APPENDIX H-1

Traffic and Transport Assessment

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Contents

TRAFFIC AND TRANSPORTATION ASSESSMENT

1 INTRODUCTION

This Traffic and Transportation report quantifies and assesses the impact of construction, operational and decommissioning traffic generated by the proposed Drumnahough wind energy project on the existing local road network, and recommends mitigation measures, as appropriate.

1.1 SCOPE OF ASSESSMENT

The scope of the Assessment includes the following:

- Existing and expected future road and transport network;
- Existing and predicted future baseline traffic volumes on the surrounding local road network;
- Predicted proposed development construction, operational and decommissioning traffic volumes and likely impacts; and
- Proposed mitigation measures.

1.2 METHODOLOGY

This Traffic and Transportation Assessment has been prepared in the context of the following:

- County Donegal Development Plan 2018-2024;
- The Transport Infrastructure Ireland (TII) Traffic and Transport Assessment (TTA) Guidelines PE-PDV-02045 May 2014;
- TII's Project Appraisal Guidelines for National Roads Unit 5.3 – Travel Demand Projections PE-PAG-02017 May 2019;
- TII's Rural Road Link Design DN-GEO-03031 June 2017; and
- The Environmental Protection Agency (EPA) Guidelines on The Information To Be Contained In Environmental Impact Assessment Reports Draft August 2017 (EPA EIAR Guidelines).

1.3 ASSESSMENT CRITERIA

Baseline traffic volumes on the surrounding local road network have been established on the basis of a review of previous traffic volumes submitted as part of planning applications to Donegal County Council. Annual Average Daily Traffic (AADT) volumes have been estimated on the basis of TII automatic traffic counter data.

The significance and duration of predicted impacts have been defined in accordance with the EPA EIAR Guidelines.

1.4 STATEMENT OF LIMITATIONS AND DIFFICULTIES ENCOUNTERED

This Traffic and Transportation report was prepared in Q1 2020, during which time Ireland was experiencing travel restrictions due to Covid-19 (Coronavirus). Schools, third-level education and childcare facilities were not operating, and travel was restricted for essential work only. This meant that typical baseline traffic volumes in the Letterkenny area and along delivery routes could not be established. Accordingly, existing baseline traffic volumes have been determined on the basis of a

review of previous traffic volumes submitted as part of planning applications to Donegal County Council and TII's automatic traffic counter data.

1.5 COMPETENCY OF ASSESSOR

This Traffic and Transportation Assessment was prepared by Karen Concannon BE MSc CEng MIEI of Malachy Walsh and Partners, under the supervision of Seamus Quigley BE CEng MIEI MCIHT of Malachy Walsh and Partners.

Karen Concannon has 7 years' experience in traffic engineering projects, traffic management studies, feasibility studies and road safety audits. She is a Chartered Engineer with Engineers Ireland and joined Malachy Walsh and Partners in 2019, after 6 years with AECOM.

Seamus Quigley has 29 years' experience in transport planning and traffic engineering projects, including EIS/EIAR traffic and transportation chapters, traffic impact assessments, traffic management studies, mobility management plans, traffic modelling studies, feasibility studies and road safety audits. He is a Chartered Engineer with Engineers Ireland, and also a member of the Chartered Institution of Highways and Transportation. He joined Malachy Walsh and Partners in 2007, having spent over 16 years with Atkins.

1.6 PROPOSED PROJECT

EIAR Volume 2 Chapter 2: Project Description provides a detailed overview of the proposed project. The proposed development consists of 12 No. wind turbines and all associated infrastructure including crane hardstands, access roads, a permanent meteorological mast and underground cables.

To facilitate a grid connection and export of renewable electricity to the National Electricity Grid (NEG), the proposed project has considered two potential connection routes and two grid connection point options, namely

1) Connection Route and Connection Point to the Permitted Lenalea Substation,
2) Connection Route and Connection Point via new on-site 110kv Substation

Both connection routes will consist of the construction and operation of an underground electrical cable from the wind farm to the connection point. The exact final detail and specifications of the grid connection route and method for the proposed development will ultimately be decided by ESB/EirGrid. The proposed connection routes and connection points are outlined below.

- **Connection via Permitted Lenalea Substation:** The wind farm's underground collector circuit cables will connect to the permitted 110kV Lenalea substation and the permitted loop-in connection at Lenalea. The wind farm's underground collector circuit cables will follow the public road L-10142 at the south east of the site before diverting north along private access tracks to the permitted 110kV Lenalea substation.

- **Connection via new on-site 110kv Substation:** The wind farm's underground collector circuit cables will connect via new loop-in connection to the existing Binbane to Letterkenny 110kV overhead line. This will require the construction of a new 110kV substation, located at the north of the site adjacent to the existing Binbane to Letterkenny 110kV overhead line.

Subject to planning permission, it is envisaged that work would commence at the site once the relevant permits, grid connection agreements and funding are in place in 2023, with an estimated construction duration of approximately 14 months. Accordingly, the proposed development is scheduled to be fully complete and operational by the end of 2024. The TII Traffic and Transport Assessment Guidelines recommend that the opening year of a development proposal and plan years, five and 15 years after the opening year, should be considered for assessing a development proposal. In this case, the opening year is 2024 and the plan years are 2029 and 2039.

