the achievement of meeting the goals of the National Planning Framework First Revision (2025). In particular, the Proposed Development directly enhances regional connectivity (NSO2) and high-quality international connectivity (NSO4) and facilitates the delivery of other NSOs as described below.

The Proposed Development comprises vital improvements to essential transport infrastructure within the Northern and Western Region including national roads on the TEN-T comprehensive network. The Proposed Development therefore aligns with and is necessary to deliver the policy objectives and the NSOs underpinned by those objectives in the Region. Specifically, the Proposed Development will facilitate sustainable compact growth in Letterkenny enabling the town to fulfil its strategic role as an accessible regional centre of scale in the Northern and Western Region and to enhance the cross-border linkages with Derry and Strabane.

The National Development Plan (NDP) sets out the investment priorities that will underpin the successful implementation of the NPF. The investment priorities outlined in the transport sectoral strategies in the revised NDP under NSO2 include the following in county Donegal:

- N15/N13 Ballybofey/ Stranorlar Bypass
- N56/N13 Letterkenny to Manorcunningham
- N14 Manorcunningham to Lifford/ Strabane/ A5

The Proposed Development aligns with the identified challenges in National Investment Framework for Transport in Ireland (NIFTI) 2021 and aligns with the four investment priorities, particularly the priority to enhance regional and rural connectivity. The objectives of the Proposed Development include measures to promote sustainable mobility change through the hubs and with the inclusion of substantial active travel infrastructure, enabling improvements to public transport services by addressing congestion in urban areas, which support a shift to more sustainable modes contributing to decarbonisation.

The Proposed Development comprises of three sections relating to specific parts of the TEN-T comprehensive network in the county, each of which is identified in successive NDPs as strategic transport infrastructure necessary to deliver the National Strategic Outcomes in the NPF. The Proposed Development has been included within the 'Business as Usual' modelling that was carried out to inform successive Climate Action Plans and within established sectoral carbon baseline and targets. As such the carbon footprint of this Proposed Development is factored into existing national decarbonisation targets within successive CAPs.

This Proposed Development is critical infrastructure necessary to deliver on national strategic transport infrastructure and land use planning goals in respect of connectivity and balanced regional development. County Donegal is in a peripheral location with no rail connection to the rest of the country. Detailed assessment of options and alternatives have concluded that a targeted road-based transport solution is required to address some of the worst legacy sections of the national road network and to re-purpose road space within these towns to provide for sustainable transport modes.

The improvements to the comprehensive network align with EU TEN-T transport policy and provide enhanced regional connectivity. The Proposed Development includes multi-modal hubs, extensive new segregated pedestrian and cyclist infrastructure and facilitates improved public transport services and enables EV charging, all elements that enhance climate / sustainable measures directly within the scheme or facilitated by the scheme. The Proposed Development is reasonable and is considered viable under NIFTI.

The Proposed Development has been designed and refined to maximise its operating and construction carbon efficiency, climate adaptability as well as to facilitate and enable further significant climate actions.

The Proposed Development delivers on the Road Safety Strategy 2021 to 2024 under applicable Safe System Priority Intervention Areas and relevant actions, namely safe roads and roadsides and safe and healthy modes of travel.

The Proposed Development is aligned with the objectives of the National Adaptation Framework: Planning for a Climate Resilient Ireland 2024 in seeking to reduce the vulnerability of key transport infrastructure to the negative impacts of climate change and the potential impacts identified in the transport SAP (NAF 2024 Appendix 3).

Other national policies that are aligned to the Proposed Development include:

- National Sustainable Mobility Policy
- Our Rural Future Rural Development Policy 2021-2025
- National Marine Planning Framework
- Ireland's 4th National Biodiversity Action Plan 2023–2030
- TII Biodiversity Plan

### 3.4 Regional Policy Context

The principal regional policy that underpins the implementation of the TEN-T policies in Ireland is the Northern and Western Regional Assembly RSES 2020-2032.

The RSES highlights the potential of the Atlantic Economic Corridor (AEC) to create an economic corridor along the western seaboard to grow the region, to improve connectivity to and within the region and to strengthen the economy of the region. The RSES recognises TEN-T projects as being critical enabling infrastructure and the TEN-T network is embedded in the principles and objectives for place-making across the northwest area and the Letterkenny regional centre.

The RSES lists the Proposed Development to be constructed within the lifetime of the RSES, specifically:

- N15<sup>1</sup> Ballybofey/ Stranorlar Bypass
- N13/ N14/ N56 Letterkenny bypass and dual carriageway to Manorcunningham
- N14 Manorcunningham to Lifford

### 3.5 Local Policy Context

The Proposed Development is within the functional area of Donegal County Council. The principal local planning policies which underpin the assessment of this Application for Approval are contained within the following development plans and programmes:

- County Donegal Development Plan 2024-2030, as varied
- Ballybofey / Stranorlar Area Plan 2024-2030
- Draft Donegal Local Economic and Community Plan 2023-2029
- Donegal County Council Climate Action Plan 2024-2029
- Letterkenny Plan and Local Transport Plan 2023-2029

The Proposed Development aligns with and helps deliver the following transport objectives of the County Donegal Development Plan (CDDP) 2024-2030, as varied: T-O-1, T-O-2, T-O-3, T-O-5, T-O-10, T-O-11, T-O-12, T-13, T-O-14 and T-O-15 and transport policies T-P-3, T-P-5, T-P-8, T-P-9, T-P-10 and T-P-11. Objective T-O-11 and policies T-P-10 and T-P-11 relate specifically to the proposed priority improvements to the TEN-T network.

The Ballybofey / Stranorlar Area Plan is in Part B of the CDDP 2024-2030 (Chapter 19). Policy BS-T-P-1 is the policy support for the Proposed Development in Ballybofey/ Stranorlar underpinned by Objective BS-T-O-1, which prioritises the Proposed Development over all other provisions in the Area Plan.

The Proposed Development aligns with the high-level goals (HLG) of the Draft Donegal Local Economic and Community Plan 2023-2029, specifically HLG5.

In relation to the Donegal County Council Climate Action Plan, the Proposed Development will reduce congestion within Ballybofey/ Stranorlar, Letterkenny and Lifford, through the removal of bottlenecks on the national road network. This will increase the efficiency of the transport network, which together with the provision of extensive new pedestrian and cycling facilities and multi-modal hubs, fully aligns with transport objectives TR 2 and TR 3.

The Proposed Development aligns with Policy LTP-T-P-1 and Objective LTP-T-O-1 and will help deliver the overall goals and ambitions of the Letterkenny Plan and Local Transport Plan. The Proposed Development also includes extensive active travel infrastructure and therefore complies fully with the active travel policies and objectives of the Letterkenny Local Transport Plan: LTP-AT-O-1, LTP-AT-O-3, and LTP-AT-O-4.

<sup>1</sup> RPO 6.7 in the RSES (p.220) states "N13 Ballybofey/ Stranorlar Bypass" but this should be the "N15".

## 4 PROJECT DESCRIPTION

### 4.1 Overview

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 are fully assessed.

The N13, N14 and part of the N15 national primary roads form part of the comprehensive 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.

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 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.

The Proposed Development consists of the following sections of road network in Donegal:

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

### 4.2 Design

The Proposed Development is designed to comply with TII design standards for national roads. Works associated with the Proposed Development include:

- Approximately 4.4 km of mainline Type 1 dual carriageway
- Approximately 30.9 km of mainline (incl. Bonagee link) Type 2 divided road
- Approximately 3.1 km of mainline N15 Primary Road Connector Type 3 divided road
- Approximately 1.8 km of realigned single carriageway national road
- Approximately 40.3 km of single carriageway non-national road

- Approximately 63 km of shared pedestrian / cycle active travel facilities
- 7 major river bridge crossings including the Finn (Ballybofey), Backlees, Cloghroe, Swilly, Swilly Burn, Deelee and Finn (Lifford)
- 7 grade-separated junctions
- 10 at-grade roundabout junctions
- 17 road overbridges
- 16 road underbridges
- 3 active travel bridges
- 8 modal shift hubs (park and share / cycle facility)
- Approximately 3,727m of Noise barriers
- 12 road signage gantries
- 12 pedestrian and accommodation underpasses
- 9 retaining walls
- 110 drainage culverts (>2m span)
- Utility diversions including diversion and alteration of existing ESB 110kv overhead lines
- Drainage system, including attenuated outfalls; and
- Landscaping and environmental mitigation measures; together with all ancillary and consequential works.

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 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.

Access roads shall be provided to allow access to lands severed by the Proposed Development. They also serve properties where existing access is affected.

The Proposed Development has also been designed to achieve no net loss in biodiversity to align with Policy BIO-P-3 of the County Donegal Development Plan 2024-2030, as varied.

### 4.3 Programme

If the three sections of the Proposed Development are constructed at the same time, this will require a 60-month construction period (five years). However, a phased construction approach may also be taken. In such circumstances, each section of the Proposed Development is estimated to take 36 months to construct (3 years each). These decisions are dependent on the detailed design process and budgetary approval that may be required after any approval as may be granted by An Coimisiún Pleanála (ACP) for the Proposed Development.

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.

### 4.4 Advance/ Enabling Works

Prior to procurement of the construction contract, there may be advance/ enabling works undertaken for:

- Confirmatory ground investigation
- Archaeological investigations
- Invasive Alien Plant Species (IAPS) treatment and management
- Utilities diversions.
- Fencing and site clearance
- Pre-commencement structural/ condition surveys

## 4.5 Construction

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 associated outbuildings, 4 No. disused houses, 17 No. non-residential properties (including commercial buildings, agricultural buildings, outbuildings, and disused buildings), and 1 pump house 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.

Demolition works will be required for the following types of structures directly impacted by the Proposed Development: domestic residential properties, farm buildings, commercial buildings, existing road infrastructure at tie-in locations.

Traffic management during construction will be undertaken in accordance with the Construction Traffic Management Plan (CTMP). 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.

At the commencement of construction, site clearance works will be undertaken for vegetation within the lands required for construction.

Earthworks will involve the removal of topsoil, subsoil and rock from within the footprint of the Proposed Development. Where excavated material is to be temporarily stored it will be placed in material stockpiles that will be managed in accordance with the relevant guidelines and standards. All suitable and acceptable material will be re-used within the boundary of the Proposed Development.

Six construction compound locations have been identified, two in each of the three sections.

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.

A summary of the construction works of each section of the Proposed Development is provided below.

## 4.6 Section 1

The Section 1 route corridor is approximately 9.7 km long and runs from south to north and to the west of Ballybofey/ Stranorlar, see Figure 4-1. This includes:

- 1.1 km of Type 1 Single Carriageway.
- 8.6 km of Type 2 Divided Road.
- 2.1 km Type 2 Single Carriageway, the Ballybofey Link Road North/ South.
- 3.1 km of Type 3 Divided Road, N15 Primary Road Connector.
- 10.6 km of additional Type 1, Type 2 and Type 3 Single Carriageway roads are also included as part of Section 1.

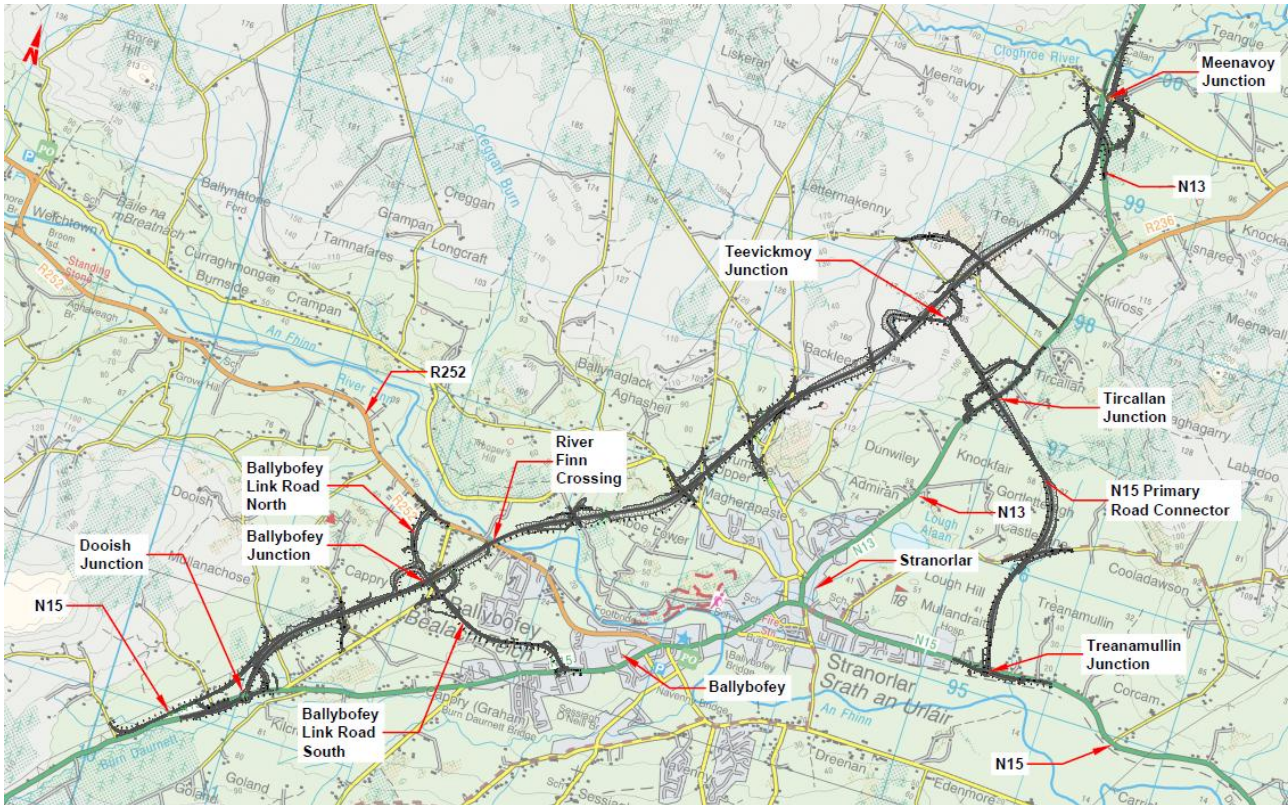
Section 1 includes six junction locations at the following locations:

- Three grade-separated junctions at Cappry, Teevickmoy and Tircallan.
- Three at-grade roundabout junctions at Dooish, Treanmullin and Meenavoy.

The following structures are proposed:

- 360 m long, seven span bridge over the River Finn and flood plain at Ballybofey/Stranorlar.
- Two river/stream bridges (Cloghroe and Backlees).

- Seven overbridges.
- Five underbridges.
- Three underpasses (including pedestrian / mammal underpass).
- Culverts, gantries and environmental barriers.



**Figure 4-1: Section 1 Proposed Development layout**

The active travel networks throughout Section 1 include approximately 21 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. This includes three park and share / cycle facilities, one each near Dooish, Cappry, and Meenavoy.

Flood compensatory storage areas are proposed for the following areas within Section 1: at the Burn Durnett River at proposed tie-in to existing N15 south of Ballybofey from Mainline Section 1.1; at the Cloghroe River adjacent to the tie-in to existing N13 north of Stranorlar from Mainline Section 1.3; and at the Mullaghagarry River Crossing adjacent to the tie-in to existing N15 east of Stranorlar from the N15 Primary Road Connector.

At several locations, the existing natural flow paths of streams are proposed to be altered slightly to suitably align the proposed culvert crossings with the road alignment. These are relatively minor diversions in all but one case required to accommodate the proposed Cloghroe River Bridge (Mainline Section 1.3 at Chainage Ch00+300 m).

Drainage is provided across the Proposed Development and the drainage network includes sections of sealed drainage, 39 culverts, 22 attenuation ponds and 1 infiltration basin. The attenuation ponds will all be of a hybrid wetland design. Pre-earthworks drainage will be installed to divert surface water away from the works areas.

Section 1 requires approximately 218 hectares of land to be permanently acquired, and a further approximate 4 hectares of land to be temporarily acquired, to construct the Proposed Development and associated works.

Approximately 2.70 million m<sup>3</sup> of excavated material will be generated with approximately 2.06 million m<sup>3</sup> considered as suitable construction material. Within the footprint of the Proposed Development 15 material extraction and deposition areas (MED) have been identified. Any deficits in earthworks materials will be filled with material sourced from the MED areas. Any surplus earthworks material will be reused as non-structural fill within the Proposed Development boundary or deposited within MED areas.

The construction of Section 1 will require the demolition of 14 no. dwelling houses, and 6 no. commercial/ outbuilding/ other building types.

Two construction compounds within the development boundary will be operational during the construction of Section 1, one each in the townlands of Cappry and Treanamullin.

Section 1 includes works to utilities, including ESB network, Uisce Eireann services (water and wastewater) and telecommunications cables.

## 4.7 Section 2

Section 2 is located to the south and east of Letterkenny and comprises of three distinct arms consisting of approximately 9.1 km of mainline road (see Figure 4-2), this includes:

- 0.3 km of Type 1 Single Carriageway.
- 4.2 km of Type 1 Dual Carriageway (realigned and improved).
- 4.5 km of Type 2 Divided Road.
- 12.1 km of additional Type 1, Type 2 and Type 3 Single Carriageway roads, Urban Relief roads and access roads are also included as part of Section 2.

