# **Technical Appendix 11.1: Transport Assessment**



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**Appin Wind Farm** 

Technical Appendix 11.1: Transport Assessment May 2025 105750

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# 1 Introduction

# 1.1 Purpose of the Report

Pell Frischmann Consultants Ltd. (PF) has been commissioned by Appin Wind Farm Limited. (the 'Applicant') to undertake a Transport Assessment (TA) for the proposed Appin Wind Farm (the 'Proposed Development'). The Proposed Development is located in the Dumfries and Galloway Council (DGC) administrative area, approximately 6.2 kilometres (km) north of Moniaive and 14.8 km east of Carsphairn.

The report identifies the key traffic and transport issues associated with the Proposed Development, including route for Abnormal Indivisible Loads (AILs). The TA identifies where the Proposed Development may require mitigation works to accommodate the predicted traffic; however, the detailed design of these remedial works is beyond the agreed scope of this report. The findings of this report have informed the assessment of traffic and transport related effects in **Chapter 11: Transport.** 

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# 1.2 Report Structure

Following this introduction, the TA report is structured as follows:

- > Chapter Two describes the Proposed Development;
- Chapter Three reviews the relevant transport and planning policies;
- Chapter Four sets out the methodology used within this assessment;
- Chapter Five describes the baseline transport conditions;
- Chapter Six describes the trip generation and distribution of traffic in the study area;
- Chapter Seven summarises the traffic impact assessment;
- > Chapter Eight considers mitigation proposals for development related traffic within the study network; and
- Chapter Nine summarises the findings of the TA and outlines the key conclusions.

# 2 Site Background

# 2.1 Site Location

The Proposed Development is located in an area of largely forested hills in the Southern Uplands, approximately 12 km to the west of Thornhill within Dumfries and Galloway. The nearest settlements are Tynron, approximately 7.5 km to the south-east within the Shinnel Water valley, and Moniaive, approximately 6.2 km south-east within the parallel Dalwhat Water valley. The closest largest settlement is Sanquhar, approximately 12 km to the north-east.

The north-eastern fringes of the Site are within the Upland Glens, which are characterised by deep valleys and upland farming. The central valley within the Site consists of steep wooded slopes, with more level ground generally being found on the two ridges towards the Site's perimeter as well as the lower ground in the vicinity of Appin Burn, which flows through the centre of the Site from approximately north-west to south-east.

The Site location can be seen in Figure 1.



#### Figure 1 Site Location

# 2.2 The Proposed Development

The Proposed Development will comprise the following:

- nine wind turbines, each up to a maximum tip height of up to 200 metres (m);
- permanent foundations supporting each wind turbine;
- associated crane hardstanding at each turbine location;
- > a network of on-site access tracks and associated watercourse crossings;
- > a network of underground cables to connect the turbines to the on-site substation;

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- > a control building and substation compound;
- temporary construction compounds; and
- temporary borrow pits.

#### The Proposed Development is shown in Figure 2.

#### Figure 2 Proposed Development Layout



A complete description of the Proposed Development is provided in **Chapter 4: Proposed Development Description.** 

### 2.3 Access Arrangements

The Site will be accessed via an existing upgraded junction on the C35S, currently used for land management and timber felling purposes. The access junction will be upgraded as necessary to provide access to the Site for all AILs associated with the turbine deliveries, as well as access for heavy goods vehicles (HGVs) delivering construction materials and general Site traffic.

The proposed Site access junction is provided in **Annex A** as **drawing number 105750\_001 to 003**. Loads will then proceed to the proposed turbine locations using a combination of upgraded and new access tracks.

Construction traffic associated with the Proposed Development will generally originate from the north and south, joining the study area on the A713. All AIL traffic will access from the Port of Entry (PoE) at King George V Docks in Glasgow, utilising sections of proven AIL routes used during the construction of other wind farms in the area.

# 2.4 Candidate Turbine

The wind turbine model for the Proposed Development was chosen in order to allow a representative assessment of the transport impacts. Should the Proposed Development receive consent, the final choice of wind turbine would be subject to a competitive tendering process. The transport assessment has therefore been done based on the Vestas V162 turbine with a blade tip height of 200 m and details of the components that have been provided by Vestas are detailed in **Table 1**. Note these are indicative component dimensions at this time and are subject to change.

#### Table 1 Turbine Components Summary (V162)

Component	Length (m)	Width (m)	Height / Min Diameter (m)	Weight (t)
V162 Blade	79.980	4.320	3.294	21.700
Worst Case Tower	30.000	4.800	4.800	tbc

A detailed Route Survey Report (RSR) has been prepared for the Proposed Development and appends this TA as **Annex B**. Note this has been undertaken for a Siemens Gamesa SG155, Nordex N163 and a Siemens Gamesa SG170, with a blade tip height of up to 200 m as a worst-case assessment. The component dimensions are provided in **Table 2**.

#### Table 2 Turbine Components Summary (SG155, N163 and SG170)

Component	Length (m)	Width (m)	Height / Min Diameter (m)	Weight (t)
SG155 Blade	76.000	4.500	2.882	25.600
N163 Blade	81.500	4.395	4.110	28.871
SG170 Blade	83.741	4.186	3.500	29.000
SG155 Base Tower	14.342	4.800	4.800	84.513
SG155 Mid Tower 1	19.368	4.800	4.800	81.457
SG155 Mid Tower 2	26.832	4.800	4.793	84.754
SG155 Mid Tower 3	29.977	4.793	4.099	70.462
SG155 Top Tower	30.000	4.099	3.574	56.744
SG155 Blade	76.000	4.500	2.882	25.600

The selection of the final turbine model and specification will be subject to a commercial procurement process following consent of the application. The assumed dimensions may therefore vary slightly from those assumed as part of this assessment; however, the turbine tip height will be no greater than 200 m.

With regards to the equipment used to transport the turbine components, to provide a robust assessment scenario based upon the known issues along the access routes and constraints in moving larger loads, it has been assumed that the SG155 and N163 blades would be carried on a Superwing Carrier trailer (as would the V162 blades in practice) to reduce the need for mitigation in constrained sections of the route. The SG170 blades would be carrier on a blade dolly trailer.

Where constraints are significant and there is no other option, a Blade Lifting trailer has been assumed. This trailer uses a hydraulic titling head to tilt the blade up to 60 degrees and lift the blade over obstructions. This also shortens the blade length in plan view, reducing land and physical mitigation requirements. The Blade Lifting trailer cannot be used for the whole route as it has speed restrictions and requires substantial counterbalancing weights which increase its axle loads.

It is proposed that all blade loads would be transferred as far as possible utilising the Superwing Carrier / blade dolly trailer, before being transferred to the Blade Lifting trailer for the final section of the route through to the Proposed Development. There is an existing transfer point to the east of Carsphairn on the A713, under control of the Applicant, which will be used to transfer the blade loads for the final section of the route through to the Proposed Development.

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The base and mid towers would be carried on a 4+7 clamp trailer. The assessment has included the mid tower with the flange from the base tower. The hub, nacelle housing, and top towers would be carried on a six-axle step frame trailer.

Examples of the vehicles and trailers that are likely to transport loads are shown in **Photo 1** to **Photo 4**.

#### **Photo 1 Superwing Carrier Trailer**



#### Photo 2 Blade Dolly Trailer



#### Photo 3 Blade Lifting Trailer



#### Photo 4 Clamp Tower Trailer



These configurations are subject to confirmation by the chosen haulier at the time of their commissioning.

As the loads are classified as Special Order, due to a rigid length in excess of 30 m, a full Police Escort would be required along the full length of the route.

# 3 Policy Context

### 3.1 Introduction

An overview of relevant transport planning policies has been undertaken and is summarised below for national and local government policies.

# 3.2 National Policy & Guidance

### 3.2.1 National Planning Framework 4 (2023)

The National Planning Framework 4 (NPF4) was approved by Scottish Parliament on 11 January 2023 and was adopted by Scottish Ministers on 13 February 2023. NPF4 sets out the Government's plan looking forward to 2045 that will guide spatial development, set out national planning policies, designate national developments and highlight regional spatial priorities. It is part of the development plan and so influences planning decisions across Scotland.

NPF4 puts the climate and nature crises at the heart of the Scottish planning system and was adopted in February 2023.

Policy 11: Energy within the NPF4 notes that: "Development proposals for all forms of renewable, low-carbon and zero emissions technologies will be supported. These include:

- > Wind farms including repowering, extending, expanding and extending the life of existing wind farms; and
- Energy storage, such as battery storage and pumped storage hydro.
- > In addition, project design and mitigation will demonstrate how the following impacts are addressed:
  - Impacts on communities and individual dwellings, including, residential amenity, visual impact, noise and shadow flicker;
  - o Public access, including impact on long distance walking and cycling routes and scenic routes;
  - o Impacts on road traffic and on adjacent trunk roads, including during construction; and
  - o Cumulative impacts."

The assessment undertaken as part of this TA and the associated EIA Report **Chapter 11** has taken cognisance of this and provided appropriate mitigation where necessary.

### 3.2.2 Planning Advice Note (PAN) 75

Planning Advice Note (PAN) 75: Planning for Transport provides advice on the requirements for Transport Assessments. The document notes that:

"... 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."

"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."

#### 3.2.3 Transport Assessment Guidance (2012)

Transport Scotland's (TS) Transport Assessment Guidance was published in 2012. It aims to assist in the preparation of TAs for development proposals in Scotland such that the likely transport impacts can be identified and dealt with as early as possible in the planning process. The document sets out requirements according to the scale of development being proposed.

The document notes that a TA will be required where a development is likely to have significant transport impacts but that the specific scope and contents of a TA will vary for developments, depending on location, scale and type of development.

#### 3.2.4 Onshore Wind Turbines: Online Renewables Planning Advice (2014)

The most recent Scottish Government advice note regarding onshore wind turbines was published in 2014. 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.

In terms of road traffic impacts, the guidance notes that in siting wind turbines close to major roads, preapplication discussions are advisable as this is important for the movement of AILs during the construction phase, ongoing planned maintenance and for decommissioning (if applicable).

