

SSEN

Route Feasibility Report

For the delivery of

2 no. 185 te Super Grid Transformers

from Inverness to

LT519 Fort Augustus Substation

A232071

Allelys

REV	DATE	REASON	ISSUED BY
0	8-Mar-24	FIRST ISSUE	SJW

Executive Summary

Allelys have been commissioned by SSEN to provide a feasibility study for the transport of two 185 te Super Grid Transformers (SGT) from Inverness to their proposed new plinths at LT519 Fort Augustus Substation. Allelys have also been commissioned to conduct Swept Path Assessment (SPA) of the removal of two 131 te Ex SGT1 and 2 and six 109 te sections of SGT5 and 6 offsite from their respective plinths to the existing Fort Augustus Substation access road.

The objective of this document is to clearly outline a workable delivery concept for the enclosed cargo whilst adhering to UK legislation and equipment capabilities. Our recommendations are based on a wealth of knowledge and experience, however, are subject to relevant permissions at the time of delivery.

As the transport is classified as Special Order, in accordance with the Water Preferred Policy, Inverness has been considered as port of delivery as it is the closest marine facility to site capable of dealing with this size of cargo. Inverness Harbour has one quay suitable for receiving the Abnormal Indivisible Loads (AILs), but a detailed a marine facility study has not been carried out as part of this report.

The nominated transport configuration for delivery of the SGT is a 16-axle Girder Frame Trailer (GFT) subject to structural assessments.

Transport Scotland/BEAR NW and Highland Council (THC) have been contacted as the Local Highway Authorities (LHA) to confirm the current structural capacity of the route and have collectively advised that there are seven structures that require full structural assessment and one structure that has been approved under caution.

Transport Scotland/BEAR NW have advised that structure no's A82 1390 Borlum and A82 1290 Allt A' Mhuilinn require full structural assessment and that structure no. A82 1400 Drumnadrochit is to be crossed on the eastern side. The span of structure no. A82 1390 Borlum has been advised as 28.9 m, which exceeds the maximum overbridging equipment available for use, therefore, the results of the assessment for this structure poses a risk to delivery of the 185 te SGT to site. Structure no. A82 1290 Allt A' Mhuilinn has an advised span of 10.6 m, which would be suitable for overbridging, should the structural assessment results be negative.

THC have advised that structure no's A80820020 Holm Mills and A80820030 Queens Park Underpass 1 require full structural assessment. A80820020 Holm Mills is a long span bridge and, therefore, unsuitable for overbridging should a full structural assessment fail. A80820030 Queens Park Underpass 1, however, is a short span structure and would be suitable for overbridging, should the structural assessment results be negative.

There are also three structures that are currently managed by THC, but are in the process of being adopted by Transport Scotland/BEAR NW, that have also failed THC basic structural feasibility checks. Queens Park Underpass 2, Torvean Swing Bridge and Torvean Underpass all require full structural assessment. Queens Park Underpass 2 and Torvean Underpass are both short span structures suitable for overbridging should they fail further structural assessment, however, the span of Torvean Swing Bridge exceeds the length of available overbridging equipment and, therefore, poses a risk to delivery of the 185 te SGT as there are no feasible alternative routes from Inverness Harbour to site available.

There are two structures on the main Fort Augustus Substation access road that are managed by SSEN and structural approval is required before the 16-axle GFT is permitted to cross these structures. Alternatively, both structures are short span and so could be overbridged, if necessary.

Full structural assessment and overbridge engineering have not been carried out as part of this report.

The route is considered negotiable with Police Escort, Temporary Traffic Regulation Orders (TTRO), special manoeuvres and street furniture removals. TTROs can take 12 weeks plus to process and should be planned accordingly.

The 16-axle GFT is to carry out a shunt manoeuvre in order to cross structure no. A82 1390 Drumnadrochit using the eastern section, as specified by Transport Scotland/BEAR NW. This manoeuvre would remain within highway limits with no requirement for street furniture removals.

The 16-axle GFT is also to carry out a shunt manoeuvre in order to turn from the Great Glen Way onto an unclassified road junction in Fort Augustus. This is to avoid conflict between the girder frame and a databox and lamp post to the inside of the turn, if the vehicle was to turn right at this junction in conventional fashion. The shunt manoeuvre is negotiable for the 16-axle GFT with no need for street furniture removals, therefore, it is preferential to the conventional right-hand turn.