2 EXISTING ENVIRONMENT

The proposed development is located in a rural upland area of central Donegal on the southern and western slopes of Cronaglack, Crockalogh and Cark, approximately 12.5km south west of Letterkenny and 11km northwest of the twin towns of Ballybofey/Stranorlar.

The proposed development site is located east of the N13 between Drumkeen and Letterkenny, northeast of the R252 from Cloghan and southwest of the R250 road between Letterkenny and Fintown, as shown in **Figure 1.**

Primary access to the proposed development site will be provided via the existing forestry entrance from the local public road, L-10142 at the southeast of the site (Junction A). This will be the main site entrance during both the construction and operational phases of the development.

A second site access point is proposed north west of the site via an existing forestry track from the L-1622-1 local public road (Junction B). This existing entrance is proposed as a temporary access to be used during the early construction phase only.

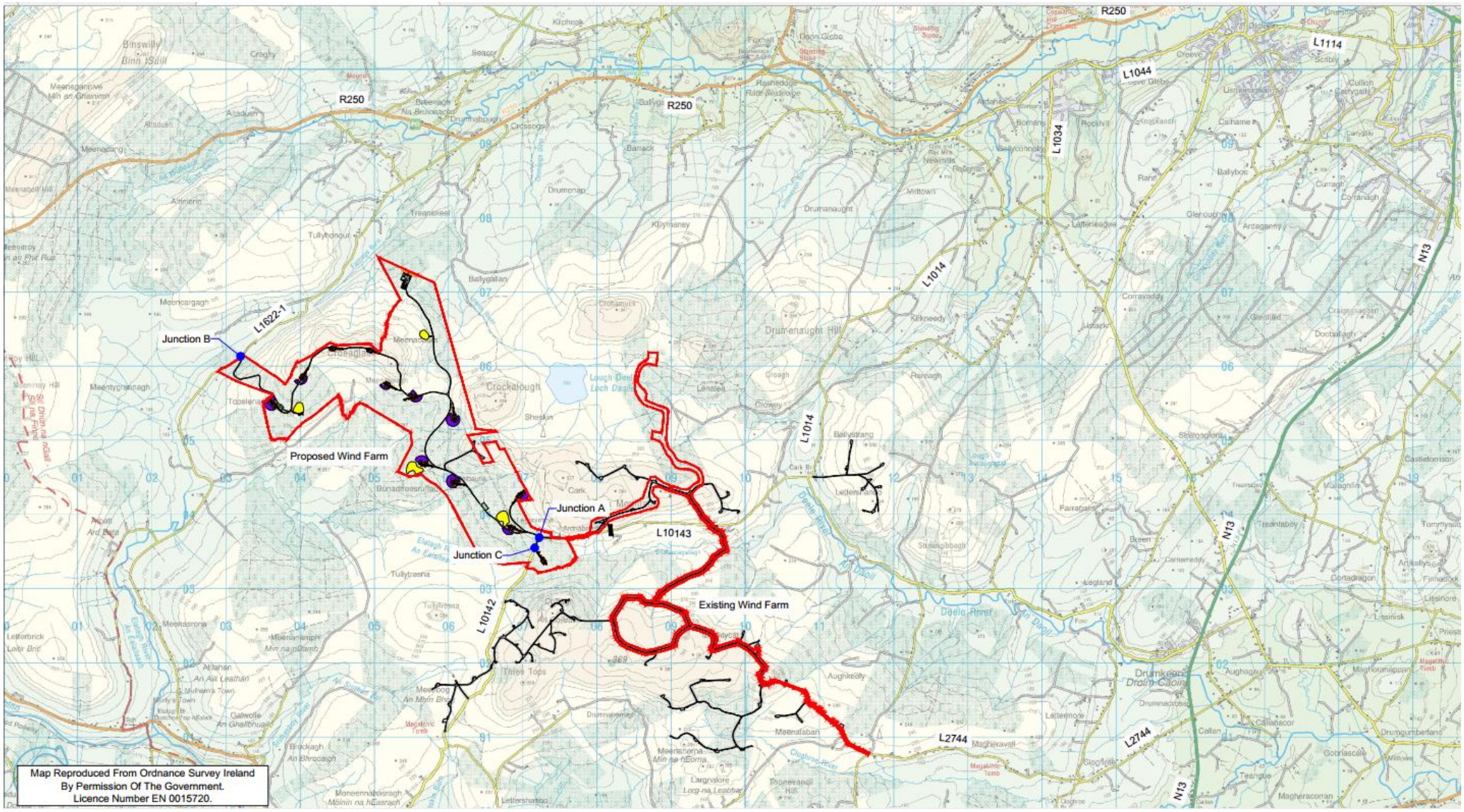

Figure 1 Local Road Network

2.1.1 Local road network for Junction A

Primary access to the development site will be provided via the existing entrance at the junction of the local public road, L-10142 on the southeast of the site, noted as Junction A in Figure 1. HGV and non-HGV traffic travelling to the development from the south and east of the site are likely to use the following route:

I. N13 National road to L-2744 Local Road;
II. L-2744 Local Road to entrance to Meentycat Wind Farm;
III. Existing private wind farm roads through Meentycat and Cark Extension Wind Farms to the L-10142; and
IV. L-10142 Local Road to the site at Junction A.