#### 3.2.5 Onshore Wind Policy Statement (2022)

The Scottish Government's Onshore Wind Policy Statement was published in December 2022 and sets out an ambition of *"20 GW of installed onshore wind capacity in Scotland by 2030."* 

With regards to transport of Abnormal Loads and Police Escorts, the statement notes that:

"Under the Road Traffic Act 1988, any abnormal load movement on public road in Scotland must be escorted by a specially trained police officer. This puts additional pressure on both Police Scotland and hauliers, as well as the wind energy sector's ability to deploy at scale in Scotland.

In order to meet our legally-binding net-zero targets, it is estimated that 3400 turbines will be installed in Scotland between now and 2030, this is the equivalent of a new turbine being installed every day between 2025-2030. Given this, and the significant issues surrounding the transportation of components, this issue has been brought into fresh focus, as we consider it could have serious implications on the delivery of our renewable energy pipeline and subsequent threat to our 2030 net-zero targets.

To this end, the Scottish Government is working directly with senior members of Police Scotland and the renewables and haulier industries. We have come together to consider this issue and to determine what actions must be taken, both short term and long-term, to relieve the pressure on Police Scotland resources to ensure turbines components can be efficiently and effectively conveyed to site."

### 3.3 Local Policy & Guidance

#### 3.3.1 The Dumfries and Galloway Local Development Plan 2 (LDP2)

The DGC Local Development Plan - The Local Development Plan 2 (LDP2) was adopted on 3 October 2019 and replaces the adopted 2014 LDP. The LDP2 is the established planning policy for Dumfries and Galloway and sets out a settlement strategy and spatial framework for how the Council foresees development occurring in the forthcoming twenty-year period.

Policy IN2: Wind Energy outlines the following in relation to transport implications associated with the development of wind farms:

"The Council will support wind energy proposals that are located, sited and designed appropriately. The acceptability of any proposed wind energy development will be assessed against the following considerations:

#### Cumulative impact

The extent of any cumulative detrimental landscape or visual impact or impacts on existing patterns of development from two or more wind energy developments and the potential for mitigation.

#### Impact on local communities and residential interests

The extent of any detrimental impact on communities, individual dwellings, residents and local amenity, including assessment of the impacts of noise, shadow flicker, visual dominance and the potential for associated mitigation.

#### Impact on infrastructure

The extent to which the proposal addresses any detrimental impact on road traffic, adjacent trunk roads and telecommunications, particularly ensuring transmission links are not compromised.

#### Other impacts and considerations

a) the extent to which the proposal avoids or adequately resolves any other significant adverse impact on the natural environment, including biodiversity, forests and woodland, carbon-rich soils, hydrology, the water environment and flood risk, the historic environment, cultural heritage, tourism and recreational interests and public access.

b) the extent to which the proposal addresses any physical site constraints and appropriate provision for decommissioning and restoration."

# 3.3.2 LDP2 'Wind Energy Development: Development Management Considerations' Supplementary Guidance (February 2020)

The "Wind Energy Development: Development Management Considerations" Supplementary Guidance (SG) for the Dumfries and Galloway Local Development Plan 2 (LDP2) addresses various aspects of wind energy development, including transportation-related factors. While the SG primarily focuses on minimizing the environmental impact of wind energy projects, it acknowledges the inherent connection between these developments and transport infrastructure and usage.

The SG recognises that wind energy developments can have significant implications for the existing transport network, especially during construction. These impacts include:

- Abnormal load impact on public roads: The transportation of large turbine components often requires using specialised vehicles and routes, putting stress on the road infrastructure.
- Increased traffic volume: Construction activities can generate a substantial increase in traffic on local roads, potentially affecting residents' amenity and safety.
- Potential damage to road surfaces: Heavy vehicles used for construction can cause damage to road surfaces, requiring repairs and maintenance.
- > To mitigate these impacts, the SG sets out several requirements for developers:
- Traffic Management Plan: Developers must prepare a detailed Traffic Management Plan in consultation with the Council as the roads authority, outlining measures to minimise disruption and ensure safety during the transportation of abnormal loads.
- Road Repair Agreement: Developers are required to enter into a Section 75 or other legal agreement to cover the cost of repairing any damage to public roads caused by their operations.
- Consideration of Resident Amenity: Developers should demonstrate how they have considered and minimised the impact of construction traffic on residents living near the transportation routes

### 3.4 Policy Summary

The Proposed Development can align with the stated policy objectives and the design of the Site and proposed mitigation measures will ensure compliance with national and local objectives.

# 4 Study Methodology

## 4.1 Introduction

There are three phases of the Proposed Development which have been considered in this assessment and are as follows:

- The Construction Phase;
- The Operational Phase; and
- > The Decommissioning Phase.

# 4.2 Project Phases – Transport Overview

Of the three phases, the construction phase is considered to have the greatest impact in terms of transport and potential impacts on the road network and sensitive receptors. Construction plant, bulk materials and wind turbine components will be transported to Site, potentially resulting in a significant increase in traffic on the study network. It should be noted, however, that construction effects are short lived and transitory in nature.

The operational phase is restricted to occasional maintenance operations which generate significantly lower volumes of traffic that are not considered to be in excess of daily traffic variation levels on the road network., The operational phase assessment has been assumed to be based on typical operating conditions with occasional operational and maintenance traffic.

The decommissioning phase involves fewer trips on the road network than the construction phase, as elements of the Proposed Development are likely to remain in-situ (such as cable trenches, access tracks, etc), the traffic flows associated with the decommissioning works will be lower than those associated with the construction phase. Furthermore, the traffic effects during the decommissioning phase can only be fully assessed closer to that period, 50 years on from the completion of the Proposed Development, and it is not possible to estimate future year baseline traffic flows for the time periods proposed for the operational life of the Proposed Development.

# 4.3 Scoping Discussions

The Applicant submitted an EIA Scoping Report to the Energy Consents Unit (ECU) in respect of the EIA which included a section considering traffic and transport. A full review of the Scoping Opinion received and other correspondence relating to the scope of the study including pre-application advice is provided in **Chapter 11: Transport**.

# 5 Baseline Conditions

# 5.1 Study Area Determination

The study area includes local roads that are likely to experience increased traffic flows resulting from the construction of the Proposed Development. The geographic scope was determined through a review of Ordnance Survey (OS) plans and an assessment of the potential origin locations of construction staff and supply locations for construction materials. Locally sourced material will be used where feasible, and traffic will avoid impacting on local communities as far as is possible.

Access to the Site will be taken from an existing junction on the C35S, which connects onto the B729 to the south. All vehicular traffic will use this access including AILs. Strategic access to the Site will be taken from the A713 which joins with the B729 to the west.

The likely PoE used for the discharging of wind turbine components will be King George V Docks in Glasgow. Full details of the AIL route are provided later in the report and within **Annex B**.

Based on the above, the study area for this assessment is as follows:

- > A713 between Dalmellington and St Johns Town of Dalry;
- B741 between Dalmellington and New Cumnock;
- > B729 between Carsphairn and its junction with the C35S; and
- > C35S from the B729 to the Site access.

Effects associated with construction traffic generated by the Proposed Development would be most pronounced in close proximity to the Site access junction and on the final approaches to the Site. As vehicles travel away from the Proposed Development, they would disperse across the wider road network, thus diluting any potential effects. It is therefore expected that the effects relating to construction traffic are unlikely to be significant beyond the study area identified above. The study area is shown in **Figure 3**.

#### Figure 3 Study Area



# 5.2 Pedestrian and Cyclist Networks

There are no dedicated pedestrian facilities in the immediate vicinity of the Site, reflecting its rural setting. Further away from the Proposed Development in the wider study area, there are pedestrian facilities within the larger settlements like Cumnock and Ayr, and some of the smaller settlements, including Dalmellington, Carsphairn and New Cumnock.

The level of pedestrian infrastructure in the immediate vicinity of the Site is commensurate with the scale of the local settlements and their rural setting.

A review of the DGC Core Path Map<sup>1</sup> indicates a number of Core Paths in the immediate vicinity of and within the Site, which are provided below:

- Southern Upland Way (SUW) (Section 4: Dalry to Sanquhar) (UNNO/504/14 and UNNO/504/15). The SUW is approximately 340 km in length and routes from Portpatrick on the west coast to Cockburnspath in the east. Within the Site, the SUW crosses an existing forestry access track which will also be used by the Proposed Development and then runs parallel to the existing forestry access track for approximately 1.5 km at Craigencarse.
- Manquhill Hill (CARS/216/3, CARS/216/4, CARS/216/5, and CARS/216/6). This path is a popular route on a well surfaced track along Manquhill Hill which leads directly on to the SUW. The path is located outside the Site boundary.
- Benbrack (GLEN446/1). This is an arduous hill path which is approximately 14 km in length and crosses over Benbrack mountain and connecting to the SUW. The path is located outside the Site boundary.

<sup>&</sup>lt;sup>1</sup> Dumfries & Galloway Council, Core Path Plan: <u>https://new.dumgal.gov.uk/leisure-sport-culture/parks-outdoor-spaces/core-paths</u> [Accessed March 2025]

- Cairnhead to Blackmark Hill (GLEN/52/1, GLEN/52/2, GLEN/52/3, GLEN/52/4, GLEN/52/5, GLEN/52/6 and GLEN/52/7). This is an arduous hill path which routes from Cairnhead to Blackmark Hill. The Proposed Development access track will cross the Core Path to the south-west of Little Dibbin Hill at one location at GLEN/52/6.
- Benbuie to Troston Hill (GLEN/51/3, GLEN/51/4, GLEN/51/6, TYNR/51/7, TYNR/51/8 and TYNR/51/10). This is an arduous hill and forest path which leads to Striding Arches and which will be used to access the Site.

The Core Path Network within the vicinity of the Site can be seen in Figure 4.



#### Figure 4 Core Paths Network

A review of the Sustrans National Cycle Network (NCN) map<sup>2</sup> indicates that there are no NCN routes within the vicinity of the Proposed Development.

# 5.3 Road Access

### A713

The A713 is a major road of approximately 64 km in length and 6.5 m in width. It is a two-way single carriageway road and runs through Dumfries and Galloway, connecting Ayr and Castle Douglas. The road is generally subject to a 60 miles per hour (mph) speed limit, reducing through settlements, with speeds ranging from 30 mph, 40 mph and 50 mph. The A713 in the vicinity of the Site, between Castle Douglas and Loch Muck, is maintained by DGC, while the northern section is maintained by the Ayrshire Roads Alliance (ARA).

