

12 Traffic and Transport

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12 Traffic and Transport

12.1 Executive Summary

- 12.1.1 This chapter examines the transport and access issues associated with the Proposed Development. The chapter is supported by Appendix 12.1 'Transport Assessment' (TA) and Appendix 12.2 Route Survey Report which includes further details of the proposed routing and management of abnormal loads.
- 12.1.2 The assessment considers the impacts during the construction phase of the Proposed Development, when volumes of traffic generation are anticipated to be at their greatest due to the delivery of equipment and construction materials. In line with the Institute of Environmental Assessment (IEA, now IEMA) guidance document 'Guidance Note Number 1: Guidelines on the Environmental Assessment of Road Traffic' (IEMA, 1993) (hereafter referred to as 'the IEMA Guidelines'), severance, driver delay, pedestrian delay, pedestrian amenity, fear and intimidation as well as accidents and safety have been evaluated in isolation for the Proposed Development. Additionally, these potential impacts were evaluated cumulatively considering other nearby committed and in-planning wind farms. The operational phase of the Proposed Development is not anticipated to have any significant adverse impacts on the public road network as a result of the low levels of traffic that are forecast.
- 12.1.3 It is proposed that all abnormal turbine loads will originate from either Kyleakin/Kyle of Lochalsh or Inverness and would route via the A82/A87 to reach the site access on the A887. The sole site access point will be taken from the existing wind farm access on the A887, with no access taken from Allt Sigh.
- 12.1.4 The maximum traffic movements associated with construction of the Proposed Development are predicted to occur in months 7-9 of the programme when aggregate and sand deliveries associated with on-site concrete production are predicted to coincide with the commencement of turbine deliveries. During these months, an average of 34 heavy goods vehicle (HGV) movements are predicted per day and it is estimated that there would be a further 45 car and minibus / light goods vehicle (LGV) movements per day to transport construction workers to and from the site.
- 12.1.5 Traffic volumes as a result of construction activities are likely to increase on the public roads approaching the site including the A82/A87/A887. However, neither total nor HGV traffic flows are predicted to increase by more than 30% at any location on the A82/A87/A887. Users of the A82/A87/A887 are considered receptors of low sensitivity, with the settlement of Invermoriston considered a receptor of low sensitivity and the settlement of Drumnadrochit considered a receptor of medium sensitivity. With reference to Rule 1 of the IEMA Guidelines, no further assessment of these receptors is required. HGV traffic flows are predicted to increase by more than 10% on A887 between the Proposed Development and Invermoriston although the road link and adjacent settlement are considered to be receptors of low sensitivity. As such, Rule 2 does not apply, and no further assessment is required in respect of these relevant receptors.
- 12.1.6 It is therefore considered that no significant adverse effects would arise resulting from construction traffic movements related to the Proposed Development and no additional mitigation measures are necessary.
- 12.1.7 Consideration was given to the cumulative impact of the Proposed Development with other nearby wind farm developments that are the subject of valid planning applications or are approved and which could impact on the study area due to the potential for proposed construction activities to coincide with the construction period of the Proposed Development. It was considered that Dell, Cloiche, Glenshero and Millennium South Wind Farms should be included in the assessment.
- 12.1.8 The National Grid ESO Transmission Entry Capacity Register was consulted to find out the most up to date estimated Connection Dates for each of these four wind farms. The findings are presented below:
- Millenium South - October 2021;

- Glenshero - August 2024;
- Cloiche - July 2025; and
- Dell - April 2026.

- 12.1.9 Given these estimated connection dates, it is considered highly unlikely that the construction programmes for the Proposed Development and cumulative wind farm developments would coincide. In addition to this, there are also supply chain constraints associated with the transport of construction materials including wind turbines. However, for the purposes of this assessment, and acknowledging that connection dates can change, it was assumed that it will be granted permission and the peak periods of the respective construction programmes would overlap. As such, the cumulative assessment has considered the worst-case scenario.
- 12.1.10 The results indicate that when considering the cumulative construction phases, total traffic increases on all routes within the study area, total traffic flows would not increase by more than 30% at any location on the A82/A87/A887 although HGV traffic volumes would increase by more than 30% on the A82 north of Invergarry and south of Invermoriston.
- 12.1.11 When considering the theoretical worst case overlap of the peak periods associated with the construction programmes of other developments within the cumulative assessment, the effects are not considered to be significant.
- 12.1.12 However, in the unlikely event of peak construction activities overlapping, further mitigation measures would be introduced through the CTMP to minimise conflicts between construction traffic and road use in Fort Augustus.

12.2 Introduction

- 12.2.1 The chapter focusses on the construction phase of the Proposed Development as the worst-case scenario for traffic generation. The operational phase of the Proposed Development is not anticipated to have any significant impacts on the public road network due to the limited levels of traffic associated with ongoing maintenance. Similarly, the decommissioning phase will generate less traffic than the construction phase due to a number of elements such as the tracks and foundations being left in-situ. It is not anticipated that any future changes in background traffic during the lifetime of the Proposed Development will have any impact on the construction phase. A Study Area has been established, formed by roads within the vicinity of the Site and a review of the impact of construction traffic has been undertaken in line with the IEMA Guidelines.
- 12.2.2 The specific objectives of the chapter are to:
- Describe the traffic and transportation baseline;
 - Describe the assessment methodology and significance criteria used in completing the impact assessment;
 - Describe the potential effects, including direct, indirect and cumulative effects;
 - Describe any mitigation measures proposed to address likely significant effects; and
 - Assess the residual effects remaining following the implementation of mitigation.
- 12.2.3 This chapter is also supported by the following figures and appendices:
- Figure 12.1: Site Location, Study Area and Count Sites;
 - Figure 12.2: Abnormal Load Route;
 - Appendix 12.1: Transport Assessment; and
 - Appendix 12.2: Route Survey Report.

12.3 Policy and Guidelines

Planning Policy

National Planning Framework 3 (NPF3)

- 12.3.1 The Scottish National Planning Framework 3 (NPF3) (Scottish Government, 2014a) sets the context for development planning in Scotland and provides a framework for the spatial development of Scotland as a whole. It sets out the Government's development priorities over the next 20 to 30 years and identifies national developments which support the development strategy. Scotland's National Planning Framework 3 was laid in the Scottish Parliament on June 23, 2014.

