ARCUS

ACKRON WIND FARM

TECHNICAL APPENDIX A11.3

FRAMEWORK CONSTRUCTION TRAFFIC MANAGEMENT PLAN

NOVEMBER 2020

Prepared By:

Arcus Consultancy Services

7th Floor
144 West George Street
Glasgow
G2 2HG

T +44 (0)141 221 9997 l E info@arcusconsulting.co.uk
w www.arcusconsulting.co.uk

Registered in England & Wales No. 5644976

TABLE OF CONTENTS

1 INTRODUCTION

1.1 Background

Arcus Consultancy Services Ltd (Arcus), on behalf of Ackron Wind Farm Ltd (the Applicant), has prepared this Framework Construction Traffic Management Plan (FCTMP) for Ackron Wind Farm (the Development). The Development comprises 12 wind turbines and associated infrastructure, with a generation capacity of up to 49.9 (MW), and associated infrastructure ('the Development'), on land located in north-eastern Sutherland ('the Site') for a period of 30 years.

The Site which contains the Development covers an area of approximately 662 hectares (ha). The Site is located approximately 18 kilometres (km) west of Thurso and approximately 2 km south-east of Melvich in Sutherland, and is centred on National Grid Reference (NGR) 291200, 962150.

This FCTMP provides detail on the final access routes of all construction traffic and any work required to allow the safe passage of the Abnormal Load Vehicles (ALVs) associated with the Development. The FCTMP provides an overview of the routes to the Site, descriptions of the vehicles likely to be used, an assessment of any potential constraints and details of appropriate mitigation measures.

The FCTMP is a 'live' document and will be amended and developed throughout the lifespan of the Development.

The Principal Contractor appointed by the Applicant will adopt and monitor the FCTMP. The Principal Contractor will maintain communication with Highland Council Planning and Roads Departments, Transport Scotland (Transport Scotland), Bear Scotland and Police Scotland as appropriate.

1.2 Framework Construction Traffic Management Plan

From the Highland Council scoping response, it was advised that the Transport Assessment should include a framework CTMP aimed at minimising the impact of the construction traffic. Including measures to ensure development traffic adheres to the approved routes and establish protocols for the movement of HGV's on minor public roads. This document will be developed as required following the initial application.

1.3 Structure of FCTMP

The FCTMP is accompanied by:

- Appendix A: Summary of Delivery Driver Instructions; and
- Appendix B: Key Contacts.

2 CONSTRUCTION VEHICLE ROUTING AND VEHICLE TYPES

The Site Location and Route to Site Plans from the Ports of delivery (Scrabster) are shown in Figure 13.3.1 within Chapter 11 of the EIA report.

Two routes of delivery to the Site are proposed, wind turbine components will be transported by sea to the port of Scrabster and follow the Abnormal Load Route specified in sub-section 2.1 below. All other construction vehicles associated with the Development will use the General Construction Traffic Route specified in sub-section 2.2 below.

2.1 Abnormal Load Vehicles

The Abnormal Load Route is summarised below:

- Port of entry to be Scrabster Harbour;
- Proceed southbound on A9 towards Burnside;

- Turn right onto A836;
- Proceed westward on the A836 for approximately 14.9 miles;
- Turn left onto A897; and
- Follow A897 to Site access junction.

2.2 General Construction Traffic

The General Construction Vehicle Route is summarised below:

- Traffic is assumed to be approaching from the south, northbound on the A9, and/ or the east via the A836;
- Follow the A9 to Thurso;
- Proceed through Thurso, keeping on A9, towards Burnside;
- At Scrabster junction, keep straight onto A836 towards Tongue;
- As per the ALR route:
  - Proceed westward on the A836 for approximately 14.9 miles;
  - Turn left onto A897; and
  - Follow A897 to Site access junction.

Restrictions[1] will be put in place to restrict standard construction traffic (HGVs and LGVs) from utilising the A897 between Helmsdale and the Site as part of the route to Site. A small section of the A897 (approx. 200 metres or 0.12 miles) will be required in order to access the Site from the A836; however, this will not cause significant impact along the road due to the limited length of road that will be utilised.