<sup>&</sup>lt;sup>2</sup> https://www.sustrans.org.uk/national-cycle-network [Accessed March 2025]

#### B729

The B729 is a 46 km road linking with the A713 in the vicinity of Carsphairn to the west, with the A76 at Holywood in the southeast. The road is a single carriageway road of varying widths through its length. From its junction with the A713 through to the proposed Site access, the road is a single track road with passing places and a 60 mph speed limit in place. The road is maintained by DGC and appears to be in a mostly reasonable condition, however there are locations where deterioration is present.

#### B741

The B741 is a two-way single carriageway B-road through East Ayrshire approximately 50 km in length. It starts at a junction on the A76 in New Cumnock and ends at a T-junction on the A77 north of Girvan. The B741 within the study area is maintained by the ARA and appears to be in a mostly reasonable condition. The road is subject to a 60 mph speed limit in rural areas, reducing to 30 mph in settlements.

#### C35S

The C35S is a single-track road with passing places of varying widths through its length. The road has been subject to improvements works, including widening, associated with other wind farm developments in the area. It is approximately 10 km in length routing from the B729 near Smitton Bridge to Lorg Bridge and is subject to a 60 mph speed limit. The road is maintained by DGC and appears to be in a reasonable condition.

#### General Road Suitability

The Agreed Timber Route Map<sup>3</sup> has been developed by The Timber Transport Forum who are a partnership of the forestry and timber industries, local government, national government agencies, timber hauliers and road and freight associations. One of the key aims of the forum is to minimise the impact of timber transport on the public road network, on local communities and the environment and a way of achieving this is to categorise the roads leading to forest areas in terms of their capacity to sustain the likely level of timber haulage vehicles i.e. HGVs. The routes are categorised into four groups, namely; 'Agreed Routes', 'Consultation Routes', 'Severely Restricted Routes' and 'Excluded Routes'.

'Agreed Routes' are categorised as routes used for timber haulage without restriction as regulated by the Road Traffic Act 1988. A-roads are classified as 'Agreed Routes' by default unless covered by one of the other road classifications. Those links classed as 'Consultation Routes' are categorised as a route which is key to timber extraction, but which are not up to 'Agreed Route' standard. Consultation with the local authority is required, and it may be necessary to agree limits of timing, allowable tonnage etc. before the route can be used. B-roads are classified as 'Consultation Routes' by default unless covered by one of the other classifications. 'Severely Restricted Routes' are not normally to be used for timber transport in their present condition. These routes are close to being Excluded Routes. Consultation with the local authority is required prior to use. Finally, 'Excluded Routes' should not be used for timber transport in their present condition. These routes are either formally restricted, or are close to being formally restricted, to protect the network from damaging loads.

Roads within the study area form part of the route network used for the extraction of timber and are therefore regularly used by HGV traffic. This includes sections of the A713 which is an 'Agreed Route' and the C35S, and a section of the B729 which are 'Consultation Routes'.

# 5.4 Existing Traffic Conditions

In order to assess the impact of development traffic on the study area, baseline traffic data has been used from a combination of Automatic Traffic Counts (ATCs) undertaken for the Proposed Development and from the Department for Transport (DfT) database, with 2023 data utilised.

The traffic count sites used are as follows:

<sup>&</sup>lt;sup>3</sup> <u>https://timbertransportforum.org.uk/</u> [Accessed March 2025]

- 1. The C35S, within the vicinity of the Site access (Commissioned ATC Survey 2025);
- 2. B729 between the A713 and C35S (Commissioned ATC Survey 2025);
- 3. A713, between Dalmellington and Carsphairn (Commissioned ATC Survey, 2024);
- 4. A713, north of Dalmellington (Commissioned ATC Survey, 2024);
- 5. A713, at St John's Town of Dalry (DfT Count Site: 30886, 2023); and
- 6. B741, east of Dalmellington (Commissioned ATC Survey, 2024).

The traffic counters allowed the traffic flows to be split into vehicle classes and the data has been summarised into cars / light good vehicles (LGVs) and HGVs (all goods vehicles >3.5 tonnes gross maximum weight).

A National Road Traffic Forecast (NRTF) growth factor was applied to the 2024 ATC survey data and 2023 DfT survey data to bring the traffic data up to the base year of 2025. NRTF Low Growth factors have been applied to the surveyed traffic data. The NRTF Low Growth factor for 2023 to 2025 is 1.011 and 2024 to 2025 is 1.005.

These sites were identified as being areas where sensitive receptors on the access route would be located. A full receptor sensitivity and effect review is prepared in EIA Report **Chapter 11: Transport**.

The locations of the traffic sites are illustrated in Figure 5.



#### Figure 5 Traffic Counter Locations

The 24-hour two-way average traffic flows for each of the traffic count locations are presented in Table 3.

Table 3 24-Hour	<b>Two Way</b>	Average	Traffic Data	(2025)
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Site ID	Survey Location	Count Source	Cars & LGVs	HGVs	Total
1	The C35S, within the vicinity of the Site access	ATC	35	1	36
2	B729 between the A713 and C35S	ATC	104	5	109

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Site ID	Survey Location	Count Source	Cars & LGVs	HGVs	Total
3	A713, between Dalmellington and Carsphairn	ATC	1,716	77	1,793
4	A713, north of Dalmellington	ATC	3,822	103	3,925
5	A713, at St John's Town of Dalry	DfT	2,387	317	2,704
6	B741, east of Dalmellington	ATC	881	33	915

The ATC survey locations which provided traffic volume data were also used to obtain speed statistics. The twoway seven-day average and 85th percentile speeds observed at the count sites are summarised in **Table 4**.

#### Table 4 Speed Summary Table

Site ID	Survey Location	Count Source	Mean Speed (mph)	85%ile (mph)	Speed Limit (mph)
1	The C35S, within the vicinity of the Site access	ATC	27.7	32.6	60
2	B729 between the A713 and C35S	ATC	31.7	37.1	60
3	A713, between Dalmellington and Carsphairn	ATC	42.4	49.3	60
4	A713, north of Dalmellington	ATC	55.5	63.4	60
6	B741, east of Dalmellington	ATC	37.8	45.3	60

Speed data obtained 2024 and 2025

The speed survey data indicates that for the most part, speed limits are being adhered to, with the exception of a section of the A713 north of Dalmellington, where the 85<sup>th</sup> percentile speed exceeds the speed limit by approximately 5%.

#### 5.4.1 Accident Review

Personal Injury Accident (PIA) data for the five-year period commencing 01 January 2019 through to the 31 December 2023 was obtained from the online resource CrashMap<sup>4</sup> which uses data collected by the police about road traffic crashes occurring on British roads, where someone is injured.

TA Guidance<sup>5</sup> requires an analysis of the accident data on the road network in the vicinity of any development to be undertaken for at least the most recent three-year period, or preferably a five-year period, particularly if the Site has been identified as being within a high accident area. Whilst the study area has not been identified as having a high accident rate, a five-year review has been undertaken to ensure a comprehensive assessment has been undertaken.

The statistics are categorised into three categories, namely "Slight" for damage only incidents, "Serious" for injury accidents and "Fatal" for accidents that result in a fatality.

The locations and severity of the recorded accidents within the study area are summarised in **Table 5** while **Figure 6** shows their locations.

Road Link	Slight	Serious	Fatal	HGV
A713 between Dalmellington and Carsphairn	2	6	1	1
A713 between Carsphairn and St John's Town of Dalry	1	1	0	0
B729 between the A713 and C35S	0	1	0	1
B741 between Dalmellington and New Cumnock	3	0	0	0
C35S between the B729 and the Site access	0	0	0	0
Total	6	8	1	2

#### Table 5 Personal Injury Accident Summary

<sup>&</sup>lt;sup>4</sup> <u>https://www.crashmap.co.uk</u> [Accessed April 2025]

<sup>&</sup>lt;sup>5</sup> <u>https://www.transport.gov.scot/media/4589/planning reform - dpmtag - development management dpmtag ref 17 - transport assessment guidance final - june 2012.pdf</u>

Percentage of total accidents	40%	53%	7%	-

#### Figure 6 PIA Locations



A general summary of the accidents is as follows:

#### A713

- There were a total of 11 PIAs recorded on the A713 within the five year period between 2019 and 2023. Of these, three were "slight", seven were "serious" and there was one fatality.
- The single fatality was a single vehicle accident and involved a motorcycle. The accident occurred at a bend on the road, in the vicinity of Craig Bridge where the carriageway width narrows.
- There were two recorded accidents on the A713 all near a bend north of Eriff, in the vicinity of a junction to a private residence. One accident was "slight" and one was "serious". The "slight" accident was a single vehicle accident involving a car, while the "serious" accident involved a car and a motorcycle.
- > A total of four recorded accidents on the A713 involved a motorcycle, three "serious" and one "fatal".
- One recorded accident involved a young driver (under 25), which was a "serious" and occurred on a bend and involved a total of four vehicles.
- One recorded accident involved a pedestrian and was classed as "serious" this occurred to the west of Dalmellington on a section of road where there is no footway.
- > There were no accidents involving a cyclist on the A713.

#### B729

There was only one recoded accident on the B729 and it was classified as "serious". The accident involved a car and an HGV and occurred on a bend.

#### B741

- There were three recorded accidents on the B741 in the five-year period between 2019 and 2023. All of these accidents were recorded as being "slight".
- > All of the accidents were single vehicle accidents involving a car, one of which had a young driver (under 25).

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There were no child, cyclist or pedestrian casualties involved and none of the incidents involved an HGV or motorcycle.

#### C35S

> There were no recorded accidents on the C35S<sup>6</sup>.

#### **PIA Summary**

The analysis indicates that there were a total of 15 PIA incidents within the five year period between 2019 and 2023. Most recorded accidents are categorised as being "serious" (53%), with 40% of accidents being recorded as "slight" and 7% recoded as "fatal".

In general, there are no clusters of PIAs at any location in the assessed area or high numbers of accidents involving HGVs for example. The majority of PIAs recorded occurred at or on approach to junctions / access to properties, where there is an increased interaction between vehicles and on bends.

Based on the information available, it has been established that there are no specific road safety issues within the immediate vicinity of the Proposed Development or within the study area that currently require to be addressed or would be exacerbated by the construction of the Proposed Development.

### 5.5 Future Baseline

Construction of the Proposed Development is anticipated to commence in 2029 if planning permission is granted and is expected to last approximately 18 months depending on weather conditions and ecological considerations.

