

Ballyfeeny Green Energy Project



Environmental Impact Assessment Report Volume III

Appendix 2.1.3 – Traffic Management Plan September 2025

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Traffic Management Plan

Project:

Ballyfeeny Green Energy Project

Applicant:

Ballyfeeny Green Energy Limited

Date of Report:

11th September 2025

Document Ref. No.:

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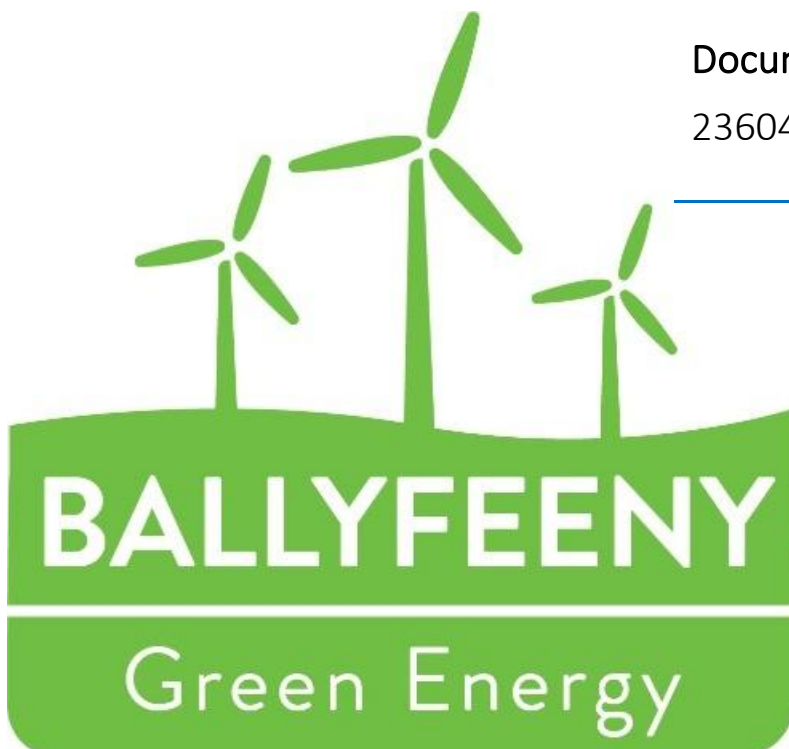


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1.0 Introduction

This Traffic Management Plan (TMP) has been developed by Mable Consulting Engineers on behalf of Ballyfeeny Green Energy Limited (the Applicant), who intend to apply to Roscommon County Council for planning permission to construct the Ballyfeeny Green Energy Project (the Project)

This TMP has been prepared in conjunction with the Environmental Impact Assessment Report (EIAR) which will accompany the planning application for the proposed Project.

All Traffic Management Controls in the area of the public road will be carried out in accordance with Chapter 8 of the Traffic Signs Manual titled 'Chapter 8 -Temporary Traffic Measures and Signs for Road works', published in November 2019.

This TMP is to be read in conjunction with the following documents:-

- **EIAR, Volume II, Chapter 12: Traffic and Transport**
- **EIAR, Volume III, Chapter 2.1: Construction and Environmental Management Plan (CEMP);**
- **EIAR, Volume III, Chapter 2.1.2: Waste Management Plan (WMP);**
- **EIAR, Volume III, Chapter 2.1.4: Decommissioning Management Plan (DMP);**
- **The Planning Drawings.**

1.1 Project Description

A detailed description of the proposed Project is contained within the **EIAR, Volume II, Chapter 2: Project Description**.

1.2 Scope

This TMP details the traffic management strategy for the following phases:-

- Construction phase;
- Operational phase; and
- Decommissioning phase.

1.3 Report Layout

The TMP is layout as follows: -

- Section 1.0 Introduction;
- Section 2.0 Overview of Existing Site;
- Section 3.0 Proposed Project;
- Section 4.0 N5 Ballaghaderreen to Scramoge Road Project;
- Section 5.0 Overview of Construction Works;
- Section 6.0 Construction Traffic;
- Section 7.0 Construction Mitigation Measures;
- Section 8.0 Construction Works to Public Roads;
- Section 9.0 Operational Phase; and
- Section 10.0 Decommissioning Phase.

1.4 Statement of Authority

This TMP has been prepared by Mr. Barry McGinn and Mr. Eoin Roche of Mable Consulting Engineers Limited.

Mr. Barry McGinn is a Chartered Engineer with over 28 years' experience in the design, construction and project management of civil and structural engineering projects including; Wind Farms, Solar Farms, Battery Storage, Electrical Substations, Flood Alleviation, and multiple other development types. Barry is a member of Engineers Ireland and holds a BSc(Eng) in Structural Engineering, BEng (Ord) in Civil Engineering and Post Graduate Diplomas Planning and Environmental Law, Construction Law & Contract Administration and Project Management.

Mr. Eoin Roche, the co-author of this chapter, holds a Bachelor of Engineering (Hons) in Structural Engineering and a Postgraduate Diploma (Distinction) in Sustainable Energy and the Environment. With five years of experience, Eoin has been involved in the design and construction of a diverse range of civil and structural engineering projects. His knowledge spans several critical areas of renewable energy infrastructure, including wind farms, solar farms, battery energy storage systems (BESS), synchronous compensators, and electrical substations. Eoin's multidisciplinary background and experience in both traditional engineering and sustainable energy solutions enable him to effectively and accurately address the environmental and technical considerations of this CEMP.

1.5 TMP Objectives

The key objectives of this TMP are to:-

- Ensure that works within the road network do not result in a safety hazard to road users or the workforce involved in the proposed Project;
- Keep traffic flowing as freely as possible and reduce the impact of the construction traffic and road works to a minimum; and
- Ensure that any resulting increase in traffic delays and congestion are minimised.

1.6 Inputs

The following parties will have an input into traffic management and will be kept informed by the appointed contractor in relation to traffic management:-

- Developer / Employer
- Appointed Contractor
- Designers
- Project Supervisor Construction Stage (PSCS)
- Project Supervisor Design Process (PSDP)
- An Garda Síochána
- Roscommon County Council Roads Division
- Emergency Services
- Local Community

1.7 Live Document

This TMP is considered a 'live' document and as such will be reviewed and updated as required during construction phase design and as required during the construction works. It will also be reviewed and updated as required during operation and decommissioning phases.

Updates to the TMP may be required due to changes in legislation or due to changes in construction and environmental best-practices. Updates may also be required to incorporate into it new measures for compliance with any conditions of planning by the Local Authority.

Prior to commencement of construction works, this TMP will be refined by the construction contractor to the requirements of the Local Authority and other appropriate Stakeholders and incorporated into its construction management systems.

1.8 Implementation and Monitoring

The procedures in this TMP will be audited regularly throughout the construction, operation and decommissioning phases to ensure compliance.

2.0 Overview of Existing Site

An overview of the existing Site is given in the **EIAR, Volume II, Chapter 2: Project Description**. The location of the Site is outlined in red in **Figure 2.1**.

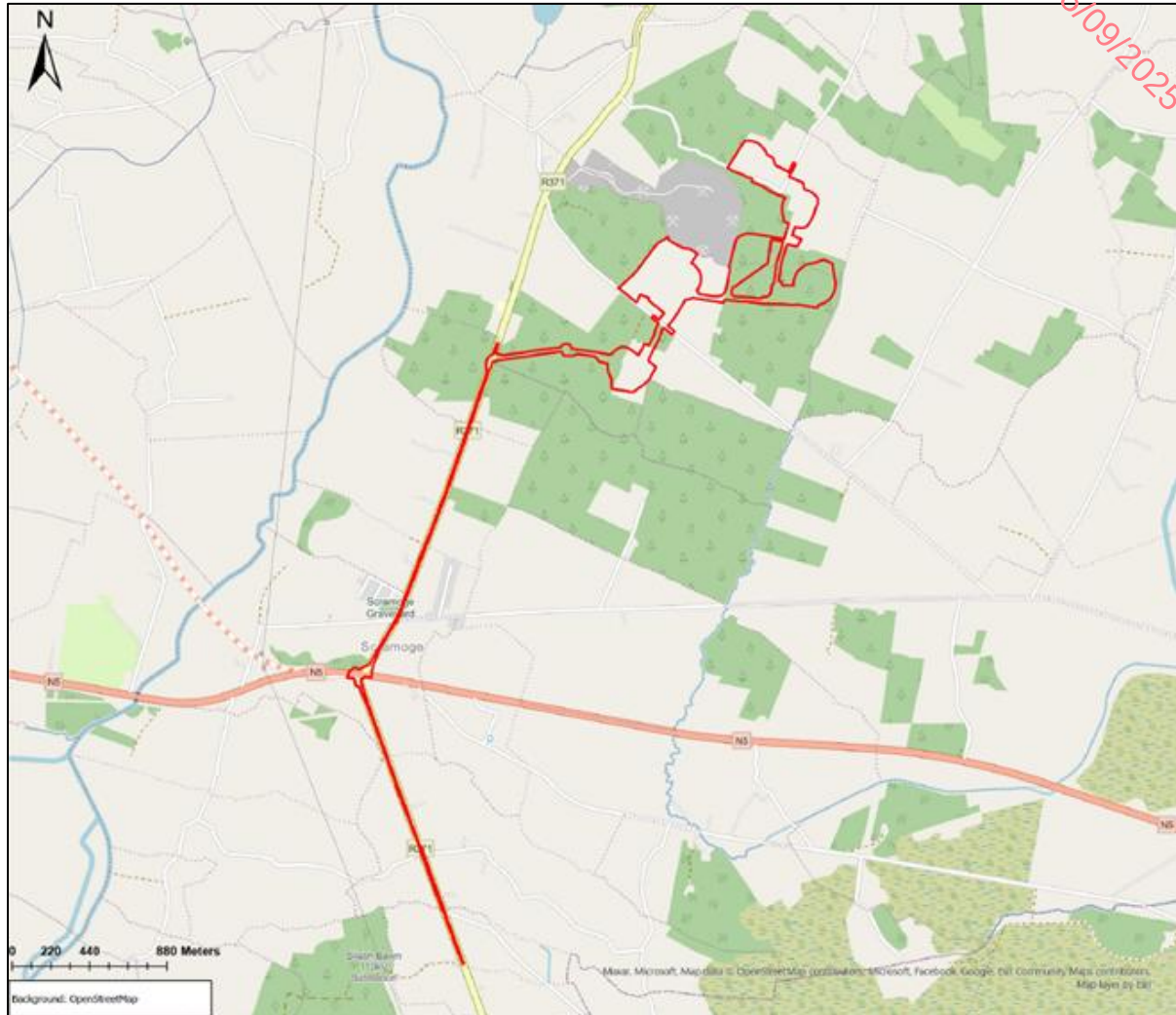


Figure 2-1 – Site Location – Site outlined in red

3.0 Proposed Project

3.1 Wind Farm

An overview of the existing Site is given in the **EIAR, Volume II, Chapter 2: Project Description**. The layout of the wind farm Site is given in **Figure 3-1**. The proposed wind turbine ITM coordinates are given in **Table 3-1**.