This route also forms part of the turbine delivery route for the delivery of the wind turbine components. The proposed turbine delivery route, subject to availability and turbine supplier selection, for oversized loads from Killybegs Port to the South Entrance is as follows:

- Starting at Killybegs Port;
- Travelling northbound along the Shore Rd (R263) to the junction between R263 to N56;
- Follow the N56 eastbound to the junction with the N15 near Donegal town;
- Follow the N15 north / northeast to the junction with the N14 in Lifford;
- Follow the N14 north / northwest to the junction with the N13;
- Follow the N13 west and then south to the junction with the L-2744 local road;
- Follow L-2744 westbound to the entrance of the existing Meentycat Wind Farm;
- Follow existing windfarm roads through the Meentycat and Cark Extension Wind Farms to the L-10142
- Follow the L-10142 westbound to the site entrance, Junction A.

The existing permitted entrance to Meentycat Wind Farm from the public road is located north of the L-2744, where it forms a simple priority junction with the L-2744. The entrance is located approximately on the L-2744, approximately 5.1km east of its junction with the N13. At its junction with the N13 it forms a Stop controlled junction. A right turn filter lane is provided from the N13 southbound to the L-2744. The Local Road L-2744 has an unmarked carriageway of approximately 5.5m in width. It provides access to individual housing and farm access along its route. The L-2744 is within an 80 km/hr rural speed limit.

To travel to the development from Letterkenny / north of the site and enter through Junction A in Figure 1, the following route is likely to be used by HGV and non-HGV traffic:

I. Starting in Letterkenny/north of the site;
II. L-1114 Local Road to L-1044 Local Road;
III. L-1044 Local Road to the L-1034 Local Road;
IV. L-1034 Local Road to LP-1044 Local Road;
V. LP-1044 Local Road to L-10142 Local Road; and
VI. L-10142 to the site entrance, Junction A.

The L-1114 runs east from the N13, just south of Letterkenny. It forms a Stop controlled junction with the N13 and is within a rural road speed limit of 60 km/hour. It is an unmarked road of approximately 6.0m in width, providing access to individual housing.

The L-1044 runs east from the L-1114 approximately 500m west of the junction of the L-1114 and the R250. The L-1044 operates within an 80 km/hour rural road speed limit. It is an unmarked road of approximately 6.0m in width, providing access to individual housing and farm access. It forms a simple T-junction with the L-1034, approximately 5km west of Letterkenny.

The L-1034 runs north-south from its junction with the L-1034. It is an unmarked road of approximately 6.0m in width, providing access to individual housing and farm access. The L-1034 is within a rural road speed limit of 80 km/hour.

After approximately 500m, the L-1034 forms a simple T-junction with the LP-1014. The LP-1014 is an unmarked road of approximately 5.5m in width and has a rural road speed limit of 80 km/hour. This road continues as described south-west onto the L-10143 and L-10142.

2.1.2 Local Road Network for Junction B

The second proposed access to the development, shown as Junction B in Figure 1, is located in the north of the site from Local Road L-1622-1. Junction B will be used for mobilisation and construction of the proposed project. L-1622-1 runs north to south, connecting the R250 to the north and R252 in the south. L-1622-1 has a carriageway width of approximately 5.0m in width. The proposed site entrance is located approximately 2km southwest of the junction of the L-1622-1 and the R250. The L-1622-1 forms a simple priority junction with the R250 and operates under a rural speed limit of 80 km/hour. The L-1622-1 is located approximately 13.5 km west of Letterkenny.

The Regional Road R250 runs east to west between Letterkenny and Glenties. It is a single lane carriageway of approximately 7.5m in width. The R250 is within an 80 km/hour speed limit. Access is provided from the R250 to local roads, individual houses and farm access. Approximately 9km east of Letterkenny it forms a Stop controlled junction with the Regional Road R251. The R250 continues east into Letterkenny where it joins the N14 and N56 by way of a roundabout junction. The Regional Road R250 runs east to west between Gweedore and Glenveagh National Park and then south towards the R250. The R251 is within an 80 km/hour speed limit and is approximately 7.3m wide.

2.1.3 Existing Baseline Traffic Volumes

Existing baseline traffic volumes have been determined on the basis of a review of previous traffic volumes submitted as part of planning applications to Donegal County Council. These were factored on the basis of TII's automatic traffic counter data to establish typical 2019 peak hour and Annual Average Daily Traffic (AADT) volumes for the latest full year, 2018, on the regional and local rural road network. The factored typical baseline traffic volumes are provided in Table 2.1. These are total two-way vehicles at the road locations identified. The volumes of peak hour Heavy Goods Vehicles (HGVs) and the proportions (%) of AADT HGVs are also provided.

