Scottish & Southern Electricity Networks

TRANSMISSION

Annex Q - Routing Report

February 2023

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Route Report for the delivery

of a

193 Tonne Transformer

from

Campbeltown Harbour

to

SSE Substation Crossaig

Issue	Reason for Issue	Date	Prepared By	Approved By
00	Issued for comment	30/03/22	AC	DA

Route Report

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ALLELYS GROUP - ROUTE REPORT

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1. REPORT OUTLINE

1.1 Introduction

This route feasibility study reviews and assesses the road transportation of a 193 Tonne Transformer from Grangemouth Docks to SSE Substation Crossaig.

The transport options considered are:

- 20 Axle Girder Frame Trailer
- 16 axle Self Propelled Modular Trailer (SPMT)

This report will examine the above options and determines the transport route and what works will be required to deliver the load.

1.2 Definition of Abnormal Indivisible Load (AIL)

Transport Scotland state that the strict definition of an AIL refers to a load which cannot, without undue expense or risk of damage, be divided into two or more loads for the purpose of carriage on roads which, owing to its dimensions or weight, cannot be carried on a vehicle which complies in all respect with the 'standard vehicle regulations' these are:
The Road Vehicles (Construction and Use) Regulations 1986 (as amended)
The Road Vehicles (Authorised Weight) Regulations 1998 (as amended)
The Road Vehicles Lighting Regulations 1989 (as amended)

All equipment should be stripped of their ancillaries before they are transported. Transport Scotland will only accept that further dismantling is not required where it cannot be economically achieved due to the requirement for its construction within factory environments or where extremely high tolerances have to be maintained.

1.3 Legislation

Conventional heavy goods vehicles have an operating weight limit of 44 tonnes. The category known as (AIL) covers those vehicles where the gross weight exceeds 44 tonnes. An Abnormal Load is defined as that which cannot be carried under Construction and Use (C&U) Regulations. Items which, when loaded on the load carrying vehicle exceed the weights encompassed by the C&U Regulations, but do not exceed Special Order Permission Limits are governed by Special Types General Order (STGO) categories 1 to 3 depending on size. Where dimensions exceed 6100mm in width, 30000mm in rigid length or 150 tonnes gross weight, Special Order from Highways England is required.

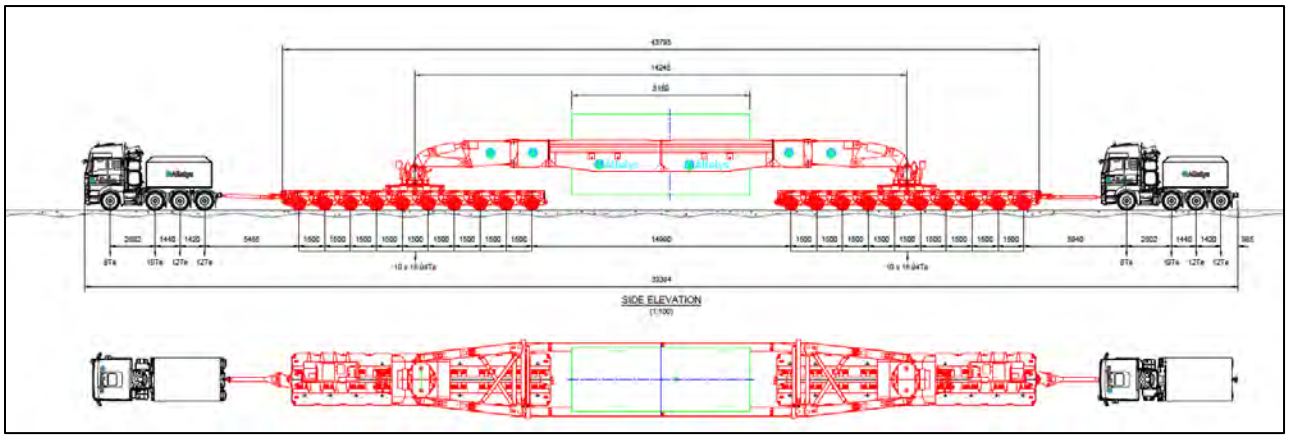
Special Order category AIL movements are authorised by the Transport Scotland Abnormal Loads Team on behalf of the Secretary of State for Transport.