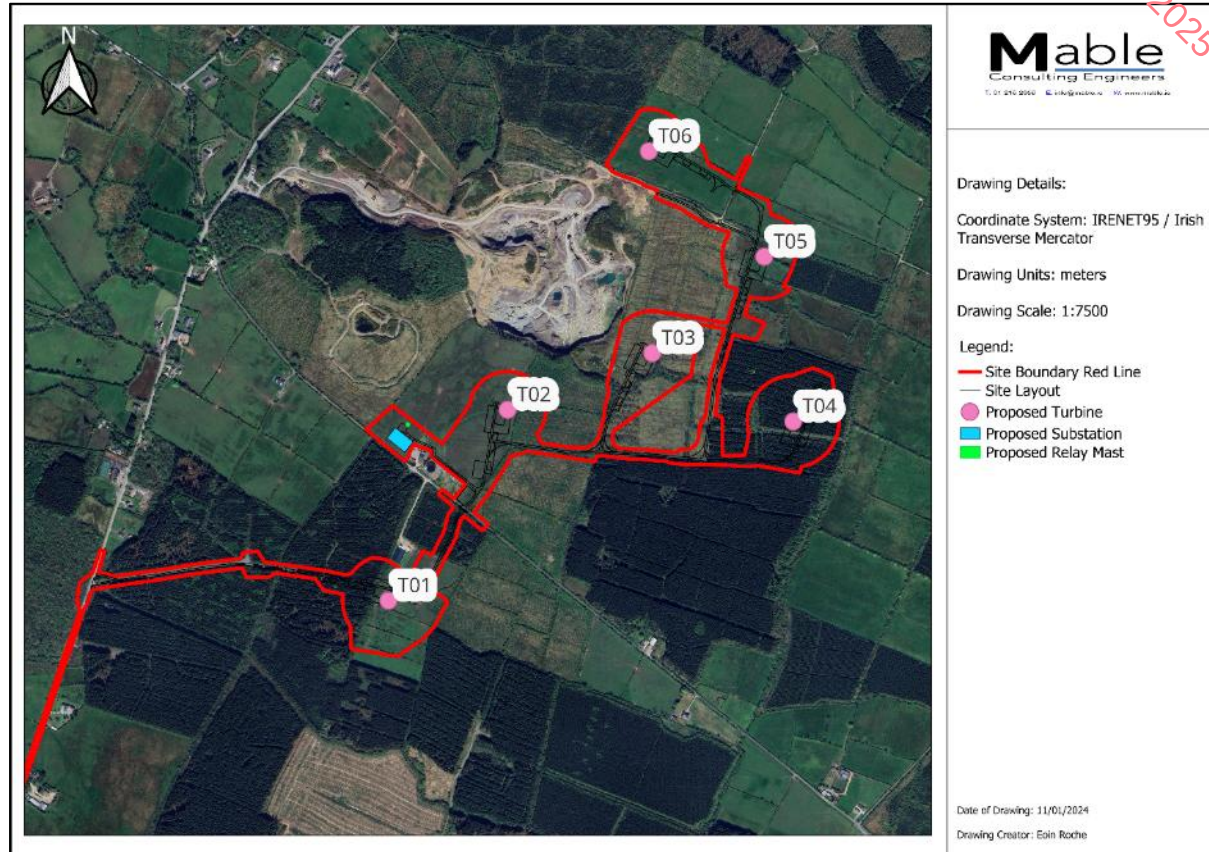


Figure 3-1 – Proposed Project Layout

Turbine ID	Grid Coordinates (ITM)		Ground Level at Turbine (meters above ordnance datum)
	Easting:	Northing:	
Turbine 1 (T01)	598032	781362	118
Turbine 2 (T02)	598343	781861	119
Turbine 3 (T03)	599091	781831	76
Turbine 4 (T04)	598722	782009	99
Turbine 5 (T05)	599015	782261	86
Turbine 6 (T06)	598713	782537	106

Table 3-1 – Proposed Wind Turbine Coordinates

3.2 Grid Connection Route

An overview of the existing Site is given in the **EIAR, Volume II, Chapter 2: Project Description**. It is proposed to connect the wind farm to the national grid via a 38kV underground grid connection constructed from the proposed Onsite Substation and connecting to the existing Sliabh Bawn 110kV substation. The majority of the grid connection will be installed in the public road. The proposed GCR layout is outlined in **Figure 3-2**.

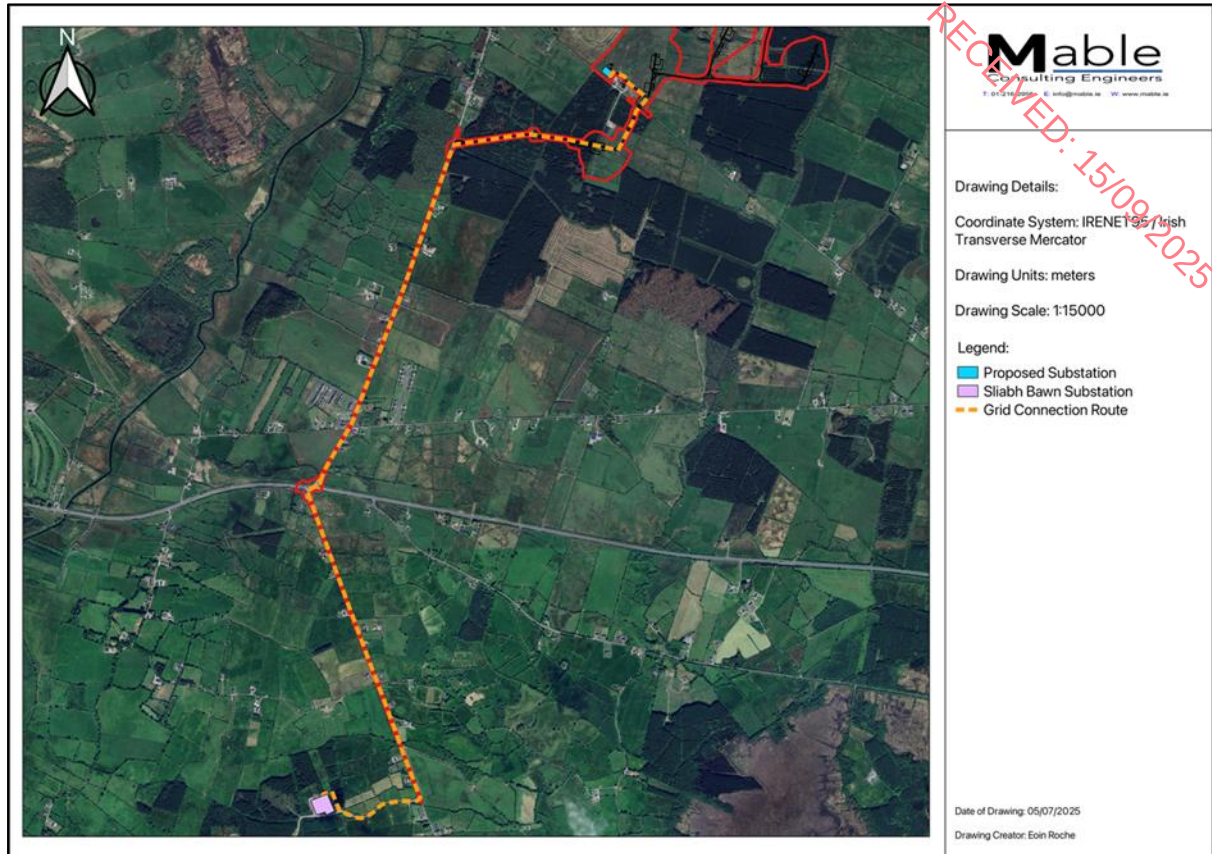


Figure 3-2 – GCR Layout

4.0 N5 Ballaghaderreen to Scramoge Road Project

Roscommon County Council and Transport Infrastructure Ireland (TII) are overseeing the construction of the N5 Ballaghaderreen to Scramoge Road Project, a new 34-kilometer stretch of new National Road intended to modernize the connection between Ballaghaderreen and Scramoge in County Roscommon.

The new road section is designed as a Type 1 single carriageway that will bypass Frenchpark, Bellanagare, Tulsk, and Strokestown.

The N5 Ballaghaderreen to Scramoge Road Project has moved into the construction phase, with contracts signed and construction having officially commenced in late 2023. The estimated timeline for completion is about four years, aiming for substantial completion by late 2027.

Figure 4-1 gives detail on the proposed new road in the vicinity of the proposed Project.

As discussed in Section 1.7 above; prior to commencement of construction works, this TMP will be further refined by the construction contractor and incorporated into its construction management systems. In the unlikely event that the N5 Road Project has not been completed, the Developer and Contractor will liaise with Roscommon County Council and TII in relation to the new road project and incorporate their requirements into the detailed plan.

