16. TRAFFIC AND TRANSPORTATION

16.1 INTRODUCTION

This chapter of the Environmental Impact Assessment Report (EIAR) outlines the Traffic and Transportation Assessment for the proposed project. The chapter considers the likely significant effects of the proposed project and proposes appropriate mitigation measures to avoid, reduce, or offset these effects.

The proposed project consists of fourteen (14) wind turbines with all associated site works, including a grid connection (GCR) and works to accommodate Abnormal Indivisible Load (AIL) delivery route. A full description of the proposed project is provided in Chapter 2 – Description of the Proposed Project.

For projects of this nature, the construction phase constitutes the critical period of potential impact on the surrounding road network. These impacts primarily relate to the temporary increase in traffic volumes and the specific geometric requirements necessary to accommodate abnormal indivisible loads (AIL) associated with turbine components. The locations where temporary accommodations are required to facilitate turbine delivery have been identified and are detailed within this chapter. To mitigate these impacts during the construction stage, a comprehensive Traffic Management Plan (TMP) has been prepared and is provided in Appendix 16-1 of this EIAR.

16.1.1 Statement of Authority

This chapter of the EIAR has been prepared by Carol Rosario of TOBIN. Carol Rosario has over six years of professional experience in the Traffic and Transport field. She holds an MSc in Transport Planning & Modelling and a BEng degree. Her expertise includes the delivery of Traffic and Transport Assessments for both public and private sector projects, with specific experience in the preparation of EIAR and EIS documentation for environmental developments.

In addition, Carol has technical proficiency in junction and network analysis using industry-standard modelling software packages, including LinSig3, ARCADY, PICADY, and VISSIM.

The swept path assessment of the internal access track network was carried out by Michael Nolan, CAD / GIS Manager in TOBIN. Michael has over 25 years of professional experience in building and environmental consulting including the preparation of swept path assessments. Michael has worked on a number of wind farms with various roles. Michael has a City & Guilds qualification from Griffith College Dublin in computer aided design and draughting using Autodesk CAD software which includes Autotrack and swept path analysis training.

The Road Safety Audit was carried out by Stuart Summerfield (HNC MSoRSA MCIHT) and PJ Gallagher (BEng M.Inst.A.E.A. MITAI) of CST Group Chartered Consulting Engineers. Stuart has over 30 years' experience in civil engineering, development infrastructure and road safety. Stuart worked for both private practice and local authority, on major road, urban renewal and traffic calming schemes and the civil engineering aspect of both small and large building projects. Stuart is an experienced TII Approved Road Safety Audit Team Leader and has undertaken over 1000 road safety audits on national and non-national roads throughout Ireland and the UK. Stuart is the Regional Representative for the Republic and Northern Ireland branch of the Society of Road Safety Auditors (SoRSA). PJ works as a Road Safety Consultant / Road Safety

Auditor with CST Group. Prior to this PJ worked for over 35 years in An Garda Siochana, as a PSV Inspector/Forensic Collision Investigator where he was involved in the investigation of hundreds of collisions. He also assisted with the Technical Forensic Investigation of all types of vehicles and collision scenes, with a view to establishing causation and report preparation for any pending courts. PJ also has 15 years of experience as a Police Forensic Collision Investigator in An Garda Siochana leading to the examination of numerous live collision scenes as well as invaluable experience in giving Technical Evidence. PJ is a TII approved Road Safety Auditor and has completed over 300 audits to date.

The Autotrack Analysis for the assessment of the Turbine Delivery Route (TDR) was prepared by William Gallagher (B.Eng Civil Eng.) of Digital Land Surveyors Ltd. William is a competent expert in Transport Assessments using Autotrack Analysis and Digital Topographical Surveys with over 20 years' experience in the field. William has been working at Digital Land Surveyors as a surveyor since 2003 and has continuously updated software training and surveying equipment to ensure all data used for Autotracking is up to date. He has also commissioned bespoke drawings from the software provider for the most up to date trailer configurations, with data provided by the trailer manufacturer. William has provided advice for a range of clients in the private and public sectors. William has worked on various transport studies for all the major wind farm developers in Ireland and he has also carried out transport studies in the UK, Romania, Morocco and Bulgaria. William has particular expert experience in the vertical alignment analysis of roads to be used for wind farms.

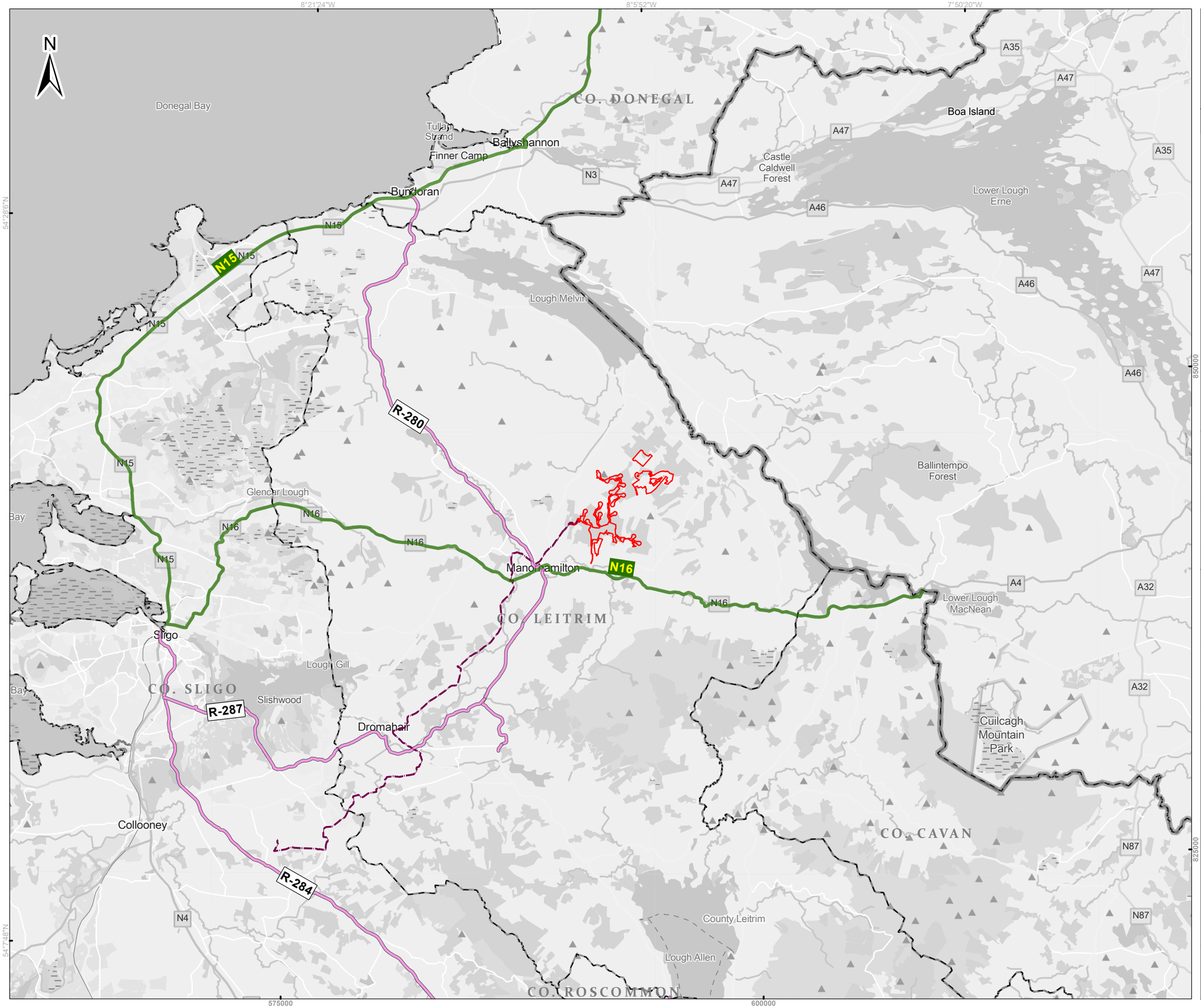
This chapter was reviewed by Maria Rooney (TOBIN Associate Director: Roads and Traffic) who is a Chartered Engineer and has a Bachelor of Engineering in Civil Engineering and Master of Engineering in Roads and Transport Engineering. She has over ten year's work experience in roads and transport engineering. Maria has undertaken many Traffic and Transportation Assessments (TTA) and EIAR Traffic Chapters for various developments including environmental projects, waste management facilities and energy projects.

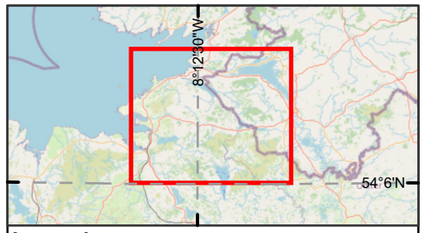
16.1.2 Site Location and Use

The proposed wind farm site is located in north County Leitrim between the villages of Kiltyclogher to the northeast and Manorhamilton to the southwest. The closest turbine is located approximately 3 km northeast of Manorhamilton and approximately 4 km southwest of Kiltyclogher.

The proposed project site is located between the R282 and R283 regional roads, and L61801, L6184, L61844, L6117, L61803, L61804, and L61807 local roads. In general terms, the area surrounding the wind farm site can be described as rural with dispersed settlement type. Figure 16-1 and Figure 16-2 present the location of the proposal in relation to relevant road network.

A detailed description of the proposed project is provided in Chapter 2 - Description of the Proposed Project.





Legend

- Application Boundary
- County Boundaries
- Grid Connection Route

Roads

- National Roads
- Regional Roads

0 5 10
Kilometers

Spatial Reference
Datum: IRENET95
EPSG: 2157

Rev	Date	Description	By	Chkd.
A	04/03/2026	First issue	K.K	S.R

Client:
FuturEnergy Ireland

Project:
Lissinagroagh Wind Farm

Title:
Figure 16-1:
Site Location at Regional Level

Scale @ A3: 1:180,000

Prepared by:	Checked by:	Date:
K.Kale	S.Ryan	March 2026

TOBIN
Tel: +353-(0)1-8030406
Email: info@tobin.ie
www.tobin.ie

Map Ref: 10955-029-REG-P.App.BO-TOB-A

Draft: A

Legend

- Application Boundary
- County Boundaries
- Grid Connection Route

Roads

- National Roads
- Local Roads

0 0.5 1
Kilometers

Spatial Reference
Datum: IRENET95
EPSG: 2157

Rev	Date	Description	By	Chkd.
A	15/04/2026	First issue	K.K	S.R

Client: FuturEnergy Ireland

Project:
Lissinagroagh Wind Farm

Title:
Figure 16-2:
Site Location at Local Level

Scale @ A3: 1:30,000

Prepared by: K.Kale
Checked by: S.Ryan
Date: April 2026

TOBIN
Tel: +353-(0)1-8030406
Email: info@tobin.ie
www.tobin.ie

Map Ref: 10955-030-L.NET-P.App.BO-TOB-A

Draft: A

16.1.3 Relevant Standards and Guidance

The following relevant policy documents, standards and guidance have been adhered:

- Guidelines on the information to be contained in Environmental Impact Assessment Reports (EPA, 2022);
- Traffic and Transport Assessment Guidelines (TII PE-PDV-02045, May 2014);
- Project Appraisal Guidelines for National Roads Unit 5.3 - Travel Demand Projections (TII PE-PAG-02017, October 2021);
- Geometric Design of Junctions (priority junctions, direct accesses, roundabouts, grade separated and compact grade separated junctions) (TII DN-GEO-03060, May 2023);
- Rural Road Link Design (TII DN-GEO-03031, May 2023);
- Road Safety Audit Guidelines (GE-STY-01027, May 2025); and
- 'Purple Book' - Guidelines for Managing Openings in Public Roads (Second Edition April 2017 DoTTS).
- Leitrim County Development Plan 2023-2029;
- Sligo County Development Plan 2024-2030
- Donegal County Development Plan 2024-2030

16.1.4 EIAR Scoping

In accordance with the *Traffic and Transport Assessment Guidelines (TII Publication No. PE-PDV-02045, May 2014)*, a scoping exercise was undertaken with the relevant local authorities and statutory bodies.. The purpose of scoping is to provide a framework for the approach to be taken by the individual specialists in carrying out their evaluations, identifying environmental aspects for which potential significant environmental effects may arise.

Copies of the consultation responses are included in Appendix 1-2 and summarised in Table 16-1.

Table 16-1: Consultation Response Summary

Consultee	Summary of Response	EIAR Chapter / Section
Leitrim County Council (LCC)	The LCC Planning Section should be consulted to identify any committed developments within the study area to ensure that potential cumulative impacts are appropriately considered. The junction of the N16 and Park Lane should be assessed in conjunction with the adjacent identified location, as it is likely to be utilised during both the delivery and construction phases of the proposed development. A number of bridges and culverts located along the proposed construction and delivery routes will require detailed assessment to confirm their structural carrying capacity and to ensure that adequate road width is available to	Section 16.7.

Consultee	Summary of Response	EIAR Chapter / Section
	accommodate construction traffic, including abnormal loads where applicable. In addition, certain areas highlighted in red on the submitted drawings were identified as non-public roads; therefore, their legal status and accessibility should be verified prior to inclusion in the assessment.	
Sligo County Council (SCC)	Sligo County Council advised that the applicant should refer to the Council's website, where details and the application process for obtaining an Abnormal Load Permit are provided.	N/A
Donegal County Council	No observations in relation to traffic and transport at this stage and advised continued engagement with Leitrim County Council as the relevant planning authority.	N/A
Transport Infrastructure Ireland (TII)	Emphasised the need to protect the safety, capacity and strategic function of the national road network. Requested assessment of potential impacts on national roads and junctions, including construction traffic and haul routes. A Traffic and Transport Assessment (TTA) should be undertaken in accordance with TII Guidelines, including consideration of traffic volumes, routes to/from the site, and impacts on national road junctions. The EIAR should identify required road improvements, assess abnormal load transport for turbine components, confirm structural capacity of bridges along haul routes, and address any temporary accommodations or traffic management measures. Consultation with relevant road authorities and network operators is recommended.	Chapter 16 Traffic and Transport Traffic Management Plan in Appendix 16-1
Department of Transport	Identified potential impacts on regional and local road networks arising from construction activities and grid connection works. Highlighted that installation of underground cables within public roads may affect road stability, maintenance operations, available road space, and future development potential. Emphasised the need to avoid impacts on bridges and culverts, minimise jointing infrastructure within carriageways, and ensure coordination with road authorities. Recommended conditions relating to compliance with standards, approval of final routes, and provision of accurate records of installed infrastructure.	Section 16.8.