2.3 Turbine Delivery Vehicles

Turbine Delivery Vehicles (TDVs) dimensions have been extracted from the candidate turbine dimensions (Vestas 136) as noted within the Abnormal Load Route Assessment. These details represent typical arrangements for the scale of turbine being considered:

- Each tower consists of 3 separate sections;
- The 36 turbine blades (3 per turbine) will each be up to 66.66 m in length; and
- The TDV is 2.6 m wide, with the maximum load width being up to 4.7 m.

It is assumed that the blades would be carried on a Nooteboom Super Wing Carrier (or similar) trailer.

2.4 Cranes

Two cranes are required to lift the turbine sections and blades into place during construction. The main installation crane is likely to be the most onerous ALV to use the public road network with the exception of turbine components.

A typical main installation crane (e.g. Liebherr LG 1750) is 19 m long and 3 m wide with a travelling weight of 96 tonnes. The delivery of the crane would require several supporting HGVs to build up the full rigged lifting platform. A smaller support crane would also be required to assist with installation.

2.5 Heavy Goods Vehicles

The majority of other materials required for construction of the Development (other than wind turbine components) will be transported to the site by HGV. Plant, machinery, steel-rebar and cabling will be transported by low-loader. Ancillary equipment and components are likely to be transported by shipping container. If possible, onsite batching should be

[1] Exceptions shall be granted to sub-contractors living or staying along the A897 and the B871 roads, to ensure that local accommodation businesses on these roads are not affected by the above restriction. This will also ensure that sub-contractors are not restricted from staying in accommodation along the A897 and the B871.

utilised the peak daily number of vehicles of HGV concrete mixer deliveries. Aggregates will be transported by HGV tipper.

It is believed that it is possible to win material on-site which has the potential to reduce import of both aggregate and concrete.

2.6 Construction Workers and Light Goods Vehicles

Vehicles transporting construction workers will utilise the same Access Route as the construction traffic and are restricted from using the A897 north between Helmsdale and the site entrance[2]. However, no time restrictions are proposed for these types of vehicles, although travel planning measures will be taken to ensure that the increase in traffic associated with the construction workers is minimised.

Light Goods Vehicles (LGVs) are anticipated to comprise vans, pickups, minibuses and crew vans to transport staff and small scale equipment to and from the Site.

2.7 Emergency Vehicle Access

In the event of any incidents onsite or during deliveries to Site, the emergency services can access the Site from the A9, A836, A897 and then via the Site access junction. Contact details for the nearest emergency services are provided in Appendix B of the FCTMP.

3 MANAGEMENT OF JUNCTIONS

3.1 Site Access Junction

A single access point will be available for the delivery of turbine components and construction traffic via the A897, shown on Figure 13.3.1. All general construction traffic will approach the A897 via the A836 from the east.

Route to the Site is shown on Figures 11.3.1 and 11.3.2 within Appendix C, and approximately located at Grid Reference 289830, 962921. Construction of the access junction will take place during the access track construction stage.

A temporary over-run area for abnormal loads will form part of the junction arrangement when approaching the Site entrance.

4 TIMING OF MOVEMENTS

For the purposes of the FCTMP, deliveries in this context relate to HGV vehicles. In order to comply with the identified mitigation measures of Chapter 11 of the EIA, a restriction to the timing of deliveries is required to be observed:

- As far as reasonably possible HGV deliveries to avoid school opening and closing times during term time. Therefore no deliveries should be scheduled during 0800-0900 and 1500-1600 Monday-Friday.

During foundation pouring, it may not be possible to schedule concrete deliveries outwith the above times, and all drivers should be made aware of sensitive receptors along the route.

ALV movements and timing will be defined once further negotiation with the turbine supplier and their supply chain are determined. If required, off peak movements, from 18:00 onwards, can be arranged subject to the necessary approvals. The relevant roads authorities (Highland Planning and Roads Departments) and Police Scotland, will be consulted in respect of obtaining transport permits if required.