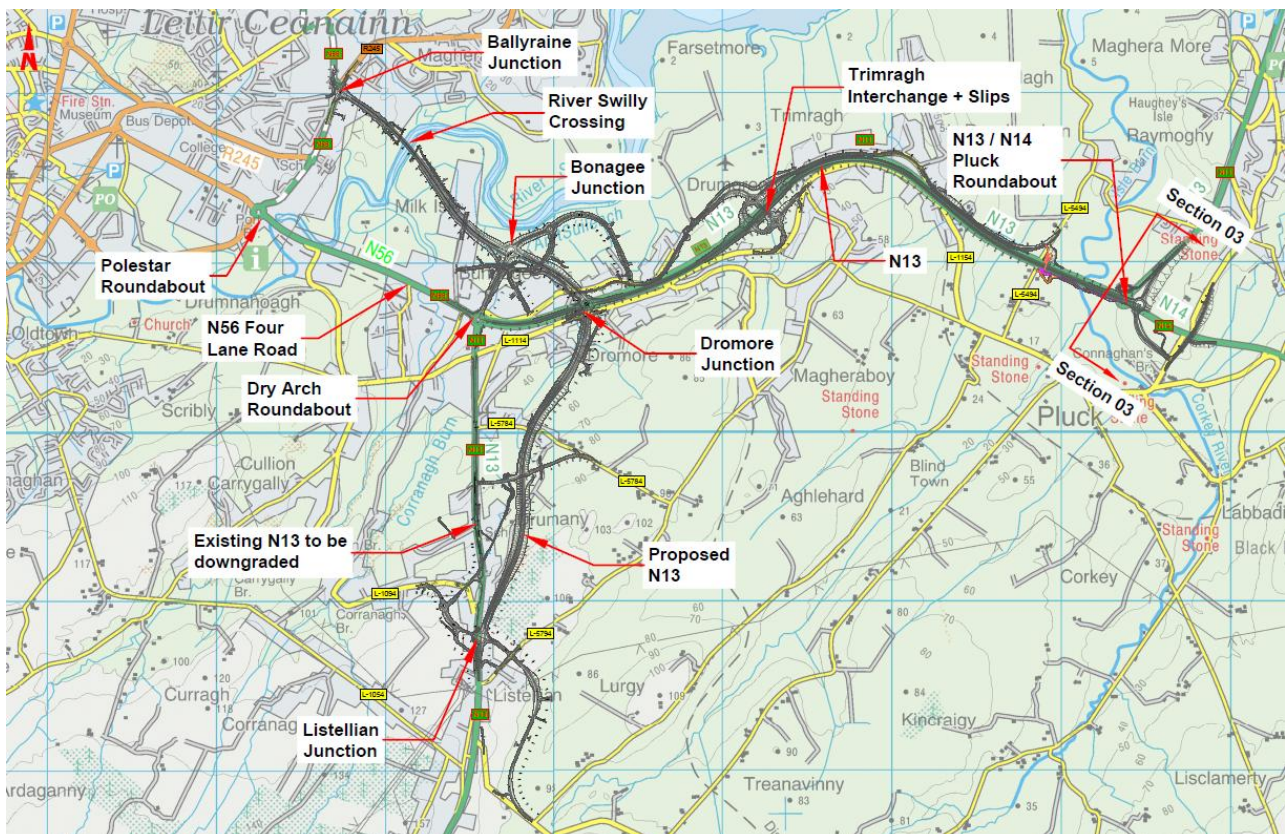


Figure 4-2: Section 2 Proposed Development layout

Section 2 includes six junction locations at the following locations:

- One grade-separated junction at Trimragh this includes an overbridge structure, two roundabouts, slip roads and connections to realigned local roads.
- Five at-grade roundabout junctions at Listellian, Dromore, Dry Arch, Bonagee, and Ballyraine including tie-ins to existing approach roads.

The following structures are proposed:

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

The active travel networks included throughout Section 2 include approximately 16 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 a park and share / cycle facility adjacent to the Dry Arch Roundabout.

Flood compensatory storage areas are proposed to the north of the proposed Bonagee Junction Roundabout. The flood compensation areas effectively mitigate the impacts of the proposed route alignment on flood impact locally.

At several locations, the existing natural flow paths of streams are proposed to be altered slightly to suitably align the proposed culvert crossings with the road alignment. These are relatively minor diversions in all but one case: Farsetmore stream in relation to installation of 3 no. culverts (S2-CUL.30, S2-CUL.31, S2-CUL.32) and a realignment upstream of the existing N13 culvert.

Drainage is provided across the Proposed Development and the drainage network includes sections of sealed drainage, 37 culverts, and 12 attenuation ponds. The attenuation ponds will all be of a hybrid wetland design. Pre-earthworks drainage will be installed to divert surface water away from the works areas.

Section 2 requires approximately 165 hectares of land to be permanently acquired, and a further approximate 3.5 hectares of land to be temporarily acquired, to construct the Proposed Development and associated works.

Approximately 1.91 million m<sup>3</sup> of excavated material will be generated with approximately 1.53 million m<sup>3</sup> considered as suitable construction material. Within the footprint of the Proposed Development, 21 no. material extraction and deposition areas (MED) have been identified. Any deficits in earthworks materials will be filled with material sourced from the MED areas. Any surplus earthworks material will be reused as non-structural fill within the Proposed Development boundary or deposited within MED areas.

The construction of Section 2 will require the demolition of 8 no. dwelling houses, and 8 no. commercial/ outbuilding/ other building types.

Two construction compounds within the development boundary will be operational during the construction of Section 2, one each in the townlands of Lurgy and Bonagee Junction.

Section 2 includes works to utilities, including ESB network, Uisce Eireann services (water and wastewater) and telecommunications cables.

## 4.8 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. The following roads are proposed as part of Section 3 (see Figure 4-3):

- 0.3 km of Type 1 Dual Carriageway from the proposed N13/N14 Pluck Roundabout to the interface with Section 2.
- 17.5 km of Type 2 Divided Road extending from the proposed N13/N14 Pluck Roundabout to the N15 at Lifford.
- 0.3 km of Type 2 Divided Road, the N14/N15 to A5 Link (Lifford Junction to the border with Northern Ireland in the River Finn).
- 16.0 km of Type 1, Type 2 and Type 3 Single Carriageway roads being realigned as part of the Proposed Development.

Five junction locations have been identified for Section 3, at the following locations:

- Three grade-separated junction at Drumoghill, R236 Ballinalecky and Ballindrait.
- Two at-grade roundabout junctions at N13/N14 Pluck and N14/N15 Lifford.

The following structures are proposed:

- 287 m long, clear-span bridge over the River Finn at the proposed N14/N15 to A5 Link, south of Lifford.
- Two river bridges
- Seven road overbridges
- Eight road underbridges
- Two active travel underpasses
- Four accommodation underpasses
- One active travel overbridge
- One bat house in the vicinity of Ballindrait
- One deer / mammal underpass
- Various culverts, gantries, and environmental noise barriers

The active travel networks throughout Section 3 include approximately 26 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 in the vicinity of N13/N14 Pluck Roundabout, R236 Ballinalecky Junction, Ballindrait Junction and N14/N15 Lifford junction.

There are no flood compensatory storage areas within Section 3.

At several locations, the existing natural flow paths of streams are proposed to be altered slightly to suitably align the proposed culvert crossings with the road alignment. These are relatively minor diversions in all but one case: Swilly Burn tributary (EPA name Drumbeg, Site W3-12) at Tullyrap will require an extensive realignment over a total length of approx. 1 km (Ch.9+200 to 10+200).

Drainage is provided across the Proposed Development and the drainage network includes sections of sealed drainage, 34 culverts, and 24 attenuation ponds. The attenuation ponds will all be of a hybrid wetland design. Pre-earthworks drainage will be installed to divert surface water away from the works areas.

Section 3 requires approximately 305 hectares of land to be permanently acquired, and a further approximate 1 hectare of land to be temporarily acquired, to construct the Proposed Development and associated works.

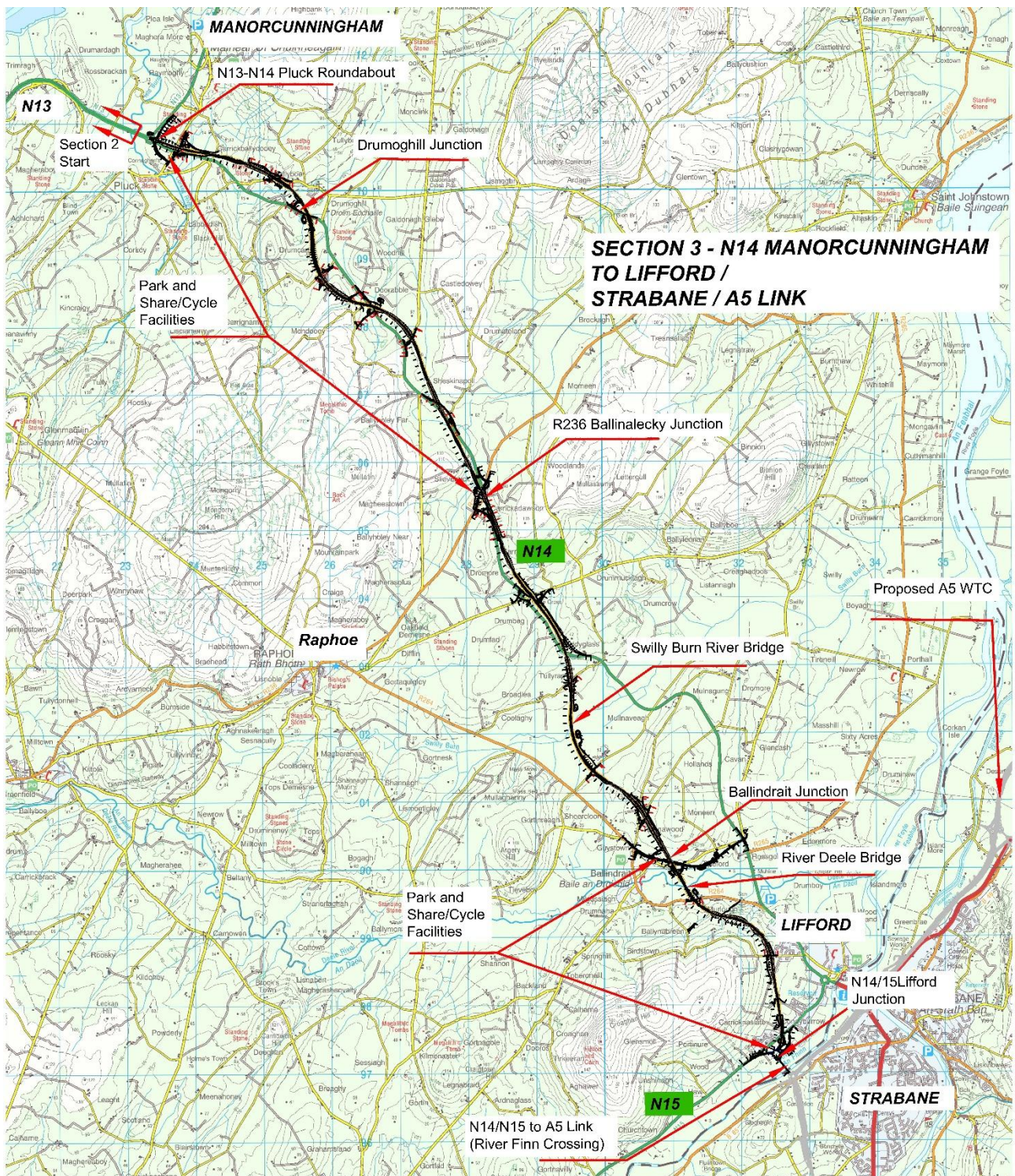


Figure 4-3: Section 3 Proposed Development Layout

Approximately 3.35 million m<sup>3</sup> of excavated material will be generated with approximately 2.83 million m<sup>3</sup> considered as suitable construction material. Within the footprint of the Proposed Development, 9 no. material extraction and deposition areas (MED) have been identified. Any deficits in earthworks materials will be filled with material sourced from the MED areas. Any surplus earthworks material will be reused as non-structural fill within the Proposed Development boundary or deposited within MED areas.

The construction of Section 3 will require the demolition of 8 no. dwelling houses (including disused), and 3 no. commercial/ outbuilding/ other building types.

Two construction compounds within the development boundary will be operational during the construction of Section 3, one each in the townlands of Pluck and Ballinalecky.

Section 3 includes works to utilities, including ESB network, Uisce Eireann services (water and wastewater) and telecommunications cables.

## 4.9 Operation

Operation and maintenance activities will be required for:

- Structures including inspection and maintenance, bridge deck surfacing repairs, bridge bearings and movement joints.
- Drainage networks, including inspection and maintenance of grassed surface water channels, filter drains, petrol oil interceptors, attenuation ponds and wetlands.
- Pavement surfaces including inspection and maintenance, repairs and full re-surfacing.
- Landscape planting to ensure screening measures provide the minimum level of screening as set out in the EIAR and that the post-construction habitats meet the requirements to achieve no net loss of biodiversity.

## 5 ASSESSMENT OF ALTERNATIVES

Chapter 5: Assessment of Reasonable Alternatives provides information on the design development process and how environmental information was taken into consideration in the design of the Proposed Development.

The identification and assessment of alternatives was a phased and iterative process over an extended period, starting in 2014 and continuing through to the end of Phase 3 Design and Environmental Evaluation and publication of the EIAR.

The stages in assessment of reasonable alternatives were:

### **Identify feasible alternatives to deliver on established needs and objectives, circa 2014 to 2017 (Phase 0/1):**

After determining the core needs, aims and objectives, feasible and reasonable options to deliver on these objectives were considered. This included non-transport and transport options as well as other modes and combined solutions. This assessment concludes that a transport road-based solution is the only reasonable way to achieve the Proposed Development objectives, in particular improving connectivity from the North-West Region to the rest of the island of Ireland, including Northern Ireland and meeting the requirements of 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 (the “TEN-T Regulation”). Subsequently, a targeted road-based solution was identified as the only feasible and reasonable solution / alternative that can deliver on the needs and objectives of the Proposed Development. This stage also identified the priority targeted locations for intervention on the TEN-T network.

### **Assessment of Constraints and Feasible Route Options Assessments, circa 2017 to 2019 (Phase 2):**

This was a phased process first identifying the Constraints Area for each location and then assessing feasible route corridor options within that area. These route corridors are basic 200m wide corridors centred on a basic horizontal and vertical road design alignment. Assessment of these corridor options was carried out in two stages, in accordance with the TII PMG and PAG, and was fully consistent with EIA requirements. Each reasonable alternative studied/considered was compared against each other in accordance with the provisions of Article 5(1)(d) and Annex IV of Directive 2011/92/EU (as amended by Directive 2014/52/EU) (the “EIA Directive”), and the Commission’s 2017 Guidance on the Preparation of the Environmental Impact Assessment Report.

Multi Criteria Analysis (MCA) was used during the assessment process for the Proposed Development in accordance with TII and Department of Transport (DoT) guidance. In particular, the DoT Common Appraisal Framework (CAF) was used during Phase 2 as it was the appraisal process current at that time (2019).

The output from this stage was the identification of the Preferred Corridor from the route options considered. This stage included more detailed surveys and assessments and determined overall road cross section type(s), preliminary alignment designs and further consideration of environmental mitigation and impact avoidance.

The information presented in Chapter 5: Assessment of Reasonable Alternatives summarises the information published in the TEN-T PRIPD Options Selection Report (December 2019) which details the Phase 2 assessments. The full report including all supporting drawings and appendices is available at the following link: <https://www.donegal-ten-t.ie/pages/documentsdownloads/phase-2.php>.

### **Assessment of Proposed Development Design Alternatives, circa 2019 to 2025 (Phase 3):**

As the design of the Proposed Development progressed in Phase 3, design decisions on elements including particularly climate action enhancements and green options were considered and introduced across design and construction alternatives. These included but are not restricted to multimodal provision, enabling and linking infrastructure, active travel, park and share, drainage, structure options, compounds, waste and material management. All involved individual assessments of alternative design and construction options. Environmental assessment of such options was carried out in accordance with the EIA Directive.

## 5.1 Non-road and Demand-Management Alternatives

Alternative non-road based and demand-management options to achieve the Proposed Development objectives were considered including:

- Improved broadband
- Staggering working times and localised improvements
- Alternative forms of transport including air, sea and rail
- Improved public transport and alternative modes

None of these options alone can achieve the Proposed Development objectives.

A MCA was undertaken for each Common Appraisal Framework (CAF) criterion in relation to the interventions considered the most appropriate for the Proposed Development, namely: demand management, active modes, bus, rail, road, and a hybrid solution of road/ bus/ active travel.

From the assessments carried out, a road-based transport solution is deemed to be the most appropriate solution to achieve the project objectives, particularly in relation to meeting the requirements of the TEN-T Regulations.

## 5.2 Road-based Alternative Options for the Proposed Development

The alternative solutions considered follow the TII guidance relating to the selection of options. These three scenarios considered were:

- Do Nothing Alternatives: the existing environment with no improvements.
- Do Minimum Alternatives: interventions on the existing network and adjacent committed schemes.
- Do Something Alternatives: road-based interventions.

## 5.3 Do Nothing

Do-Nothing will not offer the transition to a lower carbon transport network through new or improved climate action initiatives and sustainable transport alternatives. Do-Nothing does not deliver on the needs and objectives of the Proposed Development, including but not restricted to, TEN-T Comprehensive network standards, National Road Safety Strategy for divided roads and Government targets for improved average speeds on national roads. For all these reasons a Do-Nothing option is not a reasonable alternative for the Proposed Development.