To assess the likely effects during the construction phase, base year traffic flows were determined by applying a NRTF low growth factor to the surveyed traffic flows. The NRTF low growth factor for 2025 to 2029 is 1.020. This factor was applied to the 2025 traffic data presented in **Table 2** to estimate the 2029 Base traffic flows presented in **Table 6**.

Site ID	Survey Location	Cars & LGVs	HGVs	Total
1	The C35S, within the vicinity of the Site access	36	1	37
2	B729 between the A713 and C35S	106	5	111
3	A713, between Dalmellington and Carsphairn	1,750	79	1,829
4	A713, north of Dalmellington	3,898	105	4,003
5	A713, at St John's Town of Dalry	2,435	324	2,759
6	B741, east of Dalmellington	899	34	933

#### Table 6 2029 Traffic Data

### 5.6 Committed Developments

#### 5.6.1 Onshore Wind Farm and Energy Related Planning Applications

A review of DGC's online planning portal<sup>7</sup> and Scottish Governments ECU portal<sup>8</sup> was undertaken to identify any consented developments within the vicinity of the Proposed Development which would generate significant traffic within the same study area and should be included within the assessment.

<sup>&</sup>lt;sup>6</sup> Whilst not included in the PIA assessment, which only includes the most up to date information available from CrashMap, the Applicant is aware of an accident which occurred on the C35S in July 2024. From the available information, the accident occurred as a result of temporary works on the C35S in relation to the Windy Rig Wind Farm. The Applicant will however ensure cognisance of this is given within the CTMP for the Proposed Development.

 <sup>&</sup>lt;sup>7</sup> <u>https://eaccess.dumgal.gov.uk/online-applications/spatialDisplay.do?action=display&searchType=Application</u> [Accessed March 2025]
 <sup>8</sup> https://www.energyconsents.scot/ApplicationSearch.aspx?T=1 [Accessed March 2025]

TA Guidance<sup>9</sup> advises that only those projects with extant planning permission or local development plan allocations within an adopted or approved plan require to be included in any assessment. Those projects in scoping or at the application stage should not be included in cumulative assessments as they have yet to be determined. When considering traffic impacts specifically in relation to the construction phase of a project, the potential traffic impact is highly speculative and as such, cannot be included in the assessment.

Table 7 shows the consented wind farm schemes that have been given further consideration.

Planning Reference	Scheme Name	Status	Included as Committed Development
ECU00001950	North Kyle Energy Project (36 month construction phase)	Consented 8 December 2021 – Commencement of development no later than six years from date of consent.	No – The development is already under construction and due to be completed shortly.
PPA-190-2080	Overhill Wind Farm (13 month construction phase)	Consented at Appeal 16 September 2020 – Commencement of development no later than five years from the date of consent.	No – Even if construction commences at the end of the commencement period, the development would be completed prior to the commencement of the Proposed Development.
EC00005256 / ECU00002102	Enoch Hill 2 Wind Farm (12 month construction phase)	Consented 8 December 2021 – Commencement of development no later than six years from date of consent.	No – Even if construction commences at the end of the commencement period, the development would be completed prior to the commencement of the Proposed Development.
PPA-170-2179	Manquhill Wind Farm (12 month construction phase)	Consented at Appeal 8 July 2024 – Commencement of development no later than five years from the date of consent.	Yes – Potential for construction phases to overlap if construction commences at the end of the commencement period and the Proposed Development is consented and begins construction in 2029.
PPA-170-2160	Cornharrow Wind Farm (12 month construction phase)	Consented at Appeal 6 July 2022 – Commencement of development no later than three years from the date of consent.	No – Even if construction commences at the end of the commencement period, the development would be completed prior to the commencement of the Proposed Development.
23/1686/S42	Glenshimmeroch Hill Wind Farm (12 month construction phase)	Consented 12 December 2023 – Commencement of development no later than five years from the date of consent.	No – Even if construction commences at the end of the commencement period, the development would be completed prior to the commencement of the Proposed Development.
PPA-170-2153 PPA-170-2178 (Combined due to falling within same site boundary)	Margree Area Wind Farm (12 month construction phase) Divot Hill Wind Farm (12 month construction phase)	Consented at Appeal on 21 March 2022 – Commencement of development no later than three years from the date of consent. Consented at Appeal on 10 July 2024 respectively – Commencement of development no later than five years from the date of consent.	Yes – Potential for construction phases to overlap if construction commences at the end of the commencement period and the Proposed Development is consented and begins construction in 2029.
23/2600/S36	Windy Standard III Wind Farm (15 month construction phase)	Consented 30 May 2024 – Commencement of development no later than six years from date of consent.	No – Construction of the development has commenced (April 2025) and the available information provided by the developer has advised that the scheme will online by Q4 2026.

Table 7 Committed Development Review

<sup>&</sup>lt;sup>9</sup> <u>https://www.gov.uk/guidance/travel-plans-transport-assessments-and-statements</u>

Planning Reference	Scheme Name	Status	Included as Committed Development
ECU00001785	Troston Loch Wind Farm (15 month construction phase)	Consented 18 December 2020 – Commencement of development no later than six years from date of consent.	No – Even if construction commences at the end of the commencement period, the development would be completed prior to the commencement of the Proposed Development.
ECU00001773	Benbrack Wind Farm (12 month construction phase)	Consented 5 November 2019 – Commencement of development no later than five years from date of consent.	No – Even if construction commences at the end of the commencement period, the development would be completed prior to the commencement of the Proposed Development.
15/P/2/0337	Lorg Wind Farm (12 month construction phase)	Consented 18 July 2019 – Commencement of development no later than five years from date of consent.	No – The commencement period has now lapsed. It is acknowledged that a new varied application has been submitted, however this has yet to be determined and therefore cannot be included.
ECU00001801	Sanquhar II Wind Farm (24 month construction phase)	Consented 31 August 2023 – Commencement of development no later than five years from date of consent.	No – There are no shared sections of the respective study areas.
22/0221/S42 / 10/P/2/0021	Knockman Hill Wind Farm (12 month construction phase)	Consented 28 January 2025 – Commencement of development no later than three years from date of consent.	No – Potential for construction phases to overlap if construction commences at the end of the commencement period and the Proposed Development is consented and begins construction in 2029. It cannot be included however, as no construction traffic data was provided within the application, furthermore, it is unlikely that there would be any shared sections of the respective study areas based on what information is available.
PPA-170-2146	Fell Wind Farm (12 month construction phase)	Consented at Appeal 2 November 2021 – Commencement of development no later than three years from the date of consent.	No – The commencement period has now lapsed. It is acknowledged that a new varied application has been submitted, however this has yet to be determined and therefore cannot be included.
ECU00000735	Shepherds' Rig Wind Farm (21 month construction phase)	Consented 21 August 2023 – Commencement of development no later than five years from the date of consent.	Yes – Potential for construction phases to overlap if construction of the Proposed Development is consented and begins construction in 2029 or soon thereafter. It is also noted that a revised application will be made in relation to varying the consented scheme.

Based on the information provided in **Table 7** above, the following projects will be considered further within the cumulative development assessment within **Chapter 11: Transport.** 

- Manquhill Wind Farm;
- Margree Area Wind Farm; and
- Shepherds' Rig Wind Farm.

Should the above or any other schemes be consented and constructed at the same time as the Proposed Development, the Applicant would welcome the opportunity to engage with other developers in consultation with DGC to ensure appropriate traffic management measures would be implemented to minimise any cumulative impacts. In the event of all the sites being constructed at the same time it is suggested this would be mitigated

through the use of an overarching Traffic Management and Monitoring Plan (TMMP) for all of the sites and by introducing a phased delivery plan which would be agreed with DGC and Police Scotland.

Furthermore, it is extremely unlikely that peak traffic conditions would occur should more than one scheme be constructed at the same time, due to differences in construction programmes, material supplies and developer resources.

#### 5.6.2 Other Planning Applications

A review of the DGC online planning portal was also undertaken for other developments with planning consent, which should be considered within this assessment. The review examined consented developments whose trips are considered significant in scale (i.e., has associated traffic impact of over 30%).

The review did not identify any other significant traffic generating developments in the study area that may occur during the construction phase associated with the Proposed Development.

It should be noted that the use of NRTF growth assumptions has provided a basis for general local development growth within the study area.

# 6 Trip Generation and Distribution

### 6.1 Construction Phase

#### 6.1.1 Trip Derivation

During the 18-month construction phase, the following traffic will require access to the Site:

- > Staff transport, in either cars or staff minibuses;
- Construction equipment and materials, deliveries of machinery and supplies such as concrete materials and crushed rock;
- > Components relating to the substation and associated infrastructure; and
- > AILs consisting of the wind turbine sections and heavy lift cranes.

Average monthly traffic flow data was used to establish the construction trips associated with the Proposed Development, based on the assumptions detailed in the following sections. It should be noted that there may be variations in the following calculations due to rounding, which are not considered significant.

### 6.1.2 Construction Staff

Staff will arrive in non-HGV vehicles and where possible will be encouraged to car share. The dedicated workforce on-site will depend on the activities undertaken, but, based on previous wind farm construction Site experience for a project of this scale which suggests five staff per turbine during the short peak period of construction is likely, the maximum number of staff expected on-site could be around 45 per day. Note this relates to the dedicated on-site workforce, who will be involved for the duration of the construction phase, there will likely be other staff / employees associated with specific tasks that will visit the Site for short periods.

For the purposes of estimating traffic movements, it was assumed that 40% of staff would be transported by minibus and 60% would arrive by car (single car occupancy was assumed as the worst case at this stage with potentially fewer movements through car sharing).

Based on these assumptions, staff transport cars and light vehicles would account for a maximum of 60 vehicle movements (30 inbound trips and 30 outbound trips) per day during the peak period of construction

### 6.1.3 Abnormal Indivisible Loads

The wind turbines are broken down into components for transport to the Site. The nacelle, blade and tower sections are classified as AILs due to their weight, length, width and height when loaded. For the purposes of the assessment, the 'worst case' numbers of components requiring transport are illustrated in **Table 8**.