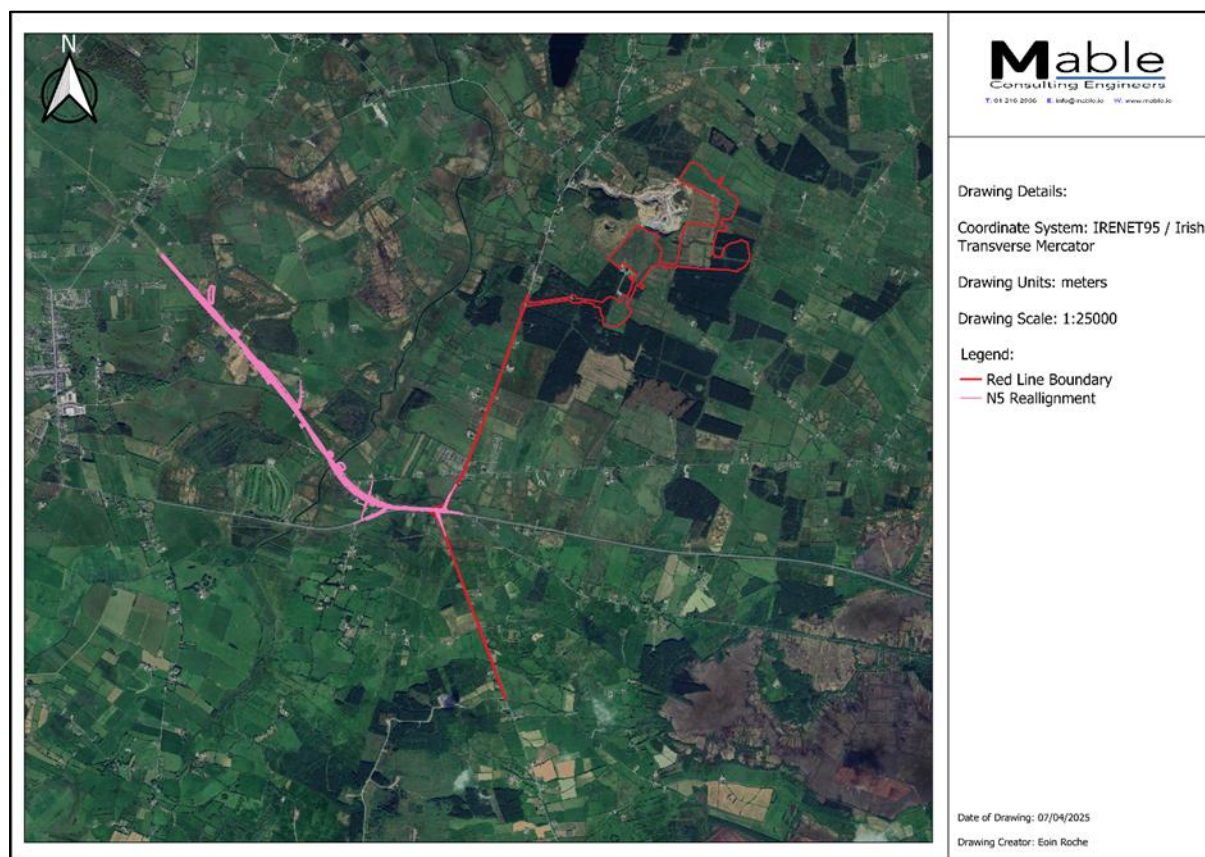


Figure 4-1 – Alignment of the N5 Ballaghaderreen to Scramoge Road shown in Magenta and proposed Project outlined in red

4.1 Project Interface with N5 Road Project

The following elements of the proposed Project interfaces with the N5 Ballaghaderreen to Scramoge Road Project:-

- Turbine Delivery Route (TDR);
- GCR (GCR).

4.1.1 Turbine Delivery Route Interface

It is proposed to utilise the proposed new N5 Ballaghaderreen to Scramoge Road Project as part of the turbine delivery route for the proposed Project– Route Option 1a. This route avoids bringing abnormal loads through the town of Strokestown.

In the unlikely event that the new N5 Road Project has not been completed by the time the proposed Project deliveries are due to commence, an alternative route through Strokestown will be utilised – Route Option 1b.

Both route options have been assessed for required accommodation works and potential impacts within the EIAR. See Section 6.5.2 for further details on TDR Options.

4.1.2 Grid Connection Route Interface

It is proposed to install the grid connection in the public road; a section of this route will cross the N5 National Road at the R371/N5 junction. It is envisaged that Directional Drilling will be utilised for this road crossing in accordance with Transport Infrastructure Ireland (TII) best practice guidelines provided during the scoping exercise for the proposed Project.

The N5 Ballaghaderreen to Scramoge Road Project ties back into the existing N5 road at this R31/N5 junction. The design of this tie-in has been reviewed as part the TMP assessment works.

The proposed GCR alignment has been coordinated with both the existing N5 road alignment and the proposed new N5 Road Project. The proposed layout has been selected to be compatible with both the existing arrangement and the proposed arrangement thus avoiding any conflict with the new road design or the timing of its construction. Both options have been assessed for required accommodation works and potential impacts within the EIAR. See Section 6.7 for further details on grid route traffic management.

5.0 Overview of Construction Works

5.1 Overview of Construction Methodology

The overview of construction methodology is outlined in the CEMP submitted with this planning application.

5.2 Duration and Phasing of the Proposed Project

It is anticipated that the overall construction of the Project will take approximately 18 months from starting on-site to final commissioning of the wind turbines.

All vegetation clearance that is required for the construction works will be carried outside the bird breeding season, which runs from the 1st of March to the 31st of August. To comply with this requirement a section of the initial Civil Engineering Works may be carried out as advance enabling works in the months from September to February.

Table 5-1 provides an overview of the works in a number of key phases, some of these phases will run in parallel. Further information on each phase is provided in the CEMP submitted with this application.

Phase	Activity	Estimated Duration
1	Detailed Design – For Construction	6 months
2	Civil Engineering Enabling Works	2 months
3	Civil Engineering Main Site Works	8months (Pre-Turbine Delivery) 2 months (Post-Turbine Delivery)
4	Structural Engineering Works	4 months
5	Turbine Circuit Connector Ducting and Cabling	2 months
6	Turbine Delivery Route Works	2 months
7	Turbine Delivery, Erection and Commissioning	6 months
8	Site Electrical Works	4 months
9	Grid Connection Works	5 months
10	Wind Farm Final Commissioning	1 month
Total Duration on Site (Some Phases will be carried out in parallel)		18 months

Table 5-1 - Proposed Project Construction Duration and Phasing

A Gantt Chart Programme for the proposed works is given in Figure 5-1.

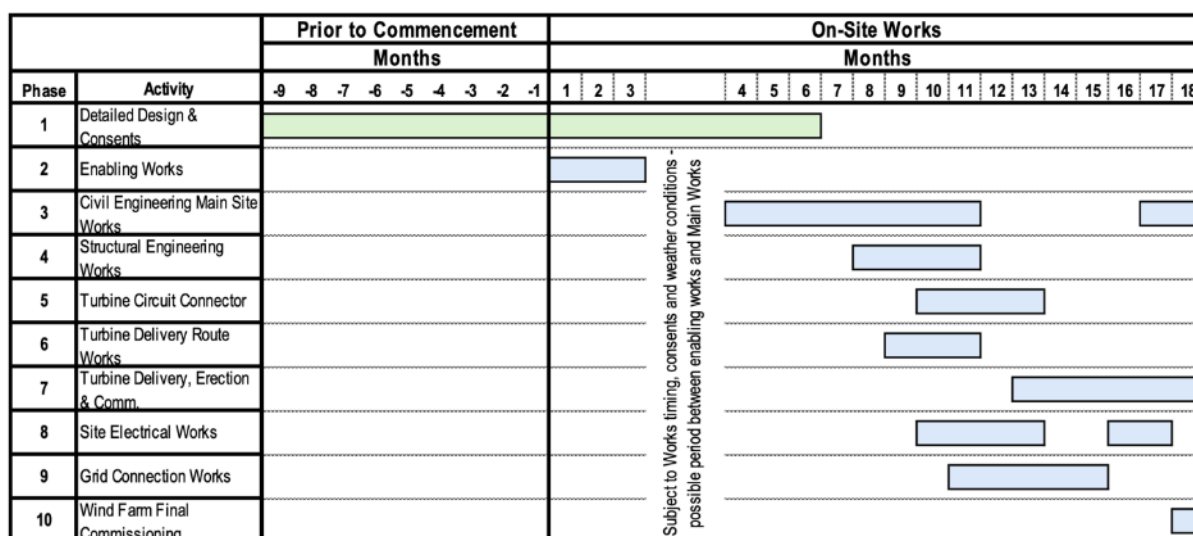


Figure 5-1- Gantt Chart Programme

5.3 Construction Hours

The hours of construction activity will be limited to avoid unsociable hours, where possible. Construction operations will generally be restricted to between 07:00hrs and 19:00hrs on weekdays and between 07:00hrs and 14:00hrs on Saturdays.

However, to ensure that optimal use is made of good weather periods or at critical periods within the programme (i.e., concrete pours or to accommodate delivery of large turbine components along public routes), it may be necessary on occasion to work outside of these hours. Any such out of hours working will be agreed in advance with Roscommon County Council.

5.4 Employment

For the wind farm construction, a peak workforce of approximately 35 persons is anticipated on the wind farm Site and approximately 10 persons on the GCR. There will be peaks and troughs in the numbers, with a larger workforce during the general Site works.

5.5 Roles & Responsibilities

Roles & Responsibilities are detailed in the CEMP submitted with this planning application; the Traffic Management Coordinator role discussed below is a key role in relation to this report.

5.5.1 Traffic Management Coordinator

A competent Traffic Management Coordinator (TMC) will be appointed for the duration of the Project and this person will be the main point of contact for all matters relating to traffic management.

The TMC will monitor works which have an impact on the public road and ensure that methodologies and mitigation are followed throughout construction to avoid negatively impacting road use and safety. The TMC will report to Construction Manager.

