

# Freasdail Wind Farm Traffic Management Plan Phase 2 - Main Works

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# DEFINITIONS

AIL	Abnormal Indivisible Load
ES	Environmental Statement
HGV	Heavy Goods Vehicle
OS Map	Ordnance Survey Map
PoE	Port of Entry
TSRGD	Traffic Sign Regulations and General Directions



# 1 INTRODUCTION & SCOPE

# 1.1 Introduction

The principal objective of this document is to provide details of the proposed traffic management arrangements during the construction of the Freasdail Wind Farm (Planning Application Ref: 12/02150/PP and Planning Appeal Ref: PPA-130-2036). This will in turn satisfy the requirements detailed in **Planning Condition 7(a)**, allowing works to commence on site.

This report provides details of the proposed routes for the delivery of materials and turbine components to the wind farm site. The route suitability is reviewed and traffic management measures required for the transport of AILs and HGVs are specified.

# **1.2** Description of the Site

The Freasdail project is being developed by RES Ltd (RES) and is an 11 turbine wind farm located approximately 10km south of the village of Tarbert in Argyll & Bute.

Access to the site will be provided via a new give-way priority junction from the A83 trunk road at 180795 E, 660370 N.

# **1.3** General Construction Methods

Due to limitations imposed by wind turbine suppliers with regards to track geometry, there is a requirement to carry out cut and fill operations within the site to ensure that access tracks are suitable for delivery of wind turbine components. Material extracted from within the footprint of the proposed access tracks, hardstands and turbine foundations will, where possible, be graded and re-used as engineering fill in construction of the tracks themselves. This will reduce the volume of material imported to site and therefore reduce the impact of construction vehicles on the local road network. The final running surface of the tracks will be formed by imported Type 1 stone in accordance with the Manual of Contract Documents for Highway Works - Volume 1 - Specification for Highway Works 2014 (SHW).

Any material arising from excavations which is found to be unsuitable for use as engineering fill will be used in the reinstatement of working areas, track verges, drainage swales, etc. as detailed in the Freasdail Wind Farm Construction and Environmental Management Plan (CEMP).

Due to the distance from the wind farm site to the nearest concrete batching plant at Furnace, a mobile batching plant will be set up on site to ensure a continuous supply of concrete is available during turbine foundation pours. This mitigates risks associated with unforeseen local road closures, weather delays or vehicle breakdowns which could have a significant impact on concrete supply and the quality of the finished product.





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# 2 CONTEXT

# 2.1 Policy Context

#### 2.1.1 Overarching National Policy Statement for Energy (EN-1)

Chapter 5.13 of EN-1 relates to transport. The report acknowledges that a new energy NSIP may give rise to substantial impacts on the surrounding transport infrastructure and the IPC should therefore ensure that the applicant has sought to mitigate these impacts, including during the construction phase of the development. In addition, It is stated in the section Mitigation' that the IPC may attach requirements to a consent where there is likely to be substantial HGV traffic that

"ensure satisfactory arrangements for reasonably foreseeable abnormal disruption, in consultation with network providers and the police force".

#### 2.1.2 National Policy Statement for Renewable Energy Infrastructure (EN-3)

EN-3 acknowledges in paragraph 2.7.74 that many onshore wind farms will be situated in areas served by minor roads, and that the turbine components are abnormal in terms of size and weights. EN-3 stipulates in paragraphs 2.7.75 & 2.7.76 that

"the applicant should have assessed the various potential routes ... and selected the route that is considered to be the most appropriate."

"Any sections of the route which will require modification to allow for the transportation of components to site should be identified and potential effects assessed as part of the ES."

It is stated in the section 'Mitigation' of EN-3 that

"the applicant may have to undertake modifications to the highway to facilitate delivery and/or minimize disruption to other users. It may be also appropriate ... to undertake a 'dry-run' ... to ensure delivery is possible in a way that minimizes disruption."

EC-3 goes on in paragraph 2.7.81 stating that

"in some cases, the local highways authority may request that the IPC impose controls on the number of vehicle movements to and from the wind farm site in a specified period during its construction and, possibly, on the routeing of such movements particularly by heavy vehicles."

# 2.1.3 Scottish Government Web based advice for Onshore wind turbines (October 2012) -

The section 'Road Traffic Impacts' touches the problem of AIL deliveries, stating that:

"In siting wind turbines close to major roads, pre-application discussions are advisable with Transport Scotland's Trunk Roads Network Management (TRNM). This is particularly important for the movement of large components (abnormal load routing) during the construction period, periodic maintenance and for decommissioning..."