## 5.4 Do Minimum

Do-Minimum alternatives considered localised and online improvements coupled with demand management initiatives. Restricting classes of vehicles and/or reallocation of road space is not feasible where the road is fundamentally substandard and where alternate routes are unavailable. Without full alternate modes or alternate routes, the objective of the TEN-T Regulation to 'establish a single multimodal Union wide transport network of high quality' is also not achievable. The Proposed Development is a targeted minimal intervention focusing on the most deficient sections of the TEN-T network in Donegal. It focuses on the poorest standard sections as well as on urban bypass and high collision locations and includes some online improvements. However, more general online improvements are not reasonable due to the very poor quality of the existing network in places as well as a legacy proliferation of accesses on to the existing national road network. Alternate modes and other demand management tools cannot resolve the core capacity, regional connectivity and safety issues on the existing TEN-T network as set out in TEN-T Regulations and in national, regional and local policies and objectives.

## 5.5 Do Something

Following on from the determination that a road-based solution was required, further assessment of modal and intervention alternatives were considered, with the need to deliver a whole new transport network for the

entire TEN-T network in Donegal rejected at an early phase with the completion of the TEN-T Donegal Roads Needs Study (2015) which established targeted priority sections.

An analysis of the Proposed Development was undertaken in accordance with the National Investment Framework for Transport in Ireland (NIFTI) 2021. This concluded that a multi-modal hybrid solution comprising road, bus and active travel intervention was the most appropriate to achieve the Proposed Development objectives including supporting modal shift and reducing pressures on the local road network in the long term. All could be delivered around a road-based solution.

As the Proposed Development has progressed, the design process has taken cognisance of evolving and developing policies including appraisal guidance, environmental information, TEN-T Regulations and climate action plans and policies. As such appropriate and beneficial elements of alternatives have been incorporated into the final design of the Proposed Development to best address these new changes and requirements without diminishing the Proposed Development's core aims and objectives.

The Proposed Development is therefore a multimodal solution with significant NIFTI hierarchy consideration and intervention element enhancing its overall climate action credentials,

## 5.6 Route Corridor Alternatives: General Process

A Constraints Study was undertaken at the commencement of Phase 2 and following identification of the three study areas. This enabled various route corridor options to be identified and brought forward for detailed appraisal and consideration. These were supported with consultations with stakeholders including public consultation events.

Modelling was undertaken for the study area to forecast the traffic growth and network demands within the region and to ensure that the Proposed Development meets the requirements of these future traffic demands.

The selection of a preferred option for the Proposed Development followed a three-stage process:

- Stage 1: Preliminary options assessment.
- Stage 2: Appraisal of options.
- Stage 3: Preferred option.

At Stage 1, a long list of 300 m wide corridor options were identified within the Proposed Development study area. The long list of options were then assessed in accordance with TII guidelines under the three criteria: Engineering, Environment and Economy, and a preference was provided for each. A short-list of the preliminary options was then identified and brought forward to Stage 2.

At the beginning of Stage 2, the shortlisted options were further developed to include preliminary designs for link roads, junctions' strategy, tie-in and transitions, etc. Further refinement and improvements were made as the preliminary design progressed to reduce the potential for environmental impacts where feasible. The short-list of options was appraised in line with TII guidelines under the six CAF criteria: Economy, Safety, Environment, Accessibility & Social Inclusion, Integration and Physical Activity. The outcome of each appraisal was both an impact score and a preference ranking for each option.

At Stage 3, the preferred option was recommended to be taken forward to Phase 3 Design and Environmental Evaluation. The preferred option is a 300m wide corridor within which the Proposed Development is to be designed. The preferred option can be modified as required based on design requirements and environmental information that becomes available as the Proposed Development progresses through Phase 3.

## 5.6.1 Section 1

### 5.6.1.1 Mainline

A total of 36 options were identified at Stage 1 for Section 1: N15/N13 Ballybofey-Stranorlar Urban Region. All preliminary options were appraised against the three criteria of Environment, Engineering and Economy. The Stage 1 assessment resulted in six shortlisted option corridors that were brought forward to Stage 2 of the option assessment process. All shortlisted options were to the northwest of the Ballybofey and Stranorlar Urban Area reflective of the considerations to minimise potential impacts on the River Finn Special Area of Conservation (SAC). Following the initial assessment of the six shortlisted options, a further option was identified that is a composite option formed by combining the best sections of the other options.

All seven options were appraised under the six main CAF criteria. This included environmental appraisal in accordance with the EIA Directive requirements. From this appraisal, Option 1G was identified as the emerging preferred option. This option includes the link road from the townland of Teevickmoy to the existing N15 to the north of Stranorlar. The preferred option for Section 1, including the Ballybofey Link Road is shown in Figure 5-1.

### 5.6.1.2 Ballybofey Link Options

During the Stage 2 appraisal of options, a local link for Ballybofey was included equally for each option that provided connectivity from the proposed junction with the mainline of the Proposed Development at Cappry to the existing road network. The preferred Option 1G included this local connection that took the form of a link from the proposed junction, connecting with the R252 in the vicinity of Logues Bridge and connecting to the existing N15 in the vicinity of Woodland Road / Aishling Court.

Following the identification of Option 1G as the preferred option, further detailed consideration was given to the optimisation of the Ballybofey Link to explore if there were alternative, better alignments and junction arrangements for this link. 19 preliminary options (LR1 through LR19) underwent a Stage 1 appraisal. Five options (A to E) were shortlisted for Stage 2 appraisal in accordance with TII and CAF guidance and Option E was identified as the preferred option with the highest cumulative score and the highest number of preferences. The selection of Link Option E for the Ballybofey Link Road did not change the conclusion that Option 1G is the preferred option for the mainline of the Proposed Development, as shown in Figure 5-1.

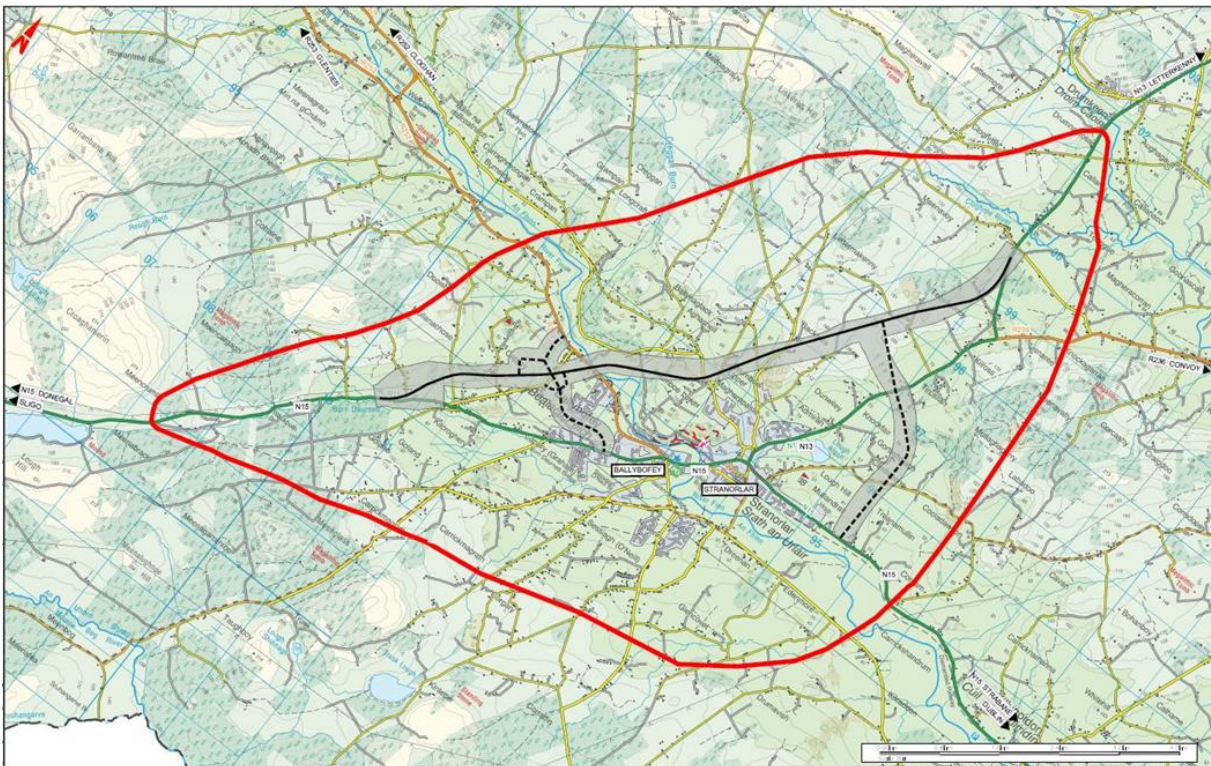


Figure 5-1: Section 1 Preferred Option - Option 1G including Ballybofey Link Option E

### 5.6.2 Section 2

A total of 28 options were identified at Stage 1 for Section 2: N56/N13 Letterkenny to Manorcunningham. All preliminary options were appraised against the three criteria of Environment, Engineering and Economy. Following the appraisal of the preliminary options, ten options remained. Within this group, there were three pairs of options that have similar alignments with only slight variation. Each pair was identified as one option with a variation. Therefore, there were seven shortlisted options, with three of the options having a similar variation of the option, being brought forward to Stage 2 of the option selection process.

All seven options were appraised under the six main CAF criteria. This included environmental appraisal in accordance with the EIA Directive requirements. From this appraisal, Option 2C and 2D scored the same and a pairwise appraisal was undertaken to select a preferred option. From this pairwise appraisal, Option 2D was selected as the preferred option as it performed better in terms of potential impacts on air quality & climate, noise, cultural heritage and non-agricultural material assets.

The preferred option for Section 2 is shown in Figure 5-2.

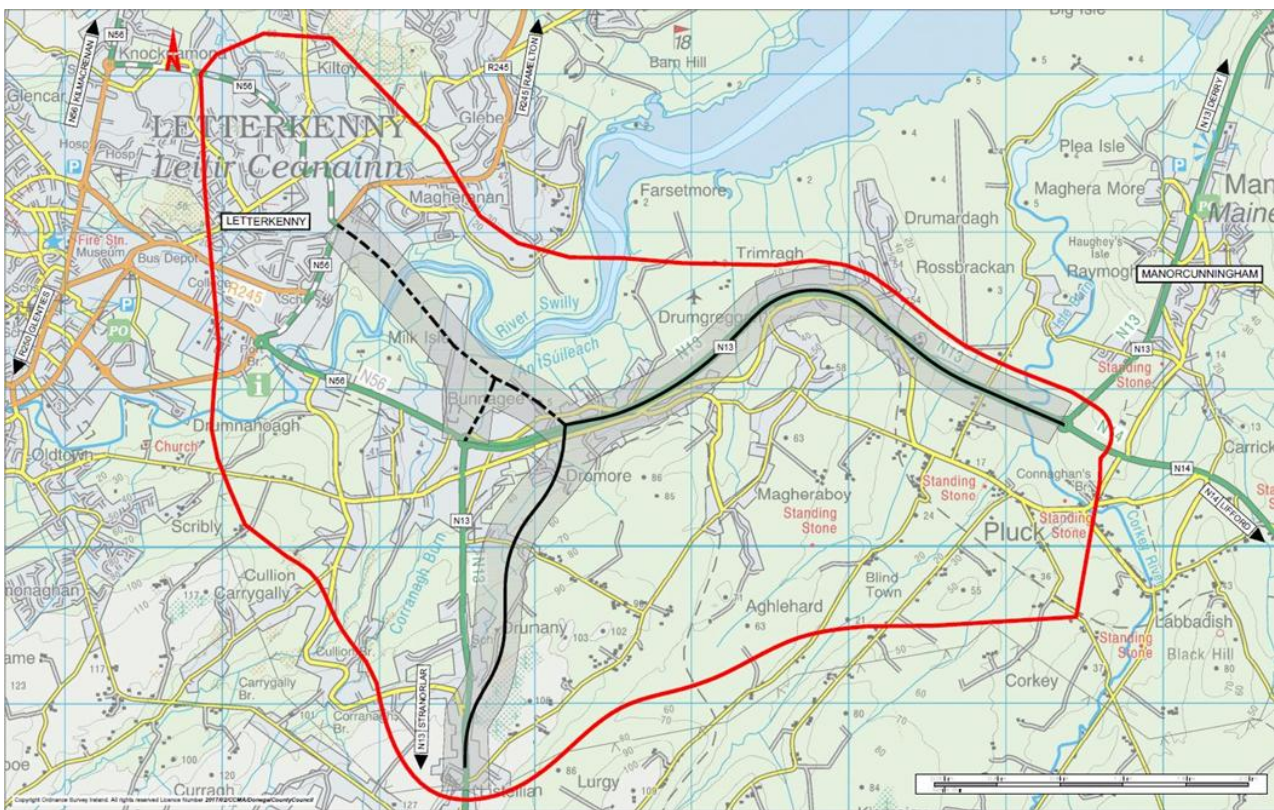


Figure 5-2: Section 2 Preferred Option - Option 2D

### 5.6.3 Section 3

A total of 42 options were identified at Stage 1 for Section 3: N14 Manorcunningham to Lifford / Strabane / A5 Link. All preliminary options were appraised against the three criteria of Environment, Engineering and Economy. Following the appraisal of the preliminary options, nine options remained. Within this group, there were three pairs of options that had similar alignments with only slight variation. Each pair was identified as one option with a variation. Therefore, there were six shortlisted options, with three of the options having a similar variation of the option, being brought forward to Stage 2 of the option selection process.

All six options were appraised under the six main CAF criteria. This included environmental appraisal in accordance with the EIA Directive requirements. From this appraisal, Options 3B2 and 3C2 score best taking all multi criteria analysis into account. As there was not a clear preferred option between Options 3B2 and 3C2, a pairwise comparison was conducted to further compare these two options against each other to identify the preferred option. From this pairwise appraisal, Option 3B2 was identified as the Preferred Option.

The preferred option for Section 3 is shown in Figure 5-3.

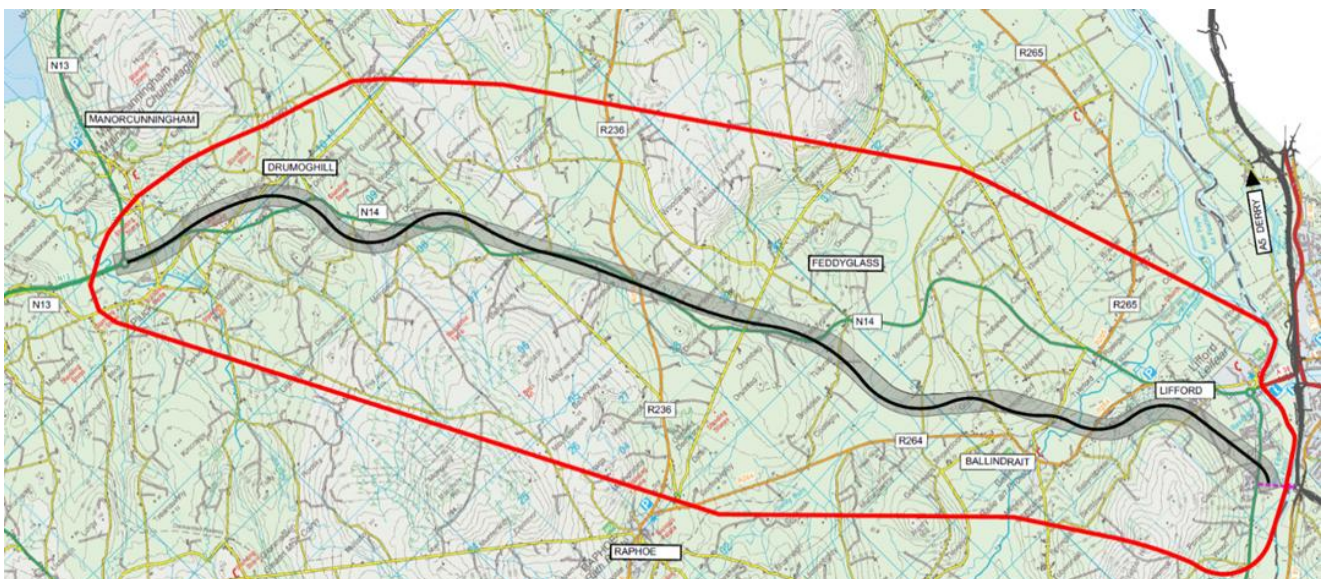


Figure 5-3: Section 3 Preferred Option - Option 3B2

## 5.7 Phase 3 Design Development: All Sections of the Proposed Development

The three preferred options forming the Proposed Development were subsequently taken forward to Phase 3 Design and Environmental Evaluation, in accordance with TII's Project Management Guidelines. In this phase, various alternatives were considered and evaluated from an environmental perspective including:

- Route layout alternatives
- Structures and bridges
- Drainage
- Active travel
- Construction compound locations

The assessment of each of these options resulted in the design of the entire Proposed Development as set out in the General Arrangements shown EIA Drawings 4.01 (Section 1), 4.02 (Section 2) and 4.03 (Section 3). Through the iterative design process and the assessment of reasonable alternatives environmental impacts from the Proposed Development, both during construction and operation, have been avoided, mitigated and/or offset.

## 6 TRAFFIC & TRANSPORTATION

The Traffic and Transportation Assessment Chapter contains the traffic conditions of the Proposed Development area for the Base Year (2017), Opening Year (2032), and Design Year (2047), with the 'Do-Minimum' and 'Do-Something' scenarios. The road network in the Proposed Development area consists of:

- National Roads N14, N13, N15 and N56.
- Regional Road R236, R252 and R264.
- Local roads.

The methodology for the traffic and transportation assessment was as follows:

1. Undertake a baseline review and assessment of the existing traffic situation.
2. Develop a traffic model to calibrate and validate baseline conditions based on observed traffic data.
3. Undertake traffic modelling to assess future year scenarios, with the Proposed Development ("Do Something (DS)") and without the Proposed Development ("Do Minimum (DM)") in place.
4. Evaluate the traffic modelling results, which forecasts the impact of existing and future traffic on the road network in the DM and DS options to inform the economic appraisal.
5. Assess traffic impacts and any subsequent mitigation measures required to remove and/or reduce any identified negative traffic impacts of major significance.