Consultee	Summary of Response	EIAR Chapter / Section
Fáilte Ireland	Highlighted that transport patterns associated with tourism can differ significantly from normal conditions due to temporal and seasonal variations and therefore require specialist consideration. Tourism developments should, where feasible, be well served by public transport and accessible by modes other than private car. The organisation noted that traffic impacts on tourism assets can be substantial and may vary depending on season and weather conditions. Particular concern was expressed regarding construction traffic in tourism-sensitive areas, especially in relation to noise and visual disturbance. It was recommended that construction programmes seek to avoid peak tourism periods and take account of planned or anticipated tourism events and festivals.	Traffic and Transport Section 16.5.

The Traffic and Transport Assessment presented within this chapter has been carried out in accordance with the agreed scoping and feedback received from the relevant parties, ensuring that the methodology, study area, and assessment approach align with their expectations.

16.2 ASSESSMENT METHODOLOGY

16.2.1 Traffic and Transport Assessment Objectives

The objective of a TTA within an EIAR is to evaluate the likely significant effects of the proposed project on the surrounding transport network during both the construction and operational phases. The assessment considers existing baseline conditions, forecasts traffic demand arising from the project, and identifies any constraints or capacity issues on the local and regional road network. It also determines the requirements for abnormal load deliveries, construction traffic routing, and access arrangements.

The TTA provides a basis for developing mitigation measures, including a Traffic Management Plan (TMP), to ensure that the proposed project can be delivered in a safe, efficient, and sustainable manner, while minimising disruption to other road users and ensuring compliance with relevant national and local transport policy and design standards.

16.2.2 Assessment Criteria

The construction phase represents the period of greatest impact. In accordance with TII recommendation presented in the *Traffic and Transportation Assessment Guidelines (TII PE-PDV-02045, May 2014)*, the impacts of the proposed project have been assessed as traffic percentage (%) increase at assessment junctions with the proposed project in place. As outlined in *Table 2.1* of the guidance (*Traffic Management Guidelines Thresholds for Transport Assessments)*, a 10% increase in traffic flows is adopted as the threshold for Traffic and Transport Assessment, above which impacts are considered significant and detailed traffic modelling is required.

The impacts associated with the transport of Abnormal Indivisible Loads have been assessed in terms of the geometric requirements of these vehicles and the ability of the road network to accommodate the dimensions and manoeuvring needs of turbine component deliveries. To minimise the impact of the proposed project during the construction stage, a TMP has been prepared and is included in Appendix 16-1.

The methodology undertaken for this assessment is summarised as follows:

- A review of the existing and future transport infrastructure in the vicinity of the proposed project and the Abnormal Indivisible Load delivery route (Section 16.3- Existing Environment);
- A description of the nature of the proposed project, the traffic volumes that it will generate during the different construction stages (24 months), operational stage (35 years) and decommissioning stage;
- A description of the abnormally large loads and vehicles that will require access to the site and a review of the traffic impacts on the proposed delivery routes;
- A review of the likely significant effects of the proposed project (Section 16.8 - Assessment of Effects);
- An identification of mitigation measures - (Section 16.9 - Mitigation Measures);
- An assessment of residual effects - (Section 16.10 Residual Effects); and
- An assessment of cumulative effects - (Section 16.11- Cumulative Effects).

The geometric design elements of the proposed project have been assessed in accordance with the best practice guidelines and standards as outlined below:

- A swept path analysis has been carried out considering the proposed site access geometry using Autodesk AutoCAD Vehicle Tracking for associated construction vehicles.
- A swept path analysis of the existing road network geometry has been undertaken for the Abnormal Indivisible Loads (AILs) delivery route, also referred to as the Turbine Delivery Route (TDR), using Autodesk AutoCAD Vehicle Tracking, based on the longest AIL (turbine blade components).

16.2.3 Assessment Junctions

For the purposes of the TTA, four junctions were selected for detailed assessment following a review of forecast project likely effects, existing network conditions, proximity to the site, and consultation with Leitrim County Council, including a request to include the Park Road/ N16 Sligo Road Junction (referred to as Junction 3 in Figure 16-3). These junctions were identified as accommodating the highest levels of project-related traffic and therefore having the greatest potential for material effects, whereas junctions further from the site were forecast to experience negligible changes and were not considered to warrant detailed assessment.

Classified Junction Turning Counts (JTCs) were undertaken between 07:00 and 19:00, during a neutral traffic period, in line with standard data collection requirements. Counts for three junctions (Junctions 1, 2, and 4 on the list below) were undertaken on Tuesday 28th May 2024 by TRAFFINOMICS. Following the scoping consultation with Leitrim County Council, an additional junction (Junction 3 on the list) was included in the assessment, with counts

undertaken on 18th November 2025 by IDASO. The locations of the traffic counts are presented in Figure 16-3 and are outlined below.

- Site 1 - JTC 1 - L6184/N16 Sligo Road Junction.
- Site 2 – JTC 2 - Upper Main Street/N16 Sligo Road Junction.
- Site 3 - JTC 3 – Park Road/ N16 Sligo Road Junction.
- Site 4 - JTC 4 – R282 Castle View /Park Road/ N16 Sligo Road Junction.

In addition to the Classified Junction Turning Counts discussed above, Automatic Traffic Count (ATC) surveys were undertaken on the L61801 and the L6184 Cherrybrook, and the L6184 Boleyboy, as these roads will accommodate the proposed site access points and are therefore expected to carry the majority of project-related traffic. The surveys were conducted over a seven-day period, from Saturday 25th May 2024 to Friday 31st May 2024 by TRAFFINOMICS, with continuous 24-hour traffic monitoring to capture both traffic volumes and vehicle speeds, providing a comprehensive picture of traffic patterns within the study area.

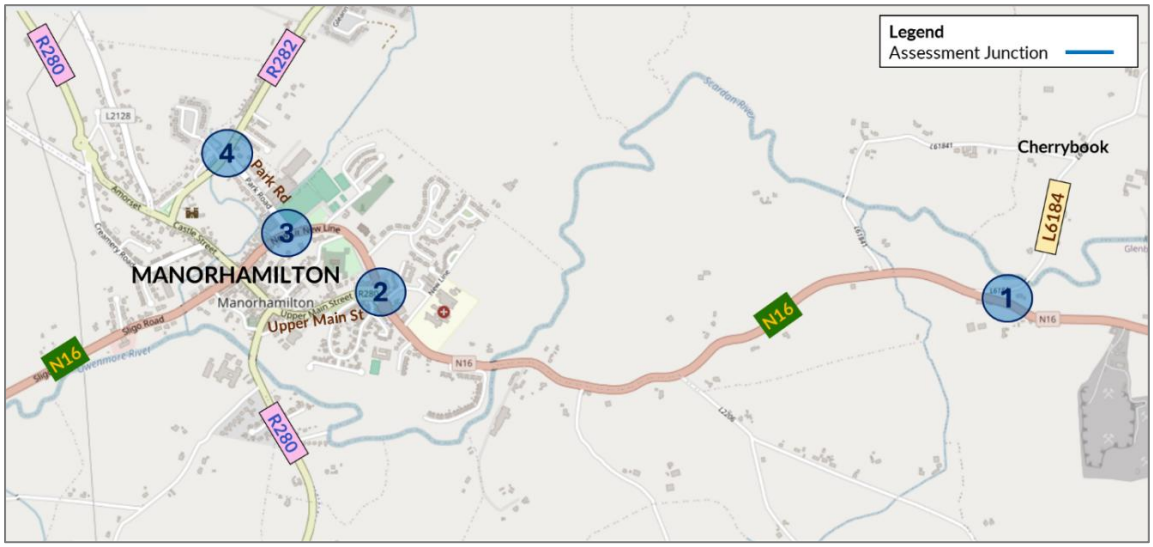


Figure 16-3: Assessment Junctions

16.2.4 EPA Description of Effects

The effects of the proposed project are described in accordance with the *EPA - Guidelines on the information to be contained in Environmental Impact Assessment Reports* (2022). Details of the methodology for describing the significance of the effects are provided in Chapter 1 (Introduction).

16.2.5 Haul Routes Classification

For the proposed project there are two types of haul routes required for the transport of the materials to the site during the construction stage. These haul routes are:

- Construction Haul Route for standard axle loaded vehicles (16.5 metres long) (see Figure 16-5); and
- Construction Haul Route for Abnormal Indivisible Loads (AIL) (see Figure 16-6).

Section 16.5 of this TTA details the expected haul routes and the associated traffic impacts.

16.2.6 AIL Route Assessment Considerations

For the proposed project the AIL delivery haul route has been assessed based on the following considerations:

- Wind Turbine Specification.
- Ports suitable to receive the turbine components.
- Desk study and site visit of alternative AIL haul routes undertaken by Digital Land Surveyors Limited in October 2025.
- Swept path analysis of pinch points / junctions on the AIL Haul Route.

The alternative routes are discussed in Chapter 3 (Reasonable Alternatives).

16.2.7 Assessment Limitations

No limitations were identified during the preparation of this Traffic and Transport Assessment Chapter. All data used in the analysis was collected in accordance with *Transport Infrastructure Ireland (TII) guidance* and under suitable conditions. The assessment methodology followed recognised standards, including *TII Publications PE-PAG-02017 – Project Appraisal Guidelines for National Roads Unit 5.3: Travel Demand Projections, and Traffic and Transport Assessment Guidelines (TII PE-PDV-02045, May 2014)*, as well as other relevant *TII* technical documents and design standards.

Traffic surveys were undertaken during representative neutral weekday periods in accordance *with Transport Infrastructure Ireland (TII) Project Appraisal Guidelines, Unit 5.2 — Data Collection*, avoiding school holidays, public holidays, and abnormal traffic conditions, in order to reflect typical AM and PM peak network operation.

In line with TII recommendations, detailed junction assessment was undertaken at locations where development effects were forecast to result in an increase in traffic flows of 10% or greater, as these locations are considered most likely to experience material operational impacts. Accordingly, the results of this assessment are considered robust and provide a reliable basis for evaluating the transport impacts of the proposed project.

16.3 EXISTING ENVIRONMENT

16.3.1 Existing Access Arrangements

Access to the proposed project site is currently provided via the local roads L61801, L6184, and L61844. Within the project site, a network of well-maintained roads offer comprehensive access throughout the area.

16.3.2 Existing Road Network

Figure 16-1 and Figure 16-2 in Section 16.1.2, illustrate the location of the proposed project in relation to the relevant road network. The remainder of this section describes the existing road network that may be affected by the proposed project, taking into account AILs, construction material haul routes, and the grid connection route.

16.3.2.1 Relevant Regional Road Network

Table 16-2 describes the regional road network relevant to the proposed project.

Table 16-2: Relevant National and Regional Road Network

ROAD	DESCRIPTION
N59	The N59 is a national secondary road located to the southwest of the proposed project and forms part of the designated haul routes in the vicinity of Sligo Town. The road consists mainly of a single carriageway, providing one lane in each direction, with a generally rural cross-section and occasional widening at junctions and through settlements. The default speed limit along the N59 in this area is 80 km/h, in line with typical national secondary road standards.
N15	The N15 is a national primary road located to the northwest of the proposed project and forms part of the designated haul routes in the vicinity of Bundoran, Co. Donegal; it also serves as a section of the Abnormal Indivisible Load (AIL) delivery route connecting the outskirts of Donegal Town to the outskirts of Sligo Town. The road consists mainly of a single carriageway, providing one lane in each direction, with a generally rural cross-section and occasional widening at junctions and through settlements. The default speed limit along the N15 is 100 km/h, with the exception of sections passing through towns, where the speed limit is reduced to 50 km/h.
N56	The N56 is a national secondary road located to the northwest of the proposed project and forms part of the Abnormal Indivisible Load (AIL) delivery route from the outskirts of Killybegs Town to the outskirts of Donegal Town. The road consists mainly of a single carriageway, providing one lane in each direction, with a generally rural cross-section and occasional widening at junctions and through settlements. The default speed limit along the N56 in this area is 100 km/h, reducing to 60 km/h in sections passing through towns.
N16	The N16 is a national primary road located to the south of the proposed project and forms part of the designated haul routes as well as the AIL delivery route. The road runs through Manorhamilton Town, where the speed limit is 50 km/h, and consists mainly of a single carriageway, providing one lane in each direction, with a generally rural cross-section and occasional widening at junctions and through settlements. Outside of the town, the speed limit along the N16 in this area is 80 km/h, consistent with typical national road standards.
R263	The R263 is a regional road forming part of the AIL delivery route from Killybegs Port to the outskirts of Killybegs Town. The road consists mainly of a single carriageway, providing one lane in each direction, with a generally rural cross-section and occasional widening at junctions and through settlements. The speed limit along the R263 in this area is 60 km/h, reducing to 50 km/h in sections passing through towns.
R284	The R284 is a regional road located to the southwest of the proposed project and forms part of the designated haul routes in the vicinity of Sligo Town. The road consists mainly of a single carriageway, providing one lane in each direction, with a generally rural cross-section and occasional widening at junctions and through

ROAD	DESCRIPTION
	settlements. The speed limit along the R284 in this area is 80 km/h, reducing to 60 km/h in sections passing through towns.
R287	The R287 is a regional road located to the southwest of the proposed project and forms part of the designated haul routes serving the Sligo area. The road consists mainly of a single carriageway, providing one lane in each direction, with a generally rural cross-section and occasional widening at junctions and through settlements. The speed limit along the R287 in this area is 80 km/h, reducing to 50 km/h in sections passing through towns.
R280	The R280 is a regional road located to the south and northwest of the proposed project. It forms part of the designated haul routes, providing connections between the project site to the Bundoran area to the northwest, as well as to the quarries located to the south of the project, via Manorhamilton Town. The road consists mainly of a single carriageway, providing one lane in each direction, with a generally rural cross-section and occasional widening at junctions and through settlements. The speed limit along the R280 varies between 100 km/h and 80 km/h on sections outside of towns, reducing to 50 km/h when passing through built-up areas.
R282	The R282 is a regional road located to the west of the proposed project and forms part of the designated haul routes, linking the project site to the road network in Manorhamilton Town Centre, via the L61801. The road consists mainly of a single carriageway, providing one lane in each direction, with a generally rural cross-section and occasional widening at junctions. The speed limit along the relevant section of the R282 is 50 km/h.