# 2.2 Legislative Context

# 2.2.1 Abnormal Indivisible Loads

All movements of abnormal loads shall be in accordance with the following legislation:

- Abnormal Indivisible Loads is Part II of the Road Traffic Act 1988
- Road Vehicle (Construction & Use) Regulations 1986
- Road Vehicle (Authorisation of Special Types) (General) Order 2003 (the latter commonly referred to as S.T.G.O.).



An "abnormal indivisible load" is defined in The Road Vehicles (Authorisation of Special Types) (General) Order 2003 as

"a load that cannot, without undue expense or risk of damage, be divided into two or more loads for the purpose of being carried on a road and that -

- On account of its length or width, cannot be carried on a motor vehicle of category N3 or a trailer of category O4 (or by a combination of such vehicles) that complies in all respects with Part 2 of The Construction and Use Regulations; or
- On account of its weight, cannot be carried on a motor vehicle of category N3 or a trailer of category O4 (or by a combination of such vehicles) that complies in all respects with-
- Authorised Weight Regulations (or, if those Regulations do not apply, the equivalent provisions in Part 4 of the Construction and Use Regulations); and
- Part 2 of the Construction and Use Regulations."

Notifications for abnormal indivisible loads are required where loads or vehicles exceed maximum gross vehicle weight or dimension limits in any of the following ways:

- a gross vehicle weight of more than 80,000kg
- a width exceeding 3m
- a length exceeding 18.75m

Each load requires at least 2 clear days' notice to the relevant police and highway authorities, as detailed in Table 1. The haulier must also indemnify each highway authority against any damage caused to any road, bridge or other structure.

#### Table 1: Notifications for AIL

Weight	Action Required
Gross weight or axle weights exceeding C&U or Authorised Weight limits up to 80,000kgs	2 clear days notice with indemnity to Highway and Bridge Authorities ( <u>form</u> )
Gross weight (of vehicle carrying the load) exceeding 80,000kgs up to 150,000kgs	2 clear days notice to Police and 5 clear days notice with indemnity to Highway and Bridge Authorities ( <u>form</u> )
Gross weight (of vehicle carrying the load) exceeding 150,000kgs	HA Special Order <u>BE16</u> (8-10 weeks) plus 5 clear days notice to Police and 5 clear days notice with indemnity to Highway and Bridge Authorities ( <u>form</u> )
Width	Action Required
Width exceeding 2.9 metres (for C&U loads 3.0 metres) up to 5.0 metres for other loads	2 clear days notice to the Police ( <u>form</u> )
Width exceeding 5.0 metres up to 6.1metres	HA form <u>VR1</u> (2 weeks) plus 2 clear days notice to Police ( <u>form</u> )
Width exceeding 6.1 metres	HA Special Order <u>BE16</u> (8-10 weeks) plus 5 clear days notice to Police and 5 clear days notice with indemnity to Highway and Bridge Authorities ( <u>form</u> )



Length	Action Required
Length exceeding 18.65 metres up to 30 metres rigid length (Vehicle or train of vehicles)	2 clear days notice to the Police (form)
Vehicle combination exceeding 25.9 metres	2 clear days notice to the Police (form)
When exceeding 30.0 metres rigid length	HA Special Order <u>BE16</u> (8-10 weeks) plus 5 clear days notice to Police and 5 clear days notice with indemnity to Highway and Bridge Authorities ( <u>form</u> )



# **3 PROJECT EVOLUTION**

# 3.1 Access Route Assessment

Assessment of the access routes to the Freasdail Wind Farm site, including consultation with Argyll & Bute Council's Development and Infrastructure Department, was carried out by RES during preparation of the Environmental Impact Assessment for the project. This analysis was carried out using the most up-to-date Ordnance Survey Superplan digital data and also took cognisance of significant infrastructure works which were to be undertaken in Campbelltown to facilitate the movement of abnormal vehicles to and from the harbour. These infrastructure works are now complete and have enabled passage of components to a number of wind farm projects.

Swept path analyses were carried out for a rigid 40m blade trailer which is considered as a worst case scenario for the types of vehicle that can potentially deliver the turbine components.

The access assessment works ascertained that the route from Campbelltown Harbour to the wind farm site entrance, via the A83 trunk road, is achievable with no alterations to the existing carriageway or any structures. The abnormal loads delivery route is shown on drawing 02564D2404 in Appendix D.

# 3.2 Environmental Statement

Chapter 14 of the Environmental Statement details the estimated abnormal and normal construction traffic generation associated with the Freasdail Wind Farm development, and considers its effects on the surrounding highway network.