Scottish Planning Policy (SPP)

- 12.3.2 In relation to transport and access matters, Scottish Planning Policy (SPP) (Scottish Government, 2020) notes:

"286. Where a new development or a change of use is likely to generate a significant increase in the number of trips, a transport assessment should be carried out. This should identify any potential cumulative effects which need to be addressed.

290. Development proposals that have the potential to affect the performance or safety of the strategic transport network need to be fully assessed to determine their impact. Where existing infrastructure has the capacity to accommodate a development without adverse impacts on safety or unacceptable impacts on operational performance, further investment in the network is not likely to be required. Where such investment is required, the cost of the mitigation measures required to ensure the continued safe and effective operation of the network will have to be met by the developer."

Planning Advice Note (PAN) 75

- 12.3.3 PAN75: 'Planning for Transport' (Scottish Government, 2005) provides advice on the requirements for Transport Assessments as follows:

"40. Requires a transport assessment to be produced for significant travel generating developments. Transport Assessment is a tool that enables delivery of policy aiming to integrate transport and land use planning."

"41. All planning applications that involve the generation of person trips should provide information which covers the transport implications of the development. The level of detail will be proportionate to the complexity and scale of the impact of the proposal. For smaller developments the information on transport implications will enable local authorities to monitor potential cumulative impact and for larger developments it will form part of a scoping exercise for a full transport assessment. Development applications will therefore be assessed by relevant parties at levels of detail corresponding to their potential impact."

- 12.3.4 The Proposed Development will not lead to a significant increase in the number of trips required or significantly increase private car use; however, during the construction phase the number of vehicle movements will temporarily increase on the local road network.

Onshore Wind Turbines; Online Renewables Planning Advice (May 2014)

- 12.3.5 The Scottish Government introduced online renewables planning advice in February 2011 which has been updated since then. The most recent specific advice note regarding onshore wind turbines was published in May 2014 (Scottish Government, 2014b). The advice note identifies the typical planning considerations in determining applications for onshore wind turbines including landscape impact, impacts on wildlife and ecology, shadow flicker, noise, ice throw, aviation, road traffic impacts, cumulative impacts and decommissioning.

- 12.3.6 In terms of road traffic impacts, the guidance notes that in siting wind turbines close to major roads, pre-application discussions are advisable. This is particularly important for the movement of large

components (abnormal load routing) during the construction period, periodic maintenance and for decommissioning.

The Highland Council (THC) Local Transport Strategy (LTS), 2010

- 12.3.7 The document (THC, 2010) refers to the road network across rural areas being characterised by ‘winding single carriageway roads with passing places. Reference is also made to the additional pressure that can be placed on sub-standard roads. The LTS notes that in terms of timber transport, there are initiatives such as tyre pressure moderation which are reducing the damaging effect of forestry lorries on rural roads. The LTS also mentions the many bridges which are subject to weight restrictions in the Highland Council area. The LTS states that “*where possible, the Council, through its Lifeline Bridges programme will invest in the bridges to maintain access either by removing weight restrictions or reducing the weight restriction effect of HGV vehicles.*” The aim of the Lifeline Bridges programme is to assist the economy of the area by allowing the efficient transport of essential goods and services and providing for industries that are heavily dependent on large vehicle transport.

Guidance

Transport Assessment Guidance; Transport Scotland, 2012

- 12.3.8 The main objective of this guidance document (Transport Scotland, 2012) is to assist in the preparation of Transport Assessments for development proposals in Scotland. The planning and transport policy context are set out in SPP which provides an outline of the framework for delivering integration of transport and land use planning, including the requirement for a Transport Assessment, for developments involving significant travel generating uses.
- 12.3.9 Transport Assessment Guidance sets out requirements according to the scale of development being proposed.

Guidelines for the Environmental Assessment of Road Traffic, IEMA, 1993

- 12.3.10 The document (the ‘IEMA Guidelines’) (IEMA, 1993) includes guidance on how the sensitivity of receptors should be assessed, contains rules to help determine which links in the study area should be considered for detailed assessment and identifies the key impacts that are most important when assessing the magnitude of traffic effects from an individual development.

12.4 Consultation

- 12.4.1 Table 12.1 provides details of consultations undertaken with relevant regulatory bodies, together with action undertaken by the Applicant in response to consultation feedback.

Table 12.1 – Consultation Responses

Consultee	Consultation Scoping Response	Applicant Action
Transport Scotland	Agreement on the use of DfT count sites as opposed to commissioning new survey data due to the impacts of COVID-19 on background traffic flows.	Proposed methodology utilising DfT count sites has been adopted within the chapter.
The Highland Council	A Transport Assessment (TA), or section on traffic and transportation, within the Environmental Statement for the project will be required.	The chapter is supported by Appendix 12.1 Transport Assessment.

Consultee	Consultation Scoping Response	Applicant Action
	The TA should identify all roads likely to be affected by the various stages of the development and consider in detail the impact of development traffic, including abnormal load movements, on these roads. Where necessary, the TA should consider and propose measures necessary to mitigate the impact of the development on the road network.	The chapter is supported by Appendix 12.1 Transport Assessment.

12.5 Assessment Methodology and Significance Criteria

12.5.1 The methodology adopted in this assessment has involved the following key stages:

- Determine baseline conditions;
- Review the Proposed Development to identify potential effects including any cumulative effects;
- Evaluate significance;
- Identify any necessary mitigation; and
- Assess any residual effects.

Study Area

12.5.2 The traffic and transport study area is defined as the lengths of public road that would be used to access the Proposed Development and be potentially most impacted during the construction phase. The study area has been identified through an initial review of the likely routes between suppliers of equipment and materials and the site. It includes:

- A82 between Inverness and Fort William;
- A87 between Invergarry and Kyle of Lochalsh; and
- A887 between Bunloyne and Invermoriston.

12.5.3 A887 is a two-way rural single carriageway road subject to the national speed limit except where it passes through settlements including Invermoriston, where the speed limit reduces to 40mph.

12.5.4 The A87 is a two-way rural single carriageway road subject to the national speed limit except where it passes through settlements including Invergarry, where the speed limit reduces to 40mph and Kyle of Lochalsh where the speed limit reduces to 30mph.