16.3.2.2 Relevant Local Road Network

Table 16-3 describes the local road network relevant to the proposed project.

Table 16-3: Relevant Local Road Network

ROAD	DESCRIPTION
L61801 Curraghfore/ Faughary	The L61801 is a local road located directly to the west of the proposed project. There is an existing access to the site on this road, which will be used during both the construction and operational phases. The carriageway is approximately 4 metres wide in the vicinity of the site, accommodating two-way traffic, with a generally rural cross-section. This road provides a connection between the project site and the road network in Manorhamilton Town via the R282. An 80 km/h speed limit is in operation along this road.
L6184 Cherrybrook/ Cashelaveela/Boleyboy	The L6184 is a local road connecting the project site to the N16, comprising three sections: Cherrybrook, Cashelaveela, and Boleyboy. The Cherrybrook section, located to the south of the proposed project, will include a temporary access for use during the construction phase.

ROAD	DESCRIPTION
	The Boleyboy section runs through the project area, linking the northern site accesses to the N16. The carriageway has a width of approximately 3.5–3.7 metres along its length through the project area, accommodating two-way traffic, with a generally rural cross-section. In the absence of posted speed limits, the default speed limit of 80 km/h applies in rural sections, reducing to 50 km/h in any built-up areas along the route.
L61844	The L61844 is a local road located directly to the south of the proposed project, with some sections running through the project red line boundary. It links the site accesses on the southeast side of the project to the N16 via L6184 Cherrybrook and Cashelaveela. The carriageway has a width of approximately 4.0 metres in the relevant section, accommodating two-way traffic, with a generally rural cross-section. In the absence of posted speed limits, the default speed limit of 80 km/h applies in rural sections, reducing to 50 km/h in any built-up areas along the route.
L4138	The L4138 (Nure Road) is a local road located to the southwest of the proposed project, on the outskirts of Manorhamilton. It forms part of the designated haul routes and consists mainly of a single carriageway, providing one lane in each direction, with a generally rural cross-section and occasional widening at junctions. The road has no road markings throughout the study area. The speed limit along this road is 80 km/h.
L4135	The L4135 is a local road located to the southwest of the proposed project, forming part of the designated haul routes. It consists mainly of a single carriageway, providing one lane in each direction, with a generally rural cross-section and occasional widening at junctions. The road has no road markings throughout the study area, and the speed limit along the L4135 is 50 km/h.

16.3.3 Existing Traffic Volumes in Local Road Network

Analysis of the survey data showed that the AM peak hour varied between junctions, occurring at different times within the period 08:15 to 08:30. Similarly, the PM peak hour also varies within the period 16:15-16:45. Table 16-4 summarises the total approach flows recorded at each junction during its corresponding peak. Details of the survey timing for both peak periods are provided in Section 16.2.3. The locations of the traffic counts are presented in Figure 16-3.

Table 16-4: Traffic Survey Results Approach Flows

Junction	Peak Periods	Survey Year	Total Approach Traffic Flows
Junction 1 L6184/N16	AM: 08:15-09:15	2024	255
	PM: 16:45-17:45		295
Junction 2 Upper Main Street/N16	AM: 08:30-09:30		681
	PM: 16:15-17:15		673
Junction 3 Park Road/ N16 Sligo Road	AM: 08:15-09:15	2025	599
	PM: 16:30-17:30		596
Junction 4 Cluain Oir/Castle View/R282 Park Road	AM: 08:15-09:15	2024	269
	PM: 16:45-17:45		271

As shown in Table 16-4, traffic volumes at the assessment junctions were generally low. The highest turning movements occurred at Junction 2, remaining below 700 vehicles.

16.4 PROPOSED ACCESS ARRANGEMENTS

16.4.1 Accesses

On the public road network, the proposed project will be served by 7 no. permanent site entrances, 2 no. temporary site access and 2 no. temporary road crossings. The following entrances will serve the site, as presented in Figure 16-4:

- Permanent Site Entrance 1 (L61801): Modified existing entrance to be used during construction and to serve the proposed project during operational phase.
- Permanent Site Entrance 2 (L6184): Modified existing entrance to serve proposed project.
- Permanent Site Entrance 3 (L6184): Modified existing entrance to serve proposed project.
- Permanent Site Entrance 4 (L6184): Proposed entrance to serve Turbine T8.
- Permanent Site Entrance 5 (L6184): Modified existing entrance to serve Turbine T5.
- Permanent Site Entrance 6 (L6184): Modified existing entrance to serve Turbines T7.
- Permanent Site Entrance 7 (L6184): Modified existing entrance to serve Turbine T1, T2, T3, T4, and T6.
- Temporary Site Access 1 (L6184 Cherrybrook): Proposed temporary entrance to be used during construction for delivery of AIL components only. This entrance could be used during operational stage but only in rare event that AIL delivery is required.
- Temporary Site Access 2 (L61844): Modified existing temporary entrance to be used during construction.

All permanent entrances have been designed in accordance with *TII standards (DN-GEO-03060, May 2023)*, with sightlines provided to the required x- and y-distance standards. Swept path analysis confirms suitability for both AILs such as turbine blades and the maximum legal

articulated vehicle (16.5 m). Entrances will remain in place after decommissioning for forestry and agricultural use.

16.4.2 Passing Bays

A total of eight (8 no.) passing bays are proposed along the L6184 to facilitate the safe movement of construction traffic and general road users along this section of the local road network. The provision of these passing bays will improve operational efficiency and reduce the potential for conflict between opposing vehicles, particularly given the constrained width typical of rural local roads.

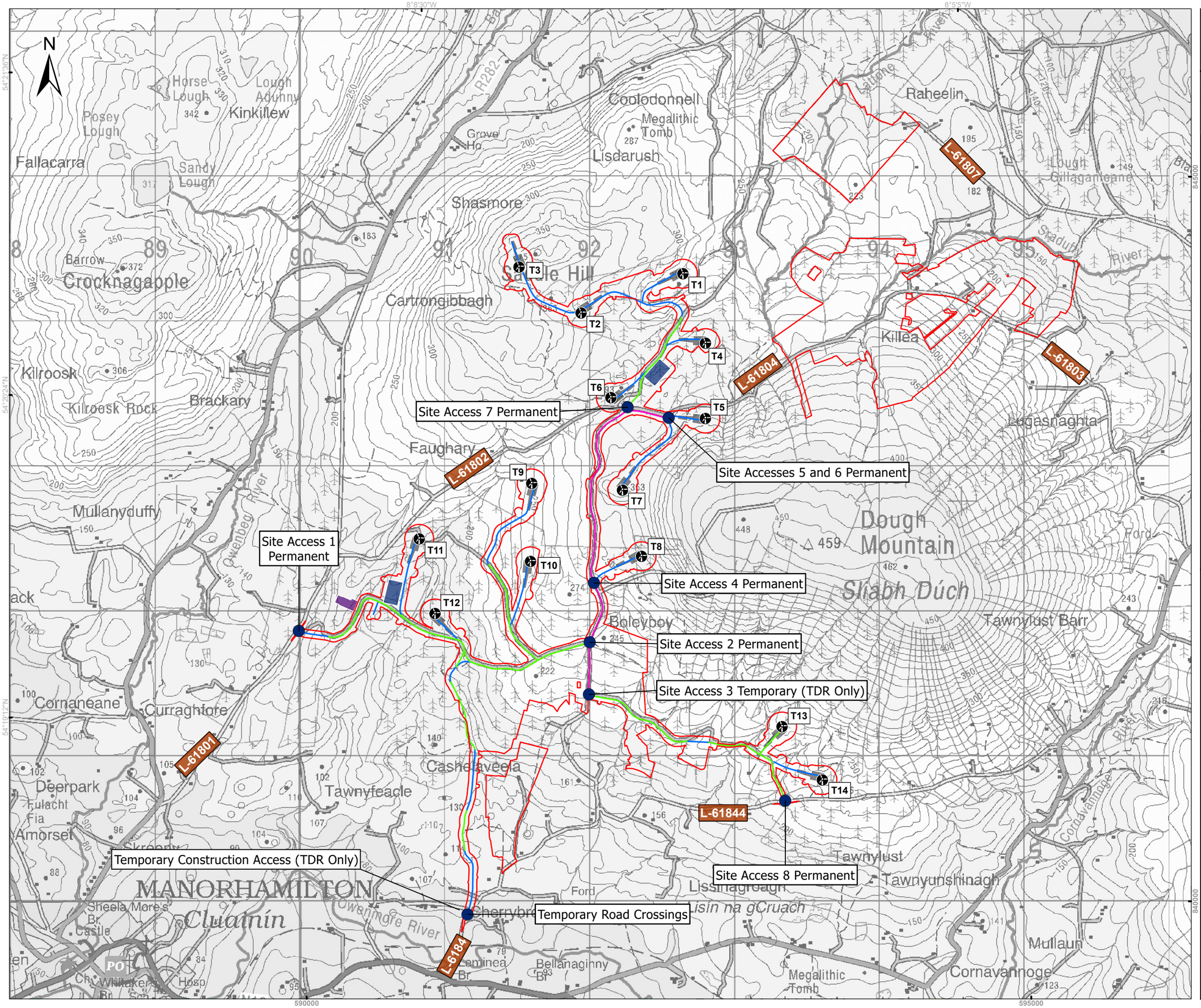
The passing bays have been designed in accordance with Transport Infrastructure Ireland (TII) guidance, specifically *Section 9.9 of DN-GEO-03031 — Rural Road Link Design*. In line with this guidance, passing bays are provided on sections of the route where the existing carriageway width was identified as 5.3 m or less, as an alternative to full carriageway widening.

Details of the location and layout of the proposed passing bays are illustrated on the drawings accompanying the planning application. The relevant drawings are Drawing Nos. 10955-2080 to 10955-2082, which show the positioning and geometric design of each passing bay along the L6184.

16.4.3 Internal Tracks

Approximately 7.95 km of new access tracks and 8.35 km of upgraded existing tracks will be constructed. Site access tracks will have a running width of approximately five metres (5.5 m including shoulders), with wider sections (which vary but are up to approximately 10.0m) at some corners and on the final approaches to turbine hardstands, as shown on the drawings accompanying the application. The proposed new tracks will include passing bays to allow traffic to pass easily. Roads will incorporate a 2.0% camber and drainage design as detailed in Drawing 10955-2033.

Chapter 2 – Description of the Proposed Project provides a detailed description of the proposed project site, including access arrangements and crossing points.



Legend

- Application Boundary
- Proposed Turbine Layout
- Site Access Entrance / Crossing Locations

Site Access Tracks

- Proposed Private
- Existing Private
- Public

Site Layout

- Proposed Construction Compound
- Proposed Substation
- Turbine Hardstands

0 0.5 1 Kilometers

Spatial Reference
Datum: IRENET95
EPSG: 2157

Rev	Date	Description	By	Chkd.
A	15/04/2026	First issue	S.P	S.R

Client: Ireland FuturEnergy

Project: Lissinagroagh Wind Farm

Title: Figure 16-4: Site Entrances and Temporary Crossing Points

Scale @ A3: 1:24,000

Prepared by:	Checked by:	Date:
S.Pezzetta	S.Ryan	April 2026

TOBIN
Tel: +353-(0)1-8030406
Email: info@tobin.ie
www.tobin.ie

Map Ref: 10955-084-L.NET-Access-TOB-A

Draft: A

16.4.4 Crossing Points

The proposed project requires two temporary crossing points on the public road network along the L6184 Cherrybrook. These crossings are designed to facilitate turbine component deliveries by avoiding a tight bend on the existing road and eliminating difficult turning manoeuvres, thereby minimising the extent of use of the public road network.

The crossings will be used during the construction phase only and will be closed following completion of turbine deliveries.

Turbine component deliveries during the operational phase are not anticipated; however, they may be required in the unlikely event of a turbine failure necessitating replacement. Should such a situation arise, a project-specific transport assessment would be undertaken at that time to evaluate any associated impacts in consultation with, and with the agreement of, Leitrim County Council and An Garda Síochána.

16.5 CONSTRUCTION PROGRAMME AND HAUL ROUTES

16.5.1 Construction Programme

The proposed project has a construction period of approximately 24 months with construction envisaged to commence in March 2028, subject to planning consent being granted. Peak construction activity is expected to take place between September and November 2028 (3 months). The phasing and scheduling of the main construction task items for the proposed project are detailed in Chapter 2 - Description of proposed project.

As the construction activities progress inward from the site access, various phases will become active and will overlap with each other in different areas within the site at different phases of the construction programme.

16.5.2 Construction Hours

Construction activities will be carried out during normal daytime working hours (i.e., weekdays 07:00 – 19:00hrs and Saturday 07:00 – 14:00hrs). However, to ensure that optimal use is made of good weather periods or at critical periods within the programme (i.e., concrete pours), it may be necessary on occasion to work outside of these hours. Any such out-of-hours work will be agreed upon in advance with Leitrim County Council.