The Environmental Statement considered a worst case scenario. Actual vehicle movements associated with the construction of the wind farm are expected to be less due to initiatives such as use of site won stone and on-site concrete batching.



# 4 DELIVERY TRAFFIC GENERATION

# 4.1 Wind Farm Components

A detailed breakdown of components and materials that will be delivered to the Freasdail Wind Farm Site has been provided in Chapter 14 of the Environmental Statement, and is briefly summarised below:

# 4.1.1 Road Construction

On-site tracks will be constructed from site won and imported stone, with the addition of geogrid or other geotechnical membranes as specified by the design. The majority of deliveries at this stage would be using standard HGV tipper lorries. Plant required for the works will be delivered on low loaders.

#### 4.1.2 Foundation Construction

A reinforced gravity base will be used as the foundation for the turbines. Materials delivered at this stage will include steel reinforcement and cement and aggregates for the on-site batching of concrete. Due to technical reasons, a turbine foundation must be cast in one day in order to prevent crack formation in the concrete and potential weakening of the structure. On-site batching of concrete mitigates many risks associated with supply of concrete, such as delays due to traffic congestion, breakdown of delivery vehicles, or road closures due to accidents or adverse weather.

In addition, the volume of concrete required for each turbine foundation would require approximately 40 deliveries of ready mix concrete during a 10 to 12 hour period. Provision of on-site batching enables delivery of raw materials to be spread across a number of days and minimise the volume of traffic which would otherwise be accessing the site during foundation pour days.

#### 4.1.3 Crane Hardstanding

Crane hardstandings accommodate cranes during lifting operations and must therefore be able to withstand significant loads. The construction will be similar to the road construction, albeit with deeper layers of stone, and the same vehicles as above will be used for construction materials delivery.

#### 4.1.4 Wind Turbine Erection

The wind turbines will be delivered to site as a series of components: upper, middle and lower tower sections, blades, and nacelle. Depending upon the configuration of the delivery vehicles used, most if not all of these deliveries will be classified as AIL - see Section 4.2.

Associated goods such as smaller components, tools and other equipment will be delivered on flat bed trucks and low loaders.

A 750t capacity mobile crane will be required to erect the turbines as well as a smaller 150t to 200t capacity mobile crane and associated low loaders carrying crane components and accessories.

#### 4.1.5 Electrical Installation Works

Reels of electrical and communications cables will be delivered to site on flat bed trucks or low loaders. The required plant for offloading these will be delivered on low loaders.

The electrical control equipment and switchgear is likely to be delivered on self unloading transportation.

#### 4.1.6 Staff & Miscellaneous Equipment

The daily commute of workers in cars, vans and small trucks will form a large proportion of the site traffic.



Efforts will be made to minimise the commuter traffic by encouraging site workers to use mini-buses or car sharing where practical.

Occasional deliveries of small packages will also take place with vans and other light goods vehicles.

Site offices, welfare facilities and equipment storage containers will be delivered on flat beds and low loaders, and the will be maintained on an ad hoc basis.

Regular deliveries of fuel for the site plant will be made using a mini tanker.

# 4.2 AIL deliveries

#### 4.2.1 AIL Vehicle Types

Transporter-load combinations comprising the following major turbine components classify as abnormal loads:

- **Nacelle** the generator and gearbox of the turbine;
- **Turbine blades** three per turbine and transported individually;
- **Turbine tower sections** three sections per turbine, each transported individually

These abnormal loads will be transported by specialist hauliers with custom built trailers, either individually or in short convoys of typically two to three abnormal loads, accompanied by escort vehicles. Escort vehicles come before and after the transporter and where necessary, police may be used for additional safety for road users and to control traffic at holding points.

The crane size and type is selected by the Turbine Supplier based on the requirements of the turbine model to be erected and availability of plant. Slight changes in delivery requirements may be made by the Turbine Supplier and can result in an additional abnormal load (see Appendix B for typical dimensions of 750t and 200t cranes).

Details of typical delivery vehicles for the wind turbine abnormal loads are attached in Appendix C.

#### 4.2.2 AlL Trip Generation

The Freasdail Wind Farm comprises 11 No. turbines, necessitating 77 deliveries classified as AIL. These deliveries will be programmed to occur over a period of approximately 6 weeks.