Forecast models for 2032, 2047 and 2062 were developed based on zonal growth factors from TII's National Transport Model (NpTM) applied to the base demand and network changes based on committed schemes (DM & DS models) and Proposed Development scheme (DS only). The forecast models show the Proposed Development reduces the total time spent by vehicles on the network by 6.5%-8.1% during the peak hours (AM and PM) and by 6%-6.7% in the Interpeak across the future years. This results in reduced congestion in Ballybofey, Stranorlar and parts of Letterkenny, leading to better air quality overall and likely reduction in greenhouse gases. Traffic reassigning from existing routes to use the new infrastructure, would result in the following Annual Average Daily Traffic (AADT):

**Section 1:** From the existing N15 and N13 at Ballybofey to the new bypass. The AADT on the new bypass was approximately 10,400 vehicles in 2032 and 11,200 vehicles in 2047, attracting 91% of traffic from the existing route.

**Section 2:** At the four-lane road between Pole Star and Dry Arch, the forecast AADT in 2032 dropped from 39,500 in the Do-Minimum to 22,600 in the Do-Something whilst in 2047, the AADT dropped from 42,000 in the Do-Minimum to 21,900 in the Do-Something. This resulted in a reduction of up to 48% demand as traffic diverted to the new section.

**Section 3:** The proposed new dual carriageway attracted traffic from the existing N14. At the northern end of the new route, the AADT was forecast to be around 8,800 vehicles in 2032 and 11,300 vehicles in 2047, attracting between 70% to 80% of the total demand across the new and existing route.

Sensitivity tests were undertaken in line with TII Project Appraisal Guidelines (PAGs) to assess the potential implications of variations in growth forecasts on the traffic impacts and mitigation requirements. The sensitivity tests undertaken were for Low and High growth scenarios and an additional A5 Western Transport Corridor (A5 WTC) sensitivity. There were no traffic impacts of major significance in any of the sensitivity scenarios tested when compared to the core scenario.

The Proposed Development will provide safety benefits of between €22.3 million (low growth), €22.8 million (central growth) and €24.1 million (high growth) over the 30-year appraisal period. This benefit comes from the reduction in collisions, both in number and in severity, afforded by the Proposed Development. The total

number of collisions is reduced by 574 (low growth), 594 (central growth) and 659 (high growth) across the 30-year appraisal period. The number of fatal collisions is reduced by around 6 in all the scenarios.

The delivery of an attractive segregated active mode provision for both cyclists and pedestrians facilitates a step change in connectivity to education, health, community facilities and local visitor attractions (leisure and tourism). The proposals for a cycleway and pedestrian way are likely to lead to an increase in active travel mode within the Proposed Development area. Assessment of the active mode infrastructure provision show total benefits accrued to users is €37.4 million with the largest impact on reduced mortality comprising €18.2 million.

## 7 POPULATION

This chapter assesses the impact of the Proposed Development on population aspects of the environment. Four topic areas were considered in the assessment of potential effects: Private Property and Housing, Development Land and Businesses, Community Land and Assets, and Non-Motorised Users. Impacts specific to land take from individual residential properties and demolition are addressed under Chapter 16: Material Assets (Non-Agricultural).

### 7.1 Baseline Environment

The study area for all three sections had a population of 34,409 in the 2022 Census, an increase from 30,179 in 2016. It contains the twin towns of Ballybofey-Stranorlar, and parts of Letterkenny, along with Lifford on the border with Northern Ireland. The Proposed Development passes south of the village of Manorcunningham. The small settlements of Drumoghill, Murlog and Ballindrait are located within the scheme area; and some community facilities are contained therein. The rest of the Proposed Development area is more rural with a lower population and population density and a higher proportion of land in agricultural use. A relatively high proportion of journeys are dependent on motorised vehicles / road-based transport, typical of more rural areas. Unemployment rates in the county are higher than nationally.

With respect to tourism, the N56 forms part of the Wild Atlantic Way. There are existing sections of long-distance cycling trails (the North West Trail and the Donegal Cycle Route) with proposals for more as part of a National Cycle Network. There has been some recent greenway development, particularly around Lifford. There are also important amenity facilities within the scheme area, e.g. Dromboe Woods and some accommodation providers for tourists.

The two primary planning policy documents which provide for future land uses are the County Donegal Development Plan (CDDP), and the Letterkenny Plan and Local Transport Plan 2023-2029 (LPLTP). The CDDP provides the strategic planning framework for the statutory approval process for the Proposed Development, including reserving and protecting the preferred route corridors within the plan and strategic policy support (Objective RPO-3.7.30). Zoning objectives for lands within the settlement boundaries of Ballybofey/ Stranorlar (within an Area Plan) and Lifford (within a Development Framework) settlement boundaries are included within the CDDP. Zoning objectives for lands within the settlement boundary of Letterkenny are provided within the LPLTP. Within both plans, zoning objectives provide for the provision of the Proposed Development where relevant.

### 7.2 Impact Assessment and Mitigation Measures

#### 7.2.1 Construction Phase

During construction, **temporary to short-term slight adverse** effects to the amenity of the resident and working population are expected, mainly in areas of major works to construct river crossings, bridges, significant embankments/ cuttings, at compounds and at areas where road closures / alternative routes are required, with moderate short-term adverse effects predicted to properties within 50m of the Proposed Development due to construction dust. Mitigation measures and monitoring proposals are set out in relevant EIAR chapters (regarding air and noise emissions and vibration for example). Temporary traffic management (TTM) measures will be implemented to ensure safe access remains to homes, businesses, amenity areas and facilities during construction and that delays are minimised. A Stakeholder Communication Plan is to be prepared so that the community is aware of construction plans locally. Landscaping will be monitored where reinstatement has occurred to ensure seeding and plants establish.

**Very significant, short-term, positive effects** will arise due to direct and indirect employment generation from the construction phase. **Slight temporary to short-term, adverse effects** will arise due to disruption or perceived access difficulties for a relatively small number of businesses.

Construction stage mitigation includes temporary signage for the Wild Atlantic Way and for facilities such as Lurgybrack Open Farm and hotels / other accommodation providers where access is temporarily altered. Effects will be **temporary, short-term, slight, adverse**. Access to community lands and assets is to remain available during construction. Specific mitigation around the timing of works at St. Patrick's National School

(Section 2) is recommended. With mitigation in place, construction phase residual effects relating to accessibility and general disturbance to community facilities are **slight temporary to short-term adverse**. Disruption to the 'lifeline route' in Letterkenny is expected to be **temporary to short-term, slight-moderate adverse**. The route will remain open and accessible until the new Swilly bridge is operational.

Information is to be communicated clearly regarding temporary changes to routes for Non-Motorised Users (NMUs) and alternative routes are to be in place from the outset of relevant works with temporary routes needing to consider the needs of pedestrians (the mobility impaired) and cyclists. Specific mitigation is recommended for cycle routes such as the North West Trail. Such measures will ensure no significant adverse effects arise to NMUs during the construction stage. Effects will be **temporary-short-term, slight, adverse**.

The Proposed Development will take approximately five years to construct. If works on all three sections are to be carried out at the same time no substantive intensification of effects are anticipated, with construction traffic management and other construction stage mitigation measures in place. The local population receptors will be a significant distance from the impact of works associated with other sections of the Proposed Development.

## 7.2.2 Operational Phase

A **profound, long-term, positive effect** will arise due to improved safety, accessibility and journey times for the resident and working population. The Proposed Development will be monitored against key performance Indicators that include journey time, safety and queueing.

26 no. residential properties will be demolished and 11 no. more acquired but retained by DCC. This is considered to be a **very significant, profound, adverse, permanent** effect on those specific receptors, but will not have a significant effect on overall demography. A **slight positive, permanent** effect with respect to enhanced access to zoned lands for residential development is noted.

Landscaping, noise barriers and air quality monitoring are among mitigation measures and monitoring proposals provided within the EIAR to protect operational phase amenity. Unavoidable **slight to significant, long-term, adverse** effects will arise on a relatively small proportion of properties. There will be improvements of similar magnitude at others, largely arising from reduction in traffic volumes and associated noise reduction and air quality improvement. Overall, Chapter 14: Noise & Vibration concludes that the Proposed Development will result in a positive aggregate residual effect. This will result in beneficial environmental and health effects on the general population in the scheme area.

**Moderate significant, positive, indirect, long-term** effects arising from reduced traffic volumes within settlements in the scheme area are expected. Key benefits include the diversion of strategic traffic from the main streets of Ballybofey and Stranorlar, allowing for enhanced town centre amenity. Likewise, the proposals will support regeneration within Letterkenny town centre. Direct employment associated with the Proposed Development will be limited to maintenance works which is expected to result in an **imperceptible to slight, positive, long-term** effect.

A small number of commercial properties will be demolished and others that benefit from passing trade may experience a loss in revenue, which is considered an **unavoidable, slight, short-term, adverse** effect on the whole with respect to employment and economic output of the area, but which will be countered by **long-term, moderate, positive** effects identified above. Effects on individual businesses where significant effects are identified from land take are addressed within Appendix C16.01 of Chapter 16: Material Assets (Non-Agricultural). The opening up of access to a zoned opportunity site in Ballybofey and provision for the Proposed Development within commercially zoned lands in Letterkenny is a **moderate positive, long-term** effect with respect to improved access.

**Indirect, slight, long-term, positive** effects on the Irish language within the nearby Gaeltacht area (c. 6km west of the Proposed Development) will arise due to strengthened connections.

The provision of active travel connections to Holy Well and Dromboe Woods will result in **Slight-moderate, permanent, positive** effects. Although Chapter 17: Cultural Heritage predicts a **significant, adverse**, residual effect on the archaeological feature at the Holy Well woods notwithstanding recommended

mitigation measures, this effect is considered to be **slight at worst** from the community lands perspective. A **moderate positive** effect on access to recreational facilities is expected.

The removal of strategic traffic from the road network access to a number of community facilities in the scheme area is positive. There will be a **profound positive** effect on access to Letterkenny University Hospital enhanced connectivity to the Atlantic Technological University, Donegal campus and **moderate positive** effects on St. Patrick's National School south of Letterkenny.

Residual effects on the HSE premises at Ballyraine are considered Moderate within Chapter 14: Noise and Vibration; however, as this is a training facility as opposed to providing direct care services, there is a potential reduction in significance for that reason with the residual effect identified as **slight, long-term, adverse**.

**Slight and moderate positive** effects are predicted to arise to some community facilities arising from improvement to air quality (St. Patrick's and Ballyraine National Schools for example).

There will also be a **slight positive** effect on future provision of community facilities on a zoned opportunity site in Ballybofey but **slight adverse, long-term** effects on lands zoned for open space and recreation.

With respect to tourism, the Proposed Development will have **moderate-significant positive long-term** effects on the scheme area and wider area as accessibility and connectivity between destinations improves. There is potential to sustain larger visitor numbers, particularly increased cycle tourism is expected due to the proposed active travel provision. Improved access, improved air quality and reduced noise along existing busy routes will result in **moderate, long-term positive** effects for visitor accommodation providers.

With recommended mitigation in place, impacts on the Wild Atlantic Way are anticipated to be not significant / imperceptible at the opening year, potentially reducing to **neutral in the long-term** for visitors.

Provision of an active travel link, access to and information on Dunwiley Ring Fort will result in a **slight-moderate, permanent** effect. Chapter 17: Cultural Heritage provides mitigation for Dunwiley Ring Fort, including strategic landscaping/planting and enhanced visitor interpretation.

**Very significant, long-term, positive** effects to non-motorised users (NMU)s will arise due to improved opportunities arising from the extensive network of new facilities to be provided and the enhanced efficiency, safety and amenity that will arise due to improved conditions elsewhere on the existing road network. The Proposed Development will provide connectivity options as part of the active travel network with potential future greenways/ cycleways where feasible. Where necessary, new wayfinding signage shall be provided for the North West Trail and the Donegal Cycle Route in agreement with DCC, particularly where there is potential linkage from the new active travel routes to be provided as part of the Proposed Development. Effects to existing way-marked walking and cycling routes and other NMU facilities are anticipated to be **positive, profound** and **long-term**.

With respect to severance, residual effects are **slight, long-term** for localised communities north of Ballybofey-Stranorlar when design mitigation is taken into consideration. These may be considered positive or adverse depending on the perception of the receptor; however, it should be noted that safety improvements will result for NMUs.

Some **moderate** to **significant adverse** effects are considered unavoidable at the Dromore area where a group of neighbouring residential properties will have an increased journey link notwithstanding the active travel link provision. Elsewhere, effects will be **moderate, positive** for NMUs at Trimragh where vehicles are removed from an existing route.

With respect to the housing development Beechwood, and access to Lifford for its residents, a residual **slight adverse long-term** effect is anticipated at worst.

## 8 HUMAN HEALTH

Population health varies, given factors such as personal choice, location, mobility and exposure. These factors that influence health are called determinants of health and they span environmental, social, behavioural, economic and institutional aspects. The Proposed Development has the potential to change determinants of health, with beneficial and adverse effects, either directly, indirectly or cumulatively.

### 8.1 Methodology

The chapter uses the World Health Organization (WHO) definition of health, which states that health is a “*state of complete physical, mental and social wellbeing and not merely the absence of disease or infirmity*”. The chapter also uses the WHO definition for mental health as a “*state in which every individual realises his or her own potential, can cope with the normal stresses of life, can work productively and fruitfully, and is able to make a contribution to her or his community*”.

The methodology for assessing human health as part of EIA follows best practice. The methods follow the population and human health assessment guidelines set out by Transport Infrastructure Ireland (TII), the general EIA guidelines set out by Environmental Protection Agency (EPA) and the specifics of considering health in the context of EIA set out by the Institute of Environmental Management and Assessment (IEMA). The assessment provides reasoned conclusions for the identification and assessment of any likely significant effects of the Proposed Development on population health. Regard is given to physical health, mental health and health inequalities, across a broad range of determinants of health.

The health assessment looks at the potential effects for both the general population and for vulnerable groups. Vulnerability relates to experiencing effects differently due to age, income level, health status, degree of social disadvantage or the ability to access services or resources. The health assessment considers localised effects close to the Proposed Development activities, referencing particularly affected communities. The assessment also considers the wider effects at the regional and national level.

The health assessment is informed by the findings of other EIA chapters, including: Traffic & Transportation; Population; Noise & Vibration; Air Quality and Landscape & Visual. The health assessment has also been informed by a review of relevant public health evidence sources, including scientific literature, baseline data, health policy, local health priorities and health protection standards.

### 8.2 Baseline Environment

Donegal is the fourth largest county in Ireland with a sparse population density and is predominately a rural county. Donegal performs worse than the national average on a range of health indicators, including cancer, respiratory and circulatory disease mortality. Deprivation statistics give an indication of existing pressure on people’s health, with more deprived areas generally being prone to worse health outcomes. For the electoral division areas affected by the Proposed Development, the great majority in Sections 1 and 2 are marginally below average (slightly worse), with those in Section 3 categorised as disadvantaged. A few Small Areas in Clonleigh North and Clonleigh South are categorised as very disadvantaged and extremely disadvantaged.

The Proposed Development provides an opportunity to improve population health in Donegal. This aligns with the Healthy Ireland policy position to improve people’s health and wellbeing and the NPF provisions on healthy communities and creating a clean environment for a healthy society.

### 8.3 Impact Assessment

Changes to local air quality (road traffic emissions and potential dust nuisance) are discussed. The assessment identifies the potential for a **minor adverse** (not significant) effect during construction and redistributed effects during operation resulting in a **minor beneficial** (not significant) effect. The latter reflects the potential for benefits of less traffic, including HGVs, and less congestion within bypassed communities, improving air quality in the areas of higher population density.

Changes in noise exposure are discussed, particularly night-time noise that may be detrimental to population health where sleep is disturbed to a high degree. Changes in the distribution of day-time noise are also

considered in relation to chronic effects of transport noise on health. The assessment concludes that during construction there is the potential for some localised high degrees of exposure, which is mitigated as set out in Chapter 14: Noise & Vibration and measures set out in the Environmental Operating Plan (EOP). Following such mitigation the population health effect is considered **minor adverse** (not significant). During operation the redistribution of traffic away from areas of higher population density is expected to have a **minor beneficial** (not significant) population health effect. For some communities along the new route alignments, effects may be adverse but are unlikely to result in significant changes in population health outcomes.

The effects on active travel and physical activity are considered, which are important determinants of physical and mental health. This includes disruption to active travel routes during construction, for which a **minor adverse** (not significant) effect is identified. The operational enhancements that support physical activity from the finished scheme, including improved walking and cycling routes are expected to have a **moderate beneficial** (significant) effect.

Changes in local transport nature and flow rates are considered, particularly in relation to the Proposed Development's benefits to road safety. Other considerations include the influence on journey times that may affect routine or emergency healthcare access. The construction stage assessment concludes that any effect on population health would be **minor adverse** (not significant). During operation a **moderate beneficial** (significant) effect is predicted due to the widespread improvements to road safety and journey times from the new transport infrastructure.

The potential for changes in community cohesion and social capital within affected communities due to being either bypassed or being closer to the new road alignment are considered. Community identity is a determinant of wellbeing and is influenced by aesthetic elements of the landscape and townscape, as well as by the dominance of road traffic in public spaces. Such effects relate to the operational stage only, where the conclusion is that effects would range from **moderate adverse** (significant), to **negligible** for visual impacts and up to **moderate beneficial** (significant) for socioeconomic impacts. This conclusion reflects the subjective nature of responses to the changes and the expectation of a wide range of views amongst the public.