Turbine deliveries will take place outside of normal construction hours, primarily during night-time, to take advantage of lower traffic volumes on public roads. These movements will be carried out under traffic management measures and accompanied by a Garda escort.

16.5.3 Construction Haul Routes

Based on the nature of the project, various construction materials will be delivered to the site over the construction programme. The materials will be delivered by standard heavy vehicles (HVs) including rigid lorries and articulated lorries. Other vehicles that will attend the site include standard construction machinery, i.e., crane, excavator, stone crusher, concrete trucks, tipper trucks.

The construction traffic with the highest daily impact (i.e., peak) is the combined construction activities from September to November in 2028, as outlined in the Construction Programme

(see Section 16.5.1). This traffic is associated with the importation of the aggregate for the site compound, internal haul routes, turbine hardstanding areas and the steel and blinding for the turbine foundations. The second greatest impact arises from the concrete pours for the turbine foundations, as each foundation requires a continuous single pour completed within one day.

For the purpose of this assessment, it has been assumed that the construction material will be delivered from the quarries outlined in Table 16-5.

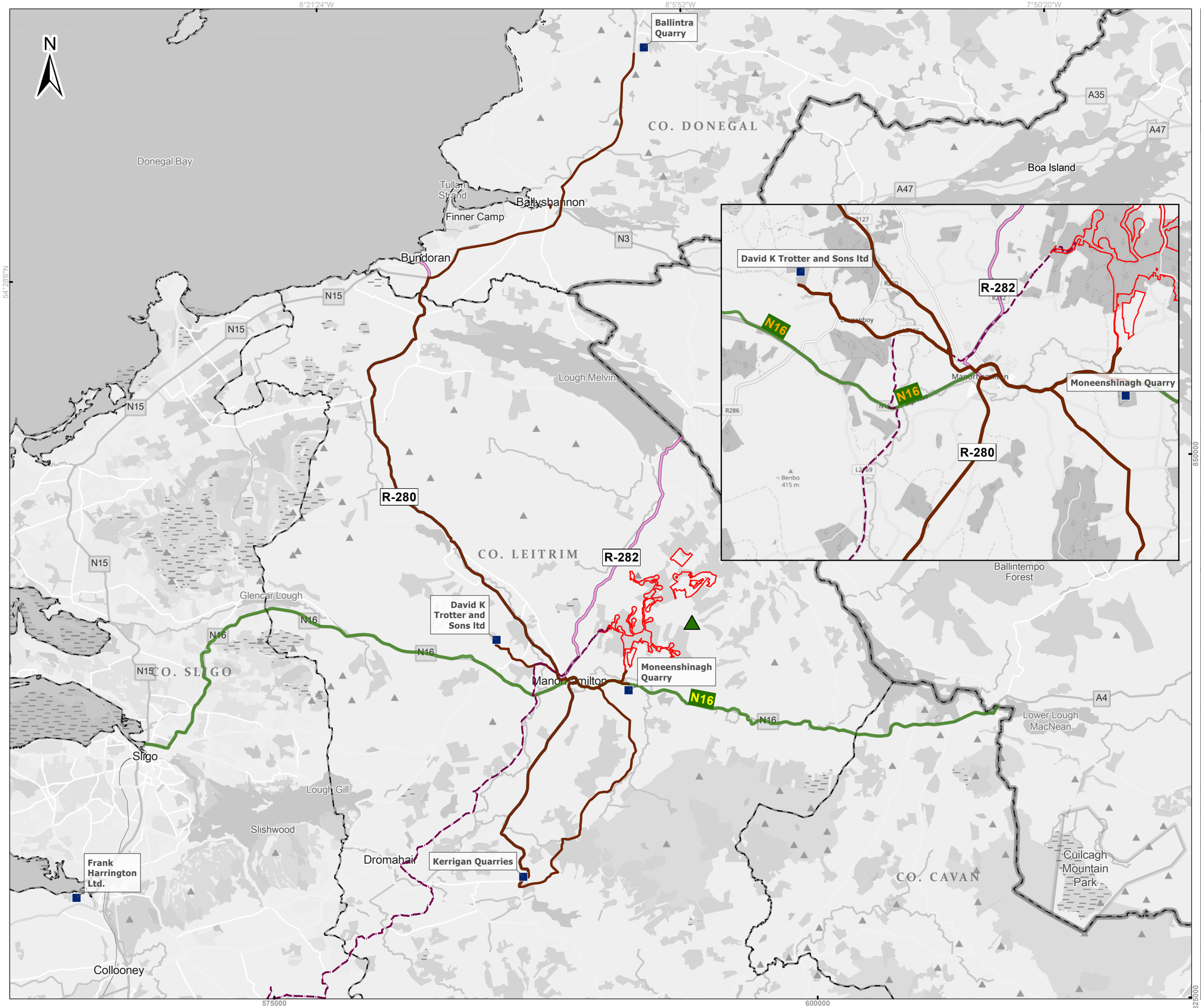
Table 16-5: Quarries and Haul Routes

Quarry	Location	Access Route
Roadstone Ballintra	Ballintra, Co. Donegal	N15-R280-R282- L61801 or N16- L6184
Moneenshinagh Quarry	Moneenshinagh, Co. Leitrim	N16-L61801 or N16- L6184
Kerrigan Quarries	Dromahair, Co. Leitrim	R287-N16-R282- L61801 or N16-L6184
Frank Harrington Quarry	Abbeytown, Co. Sligo	N59-R290-R287- N16-R282- L61801 or N16- L6184
David K Trotter and Sons	Lurganboy, Co. Leitrim	L4134-L2136- R282-L61801 or N16-L6184

Figure 16-5 presents the anticipated Haul Routes, as outlined in preceding Table 16-5.

Other materials required onsite will include met mast, building materials, fencing, drainage, water treatment, substation materials, welfare facilities etc., are assumed to be sourced locally and arrive to site via the N16 to the site accesses on L61801 and L6184. Construction delivery routes are presented in Figure 16-5. The source of the quarry material will be determined on appointment of a contractor.

The traffic volumes, both peak and average on the construction haul route are discussed in Section 16.6.



Legend

- Application Boundary
- Grid Connection Route
- Quarries Locations
- Construction Haul Routes
- Dough Mountain

Roads

- National Roads
- Regional Roads
- County Boundaries

0 5 10
Kilometers

Spatial Reference
Datum: IRENET95
EPSG: 2157

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Client:
Ireland FuturEnergy

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Lissinagroagh Wind Farm

Title:
Figure 16-5:
Construction Haul Routes

Scale @ A3: 1:160,000

Prepared by:	Checked by:	Date:
K.Kale	S.Ryan	March 2026

TOBIN

Tel: +353-(0)1-8030406
Email: info@tobin.ie
www.tobin.ie

Map Ref: 10955-032-Haul.R-P.App.BO-TOB-A

Draft: A

16.5.4 Abnormal Indivisible Load (AIL) Haul Route

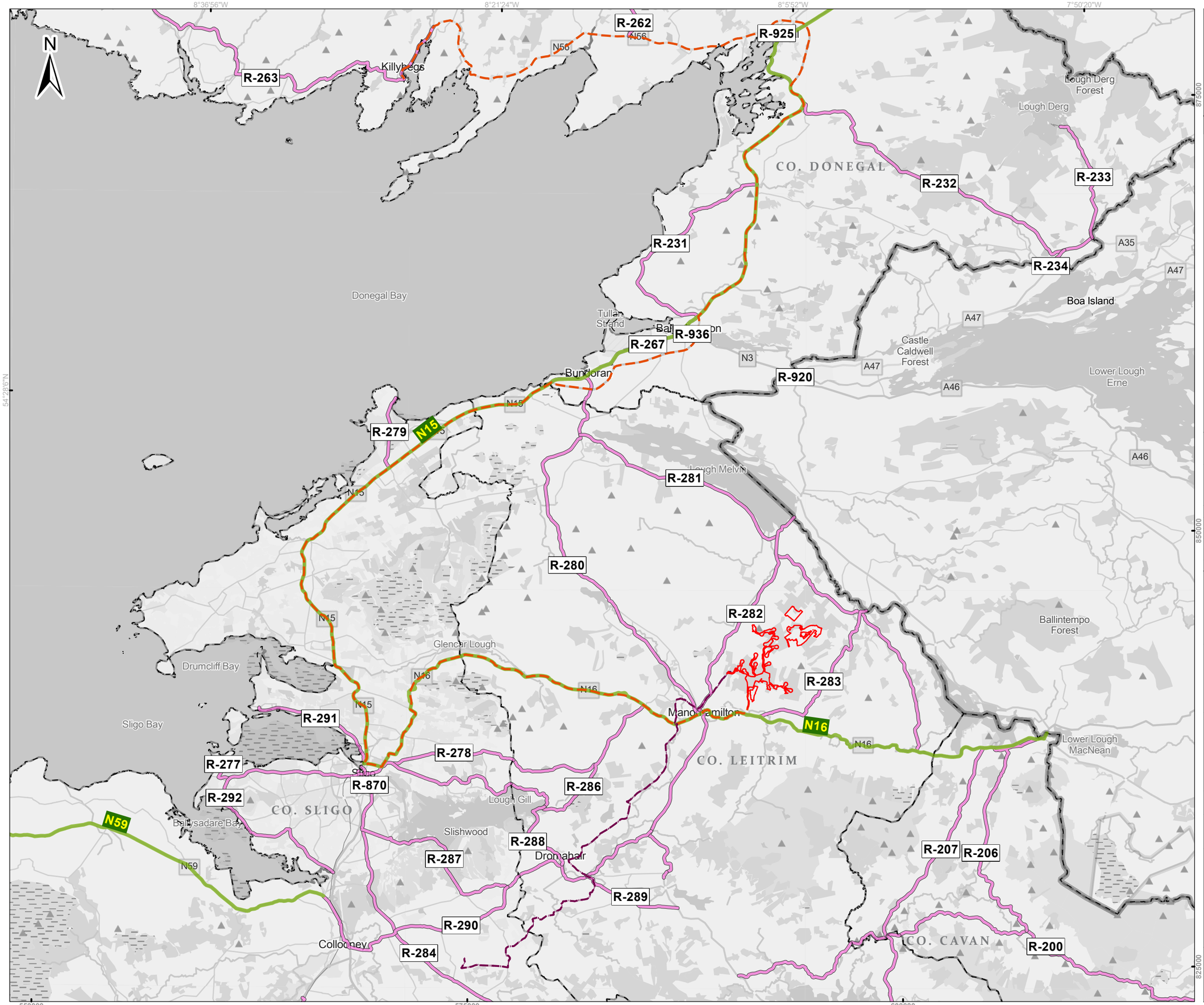
Killybegs Port is the anticipated port for the import of the AILs. The route selected for the AILs utilised the national road network as much as feasible from the port to the site. The AIL route on the national road network is a Dual Carriageway and Type 1 Single Carriageway, with wide carriageway widths.

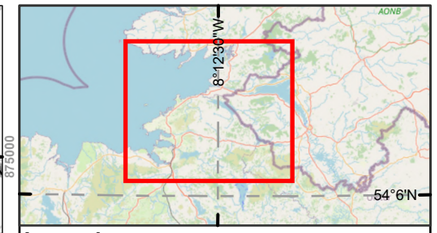
It is estimated that 23-38 delivery events will be needed on a maximum of 23-38 days for delivery of these oversized loads. The delivery route is expected to begin at the port of entry in Killybegs, Co. Donegal, and proceeds southeast along the N56 around Donegal Town. From there, it continues southwest on the N15 towards Sligo Town, before connecting to the N16 and approaching Manorhamilton, running along the N16 for approx. 2km before joining the L6184 to the proposed project site from the south.

Turbine deliveries will take place outside of normal construction hours, primarily during night-time, to take advantage of lower traffic volumes on public roads. These movements will be carried out under traffic management measures and accompanied by a Garda escort.

Accommodation works along a significant portion of the route will not be required for the delivery of the AILs, as they have already been implemented as part of projects of a similar nature. The AIL delivery route is shown in Figure 16-6 and the swept path analysis is included in Appendix 2-1. Traffic generation associated with the AIL haul route during the construction phase is outlined in Table 16-6.

Further details regarding the alternative routes considered are provided in Chapter 3-Consideration of Alternatives.





Legend

- Application Boundary
- County Boundaries
- Grid Connection Route
- Turbine Delivery Route

Roads

- National Roads
- Regional Roads

0 5 10
Kilometers

Spatial Reference
Datum: IRENET95
EPSG: 2157

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A	04/03/2026	First issue	K.K	S.R

Client:
Ireland FuturEnergy

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Lissinagroagh Wind Farm

Title:
Figure 16-6:
AIL Delivery Routes /
Turbine Delivery Route (TDR)

Scale @ A3: 1:200,000

Prepared by:	Checked by:	Date:
K.Kale	S.Ryan	March 2026

TOBIN

Tel: +353-(0)1-8030406
Email: info@tobin.ie
www.tobin.ie

Map Ref: 10955-033-TDR-AIL-TOB-A

Draft: A

Table 16-6: Traffic Generation during the Construction Phase – AIL

AIL Elements	No. of Turbines	Parts	Components per Element	Total Components	Trips with 3 AIL per Convoy	Trips with 5 AIL per Convoy
Nacelle	14	1	14	112	38	23
Blade		3	42			
Tower		4	56			
Transformer				1		

Note:

(1) Traffic associated with the delivery of AILs has not been included in the traffic impact percentage increase, as these deliveries will take place at night, when traffic volumes are low, and will be managed under traffic control measures with Garda escort.

(2) The AILs will be transported in convoys of 3 to 5 no. components per convoy.