2. TRANSPORTATION REQUIREMENTS

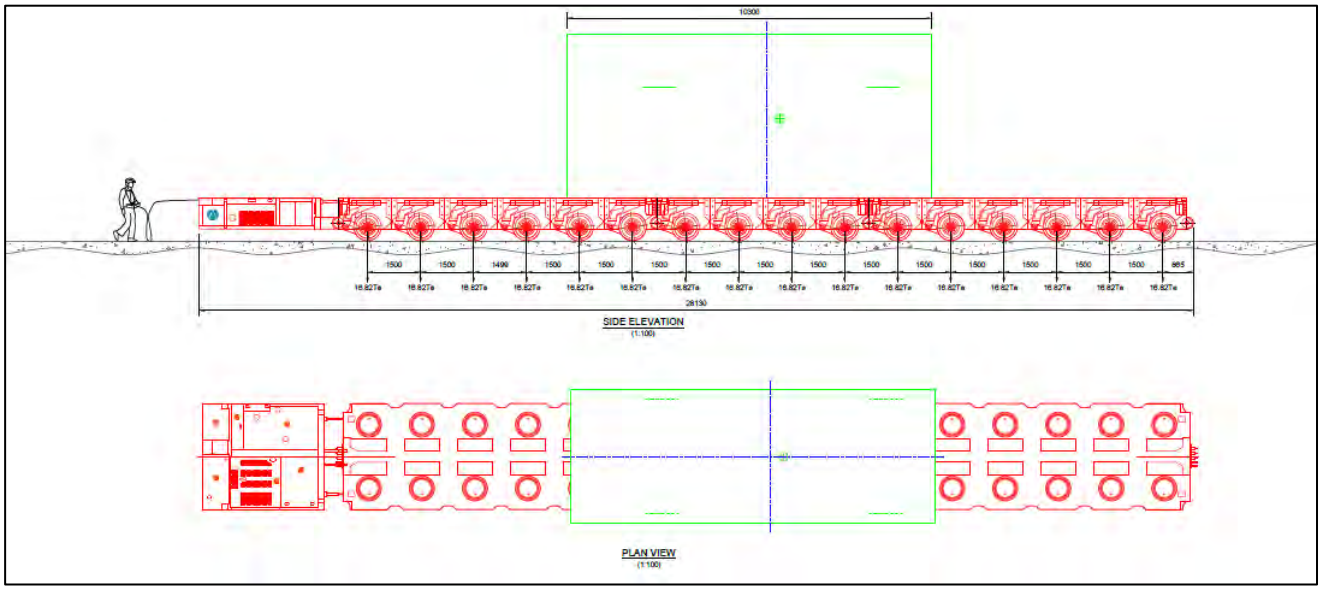
2.2 Transport Dimensions

Load	Length (m)	Width (m)	Height (m)	Weight (Te)
Transformer	5.15	3.77	4.65	193

2.3 Transportation Arrangements Considered



20 Axle Girder Frame Trailer

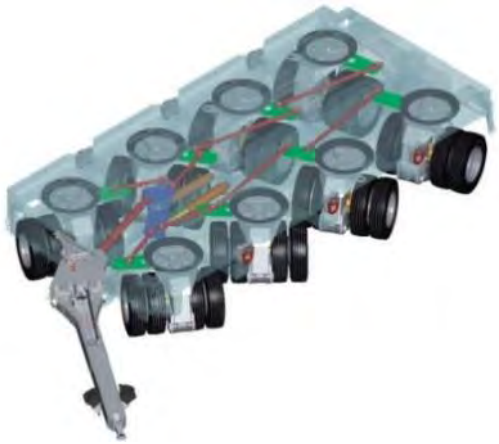


16 Axle SPMT

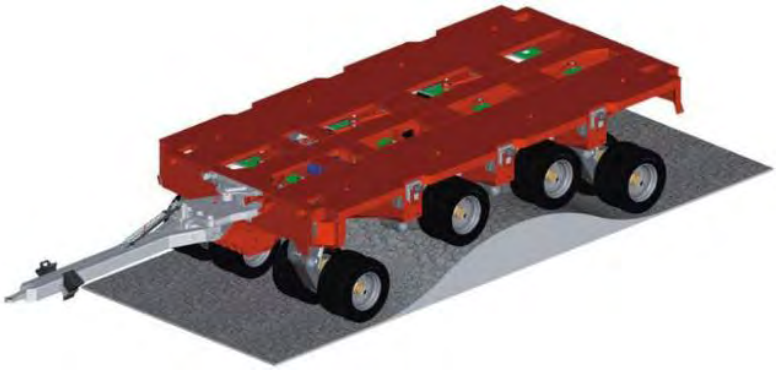
2.3 Goldhoffer Modular Trailer

For the road transportation of the transformer, Allelys propose to use Goldhofer Modular Trailers.