6.0 Construction Traffic

In general, the bulk of construction plant and materials will be transported to / from Site by means of Ridged and Articulated Heavy Goods Vehicles (HGV) with a smaller number of materials transported by means of Light Goods Vehicles (LGV) and Abnormal Load Vehicles.

Construction materials, other than wind turbine components, will be primarily concrete for the Turbine Foundations and crushed stone aggregate of various grades for the construction of Access Tracks and Turbine Hardstands.

The supply of the wind turbine components themselves and other items such as steel reinforcement, switchgear, cables, cranes and other sundry deliveries will result in only minor localised increases in traffic movement in the area.

Details of construction traffic volumes are provided in Sections 6.7, 6.8 and 6.9.

6.1 Designated Wind Farm Site Access Points

Construction deliveries to the wind farm Site, and removals from the wind farm Site, will use designated access routes and access points, see Planning Drawing 23604-900 for details. The designated access routes and access points are as follows:

- Deliveries approaching from the north will access the wind farm Site via the L1417 and using entrances SE2 and SE3;
- Deliveries approaching from the south will access the wind farm Site via the entrance SE1 off the R371 road;
- Removals from the Site traveling in a northerly direction will leave the wind farm Site via entrances SE2 and SE3; and
- Removals from the Site traveling in a southerly direction will leave the wind farm Site via entrance SE1.

This approach has been developed in order to avoid wind farm construction traffic passing the Ballyfeeney Primary School which is located off the R371 approximately 350m north of entrance SE1.

6.2 Quarry Delivery Routes to Wind Farm

The majority of materials delivered to the Project will be quarry based products such as crushed stone aggregate, ready-mix concrete, concrete blocks and other stone, sand and concrete based products. The supply of the wind turbine components themselves and other items such as steel reinforcement, switchgear, cables, cranes and other sundry deliveries will result in only minor localised increases in traffic movement in the area.

It is envisaged that the quarry-based products required for the construction of the Project will be sourced from local quarries. There are currently 13 No. quarry facilities in the surrounding 60km likely to be used.

The map of the quarries and their delivery routes are outlined in **Planning Drawing 23604-900**. Quarry vehicles delivering to the wind farm will use the designated access routes and access points as set-out in Section 6.1.

6.3 Other Deliveries to Wind Farm

Other deliveries to the wind farm will include items such as construction plant and equipment, switchgear, cables, drainage pipes, cable ducting, steel reinforcement, fencing materials etc.

For specialist items such as Switchgear and other equipment; these will likely be delivered to the Project via a national seaport or an industrial centre using the Motorway network, the N5 and then the R371 leading to the Site entrance (SE01). For other less specialised items, these will be sourced from a number of different locations around the country and brought to Site via a number of different routes.

The volume and frequency of other deliveries to the Site over the proposed 18-month construction period will be relatively small and so, there will be minimal effect on the existing road network from this traffic.

Delivery vehicles to the wind farm Site will use the designated access routes and access points as set-out in Section 6.1.

6.4 Removals from Wind Farm

In terms of traffic effects, the routes used for removing plant, equipment, waste and other materials from the Site will be similar to Section 6.3 above. Removal of waste from the Site is to be carried out in accordance with the requirements set out in the WMP.

All removal vehicles will use the designated access routes and access points as set-out in Section 6.1.

6.5 Plant and Material Delivery / Removal for Grid Works

The GCR works will involve installing underground cable ducting within the wind farm Site from the proposed Onsite Substation situated, crossing the L6018 public road and eventually onto the R371 public road connecting into the Sliabh Bawn 110kV Substation. The cable ducting will cross the N5 public road as part of this work.

The nature of the GCR cable ducting works in the public road will require plant and material deliveries / removals at various locations along the route. It is envisaged that deliveries / removals will primarily use the following public roads:-

- N5.
- R371.
- L6018.

6.6 Abnormal Load Delivery

6.6.1 Abnormal Load

This statutory instrument that governs vehicles on Irish roads is the Road Traffic (Construction and Use of Vehicles) Regulations 2003 (C&U Regulations) as amended. The C&U Regulations sets out the legal limits for vehicle weight, dimensions and axle loading. Once a vehicle exceeds these standard limits, it is classified as an abnormal load.

During the turbine and substation construction phase, there will be up to 67 deliveries to the Site which will exceed the standard vehicle dimensions and so will be made using Abnormal Load Vehicles, see Sections 6.7 and 6.9 for details on abnormal loads.

It is envisaged that abnormal loads will be brought to Site under Garda escort late at night-time / early morning. In restricted access areas, the Gardaí will temporarily stop traffic and direct traffic to pull in to allow the vehicle to pass.

Abnormal Load Permits will be obtained from An Garda Síochána and relevant Local Authorities.

6.6.2 Allowable Axle Load

We note that abnormal weight loads are not a feature of turbine delivery vehicles, they are abnormal in dimensions. All construction and delivery vehicles for the proposed Project will be subject to the standard axle weight requirements set out under the C&U Regulations.

The number of load-bearing axles for any specialist vehicles carrying large loads will be designed to ensure that the load on any one axle does not exceed the allowable load bearing statutory limits. Therefore, the structural integrity of the national and regional road network used during the construction of the proposed Project is adequate to provide for the Abnormal Loads.

In 2024 the Department of Transport published a technical guidance document; RW18 - Exceptional Abnormal Load Management Flow Chart. This document provides a structured approach for assessing and managing exceptional abnormal loads which it defines as; *“as a real vehicle not conforming to the C&U Regulations and heavier than 180 Tonnes.”*

6.6.3 Turbine Delivery Route

It is proposed to utilise the proposed new N5 Ballaghaderreen to Scramoge Road Project outlined in Section 4.0 as part of the TDR – Route Option 1a. This route avoids bringing abnormal loads through the town of Strokestown.

In the unlikely event that the new N5 Road Project has not been completed by the time the proposed Project deliveries are due to commence, an alternative route through Strokestown will be utilised – Route Option 1b.

Both route options have been assessed for required accommodation works and potential impacts within the EIAR.

Figure 6-1 provides details on TDR Route Option 1a and 1b. Detailed maps of the TDR options along with vehicle Swept Path Analysis (SPA) drawings are contained in the following **Planning Drawings; 23604-1000 to 1007, 2002 and 2006 to 2011.**

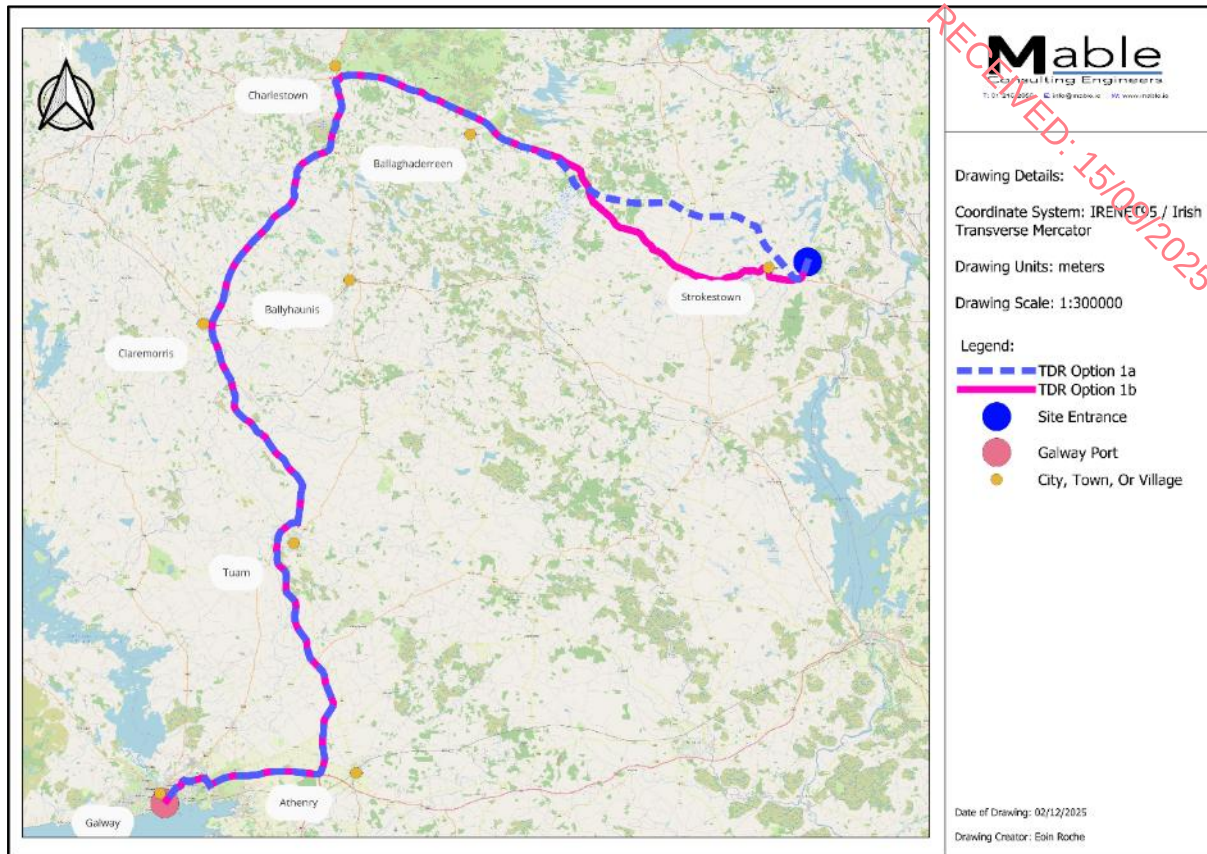


Figure 6-1– TDR Route Options

6.6.4 TDR Option 1a

The TDR Option 1a is as follows:-

- Starting at Port of Galway;
- Turn left toward Lough Atalia Rd;
- Take slight right onto College Rd/R339, continue on R339 Regional Road;
- Take a sharp left onto the Ballybane Rd/R865 and turn right to merge onto the N6 National Road;
- Continue onto M6 Motorway from N6;
- At junction 18, take the M17 Motorway exit to Sligo and merge onto M18 Motorway leading onto M17 Motorway;
- At Junction 20, take the 2nd exit at the roundabout onto the N17 heading to Claremorris/Sligo;
- At the N1/N83 roundabout, take the 1st exit and stay on N17 heading to Claremorris/Sligo;
- At the N1/N5 2nd roundabout (near Charlestown), take the 2nd exit and merge onto the N5;
- Continue on N5 and onto the new N5 Ballaghaderreen to Scramoge Road Project;
- At the end of the new N5 Road Project, turn left onto the R371 at the N5/R371 Junction; and
- Continue to Site Entrance SE1.