Table 2.1: Existing Traffic Volumes

Road location	Total Vehicles (HGV)			
	2019 Peak Hour (HGV)		2018 AADT (%HGV)	
N15	668	(50)	7,223	5.7%
N13	1,148	(42)	10,176	4.0%
L2744	30	(1)	300	1.0%
R251	130	(5)	1,300	3.4%
R250	100	(4)	1,000	3.2%
L1622-1	30	(1)	500	1.0%
L1114	30	(1)	500	1.0%
LP1044	30	(1)	500	1.0%
L1034	30	(1)	500	1.0%
L10142	30	(1)	500	1.0%

The rural road link capacity of the National Primary Roads and Regional Roads within its 100 km/hour and 80 km/hour rural speed limit zone respectively, estimated on the basis of the TII Rural Road Link Design DN-GEO-03031 June 2017, for their typical road carriageway width is provided in Table 2.2. The TII rural road link capacity is an AADT capacity.

Table 2.2: Estimated National Primary Roads and Regional Roads TII Rural Road Link Capacity

Road	TII Rural Road Link		
	Type	Carriageway width (m)	AADT Capacity (Vehicles)
N15	Type 1 Single	7.3	11,600
N13	Type 1 Single	7.3	11,600
R251	Type 3	6.0	5,000
R250	Type 3	6.0	5,000

The estimated existing rural road link AADT volume/capacity ratio for the National Primary Roads and Regional Roads in the vicinity of the proposed development site is provided in Table 2.3, on the basis of the TII Rural Road Link Design DN-GEO-03031 June 2017, for the latest full year 2018.

Table 2.3: Estimated National Primary Roads and Regional Roads TII Rural Road Link 2018 AADT Volume/Capacity Ratio

Road	AADT	AADT Capacity (vehicles)	AADT Volume / Capacity Ratio
N15	7,223	11,600	62%
N13	10,176	11,600	88%
R251	1,300	5,000	26%
R250	1,000	5,000	20%

The N15 and N13 are operating within its estimated rural road link AADT capacity, with a 2018 volume/capacity ratio of 62% and 88% respectively. The R251 and R250 are operating well within its estimated rural road link AADT capacity, with a 2018 volume/capacity ratio of 26% and 20% respectively.

3 LIKELY SIGNIFICANT IMPACTS

3.1 DO NOTHING IMPACTS

The roads and transportation objectives and policies of Donegal County Council are set out in the County Donegal Development Plan 2018 – 2024.

It is the objective of the County Donegal Development Plan to safeguard the carrying capacity and safety of National Roads and other specified Regional Roads.

The Council recognises the vital importance of the Regional Road network, including the R250 and R251 as strategic routes that connect the centre and east of Donegal. The N15/N13 Ballybofey/Stranorlar Bypass has been identified as a Proposed Transportation Improvement Project.

TII in their Project Appraisal Guidelines for National Roads Unit 5.3 – Travel Demand Projections May 2019 envisage that car and light vehicle volumes in Donegal would increase by an annual factor of 1.0139 during the period to 2030, and by a factor of 1.0320 for heavy vehicles, based on their high sensitivity growth scenario. The equivalent factors for the period 2030 to 2040 are 1.0072 and 1.0178.

The predicted peak hour and AADT traffic volumes on the National Roads (N15 and N13), Regional Roads (R250 and R251) and Local Roads (L-2744, L-1622-1, L-1114, L-1044, L-1034, **L-1014** and L-10142) adjacent to the proposed development site, with the foregoing TII predicted high sensitivity growth scenario are provided in Table 3.1.

Table 3.1 Predicted Traffic Volumes with TII High Growth

Road location	Year	Total Vehicles (HGVs)			
		Peak Hour		AADT (%HGVs)	
N15	2024	716	(54)	7,739	6.7%
	2029	767	(58)	8,292	7.8%
	2039	829	(62)	8,968	10.3%
N13	2024	1,230	(50)	10,903	4.7%
	2029	1,318	(58)	11,682	5.5%
	2039	1,425	(77)	12,635	7.2%
L2744	2024	32	(1)	321	1.2%
	2029	34	(1)	344	1.4%
	2039	37	(2)	373	1.8%
R251	2024	139	(5)	1,393	4.0%
	2029	149	(6)	1,493	4.7%
	2039	161	(8)	1,614	6.1%
R250	2024	107	(4)	1,072	3.7%
	2029	115	(5)	1,148	4.4%
	2039	124	(6)	1,242	5.8%
L1622-1	2024	32	(1)	536	1.2%
	2029	34	(1)	574	1.4%
	2039	31	(2)	621	1.8%
L1114 / LP1044 / L1034 / L10142	2024	32	(1)	536	1.2%
	2029	34	(1)	574	1.4%
	2039	37	(2)	621	1.8%

The estimated rural road link AADT volume/capacity ratios for the National and Regional Roads in the vicinity of the proposed development site are provided in Table 3.2, on the basis of the TII Rural Road Link Design DN-GEO-03031 June 2017 for the predicted years 2024, 2029 and 2039 AADT volumes with the TII high grown scenario, without the proposed development. TII guidance only applies AADT capacities to regional roads upwards, therefore no volume/ratio analysis undertaken for local roads.