12.5.5 The A82 runs south to north between Glasgow and Inverness with a mixture of rural sections subject to the national speed limit and urban sections including through Fort William and Fort Augustus where the speed limit drops to 30mph.

Desk Study

12.5.6 The baseline review focuses on the nature of the surrounding road infrastructure and the level of traffic that uses it. It has been informed by the following:

- Review of responses to the EIA Scoping Report;

- Collection of traffic flow data;
- Review of roads hierarchy;
- Identification of sensitive junction locations;
- Identification of constraints on the road network, with or without height/width/weight restrictions;
- Identification of areas of road safety concerns;
- Identification of other traffic sensitive receptors in the area (routes, communities, buildings etc.);
- Review of Ordnance Survey (OS) plans to derive a local roads network; and
- Consideration of potential supply locations for construction materials to inform the extent of roads network to be considered in the assessment.

12.5.7 A review of relevant nearby planning applications including Dell, Cloiche, Glenshero and Millennium South Wind Farms were also undertaken as part of the desk study. It is noted that two other nearby development proposals, Loch Laith and Tomchrasky Wind Farms, are at the pre-application stage although no information is currently available in relation to either site that would enable a review of the likely traffic and transportation effects.

Site Visit

12.5.8 Site visits were undertaken as part of the Abnormal Indivisible Load (AIL) route assessment which considered potential constraints to the movement of AILs in terms of height, width and weight restrictions.

Assessment of Likely Effect Significance

Criteria for Assessing the Sensitivity of Receptors

12.5.9 In terms of transport and access impacts, the receptors are the users of the roads within the traffic and transport Study Area and the locations through which those roads pass.

12.5.10 The IEMA Guidelines include guidance on how the sensitivity of receptors should be assessed. Using that as a base, professional judgement was used to develop a classification of sensitivity for users based on the characteristics of roads and locations. This receptor sensitivity classification is summarised in Table 12.2.

Table 12.2 – Classification of Receptor Sensitivity

Receptor Value/Sensitivity	Receptor Type	
	Users of Roads	Users of Locations
High	Where the road is a minor rural road, not constructed to accommodate frequent use by heavy goods vehicle (HGVs). Includes roads with traffic control signals, waiting and loading restrictions, traffic calming measures.	Where a location is a large rural settlement containing a high number of community and public services and facilities.
Medium	Where the road is a local A or B class road, capable of regular use by HGV traffic. Includes roads where there is some traffic calming or traffic management measures.	Where a location is an intermediate sized rural settlement, containing some community or public facilities and services.

Low	Where the road is Trunk or A-class, constructed to accommodate general and HGV traffic moving between primary destinations. Includes roads with little or no traffic calming or traffic management measures.	Where a location is a small rural settlement, few community or public facilities or services.
Negligible	Where roads have no adjacent settlements. Includes new strategic Trunk roads that would be little affected by additional traffic and suitable for AILs and new strategic Trunk road junctions capable of accommodating AILs.	Where a location includes individual dwellings or scattered settlements with no facilities.

12.5.11 Where a road passes through a location, users are considered subject to the highest level of sensitivity defined by either the road or location characteristics.

Criteria for Assessing Magnitude of Change

12.5.12 The following rules, also taken from the IEMA Guidelines, were used to determine which links within the traffic and transport study area should be considered:

- Rule 1 – include highway links where traffic flows are predicted to increase by more than 30% (or where the number of HGVs is predicted to increase by more than 30%).
- Rule 2 – include any other specifically sensitive areas (such as schools, hospitals, congested junctions etc) where traffic flows are predicted to increase by 10% or more.

12.5.13 The IEMA Guidelines identify the key impacts that are most important when assessing the magnitude of traffic impacts from an individual development: the impacts and levels of magnitude are discussed below:

- Severance – the IEMA Guidelines state that, “*severance is the perceived division that can occur within a community when it becomes separated by a major traffic artery.*” Further, “*Changes in traffic of 30%, 60% and 90% are regarded as producing ‘slight’, ‘moderate’ and ‘substantial’ [or minor, moderate and major] changes in severance respectively*”. However, the Guidelines acknowledge that “*the measurement and prediction of severance is extremely difficult*” (Para 4.28).
- Driver delay – the IEMA Guidelines note that these delays are only likely to be “*significant [or major] when the traffic on the network surrounding the development is already at, or close to, the capacity of the system*” (Para 4.32).
- Pedestrian Delay – the delay to pedestrians, as with driver delay, is likely only to be major when the traffic on the network surrounding the development is already at, or close to, the capacity of the system. An increase in total traffic of approximately 30% can double the delay experienced by pedestrians attempting to cross the road and would be considered ‘major’.
- Pedestrian Amenity – the IEMA Guidelines suggest that a tentative threshold for judging the significance of changes in pedestrian amenity is where the traffic flow (or its lorry component) is halved or doubled (Para 4.39). It is therefore considered that a change in the traffic flow of -50% or +100 % would produce a ‘major’ change in pedestrian amenity.
- Fear and Intimidation – there are no commonly agreed thresholds for estimating levels of fear and intimidation, from known traffic and physical conditions. However, as the impact is considered to be sensitive to traffic flow, changes in traffic flow of 30%, 60% and 90% are

regarded as producing ‘minor’, ‘moderate’ and ‘major’ changes in fear and intimidation respectively.

- Accidents and Safety – professional judgement would be used to assess the implications of local circumstances, or factors which may elevate or lessen risks of accidents.

Criteria for Assessing Cumulative Effects

12.5.14 Traffic associated with operational wind farms and other developments are currently using the road network, and therefore flows are captured within the extracted Department for Transport (DfT) database of count sites.

12.5.15 Cumulative developments identified as having an impact on the road network within the study area during their respective construction periods have been considered in a cumulative assessment. This assessment considers developments which are either committed or subject to valid planning applications and is carried out on the assumption that the peak period of construction for these developments would coincide with that of the Proposed Development. Traffic flow information for relevant developments is extracted from documentation submitted with the planning applications.

Criteria for Assessing Significance of Effect

12.5.16 To determine the overall significance of the effects, the results from the receptor sensitivity and impacts magnitude assessment are correlated and classified using a scale set out in Table 2.4 of Volume 11, Section 2, Part 5 of Design Manual for Roads and Bridges (DMRB) (DMRB, 2019) and summarised in Table 12.3.