Good quality employment and levels of income are strong predictors of health, including for dependants. Dependants include vulnerable groups such as children, the frail elderly and people with long-term health conditions that require high levels of care. The assessment considers how the Proposed Development affects employment and income generating opportunities, and what influence this may have on population health. During both construction and operation **minor beneficial** (not significant) effects are expected.

The potential for disproportionate effects and health inequalities is considered. The redistribution of air quality and noise impacts may have a marginal effect on reducing inequalities, with the burden of elevated transport emissions more evenly distributed across the population. These changes are supportive of delivering health-related planning policy. It is noted that in Section 3 there may be a slight reduction in health equity due to areas of higher deprivation experiencing greater traffic air quality and noise emissions.

The combined effects of these influences on population health have been considered. Having had regard to the nature of the interactions and the degree to which the same people are likely to be affected, the conclusion is that any combined effects are not expected to be of greater significance than the individual effects.

Overall, the public health conclusion is that there are a range of beneficial and adverse effects, with more likely significant effects that are beneficial than there are those that are adverse.

## 9 BIODIVERSITY

### 9.1 Chapter 9A: Biodiversity – Terrestrial

The objective of this chapter is to evaluate the potential consequences of the Proposed Development for terrestrial biodiversity habitats and species within the Proposed Development area and its zone of influence (ZoI). The assessment covers both the construction phase and the operational phase, identifies sensitive ecological features, and sets out measures designed to avoid, reduce or offset adverse effects. The chapter also presents recommendations for monitoring and long-term management to ensure mitigation is effective.

#### 9.1.1 Methodology

The assessment methodology is based primarily on the National Road Authority (NRA)'s '*Guidelines for Assessment of Ecological Impacts of National Road Schemes Rev 2*' and CIEEM's '*Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine, Version 1.3*'.

Survey methodology was primarily based on the NRA's '*Guidelines on Ecological Surveying Techniques for Protected Flora and Fauna on National Road Schemes*'. More updated survey methodology and techniques were used when available. Studies were also carried out having regard to relevant national and international legislation.

The methodology comprises the following elements: desk study, site-specific surveys, and consultation. The desk study portion of this research involved collating information on existing biodiversity studies and datasets within the Proposed Development area. Field assessments comprised a multidisciplinary suite of site surveys from 2017 to 2026 for terrestrial flora and fauna. These were carried out during the optimum seasons for the respective habitats and species. The surveys included habitat mapping, botanical assessment, protected-species surveys for bats, otter, badger and other mammals, breeding and overwintering bird surveys, and amphibian/reptile surveys. Consultations were also undertaken with appropriate bodies to ensure the development of a comprehensive baseline for assessment.

These elements (i.e. desk study, site-specific surveys, and consultation) were used to identify, describe, and map important areas and species of known or potential ecological value, termed Important Ecological Features (IEFs) and Key Ecological Receptors (KERs). IEFs comprise features of known or potential conservation importance such as statutory designated sites, notable habitats and legally protected species. KERs are groups or assemblages of habitats and species that together have particular local or landscape importance (for example connected riparian woodland strips or a suite of hedgerows providing structural connectivity for wildlife).

#### 9.1.2 Baseline Environment

Several designated sites and protected areas lie within the ZoI. These include European sites such as River Finn SAC, Lough Swilly SAC, Lough Swilly SPA and Lough Foyle SPA; Ramsar-designated wetlands (Lough Foyle); and national/regional designations such as proposed Natural Heritage Areas (pNHAs), and local nature reserves. Cross-border and formerly designated Natura sites in Northern Ireland (for example Lough Foyle SPA Northern Ireland (NI) and the River Foyle and Tributaries SAC), and Areas of Special Scientific Interest (ASSI) were also considered where they could be affected. The assessment recognises these sites' high conservation status and the need to avoid or minimise effects that could undermine their integrity.

Multiple IEFs and KERs, including designated sites were scoped into the impact assessment of the Proposed Development. The identified IEFs and KERs include:

- European sites (River Finn SAC, Lough Swilly SAC, Lough Swilly SPA, Lough Foyle SPA).
- Former European sites in Northern Ireland (Lough Foyle SPA and River Foyle and Tributaries SAC).
- Lough Foyle RAMSAR site.
- National sites (Lough Swilly including Big Isle, Blanket Nook and Inch Lake proposed Natural Heritage Area (pNHA); Port Lough pNHA, River Foyle, Mongavlin to Carrigans pNHA, Lough Foyle Area of Special Scientific Interest (ASSI), River Foyle and Tributaries ASSI, Roe Estuary Nature Reserve, Blanket Nook Wildlife Sanctuary, and Inch Levels Wildfowl Reserve).

- Habitats: (HH3 wet heath, WD1 (mixed) broadleaved woodland, WD2 (mixed) broadleaved/conifer woodland, WL1 hedgerows, WL2 treelines, WN1 oak-birch-holly woodland, WN2 oak-ash-hazel woodland, WN4 Wet pedunculate oak-ash woodland, WN5 Riparian woodland, WN6 wet willow-alder-ash woodland).
- KERs (KER 1-1 to 1-4 in Section 1, KER 2-1 to 2-5 in Section 5, and KER 3-1 to 3-16 in Section 3).
- Flora (FPO species globe flower).
- Fauna (bats (roosting and commuting and foraging), badger, otter, other protected mammals (hedgehog, pygmy shrew, pine marten, Irish stoat, red squirrel, Irish hare, and deer species), breeding birds, overwintering waterbirds, and amphibians and reptiles (common frog, smooth newt, and common lizard)).

### 9.1.3 Impact Assessment

Potential impacts were assessed separately for the construction and operational phases. Construction impacts include removal of vegetation and habitats, disturbance and displacement of wildlife from noise, vibration, dust and human activity, temporary changes in hydrology and increased risk of sediment runoff to watercourses. Operational impacts include permanent habitat loss, long-term fragmentation and severance of habitat networks, barrier or avoidance effects for wildlife using the corridor, risk of vehicle strike for large mammals and bats, and potential changes to water flows or quality that could affect riparian habitats. Particular concern was identified for woodland and riparian habitats, hedgerow/treeline connectivity and bat commuting/foraging routes, all of which provide important links across the landscape.

In the absence of mitigation, the assessment identifies a number of **significant long-term, medium-term and short-term adverse** effects at the International to Local level.

Many of the short-term effects such as the **locally significant, permanent** loss of wet willow-alder-ash woodland (WN6) amounting to approximately 2.38 hectares across Sections 1 and 3 within the Proposed Development footprint; **locally significant, short-term, reversible, adverse** effects on (Mixed) Broadleaved Woodland (WD1) and (Mixed) Broadleaved/Conifer Woodland (WD2); a **locally significant, permanent, irreversible, adverse** effect on **KERs 1-1, 1-3, 2-1, 2-2, 2-3, 3-2, 3-3, 3-4, 3-5, 3-6, 3-7, 3-9, 3-10, 3-11, 3-14, and 3-16** and **locally significant, short-term, adverse** effect on **KER 2-5** and **locally significant, short-term, adverse** effect to commuting and foraging bats, are regarded as non-significant in the medium to long term.

To address unavoidable habitat loss and to provide medium to longer-term ecological benefit, the Proposed Development includes the creation of a substantially larger area of new woodland habitat: approximately 113 hectares of WD1 mixed broadleaved woodland are proposed to be established along the alignment. The planned habitat creation, together with new hedgerows and grassland, forms part of the Proposed Development's ecological response and will be accompanied by long-term management to ensure successful establishment and delivery of biodiversity objectives.

### 9.1.4 Mitigation Measures

Mitigation follows the standard hierarchy: avoid where possible, minimise unavoidable impacts, and compensate for residual losses. Avoidance measures are built into the Proposed Development design (for example alignment choices and open-span bridge designs at sensitive watercourse crossings to minimise riparian habitat loss). Construction-phase measures include pollution prevention and sediment control, establishment of exclusion zones and buffers around sensitive habitats and species, timing restrictions to avoid key breeding seasons, sensitive lighting design, and protected-species working methods (for bats, badger, otter and others). Operational measures include retention of vegetation corridors where feasible, provision of wildlife crossings or underpasses in key locations, and traffic or lighting measures to reduce barrier effects. Compensation and enhancement measures focus on habitat creation and restoration (notably the c.113 ha of new woodland), hedgerow planting and grassland creation, coupled with a Biodiversity Management Plan for establishment and adaptive management.

### 9.1.5 Residual impacts

Where mitigation is fully implemented, many impacts are substantially reduced. However, the assessment records some residual significant adverse effects that cannot be fully mitigated in situ. The principal residual impact is:

- **Locally significant, permanent** loss of wet willow-alder-ash woodland (WN6) amounting to approximately 2.38 hectares across Sections 1 and 3.
- **Locally significant, short-term, reversible, adverse** effect on (Mixed) Broadleaved Woodland (WD1) and (Mixed) Broadleaved/Conifer Woodland (WD2).
- **Locally significant, permanent, irreversible, adverse** effect on **KERs 1-1, 1-3, 2-1, 2-2, 2-3, 3-2, 3-3, 3-4, 3-5, 3-6, 3-7, 3-9, 3-10, 3-11, 3-14, and 3-16.**
- **Locally significant, short-term, adverse** effect on **KER 2-5**
- **Locally significant, short-term, adverse** effect to commuting and foraging bats.

Over the medium to long term, the extensive habitat creation and long-term management are expected to deliver ecological benefits for woodlands, hedgerow connectivity and, ultimately, for bat foraging and commuting. This results in neutral or beneficial outcomes in many parts of the corridor, but not removing the immediate, localised loss already noted.

A Biodiversity Management Plan is proposed to track the success of mitigation and habitat creation, to identify any unforeseen effects early, and to adapt measures if establishment or ecological value is not progressing as intended.

### 9.1.6 Conclusion

The Proposed Development will have measurable effects on terrestrial biodiversity. Many of those effects are avoided or reduced through careful design and specific mitigation measures. Where habitat loss is unavoidable, the Proposed Development proposes substantial habitat creation and long-term management to provide compensation and ecological enhancement.

Some residual adverse effects remain — most notably the local permanent loss of WN6 wet willow-alder-ash woodland and temporary disturbance to woodland edges, hedgerows and bat routes — but the Proposed Development's long-term habitat creation strategy is intended to deliver medium- to long-term benefits for woodland habitats, connectivity and wildlife.

## 9.2 Chapter 9B: Biodiversity – Aquatic

This chapter of the EIAR identifies, describes, and assesses the effects of the Proposed Development on aquatic biodiversity. The chapter was prepared by experienced, qualified aquatic ecologists. A collaborative approach was undertaken throughout the design stages of the Proposed Development, involving iterative input to the design team in relation to the multiple watercourse crossings of varying sensitivities. Potential for significant impacts were identified at an early stage and the design developed accordingly to avoid impact on sensitive aquatic ecological receptors, including for example: provision of clear span bridges at major river crossings including SAC rivers; bridging (as opposed to culverting) of a salmonid gully stream (Section 1, Backlees stream) to retain natural hydromorphological character; sensitive realignment of a small trout stream (Section 3, Drumbeg stream at Tullyrap) rather than introducing extensive additional culverting.

### 9.2.1 Methodology

The methodology employed for the impact assessment is in accordance with national and international best practice guidelines in the field of ecological impact assessment. Baseline studies and subsequent assessment of effects were conducted having regard to relevant national and international legislation and established protocols, backed up by site-specific desk study information derived from formal datasets, e.g., EPA biological water quality; IFI and Loughs Agency fisheries data. Field surveys at each watercourse comprised a suite of instream surveys and assessments to describe instream habitat condition and identify suitability of watercourses for fish species in the ZoI. Consultations were undertaken with appropriate statutory bodies (IFI, Loughs Agency, NPWS) from an early stage in the project development.

### 9.2.2 Baseline Environment

The detailed baseline study allowed for identification of watercourses with fisheries habitat and known or potential ecological value, which were termed IEFs. Watercourses with fisheries sensitivity, i.e., of Local Importance (higher value) and higher, were deemed IEF watercourses. Very minor watercourses (e.g., man-made land drains), with no fisheries sensitivity, were not considered IEFs, although their hydrological connectivity to more sensitive downstream aquatic receptors was considered as part of the assessment of effects.

The Proposed Development occurs in two surface water catchments. Section 1 and the southern two-thirds of Section 3 are within the 01 Foyle water catchment. Section 2 and the northern one-third of Section 3 are in the 39 Lough Swilly catchment. There is no hydrological connectivity between Sections 1 and 2 of the Proposed Development.

All watercourses crossing in the 01 Foyle catchment (Section 1 and southern Section 3) ultimately drain to European sites: River Finn SAC and the former European sites in Northern Ireland (Lough Foyle SPA and River Foyle and Tributaries SAC). Watercourses crossed in the 39 Lough Swilly catchment (Section 2 and northern Section 3) drain to European sites: Lough Swilly SAC, Lough Swilly SPA. The aquatic biodiversity impact assessment focused on likely significant effects on aquatic receptors and provides a binary outcome of either significant or not significant effects. Where potential direct, indirect or cumulative significant effects were identified as part of the construction or operation phases, appropriate mitigation has been prescribed.

Five new major bridges are proposed. Numerous culverts with associated localised channel realignments are proposed at smaller watercourses. Two new bridges, 27 km apart, will cross the River Finn: one in Ballybofey / Stranorlar (Section 1) and one located just upstream of Lifford / Strabane (Section 3). The River Finn is covered by the River Finn SAC at both locations and covered by the River Foyle and Tributaries SAC (Northern Ireland) at the location near Lifford / Strabane. The latter is known as the N14/N15 to A5 Link bridge, as it will connect with a proposed Trunk Road T3 in Northern Ireland which in turn will connect to the proposed A5 Western Transport Corridor (WTC) of Northern Ireland. Transboundary construction and operation effects of this bridge have been assessed in the EIAR chapter. The River Finn is an important salmon river, and salmon are a Qualifying Interest species of the relevant SACs (ROI and NI) covering the River Finn and lower River Foyle. The proposed bridges will have no temporary or permanent in-channel footprint with no construction or operational phase effects on fish migration or salmon recruitment. The Section 3 N14/N15 to A5 Link bridge will result in the loss of a small area (240 m<sup>2</sup>) of non-annexed habitat (wet grassland) on the River Finn floodplain within the SAC, owing to bridge pier footprints, which is of a scale and nature that has no adverse effect on the integrity of the SAC and the effect is **not significant**.

In Section 3 a further two major bridges are proposed: one on the lower River Deelee and one on the lower Swilly Burn. Both bridges over the River Deelee and Swilly Burn are clear span structures with the abutments set-back from the rivers sufficiently to avoid any requirement for instream works or modification of the existing riverbanks.

In Section 2 a major new bridge is proposed over the tidal River Swilly (Swilly Estuary) downstream of Letterkenny where the channel is part of the Lough Swilly SAC. The proposed bridge includes a 108 m clear span over the channel, with no temporary or permanent footprint within the SAC and no loss or disturbance of Annex I habitat 'Estuaries' which is present locally. A proposed narrow, clear-span Active Travel foot bridge will also cross the lower Isle Burn (tidal river) at the existing N13 culvert structure at the Lough Swilly SAC boundary, but with no temporary or permanent instream footprint involved during construction or operation.

### 9.2.3 Impact Assessment and Mitigation Measures

The impact assessment identified potential for significant negative construction phase effects upon IEF watercourses mainly related to potential for water quality degradation (all crossings) and temporary impediments to fish migration (culverting). Accordingly, mitigation measures have been proposed to reduce significance of effects. Mitigation in the construction phase includes overarching water quality protection measures; instream work timing restrictions (seasonal) in agreement with Loughs Agency and IFI; appropriate temporary stream diversion methods and instream habitat reinstatement following culvert installation. Site-specific construction methods have been set out in relation to the SAC river crossings such that sources and pathways of construction phase pollutants are reduced to protect sensitive aquatic receptors.

Regarding the operation phase, road drainage for the Proposed Development has been designed in accordance with TII water environment standards, incorporating sustainable drainage features that inherently provide attenuation and consequent water quality treatment (e.g., constructed hybrid wetland ponds) prior to discharge to adjacent surface waters. HAWRAT assessments were conducted (Chapter 11: Water) as per TII Standard DN-DNG-03065 across all discharge points to watercourses from the Proposed Development with results showing that owing to the designed level of attenuation there is: (i) no risk of copper and zinc exceedance in road run-off discharge; (ii) low sedimentation risk because the non-silting discharge flow velocity is exceeded; and (iii) annual probability of a serious pollution incident are below the acceptable risk limit of 0.5% according to the spillage risk assessment. Furthermore, operation phase mitigations include prescriptions for the detailed design of culverts to ensure fish passage according to slope and length, and in accordance with national and international best practise for fish passage through culverts. By design, the proposed culverts and bridges will not alter the hydrology, morphology or connectivity of the watercourses crossed by the Proposed Development (i.e., hydromorphology quality elements) meaning there is no cause for deterioration, nor preclusion of the achievement of good ecological status, in the biological quality elements that underpin overall Water Framework Directive status.

### 9.2.4 Residual Impacts

With the proposed design, and all mitigation measures and environmental controls implemented as prescribed in the EIAR, construction phase effects will be reduced to **temporary to short-term, not significant, negative** in relation to localised aquatic habitat disturbance and water quality degradation.

Owing to the iterative design process which ensures: (i) no impediment to the continued movement of fish on all watercourses, and (ii) the incorporation of sustainable drainage features that attenuate and treat road run-off, there will be no likely significant negative direct, indirect or cumulative residual effects on aquatic ecological receptors arising in the operational phase, i.e., **permanent not significant**. Potential exists for a **positive** effect on water quality and dependent aquatic ecological receptors in the long-term (compared to the baseline situation) owing to diversion of significant traffic volumes from existing roads that have inferior or no drainage attenuation / treatment function.