Table 3.2 Predicted TII Rural Road Link AADT Volume/Capacity Ratios with TII High Growth

Road	Year	AADT Vehicles	AADT Capacity (vehicles)	AADT Volume / Capacity Ratio
N15	2024	7,739	11,600	67%
	2029	8,292		71%
	2039	8,968		77%
N13	2024	10,903	11,600	94%
	2029	11,682		101%
	2039	12,635		109%
R251	2024	1,393	5,000	12%
	2029	1,493		13%
	2039	1,614		14%
R250	2024	1,072	5,000	9%
	2029	1,148		10%
	2039	1,242		11%

The N15 would continue to operate within its estimated rural road link AADT capacity for the predicted 2024, 2029 and 2039 AADT volumes on the basis of the TII high growth scenario, with a highest volume/capacity ratio of 77% in 2039.

The N13 would continue to operate within its estimated rural road link AADT capacity for the predicted 2024 and 2029 AADT volumes on the basis of the TII high growth scenario. The highest volume/capacity ratio is 109% in 2039.

The R251 and R250 would continue to operate within its estimated rural road link AADT capacity for the predicted 2024, 2029 and 2039 AADT volumes on the basis of the TII high growth scenario, with a highest volume/capacity ratio of 14% and 11% in 2039.

3.1.1 Construction Phase Impact

A detailed description of the proposed development construction is provided in EIAR Volume 2 **Chapter 2: Development Description**.

Subject to planning permission, it is envisaged that work would commence at the site once the relevant permits and funding are in place in 2023, with duration of approximately 14 months.

3.1.1.1 Access and vehicle routing

There are two proposed entrances to the proposed development site, as outlined in Section 2.1.1 and 2.1.2. Both will be utilised for the delivery of construction materials and by staff. Primary access to the development will be provided via the existing entrance at the junction of the Local Road L-10142 (Junction A). A second site access point is proposed north west of the site via an existing forestry track from the L-1622-1 local public road (Junction B). This existing entrance is proposed as a temporary access to be used during the early construction phase only.

The proposed site entrances will be in line with TII Rural Road Link Design DN-GEO-03031 June 2017 and TII Geometric Design of Junctions DN-GEO-03030 April 2017, ensuring that the visibility requirements are adhered to. A simple priority junction is provided, as the proposed minor road traffic flows are low.

It is expected that the majority of upfill material will be using site won stone. Where materials are required from off site, it is expected they will be sourced from local quarries. These are likely to include, but are not limited to Letterkenny Concrete and Quarry, located on the N14 approximately 18km east of the site, Churchill Stone, located on the R251 north of the site and Bonar's Quarry, located off the N56, approximately 5km north of Letterkenny and other existing quarries in the surrounding area. Construction materials' delivery vehicles routes are likely to include the Regional Roads R250, R251 and Local Roads L-2744, L-1622-1, L-1114, L-1044, L-1034, L-1014 and L-10142.

The wind turbine component deliveries will be via the south east entrance only (Junction A). The routing for the delivery of the wind farm components is summarised in EIAR Volume 2 **Chapter 2-Project Description** and detailed in EIAR Volume 3 **Appendix B-3 Turbine Delivery Route Assessment**.

The predicted traffic volumes associated with the proposed development have been proportioned accordingly across the access points to the site. For the purpose of the traffic assessment, it is conservatively assumed that 100% of the traffic generated by the construction of the proposed development that will use Junction A will utilise Route B and Route C, as described in Section 2.1.1 and shown in Figure 2.