[2] Exceptions shall be granted to sub-contractors living or staying along the A897 and the B871 roads, to ensure that local accommodation businesses on these roads are not affected by the above restriction. This will also ensure that sub-contractors are not restricted from staying in accommodation along the A897 and the B871.

5 TRAFFIC MANAGEMENT PLAN

Drivers of site and construction traffic vehicles will be aware of Access Route and contingency measures as explained during the induction period, as set out in Section 5.2.4. Drivers of HGVs, LGVs and ALVs will also be inducted and good road practice will be made clear prior to any traffic movements, including:

- Construction Traffic, including Heavy Goods Vehicles (HGVs) and Light Goods Vehicles (LGVs to include vans and cars) will be restricted from travelling between the Site and Helmsdale via the A897[3];
- As far as reasonably possible, deliveries should be scheduled outside of school opening and closing times;
- Drivers of all delivery vehicles to be made aware during induction of the presence of schools and emergency services within Thurso and also the village of Reay as this will see an increase in HGV traffic during concrete delivery days above the allowable threshold;
- If possible, onsite batching should be considered to reduce max monthly anticipated vehicle movement of concrete deliveries during turbine foundation construction. Onsite batching is the preferred option by the Applicant and the ability to accommodate batching onsite would be confirmed following post-consent site investigations; and
- Communication with local communities should be undertaken for planned activities, such as turbine deliveries and concrete delivery days (if onsite batching is not possible).

All ALV vehicles and a representative from the Principal Contractor will be in contact via two-way radios.

As previously set out, Police Scotland should have written notice in advance of the deliveries of turbine component. This could involve daily and weekly communication in advance of vehicles leaving the Port.

Police Scotland, Highland Planning and Roads Departments, and Transport Scotland as the Roads Authority will be consulted in respect of obtaining the relevant transport permits.

The Site access junction will be kept clear at all times and on-site staff will ensure no vehicles attempt to use this for parking.

A summary of instructions to be issued to all drivers to Site is included in Appendix A.

5.1 Traffic Management Measures

The following sub-sections discuss traffic management measures to be adopted at each phase of the Development.

5.1.1 Construction

During all phases of construction approximately 40 personnel would be employed on site every day. This equates to an average of approximately 26 cars/vans arriving and exiting the Site during the morning and afternoon peak hours respectively, assuming car sharing will be encouraged. This increased level of general traffic would have minimal effect on the local road network and therefore does not require any traffic management.

Given the nature of the Development, the materials and turbine components that will be transported to Site are known and will require the use and notification of 11 ALVs per turbine (132 in total for the Development).

[3] Exceptions shall be granted to sub-contractors living or staying along the A897 and the B871 roads, to ensure that local accommodation businesses on these roads are not affected by the above restriction. This will also ensure that sub-contractors are not restricted from staying in accommodation along the A897 and the B871.

Some additional loads have the potential to be classed as abnormal loads (although at this stage this is considered unlikely) depending upon detailed specification by the Principal Contractor:

- Cranes (may not be abnormal load); and
- Crane Ballast and Rigging Trucks (may not be abnormal load).

5.1.1.1 Indicative Construction Traffic Programme

The indicative construction traffic programme and associated vehicle numbers are provided in Table 5.1. This programme assumes a 26 day month and a 15 month construction period. The highlights one-way traffic movements to be carried out during the construction phase. Each delivery to Site generates two movements, that is, one to the Site and the other returning from the Site.

5.1.2 Operation

During the operational phase of the Development, it is anticipated that the trip generation associated with the maintenance of the Development will be minimal. It is anticipated that the majority of maintenance vehicles will be light vehicles, with HGVs or ALVs only being required if it becomes necessary to replace turbine components. For blade inspections a crane may be required.

Due to the low level of traffic expected during operation and the negligible impact that this is predicted to have on the local transport network, no specific traffic management measures are proposed during the operational phase of the Development.

5.1.3 Decommissioning

At the end of the 30 year operational life of the Development, the turbines and all associated above ground equipment will be completely removed in line with the Decommissioning Statement. Turbine towers and blades are likely to be dismantled into smaller sections prior to their removal to ease transport requirements and need for ALVs.