Table 12.3 – Significance of Effect

Receptor Sensitivity	Magnitude of Impact			
	Major	Moderate	Minor	Negligible
High	Major	Major	Moderate	Negligible
Medium	Major	Moderate	Minor	Negligible
Low	Moderate	Minor	Minor	Negligible
Negligible	Negligible	Negligible	Negligible	Negligible

12.5.17 In terms of the Environmental Impact Assessment (EIA) Regulations (Scottish Government, 2017), effects are considered significant where they are assessed to be major or moderate (shown as bold in Table 12.3.).

Requirements for Mitigation

12.5.18 A number of standard ‘embedded’ mitigation measures will be introduced as a matter of course to manage traffic generated by the Proposed Development throughout the construction period.

Assessment of Residual Effect Significance

12.5.19 Residual effects following the introduction of mitigation are generally defined as significant when they are assessed to be moderate or greater in significance and are considered adverse.

Limitations to Assessment

12.5.20 The UK Coronavirus lockdown commenced on the 23rd of March 2020 with various restrictions on movement in place for the majority of 2020 with an associated impact on traffic flows within the Study Area. To ensure a robust assessment of the likely impacts during the construction phase traffic

data, 2018 Annual Average Daily Traffic Flow data was extracted from the online Department for Transport database of count sites located within the Study Area.

- 12.5.21 The road network surrounding the Proposed Development has not seen any significant traffic growth in recent years, therefore the DfT count sites are believed to provide an accurate representation of existing road usage. Traffic surveys commissioned in 2020/2021 would result in misrepresentative traffic flows compared to usual conditions because of the effect of the global pandemic on traffic flows at that time.
- 12.5.22 Three years of National Road Traffic Forecast (NRTF) high growth was applied to the surveyed traffic movements. The NRTF high growth factor for 2018 to 2025 is 9.69%. This factor was applied to the 2018 DfT data to estimate the 2025 traffic flows. High growth is substantially higher than the levels of growth generally experienced in the area and is considered to adequately cover for any committed developments not individually accounted for.
- 12.5.23 Construction traffic flows associated with committed and planned developments were included within the cumulative assessment, assuming that the peak period of construction for all developments would occur simultaneously. This is considered a very robust assumption.
- 12.5.24 For the purposes of this assessment, it is assumed that all staff and construction traffic will be generated from outside the traffic and transport Study Area. This is a robust assumption as it is likely that some staff will originate within the traffic and transport Study Area and their movements will not therefore impact on all roads under consideration.
- 12.5.25 Based on the distribution of the local population and settlements in the study area, 75% of staff trips were assumed to originate from towns accessed via the A82 north of Invermoriston, 25% via the A82 south of Invergarry.

12.6 Baseline Conditions

Current Baseline

Existing Traffic Movement

- 12.6.1 To determine the existing road usage, 2018 Annual Average Daily Traffic Flow (AADT) data for seven sites was extracted from the online DfT database of count sites. The locations of the traffic count sites are illustrated on Figure 12.1 and are as follows:
- 1 – A82 south of Invergarry (DfT Count Point 40762);
 - 2 – A87 west of Bunloyne (DfT Count Point 10770);
 - 3 – A887 between Bunloyne and Invermoriston (DfT Count Point 40958);
 - 4 – A82 south of Drumnadrochit (DfT Count Point 758);
 - 5 - A82 north of Invergarry (DfT Count Point 10760);
 - 6 – A82 south of Invermoriston (DfT Count Point 50707); and
 - 7 - A87 south of its junction with the A887 (DfT Count Point 30776)
- 12.6.2 The existing weekday traffic flows at each count site are summarised into cars & LGVs, and HGVs in Table 12.4.

Table 12.4 – Existing Traffic Conditions (Average Two-Way Flows)

Survey Location	Cars & LGV	HGV	Total
A82 south of Invergarry (Count Point 40762)	3,986	358	4,344
A87 west of Bunloyne (Count Point 10770)	2,086	224	2,310

A887 between Bunloyne and Invermoriston (Count Point 40958)	879	167	1,046
A82 south of Drumnadrochit (Count Point 758)	3,363	429	3,792
A82 north of Invergarry (Count Point 10760)	2,614	233	2,847
A82 south of Invermoriston (Count Point 50707)	2,550	243	2,793
A87 south of its junction with the A887 (Count Point 30776)	1,489	107	1,596

Accident Data

12.6.3 Tetra Tech obtained road traffic accident data from the web resource <http://www.crashmap.co.uk/> for the study area roads covering the five years to the end of 2020. Data reviewed for the five-year period indicates that:

- over the 208km (two way) network reviewed on the A87, A887 and A82, a total of 163 personal injury accidents were recorded along the length of the study area route for the five-year period; and
- 106 (or 65%) were slight, 46 (or 28%) were serious and 11 were fatal;

Footway and Cycleway Network

12.6.4 Chapter 13 (Socio-economics, Tourism & Recreation) identifies the recreational routes that are within 15km of the Proposed Development and provides an assessment of any potential impact. The findings suggest there will be a minor impact on the Loch Ness 360 long-distance walking route which passes within approximately 5km of the Proposed Development at its closest point. In every other case, the impact is considered to be negligible.

12.6.5 Reference should also be made to the standalone Outdoor Access Plan for further details.

Future Baseline

12.6.6 For this assessment, construction of the Proposed Development has been assumed to mainly take place during 2025 (subject to consents and approvals being granted). An 18-month construction period was assumed. Any lengthening in the programme will reduce the peak period trip generation.

12.6.7 Base year traffic flows were determined by applying a National Road Traffic Forecast (NRTF) factor to the surveyed traffic flows.

12.6.8 The NRTF high growth factor for 2018 to 2025 is 1.0969. This factor was applied to the 2018 DfT/Transport Scotland data to estimate the 2025 traffic flows. The estimated future baseline year (2025) traffic movements are shown in Table 12.5.