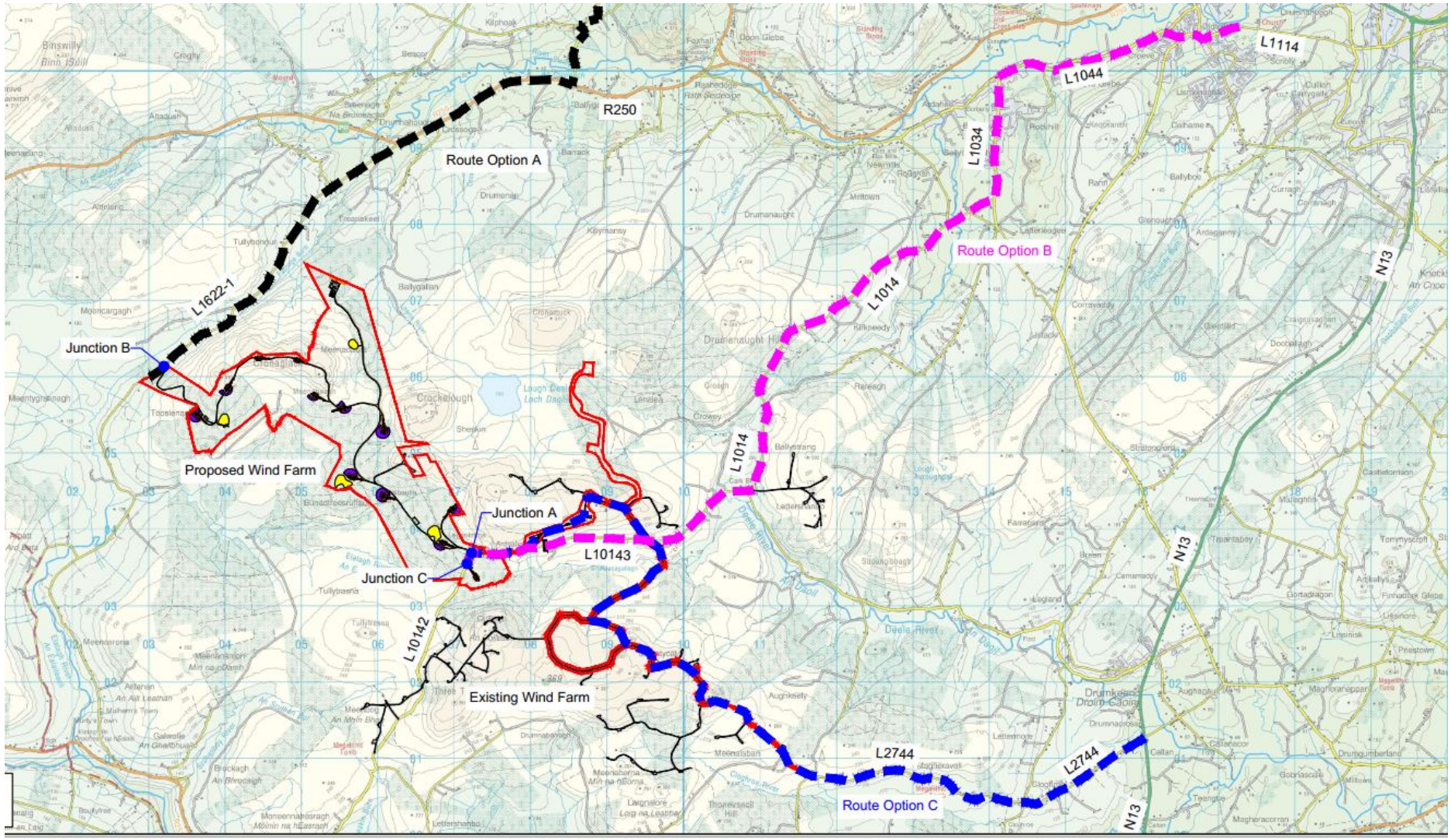

Figure 2 Proposed Delivery Routes (general construction)

3.1.1.2 Hours and staff

Construction will typically occur within the hours: 07.00am – 7.00pm, Monday to Friday and 07.00am to 2.00pm on Saturdays. During summer periods the working day may extend at times when critical elements of work need to be advanced. Longer working days can also occur when there is a phased construction programme with some elements such as commissioning overlapping with final site construction activity. Working hours will be confirmed at the outset of the project and any changes in hours will be agreed with the Local Authority. Working hours on public roads will be from 9.00 a.m. to 5.00 p.m. Monday to Friday and 9.00 a.m. to 2.00 p.m. on Saturday. A permit for moving abnormal loads will be sought from An Garda Síochana and a transportation plan for the timing of deliveries will be established. No work on Sunday or bank holidays unless preapproved with the relevant bodies will occur.

Site personnel will travel to site prior to 7.00 a.m. and depart from site from 7.00 p.m., on weekdays, outside the peak traffic hours. The expected peak staff will be up to 60 personnel, who will generate approximately 60 car and van trips, both to and from the site each working day, on the basis of an average worst case vehicle occupancy rate of 1.0 personnel per vehicle. Canteen facilities for personnel will be provided on-site, therefore there are no requirements for staff to leave site during the working day.

3.1.1.3 Delivery vehicle volumes

All construction excavated material will be retained on-site. It is expected that the majority of upfill material will be using site won stone.

The 14 month construction programme will require the importation of up to 13,070 loads of construction materials. This will include delivery vehicles for the 12 No. wind turbines including their abnormal loads. All other construction materials will be imported using standard heavy vehicle delivery trucks with capacities of 10 m^3 and 20 tonnes. Up to 319 loads of waste material will be removed from the proposed development over the 14 month programme.

The proposed construction works heavy vehicle delivery traffic volumes are provided in Table 3.3. Traffic volumes have been assigned based on an estimated 25% of total HGV and non-HGV traffic using the north-western entrance, Junction B. This is consistent with the expected construction activities for mobilisation and construction activities at the onset of the project. For the purpose of the traffic assessment, it is conservatively assumed that 100% of the traffic generated by the construction of the proposed development that will use Junction A (75% of total traffic) will utilise both Route B and Route C, as described in Section 2.1.1 and shown in Figure 2.

The wind turbine loads will be delivered in consultation with Donegal County Council, and An Garda Síochana, during off-peak traffic periods. A total of 120 delivery vehicles will be required for the 12 turbines, which have been included in the number of HGV deliveries for Route C. This could result in temporary delays for other location traffic during the off-peak traffic delivery periods.