These specialist trailers can support a payload of 30Te / axle line when the route permits. Bed width of Allelys modular trailer is 3000mm, creating a larger block ground loading area ultimately reducing the ground bearing pressure. Standard running height is nominally 1120 mm ±300 mm, allowing the travelling height for the trailer and load to be lowered or raised when required. Axles are spaced at 1500 mm between centres and each axle load is divided over a total of 8 wheels, reducing the point loads further. Any number of axles can be connected together to reduce axle weights when the route or site requires. A maximum steering angle of 60° is achievable on the front and rear inside axles of the trailer allowing greater manoeuvrability.



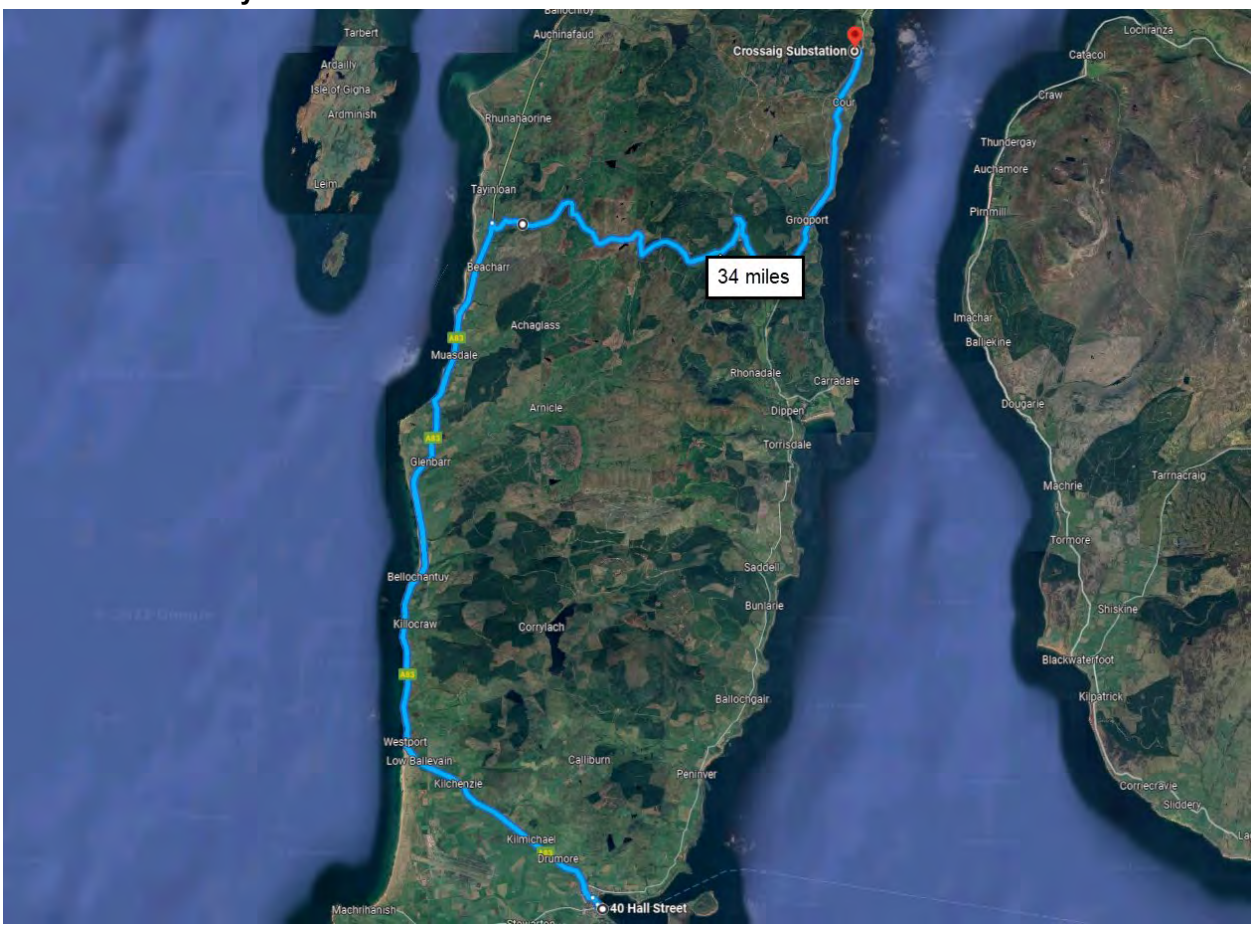
Goldhofer Steering Geometry



Goldhofer Self-Levelling Suspension

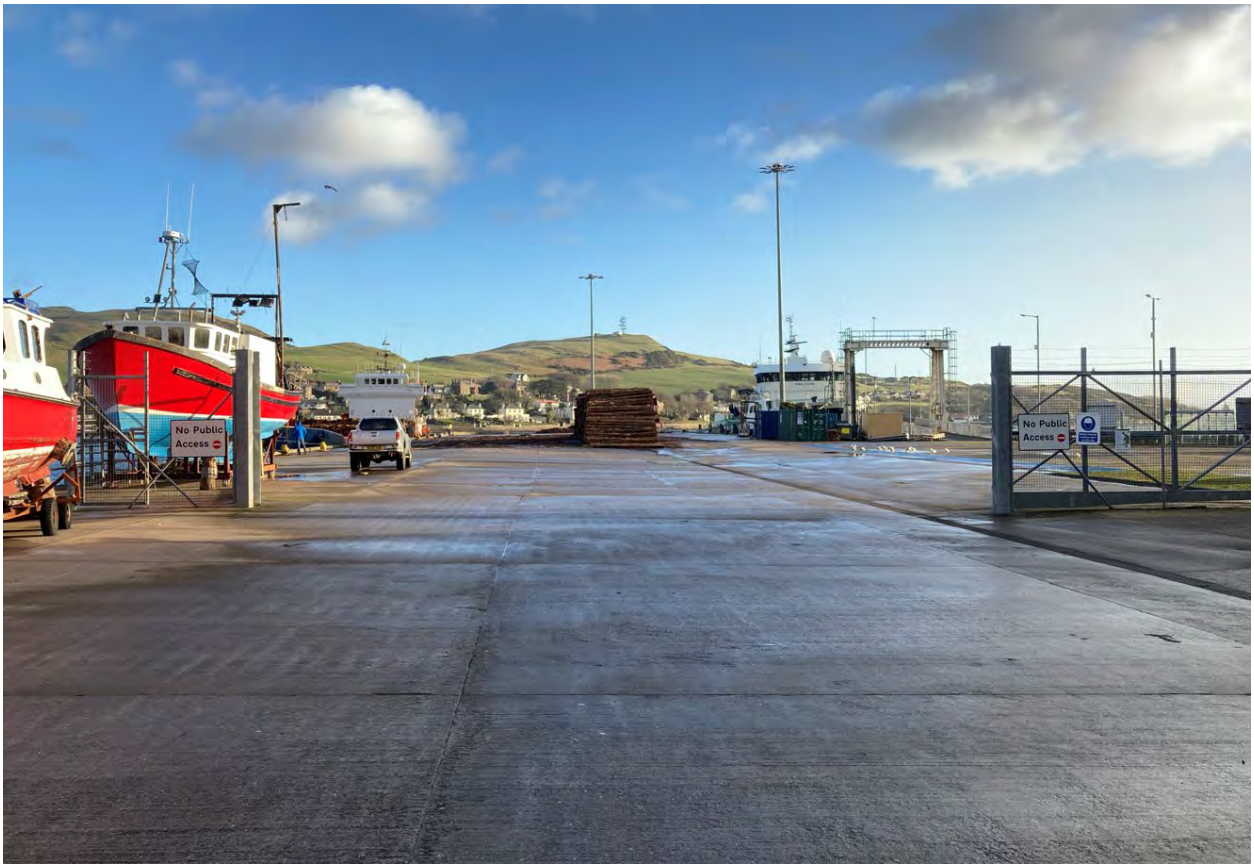
3.0. ROUTE DETAILS

3.1 Route Summary



1. **Exit Campbeltown Harbour**
2.

4.0. ROUTE SURVEY



1a. Exit Campbeltown Harbour.

1b. Turn right and contraflow Hall Street.

TTRO (Parking Restriction) required on Hall Street

1c. At the roundabout, contraflow carriageway onto A83.

TTRO (Parking Restriction) required.

2a. Negotiate A83 out of Campbeltown.

Swept Path Analysis (SWA) required in Campbeltown.

TTRO (Parking Restriction) required.

2b. Continue on A83 for 3.3 miles.

SWA required on approach to Kilkenzie.

Multiple small span structures will require clearing by BEAR NW.

2c. Continue on A83 for 9.8 miles.

SWA required on approach to Muasdale.

Multiple small span structures will require clearing by BEAR NW.

2d. Continue on A83 for 4.2 miles.

Multiple small span structures, including bridge over Killean Burn (above) will require clearing by BEAR NW.

2e. Continue on A83 for 200 meters.