Table 12.5 – Future Year Baseline Traffic Conditions (Average Two-Way Flows)

Survey Location	Cars & LGV	HGV	Total
A82 south of Invergarry (Count Point 40762)	4,372	393	4,765
A87 west of Bunloyne (Count Point 10770)	2,288	246	2,534
A887 between Bunloyne and Invermoriston (Count Point 40958)	964	183	1,147
A82 south of Drumnadrochit (Count Point 758)	3,689	471	4,159
A82 north of Invergarry (Count Point 10760)	2,867	256	3,123
A82 south of Invermoriston (Count Point 50707)	2,797	267	3,064
A87 south of its junction with the A887 (Count Point 30776)	1,633	117	1,751

12.7 Receptors Brought Forward for Assessment

12.7.1 Table 12.6 provides a summary of the receptors identified as being sensitive to the Proposed Development and which have been 'scoped-in' to the assessment, together with a justification for their inclusion.

Table 12.6 – Summary of Receptor Sensitivity

Receptor (Users of Road or Location)	Sensitivity	Justification
A87	Low	Trunk or A-class road constructed to accommodate general and HGV traffic between primary destinations.
A887	Low	Trunk or A-class road constructed to accommodate general and HGV traffic between primary destinations.
A82	Low	Trunk or A-class road constructed to accommodate general and HGV traffic between primary destinations.
Invermoriston	Low	A small rural settlement, few community or public facilities or services.
Drumnadrochit	Medium	Intermediate sized rural settlement, containing some community or public facilities and services.
Fort Augustus	Medium	Intermediate sized rural settlement, containing some community or public facilities and services.

12.8 Standard Mitigation

12.8.1 Mitigation throughout the construction period will be managed through the implementation of a Construction Traffic Management Plan (CTMP) for general construction traffic and a Traffic Management Plan for abnormal loads (which may form part of the CTMP).

12.8.2 The following measures will be implemented during the construction phase through the CTMP:

- All materials delivery lorries (dry materials) will be sheeted to reduce dust and stop spillage on public roads.
- Specific training and disciplinary measures will be established to ensure the highest standards are maintained to prevent construction vehicles from carrying mud and debris onto the carriageway.
- Wheel wash facilities will be established at the site entrance if required.
- Working hours will be limited to 0700 - 1900 Monday to Friday and 0700 – 1400 on Saturdays. There shall be no construction traffic movements to or from the site outwith these hours or on Sundays. In the event of work being required out with these hours, e.g. abnormal load deliveries, commissioning works or emergency mitigation works, the Planning Authority will be notified prior to these works taking place.

- Appropriate traffic management measures will be put in place on the A887 through Invermoriston to avoid conflict with general traffic, subject to the agreement of the Roads Authority. Measures specific to the site include a commitment for construction traffic to travel through the village at 20mph and managing deliveries to take place outside school bus drop off and pick up times.
- Appropriate traffic management measures will be put in place at the site entrance to avoid conflict with general traffic, subject to the agreement of the Roads Authority.
- Typical traffic management measures will include speed limit, HGV turning and crossing signs and/or banksmen at the site access, and warning signs.
- Provision of construction updates on the project website and information to be distributed to residents within an agreed distance of the site.
- All drivers will be required to attend an induction to include:
 - a safety briefing;
 - the need for appropriate care and speed control;
 - a briefing on driver speed reduction agreements (to slow site traffic at sensitive locations);
 - identification of specific sensitive areas;
 - identification of the specified route;
 - the requirement not to deviate from the specified route; and
 - strict instructions that roadside littering will not be tolerated.

12.9 Likely Effects

- 12.9.1 During the assumed 18-month construction programme, it is anticipated the following vehicle types will require regular access to the site from the public road:
- staff transport, cars, vans and staff minibuses (cars and LGVs);
 - construction equipment and materials, deliveries of machinery and supplies such as concrete and raw materials (HGVs);
 - AILs consisting of the wind turbine components and heavy lift crane(s); and
 - escort vehicles for AIL deliveries.
- 12.9.2 Except for the turbine components, most traffic would be normal construction plant and would include bulldozers, excavators, high capacity cranes, forklifts and dumper trucks. Most would arrive at the site on HGVs.
- 12.9.3 The turbines will be delivered to site in component sections and assembled on-site. The nacelle, hub, drive train, blade sections and tower sections are classified as AILs due to their weight, length, width and/or height when loaded. Further details associated with the assessment of the AIL access route are contained in Appendix 12.2.
- 12.9.4 The turbine components can be delivered on a variety of transport platforms with typical examples illustrated in Section 9 of Appendix 12.2.
- 12.9.5 In addition to the turbine deliveries, up to two high capacity erection cranes will be needed to offload some components and erect the turbines. The cranes are likely to be mobile cranes with a capacity of up to 1,000 tonnes that would be escorted by boom and ballast trucks to allow full mobilisation on-site. Smaller erector cranes would also be present to allow the assembly of the main cranes and to facilitate overall erection of the turbines.

Construction Traffic Movements

- 12.9.6 The assessment is based upon information provided by the Applicant and developed from experience of other wind farms of a similar scale which is detailed in Section 6 of Appendix 12.1.
- 12.9.7 The candidate turbine used in the Route Assessment (Appendix 12.2), represents the most onerous component dimensions likely to be transported to the site.
- 12.9.8 The greatest number of vehicle movements are associated with the import of materials associated with the on-site production of concrete for turbine foundations.
- 12.9.9 Based on information available from an initial assessment of available stone combined with experience from the previous construction of Bhlaraidh Wind Farm it is assumed that all stone material will be delivered from on-site borrow pits.
- 12.9.10 To enable comparison of the estimated future year baseline traffic movements with total volumes including predicted construction traffic, average daily two-way movements for each month assuming a 22-day working month for deliveries were determined. Traffic movements were also split by vehicle type in line with the baseline data and the peak period for construction traffic determined. The final daily construction profile by activity is set out in Annex B of Appendix 12.1 and summarised in Table 12.7.

Table 12.7 – Daily Construction Traffic Movements (Weekday Average Two Way Flows)

Vehicle Type	Month								
	1	2	3	4	5	6	7	8	9
Car/LGV	21	42	42	42	42	44	45	45	45
HGV	8	10	18	18	30	33	34	34	34
Total	29	52	60	60	72	77	79	79	79
Vehicle Type	Month								
	10	11	12	13	14	15	16	17	18
Car/LGV	37	37	23	13	13	13	13	13	13
HGV	19	6		1	1	1	1	7	7
Total	56	43	27	14	14	14	14	20	19

- 12.9.11 The maximum traffic movements associated with construction of the Proposed Development are predicted to occur during months 7-9 of the programme. During these months, an average of 34 HGV movements is predicted per day and it is estimated that there would be 45 car and minibus / LGV movements per day to transport construction workers to and from the site.