Component	Number of Components per Turbine
Rotor Blades	3
Tower Sections	5
Nacelle	1
Hub	1
Drive Train	1
Nose Cone	1
Transformer	1
Ancillary	1
Site Parts	0.25 (parts shared between 4 wind turbines on one delivery)

#### **Table 8 Turbine Components**

In addition to the wind turbine deliveries, up to two high-capacity erection cranes would be needed to offload a number of components and erect the turbines. The cranes are likely to be mobile cranes with a capacity up to 1,000 tonnes that are escorted by boom and ballast trucks to allow full mobilisation on Site. Smaller erector

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cranes would also be present to allow the assembly of the main cranes and to ease the overall erection of the wind turbines.

Escort vehicles would accompany the AIL convoys to support the traffic management measures. Up to three vehicles would be deployed and it is assumed that three AIL turbine component loads would be delivered per convoy. This would result in 34 convoys on the network, with a total of approximately 202 escort vehicle movements (101 inbound trips and 101 outbound trips).

Wind turbine components that do not classify as AILs, would be delivered in addition to these, resulting in a further approximately 60 movements (30 inbound trips and 30 outbound trips). All of these deliveries are expected to occur over a period of approximately four months.

The escort vehicles have been assumed to be police cars and light goods vehicles. Motorcycles may be deployed, depending upon Police resources.

#### 6.1.4 General Deliveries

Throughout the construction phase, general deliveries will be made to the Site by HGV. These would include fuel, Site office supplies and staff welfare etc. At the height of construction, it is assumed that up to 40 journeys to Site are made (20 inbound trips and 20 outbound trips) per month.

#### 6.1.5 Timber Extraction

There will be a requirement for timber felling and extraction associated with the construction of the Proposed Development. It is currently estimated that there will be in the order of 62.52 hectares (ha) of timber to be felled.

It has been assumed that the timber will be felled at the start of the construction programme and occur over a period of four months. Current estimates based on the quality of the timber suggest that approximately 10,464 tonnes (t) will be extracted from the Site. Note this is subject to change following the preparation of a detailed felling plan.

For the purposes of the assessment, it has been assumed that all timber extracted will be done using a dedicated timber articulated lorry, which has a payload capacity of approximately 25 t.

Based on the above, it is therefore assumed that a total of 838 vehicle movements (419 inbound trips and 419 outbound trips) will be required to extract the timber from the Site.

#### 6.1.6 Material Deliveries

Various materials will need to be delivered to Site to construct the site-based infrastructure. At the outset of the construction works, HGV deliveries will deliver plant and initial material deliveries to the Site to enable the formation of the Site compound and to deliver construction machinery and plant.

The Site is large enough to warrant on-site batching of concrete. All wind turbine, substation foundation concrete will be mixed on-site, with deliveries of cement powder, water (if not sourced from Site), sand and aggregates being delivered by HGV from local suppliers, located to either the north or south of the Proposed Development.

The estimated total volume of concrete required on-site is 17,118 m<sup>3</sup>, based upon expected wind turbine foundation, substation foundation and miscellaneous uses across the Proposed Development. The individual deliveries associated with the raw materials have been estimated and result in inbound trips of 38 cement tankers, 178 sand tippers and 217 water tankers (note, aggregates are included in **Table 10**). A summary of the vehicle movements associated with the production of concrete on-site is detailed in **Table 9**.

Element	Volume / Installation (m <sup>3</sup> )	Inbound Trips	Total Movements
Cement	4,526	38	75
Sand	1,998	178	357
Water	6,518	217	435

#### Table 9 Concrete Material Deliveries

Steel reinforcement required in the foundations across the Proposed Development for wind turbines, substation etc. are estimated to total 1,568 tonnes, resulting in a total of 106 vehicle movements (53 inbound trips and 53 outbound trips.

The proposed access track widths will vary on-site but will generally be in the order of 6 m in width and would be designed to accommodate 13 tonne axle loads. In addition to the access tracks, crane hardstands will be constructed to enable the wind turbine erection process.

The borrow pit assessment undertaken has confirmed that the volume of material suitable to be used on-site is in excess of the volume of aggregate material required, with a surplus of material estimated to be in the order of 12,258 m<sup>3</sup>. Nevertheless, as per the requirements set out within the EIA Scoping Opinion by DGC a worst-case assessment has been undertaken whereby all aggregate materials are imported to the Site from local quarries, with potential suppliers located to the north and south of the Proposed Development. The estimate of 100% imported material is detailed in **Table 10**.

#### Table 10 Aggregate Material Deliveries

Element	Volume / Installation (m <sup>3</sup> )	Total Weight (t)	Lorry Capacity (t)	Inbound Trips	Total Movements
Stone / Aggregates	103,760	228,272	20	11,414	22,828

Note, this includes aggregate materials required for the on-site concrete batching requirements

Geotextile will be delivered to Site in rolls. A total of 319 large rolls may be required at Site and will be delivered by HGV which will result in 32 vehicle movements (16 inbound trips in and 16 outbound trips).

Cables will connect each wind turbine to the substation compound. Trip estimates for the cable materials are provided below in **Table 11** and **Table 12**. It has been assumed that four cables are to be provided within each cable trench and will be backfilled with cable sand.

#### Table 11 Cable Trip Estimate

Element	Total Cable Length (m)	Length per Drum (m)	Number of Drums	Inbound Trips	Total Movements
Cables	27,815	500	223	25	50

#### Table 12 Cable Sand Trip Estimate

Element	Volume (m <sup>3</sup> )	Total Weight (t)	Lorry Capacity (t)	Inbound Trips	Total Movements	
Cable Sand	9,388	15,020	20	752	1,504	

One substation building will be constructed on the Site. This will require deliveries of building materials and structural elements and will result in 250 vehicle movements (125 inbound trips in and 125 outbound trips).

The resulting traffic generation estimates have been plotted onto the indicative construction programme to illustrate the peak journeys on the network. **Table 13** illustrates the trip generation throughout the construction programme for each month, showing two-way construction vehicle movements, i.e. an inbound and an outbound trip.

#### Table 13 Construction Traffic Profile (Two-Way Trips) ) – Scenario 1: 100% Import of Materials

Activity	Class	s Month													
		1	2	3	4	5	6	7	8	9	10	11	12	13	14
Site Establishment & Remediation	HGV	60	40												
Plant Deliveries	HGV	30	20												
Timber Felling	HGV	210	210	210	210										
General Site Deliveries	HGV	40	40	40	40	40	40	40	40	40	40	40	40	40	40
Bulk Material Deliveries	HGV		2,953	2,953	2,953	2,953	2,953	2,953	2,953	2,953					
Concrete Batching Deliveries	HGV				73	73	73	73	73	73	73				
Reinforcement	HGV					53		53							
Cable & Ducting Deliveries	HGV				33	33			33	33					
Cabling Sand	HGV				251	251	251	251	251	251					
Geotextile Deliveries	HGV		16		16										
Substation	HGV		50		50		50		50		50				
AIL Cranage	HGV									20				20	
AIL Deliveries	HGV										64	64	64	64	
AIL Escorts	Car & LGV										51	51	51	51	
Commissioning & Testing	Car & LGV														
Staff	Car & LGV	660	660	1,012	1,320	1,320	1,320	1,320	1,320	1,320	1,320	1,320	1,320	1,320	1,320
Total HGV	HGV	340	3,330	3,204	3,626	3,404	3,368	3,370	3,400	3,370	228	106	106	126	40
Total Cars / LGV	Car & LGV	660	660	1,012	1,320	1,320	1,320	1,320	1,320	1,320	1,372	1,372	1,372	1,372	1,320
Total Movements		1,000	3,990	4,216	4,946	4,724	4,688	4,690	4,720	4,690	1,598	1,476	1,476	1,496	1,360
Total HGV per Day		16	152	146	166	156	154	154	156	154	12	6	6	6	2
Total Cars / LGV per Day		30	30	46	60	60	60	60	60	60	64	64	64	64	60
Total per Day		46	182	192	226	216	214	214	216	214	74	68	68	68	62

Please note minor variances due to rounding may occur.

Calculations assume that there are 22 working days per month.

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Activity	Class	Month					
		15	16	17	18		
Site Establishment & Remediation	HGV		40	40	20		
Plant Deliveries	HGV			30	20		
Timber Felling	HGV						
General Site Deliveries	HGV	40	40	40	40		
Bulk Material Deliveries	HGV						
Concrete Batching Deliveries	HGV						
Reinforcement	HGV						
Cable & Ducting Deliveries	HGV						
Cabling Sand	HGV						
Geotextile Deliveries	HGV						
Substation	HGV						
AIL Cranage	HGV						
AIL Deliveries	HGV						
AIL Escorts	Car & LGV						
Commissioning & Testing	Car & LGV		60	60	40		
Staff	Car & LGV	1,320	1,320	1,012	660		
Total HGV	HGV	40	80	110	80		
Total Cars / LGV	Car & LGV	1,320	1,380	1,072	700		
Total Movements		1,360	1,460	1,182	780		
Total HGV per Day		2	4	6	4		
Total Cars / LGV per Day		60	64	50	32		
Total per Day		62	68	54	36		

Please note minor variances due to rounding may occur.

Calculations assume that there are 22 working days per month.

The peak of construction activity is expected to occur in month four when there will be a total of 4,946 vehicle movements, which equates to 226 vehicle movements per day, comprising 166 two-way HGV movements and 60 two-way car / LGV movements.

This would equate to approximately 19 two-way total vehicles movements or 14 two-way HGV movements per hour, across a typical 12-hour day, assuming a flat traffic profile i.e. vehicles distributed evenly across the day.

It should however be noted that the Proposed Development's trip generation assumes that 100% of all aggregate materials would be imported to the Site from nearby quarries and should therefore be considered a significant over estimate of the number of HGV movements that will travel to and from the Site during the peak month of activity. As previously advised, the borrow pit assessment undertaken has confirmed that the volume of material suitable to be used on-site is in excess of the volume of material required, with a surplus of material estimated to be in the order of 12,258 m<sup>3</sup>.

The resulting traffic generation, whereby on-site borrow pits are used to provide the on-site aggregate materials, with the exception of the sand aggregates to be used within concrete batching have been plotted onto the indicative construction programme to illustrate the peak journeys on the network, to allow a comparison to be made, given that this is what will actually take place. **Table 14** illustrates the trip generation throughout the construction programme for each month, showing two-way construction vehicle movements, i.e. an inbound and outbound trip, utilising on-site borrow pits.