In order for the 16-axle GFT trailer to turn left from an unclassified road onto the Fort Augustus Substation access road, third-party land uptake is required to the inside of the turn along with relocation or removal of a section of post and wire fence to accommodate the girder frame oversail. Third-party land owner permission was not granted for the same manoeuvre when the existing 131 te SGT1 & 2 units were delivered in 2013. At that time, a shunt manoeuvre was carried out to avoid the need for third-party land uptake, which was possible with vegetation pruning, however, it would be preferential for the 16-axle GFT to turn left conventionally and so early stakeholder engagement is required to ascertain whether access permissions would be granted.

Immediately after the left-hand turn onto the existing substation access road, there is a right-hand bend. In order to avoid conflict between the 16-axle GFT and an electricity pole located to the western side of the substation access road at this right-hand bend, third-party land uptake and road widening is required to the eastern side of the road. Public Road Improvement (PRI) designs have not been developed as part of this report. The overhead line (OHL) crossing at the right-hand bend has an advised maximum permitted vehicle height of 4.8 m. Due to the overall vehicle height of 5.35 m, confirmation is required from SSEN that the vehicle is permitted to travel beneath the OHL.

Once the 16-axle GFT has travelled westbound around the right-hand bend on the substation access road it is to cross an existing SSEN managed structure over Allt na Fearna. The width between the parapets of this structure is approximately 4.5 m, which is not negotiable for the 16-axle GFT due to the vehicle overall width of 4.5 m, therefore, both parapets are to be removed to permit access along with two sections of wooden fencing.

SPA of the left-hand turn through the existing Fort Augustus Substation external access gate has been carried out considerate of the 185 te SGT loaded onto the 16-axle GFT. The results of this SPA show that it is not possible for the vehicle to make this turn due to conflict with an existing concrete wall and earth embankment to the inside of the turn. SPA of a shunt manoeuvre at this location has also been carried out, which shows that it is not possible for the vehicle to make this manoeuvre due to conflict with an existing site building. Therefore, delivery of the new 185 te SGT cannot be made through the existing substation entrance without demolition of the existing concrete wall and earth embankment to the inside of the left-hand turn. Additional site furniture removals are also required to allow access for the 16-axle GFT at this location. Alternatively, a new site entrance is to be designed and constructed to accommodate delivery of the new SGTs. Drawing no. ALL-A232071-SPA-04 showing the left-hand turn and shunt manoeuvre is included within Appendix D of this report.

It is possible for the 185 te SGTs to be delivered in line with their respective plinth centrelines using the proposed new SGT1 & 2 plinth access road, although it has been noted that a new internal access gate has not been shown on the proposed site layout design to allow access for the 16-axle GFT through an existing internal fence line. The SGTs would then need to be offloaded from the delivery vehicle and manoeuvred into position on the plinths, although final offload and movement of the units from the GFT onto the plinth has not been carried out as part of this report. Drawing no. ALL-A232071-SPA-01 showing the movement of New SGT1 & 2 from the existing site access road to the proposed plinths is included within Appendix D of this report.

SPA of the removal of 131 te Ex SGT1 & 2 offsite from the respective plinths has been carried out. In order for the units to be removed from their plinths, two fire exclusion walls are to be removed and the units are to be hydraulically jacked and skidded from the plinth to the adjacent site access roads ready to be loaded onto 12-axle flat top trailer, which is the proposed transport configuration for these units. An engineering scheme for removal of the Ex SGTs from plinth onto the proposed vehicle has not been carried out as part of this report. Once loaded onto the 12-axle flat top trailer, the route offsite is negotiable along the existing site access roads and through an existing internal substation access gate. A cable trough located on the site access road is to be overplated to accommodate the wheel loadings of the 12-axle flat top trailer. Drawing no. ALL-A232071-SPA-02 showing the movement of Ex SGT1 & 2 from plinth through the existing internal substation access gate is included within Appendix D of this report.