At this stage, it is not possible to forecast quantitatively the traffic effect during decommissioning of the Development, as projections of the baseline data 30 years into the future would not be accurate. However, prior to decommissioning of the Development, a further traffic assessment will be undertaken and traffic management procedures agreed with the local authority and Roads Authority as required.

The levels of traffic associated with the decommissioning of the Development will be less than that during construction since some of the below ground elements will be left in situ and the access tracks may be retained for use by the landowners, as detailed in the Decommissioning Statement.

This Page Intentionally Left Blank

Table 5.1 – Indicative Construction Movements

Activity	Month															Total
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
	HGV Excluding Concrete															
Site Mobilisation	60															60
Access Track Construction		578	568	568	566	566	566	578								3990
					14											14
Turbine Foundations						12	12	12	10	10	10					66
Control Building/Substation			16	14	12	12	12	12	12	12						102
Cabling and Electrical Works										12	12	10				34
Crane Delivery										27				27		54
Turbine Erection										56	58	58	58	58		288
Fuel Delivery	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	30
Demobilisation															60	60
Sub-Total	62	580	586	584	580	592	592	604	24	119	82	70	60	87	62	4698
	Concrete Delivery															
Concrete Delivery						252	252	252	252	252	252					1512
Sub-Total	0	0	0	0	0	252	252	252	252	252	252	0	0	0	0	1512
	Staff Cars and Vans															
Site Mobilisation/ Demobilisation	16														14	30
Substation Escort			4	4												8
Crane Delivery Escort										4				4		8
W.T.C. Escort										100	104	108	108	108		528
Staff	663	663	663	663	663	663	663	663	663	663	663	663	663	663	663	9945
Sub-Total	679	663	667	667	663	663	663	663	663	767	767	771	771	775	677	10519
Total Excluding Concrete Delivery	741	1243	1253	1251	1257	1255	1255	1267	687	886	849	841	831	862	739	15217
Overall Total	741	1243	1253	1251	1257	1507	1507	1519	939	1138	1101	841	831	862	739	16729
Daily Average (26 Day Month)	29	48	48	48	48	174	174	175	152	160	159	32	32	33	28	-

This Page Intentionally Left Blank

5.2 Mitigation Measures

The FCTMP covers the mitigation measures required to be complied with during the construction of the Development.

5.2.1 Details of Escorts of Abnormal Loads

Police Scotland, and other relevant stakeholders, such as local communities, will receive written notice in advance of turbine component deliveries. This could involve daily and weekly communication in advance of vehicles leaving the Port.

It is recommended that police escort vehicles be used to provide an escort for all ALVs travelling from the Port Scrabster to the Site. The general preference is to employ a convoy system, with a vehicle at the front and rear to warn oncoming vehicles of the approaching load. Drivers responsible for operating the convoy should be fully briefed on the Access Route and sensitive receptors, where and when to make any pre-defined stops, and be aware of all contingency measures in place in the event of an incident occurring.

All ALVs and lead traffic management staff shall be in contact via two-way radios for the duration of the delivery. This will minimise any adverse impacts caused by construction traffic on the local road network associated with the Development.

5.2.2 Temporary Warning Signage

All contractors will be monitored to ensure they follow the correct Access Route identified and that all routes are clearly signposted. Temporary warning signage will be restricted to the vicinity of the Site access, pedestrian and road user safety will be enhanced via the installation of signage and the maintenance of sight lines. Slow moving ALVs will be turning in this area and it may be useful to enforce an advisory temporary lower speed limit. This will minimise any adverse impacts caused by construction traffic on the local road network associated with the Development.

5.2.3 Management of Approach Route to Site

All vehicles will be directed along the A9, A836 and A897 to access the Site. The A9 passes through the town of Thurso, whilst the A836 passes by the hamlet of Buldoo and through the village of Reay. In addition, a small number of residential properties and farms are located along the A836 which are likely to require unrestricted access. The A836 also forms part of the North Coast 500. Both roads feature key receptors which have been assessed in section 11.7 of the EIA report.