Table 3.3: Proposed Construction Works Heavy Vehicle Delivery Traffic Volumes

Works	Total Number of Heavy Vehicles		
	Total Construction Programme (14 months)	Peak Daily	Highest Peak Hour
Route A	3,347	90[(1)]	12[(1)]
Route B	10,042	90[(1)]	12[(1)]
Route C	10,042	90[(1)]	12[(1)]

Note [(1)]: During base concrete pours. Other deliveries to site will be curtailed or stopped during concrete pours.

Peak heavy vehicle traffic volumes generated by the delivery of construction materials will be up to 90 heavy vehicles per day, both to and from the site. This will occur on 12 separate days during the concrete pours for the turbine bases. Other deliveries to site will be curtailed or stopped during concrete pours. Highest peak hour heavy vehicle traffic volumes will be up to 12 heavy vehicles, both to and from the site.

3.1.1.4 Traffic volumes

The predicted average annual daily traffic volumes, peak daily traffic volumes and highest peak hour traffic volumes generated by the proposed development construction across the three routes are provided in Table 3.4. The predicted AADT volumes are based on a 14 month construction programme.

Table 3.4: Proposed Construction Works Traffic Volumes

Route	Total Vehicles (HGVs)					
	AADT (%HGV)		Peak Daily[2]		Highest Peak Hour[2]	
A	142	16%	300	(180)	24	(24)
B	187	36%	300	(180)	24	(24)
C	187	36%	300	(180)	24	(24)

Note [(2)]: During base concrete pours. Other deliveries to site will be curtailed or stopped during concrete pours.

The predicted 2024 peak daily and peak hourly traffic volumes on the existing roads with the proposed peak construction works traffic volumes are provided in Table 3.5 and Table 3.6 respectively.

Table 3.5: Predicted 2024 Daily Traffic Volumes with Peak Daily Construction Traffic Volumes

Road	Peak daily vehicles					
	Total Vehicles (HGV)		Change		% Change	
N15	8,039	(696)	300	(180)	3.73%	25.85%
N13	11,203	(691)	300	(180)	2.68%	26.07%
L2744	621	(184)	300	(180)	48.27%	97.95%
R251	1,693	(235)	300	(180)	17.72%	76.45%
R250	1,372	(220)	300	(180)	21.87%	81.77%
L1622-1	836	(186)	300	(180)	35.90%	96.63%
L1114 / LP1044 / L1034 / L10142	836	(186)	300	(180)	35.90%	96.63%

Table 3.6 Predicted 2024 Peak Hour Traffic Volumes with Peak Construction Traffic Volumes

Road	Peak hour vehicles					
	Total Vehicles (HGV)		Change		Change	
N15	740	(78)	24	(24)	3.24%	30.90%
N13	1,254	(74)	24	(24)	1.91%	32.56%
L2744	56	(25)	24	(24)	42.75%	95.13%
R251	163	(29)	24	(24)	14.70%	81.84%
R250	131	(28)	24	(24)	18.30%	85.42%
L1622-1	56	(25)	24	(24)	42.75%	95.35%
L1114 / LP1044 / L1034 / L10142	56	(25)	24	(24)	42.75%	95.35%

3.1.1.5 Volume/Capacity ratios

The estimated rural road link AADT volume/capacity ratio for the National and Regional roads in the vicinity of the proposed development site is provided in Table 3.7, on the basis of the TII Rural Road Link Design, for predicted 2024 AADT volumes with the TII high growth scenario, with the proposed construction development.

Table 3.7: Predicted 2024 TII Rural Road Link AADT Volume/Capacity Ratio with TII High Growth and Peak Construction Traffic

Road	AADT Vehicles	AADT Capacity (Vehicles)	AADT Volume / Capacity Ratio
N15	8,039	11,600	69%
N13	11,203	11,600	97%
R251	1,693	5,000	34%
R250	1,372	5,000	27%

The N15 and N13 will continue to operate within their estimated rural road link AADT capacity, for the predicted 2024 AADT volumes on the basis of the TII high growth scenario and the proposed construction traffic volumes, with a volume/capacity ratio of 69% and 97% respectively. This compares to a ratio of 62% and 88% respectively, without the proposed development.

The R251 and R250 will also continue to operate within their estimated rural road link AADT capacity, for the predicted 2024 AADT volumes on the basis of the TII high growth scenario and the proposed construction traffic volumes, with a volume/capacity ratio of 34% and 27% respectively. This compares to a ratio of 26% and 20% respectively, without the proposed development.

3.1.1.6 Traffic Management

A detailed description of traffic management required for the proposed development is provided in the **Traffic Management Plan (EIAR Volume 3 Appendix H-2)**. Single lane closures may be required on the L-10142, as part of the connection construction works, if the Grid Connection Option to the consented 110kv Lenalea substation is selected. It is envisaged that 100-200m of the cable route will be constructed each day and therefore single lane closures will move with the works (with a total construction length of 750m). The Single lane closure will be controlled by way of either a stop-go system, a priority yield system or by temporary traffic lights. Details of the single lane closures are to be confirmed at the construction stage.