## 10 LAND, SOILS & HYDROGEOLOGY

The Proposed Development will comprise a number of activities such as cut excavation, embankment construction, river crossings and drainage works which have the potential to impact on the land, soils and hydrogeological environment of the scheme area. This chapter of the EIAR considers and assesses the likely significant impacts associated with both the construction phase and the operational phase of the Proposed Development. Measures to mitigate any likely significant effect of the Proposed Development on land, soils and hydrogeology are proposed.

The existing environment of the Proposed Development in terms of soils, geology and hydrogeology was analysed using data collected from a desk study and a ground investigation programme. This study was used to inform the development of a conceptual site model to develop an understanding of the geological and hydrogeological environment of the Proposed Development. Although the wider geomorphology and topography along the route was considered, the primary scheme area for the purpose of this assessment comprised of a 250 m zone either side of the centreline of the Proposed Development.

The Proposed Development is underlain by regionally metamorphosed massive Precambrian rocks comprising quartzites, marble and psammities (i.e., bedrock geology). The aquifer is classified predominantly as Locally Important aquifer (LI) characterised by low transmissivity rock with low well yields. Subsoils with 'High' and 'Extreme' groundwater vulnerability underlie a high proportion of the Proposed Development. Under the WFD, the Groundwater Bodies (GWBs) within the Proposed Development that need to be protected are:

- Raphoe GWB
- Upper Deelee GWB
- Ballybofey GWB

There is one geological heritage area identified in Section 2. This is the stretch of the River Swilly westwards from Ballyraine extending to Lough Swilly at the northwest of the Proposed Development that is classified as a County Geological Site (CGS). Features of high geological/hydrogeological importance include: a renowned holy well (Holywell) located at the edge of woodland in the townland of Drumboe Lower (Section 1), the River Finn SAC/GWDTE and the previously mentioned geological heritage area located along a stretch of the River Swilly, which is classified as Ireland's only fjord on the north coast (Section 2).

There is no evidence of contaminated land along the Proposed Development and the potential to encounter contaminated land is low to minimal.

Predicted impacts during the construction phase were identified as soil erosion and compaction, soil pollution (via spillage of construction materials, dewatering), embankment settlement, increase of aquifer vulnerability, groundwater contamination, dewatering of domestic water supplies, and impacts to Holywell. These impacts were assessed by considering the methods, extent, and volume of earthworks proposed in terms of cut and fill volumes, excavations of soft soil and rock and material extraction and deposition.

Potential impacts during the operation phase were identified as soil pollution from accidental spillage from vehicles and/or maintenance activities, changes to recharge areas and aquifer storage as well as the implications of climate change.

A series of measures have been proposed to mitigate the potential impacts associated with the construction and operation phases, including minimising the import of fill material, reuse of excavated material (soil and stone), erosion and sediment control techniques, staged construction of embankments, mitigation embedded into the drainage design for protection of groundwater quality and to offset the impacts of climate change. Impacted domestic supply wells will be replaced, and further hydrogeological testing will be completed in the Holywell area. Preliminary hydrogeological testing has not determined the exact source of the water supplying the well, therefore it is proposed that if the water supply is to be permanently impacted a new groundwater source will be provided replicating the current ephemeral flow at the existing site. This arrangement will be designed in conjunction with the development of the proposed woodland amenity area of Drumboe Woods. Residual impacts associated with the Proposed Development are predicted to be reduced to **negligible with imperceptible significance**.

# 11 WATER

The information required to facilitate an impact assessment of the Proposed Development in respect of hydrology was compiled from desk research, hydraulic flood modelling, a spillage risk assessment, a Highways England Water Risk Assessment Tool assessment, and flood risk assessment. A brief description of the hydrological aspects of the three sections has been provided below.

## 11.1 Baseline Environment

Section 1 lies within the River Deelee and River Finn catchments, both of which are encompassed by the greater Foyle catchment – Hydrometric Area 01. The proposed route predominantly lies within the River Finn catchment. The following hydrological aspects are proposed:

- 360 m long, seven-span bridge crossing the River Finn from the townland of Cappry to Drumboe Lower
- Bridge crossing within the Finn catchment at the Backlees River in the townland of Drumboe Upper
- Bridge crossing within the River Deelee catchment at the River Cloghroe in the townland of Meenavoy
- 39 culverts for smaller watercourses and land drains

Along the Section 1 route within the River Finn and River Deelee catchments, the EPA assigned status for the directly affected waterbodies span High (Finn (Donegal)\_050), Good (Finn (Donegal)\_060; Cloghroe\_010), Moderate (Burn Daurnett\_010; Finn (Donegal)\_070) and Poor (Deelee (Donegal)\_030). All these waterbodies are classified At Risk in the 2019–2024 cycle. Within the Deelee catchment, the Magheracorran tributary lies in Deelee (Donegal)\_030, which is assigned Poor status and At Risk.

The River Finn is classified as a SAC.

Section 2 lies within the River Swilly and Isle Burn catchments that are both encompassed by the greater Lough Swilly catchment – Hydrometric Area 39. The proposed route predominantly lies within the River Swilly catchment. The following hydrological aspects are proposed:

- 235 m long, three-span bridge crossing the River Swilly at Letterkenny.
- Pedestrian bridge at the existing Isle Burn crossing.
- 37 culverts for smaller watercourses and land drains.

The waterbodies along the Section 2 route have the following assigned WFD status: Dooballagh Burn\_010 is Good, Not at Risk; Swilly (Donegal)\_010 is Good, Under Review; Leslie Hill Stream\_020 is Moderate (modelled), At Risk. The Swilly Estuary is assigned Poor status and is At Risk of not meeting WFD objectives.

The Lough Swilly Estuary is classified as a SAC.

The northern part of Section 3 is within the Lough Swilly Catchment and the southern part is within the River Foyle catchment. The River Deelee, Swilly Burn and River Finn crossing are all within the River Foyle catchment. The following hydrological aspects are proposed:

- 108 m long, three-span bridge crossing at the River Deelee.
- Bridge crossing at the Swilly Burn, a single span 30 m long (Clear Skew span).
- Bridge crossing at the River Finn, an eight-span 287 m long.
- 34 culverts for smaller watercourses and land drains.

The Leslie Hill, Deel and Finn catchments are assigned a “Moderate” WFD status while the Swilly Burn “Poor” WFD status. The waterbodies in the Leslie Hill and Finn catchments are defined as ‘At Risk’, whilst those in the Swilly Burn and Deelee catchments are defined as at ‘Review’.

The River Finn, The River Foyle and Lake Swilly are classified as SACs.

## 11.2 Water Quality

The Proposed Development, by design and with mitigations will not cause deterioration of status in any surface water body (overall or at individual quality element at water body level), nor will it prevent the achievement of good status. The proposed higher quality road will have a lesser risk of accidental spillage of pollutants because of road traffic accidents than the existing road network.

## 11.3 Flooding

### Construction Phase Impacts

Across Sections 1, 2, and 3, the construction-phase impact assessment identified imperceptible to slight negative impacts on most EPA watercourses, with localized moderate/slight impact at specific locations. In Section 1, moderate/slight impact was noted on Burn Daurnett (01\_1815). In Section 3, Swilly Burn (01\_1541, 01\_1548, and 01\_1560) was assessed as having moderate/slight impact. Across all sections, the implementation of mitigation measures during construction is expected to substantially reduce these impacts.

### Operation Phase Impacts

Across all sections, most EPA watercourses are predicted to experience long-term direct and indirect imperceptible to slight effects on flood risk, which are not considered significant. In Section 1, a long-term direct moderate/slight effect was identified at the River Burn Daurnett near the proposed Dooish Junction, with a slight increase in inundated flood areas under the design flood condition. In Section 2, a long-term direct significant effect was noted at the River Swilly crossing, also involving a slight increase in inundated areas under design flood conditions. The implementation of mitigation measures during the operation phase is expected to substantially reduce these impacts.

## 11.4 Residual Impacts

### Construction Phase

With the proposed design, and all mitigation measures and environmental controls implemented as prescribed in the EIAR there will be no significant impact on the water environment arising from the construction phase of the Proposed Development.

### Operational Phase

With the proposed design, and all mitigation measures and environmental controls implemented as prescribed in the EIAR there will be a **positive** impact on the water environment arising from the operational phase of the Proposed Development.

Compared to the existing scenario, a beneficial effect is likely on the water environment into the future because the drainage systems are designed to a higher standard than existing road drainage. Road runoff into the future will be attenuated and treated through modern, sustainable drainage features.

There is no significant increase in flood risk predicted during the operational phase of the development, therefore the residual impact is **negligible and not significant**.

In conclusion **no significant** adverse hydrological impacts are anticipated as a result of the construction and/or operation of the Proposed Development.

## 12 AIR QUALITY

This chapter of the EIAR assesses the potential air quality impacts the Proposed Development may have on the receiving environment during both the construction and operational phases. Potential effects to air quality may arise during the construction phase, such as from the generation of construction dusts and construction traffic. During operational phase, emissions impacts may arise from changes in the volumes, locations and traffic mix of vehicles within the Proposed Development.

Air quality in the area is best characterised by EPA Zone D (Rural Ireland). Baseline monitoring data has been compiled from the EPA database and monitoring stations operated by the Department for Agriculture, Environment and Rural Affairs (DAERA) in Northern Ireland. Existing sources of air pollution in the vicinity of the Proposed Development are from road traffic emissions from the surrounding road networks, space heating for residential, commercial and other properties, agriculture, facilities with emission licences and wastewater treatment plants.

Geodirectory data was used to identify sensitive human receptors and residential dwellings within 250 m of the Proposed Development.

For the properties (including schools and other sensitive receptors) that are located within 100 m of the existing alignment there will be a net reduction in pollution as a result of the alignment moving away from higher density areas such as Letterkenny, Stranorlar and Ballybofey. Residents and occupants of these properties will experience a net reduction in exposure to traffic pollution that will range in scale from **neutral to moderate beneficial** impact to air quality.

For the properties that are located along the proposed alignment, there will be a net increase in exposure to air pollution from road traffic. Residents and occupants of these properties will experience a net increase in exposure to traffic pollution that will range in scale from **neutral to substantial adverse** impact to air quality.

Operational mitigation is mainly achieved through EU legislation driven improvements in fuel and engine technology resulting in a gradually reducing emissions per vehicle profile.

Ecological receptors within 50 metres of the boundary of the site were assessed. The assessment of nitrogen and acid deposition on sensitive ecosystems have been discussed with the project biodiversity practitioners and the impacts of the air quality changes on sensitive habitats in the Proposed Development are considered **long term, slight adverse**, which is not significant in EIA terms.

There is potential for cumulative dust impact on the residents in Strabane and the River Finn SAC during the construction of Section 3 and the N14/N15 to A5 Link. With the prescribed dust mitigation, this impact is a **short term, slight adverse** impact. In terms of impacts to human health from operational traffic, the modelling of local scale emissions in Section 3 also considered residential and other human receptors east of the border in the area around Strabane. As with the other properties in Section 3, all properties located close to the proposed alignment in Strabane are predicted to experience a **long term, neutral** impact to air quality, which is not significant in EIA terms. The potential for transboundary impact on the River Finn SAC is considered **slight adverse**, which is **not significant**.

A Dust Management Plan (DMP) will be prepared by the Contractor based on the draft DMP included as part of this EIAR, including the mitigation and monitoring measures contained in this Chapter. The DMP will include details of a dust monitoring regime using standard Bergerhoff gauges (to VDI standard) at a series of locations that have been identified based on potential risk of dust nuisance. A minimum of four monitoring locations will be established on each of Section 1, 2 and 3. The contractor will be required to maintain monthly dust levels below the guideline of 350 mg/m<sup>2</sup>/day (for non-hazardous dusts) as an annual average at sensitive receptors.

The significance of the effect upon air quality is determined by correlating the magnitude of the impact and the sensitivity of the receptor. For the purposes of this assessment, any effects with a significance level of slight or less have been concluded to be not significant in terms of the EIA. Impacts to Air Quality ranged from **slight adverse** to **moderate adverse**, and **neutral** to **moderate beneficial**.

For the properties that are located along the proposed alignment, there will be a net increase in exposure to air pollution from road traffic during operationally. The majority of residents and occupants of these properties will experience an impact that will range in scale from a '**long term neutral** to **slight adverse**' impact to air quality. One property will experience a '**long term substantial adverse**' impact and a further three properties will experience a '**long term moderate adverse**' impact.

## 13 CLIMATE

This chapter of the EIAR assesses the potential climate impacts in terms of greenhouse gas emissions and climate adaptation that the Proposed Development may have on the receiving environment.

Potential effects on climate may arise during each phase of the Proposed Development, such as the pre-construction, construction, and operation. Each phase of the Proposed Development has been examined to identify those which have the potential for greenhouse gas emissions.

Greenhouse gas emissions (primarily carbon dioxide) have been estimated based on activities and materials for each phase of the Proposed Development. These emissions are used to model the potential climate impacts of the Proposed Development. Mitigation measures, cumulative impacts and significant effects are also examined in light of the modelled carbon emissions.

Till's proprietary carbon tool has been used to quantify carbon emissions from the Proposed Development. The carbon tool is a product with the goal of estimating, identifying and mitigating greenhouse gas emissions that accrue on large road and rail infrastructure projects. The main elements of the Proposed Development considered in this analysis include the following:

- **Pre-construction Stage**– Impacts account for emissions accrued before construction of the infrastructure commences. The primary activities which add to carbon emissions at this stage are site clearance, land use change and embodied carbon.
- **Construction Stage**– Carbon emissions generated during the construction stage arise from activities such as excavations, fuel use for plant, electricity and water use on site, waste management, etc.
- **Operation Stage**– These impacts are predominately related to traffic on the road network but also other sources such as road maintenance.

Embodied carbon in the materials and the transport of materials required for construction contributes to 40% of the total, this accounts for emissions over the entire design life of the Proposed Development. Construction accounts for circa 52% of the overall emissions. Construction Waste includes construction waste disposal and construction waste transport, and accounts for circa 6% of emissions. The use of these significant quantities of natural and processed resources for the construction of the three sections of the Proposed Development will generate significant quantities of greenhouse gases with potential for **adverse** impact.

A series of mitigation measures have been proposed to mandate the use of low carbon materials such as cement, steel and secondary aggregates. While this mitigation can somewhat reduce the levels of emissions, the volume and range of materials required mean that emissions can only be partially mitigated, and this is predicted to have a **minor adverse** impact on climate during pre-construction.

During the construction stage, the generation of greenhouse gas emissions is mainly derived from excavations, construction activities and waste generation. The levels of excavations are the primary contribution to the construction phase impacts. Section 1 is predicted to generate higher quantities of materials and higher emissions than Section 2 and 3. The construction phase of each of the three road sections is predicted to have a **minor adverse** impact on climate following implementation of the proposed mitigation.

The net impact on climate of the operational phase traffic emissions is classed as a direct and long term **Minor Adverse** with a potential transboundary impact given the wider road network modelled into Northern Ireland, which is not considered significant. While projected emissions are negligible relative to the Do-Minimum scenario, any emissions of GHG represents an adverse impact.

It is notable that the Business As Usual modelling that was carried out to inform the preparation of CAP23, CAP24, and CAP25 included several major infrastructure projects, including the Proposed Development. The modelling exercise carried out to inform the preparation of the CAPs showed that the targets (emission

reduction and vehicle kilometre reduction) set out in CAP23, CAP24, and CAP25 (transport sector targets have not changed in these three Climate Action Plans) at a national level could be achieved with the inclusion of the Proposed Development. Therefore, the delivery of the Proposed Development is consistent with CAP and with the achievement of the targets set out in CAP25 and CAP24 at a national level.

In summary, the Proposed Development is consistent with CAP24 and CAP25 and with the achievement of the targets set out in CAP24 and CAP25 at a national level, and An Coimisiún Pleanála, in granting approval for the Proposed Development, would be performing its functions, in so far as practicable, in a manner consistent with CAP24, CAP25, and the other matters specified in section 15 of the 2015 Act.

## 14 NOISE & VIBRATION

An assessment of the potential impacts on sensitive receptors in the vicinity of the Proposed Development during the construction and operational phases has been undertaken.

The assessment includes noise and vibration sensitive receptors along the route of each section as well as at sensitive receptors adjacent to existing roads in proximity to the proposed route where traffic flows are reduced by 20% or increased by 25%.

**Momentary, brief, temporary and short-term** increases in noise impacts will occur during the construction phase of the road works due to the requirement to use heavy plant and machinery. The assessment has determined that the noise from construction works will generally be below the TII construction noise thresholds. However, there are occasions when the plant is in proximity to the noise sensitive receptors where predicted noise impact will be greater than the noise thresholds and will result in a **significant negative** impact at those noise sensitive locations.

A range of mitigation measures are proposed to reduce the noise impacts, including the implementation of best practice noise control measures, controlling hours of operation, scheduling of works, application of construction noise limits and noise monitoring during construction activities with the greatest impact.

Construction vibration from the Proposed Development will arise during blasting, and use of heavy construction equipment close to sensitive properties. Vibration impacts during the construction phase will be controlled using low impact equipment and adherence to vibration limit values, which will be subject to monitoring at the nearest sensitive buildings during construction activities with the greatest impact. During the construction phase all rock blasting activity will be monitored for noise (air overpressure) and vibration (Peak Particle Velocity). Monitoring will be carried out at the nearest residence in all cases.