#### Table 14 Construction Traffic Profile (Two-Way Trips) – Scenario 2: Utilising On-site Borrow Pits

Activity	Class	Month													
		1	2	3	4	5	6	7	8	9	10	11	12	13	14
Site Establishment & Remediation	HGV	60	40												
Plant Deliveries	HGV	30	20												
Timber Felling	HGV	210	210	210	210										
General Site Deliveries	HGV	40	40	40	40	40	40	40	40	40	40	40	40	40	40
Bulk Material Deliveries for Concrete Batching	HGV				51	51	51	51	51	51	51				
Concrete Batching Deliveries	HGV				146	146	146	146	146	146	146				
Reinforcement	HGV					53		53							
Cable & Ducting Deliveries	HGV				33	33			33	33					
Cabling Sand	HGV				251	251	251	251	251	251					
Geotextile Deliveries	HGV		16		16										
Substation	HGV		50		50		50		50		50				
AIL Cranage	HGV									20				20	
AIL Deliveries	HGV										64	64	64	64	
AIL Escorts	Car & LGV										51	51	51	51	
Commissioning & Testing	Car & LGV														
Staff	Car & LGV	660	660	1,012	1,320	1,320	1,320	1,320	1,320	1,320	1,320	1,320	1,320	1,320	1,320
Total HGV	HGV	340	376	250	798	574	538	542	572	542	352	106	106	126	40
Total Cars / LGV	Car & LGV	660	660	1,012	1,320	1,320	1,320	1,320	1,320	1,320	1,372	1,372	1,372	1,372	1,320
Total Movements		1,000	1,036	1,262	2,118	1,894	1,858	1,862	1,892	1,862	1,722	1,476	1,476	1,496	1,360
Total HGV per Day		16	18	12	38	28	26	26	26	26	16	6	6	6	2
Total Cars / LGV per Day		30	30	46	60	60	60	60	60	60	64	64	64	64	60
Total per Day		46	48	58	98	88	86	86	86	86	80	68	68	68	62

Please note minor variances due to rounding may occur.

Calculations assume that there are 22 working days per month.

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Activity	Class	Month	Month					
		15	16	17	18			
Site Establishment & Remediation	HGV		40	40	20			
Plant Deliveries	HGV			30	20			
Timber Felling	HGV							
General Site Deliveries	HGV	40	40	40	40			
Bulk Material Deliveries for Concrete Batching	HGV							
Concrete Batching Deliveries	HGV							
Reinforcement	HGV							
Cable & Ducting Deliveries	HGV							
Cabling Sand	HGV							
Geotextile Deliveries	HGV							
Substation	HGV							
AIL Cranage	HGV							
AIL Deliveries	HGV							
AIL Escorts	Car & LGV							
Commissioning & Testing	Car & LGV		60	60	40			
Staff	Car & LGV	1,320	1,320	1,012	660			
Total HGV	HGV	40	80	110	80			
Total Cars / LGV	Car & LGV	1,320	1,380	1,072	700			
Total Movements		1,360	1,460	1,182	780			
Total HGV per Day		2	4	6	4			
Total Cars / LGV per Day		60	64	50	32			
Total per Day		62	68	54	36			

Please note minor variances due to rounding may occur.

Calculations assume that there are 22 working days per month.

The peak of construction activity in the scenario where on-site borrow pits are used, will still occur in month four, when there will be a total of 2,118 vehicle movements, which equates to 98 vehicle movements per day, comprising 38 two-way HGV movements and 60 two-way car / LGV movements.

This would equate to approximately eight two-way total vehicles movements or approximately three HGV movements per hour, across a typical 12-hour day, assuming a flat traffic profile i.e. vehicles distributed evenly across the day.

This would equate to a reduction in 2,828 total vehicle movements in the peak month, or 128 per day.

#### 6.1.7 Distribution of Construction Trips

The distribution of construction traffic on the network will vary depending on the types of loads being transported. The assumptions for the distribution of construction traffic during the construction phase are as follows:

- > All construction traffic enters the Site via the C35S from a southerly direction;
- Deliveries associated with concrete materials, such as cement powder and water, will be sourced from concrete suppliers, which for the purpose of this assessment will originate from the A713 to the north, travelling through to the Site via the A77 (outwith study area), A713, B729 and C35S;
- For the purpose of this assessment, it is proposed that 100% of access track aggregate, hardstanding aggregate, concrete aggregate and sand requirements will be sourced from local quarries, which are assumed to originate either from the north or south on the A713. From the north these would route to the Site via the B741, A713, B729 and C35S, while from the south these would route via the A713, B729 and C35S. The contractor will confirm final quarry and material sourcing with DGC in the Construction Traffic Management Plan (CTMP);
- HGV deliveries associated with cabling and associated materials, etc. will arrive from the north, travelling through to the Site via the M77 (outwith study area), A713, B729 and C35S;
- Staff working at the Site are likely to be based locally. It is assumed that 60% will come from the north, from Ayr and the surrounding area, 30% will come from the south, from the Dumfries area and 10% will come from the north-east from the New Cumnock area;
- General Site deliveries will be from the north from Ayr via the A713, B729 and C35S to the Site. These are generally smaller rigid HGV vehicles; and
- The destination of timber is unknown at this time, however for the purposes of the assessment, it has been assumed that this would depart the Site via the C35S, B729, with 50% heading north on the A713 and 50% south.

As previously stated, whilst on-site borrow pits will be used to source the required aggregated materials, DGC have requested a worst-case assessment whereby all aggregate materials are imported to the Site. As detailed above there are a number of potential sources of aggregates to the north and south of the Site, as such, those vehicle movements associated with the movement of aggregate materials have been assigned to the network on both the northern and southern A713 corridors. Rather than split these 50 / 50 and potentially minimise the potential impact on an area, the total has been assigned to each route option, to ensure a suitably robust assessment has been undertaken.

For the purposes of preparing EIA Report **Chapter 11: Transport** and this TA, it has been assumed that all AIL traffic will access the Site via the following route:

- > Loads would depart the KGV Docks and proceed to exit the roundabout onto Kings Inch Drive;
- At the roundabout loads would take the second exit and stay on Kings Inch Drive;
- Loads would merge onto the M8 via the ramp to Glasgow;
- Blade loads will continue east on the M8 / M74 before departing at Junction 4 and continue northbound on the M73, continuing to Junction 8 between the M73 and M8;
- > At Junction 8, the loads will circumnavigate the roundabout, before rejoining the M73 southbound;
- Loads will then rejoin the M74 at Junction 4 continuing westbound. They will travel west before joining the southbound carriageway of the M77 at Junction 22 of the M8;
- > Non-blade loads will use the Seaward Street Interchange to U turn and access the M77 from the M8;

- Loads will continue south on the M77 / A77 to Bankfield Roundabout to the east of Ayr, taking the first exit and joining the A713;
- Ioads would proceed southbound on the A713 to Carsphairn;
- at Carsphairn, blade loads would make use of the existing blade transfer point to the east of Carsphairn, with blades transferred from Superwing Carrier / blade dolly trailer to the blade lifting trailers, before exiting the transfer point and turning left on to the B729;
- > all other loads would exit the A713 east of Carsphairn, turning left onto the B729; and
- at the junction between the B729 and B700, all loads will keep left continuing on the B729 to its junction with the C35S, where they will continue on to the proposed Site access junction.

The proposed AIL access route is illustrated in **Figure 7 to Figure 9** and has been considered, within the AIL RSR, provided in **Annex B**.



Figure 7 AIL Component Delivery Route – Section 1





Figure 9 AIL Component Delivery Route – Section 3



#### 6.1.8 Peak Construction Traffic

Following the distribution and assignment of traffic flows to the study area, the resultant daily traffic during the peak of construction (month four) are summarised in **Table 15** for the scenario whereby 100% of aggregate materials are brought to the Site, while **Table 16** illustrates the scenario with the use of on-site borrow pits.

Table 15 Peak Construction Traffic (month four) – Scenario 1: 100% Import of Materials

Site ID	Survey Location	Cars & LGVs	HGVs	Total
1	The C35S, within the vicinity of the Site access	60	166	226

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Site ID	Survey Location	Cars & LGVs	HGVs	Total
2	B729 between the A713 and C35S	60	166	226
3	A713, between Dalmellington and Carsphairn	42	162	204
4	A713, north of Dalmellington	36	12	48
5	A713, at St John's Town of Dalry	18	154	172
6	B741, east of Dalmellington	6	150	156

Please note that variances may occur due to rounding.

#### Table 16 Peak Construction Traffic (month four) – Scenario 2: Utilising On-site Borrow Pits

		0		
Site ID	Survey Location	Cars & LGVs	HGVs	Total
1	The C35S, within the vicinity of the Site access	60	38	98
2	B729 between the A713 and C35S	60	38	98
3	A713, between Dalmellington and Carsphairn	42	32	74
4	A713, north of Dalmellington	36	12	48
5	A713, at St John's Town of Dalry	18	26	44
6	B741, east of Dalmellington	6	20	26

Please note that variances may occur due to rounding.

# 6.2 Operational Phase

In the operational phase, it is envisaged that the level of traffic associated with the Proposed Development will equate to on average two vehicle trips per week which is considered negligible and therefore no detailed assessment of the operational phase of the development is proposed.

# 6.3 Decommissioning Phase

Prior to decommissioning of the Site, a traffic assessment would be undertaken, and appropriate traffic management procedures followed.

The decommissioning phase would result in fewer trips on the road network than the construction or operational phase as it is considered likely that elements of infrastructure such as access tracks would be left in place and structures may be broken up on Site to allow transport by a reduced number of HGVs.

# 7 Traffic Impact Assessment

# 7.1 Construction Impact – Scenario 1: 100% Import of Materials

The peak month (month four) traffic data was combined with the future year (2029) traffic data to allow a comparison between the baseline results to be made, for the scenario whereby 100% of aggregate materials are imported to the Site. The increase in traffic volumes is illustrated in percentage increases for each class of vehicle. This is illustrated in **Table 17**.