Heavy vehicle traffic volumes generated by the proposed development construction could result in damage to existing and proposed road pavements on public roads, including at vehicle turning, accelerating and decelerating locations. All local road surfaces will be regularly monitored and will be re-instated to pre-development condition, as agreed with Donegal County Council engineers.

3.1.1.7 EPA guidelines

On the basis of the EPA Guidelines, the proposed construction works would have slight to moderate short-term negative effects.

3.1.2 Operational phase impact

During the operational phase, there will be periodic maintenance on site. This would generate a relatively low volume of vehicles, including occasional heavy vehicles.

On the basis of the EPA Guidelines, the proposed operational phase would have imperceptible to not significant traffic effects.

3.1.3 Decommissioning Phase impacts

The removal of the wind turbines during any decommissioning phase would be on a similar basis to the delivery of the wind turbines for the construction phase, with similar traffic volumes and impacts.

3.1.4 Risk of major accidents and disasters

Road traffic accidents on the N15, N13, R251, R250, L-1622-1, L-2074, L1114, L-1014, L-10142 and other roads, used by traffic volumes generated by the proposed construction works, could result in

delays to traffic generated by the proposed works and to other traffic. Traffic generated by the proposed works could be involved in road traffic accidents. A road safety protocol will be implemented by the appointed contractor for the duration of the construction works to mitigate the risk of road traffic accidents. A detailed description of traffic management required for the proposed development is provided in the **Traffic Management Plan (EIAR Volume 3 Appendix H-2)**.

3.1.5 Cumulative effects

The predicted future baseline traffic volumes are on the basis of TII's predicted high sensitivity growth scenario. This high sensitivity growth scenario includes for other proposed development generated traffic volumes on the surrounding local road network.

Forestry operations in the wider area may use the delivery routes during the construction period for ongoing maintenance. The overall impact is assumed to be of low volume with regards to traffic volumes.

Cark Wind Farm, located in the vicinity of the proposed development, may be due for decommissioning in the coming years. There are no details at this time of how the site will be decommissioned. Two probable options include removing the turbines intact for re-conditioning or cut the blades and turbines on site for removal. There are 25 No. wind turbines due for decommissioning.

The overall decommissioning impact is assumed to be of low volume with regards to traffic volumes. If the turbines are removed intact, approximately 10 No. abnormal load trips would be required per wind turbine. If the blades and turbines are cut on site for removal, it is estimated there will be 20 to 25 No. HGV loads per wind turbine. The estimated duration of these works is currently unknown.

The Construction Traffic Management Plan prepared by the appointed contractor will include mitigation of any coinciding schedule cumulative effects with any potential decommissioning works at Cark Wind Farm, in consultation with Donegal County Council. Further details are contained in Appendix H-2 Temporary Traffic Management.

There are a number of road improvement schemes in the wider area of the proposed development. The N14/15 to A1 Link Scheme. This project's progression is subject to the timing of the Northern Ireland Roads Service A5 (WTC) project advancing to construction. The Donegal County Development Plan 2018 – 2024 has identified three sections of the TEN-T network as priority for improvement. These sections are also prioritised within the National Planning Framework, Project Ireland 2040, and the National Development Plan 2018 – 2027. These include the N15/N13 Ballybofey / Stranorlar urban region, the N56/N13 Letterkenny to Manorcunningham and the N14 Manorcunningham to Lifford / Strabane / A5 Link.

The Construction Traffic Management Plan prepared by the appointed contractor will include mitigation of any coinciding schedule cumulative effects with any potential road improvement schemes in consultation with Donegal County Council.

4 MITIGATION

4.1.1 Construction phase

The construction phase mitigation measures are incorporated within the construction phase design and measures, assessed in this foregoing section. No additional mitigation measures are proposed as no significant adverse impacts are envisaged.

4.1.2 Operational phase

The proposed development will not have a significant operational traffic impact; therefore, no mitigation measures are proposed.

4.1.3 Decommissioning phase

The decommissioning phase mitigation measures for the removal of wind turbines will be similar to the construction phase mitigation measures for the delivery of wind turbines, assessed in this foregoing section. No additional mitigation measures are proposed as no significant adverse impacts are envisaged.

5 RESIDUAL IMPACTS

5.1 CONSTRUCTION PHASE

On the basis of the EPA Guidelines, the proposed construction works will have slight to moderate short-term negative effects.

5.2 OPERATIONAL PHASE

The proposed development will not have an imperceptible operational traffic impact.

5.3 DECOMMISSIONING PHASE

On the basis of the EPA Guidelines, the decommissioning works will have slight to moderate temporary negative effects.

6 CONCLUSION

The proposed development would not have a significant adverse traffic impact on the surrounding road network including:

- National Roads N13 and N15
- Regional Road R250
- Regional Road R251
- Local Road L-2744
- Local Road L-1622-1
- Local Road L-1114
- Local Road L-1044
- Local Road L-1034
- Local Road LP-1014
- Local Road L-10142.

References:

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