During the operational phase, the Proposed Development will divert traffic from higher population areas resulting in an overall **positive** effect for the Proposed Development with the number of noise sensitive locations with predicted noise levels greater than NRA design goal of 60 dB L<sub>den</sub> reducing. However, the Proposed Development will result in **negative effects** at some noise sensitive locations with 11 no. noise sensitive locations identified as meeting the TII criteria for mitigation for Section 1, and 16 no. and 9 no. noise sensitive receptor locations identified as meeting the TII criteria for mitigation for Section 2 and Section 3, respectively.

To reduce road traffic noise for as many properties as possible, all newly constructed roads on all sections of the Proposed Development were modelled as low noise road surfaces. Even with low noise road surfaces installed for the Proposed Development, the requirement for further mitigation was identified and mitigation measures in the form of noise barrier/bunds and traffic calming measures including speed limit restrictions have been proposed.

With mitigation measures in place, the Proposed Development will result in a **positive aggregate residual** effect under the END Noise Mapping and the Assessment of Change criteria. Therefore, the Proposed Development is judged to have a **significant positive** effect for RTN within the study area. This will result in beneficial environmental and health effects on the general population in the Proposed Development area.

## 15 MATERIAL ASSETS: AGRICULTURE

The information required to facilitate an impact assessment of the construction and operation of the Proposed Development in respect of agriculture / agronomy was compiled from desk research, roadside surveys, landowner surveys and (wherever possible) farm walkover surveys.

Principal agricultural systems within the Proposed Development are Specialist Sheep (44.9%), Specialist Beef Production (32.8%) and mixed grazing livestock (10.4%). There is also a proportion of tillage production (1.0%) and dairy production (2.0%). The average farm size (Average agricultural area (AAU)) in the scheme area is 27.4 ha, which is less than the national average (33 ha) but broadly in line with the average farm size in the northern and western Border counties.

**Section 1** is close to, and partially encompasses, the urban settlements and environs of Stranorlar and Ballybofey. In Section 1 there are 99 landowners affected by the Proposed Development. Of these 99 there are 41 agricultural properties where the residual significance of impact is deemed Major. On these properties, the farm enterprise can only continue with considerable accommodation works and management changes. Such management changes may involve changes to livestock type and livestock numbers, areas of fodder / crop production and the use of farmyard facilities. There are no farms where the level of impact is profound. Of the remaining farms the level of impact is deemed **moderate** on 23, **slight** on 20 and **imperceptible** on 15 farms.

**Section 2** is contiguous and interwoven with the major conurbation for this region namely, Letterkenny. Considerable changes in land usage from agriculture to residential or commercial has occurred in the section over the last twenty years and will continue to occur as demand increases. In Section 2 there are 74 landowners affected by the Proposed Development. Of these 74 there are 15 agricultural properties where the residual significance is deemed major. On these properties, the farm enterprise can only continue with considerable accommodation works and management changes. Such management changes may involve changes to livestock type and livestock numbers, areas of fodder / crop production and the use of farmyard facilities. There are 9 no. farms where the level of impact is **profound**, where all lands pertaining to these holdings are being subsumed into the scheme. The profound impacts are due to the individual or combined impact of land-take, land severance/division and / or the impact on essential farm buildings or facilities. The impact is such that no mitigation can overcome the effects and farming cannot continue. Of the remaining farms the level of impact is deemed **moderate** on 17, **slight** on 32 and **imperceptible** on one farm.

**Section 3** is the most rural of all the sections. In this section there are 86 landowners affected by the Proposed Development. Of these 86 there are 20 agricultural properties where the residual significance of impact is deemed major. On these properties, the farm enterprise can only continue with considerable accommodation works and management changes. Such management changes may involve changes to livestock type and livestock numbers, areas of fodder / crop production and the use of farmyard facilities. Of the remaining farms the level of impact is deemed **moderate** on 35, **slight** on 19, **imperceptible** on 7 and **profound** on 5 farms. The profound impacts are due to the individual or combined impact of land-take, land severance/division and / or the impact on essential farm buildings or facilities. The impact is such that no mitigation can overcome the effects and farming cannot continue.

The construction phase of the Proposed Development will result in the generation of noise and dust – both of which may adversely impact the wellbeing of farm animals – and may also result in the disturbance of land / services / field drainage and / or restricted access to land, with potentially negative effects on the operation and management of farms affected.

A suite of mitigation measures has been adopted as follows:

- Access will be restored to lands where it is removed or restricted, unless otherwise agreed with the landowner. This will be provided by way of accommodation access tracks, the replacement of field access gates or the provision of an overbridge or underpass.
- All drainage likely to be affected or disturbed during the construction works will be identified during discussions with landowners. Land drains will, to the extent possible, be maintained during the works. Any damage due to the works will be made good on completion of the works. The new drainage system

will be designed to ensure that there will be no increased risk of flooding as a consequence of the Proposed Development.

- Any services that are interfered with as a result of the Proposed Development will be repaired / replaced without unreasonable delay.
- Where necessary, suitable stockproof temporary fencing will be erected for the duration of the works. Where any fences, walls or hedges are damaged during the construction of these roads they will be made stock proof immediately, unless otherwise agreed with the landowner. Any necessary permanent restoration of fences, walls, or hedges will be completed within two months of the work concluding.
- A Project Liaison Officer (PLO) will be appointed by the local authority. The PLO will be the primary point of contact for landowners with concerns or issues that need addressing. Furthermore, the PLO will liaise with the local DVO to establish the location of any restricted herds along the route of the Proposed Development. Where the PLO has been informed of a restricted herd along the route, it will require the Contractor to disinfect machinery and personnel before leaving the land concerned. The number of accesses across the working strip will be reduced to one in the case of lands having restricted herd status. The Contractor will arrange for disinfectant mats/baths to be replenished with disinfectants, as required.

In addition to these general measures, specific mitigation measures have been prescribed for individual farms, as fit the impact(s) anticipated for each. It should be noted that, at this stage compensation for land acquisition and disturbance have not been considered. These matters will be agreed, if possible, with landowners or their representative(s) once approval for the Proposed Development has been granted. If agreement is not possible, such compensation will be decided upon by way of arbitration.

The overall effects of the Project have been assessed on the basis that the Project is built in its entirety. These effects include noise, air quality, traffic, drainage, disruption of water to stock, land take, and severance/division. In summary, the Proposed Development will have a permanent negative residual impact on 244 landowners

Overall, the Proposed Development will not have a significant impact on agriculture from a county perspective. It will have an impact from an individual farm perspective primarily from a loss of agricultural land and severance/division.

## 16 MATERIAL ASSETS: NON-AGRICULTURE

An assessment has been carried out on the potential impacts on the material assets: non-agriculture of the surrounding area during the construction and operational phases of the Proposed Development. The material assets that are considered include major utilities (electricity, telecommunications, gas supply and water and wastewater) and waste (waste facilities and waste generated by Proposed Development). An assessment of the effects of land take from non-agricultural properties along the route of the Proposed Development has also been undertaken as part of this chapter.

### 16.1 Utilities

Utility providers that are known to have services within, or adjacent to, the footprint of the Proposed Development include: electricity supply (ESB Networks and Eirgrid), water services (Irish Water and Donegal Water Services) and telecommunications (Eir, E-Net, SIRO, Three Networks Ireland and EXA Infrastructure). There are no existing gas networks in the scheme area.

The Proposed Development intersects with the future Lettergull Wind Farm grid connection route 38 kilovolt (kV) line (Planning Reference No. 20/51961) at two locations in Section 2 and one location in Section 3. Consultation has taken place with Lettergull Wind Farm representatives to ensure both can be constructed in accordance with their respective approvals.

The potential for impacts or disruption to utility services during the construction phase is predicted to be of local extent, brief (less than a day) to temporary (less than a year) in duration, and of high reversibility. It is predicted that any potential impact or disruption would affect the utility service involved directly and not result in a loss of resource. The magnitude is therefore, considered to be **negligible**.

There will be an interaction with a number of utilities, including: several overhead lines including 110 kV transmission cables, Project Kelvin (fibre optic cable connecting Ireland to North America, that is considered critical infrastructure) and a number of public water supply pipelines. These assets are considered to have a high sensitivity. The remaining utility assets are deemed to be of medium sensitivity.

Overall, the magnitude of the impact is deemed to be **negligible** and the sensitivity of utility assets in the area of the Proposed Development is considered to be Medium / High. The effect will, therefore, be of **slight adverse** which is not significant in EIA terms.

Extensive consultation with utility providers has resulted in conflict resolution for all major utility crossings. Consultation will be ongoing during detailed design to include for all crossings. The completion of the Proposed Development will not result in a loss of resources.

### 16.2 Waste

The Waste assessment included identifying the types of waste that could be generated by the Proposed Development, as well as the potential for reuse of materials. This assessment was informed by a desk-based study including identification of the types of waste that could be generated by the Proposed Development, a review of existing and proposed waste management facilities as well as the potential reuse of materials.

Waste management will incorporate the principles of the waste hierarchy with prevention being the preferred approach, followed by preparing for reuse, and recycling. Other recovery and disposal are the least preferred options for waste. These principles will also be applied in line with the Circular Economy Model throughout the construction and operational phases. This will ensure that waste generation will be minimised.

The Proposed Development will source materials for construction, and it is best practice to use local suppliers and to reuse materials on site. This minimises the attendant environmental impact, cost of waste transport and supports the economic well-being of the local communities in line with the proximity principle; the principle that goods, services and waste should be managed as close to their point of use or generation as practicable to reduce transport-related emissions, resource use and costs while strengthening local circular economy opportunities.

The Proposed Development will require a variety of construction methodologies resulting in the generation of various waste streams. The majority of the waste will be generated from the demolition of structures within the Proposed Development boundary, excavation arisings that are classified as a waste, and at the construction compounds.

Surplus materials are likely to be generated during the following activities:

- Demolition – including waste generated from the demolition of both residential and commercial buildings to allow the construction of the Proposed Development.
- Excavation – including waste generated from the excavation of existing carriageway, excavation works associated with steep slopes and excavation for utility diversions and/or protections.
- Operation – including waste generated from maintenance activities following completion of the Construction Phase.

A number of mitigation measures during construction for excavated materials, piling arisings and made ground management will allow the Proposed Development to be constructed with limited effects upon the surrounding environment. These mitigation measures will be implemented to avoid or reduce negative impacts on waste and resources during the construction phase, including minimising waste disposal. Opportunities for reuse of materials, byproducts and wastes will be sought throughout the construction phase of the Proposed Development. This will be managed through the construction phase by implementing a Construction and Demolition Resource and Waste Management Plan (WMP).

The total forecast of excavated material generated from Section 1 of the Proposed Development will be 2.70 million m<sup>3</sup>, 2.06 million m<sup>3</sup> of which will be available for re-use as engineering fill with another approximately 645,000 m<sup>3</sup> available for other uses.

In Section 2 of the Proposed Development, it is anticipated that approximately 1.91 million m<sup>3</sup> of excavated material will be generated, 1.53 million m<sup>3</sup> of which will be available for re-use as engineering fill with another approximately 384,000 m<sup>3</sup> available for other uses.

In Section 3 of the Proposed Development the total estimated of excavated material generated will be 3.35 million m<sup>3</sup>, 2.83 million m<sup>3</sup> of which will be available for re-use as engineering fill with another approximately 515,450 m<sup>3</sup> available for other uses.

All the surplus material will be re-used within the works, either in designated deposition areas or as other engineering fill within the lands made available. There are a total of forty-five deposition areas located within the CPO boundaries of the Proposed Development and the location of these deposition areas is in close proximity to the permanent works in areas with the least environmental /ecological impact. It is estimated that approximately 14,987 tonnes of waste materials will be generated from the demolition of the identified properties.

The quantities of waste that will require off site transfer for either reuse, recovery or disposal are not significant in a way that they will impact on the available and expected waste management capacities in the region. The vast majority of the materials generated on-site will be re-used in the works and as such are not classified as a waste. Given the relatively low volume of waste expected to be generated from the construction of the Proposed Development, the impact will be local to regional in spatial extent, of permanent duration, continuous and low reversibility. The magnitude is therefore considered to be **low adverse**.

Overall, the magnitude of the impact is deemed to be low and the sensitivity of the receptor is considered to be low. The effect will, therefore, be of **slight adverse** significance for waste sent off-site, which is **not significant** in EIA terms.

The main potential impacts on waste and resources during the operational phase will be waste generated from road maintenance activities following completion of the construction phase. Maintenance operations will be undertaken under the jurisdiction of Donegal County Council and in accordance with their waste management plans. The predicted characteristics of the impacts resulting from the operation of the roads are considered negligible due to the expected low volume of maintenance wastes. It is envisaged that a high proportion of this material will be green, biodegradable wastes in nature. No additional mitigation or

monitoring measures are considered necessary. The potential impact of operational waste will be **adverse, not significant and long-term**.

With the implementation of the proposed mitigation and control measures, it is expected that there will be no residual significant impacts on waste and resources during the construction and operational phase of the Proposed Development.

Overall, the magnitude of the impact is deemed to be **negligible** and the sensitivity of utility assets in the material assets scheme area is considered to be medium. The magnitude of the impact on waste management is deemed to be low and the sensitivity of the receptor is considered to be low.

The cumulative effect of the construction and operation phases will, therefore, be of **slight adverse significance** for both utilities and waste management, which is **not significant** in EIA terms.

### 16.3 Non-Agricultural Land take

An assessment of the effects of land take from non-agricultural properties along the route of the Proposed Development has also been undertaken as part of this chapter. Property types have been categorised for the purposes of the assessment (e.g. residential, residential including agriculture, commercial and other). The assessment considers accommodation works that are built into the design of the scheme to minimise impacts on non-agricultural property receptors.

The Proposed Development will require land take from 300 no. non-agricultural properties. Sensitivity and magnitude of impact ratings have been applied to each, noting the nature and extent of temporary and permanent land take and the nature, characteristics and location of the property in question. These ratings have informed the residual effects identified. The findings of the assessment identify profound effects on 40 no. non-agricultural properties, which is the highest severity of effect allocated. In most of these cases however, the entire landholding plot is proposed to be acquired and / or a dwelling house or commercial property is proposed to be demolished to facilitate the Proposed Development.

In cases where land take is necessary, compensation will be provided under the CPO process to the relevant landowners as deemed appropriate. As such, property-specific mitigation above that specified in the accommodation works (e.g. provision of new boundary treatment, works to entrances) is not recommended.

Overall, the impact on non-agricultural land take is **not significant** from a national, regional or county perspective. The impact varies from **imperceptible to profound** significance from a local or individual perspective.

## 17 CULTURAL HERITAGE

The impact assessment on the Cultural Heritage resource was undertaken with reference to available recorded cultural heritage datasets, field surveys, archaeological LiDAR assessment findings and licenced archaeological geophysical survey/test-trenching results at select locations. The assessment has identified, as far as reasonably possible, all Cultural Heritage receptors within a 300 m wide corridor. The receptors have been assessed in the context of construction, operational phases of the Proposed Development. Cumulative and transboundary effects have also been identified. All identified quality of effects on the Cultural Heritage resource are considered **negative**.

There are a total of 291 no. direct and 131 no. indirect construction stage impacts on the Cultural Heritage resource. Of the predicted construction stage impacts there are no Profound impacts. However, unrecorded archaeological sub-surface remains are likely to be encountered throughout the scheme footprint during construction stage. Adequate mitigatory measures will be put in place to address this. This will include a programme of archaeological geophysical surveys and/or test trenching followed by preservation in situ (avoidance) where possible and thereafter preservation by record (licenced archaeological excavation and recording) of any identified archaeological features, deposits or artefacts. In addition, provision has been made for archaeological underwater or wade surveys, metal detection surveys, historic building surveys and townland boundary surveys, where relevant, within the Proposed Development area.

**Table 17.1 Construction Stage Impacts on the Cultural Heritage resource**

Section	Direct	Indirect	No Predicted Effect
1	94	52	75
2	58	12	71
3	139	68	78
<b>Totals</b>	<b>291</b>	<b>132</b>	<b>224</b>

There are a total of 3 no. direct and 80 no. indirect operational stage impacts on the Cultural Heritage resource. Of the predicted operational stage impacts there are no Profound impacts. In several instances, impact on setting for a given receptor can occur both during construction and at operational stage. In general terms, where Indirect impact on Cultural Heritage receptors cannot be avoided, this can be reduced by adoption of a range of inter-disciplinary approaches including maximising use of existing topography and natural screening by trees and hedgerows; use of sympathetic landscaping and/or planting/screening to areas such as raised embankments; installation of noise barriers and/or artificial lighting solutions; and provision of improved accessibility options to areas of cultural heritage amenity value.

**Table 17.2 Operation Stage Impacts on the Cultural Heritage resource**

Section	Direct	Indirect
1	2	35
2	1	4
3	0	41
<b>Totals</b>	<b>3</b>	<b>80</b>

For Section 1 there is Indirect **significant** impact on the setting of a ringfort 'Dunwiley Fort', a holy well and former church site (including grouping value) at Drumboe Lower; a vernacular cottage and an outbuilding at Drumboe Upper and another vernacular outbuilding at Cappry. Provision of exclusion zones during construction and written and photographic monument/structure setting prior to construction together with

improved visitor access and heritage information provision (Dunwiley Fort and Drumboe holy well/church grouping value) will be undertaken as mitigatory measures.

For Section 2 there are **no significant** impacts predicted.

For Section 3 there is Indirect **very significant** impact on Croaghan House and Direct **very significant** impact on its associated historic demesne. There is indirect **significant** impact on Cavanacor House and direct **significant** impact on its associated former historic demesne. In addition, there is direct **significant** impact on a former railway Station Master's House at Ballindrait. There are indirect **significant** impacts on the setting of St. Patrick's church and bell tower at Murlough, Gort Manse and associated vernacular features, outbuildings at Murlough and outbuildings at Mondooey Lower. Provision of exclusion zones during construction and written and photographic setting records of monument/ structure/ designed landscape features prior to construction, as well as archaeological geophysical survey and test-trenching within the development footprint at Croaghan House historic demesne, will be undertaken as mitigatory measures.