Development Traffic Routing/Distribution

- 12.9.12 The origin of vehicle traffic will depend on the location of staff accommodation and the source of materials being imported. It is likely that staff will be accommodated across a wide area. The highest volume of traffic will be generated by the requirement for aggregate, sand and cement used in the production of concrete (the aggregate used in the construction of access tracks will be won on site). There are several potential sources of suitable materials including Breedon and Leiths Scotland both situated at Fort William and Tarmac Dunain Mains Quarry near Inverness. Full details of the assumed distribution are set out in Section 5 of Appendix 12.1.
- 12.9.13 HGV traffic will be required to use the A82 and A887 from its junction with the A82 then access the site from the east via the A887 making a right turn into the existing wind farm access. The choice of HGV route was based on the identifying the most suitable route between the site access and the primary Trunk or A-Class road network.

- 12.9.14 All turbine blade loads will originate from either Kyleakin or Kyle of Lochalsh and access the site via the A87 to Invergarry then the A887 to the site access, which is taken from the existing wind farm access. No final decision has yet been made on the final port of entry associated with blade components although both Kyleakin and Kyle of Lochalsh have been assessed within Appendix 12.2 Route Survey Report. All other turbine components will be delivered to Inverness and will access the site via the A82 from the north. Full details of the proposed access strategy and associated mitigation associated with the delivery of turbine components are contained in Appendix 12.2

Predicted Impact

- 12.9.15 To estimate the total trips on the road network within the study area during the construction phase, daily construction traffic flows were combined with the future year baseline traffic data. The resulting figures were compared with the weekday future year baseline traffic.
- 12.9.16 Table 12.8 summarises the daily peak construction traffic (month 7) at the various locations within the traffic and transport study area and Table 12.9 summarises the future year baseline plus peak construction traffic (total) flows.

Table 12.8 – Daily Peak Construction Traffic (Average Two-Way Flows)

Survey Location	Cars & LGV	HGV	Total
A82 south of Invergarry (Count Point 40762)	11	16	26
A87 west of Bunloyne (Count Point 10770)	2	2	3
A887 between Bunloyne and Invermoriston (Count Point 40958)	45	35	80
A82 south of Drumnadrochit (Count Point 758)	33	17	50
A82 north of Invergarry (Count Point 10760)	11	16	26
A82 south of Invermoriston (Count Point 50707)	11	16	26
A87 south of its junction with the A887 (Count Point 30776)	0	0	0

Table 12.9 – Future Year Baseline Traffic Conditions + Construction Traffic (Average Two-Way Flows)

Survey Location	Cars & LGV	HGV	Total
A82 south of Invergarry (Count Point 40762)	4,383	408	4,791
A87 west of Bunloyne (Count Point 10770)	2,290	247	2,537
A887 between Bunloyne and Invermoriston (Count Point 40958)	1,010	218	1,227
A82 south of Drumnadrochit (Count Point 758)	3,722	488	4,210
A82 north of Invergarry (Count Point 10760)	2,878	271	3,149
A82 south of Invermoriston (Count Point 50707)	2,808	282	3,090
A87 south of its junction with the A887 (Count Point 30776)	1,633	117	1,751

Table 12.10 – Percentage Increase Total vs Future Year Baseline (Average Two-Way Flows)

Survey Location	Cars & LGV	HGV	Total
A82 south of Invergarry (Count Point 40762)	0.24%	4.00%	0.55%

A87 west of Bunloyne (Count Point 10770)	0.07%	0.63%	0.13%
A887 between Bunloyne and Invermoriston (Count Point 40958)	4.71%	18.83%	6.96%
A82 south of Drumnadrochit (Count Point 758)	0.90%	3.67%	1.21%
A82 north of Invergarry (Count Point 10760)	0.37%	6.14%	0.84%
A82 south of Invermoriston (Count Point 50707)	0.38%	5.89%	0.86%
A87 south of its junction with the A887 (Count Point 30776)	0.00%	0.00%	0.00%

12.9.17 The results in Table 12.10 indicate that during construction of the Proposed Development, neither total nor HGV traffic flows are predicted to increase by more than 30% on the A82 or A87. Users of the A82, A87 are considered receptors of low sensitivity. With reference to rule 1 of the IEMA Guidelines, no further assessment of these receptors is required. HGV traffic flows are predicted to increase by more than 10% on A887 between the Proposed Development and Invermoriston although the road link and adjacent settlement are considered to be receptors of low sensitivity. As such, rule 2 does not apply and no further assessment is required in respect of these receptors.

12.9.18 Therefore, due to the low sensitivity of the receptors, and the negligible predicted magnitude of impact, the likely effect of construction traffic would be negligible.

Operation

12.9.19 It is predicted that during the operation of the Proposed Development there will be up to two vehicle movements per week for maintenance purposes. Also, there could be occasional abnormal load movements to deliver replacement components in the event of a major component failure.

12.9.20 In terms of the IEMA Guidelines, such a small number of traffic movements and the associated percentage uplift over baseline traffic movements are not significant and this is not considered any further. The likely effect of operational traffic is therefore negligible.

Decommissioning

12.9.21 Prior to decommissioning of the site, estimated to be 50 years from commissioning, a traffic assessment will be undertaken, and appropriate traffic management procedures will be followed.

12.9.22 The decommissioning phase would result in fewer trips on the road network than the construction phase as it is likely that elements of infrastructure such as access tracks and electrical cables will be left in place and components could be broken up on-site to allow transport by reduced numbers of standard HGVs.

12.9.23 As decommissioning would result in fewer vehicle trips on the road network than the construction phase, and reasonably assuming the baseline has not substantially changed, the significance of any effects would not be greater than those identified of the construction phase. It can therefore be assumed that the assessment of the construction phase covers the worst-case scenario for the decommissioning phase. The likely effect of traffic during decommissioning is therefore negligible.