Table 17 2029 Baseline + Constructio	n Development – Flow	s and Impact (Scenario	1: 100% Import of Materials)
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Site ID	Survey Location	Cars & LGV	HGV	Total Traffic	Cars & LGV % Increase	HGV % Increase	Total Traffic % Increase
1	The C35S, within the vicinity of the Site access	96	167	263	168.07%	16,274.51%	615.47%
2	B729 between the A713 and C35S	166	171	337	56.56%	3,254.90%	203.27%
3	A713, between Dalmellington and Carsphairn	1,792	241	2,033	2.40%	205.24%	11.15%
4	A713, north of Dalmellington	3,934	117	4,051	0.92%	11.48%	1.20%
5	A713, at St John's Town of Dalry	2,453	478	2,931	0.74%	47.56%	6.24%
6	B741, east of Dalmellington	905	184	1,089	0.67%	443.42%	16.72%

The total traffic movements are predicted to increase by a maximum of 615.47 % on the C35S in the vicinity of the Site access, where all vehicular traffic travelling through to the Site will travel. On the rest of the study area, the highest total traffic increase is 203.27 %, which occurs on the B729 between the A713 and C35S.

**Table 17** shows that highest HGV traffic movements increase will occur on the C35S in the vicinity of the Site access, where it is estimated to increase by 16,274.51 %. Whilst this increase is statistically high, this is due to the low level of HGVs currently using this road, with only one HGV being recorded. To put the increase into perspective, the C35S will see an additional 166 HGV movements per day or approximately 14 HGV movements per hour over the course of a typical 12-hour shift. This is not considered significant in terms of overall traffic flows.

The next highest HGV traffic movement increase would occur on the B729 between the A713 and C35S, where it is estimated to increase by 3,254.90 %. Whilst this increase is statistically high, this is due to the low level of HGVs currently using this road, with only five HGV being recorded. To put the increase into perspective, the B729 will see an additional 166 HGV movements per day or approximately 14 HGV movements per hour over the course of a typical 12-hour shift. This is not considered significant in terms of overall traffic flows.

A review of existing theoretical road capacity has been undertaken using The NESA Manual, formerly part of the Design Manual for Roads and Bridges, Volume 15, Part 5. The theoretical road capacity has been estimated for each of the road links for a 12-hour period that makes up the study area. The results are summarised in **Table 18**.

Site ID	Survey Location	2029 Baseline Flow	2029 Base + Development Flows	Theoretical Road Capacity (12hr)	Spare Road Capacity %
1	The C35S, within the vicinity of the Site access	37	263	3,360	92.2%
2	B729 between the A713 and C35S	111	337	3,360	90.0%
3	A713, between Dalmellington and Carsphairn	1,829	2,033	21,600	90.6%

#### Table 18 2029 Peak Traffic Flow Capacity Review (Scenario 1: 100% Import of Materials)

Site ID	Survey Location	2029 Baseline Flow	2029 Base + Development Flows	Theoretical Road Capacity (12hr)	Spare Road Capacity %
4	A713, north of Dalmellington	4,003	4,051	21,600	81.2%
5	A713, at St John's Town of Dalry	2,759	2,931	21,600	86.4%
6	B741, east of Dalmellington	933	1,089	19,200	94.3%

The results indicate there are no road capacity issues with the addition of construction traffic associated with the Proposed Development and significant spare capacity exists within the local road network to accommodate all construction phase traffic.

# 7.2 Construction Impact – Scenario 2: Utilising On-site Borrow Pits

The peak month (month four) traffic data was combined with the future year (2029) traffic data to allow a comparison between the baseline results to be made, for the scenario whereby on-site borrow pits will be used to source aggregate materials. The increase in traffic volumes is illustrated in percentage increases for each class of vehicle. This is illustrated in **Table 19**.

						0	,
Site ID	Survey Location	Cars & LGV	HGV	Total Traffic	Cars & LGV % Increase	HGV % Increase	Total Traffic % Increase
1	The C35S, within the vicinity of the Site access	96	39	135	168.07%	3,725.49%	266.88%
2	B729 between the A713 and C35S	166	43	209	56.56%	745.10%	88.15%
3	A713, between Dalmellington and Carsphairn	1,792	111	1,903	2.40%	40.95%	4.06%
4	A713, north of Dalmellington	3,934	117	4,051	0.92%	11.48%	1.20%
5	A713, at St John's Town of Dalry	2,453	350	2,803	0.74%	8.03%	1.60%
6	B741, east of Dalmellington	905	54	959	0.67%	60.11%	2.79%

Table 19 2029 Baseline + Construction Development – Flows and Impact (Scenario 2: Utilising On-site Borrow Pits)

The total traffic movements are predicted to increase by a maximum of 266.88 % on the C35S in the vicinity of the Site access, where all vehicular traffic travelling through to the Site will use. On the rest of the study area, the highest total traffic increase is 88.15 %, which occurs on the B729 between the A713 and C35S.

**Table 19** shows that highest HGV traffic movements increase will occur on the C35S in the vicinity of the Site access, where it is estimated to increase by 3,725.49 %. Whilst this increase is statistically high, this is due to the low level of HGVs currently using this road. To put the increase into perspective, the C35S will see an additional 38 HGV movements per day or approximately three HGV movements per hour over the course of a typical 12-hour shift. This is not considered significant in terms of overall traffic flows.

The next highest HGV traffic movement increase would occur on the B729 between the A713 and C35S, where it is estimated to increase by 745.10 %. To put the increase into perspective, the B729 will see an additional 38 HGV movements per day or approximately three HGV movements per hour over the course of a typical 12-hour shift. This is not considered significant in terms of overall traffic flows.

A review of existing theoretical road capacity has been undertaken using The NESA Manual, formerly part of the Design Manual for Roads and Bridges, Volume 15, Part 5. The theoretical road capacity has been estimated for each of the road links for a 12-hour period that makes up the study area. The results are summarised in **Table 20**.

Site ID	Survey Location	2029 Baseline Flow	2029 Base + Development Flows	Theoretical Road Capacity (12hr)	Spare Road Capacity %
1	The C35S, within the vicinity of the Site access	37	135	3,360	96.0%
2	B729 between the A713 and C35S	111	209	3,360	93.8%
3	A713, between Dalmellington and Carsphairn	1,829	1,903	21,600	91.2%
4	A713, north of Dalmellington	4,003	4,051	21,600	81.2%
5	A713, at St John's Town of Dalry	2,759	2,803	21,600	87.0%
6	B741, east of Dalmellington	933	959	19,200	95.0%

#### Table 20 2029 Peak Traffic Flow Capacity Review (Scenario 2: Utilising On-site Borrow Pits)

The results indicate there are no road capacity issues with the addition of construction traffic associated with the Proposed Development and significant spare capacity exists within the local road network to accommodate all construction phase traffic

# 8 Proposed Mitigation Measures

# 8.1 Construction Phase

#### 8.1.1 Construction Traffic Management Plan (CTMP)

During the construction phase, the project website will be regularly updated and consideration will be given to communicating with local residents via text message, to provide the latest information relating to traffic movements associated with vehicles accessing the Site. This would be agreed with DGC and TS (if required).

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

- Agree AIL route modifications and improvements with DGC, TS and any other relevant stakeholders. Works which will be required to facilitate turbine deliveries are outlined in the RSR, which is presented in Annex B;
- Where possible, the detailed design process will minimise the volume of material to be imported to Site to help reduce HGV numbers;
- > A Staff Travel Plan, including transport modes to and from the worksite (including pick up and drop off times);
- > A Transport Management Plan for AIL deliveries;
- All materials delivery lorries (dry materials) should be sheeted to reduce dust and stop spillage on public roads;
- Specific training and disciplinary measures should be established to ensure the highest standards are maintained to prevent construction vehicles from carrying mud and debris onto the carriageway;
- Wheel cleaning facilities may be established at the Site entrance and blade transfer area, depending on the views of DGC;
- Normal Site working hours will be limited to between 0700 and 1900 Monday to Friday and 0700 and 1600 on Saturdays, though component delivery and turbine erection may take place outside these hours i.e. depending on when police escort is available;
- Appropriate traffic management measures will be put in place on the A713, B729 and C35S leading through to the Site, to avoid conflict with general traffic, subject to the agreement of DGC. Typical measures will include HGV turning and crossing signs and / or banksmen at the Site access and warning signs;
- Provide construction updates on the project website and via text message to residents within an agreed distance of the Site;
- Adoption of a voluntary reduced speed limits, for example on the B729, C35S and at other locations to be agreed with DGC and if necessary;
- > All drivers will be required to attend an induction to include:
  - A toolbox talk safety briefing;
  - The need for appropriate care and speed control;
  - A briefing on driver speed reduction agreements (to slow Site traffic at sensitive locations through the villages); and
  - o Identification of the required access routes and the controls to ensure no departure from these routes.

As part of the CTMP which will be provided post consent and secured by condition, an agreement to cover the cost of abnormal wear on the local road network will be required by DGC. 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 condition of the road prior to any construction work commencing. This baseline will inform any change in the road condition during the construction phase. Any necessary repairs will be coordinated with DGC's roads team. Any damage caused by traffic associated with the Proposed Development during the construction phase that would be hazardous to public traffic will be repaired immediately.

DGC is likely to request that an agreement to cover the cost of abnormal wear on its network is made. 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 condition of the road prior to any construction work commencing. This baseline will inform any change in the road condition during the construction phase. Any necessary repairs will be coordinated with DGC's roads team. Any damage caused by traffic associated with the

Proposed Development during the construction phase that would be hazardous to public traffic will be repaired immediately.

Damage to road infrastructure caused directly by construction traffic will be repaired and street furniture that is removed on a temporary basis will be fully reinstated.

There will be a regular road review and any debris and mud will be removed from the carriageway using an onsite road sweeper to ensure road safety for all road users.

Before the AILs traverse the route, the following tasks will be undertaken to ensure load and road user safety:

- Ensure any vegetation which may foul the loads is trimmed back to allow passage;
- Confirm there are no roadworks or closures that could affect the passage of the loads;
- Check no new or diverted underground services on the proposed route are at risk from the abnormal loads; and
- Confirm the police are satisfied with the proposed movement strategy.

### 8.2 Abnormal Load Traffic

#### 8.2.1 Abnormal Load Management Plan

There are a number of traffic management measures that can help reduce the effect of AIL convoys.

All AlL deliveries will be undertaken at appropriate times (to be discussed and agreed with DGC, TS and Police Scotland) with the aim to minimise the effect on the local road network. It is likely that the abnormal load convoys would travel in the early morning periods, before peak times while general construction traffic would generally avoid the morning and evening peak periods.