6.6.5 TDR Option 1b

The TDR Option 1b is as follows:-

- Starting at Port of Galway;
- Turn left toward Lough Atalia Rd;
- Take slight right onto College Rd/R339, continue on R339 Regional Road;
- Take a sharp left onto the Ballybane Rd/R865 and turn right to merge onto the N6 National Road;

- Continue onto M6 Motorway from N6;
- At junction 18, take the M17 Motorway exit to Sligo and merge onto M18 Motorway leading onto M17 Motorway;
- At Junction 20, take the 2nd exit at the roundabout onto the N17 heading to Claremorris/Sligo;
- At the N1/N83 roundabout, take the 1st exit and stay on N17 heading to Claremorris/Sligo;
- At the N1/N5 2nd roundabout (near Charlestown), take the 2nd exit and merge onto the N5;
- Continue on N5 into Strokestown, at the roundabout take the 3rd exit and continue on the N5;
- Turn left onto the R371 at the N5/R371 Junction; and
- Continue to Site Entrance SE1.

6.6.6 Route Selection

Initial Assessment

A desktop study of potential turbine delivery routes was undertaken to consider their suitability to accommodate the size of delivery vehicles in terms of alignment, capacity, condition and width on the national and regional road network, see Section 6.6.2 and 6.6.2 for details on abnormal load considerations.

As part of this, an initial ALV Swept Path Analysis (SPA) was carried out using Autodesk's Vehicle Tracking Software and AutoCAD's embedded Aerial imagery.

From this desktop assessment and initial SAP work, the above Option 1a and Options 1b were selected as the preferred route(s).

On-Site Route Assessment

Mable Consulting Engineers' Mr. Barry McGinn, Chartered Engineer, drove the selected route to carry out an on-Site route assessment. The last section of TDR Option 1a, the new N5 Ballaghaderreen to Scramoge Road Project, is currently under construction and so an on-site assessment was not possible in this area.

As an alternative, the new N5 Road Project design drawings were obtained from Roscommon's on-line website portal:-

<https://www.roscommoncoco.ie/en/services/roads/publications-and-information/n5-ballaghaderreen-to-scramoge-road-project/>

Detailed Swept Path Analysis

Following the desktop assessment, initial Swept Path Analysis (SPA) and the on-site assessment a number of areas – or Nodes – were identified for further assessment. Topographic surveying was carried out at these locations and detailed further Vehicle Tracking SPA was carried out.

Detailed maps of the TDR options along with vehicle Swept Path Analysis (SPA) drawings are contained in the following Planning Drawing:-

- **Table 6-1** details the Planning Drawings for TDR Option 1a.

Drawing No.	Drawing Title
1000	Turbine Delivery Route Option 1a & 1b - Overall Key Plan
1001	Turbine Delivery Route Option 1a & 1b - Section 1
1002	Turbine Delivery Route Option 1a - Section 2
1003	TDR Option 1a - Nodes No. 2005, 2010, 2015, 2020, 2025.
1004	TDR Option 1a - Node No. 2030, 2035, 2040, 2045, 2050
1005	TDR Option 1a - Nodes No. 2055, 2060, 2065, 2070, 2075, 2080, 2085, 2090
1006	TDR Option 1a - Nodes No. 3005, 3010, 3015, 3020, 3025, 3030, 3035, 3040
1007	TDR Option 1a - Nodes No. 3045, 3050, 3055, 3060
1008	TDR Option 1a - Nodes No. 3065, 3070, 3075, 3080, 3085 - Site Entrance

Table 6-1 - TDR Option 1a Drawings

- **Table 6-2** details the Planning Drawings for TDR Option 1b.

Drawing No.	Drawing Title
1000	Turbine Delivery Route Option 1a & 1b - Overall Key Plan
1001	Turbine Delivery Route Option 1a & 1b - Section 1
1002	Turbine Delivery Route Option 1a - Section 2
1003	TDR Option 1a - Nodes No. 2005, 2010, 2015, 2020, 2025.
1004	TDR Option 1a - Node No. 2030, 2035, 2040, 2045, 2050
1005	TDR Option 1a - Nodes No. 2055, 2060, 2065, 2070, 2075, 2080, 2085, 2090
2006	TDR Option 1b - Nodes No. 4030, 4035, 4040, 4045, 4050, 4055, 4060.
2007	TDR Option 1b - Nodes No. 4065, 4070, 4075, 4080.
2008	TDR Option 1b - Nodes No. 4085, 4095, 4100, 4105, 4120.
2009	TDR Option 1b - Nodes No. 4115, 4125, 4130.
2010	TDR Option 1b - Nodes No. 4135, 4140, 4145.
2011	TDR Option 1b - Nodes No. 4150, 4155, 4160, 4165.
1008	TDR Option 1a - Nodes No. 3065, 3070, 3075, 3080, 3085 - Site Entrance (Node 3085 only is common to Option 1a and 1b)

Table 6-2 - TDR Option 1b Drawings

6.6.6.1 TDR Option 1a SPA Outcomes

The SPA identified temporary accommodating works will be required at 13 No. locations (Nodes) on the TDR (including the Site Entrance SE1 off the R371).

Where works are required to roundabouts, traffic-islands and footpaths; this will involve stoning green areas and possibly strengthening concrete /blacktop areas to accommodate vehicle wheel loading.

Where load over-sail occurs in an area; obstructions such as street furniture, overground utilities hedging and trees are to be removed in the area. Street furniture includes items such as poles, lampposts, bollards, ornaments, benches, fencing, railings and signage.

The outcomes from the SPA for Option 1a are summarised in **Table 6-3**.

Node	Comment
2020	• Street Furniture to be relocated/ removed. • Road widening works required.
2025	• Street Furniture to be relocated/ removed.
2040	• Street Furniture to be relocated/ removed.
2055	• Works to roundabout required. • Street Furniture to be relocated/ removed.
2060	• Works to roundabout required. • Street Furniture to be relocated/ removed. • Works to traffic island required.
2090	• Works to traffic island required. • Street Furniture to be relocated/ removed.
3020	• Street Furniture to be relocated/ removed. • Hedge cutting required. • Works to traffic island required. • Works to roundabout required.
3025	• Street Furniture to be relocated/ removed. • Hedge cutting required.
3030	• Works to roundabout required.
3050	• Works to roundabout required.
3070	• Works to roundabout required. • Street Furniture to be relocated/ removed.
3080	• Street Furniture to be relocated/ removed. • Hedge cutting required. • Works to traffic island required.
3085 - Site Entrance	• Hedge and tree cutting required. • Road widening works required.
13 No.	

Table 6-3 - TDR Option 1a SPA Outcomes

6.6.6.2 TDR Option 1b SPA Outcomes

The SPA identified temporary accommodating works will be required at 13 No. locations (Nodes) on the TDR (including the Site Entrance SE1 off the R371).

As for Option 1a above, where works are required to roundabouts, traffic-islands and footpaths; this will involve stoning green areas and possibly strengthening concrete /blacktop areas to accommodate vehicle wheel loading.

Where load over-sail occurs in an area; obstructions such as street furniture, overground utilities hedging and trees are to be removed in the area. Street furniture includes items such as poles, lampposts, bollards, ornaments, benches, fencing, railings and signage.

The outcomes from the SPA for Option 1a are summarised in **Table 6-4**.

Node	Comment
2020	• Street Furniture to be relocated/ removed. • Road widening works required.
2025	• Street Furniture to be relocated/ removed.
2040	• Street Furniture to be relocated/ removed.
2055	• Works to roundabout required. • Street Furniture to be relocated/ removed.
2060	• Works to roundabout required. • Street Furniture to be relocated/ removed. • Works to traffic island required.
2090	• Works to traffic island required. • Street Furniture to be relocated/ removed.
3020	• Street Furniture to be relocated/ removed. • Hedge cutting required. • Works to traffic island required. • Works to roundabout required.
3025	• Street Furniture to be relocated/ removed. • Hedge cutting required.
4155	• Street Furniture to be relocated/ removed. • Works to traffic island required. • Works to footpath required. • Works to roundabout required. • Tree Cutting Required.
4160	• Street Furniture to be relocated/ removed. • Tree Cutting Required.
4165	• Street Furniture to be relocated/ removed. • Works to traffic islands required. • Hedge and Tree Cutting Required.
3085 - Site Entrance	• Hedge and tree cutting required. • Road widening works required.
12 No.	

Table 6-4 - TDR Option 1b SPA Outcomes

6.7 Wind Farm Construction Traffic Generation

6.7.1 Personnel Traffic Generation

The 35 workers will generally travel to the Site via light vehicle (i.e. car or small van) assuming 2 persons per vehicle, or 18 trips to and 18 trips from the Site. There will be peaks and troughs in the numbers, with a larger workforce during the general Site works.

During the course of the day, workers may also travel to a local shop / village, for supplies such as meals, thus creating additional trips. Assuming 6 day / lunch trips each day; the overall total is 19 trips to and 19 trips from the wind farm Site per day.

6.7.2 Material Delivery Traffic Generation

As part of construction of the proposed Project, a significant amount of stone and aggregate fill, concrete and steel reinforcement will be required. This will be used to construct the various pieces of infrastructure across the proposed Project.

Table 6-5 outlines estimate of the stone fill, concrete, steel reinforcement and associated electrical material requirements.