16.6 Proposed Project Trip Generation

16.6.1 Construction Trip Generation-HV

The traffic generations are estimated based on the materials / deliveries / disposals required at the site and attributing these deliveries to the associated construction activity according to the construction programme. The following assumptions have been made in the estimation:

- All construction deliveries (excluding concrete pours) have been averaged over the Monday-Friday and half day Saturday working week.
- Concrete pours for each foundation will occur on 1 day as required by the construction methodology.

A total of 43 HV one-way (86 trips total) have been estimated at peak construction time (excluding the concrete pour volumes) and an average of 22 HV during off-peak (44 trips total). The peak movements are anticipated to occur from September to November 2028 when the site compounds, site roads, turbine hardstands, and turbine foundations are occurring simultaneously. Table 16-7 shows the number of construction HVs assigned to their corresponding activity and duration in the construction programme.

16.6.1.1 CONCRETE POUR VOLUMES

The construction methodology for the concrete turbine foundations occurs over 14 days, with each foundation poured in a single day, resulting in 230 HVs arriving onsite per day. Considering the working hours, it is expected that an average of 19 HVs will arrive on site per hour.

To mitigate the impact of the construction traffic on the road network and surrounding environment, during the days for the concrete pours all other construction HVs will be limited to essential deliveries and programmed to occur on other days of the construction programme.

Table 16-7: Construction Programme 1-way HV Construction Volumes per Day (Excluding Turbine Foundation Concrete Pours)

	2028													2029										2030
Month	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
	mar	apr	may	jun	jul	aug	sept	oct	nov	dec	jan	feb	mar	apr	may	jun	jul	aug	sept	oct	nov	dec	jan	feb
Site Health and Safety	1																							
Site Compounds	12	12	12				12	12	12															
Site Roads	3	3	3	3	3	3	3	3	3	3	3	3	3	3										
Turbine Hardstands					1	1	1	1	1	1	1	1	1	1	1	1	1	1						
Turbine Foundations						13	13	13	13	13	13	13	13	13	13	13	13							
Substation Construction & Electrical Works										1	1	1	1	1	1	1	1	1	1	1	1			
Backfilling & Landscaping																								
Turbine Delivery and Erection																								
Substation Commissioning																								
Turbine Commissioning																								
Total HGV 1-way/day	16	15	15	3	4	17	**29**	**29**	**29**	18	18	18	18	18	15	15	15	2	1	1	1	0	0	0
Total HGV 2-way/day	32	30	30	6	8	34	**58**	**58**	**58**	36	36	36	36	36	30	30	30	4	2	2	2	0	0	0
Average HGV 1-way	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14
Average HGV 2-way	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28
LGV 1-way/day	50	50	50	50	50	50	**139**	**139**	**139**	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50
LGV 2-way/day	100	100	100	100	100	100	**278**	**278**	**278**	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100

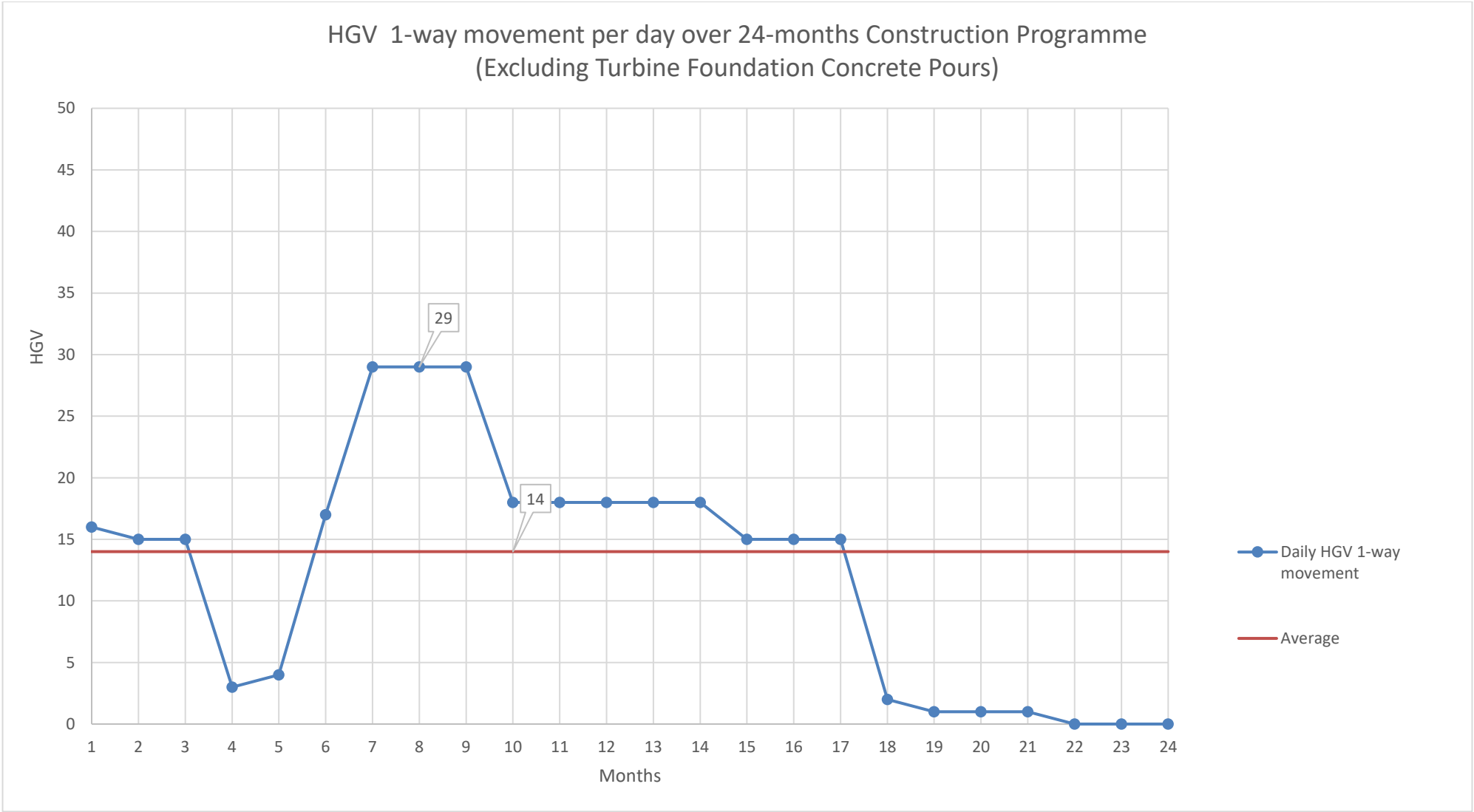

Figure 16-7: Construction HV Traffic Over Construction Programme, representing 1-way movement per Day - Excluding Concrete Pour HV

16.6.2 Construction Trip Generation-Staff (LV)

During the peak construction period, approximately 139 staff are expected to be on site, reducing to approximately 50 personnel during off-peak activities. For the purpose of this assessment, all staff members are assumed to arrive at the site by Light Vehicles (LV). Adopting a precautionary approach of a worst-case scenario, an occupancy of 1 person per vehicle has been assumed, as such a total of 278 trips (two-way) can be expected during peak construction and 100 trips (two-way) daily during off-peak.

A reduction in construction staff on site is expected when the construction activities are more technical and less labour intensive.

The construction traffic associated with the proposed project on the construction haul route is assessed under peak traffic generation.

16.6.3 Operational Traffic

Once the proposed project is operational, the majority of traffic generated will comprise small vehicles associated with routine site operations, inspections, and monitoring. Such activities are expected to occur daily. On these occasions, the operational phase is anticipated to generate a maximum of 4 light vehicle (LV) movements on any given day (i.e. 2 arrivals and 2 departures).

In the unlikely event that a turbine requires delivery of a large replacement component, such as a blade or tower section, the transport arrangements would be subject to agreement with Leitrim, Donegal, and Sligo County Councils, including obtaining any necessary consents for abnormal load transport, temporary traffic management measures, and/or Garda escorts, as required.

16.6.4 Decommissioning Traffic

During the decommissioning phase, turbine components will be separated, broken down, and removed off-site. These components will be transported by HVs. Turbine foundations will remain in situ, the upper sections of the foundations projecting above ground will be removed, and the remainder of the foundations will be covered by soils typical of the surrounding environment and then re-seeded or left to re-vegetate according to ecological requirements.

The on-site substation and 110 kV grid connection will not be removed at the end of the useful life of the proposed project as it will form part of the national electricity network and will be in the ownership of ESB Networks. Therefore, the substation will be retained as a permanent structure and will not be decommissioned.

As turbine foundations, hardstanding areas, and access tracks will remain in situ, and the substation and grid connection will not be decommissioned, the volume of traffic generated during the decommissioning phase will be substantially lower than during the construction phase, as large-scale excavation works, material imports, and concrete deliveries will not be required. The duration of this phase will also be shorter, as activities will primarily involve the removal of above-ground turbine components rather than the full construction process.

16.7 TRAFFIC AND TRANSPORT ASSESSMENT

16.7.1 Assessment Scope

The junctions below have been considered in the assessment presented in this section:

- Site 1 - JTC 1 - L6184/N16 Sligo Road Junction.
- Site 2 – JTC 2 - Upper Main Street/N16 Sligo Road Junction.
- Site 3 - JTC 3 – Park Road/ N16 Sligo Road Junction.
- Site 4 - JTC 4 – R282 Castle View /Park Road/ N16 Sligo Road Junction.

See Figure 16-3 for the location of the assessment junction in the local network.

As outlined in Section 16.1.4, consultation and scoping discussions were undertaken with Leitrim County Council to identify the junctions to be included in the Traffic and Transport Assessment.

16.7.2 Assessment Years and Time Periods

As outlined in Section 16.6.3, operational traffic associated with the proposed project will be extremely low, limited to operation and maintenance activities generating up to approximately four vehicle trips on maintenance days, occurring daily. This level of traffic represents a negligible addition to existing background flows on the local road network and is not expected to result in any measurable change in traffic conditions, junction performance, or road safety. Given this minimal scale of activity, it was considered appropriate to focus the assessment on the peak construction phase, when traffic impacts will be at their greatest. Consequently, the operational assessment years typically required under *TII's Traffic and Transport Assessment Guidelines*—namely the Year of Opening (YoO), YoO +5, and YoO +15—have been scoped out, as no material operational traffic effects are anticipated. The operational traffic associated with the proposed project is expected to be negligible.

Considering the above, the following assessment years have been established, based on the Project Programme:

- Construction Years: 2028-2029.
- Peak Construction Period: 2028 (3 months only) (*Assessment Year)*
- Operational Year: 2030 – 2065.
- Decommissioning: Year 2066.

The assessment will concentrate on the critical periods of the local road network, as identified through traffic surveys, to evaluate the traffic impacts of the proposed project (see Table 16-4 relevant peak periods).

16.7.3 Assessment Scenarios

The following scenarios have been developed in assessing the proposed project's traffic impacts:

- **Likely evolution of the baseline in the absence of the project**: This represents the baseline traffic conditions on the local road network in the absence of the proposed project. It reflects the expected traffic flows based on current patterns, as well as forecasted traffic flows, but excludes any additional traffic generated by the project. Establishing the baseline scenario provides a reference point against which the

potential impacts of the proposed project can be assessed. In this assessment, the baseline traffic flows have been determined from the traffic surveys described in Section 16.3.3 and forecasted traffic discussed in section 16.7.5 of this Chapter.

- **Predicted conditions with the project in place**: This scenario represents traffic conditions at peak construction time.

16.7.4 Traffic Assessment Criteria

The impacts of the proposed project have been assessed based on the percentage (%) increase in traffic flows at the assessment junctions with the proposed project in place, in accordance with Transport Infrastructure Ireland (TII) Traffic and Transport Assessment Guidelines (PE-PAG-02045). This approach enables development-generated traffic to be evaluated relative to existing baseline conditions and assists in identifying locations where increases may be sufficient to result in material operational impacts.

16.7.5 Forecast Background Traffic Flows

Existing traffic flows on the surrounding road network, as determined from survey data, have been adjusted using appropriate growth factors to estimate traffic volumes on the local network during the peak construction period, i.e., 2028. For this assessment, growth factors were determined from the *Transport Infrastructure Ireland (TII) Project Appraisal Guidelines for National Roads Unit 5.3 – Travel Demand Projections, October 2021 (PE-PAG-02017).* Information within these guidelines is provided for Leitrim Area from 2016-2030 for low, central, and high sensitivity growth scenarios. This information is provided for light vehicles (LVs) and heavy vehicles (HVs) and was used to determine the future year do-nothing traffic flows. *TII Central Sensitivity Growth Rates* have been assumed to forecast background traffic growth on the surrounding road network. Table 16-8 which follows, presents the growth factors for 2024 (Junctions 1,2, 4) and 2025 (Junction 3).

Table 16-8: Construction TII Growth Factors (Extract from PE-PAG-02017, October 2021)

Years	Growth Factor for LVs	Growth Factor for HVs
Annual growth factor	**1.0060 (2016-2030)**	**1.0313 (2016-2030)**
2024 to 2028 (4 years)	1.0242	1.1312
2025 to 2028 (3 years)	1.0181	1.0969

16.7.6 Traffic Flows- Likely Evolution of the Baseline

Table 16-9 presents the estimated traffic volumes at the relevant junction for each assessment period, reflecting the likely evolution of baseline conditions in the absence of the proposed project.

Table 16-9: Traffic Flows- Baseline Without Project

	Peak Periods	Survey Year	Baseline Approach Flows	Background Flows at Peak Construction (2028)
Junction 1 L6184/N16	AM: 08:15-09:15	2024	255	264
	PM: 16:45-17:45		295	304
Junction 2 Upper Main Street/N16	AM: 08:30-09:30		681	701
	PM: 16:15-17:15		673	693
Junction 3 Park Road/ N16 Sligo Road	AM: 08:15-09:15	2025	599	613
	PM: 16:30-17:30		596	609
Junction 4 Cluain Oir/Castle View/R282 Park Road	AM: 08:15-09:15	2024	269	277
	PM: 16:45-17:45		271	278

16.7.7 Summary Peak Construction Trip Generation

The methodology used to determine the peak construction trip generation for the project is presented in Section 16.6of this chapter.