SPA of the removal of 3 no. 109 te sections of SGT5 & 6 offsite from the respective plinths has been carried out. In order for the units to be removed from their plinths, existing busbars and associated auxiliary equipment are to be removed and the units are to be hydraulically jacked and skidded from the plinth to the adjacent site access roads ready to be loaded onto 6-axle bed 6-axle trailer, which is the proposed transport configuration for these units. An engineering scheme for removal of SGT5 & 6 from plinth onto the proposed vehicle has not been carried out as part of this report. Four cable troughs located adjacent to the SGT5 & 6 plinths on the site access road are to be overplated to accommodate the wheel loadings of the 6-axle bed 6-axle trailer. Once loaded onto the 6-axle bed 6-axle trailer, the existing route offsite is negotiable along the existing site access roads and through an existing external substation access gate.

SPA of the removal of the sections of SGT5 & 6 loaded onto the 6-axle bed 6-axle trailer along the proposed site access road has been carried out and it has been found that the current design is not negotiable for the vehicle. The design of the road is to be widened to suit the vehicle track in two locations.

SPA of the 6-axle bed 6-axle trailer turning right from the proposed site access road onto the existing substation access road has also been carried out and the current junction design is not negotiable for the vehicle. The design of the junction is to be widened to the inside of the turn to suit the vehicle track. 1 no. existing gate and 1 no. section of wooden fencing located to the southern side of the existing substation access road are also to be removed and relocated to permit access for the 6-axle bed 6-axle trailer. Drawing no. ALL-A232071-SPA-03 showing the movement of the sections of SGT5 & 6 offsite from plinth to the existing main substation access road is included within Appendix D of this report.

Onward movement of the Ex SGT1 & 2 and 6 no. sections of SGT5 & 6 from the existing substation access road to their destination(s) has not been considered as part of this report.