The majority of potential conflicts between construction traffic and other road users will occur with abnormal load traffic. General construction traffic is not likely to come into conflict with other road users as the vehicles are smaller and road users are generally more accustomed to them.

Potential conflicts between the abnormal loads and other road users can occur at a variety of locations and circumstances.

- > On sections of single carriageway road or narrow road sections, for example on the A713, B729 and C35S;
- At locations where there are significant changes in the horizontal alignment of the carriageway, requiring the loads to use the full carriageway width;
- > Where traffic turns at a road junctions, requiring other traffic to be restrained on other approach arms; and
- In locations where high speeds of general traffic are predicted.

Advance warning signs will be installed on the approaches to the affected road network. Information signage could be installed to help assist drivers and an example is illustrated in **Figure 10**. Flip up panels (shown in grey) will be used to mask over days where convoys would not be operating. When no convoys are moving, the sign will be bagged over by the Traffic Management contractor.

#### Figure 10 Example Information Sign



This signage will assist in helping improve driver information and allow other road users to consider alternative routes or times for their journey (where such options exist).

The location and numbers of signs will be agreed post consent and will form part of the wider Traffic Management Proposal for the project.

The Abnormal Load Transport Management Plan will also include:

- Procedures for liaising with the emergency services to ensure that police, fire and ambulance vehicles are not impeded by the loads. This is normally undertaken by informing the emergency services of delivery times and dates and agreeing communication protocols and lay over areas to allow overtaking;
- > A diary of proposed delivery movements to liaise with the communities to avoid key dates;
- A protocol for working with local businesses to ensure the construction traffic does not interfere with deliveries or normal business traffic; and
- Proposals to establish a construction liaison committee to ensure the smooth management of the project / public interface with the applicant, the construction contractors, the local community, and if appropriate, the police forming the committee. This committee would form a means of communicating and updating on forthcoming activities and dealing with any potential issues arising.

#### 8.2.2 Public Information

Information on the wind turbine convoys will be provided to local media outlets such as local papers and local radio to help assist the public.

Information will relate to expected vehicle movements from the PoE through to the Site access junction. This will assist residents in understanding the timing of the convoy movements and may help reduce any potential conflicts.

### 8.2.3 Convoy System

A police escort will be required to facilitate the delivery of the predicted AILs. The police escort will be further supplemented by a civilian pilot car to assist with the escort duty. It is proposed that an advance escort will warn oncoming vehicles ahead of the convoy, with one escort staying with the convoy at all times. The escorts and convoy will remain in radio contact at all times where possible.

The AIL convoys will be no more than three AILs vehicles long, or as advised by the police, to permit safe transit along the delivery route, and to allow limited overtaking opportunities for following traffic where it is safe to do so.

The times in which the convoys will travel will need to be agreed with Police Scotland who have sole discretion on when loads can be transported.

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# 8.3 Outline Access Management Plan (OAMP)

Within the Site, consideration has been given to pedestrians and cyclists alike due to potential interactions between construction traffic and users of Core Paths / paths, cycle routes and public roads. An Outline Access Management Plan (OAMP) will be developed and secured via a planning condition.

Users of the paths etc. will be separated from construction traffic wherever possible. Crossing points will be provided where required, with path users having right of way and temporary diversions will be provided where necessary. Appropriate Traffic Signs Manual Chapter 8<sup>10</sup> compliant temporary road signage will be provided to assist at these crossings for the benefit of all users.

The principal contractor will ensure that speed limits are always adhered to by their drivers and associated subcontractors. This is particularly important within close proximity to the forest paths and at crossing points. Advisory speed limit signage will also be installed on approaches to areas where path users may interact with construction traffic.

Signage will be installed on the Site exits that makes drivers aware of local speed limits and reminding drivers of the potential presence of pedestrians and cyclists in the area. This will also be emphasised in the weekly toolbox talks.

A scoping response has not been received from The British Horse Society; however, consideration will be given to measures implemented on similar schemes as part of the Proposed Development. These measures are predominantly focused around the interactions between HGV traffic and horses. Horses are normally nervous of large vehicles, particularly when they do not often meet them. Horses are flight animals and will run away in panic if really frightened. Riders will do all they can to prevent this but, should it happen, it could cause a serious accident for other road users, as well as for the horse and rider.

The main factors causing fear in horses in this situation are:

- > something approaching them, which is unfamiliar and intimidating;
- > a large moving object, especially if it is noisy;
- lack of space between the horse and the vehicle;
- the sound of air brakes; and
- anxiety on the part of the rider.

The British Horse Society has previously recommended the following actions that will be included in the Site training for all HGV staff:

- on seeing riders approaching, drivers must slow down and stop, minimising the sound of air brakes, if possible;
- if the horse still shows signs of nervousness while approaching the vehicle, the engine should be shut down (if it is safe to do so);
- > the vehicle should not move off until the riders are well clear of the back of the HGV;
- if drivers are wishing to overtake riders, please approach slowly or even stop in order to give riders time to find a gateway or lay by where they can take refuge and create sufficient space between the horse and the vehicle. Because of the position of their eyes, horses are very aware of things coming up behind them; and
- all drivers delivering to the Site must be patient. Riders will be doing their best to reassure their horses while often feeling a high degree of anxiety themselves.

<sup>&</sup>lt;sup>10</sup> https://assets.publishing.service.gov.uk/media/5a74adeaed915d7ab83b5ab2/traffic-signs-manual-chapter-08-part-01.pdf

# 8.4 Staff Travel Plan

A Staff Travel Plan will be deployed where necessary, to manage the arrival and departure profile of staff and to encourage sustainable modes of transport, especially car-sharing. A package of measures could include:

- Appointment of a Travel Plan Coordinator (TPC);
- Provision of public transport information;
- Mini-bus service for transport of Site staff;
- Promotion of a car sharing scheme;
- > Car parking management; and
- > Restrictions on parking, for example on the public road network and verges in the vicinity of the Site entrance.

# 8.5 Operational Phase Mitigation

Site entrance roads will be well maintained and monitored during the operational life of the development. Regular maintenance will be undertaken to keep the Site access track drainage systems fully operation and to ensure there are no run-off issues onto the public road network.

# 9 Summary and Conclusions

Pell Frischmann has been commissioned by Appin Wind Farm Limited (the 'Applicant') to undertake a Transport Assessment for the proposed Appin Wind Farm (the 'Proposed Development'). The Proposed Development is located in the Dumfries and Galloway Council administrative area, approximately 6.2 km north of Moniaive and 14.8 km east of Carsphairn.

The Proposed Development will be accessed directly from the C35S from an existing upgraded access junction, currently used for agricultural and timber extraction purposes. Loads will then proceed to the proposed turbine locations using a combination of private upgraded and new access tracks. The access junction will provide access to the Site for all AILs associated with the turbine deliveries, as well as access for HGVs delivering construction materials and general Site traffic.

Existing traffic data from DfT was supplemented by new ATC surveys, with the data used to establish a base point for determining the impact during the construction phase on the road network.

The peak of construction activity is expected to occur in month four when there will be a total of 4,946 vehicle movements, which equates to 226 vehicle movements per day, comprising 166 two-way HGV movements and 60 two-way car / LGV movements. This would equate to approximately 19 two-way total vehicles movements or 14 two-way HGV movements per hour, across a typical 12-hour day, assuming a flat traffic profile i.e. vehicles distributed evenly across the day.

It should however be noted that the Proposed Development's trip generation assumes that 100% of all aggregate materials would be imported to the Site from nearby quarries and should therefore be considered a significant over estimate of the number of HGV movements that will travel to and from the Site during the peak month of activity. As previously advised, the borrow pit assessment undertaken has confirmed that the volume of material suitable to be used on-site is in excess of the volume of material required, with a surplus of material estimated to be in the order of 12,258 m<sup>3</sup>. Should that be the case there would be a total of 98 vehicle movements per day, comprising 38 two-way HGV movements and 60 two-way car / LGV movements.

In addition, a review of the theoretical road capacity was undertaken for the study area which showed that with the addition of construction traffic associated with the Proposed Development, there was significant spare capacity within the road network.

A series of mitigation measures and management plans have been proposed to help mitigate and offset the impacts of the construction phase traffic flows for both general construction traffic and AILs associated with the delivery of the turbine components. These will be imposed upon the Proposed Development through the Standard Onshore Wind Farm Conditions.

The Proposed Development will lead to a temporary increase in traffic volumes within the study area during the construction phase only, however this can be appropriately and effectively managed. It is therefore concluded that there are no transport related matters which would preclude the consenting and construction of the Proposed Development.

Annex A: Indicative Junction Layout



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$ \mathbf{A} $	NOTE:
V	1. ALL DRAWINGS ARE TO BE READ IN CONJUNCTION WITH THE SPECIFICATION FOR HIGHWAY WORKS AND THE TURBINE MANUFACTURERS STANDARDS AND ALL
	RELEVANT DRAWINGS WITHIN THE PROJECT DESIGN PACKAGE.
	2. ALL WORKS TO BE EXECUTED IN ACCORDANCE WITH THE DMRB, THE MANUAL OF CONTRACT DOCUMENTS FOR HIGHWAY WORKS, DESIGN MANUAL FOR ROADS AND PRIDCES AND TRAFFIC SIGNS MANUAL
	3. ALL DIMENSIONS ARE IN METRES UNLESS STATED OTHERWISE ALL LEVELS ARE IN
	METRES AND RELATE TO ORDNANCE DATUM.
	4. DO NOT SCALE FROM ANY DRAWING. WORK TO FIGURED DIMENSIONS ONLY. ANY DISCREPANCIES IN DIMENSIONS ARE TO BE REFERRED TO THE DESIGNER BEFORE
	WURK IS PULLIU HAND.
	PRIOR TO PREPARING ANY WORKING DRAWINGS OR COMMENCING ON SITE.
	6. ALL WORKS BY THE CONTRACTOR MUST BE CARRIED OUT IS SUCH A WAY THAT ALL REQUIREMENTS UNDER THE HEALTH AND SAFETY AT WORK ACT ARE SATISFIED.
	7. ALL WORKS ARE TO BE CARRIED OUT IN COMPLIANCE WITH THE REQUIREMENT OF
	REGULATIONS.
	KEY: PROPOSED JUNCTION AND TRACK
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	Checked     SCM     08.05.2025     Drawing Status     DRAFT       Drawing No.     Revision
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Annex B: Route Survey Report