As outlined in Section 16.4, there are two types of haul traffic in this EIAR, namely 'the Construction Haul Trips and the 'AIL Haul Trips'. For the junction assessment, only the Construction Haul Trips are considered, as the AIL will be delivered at night-time under Garda escort.

On the Construction Haul Trips, the peak and average traffic volumes do not include the concrete pour for the turbine foundations, as it is assumed that this activity occurs while all other activities requiring deliveries are restricted, with the exception of essential deliveries.

As noted in Section 16.5.2, construction activities are expected to take place during standard daytime working hours (weekdays 07:00–19:00 and Saturdays 07:00–14:00). Consequently, the majority of traffic generated by the project is likely to occur outside the network peak hours. This traffic is presented in Table 16-9.

Considering the above, and for the purposes of this assessment, a precautionary approach has been adopted, in which 20% of the traffic access and leave the site during peak periods. Staff trips are one-way in each peak period, i.e., arrivals in the AM peak, departures in the PM peak, so they are not counted twice in the assessment, while heavy vehicles are assumed to access and leave the site within the same peak hour.

Table 16-10: Summary Peak Construction Daily Trip Generation

	IN		OUT		TWO-WAYS
	LV	HV	LV	HV	
Daily Peak Construction Traffic	139	29	139	29	336
Assumed Traffic During Peak Periods	28	6	28	6	68
Daily Off-Peak Construction Traffic	50	14	50	14	128
Assumed Traffic During Off-Peak Periods	10	3	10	3	26

16.7.8 Trip Generation Distribution

The proposed project construction traffic within the study area has been distributed having regard to the haul routes outlined in Section 16.5.3 and the site access arrangements described in Section 16.4.1.

For Heavy Goods Vehicles (HGVs), it is assumed that approximately 70% of trips will access the site via the primary site access on the L61801 (Site Access No. 1), with the remaining 30% accessing the site via access points on the L6184 or L61844.

For Light Vehicles (LVs), it is assumed that approximately 90% of trips will access the site via the primary site access on the L61801(Site Access No. 1), with the remaining 10% accessing via the L6184 or L61844.

In terms of trip origins, it is anticipated that the majority of staff movements will approach the site via the N16, originating from the west, north, and south through Manorhamilton Town Centre, with a smaller proportion arriving from the east. Accordingly, the assessment assumes that 80% of staff trips originate from the west, north, and south via Manorhamilton Town Centre, with the remaining 20% originating from the east.

Based on the abovementioned assumptions, Figure 16-9 illustrates the percentage of construction traffic anticipated through each junction.

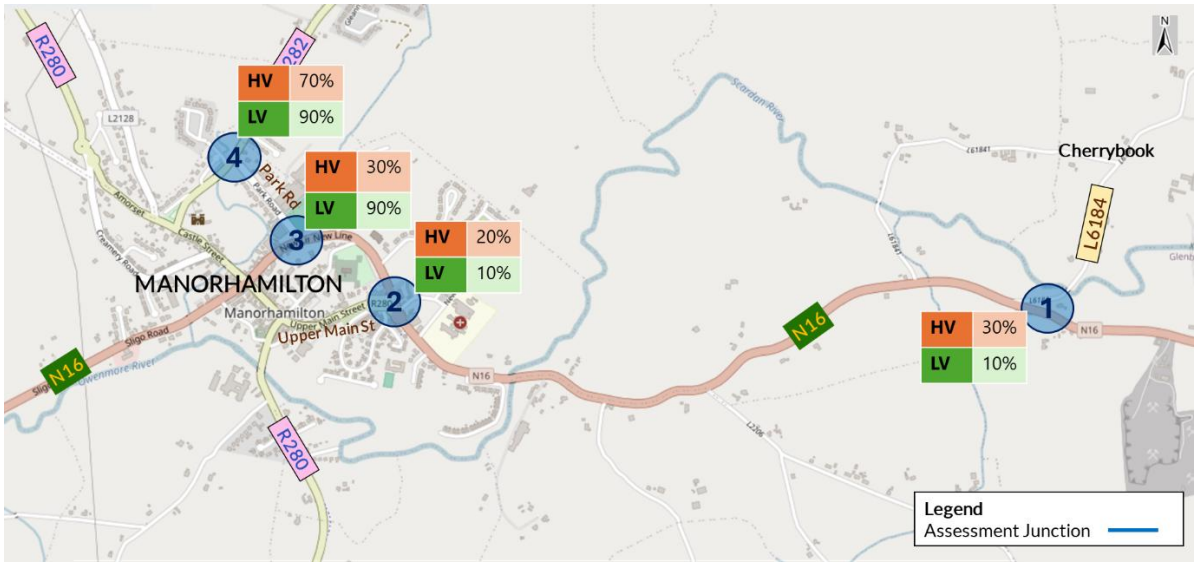

Figure 16-8: Study Area Trip Distribution-Percentage of Traffic Through Assessment Junctions

16.7.9 Traffic Flows and Traffic Percentage Increase - Predicted Conditions with the Project in Place

Based on the assumptions discussed in preceding sections, the proposed project traffic has been calculated for Peak and Off-Peak construction periods, presented in Table 16-11.

Table 16-11: Traffic Flows- With Project in Place

			Peak Construction	Off-Peak Construction
	Peak Periods	Baseline Approach Flows 2024 &2025	Baseline With Project Traffic Flows (2028)	With Project in Place Traffic Flows (2028)
Junction 1 L6184/N16	AM: 08:15-09:15	255	270	267
	PM: 16:45-17:45	295	310	306
Junction 2 Upper Main Street/N16	AM: 08:30-09:30	681	706	703
	PM: 16:15-17:15	673	698	695
Junction 3 Park Road/ N16 Sligo Road	AM: 08:15-09:15	599	642	624
	PM: 16:30-17:30	596	637	619
Junction 4 Cluain Oir/Castle View/R282 Park Road	AM: 08:15-09:15	269	311	290
	PM: 16:45-17:45	271	312	291

16.8 ASSESSMENT OF EFFECTS

16.8.1 Likely Evolution of The Baseline in The Absence of the Project

If the project did not progress, the existing traffic and transportation environment would remain largely unchanged, with increases in traffic volumes on the road network gradually over time due to annual traffic growth rates as per the *TII PE-PAG-02017 (October 2021).*

Forestry operations and agricultural activity will continue, and construction traffic associated with the maintenance of the existing conifer plantation within the proposed project site will remain at current levels.

16.8.2 Construction Phase

This section outlines the likely significant effects of the construction stage on the existing road infrastructure. The construction traffic (i.e., additional heavy vehicles, light vehicles, and abnormal loads) has the potential to affect the existing road infrastructure as a result of access to the site, drainage, existing road infrastructure, and traffic flow capacities on the haul routes (typical construction vehicles and abnormal loads), road pavement condition, and during cable route works (i.e., trenching).

The Construction Haul Route and the AIL Haul Route have been assessed separately as the character of the effects are different.

16.8.2.1 Construction Haul Route - Likely Significant Effects

This section assesses the potential effects of standard construction related traffic on the road network. The construction traffic is assessed on both:

- the short-term peak construction traffic volumes over the 3-month period when the combined construction activities result in the peak traffic volumes on the road network and
- the long-term average construction traffic volumes over the remaining months of the construction programme.

Concrete pours will generate high daily traffic volumes over a limited period of approximately 14 days. However, when considered on an hourly basis, the associated traffic (approximately 19 HVs per hour, or 38 two-way movements) is lower than the assessed peak hour construction traffic of 68 two-way trips, as presented in Table 16.10. In order to mitigate potential traffic impacts, only essential deliveries will be scheduled to occur on the same day as the concrete pours. As such, the assessed peak construction scenario represents a robust worst-case assessment of traffic impacts.

The potential effects of the traffic generation and distribution associated with the construction phase of the proposed project for both the peak and average traffic volumes on the assessment junction were analysed according to assessment criteria outlined in Section 16.7.4.

Table 16-12: Construction Haul Route – Likely Significant Effects

		Peak Construction		Off-Peak Construction	
	Peak Periods	Additional Traffic	Traffic Percentage (%) Increase	Additional Traffic	Traffic Percentage (%) Increase
Junction 1 L6184/N16	AM 08:15-09:15	+6	2.4%	+3	1.1%
	PM 16:45-17:45	+6	2.1%	+3	0.9%
Junction 2 Upper Main Street/N16	AM 08:30-09:30	+5	0.7%	+2	0.3%
	PM 16:15-17:15	+5	0.8%	+2	0.3%
Junction 3 Park Road/ N16 Sligo Road	AM: 08:15-09:15	+29	4.7%	+11	1.8%
	PM: 16:30-17:30	+29	4.7%	+11	1.8%
Junction 4 Cluain Oir/Castle View/R282 Park Road	AM 08:15-09:15	+34	12.1%	+13	4.8%
	PM 16:45-17:45	+34	12.1%	+13	4.7%

As presented in Table 16-12 with the assumption of 20% of construction traffic accessing the site during the peak hours, the maximum traffic increase during the peak periods is estimated to be 12.1% at junction 4. Traffic increase at other assessment junctions is anticipated to remain below 5%.

The estimated traffic increase at Junction No. 4 exceeds the 10% threshold specified in the *TII Traffic and Transport Assessment Guidelines (PE-PDV-02045, May 2014)*. In accordance with these requirements, further detailed junction capacity analysis is therefore required. A PICADY model has been developed for this junction, and the results are discussed in Section 16.8.2.2.

The off-peak construction traffic percentage increase is lower, with a maximum traffic volume increase of 4.8% at junction 4. These effects occur over a longer duration during the remaining 21 months of the construction programme.

16.8.2.2 Traffic Modelling Results - R282 Castle View /Park Road/ N16 Sligo Road (Junction 4)

Traffic Modelling Software and Outputs

The traffic impacts of the development to R282 Castle View /Park Road/ N16 Sligo Road (Junction 4) have been assessed utilising Junctions 10 PICADY traffic modelling software. PICADY is traffic modelling software dedicated for analysing the capabilities of priority-controlled junctions. The models analyse the junctions in relation to their geometry and traffic flows and calculate the Ration of Flow to Capacity (RFC).

The following outputs were obtained from the PICADY models:

- Ratio of Flow to Capacity (RFC): The RFC provides a basis for judging the acceptability of junction designs and typically an RFC of less than 0.85 is considered to indicate satisfactory performance.

- Junction Delay: This is the total delay experienced by a quantity of traffic at a particular junction in a given time period.
- Level of Service (LOS): The LOS shows the unsignalised, and equivalent signalised, level of service values for the time segment, based on the Average Delay per Arriving Vehicle. The transportation LOS system uses the letters A through F, with the definitions below being typical: A = Free flow; B = Reasonably free flow; C = Stable flow; D = Approaching unstable flow; E = Unstable flow; F = Forced or breakdown flow.

Traffic Modelling Results - R282 Castle View /Park Road/ N16 Sligo Road (Junction 4)

Table 16-13 presents the AM Peak traffic modelling results obtained for junction no. 4.

Table 16-13: AM Peak Traffic Modelling Results

Assessment Year	J4 AM Peak					
	Junction Delay		Level of Service		Ratio of Flow to Capacity (RFC)	
	Baseline	With Project	Baseline	With Project	Baseline	With Project
Base Year 2024	3.17	-	A		0.10	-
Peak Construction Year 2028	3.21	3.57	A	A	0.11	0.16

Table 16-14 presents the PM Peak traffic modelling results obtained for junction no. 4.

Table 16-14: PM Peak Traffic Modelling Results

Assessment Year	J4 PM Peak					
	Junction Delay		Level of Service		Ratio of Flow to Capacity (RFC)	
	Baseline	With Project	Baseline	With Project	Baseline	With Project
Base Year 2024	3.81	-	A	-	0.19	-
Peak Construction Year 2028	3.84	3.52	A	A	0.20	0.21

The results of the traffic modelling demonstrate that the junction will continue to operate satisfactorily with the inclusion of construction traffic and will retain adequate capacity to

accommodate the anticipated traffic flows. A Level of Service A is predicted for all modelled scenarios during both peak periods, with estimated RFC values of 0.16 in the AM peak and 0.21 in the PM peak under construction traffic conditions.

Full traffic modelling results have been included within Appendix 16-3.

16.8.2.3 Construction Traffic Impact

The likely significant effects associated with the construction phase, according to EPA's guidelines, are presented Table 16-15.

Table 16-15: Construction Haul Route - EPA Criteria Effect

Extent	Scenario	Significance	Duration
Assessment Junctions as per Section 16.7.1	Peak Traffic	Slight Negative	Temporary (3 months)
	Average Traffic	Slight Negative	Short-term (21 months)

In the absence of mitigation, the construction phase is not expected to have a significant effect on the surrounding road network.

16.8.2.4 AIL Haul Route Impact

The impact of the AIL deliveries on the existing road network had been assessed based on the longest component to be delivered to site, namely the turbine blade. The route had been assessed from Killybegs Port to the proposed project site accesses. The swept path analysis indicates locations where temporary accommodations are required to accommodate the component deliveries. These accommodations will result in low volumes of traffic similar to maintenance works by the Local Authority and will be undertaken for a short period of time. Table 16-16 presents the temporary accommodations required to facilitate the AIL haul route. Temporary accommodations have been identified along the route including temporary hardstanding areas, temporary removal or relocation of existing signage, and pruning of vegetation.