Southbound lane closure and traffic management required at CKHR Junction.

Transhipment transformer from Girder Frame to SPMT at this location.

3a. Negotiate CKHR (Cross Kintore Haul Road) using 16 axle SPMT.

Haul road will need to be clear of all other traffic.

Tree trimming required on CKHR.

There are 8 x gates (3.5-meter width retraction) and cattle grids on the CKHR. Gates will not cause an issue, but cattle grids will require protecting i.e. plating.

3b. Negotiate 6.1 miles of the CKHR.

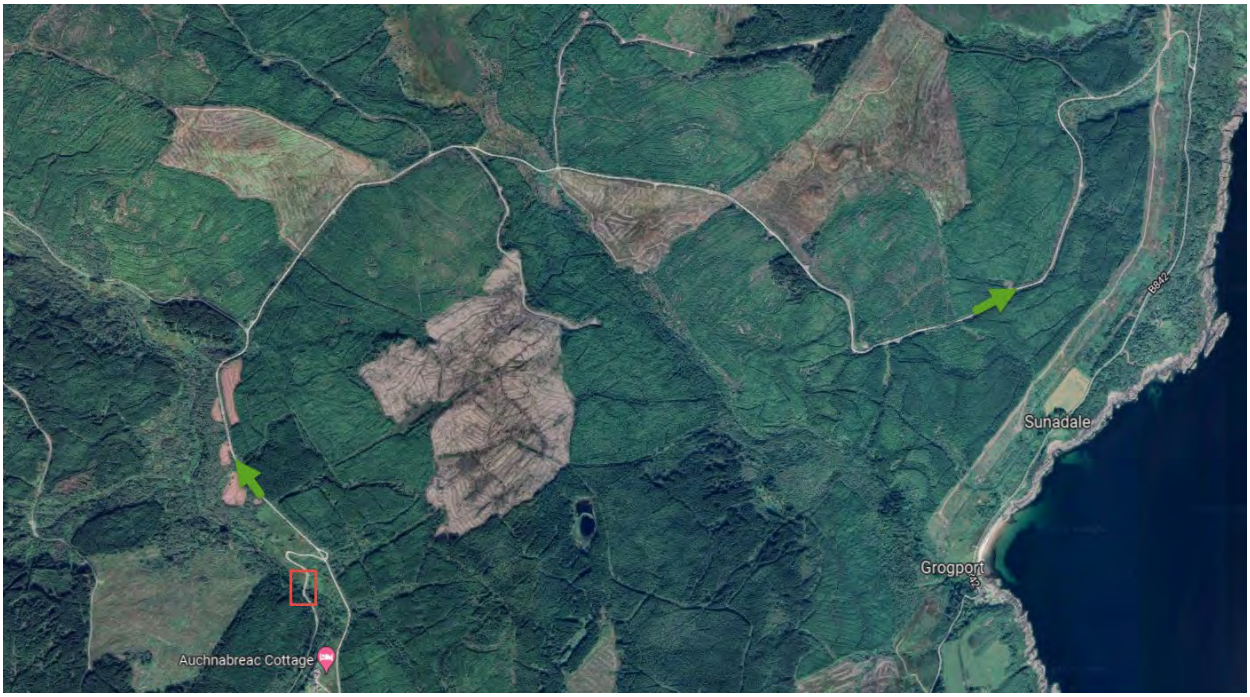
Lay-up SPMT overnight at the clearing. GR - 176363 , 643286.

Areas of the CKHR will likely require improving i.e. Potholes filled in and road re-graded.

3c. Negotiate 1.8 miles of the CKHR.

Overbridge Operation required to cross structure over Carradale Water.

Areas of the CKHR will likely require improving i.e. Potholes filled in and road re-graded.



3d. Negotiate the remaining 3.9 of the CKHR.

Working areas on the route will requiring clearing or made suitable for SPMT.

Areas of the CKHR will likely require improving i.e. Potholes filled in and road re-graded.

3e.Lay-up SPMT overnight at the CKHR / Crossaig Haul Rod

Areas of the CKHR will likely require improving i.e. Potholes filled in and road re-graded.

4a. Negotiate Crossaig Haul Road – 2.9 miles.

- **4 x structures (red spots) will require clearing / further assessment. All are relativley short span, and can be overbridged if required.**
- **There are multiple turns (yellow spots) which will require further checks, so a full SWA of the haul road will be required.**
- **Alignment onto structure 4 is of concern. PRI works may be required.**
- **Areas of the haul road are steep. Assistance, (additional plant or ballast tracotrs), will be required.**


1


2


3


4