# 4.3 General Construction Traffic

Components and equipment that do not classify as AIL will be transported on regular HGVs, or in some cases under own power:

- Low loaders carrying smaller turbine components (e.g. foundation insert and hubs) and crane associated equipment (e.g. ballast and jib assembly);
- Stone lorries;
- Cement tankers;
- Flat bed materials and equipment delivery lorries;
- Miscellaneous deliveries in non HGV vehicles;
- Staff transport

#### 4.3.1 Estimated Delivery Traffic Volumes

summarises the likely volume of traffic to be generated by the wind farm project during the construction phase. The figures are based on the current best available source, and may be therefore subject to some changes due to later modifications to design and / or construction methodology, or in order to comply with Health & Safety requirements.





Table 2: HGV movements north to south on A83 per week

The estimated total number of HGV movements is in the order of 4313 over the construction period of 12 months. The number of daily deliveries will vary throughout the construction of the wind farm depending on the character of works that will be taking place on site.

These numbers have been derived from RES experience in previous wind farm construction. It assumes approximately 40 stone deliveries per day. In reality, the daily journeys tend to be lower, but these numbers have been included as a likely worst-case scenario.

AIL deliveries will take place between weeks 32 to 37, which is anticipated to fall between early October and Late November, with potential for 1 convoy of 3 AILs each week day (subject to further detailed discussion with Police Scotland).

# 4.4 Operation & Decommissioning

The traffic movements during the operational stage of the development are negligible compared to the construction stage, and will be only limited to regular inspection and maintenance. However, if significant transport issues arise similar methodology to that noted above will be implemented in conjunction with the relevant Road Authority.

The detailed decommissioning plan for the wind farm will be submitted for the approval of the local planning authority no later than 12 months prior to the expiry of the 25 year period as required within **Planning Condition 4** of the consent.

The traffic management elements of the decommissioning will be addressed in this plan; however as some materials will be left on site it is anticipated that associated vehicle movements will be less than the construction phase.

The abnormal loads linked to turbine components may be transported in the reverse direction back to a suitable port, but may also be broken down into smaller component parts than during the initial delivery.



# 5 ENABLING WORKS

# 5.1 Site Entrances

The site entrance location was identified as part of the route selection and chosen to minimise disruption, maximise safety and help facilitate delivery.

This site entrance takes the form of a simple give-way priority junction and has been constructed as part of the Phase 1 Enabling Civil Engineering Works contract.



# 6 TRANSPORT ARRANGEMENTS

# 6.1 General Deliveries

#### 6.1.1 Delivery Times

Movement of heavy goods vehicles onto and off of the site itself shall be restricted to between 07:00 - 19:00, Monday to Saturday in accordance with **Planning Condition 15**.

#### 6.1.2 Pollution Control

The following measures will be implemented to minimise pollution due to construction traffic:

- all vehicles transporting soil and other dusty materials will be fully sheeted;
- adequate sheeting of vehicles carrying waste materials;
- if required, a dry wheel washing facility will be provided at the exit from the site (there are 3km of site track between the Phase 2 construction zone and the junction to the A83, so the potential for debris to be deposited onto the public road is significantly reduced).

# 6.2 AIL Deliveries

#### 6.2.1 AIL Delivery Plan

Turbines shall be delivered to site in sufficient time to meet the agreed erection programme, and in accordance with the requirements of the Police and Roads Authorities. A detailed delivery plan will be prepared prior to the actual delivery and sufficient notice will be given to all relevant parties, in line with requirements set in Section 2.2.1.

Turbines are likely to be sourced from outside the UK; they shall be delivered to the UK by ship, and stored at Campbelltown harbour. It will be the turbine supplier's responsibility to obtain any necessary permits.

The site layout has been designed to allow the offloading of turbine nacelles and rotors at each turbine location prior to assembly and erection. Tower sections will be erected directly from trailers on a just in time delivery basis.

As part of the detailed delivery plan the appointed haulier will submit Risk Assessment for review and acceptance by RES. This will include a contingency plan for potential road closures or restrictions as a result of vehicle breakdowns or accidents on the route.

#### 6.2.2 Abnormal Load Delivery Timing

Deliveries shall only take place during the hours agreed with Police Scotland and the local roads authorities, as part of the detailed permitting process. Deliveries will be timed to avoid the morning or afternoon school run periods or other predictable peak traffic periods.

Deliveries may take place at weekends if this is acceptable to the relevant authorities.

# 6.2.3 Escorts for Abnormal Loads

Abnormal loads shall all be escorted in accordance with 'Self-Escorting of Abnormal Loads and Abnormal Vehicles' Code of Practice. The escorting may be undertaken by the haulage contractor or the police as required.