Wind Farm Material Delivered to Site				
Item	Quantity	Unit	Abnormal Load	No. of Deliveries
Concrete - Consists of Concrete for Turbine, Substation, Battery & Inverter/Transformer Foundations/ Plinths.	7580	m ³		948
Steel Reinforcement - Consists of Reinforcement for Turbine, Substation, Battery & Inverter /Transformer Foundations/ Plinths.	512	Tonne		25
Stone Aggregates - Consists of aggregate for, engineered fill material, construction of Access tracks, temporary access tracks, road widening works, backfill material for cables.	39425	m ³		1971
Crane Deliveries to Site, including ballast, booms etc - Cranes of 750 to 1,200 tonnes lifting capacity will be required to erect the Wind Turbines. Ballast is also normally employed for craneage. Smaller cranes of 150 to 200 tonnes lifting capacity will be required to assist with the removal of tower sections from delivery trailers and to operate as "tailing cranes".				60
Substation General Deliveries - Blocks, Precast Concrete, Steel Work, Electrical Equipment, Doors, Roofing Materials, DPM Materials, Fencing				54
Substation 38kV Transformer			1	1
Internal Cabling - Consists of internal cables connecting Wind Turbines to 38kV Substation.	4333	m		15
Waste Skips (12 yard) - Timber, Metal, Concrete, Packaging				104
Miscellaneous Materials approximately 10% of overall loads - Consists of materials such as masonry blocks, fencing, geotextile, Storage containers, plant, etc				515
Wind Turbine component delivery - dealt with separately, see Section 5.7				
Total			1	5665

Table 6-5 – Delivery Traffic Generation from Wind Farm Construction

Stone aggregate fill, concrete and steel will be delivered to Site via Ridged and Articulated Heavy Goods Vehicles (HGV). The peak period for stone and aggregate fill deliveries will be during Access Track construction. During this period there will be up to 5 deliveries to Site per hour for a period of approximately 8 weeks. This peak period may not be continuous and could be divided into a number of sub-periods. Outside this period there will be up to 15 deliveries of stone aggregate to Site per day.

The peak period for concrete deliveries will be Turbine Foundation pouring. During this period there will be up to 9 deliveries to Site per hour for a 12-hour period for each Turbine Foundation.

6.7.3 Material Removal Traffic Generation

Excavated Material

Excavated material generated during construction, where possible, will be retained on Site and incorporated into the works or integrated into the final landscaping.

Excavated material not suitable for incorporation into the works or landscaping into the works area will be transferred to the wind farm permanent spoil repository areas or removed from Site to an appropriately licenced waste facility.

An example of materials to be removed from Site are excavated material from the public road which have bitumen mixed through (considered non-inert waste). This material will be transported off Site by an appropriately authorised waste collector and disposed of at an appropriately licenced waste facility or recycled.

The volume of excavated material to be removed from Site has been estimated to be 6,273m³.

Allowing for the above material to be removed over a 10-day period – there will be circa 20 No. HGV movements to the Site and 20 No. from the Site per day (days may not be consecutive).

Other Materials

The following wastes may be generated during the construction of the Project:-

- Timber;
- Metal;
- Concrete;
- Packaging; Cardboard / Plastic Styrofoam;
- Hazardous Waste Fuels; Oil / Diesel / Grease;
- Non-Hazardous Office and Canteen Waste; and
- Wastewater from Welfare Facilities.

Vehicle Movements associated with material removal from Site is outlined in Table 6-6.

Wind Farm Material Removed from Site			
Element	Quantity	Unit	No. of Removals
Excavated Material	6273	m ³	627
Waste Skips (12 yard) - Timber, Metal, Concrete, Packaging	1040	m ³	105
Hazardous Waste Fuels; Oil / Diesel / Grease	11	m ³	10
Wastewater from Welfare Facilities	540	m ³	135
Total			877

Table 6-6 – Removal Traffic Generation from Wind Farm Construction

6.8 GCR Construction Traffic Generation

6.8.1 Personnel Traffic Generation

The 10 workers will generally travel to the Site via light vehicle (i.e. car or small van) assuming 2 persons per vehicle, or 5 trips to and 5 trips from the Site.

6.8.2 Material Delivery / Removal Traffic Generation

As part of construction of the GCR, stone aggregate fill, bitumen macadam, asphalt, concrete and steel reinforcement will be required. Excavated material will also need to be removed from Site and brought to an appropriately licenced waste facility or recycled. Details on material delivery estimates are set out in **Table 6-7** and details on material removal estimates are set out in **Table 6-8**.

Deliveries / Removals will be by means of HGV ridged and articulated lorries.

GCR Material Delivery to Site			
Item	Quantity	Unit	No. of Deliveries
Concrete - Consists of Concrete for Encasing Ducts & Joint bays	1950	m ³	245
Stone Aggregates - Consists of aggregates to backfill cable trenches, Joint Bays and Comms Chambers	1655	m ³	166
Bituminous Trench Reinstatement	535	m ³	53
Bituminous Road Surfacing Material - Full width Road Reinstatement	1390	m ³	139
Precast Chambers - Consists of excavated road make up and subsoil			10
Cabling - Consists of cables connecting from Site 38kV to Slieve Bawn 110kV substation	5800	m	8
Ducting - Consists of 23.2km of ducting			15
Waste Skips (12 yard) - Timber, Metal, Concrete, Packaging and other miscellaneous waste			5
Miscellaneous Materials/ machinery approximately 10% of overall loads. - Consists of items such as, warning tape for cable trenches, temporary traffic management items and machinery such as directional drilling rigs.			52
Total Approximate Deliveries / Loads For GCR Works			678

Table 6-7 – Delivery Traffic Generation from Grid Connection Route

GCR Material Removal from Site			
Item	Quantity	Unit	No. of Deliveries
Excavated Material Removal - Consists of excavated road make up and subsoil	4430	m ³	443
Bituminous Trench Material with Subsoil	535	m ³	54
Bituminous Road Surfacing Material - Full width Road Reinstatement	1390	m ³	139
Waste Skips (12 yard) - Timber, Metal, Concrete, Packaging and other miscellaneous waste	50	m ³	5
Miscellaneous Materials/ machinery approximately 10% of overall loads. - Consists of items such as temporary traffic management items and machinery such as directional drilling rigs.			64
Total Approximate Deliveries / Loads For GCR Works			705

Table 6-8 – Removal Traffic Generation from Grid Connection Route

Due to the nature of the cable route construction, works will be constructed in 100-200m intervals per day. Deliveries/ loads will be delivered in a “just-intime” phased manner, meaning some loads may be “part loads”.

6.9 Turbine Delivery Route Traffic Generation

During the turbine installation phase, including delivery and assembly, some deliveries to the Site will be made by abnormally large vehicles, referred to in this section as extended articulated lorries / specialist transport equipment, transporting the component parts of the wind turbines (nacelles, blades and towers).

There will also be deliveries made by normal large HGVs, transporting cables, tools and smaller component part below outlines the turbine components required and their associated weights. All abnormal loads will have an axel configuration to ensure they are within standard axel load limits.

The Applicant is applying for design flexibility in accordance with Section 32I and 32H of the Planning and Development Act 2000 (as amended), see **EIAR Volume II, Chapter 1: Introduction, 1.6 Approach to Design Flexibility**. The proposed Project includes for an “envelope” of 3 No. wind turbine types by different manufacturers.

Although the wind turbines are similar in size, they differ slightly with regards to individual component sizes. To ensure all turbine components can be successfully transported to the Site and to determine the maximum area requiring works to accommodate deliveries, the largest components from the 3No. turbine types were used when carrying out the swept path analysis of the TDR.

A review of each of wind turbine component packing lists was carried out and a coordinated table of components was created. **Table 6-9** outlines the coordinated turbine packing list details for a wind turbine.

Turbine Component	Number Per Wind Turbine	Number of Wind Turbines	Weight - typical (tonne)	Abnormal Load	Number of Deliveries
Drive Train	1	6	71	6	6
Main Bearing Unit	1	6	30	6	6
Nacelle	1	6	77	6	6
Rotor Hub	1	6	52	6	6
Rotor Blade	3	6	32	18	18
Tower Section 1	1	6	35	6	6
Tower Section 2	1	6	70	6	6
Tower Section 3	1	6	78	6	6
Tower Section 4	1	6	78	6	6
Total Approximate Deliveries / Loads For Wind Turbine Installation Works				66	66

Table 6-9 – Deliveries Traffic Generation from Wind Turbine Components

7.0 Construction Mitigation Measures

This section summarises the traffic management mitigation measures to minimise the effects of the proposed Project during both the construction, operation and decommissioning phases.

Recommended mitigation measures are set out in the following documents: -

- **EIAR, Volume II, Chapter 12: Traffic and Transport**
- **EIAR, Volume II, Chapter 18: Schedule of Mitigation and Monitoring**

7.1 Mitigation By Design

The proposed wind farm, TDR and GCR design has been developed to ensure they have the least amount of impact on traffic and the roads network, taking into account other constraints.

7.2 Liaison With the Relevant Authority

Liaison with the Local Authorities, TII, An Garda Síochána and other Stakeholders will be carried out as part of construction phase design development and in advance of carrying out works to public roads.

Prior to Commencement of the turbine deliveries, Roscommon County Council will be informed of the relevant names and contact numbers for the Project Developer/Contractor Site Manager as well as the Site Environmental Manager.

7.3 Wind turbine deliveries

Prior to the delivery of turbine components, the appointed haulage contractor will carry out a review of the full TDR between Galway Port and the Site Entrance (SE1), to verify the temporary accommodating works are in place and there are no potential impediments to the agreed route due to unrelated temporary roadworks/emergency works or revisions to the road network and will confirm it is all suitable for the vehicle configuration to transport the turbine components.

Prior to the transportation of turbine components on the national road network, the Developer will submit details of the turbine components to TII bridge management section to confirm no abnormal weight loads are being transported and to ensure that structures on the national road network are not adversely affected.

A programme of deliveries will be submitted to the Local Authority in advance of deliveries of materials to Site. For wind turbine component deliveries liaison with the relevant Local Authorities and TII will be carried out where required, regarding requirements such as delivery timetabling. The programme will ensure that deliveries are scheduled in order to minimise the demand on the local network and minimise the pressure on the access to the site.