**Table 17.3 Significance of Effect on the Cultural Heritage resource**

Significance of Effect	Construction Stage			Total	Operational Stage			Total
	Section 1	Section 2	Section 3		Section 1	Section 2	Section 3	
Profound	0	0	0	<b>0</b>	0	0	0	<b>0</b>
Very Significant	0	0	2	<b>2</b>	0	0	1	<b>1</b>
Significant	7	0	6	<b>13</b>	7	0	6	<b>13</b>
Potential	11	9	17	<b>37</b>	0	0	0	<b>0</b>
Moderate	15	9	32	<b>56</b>	9	3	10	<b>22</b>
Slight	73	18	116	<b>207</b>	15	2	20	<b>37</b>
Not Significant	39	43	28	<b>110</b>	1	0	3	<b>4</b>
Imperceptible	1	62	82	<b>145</b>	5	0	1	<b>6</b>

For Section 1, there are two **significant** residual effects on the Cultural Heritage resource at Dunwiley Fort and a holy well at Holywell Woods (Drumboe Lower). For Dunwiley Fort post-mitigation measures that have incorporated exclusion zones, strategic landscaping/planting and enhanced visitor (non-ground intrusive) access to reduce and offset construction and operational stage impacts. For the holy well post-mitigation measures that have incorporated exclusion zones and a written and photographic record of setting at this location to reduce and offset construction and operational stage impacts.

For Section 2, there are no predicted Significant residual effects.

For Section 3, there are two **significant** residual effects on the Cultural Heritage resource at Croaghan House and Cavanacor House. For Croaghan House post-mitigation measures that have incorporated exclusion zones, built heritage records (including setting) in advance of construction, archaeological geophysical survey and testing investigations and strategic landscaping/planting to reduce and offset construction and operational stage impacts. For Cavanacor House post-mitigation measures that have incorporated exclusion zones, built heritage records (including setting) in advance of construction, archaeological geophysical survey and testing investigations and strategic landscaping/planting to reduce and offset construction and operational stage impacts.

**Table 17.4 Residual Significance of Effect on the Cultural Heritage resource**

Residual Significance of Effect	Section 1	Section 2	Section 3	Totals
Profound	0	0	0	<b>0</b>
Very Significant	0	0	0	<b>0</b>
Significant	2	0	2	<b>4</b>
Potential Significant	11	9	17	<b>37</b>
Moderate	5	0	8	<b>13</b>
Slight	16	7	29	<b>52</b>
Not Significant	23	4	120	<b>147</b>
Imperceptible	92	42	22	<b>156</b>

## 18 LANDSCAPE & VISUAL

A Landscape and Visual Impact Assessment (LVIA) was completed to identify and determine the effects on landscape character, landscape features, visual receptors and visual amenity as a result of works associated with the Proposed Development. The assessment includes photomontages of key viewpoints established and assessed as part of the LVIA. Assessment of effects has been undertaken for Construction Stage and Operational Stage of the Proposed Development. The effects have also been assessed before and after successful implementation and establishment of mitigation (planting).

The landscape has been appraised and classified into landscape character areas that enable the classification of landscape quality. The capacity of the landscape to accept change of the type proposed is assessed by determining the sensitivity of each landscape character area.

Site visits have been undertaken to assess the existing environment, to establish the existing visual resource and to identify sensitive receptors, i.e. residential properties, scenic viewpoints. Site visits were also used to establish the perceived extent of landscape and visual impacts that may be associated with the Proposed Development.

The Proposed Development and associated environs lie within areas covered by County Donegal Development Plan 2018 - 2024, which has been reviewed to establish and identify areas of protected landscapes or landscape designations that are relevant to the LVIA:

- **Section 1:** The review has identified one Landscape Character Area – LCA 14 Finn Valley - and no listed Historic Gardens.
- **Section 2:** The review has identified one Landscape Character Area – LCA 15 Letterkenny Estuary and Farmland - and no listed Historic Gardens.
- **Section 3:** The review has identified two Landscape Character Areas – LCA 12 Laggan Valley and LCA 13 Foyle Valley – and three listed Historic Gardens - Cavanacor House, Croghan House and Lifford Infirmary.

During the construction phase, **localised significant** effects have been predicted to occur for all landscape character areas in close proximity to the Proposed Development. The remaining portions of the landscape character areas further from the Proposed Development are predicted to experience **no significant** effects.

During the operational phase, **localised moderate** and **moderate to significant** effects are predicted to occur at the time of scheme opening, as areas of planting will not be fully established. The remaining portions of landscape further from the Proposed Development will not experience any significant landscape effects.

Photomontages were completed for a total of 38 viewpoints within the Proposed Development. These viewpoints have been assessed as part of the LVIA. The majority of the significant visual impacts identified relate to viewpoints in close proximity to the Proposed Development:

- **Section 1:** A total of 12 viewpoints have been assessed. **Significant** visual impacts have been predicted for seven viewpoints during the construction phase, whilst five viewpoints are predicted to experience significant visual impacts during the operational phase, prior to successful implementation and establishment of mitigation measures.
- **Section 2:** A total of 12 viewpoints have been assessed. **Significant** visual impacts have been predicted for nine viewpoints during the construction phase, whilst seven viewpoints are predicted to experience significant visual impacts during the operational phase, prior to successful implementation and establishment of mitigation measures.
- **Section 3:** A total of 14 viewpoints have been assessed. **Significant** visual impacts have been predicted for 14 viewpoints during the construction phase, whilst 14 viewpoints are predicted to experience significant visual impacts during the operational phase, prior to successful implementation and establishment of mitigation measures.

A residential visual amenity impact assessment has also been undertaken as part of the LVIA. This assessment follows the LVIA methodology and examines a 500 m corridor on either side of the Proposed Development. It is noted predicted effects relate to those properties in close proximity to the Proposed Development:

- **Section 1:** From the 169 residential groups and individual properties assessed. **Significant** impacts are predicted to occur to 60 such groupings without mitigation.
- **Section 2:** From the 96 residential groups and individual properties assessed. **Significant** impacts are predicted to occur to 25 such groupings without mitigation.
- **Section 3:** From the 150 residential groups and individual properties assessed. **Significant** impacts are predicted to occur to 38 such groupings without mitigation.

Following the effective implementation and establishment of the proposed mitigation measures (planting), predicted landscape and visual effects associated with the Proposed Development will be reduced. However, it is considered that bridge structures and embankments in close proximity to residential dwellings will continue to cause **long term effects**, although these features would gradually integrate into the surrounding landscape, as mitigation planting matures, and will be perceived as part of the visual pattern of the route.

Road gantries, signage and lighting proposed at new junctions, and at other locations along the development, would also result in permanent landscape and visual effects, though such effects are not considered to be uncommon along the portions of Proposed Development that have an established road corridor.

## 19 INTERACTIONS & CUMULATIVE EFFECTS

This chapter assesses interactions between environmental disciplines (Chapters 7–18 of the EIAR) and cumulative effects from other developments within the study area for the Proposed Development. The chapter follows relevant EIA legislation and EPA guidance on addressing interactions and cumulative effects.

### 19.1 Methodology

The chapter sets out a staged Cumulative Impact Assessment (CIA) approach:

- Stage 1: Desk study to identify projects within a 5 km study area (over 1,000 projects identified).
- Stage 2: Project screening to identify those projects with potential to interact with the Proposed Development and produce cumulative impacts.
- Stage 3: Detailed assessment of screened-in projects across environmental disciplines.

An Interactions Matrix (and Interactive Effects Summary Matrix) is used to identify where two or more environmental topics may interact during construction and operation. The chapter includes screening criteria, data-confidence allocation and tables that summarise interaction outcomes

### 19.2 Interactions

Interactions are determined through consultation between relevant environmental experts and the design team. Public and stakeholder consultations were completed at key stages of design and relevant input informed the assessment of interactions. Furthermore, disciplines such as Material Assets Agriculture and Material Assets Non-Agriculture consider information provided through consultations with land liaison officers (LLOs) and landowners.

Identified interactions between factors were considered during construction (C) and operational (O) phases.

The chapter provides sectional descriptions for each discipline and summarises where interactions may be significant:

- **Traffic & Transportation:** interactions have been identified with Population, Human Health, Land, Soil & Hydrogeology, Water, Air Quality, Climate, Noise & Vibration, Material Assets (Agriculture and Non-Agriculture) and Landscape & Visual.
- **Population:** interactions not already addressed in the preceding topic have been identified with Human Health, Air Quality, Noise & Vibrations, Material Assets (Agriculture and Non-Agriculture), Cultural Heritage and Landscape & Visual.
- **Human Health:** interactions not already addressed in the preceding topics have been identified with Biodiversity, Land, Soil & Hydrogeology, Air Quality and Noise & Vibrations.
- **Biodiversity (terrestrial & aquatic):** interactions not already addressed in the preceding topics have been identified with Land, Soil & Hydrogeology, Water, Air Quality, Noise & Vibrations and Landscape & Visual.
- **Land, Soil & Hydrogeology:** interactions not already addressed in the preceding topics have been identified with Water, Air, Climate, Noise & Vibrations, Material Assets (Agriculture and Non-Agriculture), Cultural Heritage and Landscape & Visual.
- **Water:** interactions not already addressed in the preceding topics have been identified with Air Quality, Material Assets (Agriculture and Non-Agriculture) and Cultural Heritage.
- **Air Quality:** interactions not already addressed in the preceding topics have been identified with Material Assets (Agriculture).
- **Climate:** interactions not already addressed in the preceding topics have been identified with Material Assets (Non-Agriculture).
- **Noise & Vibration:** interactions not already addressed in the preceding topics have been identified with Cultural Heritage and Material Assets (Agriculture).

- **Material Assets (Agriculture):** interactions not already addressed in the preceding topics have been identified with Material Assets (Non-Agriculture) and Landscape & Visual.
- **Material Assets (Non-Agriculture):** interactions not already addressed in the preceding topics have been identified with Landscape & Visual.
- **Cultural Heritage:** interactions not already addressed in the preceding topics have been identified with Landscape & Visual.
- **Landscape & Visual:** interactions already addressed in the preceding topics.

With the implementation of the proposed mitigation measures outlined in Chapter 6 to Chapter 18, it is considered unlikely that the potential interactions between the environmental disciplines will result in significant adverse effects.

### 19.3 Cumulative Effects

Cumulative effects are assessed with further consideration of existing and approved projects with potential to affect the Proposed Development. For completeness, certain other projects pending or planned, but which may not have obtained planning permission, were also considered in the cumulative impact assessment. A cumulative impact assessment (CIA) has been developed by the project team based on published guidance, in order to screen the projects that may have likely significant cumulative effects with the Proposed Development. The assessment considered the level of detail publicly available for projects, as well as the potential for interactions on a conceptual, physical and temporal basis.

98 no. projects and developments were considered for the cumulative impact assessment. The A5 Western Transport Corridor (A5 WTC) had potential for significant negative cumulative impacts in relation to Cultural Heritage. Specifically, the protected Historic Buildings (NI) of Castletown House and Carricklee gate-lodge in Section 3. Should the A5 WTC be consented for planning, Castletown House (HB10/08/007) will be demolished. There are no further mitigations that can be considered as part of the Proposed Development to reduce the level of impact to the Cultural Heritage feature. The Proposed Development itself will not result in significant effects.

In terms of Biodiversity, potential significant, short-term, direct and indirect construction phase effects could not be ruled out in relation to two separate proposed projects that have close interaction with Section 1 of the Proposed Development: (1) Ballybofey / Stranorlar Flood Relief Scheme (in early design stage), and (2) Barnesmore Gap Greenway (in design and environmental evaluation stage). Whilst it is not a given these two proposed projects will have concurrent construction timeframes to the Proposed Development, specific mitigation has been prescribed to reduce potential for cumulative effects to **not significant**.

### 19.4 Transboundary Effects

The potential for transboundary effects was discussed with relevant disciplines leads. Only disciplines with potential pathways were considered. A potential interaction with Northern Ireland exists in the proposed cross-border connection between the N14/N15 to A5 Link, south of Lifford, across the River Finn to connect to the interface with a proposed Trunk Road T3 in Northern Ireland (which in turn connects to the proposed A5 WTC south of Strabane). If the Trunk Road T3 and the A5 WTC are consented in the future and the N14/N15 to A5 Link is in place, there will be cross-border connectivity.

For all disciplines, transboundary effects associated with the Proposed Development are considered **not significant**.

## 20 RISKS OF MAJOR ACCIDENTS AND DISASTERS

This chapter of the EIAR presents the assessment of the expected significant adverse effects of the Proposed Development on the environment deriving from the vulnerability of the Proposed Development to risks of major accidents and/ or disasters which are relevant to the Proposed Development. The assessment is considered under two main scenarios:

1. Where the Proposed Development may cause a major accident and/or disaster.
2. Where the Proposed Development is vulnerable to hazards resulting in a major accident and/or disaster.

There is no topic specific national guidance on the assessment of major accidents and/or disasters for the purposes of EIA. This assessment has therefore had regard to the methodology set out in *Major Accidents and Disasters in EIA: A Primer* (IEMA, September 2020<sup>2</sup>) along with relevant national guidance on risk assessment. The IEMA (2020) approach defines a “significant environmental effect” as one which “*could include the loss of life, permanent injury and temporary or permanent destruction of an environmental receptor which cannot be restored through minor clean-up and restoration*” and this definition has been adopted for the purposes of this assessment.

The methodology involves three stages: Screening, Scoping and Assessment.

### 20.1 Stage 1 Screening

The screening stage identifies if a development has a vulnerability to major accidents and/or disasters and considers whether a development could lead to a significant effect. The screening exercise considered both construction and operational aspects of the Proposed Development.

Taking into consideration the design of the Proposed Development, and proposed mitigation measures, the Proposed Development is screened in for Stage 2 for both the construction and operation phases.

### 20.2 Stage 2 Scoping

A scoping exercise was undertaken to determine whether there is the potential for significant adverse effects on the environment deriving from the vulnerability of the Proposed Development to risks of major accidents and/or disasters which are relevant to the Proposed Development.

Scoping takes a risk-based approach based on the following:

- **Likelihood of occurrence.** A 5-point scale from Very Likely to Extremely Unlikely; and
- **Impact on receptors** (i.e. People, EIA Factors, Essential Services, and Society). This is also a 5-point scale from Very Low Impact to Very High Impact.

A Source-Pathway-Receptor (S-P-R) model was also applied to the scoping stage where any hazard that does not have a pathway to the receptor or where there is no receptor can be scoped out.

Hazards are evaluated by assessing the likelihood and the impact to determine a level of significance.

Where a hazard has been assessed in another EIAR chapter it can be excluded from this chapter, e.g. Climate Change Risk is assessed in Chapter 13: Climate.

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<sup>2</sup> In 2025, IEMA (Institute of Environmental Management and Assessment) rebranded to ISEP (Institute of Sustainability and Environmental Professionals).

As described in IEMA's *Major Accidents and Disasters in EIA* (pp.13-16, 2020), the scoping approach directs the assessment to focus on low likelihood but potentially high consequence events.

The scoping exercise considered a number of topics for both the construction and operation phases of the Proposed Development. These are:

- Major transport accident
- Local Communities and Health
- Environmental Degradation/ Pollution
- Climate & Weather Events
- Geohazards - Landslides
- Geohazards - Subsidence
- Geohazards - Flooding
- Geohazards - Coastal Erosion
- Other Natural Hazards - Earthquakes
- Other Natural Hazards - Wildfire
- Utilities
- Regulated Sites - Seveso/ COMAH
- Regulated Sites - EPA Licenced Facilities, Waste and Contaminated Land

None of the hazards/ risks identified for either the construction or operation stages of the Proposed Development scoped in for Stage 3: Assessment.

### 20.3 Stage 3 Assessment

Stage 3: Assessment provides further understanding on the scoped in hazards and the risk of major accidents and disasters.

As none of the construction and operation hazards/ risks have scoped in for Stage 3: Assessment, no assessment is required.

### 20.4 Mitigation Measures

As no hazards/ risks have scoped in for assessment, no additional mitigation measures other than what is included in the other EIAR chapters are required.

### 20.5 Monitoring

As no hazards/ risks have scoped in for assessment, no additional monitoring measures other than what is included in the other EIAR chapters are required.

### 20.6 Residual Effects

The scoping stage of the assessment identified no hazards with a likelihood of resulting in a risk of a major accident and/or disasters.

The design of the Proposed Development and the implementation of the proposed mitigation measures will adequately control the potential for major accidents and/or disasters. The assessment indicates that there is no potential for major accidents and/or disasters to be caused by the Proposed Development and that the Proposed Development is not vulnerable to major accidents and/or disasters that would result in significant adverse effects.

It should be noted that the transfer of high volumes of traffic from the urban centres of Ballybofey, Stranorlar, and parts of Letterkenny and Lifford, to the new bypass routes; and from the sub-standard existing road network to the high quality, safer new roads will result in a significant reduction in risk of serious traffic related incidents and disasters occurring during the operational phase.

## 21 SCHEDULE OF ENVIRONMENTAL COMMITMENTS

Chapter 21 of the EIAR collates all the mitigation and monitoring commitments (environmental commitments) provided within Chapters 6 to 20.

Full details of the various commitments should be obtained by reference to the individual chapters. All mitigation measures, controls, procedures, monitoring and other requirements described in the EIAR and NIS and any other conditions attached to approvals granted by An Coimisiún Pleanála will be implemented in full.