Table 16-16: AIL Temporary Accommodations Summary

Dwg No.	Title	Adjust Street Furniture	Strengthening of Road Edges	Prune Vegetation	Oversail
E2590	N16/L6184	P1*	P1	P1	P1
	L6184 Left bend	P2	P2	P2	P2
	L6184 Site Entrance	P3	P3	-	P3
	N16 Manorhamilton	P5	P5	-	P5
	N16 Station Rd Roundabout	P6	-	-	P6
	N16 Sligo Rd	P8	-	P8	
		P9	-	P9	P9

Dwg No.	Title	Adjust Street Furniture	Strengthening of Road Edges	Prune Vegetation	Oversail
		P10	-	-	P10
	N16-L6184 Junction	P12	P12		-
	N15-N16 Junction	P13	P13	P13	
	N16 Roundabout	P14	-	-	-
	N16 Left Turn	P15	P15	P15	P15
	N16 Manorhamilton Rd	-	P16	-	P16
	N16 Abbvie Roundabout	P17	P17		P17
	N16 Manorhamilton		P18	P18	
	N16 Manorhamilton Rd	-	-	-	P19
		-	-	P20	P20
		P21	-	P21	P21
		P22			P22
		P23	-	-	-
	N16 Drum Rd Roundabout	P24	P24	-	-
	N16 Manorhamilton Rd	-	-	P25	P25
E2590		-	P26	-	P26
		-	-	-	P27
		-	-	P28	P28
		-	-	P30	P30
			P31	P31	P31
		-	-	-	P33
	Port Roundabout Killybergs	P35	P35	-	-
	R283 Killybergs	-	-	-	P36
	N56-Right Bend	P38	-	P38	
		-	-	P39	P39
	N56- S Bend	-	-	P40	P40
	N56- S Bend Bruckless	P41	P41	-	P41

Dwg No.	Title	Adjust Street Furniture	Strengthening of Road Edges	Prune Vegetation	Oversail
		P42	P42	-	P42
	Bridge N56 Bruckless	P43	P43	P43	P43
	N56-Left Bend	P44	P44	P44	P44
	N56-Right Bend	-	-	-	P45
	N56- S Bend Dunkkneely	-	P46	P46	P46
	N56- Left Bend Dunkkneely	-	-	-	P47
	Mill Park Hotel Roundabout	-	-	-	P48
	Drumlonagher Roundabout	P49	P49	P49	P49
	Tull Yearl Roundabout N15	P50	P50	-	-
	Erne Roundabout	P51	P51	-	-
E2590	Drumarcrin Roundabout	P52	P52	-	P52
	Tullaghan Roundabout	P53	P53	-	-
	Grange N15 Part 1	-	-	-	P54
	Grange N15 Part 2	-	-	-	P54
	Grange N15 Part 3	P54	-	-	P54
	Dumcliff N15 Part 2	P55	-	-	P55
	Rathcormac N15 Part 1	P56	-	-	P56
	Rathcormac N15 Part 2	P56	-	-	P56
	Sligo N15	-	-	-	P57

Note: **P: Pinch Point as per Appendix 2-1*

At Construction Stage, the appointed Contractor and Haulage Company will be responsible for the temporary traffic management, agreements, and licensing with the Local Authorities and An Garda Síochána. A Construction and Environmental Management Plan is provided in Appendix 2-3.

The hardstanding areas will be laid in advance of the delivery of the Abnormal Indivisible Loads (AILs) to site.

The construction of the AIL delivery route works areas will have a likely temporary, slight, negative effect at each pinch point requiring road edge strengthening. The negative effect is due to delays caused to traffic due to the works and the associated traffic management. The road

edge strengthening works at all the pinch points is envisaged to take less than 2 weeks in total, with works at each pinch point varying from 1 day to 4 days.

During the haul of the AILs limited works will be required at the hardstanding areas (i.e., laying mats, ramps at kerbs / islands, removal of temporary bolt down kerbs etc.) immediately in advance of the AIL movement through the pinch points. These works will be undertaken under traffic management and have a temporary, slight, negative effect lasting less than a few hours.

At locations requiring removal of traffic signs, these will be made demountable with retention sockets instead of fixed posts in foundation. This will facilitate the temporary removal of the sign face and post immediately in advance of the AIL movement through the pinch point location and erecting after the AIL convoy has passed the pinch point. Reducing the duration of effect at these locations and allowing for them to be readily open to background traffic without the need for significant temporary traffic management.

The making of street furniture demountable will be undertaken in conjunction with the hardstanding works and under the same traffic management. The likely significant effect of this work will be temporary, slight, negative. The temporary works (i.e., removing signs and posts) will be required immediately in advance of the AIL passing the pinch points. These works will be undertaken under traffic management and have a temporary, slight, negative effect lasting less than a few hours. The effect will be reversible between AIL delivery and on completion of AIL delivery.

The hedgerow and minor vegetation cutting, required as a result of the AIL over-sail, will be carried out using a single tractor with minimal traffic management requirements. These works will be undertaken concurrently with offsite preparatory activities, ahead of the AIL deliveries.

16.8.2.4.1 Description of Effects- AIL Haul Route

The likely effects associated with AIL haul route, according to the EPA's guidelines, are presented in Table 16-17.

Table 16-17: AIL Haul Route – EPA Criteria Effect

Extent	Scenario	Significance	Duration
AIL Haul Route	Advanced Accommodations	Slight Negative	Temporary
	AIL Convoy	Slight Negative	Brief/Temporary

The effect on traffic volumes due to the implementation the accommodations in advance of AIL deliveries will be imperceptible due to the low number of vehicles required (ca 2-8 depending on extent). The vegetation pruning, and signage removal/relocation may be undertaken as maintenance works with low volumes of traffic associated.

For the transport of the AILs by convoy, the volume per convoy is low, however, the impact on the existing road environment will be slight. To allow the vehicles to travel on some of the roads of narrower width, temporary traffic management operations will be required.

16.8.2.5 Grid Connection Route – Likely Significant Effects

The grid connection route (GCR) proposes to install a 110 kV underground cable from the proposed onsite substation to the existing 110 kV Srananagh Substation in Co. Sligo. The cable connection is approximately 32km in length of which approximately 30.6 km will run on the public road corridor. The remainder is located within Coillte lands and other private lands, and a short section is within the proposed wind farm site. The GCR is routed along the roads outlined in Table 16-18.

Table 16-18: Grid Connection Route (GCR) – Road Network

Roads	County Jurisdiction
L61801, R282, R280, L2136, L21361, N16, L2169, L4166, L4165, R289, L8269, L8260, L4260, L82561, L4263, L4262, L42621	County Leitrim
L12011, L1201, L5204, L52043	County Sligo

The GCR also includes sixteen (11) watercourse crossings, and all related site works.

The grid connection has been designed by TLI to EirGrid and will be constructed in accordance with these specifications, as shown in drawings in Appendix 2-2.

The grid connection works will be undertaken on a rolling basis, with no more than 250m of trench open at any one time. The works will require temporary closures of sections of affected local roads and temporary lane closures on the affected regional roads, including the R282 and R280, to facilitate trenched crossings.

The trench shall be suitably backfilled at the end of the working day, with the provision of suitable temporary surfacing material, as may be requested by the local authority. Such closures shall only be undertaken following consultation with the local authority and following any requests for notifications by the local authority. A road opening licence shall also be applied by the principal contractor to the local authority.

Grid connection works will result in disruption for local road users. However, diversions will be provided, local access maintained, and activities will be carried out at off-peak times. The Contractor shall carry out such temporary road closures outside of peak traffic flow times, and only for the duration of the working days. At the time of this construction work and in advance of the required Road Closure, the appointed Contractor shall consult and comply with the Roads Authority, An Garda Síochána and other Emergency services to agree a suitable diversion route prior to implementing a Road Closure.

16.8.2.5.1 Description of Effects

The likely significant effects associated with GCR according to the EPA's guidelines, are presented in Table 16-19.

Table 16-19: Grid Connection Route- EPA Criteria Effect

Extent	Scenario	Significance	Duration
Grid Connection	Advanced Works	Slight Negative	Temporary
	Operational Phase	Imperceptible	Long-term (35 years)

The grid connection advanced works will have a temporary, slight, negative effect due to the temporary lane and road closure for cabling works. Once advanced works are finished, the operational effects will be imperceptible over the 35 years of operation.

16.8.3 Operational Phase

The operational phase of the project is proposed to last for 35 years. During this time, the proposed project will generate small volumes of traffic for operational and maintenance purposes.

16.8.3.1 Site Entrance and Internal Access Tracks

For the operational phase, the site will be accessed from 7 no. access points off local roads L6184, L61844, and L61801. The works to construct/modify these accesses will be completed at the start of the construction phase and, with the exception of regular maintenance for hedgerows for the visibility splays, no works are envisaged to be required at the site access. Hedgerows will not be cut during bird breeding season.

The maintenance of the visibility splays will have a positive effect on the safety aspect of the access. The internal access tracks may be in use for additional purposes to the operation of the proposed project (e.g., for forest/agricultural and recreational access). Both the forestry and agricultural activities are existing operations and have a neutral effect.

16.8.3.2 Operational Traffic Impact

As previously mentioned, the construction activities for the proposed project have the potential to generate the largest traffic volumes in comparison to the operational and decommissioning phases of the proposed project. The construction traffic assessment indicates that there is suitable capacity during construction activities.

It is expected that the operational phase will generate a maximum of four (4) LV movements per day (i.e., 2 arrivals and 2 departures). The proposed project operational traffic volumes were assessed against the *TII TTA Guidelines thresholds*. This assessment indicates that the operational phase of the proposed project will be sub-threshold based on the following:

- Proposed project traffic (i.e., 4 LV movements) will not exceed 10% of turning movements at junction with and on National Roads.

16.8.3.2.1 Description of Effects - Operational Phase

The likely significant effects associated with the operational phase, according to the EPA's guidelines, are presented in Table 16-20.

Table 16-20: Operational Phase – EPA Criteria Effect

Extent	Scenario	Significance	Duration
L61801, L6184 and L61844	Site Entrance and Internal Access - Maintenance Traffic	**Imperceptible**	Long-term (35 years)
L61801, L6184 and L61844	Site Entrance and Internal Access - Safety	**Significant Positive**	Long-term (35 years)
L61801, L6184 and L61844	Operational Traffic	**Imperceptible**	Long-term (35 years)

As these works are routine maintenance, the operational traffic volumes will result in a low increase in traffic with imperceptible consequence on the road network over the 35 years of operation.

In the absence of mitigation, the operational phase is not expected to have a significant effect on the surrounding road network.

16.8.4 Decommissioning Phase

The operational life of the proposed project is 35 years, it is proposed that turbine foundations and hardstanding areas will be left in place and covered with soil, it is proposed to leave the access tracks on site at the decommissioning phase (i.e., for forestry, agricultural use).

When the site is decommissioned, cranes will disassemble each turbine tower and all equipment. All infrastructure including turbine components will be separated and removed off-site. These components will be transported by HVs.

The on-site substation and 110 kV grid connection will not be removed at the end of the useful life of the proposed project as it will form part of the national electricity network. Therefore, the substation will be retained as a permanent structure and will not be decommissioned.

Due to the potential changes to baseline traffic conditions over the operational time period of the proposed project, detailed assessment of the decommissioning phase of the proposed project is not included as part of this assessment. It is proposed that in advance of the decommissioning process a Traffic Management Plan will be prepared to ensure that traffic impacts are minimised during this phase.

16.8.4.1 Decommissioning Traffic Impact

It is estimated that the volume of traffic associated with the decommissioning phase will be significantly less than the construction phase as the turbine foundation, internal access roads and substation will be retained. The large volume of stone aggregate and concrete for the concrete pours brought to site during the construction phase will not require removal. The overall traffic associated with the decommissioning phase will be significantly lower than during the construction phase, and the decommissioning phase is likely to have a slight, adverse, temporary effect.

16.8.4.1.1 Description of Effects- Decommissioning Phase

Adopting a precautionary approach, the effects of decommissioning of the proposed project on traffic and transportation will be similar to the construction phase effect. On this basis, the effect is outlined in Table 16-21.

Table 16-21: Decommissioning Traffic - EPA Criteria Effect

Extent	Scenario	Significance	Duration
N16, R282, L61801 L6184, and L61844	Decommissioning Phase	**Slight Negative**	Temporary

The above effects should be noted as the worst-case scenario, as a number of deliveries for the construction of infrastructure will not be required at decommissioning.

In the absence of mitigation, the decommissioning phase is not expected to have a significant effect on the surrounding road network.

16.9 MITIGATION MEASURES

The assessment of likely significant effects demonstrates that the proposed project will not have a significant effect. However, in accordance with best practice to reduce the impact on the environment, the following mitigation measures will be undertaken.

16.9.1 Embedded Mitigation

The potential effects of traffic within the proposed project site and on the local road network were considered in the design of the project and several embedded mitigations included in the design of the project. These measures included:

- The use of existing access roads and trackways on site for the proposed project site access tracks.
- Passing bays have been included in the site design to enable vehicles to pass each other.
- Using existing site entrances where possible to gain site access.
- Temporary road crossings have been included in the design for turbine delivery using third party lands to remove potential accommodation works required to tight bends on the public road network or difficult manoeuvres by drivers.
- The works within the main site will continue during concrete pours, but only essential deliveries will be scheduled to occur during this period

16.9.2 Construction Phase

To mitigate the likely significant effects of the construction traffic, the proposed project will utilise all available resources within the existing site to reduce the requirement for importation of materials to site. Excavation of stone material from the borrow pits within the proposed project site to provide construction material will reduce the HV volumes.

In addition to the borrow pits, the internal access tracks have been designed to utilise existing forestry access tracks where feasible, reducing the volume of materials required for importation to the site.

The second greatest volume of traffic effect is associated with the concrete pours for the turbine foundations. The works at other areas within the main site will continue during these concrete pours, but only essential deliveries will be scheduled to occur during this period. Leitrim County Council and the community will be informed in advance of the foundation pours.

16.9.2.1 Traffic Management Plan (TMP)

The TMP is a comprehensive set of mitigation measures that will be implemented by the Contractor before and during the construction phase of the project to minimise likely significant effects of construction traffic.

The purpose of the TMP is to capture the mitigation measures in this EIAR and any future traffic mitigation as they may arise during the project. The TMP proposed for the proposed project is included in Appendix 16-1.