12.10 Additional Mitigation and Enhancement

Mitigation During Construction

12.10.1 No significant adverse traffic and transport effects are predicted during construction of the Proposed Development. Nevertheless, a number of measures will be implemented by the Applicant to further ensure any perceptible adverse effects are kept to an acceptable minimum.

12.10.2 Prior to the commencement of construction of the Proposed Development, a Community Liaison Group (CLG) will be established to facilitate meaningful engagement between the Applicant and representatives of communities who may be impacted by construction activity of the Proposed

Development. The CLG will be a vehicle to address issues arising from the construction work at the Proposed Development and agree actions to mitigate any potentially negative impact of these works.

- 12.10.3 A core group, comprising representatives of the Applicant, nominated representatives from Glenurquhart Community Council, Fort Augustus & Glenmoriston Community Council and Strathglass Community Council and councillors elected to serve Ward 12 on the Highland Council (Aird and Loch Ness), will be constituted. There will be scope for representatives of other agencies to be added to the CLG, subject to agreement of the core representatives.
- 12.10.4 The proposed format of CLG meetings would be round table, agenda focused discussion. An elected Chair will oversee the meeting and a representative of the Applicant will take minutes. A draft version of the minutes will be sent to members of the CLG by email, no later than two weeks following the meeting. This will give members the opportunity to comment on the minutes by respond prior to issue.
- 12.10.5 The Applicant will publish the minutes once agreed on the Proposed Development webpage. The Community Councils will also be encouraged to publish the minutes to their own webpages.
- 12.10.6 Members of the CLG would have a responsibility to represent the wider community and relay information to the Community Council and wider community through existing communication channels.
- 12.10.7 Frequency and location of the CLG will be discussed with members at the initial meeting. The meetings would be held during the normal working week, at a time suitable to a majority of members.
- 12.10.8 The Applicant will ensure that appropriate business representation attends the CLG to address queries as efficiently as possible.
- 12.10.9 Video footage of the pre-construction phase condition of the abnormal loads access route and the construction vehicles route will be recorded to provide a baseline of the state of the road prior to any construction work commencing. This baseline will allow identification of any change in the road condition during the construction stage of the Proposed Development. Any necessary repairs required as a result of the Proposed Development will be coordinated with the Roads Authority. Any damage caused by traffic associated with the Proposed Development during the construction period that would be hazardous to public traffic will be repaired as soon as possible.
- 12.10.10 Damage to road infrastructure caused directly by construction traffic will be made good (excluding general wear and tear) and any street furniture that is removed on a temporary basis will be fully reinstated.
- 12.10.11 Where necessary debris and mud will be removed from the carriageway within the immediate vicinity of the site access road to keep the road clean and safe.

Mitigation During Operation

- 12.10.12 No significant adverse traffic and transport effects are predicted during operation of the Proposed Development. Site entrance roads will be well maintained and monitored.

Mitigation During Decommissioning

- 12.10.13 Although no significant adverse decommissioning effects were identified, a CTMP will be prepared to manage the effects of traffic during the decommissioning stage. Any similar mitigation to that identified during construction phase will also apply.

12.11 Residual Effects

Construction

12.11.1 An evaluation of the likely effects of the increase in traffic on the local roads to be used as the route for construction traffic was undertaken. This considered the traffic effects on different environmental receptors identified in the IEMA Guidelines with no mitigation in place - see Table 12.1. It concluded that there would be no significant effects resulting from the construction phase and no further assessment was required. As such, no significant adverse residual effects are anticipated.

Operation

12.11.2 No significant adverse operational effects were identified.

Decommissioning

12.11.3 No significant adverse decommissioning effects were identified.

12.12 Cumulative Assessment

12.12.1 Consideration was given to the cumulative impact of the Proposed Development with other wind farm developments that are the subject of valid planning applications or approved and which would impact on the Study Area due to the potential for proposed construction activities to coincide with the construction period of the Proposed Development. It was considered that Dell, Cloiche, Glenshero and Millennium South Wind Farms should be included in the assessment.

12.12.2 The National Grid ESO Transmission Entry Capacity Register was consulted to find out the most up to date estimated Connection Dates for each of these four wind farms. The findings are presented below:

- Millenium South - October 2021;
- Glenshero - August 2024;
- Cloiche - July 2025; and
- Dell - April 2026.

12.12.3 Given these estimated connection dates, it is considered highly unlikely that the construction programmes for the Proposed Development and cumulative wind farm developments would coincide. In addition to this, there are also supply chain constraints associated with the transport of construction materials including wind turbines. However, for the purposes of this assessment, and acknowledging that connection dates can change, it was assumed that it will be granted permission and the peak periods of the respective construction programmes would overlap. As such, the cumulative assessment has considered the worst-case scenario.

12.12.4 Peak period traffic flows for the cumulative wind farm developments were extracted from planning documentation and added to the future year flows where they impact on the Study Area. Table 12.11 illustrates the weekday traffic flows associated with the cumulative wind farm developments Table 12.12 the Total Cumulative Traffic Flows (baseline traffic plus Proposed Development and cumulative wind farms) and Table 12.13 the percentage increase in cumulative traffic over baseline traffic.

Table 12.11 – Cumulative Development Peak Construction Traffic (Average Two-Way Flows)

Survey Location	Cars & LGV	HGV	Total
A82 south of Invergarry (Count Point 40762)	162	109	272

Survey Location	Cars & LGV	HGV	Total
A87 west of Bunloyne (Count Point 10770)	54	33	86
A887 between Bunloyne and Invermoriston (Count Point 40958)	12	13	25
A82 south of Drumnadrochit (Count Point 758)	151	102	253
A82 north of Invergarry (Count Point 10760)	152	109	272
A82 south of Invermoriston (Count Point 50707)	151	102	253
A87 south of its junction with the A887 (Count Point 30776)	54	33	86

Table 12.12 – Total Cumulative Traffic Flows (Average Two-Way Flows)