The delivery of turbine components is a specialist transport operation with the transportation of components carried out at night when traffic is at its lightest and the impact minimised. It is envisaged that all large turbine components will be delivered to Site within a period of 1 week per turbine.

Each Abnormal Loads delivery will consist of:-

- The Abnormal Load Vehicle;

- Two Garda escort vehicles that will stop traffic at the front and rear of the convoy of 5 vehicles; and
- Two escort vehicles provided by the haulage company.

7.4 Site Vehicle Requirements

- A speed limit of 15 km/h shall apply to all vehicles within the Site, based on biodiversity requirement in relation to Mammals and other fauna, see **EIAR, Volume II, Chapter 18 – Biodiversity**.
- All wind farm vehicles shall have roof mounted flashing beacons when working on the public road network or will use their hazard lights within the Site.
- To reduce dust emissions, vehicle containers/loads will be covered during both entrance and egress to the Site where required.
- All dust generating activities will be minimised where practical during windy conditions, and drivers will adopt driving practices to minimise the creation of dust. Where conditions exist for dust to become friable, techniques such as damping down of the potentially affected areas may be employed.

7.5 Identification of Delivery and Removal Routes

Prior to construction, plant, equipment and materials delivery and removal routes will be confirmed with Roscommon County Council.

Delivery vehicles to the wind farm Site, and removal vehicles leaving the Site, will be required to use the designated access routes and access points as set-out in Section 6.1. These routes will be communicated to all Site operatives, contractors, and transport companies as part of the Site induction.

7.6 Delivery Programme

A programme of deliveries will be submitted to the Roscommon County Council in advance of deliveries of materials to Site.

For wind turbine component deliveries liaison with the relevant Local Authorities and Transport Infrastructure Ireland (TII) will be carried out where required regarding requirements such as delivery timetabling. The programme will ensure that deliveries are scheduled in order to minimise the demand on the local network and minimise the pressure on the access to the Site.

7.7 Signage

The appointed contractor will undertake consultation with Roscommon County Council for the purpose of identifying and agreeing signage requirements. Such signage will be installed prior to works commencing on Site.

Proposed signage will include warning signs to provide warning to road users of the work access / egress locations and the presence of construction traffic. All signage will be provided in accordance with Chapter 8 of the Traffic Signs Manual 2019.

The appointed contractor will ensure that:-

- All sign faces are to be retro-reflective material to Class Ref 2 of EN 12899. The colours, chromaticity and luminance factors will be as specified in Specification TS4.
- The appointed contractor will at least twice daily inspect signage to ensure that it is in place, secure and appropriately fitted with warning lights as required.

7.8 Protection of Works Area

It may be necessary that excavated works areas on the public road are required to be left open overnight – for example; Joint Bays on the GCR may need to be left open to facilitate pulling cables through the electrical ducts and jointing the cables together.

Work areas on the public road are to be individually risk assessed to determine what type of Traffic Management System and Works Area Protection will be required at each location. At the end of each work day and at unmanned work locations, safety barriers / fencing will be erected around works areas with either a priority yield or temporary traffic light system utilised to safely navigate vehicles around.

7.9 Construction Staff Traffic

Construction staff will park their vehicles at the main Site compound within the Wind Farm and will be transported to the GCR by construction van. The construction van will then park at dedicated locations as per Roscommon County Council requirements. In order to prevent traffic disruption and avoid creating a traffic hazard, there will be no grid works related parking permitted on the public road.

7.10 Operator Training

The appointed contractor will provide training to operatives in the traffic control systems being used on Site. The importance of transport management, the safety of motorists, pedestrians and Site staff will be emphasised to all construction staff.

There must always be a minimum of one competent person with a valid Signing, Lighting And Guarding Construction Skills Registration Card on Site when work is being carried out on public roads.

7.11 Consultation to the Surrounding Businesses and Residential Receptors

Local People in the area will be informed of any upcoming traffic related matters e.g. temporary lane/road closures (where required) or delivery of turbine components at night, via letter drops and posters in public places.

Information will include the contact details of the Project Co-ordinator, who will be the main point of contact for all queries from the public or local authority during normal working hours. An "out of hours" emergency number will also be provided.

7.12 Pedestrian Safety

The appointed contractor will ensure that throughout the course of the works its operations do not put pedestrians at any risk:-

- Where the construction work necessitates the restriction or partial closure of a pedestrian walkway where they may exist, the appointed contractor will provide adequate safety barriers, signposts, lighting and temporary surfacing (if applicable) to ensure safe passage for pedestrians.
- Where the construction work necessitates the closure of a pedestrian walkway, the appointed contractor will provide a safe and reasonable alternative. The appointed contractor will provide adequate safety barriers, signposts, and lighting (if applicable) to direct pedestrians and ensure their safe passage.
- With respect to pedestrians, the appointed contractor will refer to and observe the requirements of the updated version of the Traffic Signs Manual 2019 titled Temporary Traffic Measures and Signs for Roadworks.

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7.13 Access for Landowners

The appointed contractor will make provision for safe access at all times to private residences in proximity to the construction works.

The appointed contractor will inform local residents of the programme of works in their area and local access will be catered for where possible.

7.14 Emergency Vehicles

The works will be planned and carried out to ensure emergency vehicles can use the public road network and access the Project without obstruction

When turbine component delivery convoys are travelling to Site – if it occurs that an emergency response vehicle must pass the convoy; the Abnormal Load Vehicle will move to the edge of the road to allow the vehicle to pass.

An emergency response plan has been prepared and is contained in the CEMP. This plan will be further refined prior to commencement of construction and included as part of the H&S Plan prepared by the Project Supervisor Design Process (PSDP) and Project Supervisor Construction Stage (PSCS).

7.15 Travel Plan for Construction Workers

While the assessment above has assumed the worst case in that construction workers will drive to the Site, the construction company will be required to provide a travel plan for construction staff, which will include the identification of routes to / from the Site and identification of an area for parking.

7.16 Road Dirt and Dust Management

The nuisance of dirt on the local road network during wet weather and dust during dry weather is an area of identified concern during construction works. The primary mitigation measure for this impact will be in the form of a proprietary wheel wash facility to be installed at the exits from the wind farm Site as illustrated below in **Figure 7-1**.

Wheel Washes will be deployed at Site entrance numbers SE1, SE2 and SE3, see **Planning Drawings; 23604-206 and 208**.

In addition to this a road sweeper will be used on the R371 in the vicinity of the entrance at regular intervals for the duration of the construction works. A water bowser will be employed to spray the road with water during dry periods when there is a risk of dust.

All drivers will be required to see that their vehicle is free from dirt and stones prior to departure from the Site.



Figure 7-1 – Typical Wheel Wash

7.17 Complaints Procedure

A provisional Complaints Management Plan (CMP) has been prepared for the project and is contained in the **CEMP, Appendix C; EMP 12 – Complaints Management Plan**.

The CMP will be refined further at the construction phase by the Environmental Clerk of Works (ECoW) and adopted by contractors prior to commencement of construction activities. The CMP will form part of the overall Site induction and will be reviewed with Site personnel regularly as part of Toolbox Talks and Site Meetings.

7.18 Pre and Post Works Survey of Roads

Where required by the Local Authority, pre-condition surveying of roads associated with the proposed Project can be carried out immediately prior to construction commencement to record an accurate condition of the road at the time. A post construction survey can also be carried out after works are completed to ensure that any remediation works are carried out to a satisfactory standard. The extent and timing of the pre and post works survey of roads Will be to the requirements of Roscommon County Council.

7.19 Re-instatement Works

All road surfaces and boundaries will be re-instated to pre-construction condition in accordance with Roscommon County Council requirements.

7.20 Traffic Management & Control Procedures

The appointed contractor may use a range of traffic control tools that will be confirmed at construction phase. These tools may include temporary road closures, temporary traffic lights, stop/go boards, two-way radios, safety barriers, cones, signage etc for the construction of the works. Each crew on Site will have personnel on Site trained in Signing Lighting and Guarding/Health and Safety at Road Works.

Communication / Instruction of the Traffic Management Plan will come from the Project Manager and communicated to Site personnel with the relevant training.

A detailed traffic management plan will be produced by the appointed contractor prior to the construction of the wind farm and will be submitted to Roscommon County Council. See Section **Error! Reference source not found.** below for further detail.

8.0 Construction Works to Public Roads

Works to the public road will be carried out as part of the wind farm construction, the TDR works and the GCR works.

Road Opening Licence or Licences will be obtained from the appropriate Local Authority for all works to the public road and verge, see Section 8.1 for detail on Road Opening Licences.

Traffic Management Procedures to facilitate the road works will be carried out in accordance with the requirements of the Temporary Traffic Management Design Guidance, Third Edition 2019. Temporary traffic management and roadwork signs will be in accordance with Chapter 8 of the Traffic Signs Manual 2019. See Section 8.2 for detail on Traffic Management Procedures

8.1 Road Opening Licences

As per the requirements of the Roads Act 1993, works which involve the excavation or interference with a public road or road verge require a Road Opening Licence. Road Opening Licenses are issued by the MapRoad Roadworks Licensing (MRL) system. The MRL is the national online platform used by contractors to apply for and manage road opening licences. It is operated by the Local Government Management Agency in partnership with local authorities.

Prior to commencement of works to a public road or verge the appointed contractor will apply and obtain the required Road Opening Licence for the works. As part of the application process the following details will be provided to the applicable Local Authority via the MAP system:-

- Drawings of the proposed works;
- Works Method Statement and Risk Assessment;
- Reinstatement Proposals;
- Traffic Management Plan;
- Insurance for the Works; and
- Construction Programme.

All works must be carried out in accordance with the Guidelines for Managing Openings in Public Roads (2017) and the Temporary Traffic Management Manual (2020).

8.2 Temporary Traffic Management Procedures

Under the provisions of the Roads Act 1993 (as amended), Local Authorities are the statutory bodies responsible for managing traffic on local, regional and national public roads. Prior to commencement of works to a public road or verge, the appointed contractor will obtain permission from the appropriate Local Authority to set up temporary traffic management on the public road to facilitate the proposed works.