The following mitigation has been incorporated into the TMP:

- Traffic movements will be limited to 07:00 – 19:00 Monday to Friday and 07:00 – 14:00 Saturday, unless otherwise agreed in writing with Leitrim County Council.
- HGV movements will be restricted during peak road network hours from 08:00 – 09:00 and 17:00 – 18:00 Monday to Friday, unless otherwise agreed in writing with Leitrim County Council.
- Clear construction warning signs will be placed on the public road network to provide adequate warning to road users of the presence of the construction site and slower-moving vehicles making turning manoeuvres.
- Haul route selection to avoid sensitive receptors.
- The existing and widened internal access roads facilitate queuing of construction vehicles off the public road.
- Traffic Management Operatives (TMOs) will be provided by the principal contractor in accordance with the Traffic Management Plan at the site access during peak construction traffic activities.
- Wheel washes will be provided on site as shown on Drawing 10955-2039 to prevent the build-up of mud on public roads.

16.9.2.2 Junction Visibility

Adequate visibility is available from the site access onto the Local Roads L61801, L6184, and L61844 of 3.0 m 'x- distance' and 'y-distance' of 90m. Visibility sightlines are in accordance with Leitrim County Development Plan and *TII DN-GEO-03060 (May 2023).*

Maintenance of hedgerows within the visibility splays will be undertaken, where necessary, to ensure that the required sightlines are maintained and to prevent overgrown vegetation from restricting visibility at the access and crossing points during construction activities (see Drawings No. 10955-2070 to 10955-2079. Such works will be carried out outside the bird breeding season..

Adequate visibility at the site accesses will mitigate the potential increased likelihood for collisions between construction generated traffic and existing road network traffic.

16.9.2.3 Junction Swept Path Analysis

In accordance with the TII DN-GEO-03060 (May 2023) swept path analysis has been undertaken at the site access for a worst-case typical construction vehicle (i.e., 16.5m long articulated truck), in addition to those undertaken for the AIL as outlined in Table 16-16. The swept path of the maximum legal articulated vehicle accessing/departing the site are available in Drawings No. 10955-2070 to 10955-2078.

The swept path analysis of the longest AIL, the turbine blade, were undertaken following identification of potential pinch points in the route assessment report as presented in drawings in Appendix 2-1. The swept path analysis used an 81.5m blade length which is the maximum blade length to be used in the proposed project.

The proposed site access design has been developed to take cognisance of the swept path of all vehicles arriving to and departing from the site. The gate has been positioned to allow for a large vehicle to wait clear of passing traffic on the local roads; to avoid potential collision between a passing vehicle and one stopped to open the gates at the site access.

Site access roads will have a running width of approximately five (5) metres (5.5 m including shoulders), with wider sections (which vary but are up to approximately 6.5 m) at passing bays, some corners and on the final approaches to turbine hardstands, as shown on the drawings accompanying the application (refer to Appendix 1-1).

16.9.2.4 Road Safety Audit

A Stage 1 Road Safety Audit was undertaken by CST Group in January 2026 at the following locations:

- the proposed project site accesses, and
- sections of the AIL haul routes where temporary accommodations are required.

The Road Safety Audit report is provided in Appendix 16-2, and its recommendations have been incorporated into the scheme design.

16.9.2.5 Material Delivery Routes

Mitigation measures on the material delivery routes include:

- Selection of viable routes with the lowest effect on the road network.
- Avoidance of sensitive receptors and urban settings:
    - The access route encourages the use of the existing infrastructure in the area while avoiding the local road and potential sensitive receptors.
    - The TDR is along national roads with largest capacity to accommodate the vehicles.
    - The typical construction materials are obtained from borrow pits onsite and from local quarries in the proximity of site.
    - Restricting HV movements during peak sensitive times on the road networks (i.e., at school times).
- To mitigate the effects of the AIL delivery on the road network, advanced works will be undertaken (i.e., road edge strengthening, making signs demountable, utility diversions etc). The hardstanding works areas will be temporary in nature and removed once the final turbine is delivered to site.

To mitigate the effect of the AILs, deliveries will be undertaken under Garda and traffic management escort during off-peak (i.e., night-time) hours. The arrangement of the appropriate abnormal load licences will be obtained by the appointed contractor in a timely fashion on procurement of the AIL. The appointed contractor will liaise with the relevant roads authorities and An Garda Síochána regarding the delivery schedule for the AILs.

16.9.2.6 Trench Reinstatement

To mitigate the effects of the GCR works on the road network, at the time of the construction work and in advance of the required road closure, the appointed Contractor shall consult and comply with the Roads Authority, An Garda Síochána and other Emergency services to agree a suitable diversion route prior to implementing a road closure.

To mitigate the effects of the cable laid within the public road, the reinstatement works will be backfilled and reinstated as soon as practicable. The reinstatement works will be undertaken in accordance with the "Purple Book" best guidance and practices. The proposed reinstatement and construction details and phasing will be agreed with associated Local Authorities in advance of the works. The Contractor will be responsible for arranging for the required road opening licences.

16.9.2.7 Project Delays

All required road opening licences, agreements with the Local Authorities (Leitrim, Sligo, and Donegal), and An Garda Síochána to facilitate the movement of AILs will be sought by the appointed Contractor in a timely manner to avoid delays to the project.

A delay to the project construction programme will have a negative effect by increasing the duration of construction vehicles on the road network and potentially extending traffic management timeframes and will therefore be avoided.

16.9.3 Operational Phase

Due to the relatively low operational traffic of the proposed project, it is envisaged that the operational effect of the proposed project will be imperceptible when compared to the existing background traffic. As such, no mitigation measures are proposed for the operation and maintenance of the proposed project.

In the event that a turbine requires replacing in the future, the current TDR will have to be re-assessed as road conditions may change over time.

16.9.4 Decommissioning Phase

A decommissioning plan has been prepared for the proposed project and will be updated at the appropriate time to take into account relevant requirements pertaining then. The decommissioning phase will employ similar mitigation measures as the construction phase.

As the decommissioning phase is envisaged to be over 35 years from now, a detailed TMP will be undertaken and will consider any road improvements and changes to the network. The plan will also consider the future baseline traffic in order to minimise the decommissioning phase effects in the vicinity.

As previously mentioned, the large volume of aggregate and concrete imported will remain onsite. The principal expected volumes of traffic will be primarily associated with the transportation off-site of turbine components and a significantly reduced volume of materials.

16.10 RESIDUAL EFFECTS

16.10.1 Construction Phase

During the 24-month construction phase of the project, it is forecast that the additional construction traffic that will appear on the delivery route will have a variable effect and duration

on the existing road network. The traffic volumes predicted to be generated to the proposed project site, as shown in Table 16-7 already account for the general mitigation by design (i.e., use of onsite borrow pits and use of existing forestry track infrastructure where feasible).

The residual effects associated with the construction phase of the wind farm, TDR and GCR are assessed as not significant following mitigation.

The residual average construction traffic effect will be not significant. The worst-case scenario residual construction traffic effect is expected to have a short-term and not significant effect corresponding to the three-month period when the highest volume of traffic is expected on the road. On the AIL delivery route, there will be a non-significant residual effect following the temporary accommodations required to facilitate the delivery of the turbine components (i.e., all street furniture demounted will be re-erected). During the construction works themselves, appropriate temporary traffic management will be employed at all works areas within the road. This will result in a slight, negative and temporary effect on existing traffic on the road network (depending on the location). This is considered not significant.

The cabling works will have a slight, negative brief effect on the local road network. Brief closures will be required but works will be undertaken off-peak and will be of very short duration. Alternative routes will be provided to maintain access to all locations. On reinstatement of the road in accordance with the "Purple Book" and with implementation of the mitigation measures, there will be no residual effects caused by the cable laying.

16.10.2 Operational Phase

As the likely significant traffic effects of the proposed project, including windfarm, TDR and GCR, will be imperceptible, long-term, negative during the operational phase. There will be no significant residual effects during this phase of the proposed project prior to and after mitigation measures have been implemented.

The residual effects associated with the operational phase of the wind farm, TDR and GCR are assessed as not significant following mitigation.

16.10.3 Decommissioning Phase

A decommissioning plan has been prepared for the proposed project and will be updated at the appropriate time to take into account relevant requirements pertaining then. The decommissioning phase will employ similar mitigation measures as the construction -phase. As the expected volumes of traffic will be primarily associated with the transportation off-site of turbine components and materials only, the residual effect of the windfarm, GCR, and TDR, is considered to be not significant and temporary in duration.

16.10.4 Description of Effects - Residual

The residual effects associated with the project, according to the EPA's guidelines, are presented in Table 16-22.

Table 16-22: Residual Effect - EPA Criteria Effect

Extent	Scenario	Significance
L61801, L6184 and L61844	Construction Phase	**Not Significant**
	Operational Phase	**Not Significant**
	Decommissioning Phase	**Not significant**

16.11 TRANSBOUNDARY EFFECTS

The potential for transboundary effects has been examined having regard to the proximity of the proposed wind farm to Northern Ireland. A review of relevant planning applications and permitted developments within the Northern Ireland jurisdiction at the time of assessment has not identified any developments of sufficient scale or proximity that would result in significant transboundary or cumulative effects when considered in combination with the proposed development. Accordingly, no likely significant transboundary effects are anticipated in respect of this topic.

No part of the Northern Ireland road network will be utilised for the proposed project.

16.12 CUMULATIVE EFFECTS

16.12.1 Construction Phase - Cumulative Developments

Cumulative developments are referred to in roads terminology as per *the TTA Guidelines* as Committed developments. According to *TII PE-PDV-02045 (May 2014)*, the TTA should consider all committed developments and planned developments within the vicinity of the site. This includes sites which have previously been granted planning permission and have not been constructed. All retained and continuation of operations planning applications are accounted for within the baseline traffic.

Committed developments are considered in the TTA assessment to get a cumulate understanding of the future baseflow traffic volumes on the road network, that have not been captured within the traffic counts as these developments are pending construction or operation.

Appendix 1-4 outlines all the relevant planning applications (granted and live) within the vicinity of the site to be considered as part of this cumulative assessment. A 10 km planning search (between January 2013 – February 2026) has been completed to identify relevant projects and developments currently within the planning system. A 10 km search of An Coimisiún Pleanála's planning database and local authority planning databases (see Leitrim County Council, Donegal Council, Sligo County Council's results in Appendix 1-4) was undertaken. This distance is sufficient to capture the zone of influence or study area for this TTA. These planning applications are considered likely significant cumulative effects if they have a current planning application and have not been constructed.

The planning applications identified within the study area at the time of this assessment are not of significant scale/proximity to result in likely significant cumulative effects.

The cumulative effects associated with the construction phase of the wind farm, TDR and GCR are assessed as not significant.

16.12.2 Operational Phase

The cumulative effect on roads and traffic will be the use of the infrastructure for existing agricultural activities, and the proposed operational activities. As outlined in Section 16.8.3, the traffic volumes associated with these activities will be low and will have a likely slight negative long-term effect on the road network in the vicinity of the proposed project.

The cumulative effects associated with the operational phase of the wind farm, TDR and GCR are assessed as not significant.

16.12.3 Decommissioning Phase

No significant cumulative effects on roads and traffic are envisaged; the expected volumes of traffic will be primarily associated with the transportation off-site of turbine components and materials. The other cumulative effect of agriculture traffic is baseflow traffic, and recreational traffic will generate low levels of traffic. The overall decommissioning phase traffic will be slight and temporary.

The cumulative effects associated with the decommissioning phase of the wind farm, TDR and GCR are assessed as not significant.

16.12.4 Description of Effects - Cumulative Impact

The likely significant effects associated with the cumulative effect of the projects in the vicinity of the proposed project, according to the EPA's guidelines, are presented in Table 16-23.

Table 16-23: Cumulative Effect- EPA Criteria Effect

Extent	Scenario	Significance	Duration
N16, R282, R280, L61801 L6184, and L61844	Construction Phase	**Not significant**	Temporary/Short-term
	Operational Phase	**Not significant**	Long-term (35 years)
	Decommissioning Phase	**Not significant**	Temporary

16.13 CONCLUSION

This chapter assesses the likely significant effects of the proposed project on the surrounding road network and its capacity. Following the implementation of the proposed mitigation measures, the residual traffic effects associated with the construction phase of the wind farm, Turbine Delivery Route (TDR) and Grid Connection Route (GCR) are assessed as imperceptible to not significant.

The residual effects during the operational phase are considered imperceptible over the long term, reflecting the low level of traffic generation associated with routine site activities. The decommissioning phase is expected to result in slight negative effects over a temporary duration, which are not significant.

No significant cumulative traffic effects are anticipated, given the limited overlap in construction timelines and the low traffic generation associated with the operational phases of surrounding developments. Transboundary effects are not expected.

Overall, the proposed project will not give rise to significant residual traffic effects on the surrounding road network.

16.14 REFERENCES

Guidelines on the information to be contained in Environmental Impact Assessment Reports (EPA, 2022).

Traffic and Transport Assessment Guidelines (TII PE-PDV-02045, May 2014).

Leitrim County Development Plan 2023-2029.

Spatial Planning and National Roads Guidelines for Planning Authorities (2012).

Project Appraisal Guidelines Unit 5.2 - Data Collection (TII PE-PAG-02016, Dec 2023)

Project Appraisal Guidelines for National Roads Unit 5.3 - Travel Demand Projections (TII PE-PAG-02017, Oct 2021).

Guidelines for Managing Openings in Public Roads (Department of Transport, Tourism and Sport, 2017).

Geometric Design of Junctions (priority junctions, direct accesses, roundabouts, grade separated and compact grade separated junctions) (TII DN-GEO-03060, May 2023).

Rural Road Link Design (TII DN-GEO-03031, May 2023).

Road Safety Audit Guidelines (GE-STY-01027, May 2025).

'Purple Book' - Guidelines for Managing Openings in Public Roads (Second Editions April 2017 DoTTS).