A significant effect was identified in Chapter 11 of the EIA relating to pedestrian amenity at the following sensitive receptors:

- Pennyland Primary School;
- Pentland View Care Home;
- Bayview House Care Home; and
- Thurso Camping and Caravan Park

Moderate classification was given specifically to Pennyland Primary School, due to the 'high' sensitivity given to schools as per current guidelines.

The Principal Contractor is required to maintain safe operation of the highlighted roads throughout construction of the Development and to ensure that local residents and businesses have unrestricted access to use the route. The requirement to operate this route safely through mitigation is included as a commitment within the EIA and therefore is an essential requirement of the overall planning permission of the Development. The Principal Contractor must ensure the following principles are met in order to satisfy these requirements:

- Local residents and business users must have unrestricted access to the Access Route throughout construction of the Development; and
- The Access Route must not become blocked by any vehicles associated with the Development including deliveries, staff vehicles, all subcontractors and any other visitors to the Site.

In order to satisfy these requirements, the following mitigation measures should be adhered to:

- Notify local residents and Community Council of proposed timings for ALVs deliveries and predicted days of elevated construction traffic will aim to avoid a high level of adverse impact where possible;
- Signage to be provided to warn recreational users at construction traffic crossing points;
- As far as reasonably possible, deliveries should be scheduled outside of school opening and closing times;
- Drivers of all delivery vehicles to be made aware during induction of the presence of schools and emergency services within Thurso and Reay and that formal pedestrian crossing facilities are not present;
- Arrangements for regular road maintenance and cleaning, e.g. road sweeping in the vicinity of site access points as necessary; and
- Drivers to be briefed on pulling over to the side of the road at suitably safe locations to allow other road users to overtake safely.

5.2.4 Contingency Plan

A contingency plan will be designed to provide additional safety in the event of unplanned circumstances such as transport delay or impedance of traffic through vehicle breakdown. In particular it will focus on the potential for blockage to the public road network through breakdown of ALVs or HGVs.

Should these unlikely circumstances occur, escort personnel would be on hand to manage the traffic, set up arrangements around the breakdown (local diversion if required) and liaise with Police Scotland. Vehicle service personnel would be readily available for immediate repair. This will minimise any adverse impacts caused by construction traffic on the local road network associated with the Development.

In the unusual event that a load needs to be removed from a vehicle, a local crane will be mobilised to transfer the component to another transport vehicle.

5.2.5 Enforcement

All contractors will be monitored (through regular spot-checks) to ensure they follow correct Access Routes and do not use the A897 from Helmsdale[4]. Access Routes identified will be clearly defined in all sub-contracts and signposted. If necessary to ensure compliance, the Principal Contractor could install directional signage at the A9/A897 junction at Helmsdale to direct construction traffic to continue north on the A9.

Any contractor not adhering to the relevant route guidance and the over-arching FCTMP will be disciplined and may be removed from the Development; this will be contractually specified where practical to do so.

The Site access will be kept clear at all times during construction and will be monitored by on-site staff to ensure vehicles do not attempt to use the area for parking.

[4] Exceptions shall be granted to sub-contractors living or staying along the A897 and the B871 roads, to ensure that local accommodation businesses on these roads are not affected by the above restriction. This will also ensure that sub-contractors are not restricted from staying in accommodation along the A897 and the B871.

5.2.6 Notifications

A full list of key contacts for the FCTMP is included in Appendix B.

5.2.6.1 Emergency Services

Consistent with the procedures defined through previous and ongoing consultation; Police Scotland will be given written notice of turbine deliveries and ALVs.

Weekly and daily communication with Police Scotland and Roads Authorities will be necessary in advance of the ALVs leaving Wick harbour by road.

The Applicant is committed to working with Police Scotland and other emergency services to ensure that the deliveries associated with the Development do not cause any detriment to emergency service response locally. Through the traffic management measures stated in the FCTMP, access for emergency services will be maintained.

5.2.6.2 Roads Authorities

The relevant Roads Authorities will be consulted as required in respect of the relevant transport permits including Highland Planning and Roads Departments, Transport Scotland, Bear Scotland and Police Scotland as appropriate.