The temporary traffic management procedures to be deployed will include:-

- Lane Closures and Partial Lane / Verge Closures;

- Stop-Go Systems;
- Road Closures; and
- Traffic Diversions.

8.2.1 Lane Closures and Partial Lane / Verge Closures

Lane Closures and Partial Lane / Verge Closures will be utilised where possible. On narrow roads the closures may also incorporate a Stop-Go System to limit traffic flow past the works area to one direction at a time.

On the GCR works, it is envisaged that 100 - 200m of the cable route will be constructed each day with Partial Lane / Verge Closures moving along with the works.

It is envisaged, pending confirmation at construction phase, that the following roads will have Lane Closures / Partial lane closures during the works with approximate lengths shown:-

- L6018: 200m;
- L60498: 200m;
- R371: 1.9km north of the R371/N5 Junction; and
- R371: 1.7km south of the R371/N5 Junction.

Where lane width restrictions are proposed, the appointed contractor will advise Roscommon County Council of the following details:-

- Reasons for lane width restrictions and
- Details of restricted width of traffic lane;
- Details of associated signage and warnings to motorists and pedestrians, including road markings;
- Details of proposed system of public communications and public liaison; and
- Temporary footpaths.

8.2.2 Stop-Go Systems

Stop-Go Systems will be utilised on relatively narrow roads in conjunction with Lane Closures / Partial Lane Closures. It will also be utilised on the L6018 at Site Entrances SE2 and SE3 to control and manage traffic at the public road crossing point.

The system may also be used on stretches of public roads with relatively large traffic volumes to control traffic flow and speed past the works area.

8.2.3 Road Closures

Road Closures will be implemented where there is insufficient space on the existing public roadway to implement a Partial Lane Closure with Stop-Go System.

When a road closure is necessary to carry out works, the appointed contractor will seek a Temporary Closing of Roads Order. The appointed contractor will advise Roscommon County Council of the following:-

- Name of the road to be closed;
- Location of closing points;
- Date and period of closure required;

- Reasons for closure;
- Details of alternative routes; and
- Details of method of traffic management and maintenance of alternative routes, including sign posting and traffic control plans.

Works carried out under a Road Closure will be sequenced in a manner to prevent unnecessary delays to the public.

On GCR works, closures are to be planned on a rolling basis so when works on a section of the GCR works are complete then roads will re-open. This will ensure roads are not closed for longer than necessary.

A road closure will be controlled by way of diversions, but local access will be accommodated on the route where possible. Residents on the route will be informed in advance of the works of the programme for a road closure.

8.2.4 Traffic Diversions

Where traffic diversions are necessary due to temporary road closures associated with the wind farm and GCR works, the appointed contractor will advise Roscommon County Council of the following details:

- Location of proposed diversion;
- Reasons for specific traffic diversion;
- Duration of proposed diversion;
- Plan of diversion routes;
- Details for management and control of proposed method of diversion route traffic, including sign posting layouts and locations;
- Details of proposed system of diversion route maintenance and repair, including existing carriageway and street furniture etc.; and
- Details of proposed system of public communications and public liaison.

Alternative routes where traffic is to be diverted on will require an inspection prior to diverting traffic. These will need to be inspected again closer to the time of the works to ensure no hazards have occurred since the traffic management plan was developed.

Diversions will be implemented to provide an alternative route for road closures during construction. Information and directional signage will be provided to inform the public of a Road Closure Diversion and to direct them along the diversion route. Local access will be maintained for residents where possible.

It will be envisaged, pending confirmation at construction phase, that the following roads will provide a diversion for the proposed road closures where approximate diversion lengths are shown.

Diversion roads used for L60498 Closure:-

- R371: 0.4km; and
- L1411: 1.4km

8.2.5 Road Crossings

Where the GCR is planned to cross the public road, the appointed contractor will decide on the best method for controlling traffic. A Partial or Single lane closure may be utilised, where works are carried out and controlled by a stop-go system.

As part of this, the ducting would cross the road in two phases. Phase one will construct the trench as far as the centre line of the carriageway and then have the road and trench temporarily reinstated.

Once the work has been completed on the closed lane, the area is inspected, and traffic management procedures switch to the opposite lane for phase two. An "All Stop" system, may be used to control traffic and to allow the works commence on the other lane. Once the work has been fully complete, the trench and road is temporally reinstated.

8.3 Wind Farm Works to Public Road

There are 6 No. Site entrances / exits proposed to service the proposed Project; 5 No. permanent entrances and 1 No. temporary entrance. Further details on the entrances can be found in the CEMP and the Planning Drawings.

The Site entrance work will involve works to the road verge and boundary hedging and fencing in the vicinity of the entrances. As part of this work the following temporary traffic measures will be utilised:-

- Partial Lane and Verge Closures;
- Stop-Go Systems.

8.4 TDR Works to Public Road

As discussed in Section 6.6 a TDR SPA has been prepared for the Project and forms part of this TMP.

This assessment identified areas requiring temporary accommodating works along the routes. These accommodation works will involve localised temporary widening and stoning of public road verges and roundabouts on the TDR to facilitate Abnormal Load Vehicle wheel over-run. Hedge and tree cutting will also be required as well as relocation of utility overhead lines, poles, lampposts, signage, and other street furniture. See Section 6.6.3 for details on the TDR and SPA Drawings.

On completion of delivery of wind turbine component abnormal loads, the temporary accommodating works will be reinstated to the requirements of TII and the Local Authority for the area. As part of this, hedges and trees will be re-planted and street furniture will be reinstated as necessary.

As part of this work the following temporary traffic measures will be utilised:-

- Lane Closures;
- Partial Lane and Verge Closures;
- Stop-Go Systems;
- Road Closures; and
- Traffic Diversions.

8.5 GCR Works to Public Road

It is proposed to connect the Project to the national grid via circa 5.8km long 38kV underground grid connection, circa 3.7km of connection will be constructed in the public road.

The GCR cable ducting will, in-the-main, be installed in the road using "Open-Dig" techniques. A section of the route crosses the N5 National Road at the R371/N5 junction, Directional Drilling will be utilised for this road crossing.

As part of this work the following temporary traffic measures will be utilised:-

- Lane Closures;
- Partial Lane and Verge Closures;
- Stop-Go Systems;
- Road Closures; and
- Traffic Diversions.

9.0 Operational Phase

The Project will be unmanned during the operational phase but will require scheduled maintenance visits, and unscheduled maintenance and repair visits.

Scheduled visits will be carried out approximately 3 times per month, these will be made up of:-

- 4 No. general inspection visits per year;
- 24 No. wind turbine and switchgear service visits per year;
- 5 No. ESNB Substation visits per year; and
- 3 No. wind farm Site maintenance visits per year.

As the number of monthly scheduled visits is low, there will be minimal effect on the existing road network regarding traffic from the scheduled visits.

Unscheduled maintenance visits will also be required for re-setting alarms, rectifying turbine faults and the occasional replacement of larger turbine component parts. Based on similar developments an average of 1 No. unscheduled visit per month may be required.

Should a large component require opening-up / removal for repair or replacement then this will be carried out in accordance with the details set out in Sections 5.0, 6.0, 7.0 and 8. **Error! Reference source not found.** Overall, the impacts from this work would be short-term, localised, and so not significant in terms of effect on the existing road network.

9.1 Mitigation Measures During Operation Phase

Due to the very low volumes of traffic forecast to be generated during standard operations, no mitigation measures are required or proposed for standard operations.

9.1.1 Wind Turbine Component Repair / Replacement

During the operational phase, in the unlikely event that a wind turbine component may need to be removed for repair or replacement. In the event that this component is an abnormal load size then, in consultation with Local Authorities and other Stakeholders, the temporary accommodating works along the routes will be temporarily re-established to accommodate the abnormal load or loads.

As part of this work the following temporary traffic measures will be utilised:-

- Lane Closures;
- Partial Lane and Verge Closures;
- Stop-Go Systems;
- Road Closures; and
- Traffic Diversions.

10.0 Decommissioning Phase

The design life of the proposed Project is 35 years after which time decommissioning will occur, unless planning permission is granted to extend the duration of operation.

At the end of the design life of the Project, the wind turbines will be dismantled and taken off site for recycling. The Turbine Foundations will remain in-situ and will be covered with soil and reseeded as appropriate. The Turbine Hardstands will also be reinstated, and Site Access Tracks will either be reinstated or left in-situ. The Wind Farm Internal Cabling will be removed while the ducting will remain in-situ.

The Onsite Substation and Grid Connection Route will be left in-situ as it will form part of the National Grid. The Communication Relay Tower will also be left in place as it will form part of the telecommunication network in the area.

10.1 Overview

Prior to commencement of decommissioning a traffic management plan will be prepared and submitted to Roscommon County Council. This plan will include a material recycling / disposal plan and other similar mitigation measures to those implemented during the construction phase.

During decommissioning structures will be dismantled in the opposite order of their construction. Wind turbine and other components located above ground will be dismantled and taken off-site for recycling. The Wind Turbine foundations and Hardstanding portions will be left in place underneath and covered with soil to allow for natural revegetation or reseeded. Leaving the Wind Turbine foundations in place is seen as a more ecologically responsible choice since removing that amount of reinforced concrete might cause environmental disturbances including noise, dust, and vibration.

10.2 Mitigation Measures During Decommissioning Phase

Prior to commencement a traffic management plan will be prepared and submitted to Roscommon County Council. This plan will include details on mitigation measures to be implemented. These will be similar in nature to those implemented during the construction phase.

In terms of traffic effects, the decommissioning phase will generally mirror the construction phase although the effects will be significantly reduced as the volumes of materials removed from the Site will be less than delivered. There will be no hazardous waste generated or the need for complex environmental remediation. See Section 7.0 for details on mitigation measures during the construction phase.

The Project mitigation measures are set out in the following documents:-

- **EIAR, Volume II, Chapter 12: Traffic and Transport**
- **EIAR, Volume II, Chapter 18: Schedule of Mitigation and Monitoring**