#### 6.2.4 Road Clearance Scheme

Clear roadways might be required to allow the transporters passage along narrow streets. RES will liaise with the local community, businesses and key services to ensure they are fully informed in advance should a road clearance scheme be required.



#### 6.2.5 Route Enforcement

The routes identified in this document will be strictly enforced unless further notification is given. All main and sub contracting companies involved in the wind farm will be monitored to ensure they follow the correct routes and do not use other 'shortcuts'. The routes will be clearly defined in all sub contracts. Any contractor not adhering to the relevant route guidance will be disciplined or removed from the project.

On site monitoring and spot checks will assist in this.

#### 6.3 Notifications to Authorities

Transport Scotland (through BEAR), Argyll & Bute Council and all Community Councils will be given written notice of the turbine deliveries in accordance with requirements specified in Table 1 as a minimum. Weekly updates will be provided as the delivery timetable is finalised with the supplier during the delivery period.

# 6.4 Notifications to Other Stakeholders

#### 6.4.1 Emergency Services

The Police, Fire and Ambulance service will be given written notice of the turbine deliveries and kept fully informed throughout the delivery period.

#### 6.4.2 Local Residents

RES will continue to engage with the local community councils and residents during the construction period. RES will ensure that local residents and community representatives remain fully informed of the progress of the development.

RES will, where appropriate, communicate information via local notice boards, the Argyll & Bute Council website and the project specific website (www.freasdail-windfarm.co.uk) prior to the commencement of turbine deliveries. The notifications will also be published in the local press. As a minimum the leaflet or advertisement will contain the following information:

- Name and number of the RES Community Relations Manager
- Estimated commencement date for deliveries
- Duration of delivery period
- Estimated times of deliveries
- Any details of the route (if appropriate)
- Request to keep the highway clear of parked cars during the delivery period (if appropriate)

#### 6.4.3 Local Services

RES will make every effort to ensure disruption caused by deliveries is avoided. Services of particular relevance include, but are not limited to;

- Local schools and nurseries.
- Local buses, including school buses.
- Local doctors, surgeries or health providers.

Information will be provided to make service providers aware of the programme of planned works.



# 6.4.4 Planned Engineering Works

RES will work with the local roads authorities to identify any planned engineering works on the A83(T) and local roads in and around Freasdail.

# 6.4.5 School run and Community Events

RES will identify any conflicts with school and nursery drop off and pick up locations and times. Construction deliveries will, where possible, be scheduled to avoid these busy periods as well as scheduled local authority bin collections or, where possible, be rerouted to avoid potential pinch points.

Planned and notified community events will also be considered by RES when scheduling/routing deliveries.

#### 6.4.6 Miscellaneous

Contractor's Information Boards shall be posted at the site entrance.

# 6.5 Road Condition Survey

Any damage arising that is directly attributable to these works will be reviewed with ABC and BEAR and appropriate remediation agreed.



# 7 DELIVERY ROUTES

Given that the site entrance is directly off the A83 trunk road, all vehicles attending site will approach either from the north or south along this road.

# 7.1 AlL Journeys

Turbine components will arrive by boat to the harbour in Campbelltown. From there they will be loaded onto specialist vehicles and transported to site via the A83.

# 7.2 AIL Return Journeys

Unladen AIL transport vehicles will have their trailers shortened prior their departure from the site and will thus not be considered abnormal. Returning vehicles will only exit the site at such times as to ensure they do not have to pass oncoming abnormal loads along the delivery route.

# 7.3 Construction Materials

The primary construction material being transported to site will be stone for track construction. While it is intended that much of this will be 'site won', there will be a requirement to import some material from a local quarry; most likely from Furnace which is approximately 50km to the north along the A83. Should this quarry be unable to service the project, an alternative quarry in the local area will be used.

# 7.4 Other Arrangements

#### 7.4.1 Route Enforcement

Suitably worded arrangements will be included in the contract with the hauliers to ensure that all drivers adhere to the approved arrival and departure routes and/or timing restrictions.

#### 7.4.2 Temporary Road Signing

Temporary road signing informing drivers about the ongoing construction on site, as well as routing works traffic to and from the development erected as part of Phase 1 works will be retained for the duration of Phase 2 works.



**APPENDIX A - TURBINE DIMENSIONS** 



**APPENDIX B - TYPICAL CRANE DIMENSIONS** 



**APPENDIX C - TYPICAL DELIVERY VEHICLE DRAWINGS** 



APPENDIX D -AIL DELIVERY ROUTE DRAWING