The Applicant and the Principal Contractor will work with the relevant roads authorities to identify planned engineering or other works/events which might conflict with the delivery route times. Discussion will then take place in order to establish appropriate measures which will minimise the potential for associated disruption to local communities.

Transport of significantly large or 'out of gauge' loads (classed as such on account of their abnormal length, width, height or weight) will require notification to Transport Scotland.

5.2.6.3 Local Communities

The Applicant and the Principal Contactor will ensure local communities, local residents and statutory consultees are informed of Site deliveries throughout the construction period. This would include circulation of information about ongoing activities and in particular those which could have potential to cause disturbance. A telephone number for the Principal Contractor will be available during operational hours to resolve any traffic management problems that occur.

The Applicant and the Principal Contractor will liaise with the Highland Council and community to identify major events in the area and to programme the construction works so that they not disrupt the local road network on these days.

This Page Intentionally Left Blank

APPENDIX A – SUMMARY OF DELIVERY DRIVER INSTRUCTIONS

Instruction
HGVs and LGVs are prohibited from approaching the site via the A897 from Helmsdale. Construction traffic will access the site from the east on the A9, joining the A836 and then onto the A897 before reaching the Site access junction.[5] Abnormal Load Vehicles will access the site from the east from the port of Scrabster onto the A9, turning onto the A836 and then onto the A897 before reaching the Site access junction.
Deliveries and loading / unloading of HGVs are restricted to 08:00 - 18:00 on Monday to Friday and 08:00-13:00 on Saturday during construction periods.
The site access junction must be kept clear at all times and on-site staff will ensure no vehicles attempt to use this for parking.
Drivers should be aware of the delivery routes defined in the FCTMP and contingency measures as pre-defined at induction stage.

[5] Exceptions shall be granted to sub-contractors living or staying along the A897 and the B871 roads, to ensure that local accommodation businesses on these roads are not affected by the above restriction. This will also ensure that sub-contractors are not restricted from staying in accommodation along the A897 and the B871.

This Page Intentionally Left Blank

APPENDIX B – KEY CONTACTS

Police Scotland	
Address:	Police Scotland: Thurso Centre 20 Olrig St, Thurso KW14 7JA
Tel:	101, 999 or 01786 289070
Highland and Island Fire and Rescue Service	
Address:	Fire Station/Millbank Rd, Thurso KW14 8PS
Tel:	999 or 01847 893338
Dunbar Hospital	
Address:	Ormlie Rd, Thurso KW14 7DW
Tel:	01847 893263
Highland Council Roads Authority	
Address:	Glenurquhart Road, Inverness, IV3 5NX
Tel:	01349 886601
Transport Scotland	
Address:	Buchanan House, 58 Port Dundas Road, Glasgow, G4 0HF
Tel:	0141 272 7100
BEAR Scotland	
Address:	BEAR Scotland Limited, Bridge Point Depot, 23a Longman Drive, Inverness IV1 1SU
Tel:	03300 080520

This Page Intentionally Left Blank

APPENDIX C – FIGURES

This Page Intentionally Left Blank

Statkraft

ARCUS

🟥 Site Boundary

— Abnormal Load Vehicle Route from Port

1:80,000 Scale @ A3

0 2 4 km

NORTH

Produced By: GR	Ref: 3138-REP-140
Checked By: KL	Date: 26/11/2020

Abnormal Load Vehicle Route to Site

Figure 11.3.1

Ackron Wind Farm Traffic Management Plan

P:\Projects\Engineering\Projects\3138 Ackron\3138 Ackron.aprx\3138-REP-140 Fig11.3.1 Abnormal Load Vehicle Route to Site

Statkraft

ARCUS

🟥 Site Boundary

▬ General Construction Traffic Route

1:90,000 Scale @ A3

0 2 4 km

NORTH

Produced By: GR	Ref: 3138-REP-141
Checked By: KL	Date: 26/11/2020

General Construction Traffic Route to Site

Figure 11.3.2

Ackron Wind Farm
Traffic Management Plan

P:\Projects\Engineering\Projects\3138 Ackron\3138 Ackron.aprx\3138-REP-141 Fig11.3.2 General Construction Traffic Route to Site