Survey Location	Cars & LGV	HGV	Total
A82 south of Invergarry (Count Point 40762)	4,545	517	5,063
A87 west of Bunloyne (Count Point 10770)	2,344	280	2,623
A887 between Bunloyne and Invermoriston (Count Point 40958)	1,022	231	1,252
A82 south of Drumnadrochit (Count Point 758)	3,873	590	4,463
A82 north of Invergarry (Count Point 10760)	3,030	380	3,421
A82 south of Invermoriston (Count Point 50707)	2,959	384	3,343
A87 south of its junction with the A887 (Count Point 30776)	1,687	150	1,837

Table 12.13 – Percentage Increase Cumulative vs Future Year Baseline (Average Two-Way Flows)

Survey Location	Cars & LGV	HGV	Total
A82 south of Invergarry (Count Point 40762)	3.95%	31.76%	6.26%
A87 west of Bunloyne (Count Point 10770)	2.43%	14.06%	3.52%
A887 between Bunloyne and Invermoriston (Count Point 40958)	5.95%	25.93%	9.14%
A82 south of Drumnadrochit (Count Point 758)	4.99%	25.34%	7.30%
A82 north of Invergarry (Count Point 10760)	5.67%	48.79%	9.55%
A82 south of Invermoriston (Count Point 50707)	5.77%	44.16%	9.11%
A87 south of its junction with the A887 (Count Point 30776)	3.31%	28.12%	4.91%

12.12.5 The results indicate that when considering the cumulative construction phases, total traffic increases on all routes within the study area. Total traffic flows would not increase by more than 30% at any location. HGV traffic flows are predicted to increase by more than 10% at each of the survey locations, ranging from 14.06% on the A87 west of Bunloyne, to 48.79% on the A82 north of Invergarry.

12.12.6 The A82 is considered a receptor of low sensitivity designed to accommodate general and HGV traffic moving between primary destinations and therefore the magnitude of any effects on this link are considered to be Minor. Fort Augustus is a receptor of medium sensitivity and cumulative effects

in relation to pedestrian amenity could arise within Fort Augustus prior to the implementation of mitigation although these are considered to be Minor and not significant.

- 12.12.7 It is considered that any cumulative effects would be temporary and short lived during the construction phase as the road is not close to capacity and pedestrian movements are not observed to be high, with limited pedestrian infrastructure. Should cumulative construction phases occur concurrently, enhanced CTMP mitigation measures would be developed and introduced following liaison with stakeholders including the THC roads officers, developer representatives and the emergency services within Fort Augustus, in order to manage the temporary impact of increased HGV movements.

12.13 Summary

- 12.13.1 No significant adverse effects are predicted for users of the A82/A87/A887 from construction traffic movements from the Proposed Development alone, and from the Proposed Development and potential cumulative developments combined. Any perceptible adverse effects would be short lived during the construction phase, with the A887 not observed to be close to capacity.
- 12.13.2 The results indicate that during construction of the Proposed Development, neither total nor HGV traffic flows are predicted to increase by more than 30% at any location on the A82/A87/A887. Therefore, no significant adverse effects are anticipated. Nevertheless, standard mitigation and enhancement measures are proposed.
- 12.13.3 No significant adverse operational or decommissioning effects were identified.
- 12.13.4 A summary of likely construction, operational and decommissioning effects, associated standard mitigation and enhancement measures, and consequent significance of residual effect with regards to the A82/A87/A887 is contained in Table 12.14.
- 12.13.5 The National Grid ESO Transmission Entry Capacity Register was consulted to find out the most up to date estimated Connection Dates for each of these four wind farms. The findings are presented below:
- Millenium South - October 2021;
 - Glenshero - August 2024;
 - Cloiche - July 2025; and
 - Dell - April 2026.
- 12.13.6 Given these estimated connection dates, it is considered highly unlikely that the construction programmes for the Proposed Development and cumulative wind farm developments would coincide. In addition to this, there are also supply chain constraints associated with the transport of construction materials including wind turbines. However, for the purposes of this assessment, and acknowledging that connection dates can change, it was assumed that it will be granted permission and the peak periods of the respective construction programmes would overlap. As such, the cumulative assessment has considered the worst-case scenario.
- 12.13.7 A summary of likely construction, operational and decommissioning effects, associated standard mitigation and enhancement measures and consequent significance of residual effect with regards to the A82/A87/A887, taking account of cumulative effects of surrounding developments, is contained in Table 12.15.

Table 12.14 – Summary of Effects

Description of Effect	Significance of Likely Effect		Mitigation Measure	Significance of Residual Effect	
	Significance	Beneficial/ Adverse		Significance	Beneficial/ Adverse
Construction					
Construction traffic causing Severance, Driver Delay, Pedestrian Delay, Pedestrian Amenity, Fear and Intimidation, and Accidents and Safety	Negligible and not significant	Adverse	None required. Enhancement measures would include community liaison group & project website. Roads will be maintained and repaired as necessary.	Negligible and not significant	Adverse
Operation					
Operational traffic causing Severance, Driver Delay, Pedestrian Delay, Pedestrian Amenity, Fear and Intimidation, and Accidents and Safety	Negligible and not significant	Adverse	None required. Site entrance roads will be well maintained and monitored	Negligible and not significant	Adverse
Decommissioning					
Traffic during decommissioning causing Severance, Driver Delay, Pedestrian Delay, Pedestrian Amenity, Fear and Intimidation, and Accidents and Safety	Negligible and not significant	Adverse	None required.	Negligible and not significant	Adverse

Table 12.15 – Summary of Cumulative Effects

Receptor	Effect	Cumulative Developments	Significance of Cumulative Effect	
			Significance	Beneficial/ Adverse
A887	Negligible and not significant	Dell, Cloiche, Glenshero and Millennium South Wind Farms	Negligible and not significant	Adverse
A87	Negligible and not significant	Dell, Cloiche, Glenshero and Millennium South Wind Farms	Negligible and not significant	Adverse
A82	Negligible and not significant	Dell, Cloiche, Glenshero and Millennium South Wind Farms	Minor and not significant	Adverse
Invermoriston	Negligible and not significant	Dell, Cloiche, Glenshero and Millennium South Wind Farms	Negligible and not significant	Adverse
Drumnadrochit	Negligible and not significant	Dell, Cloiche, Glenshero and Millennium South Wind Farms	Negligible and not significant	Adverse
Fort Augustus	Negligible and not significant	Dell, Cloiche, Glenshero and Millennium South Wind Farms	Minor and not significant	Adverse

12.14 References

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