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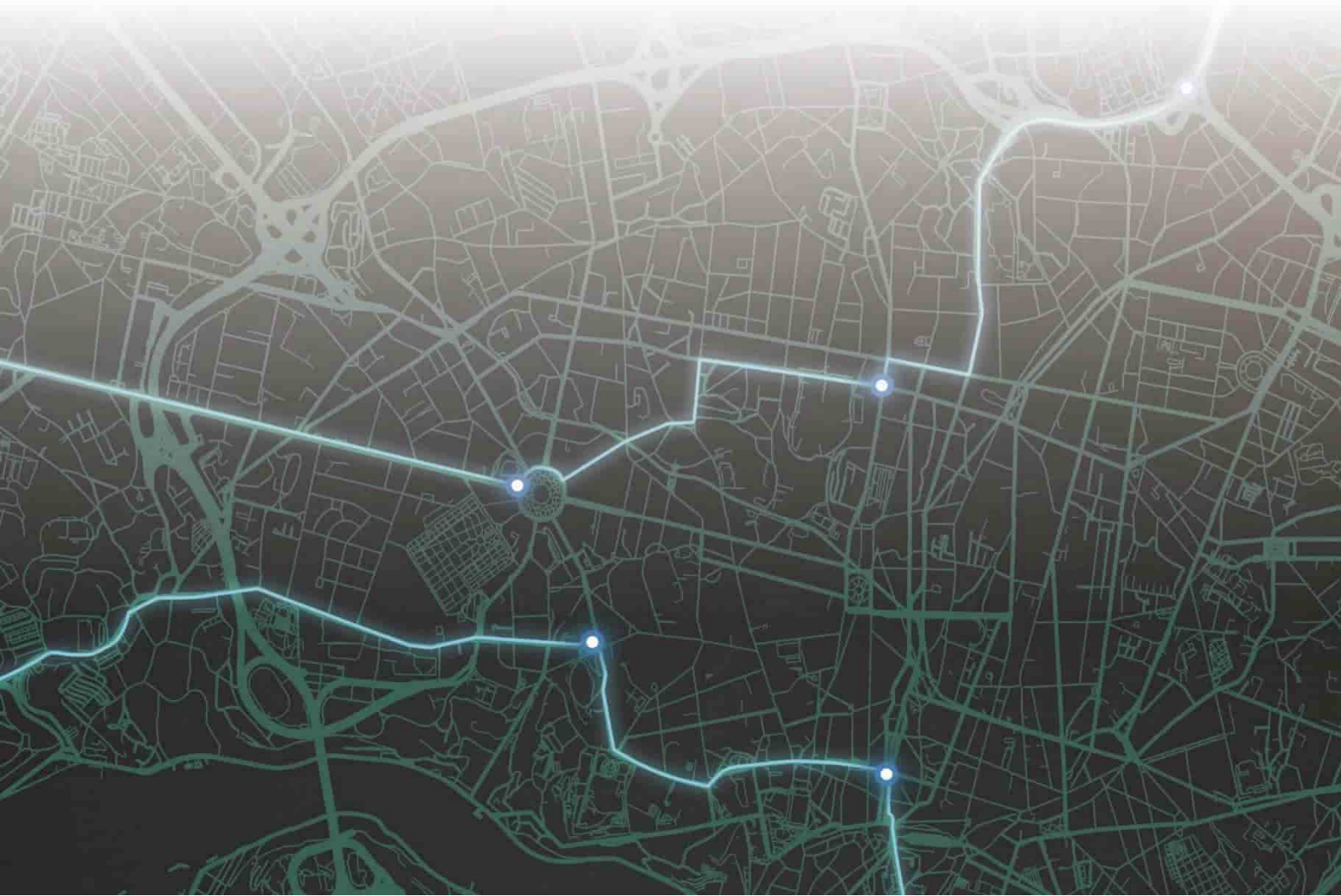
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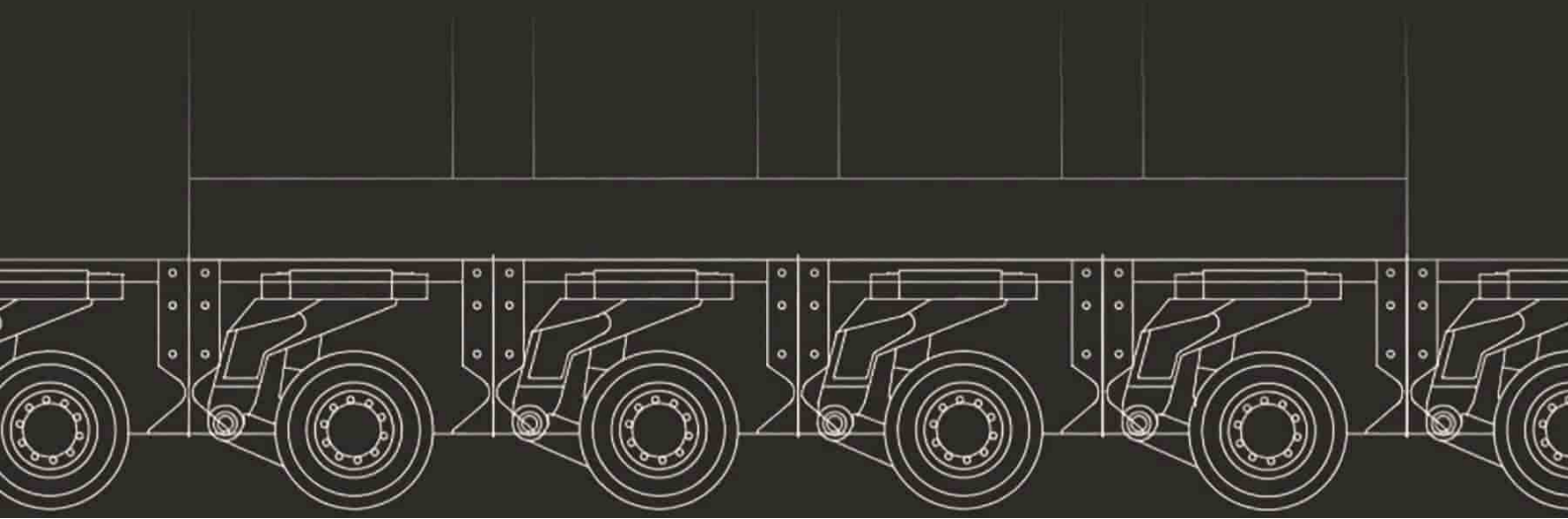
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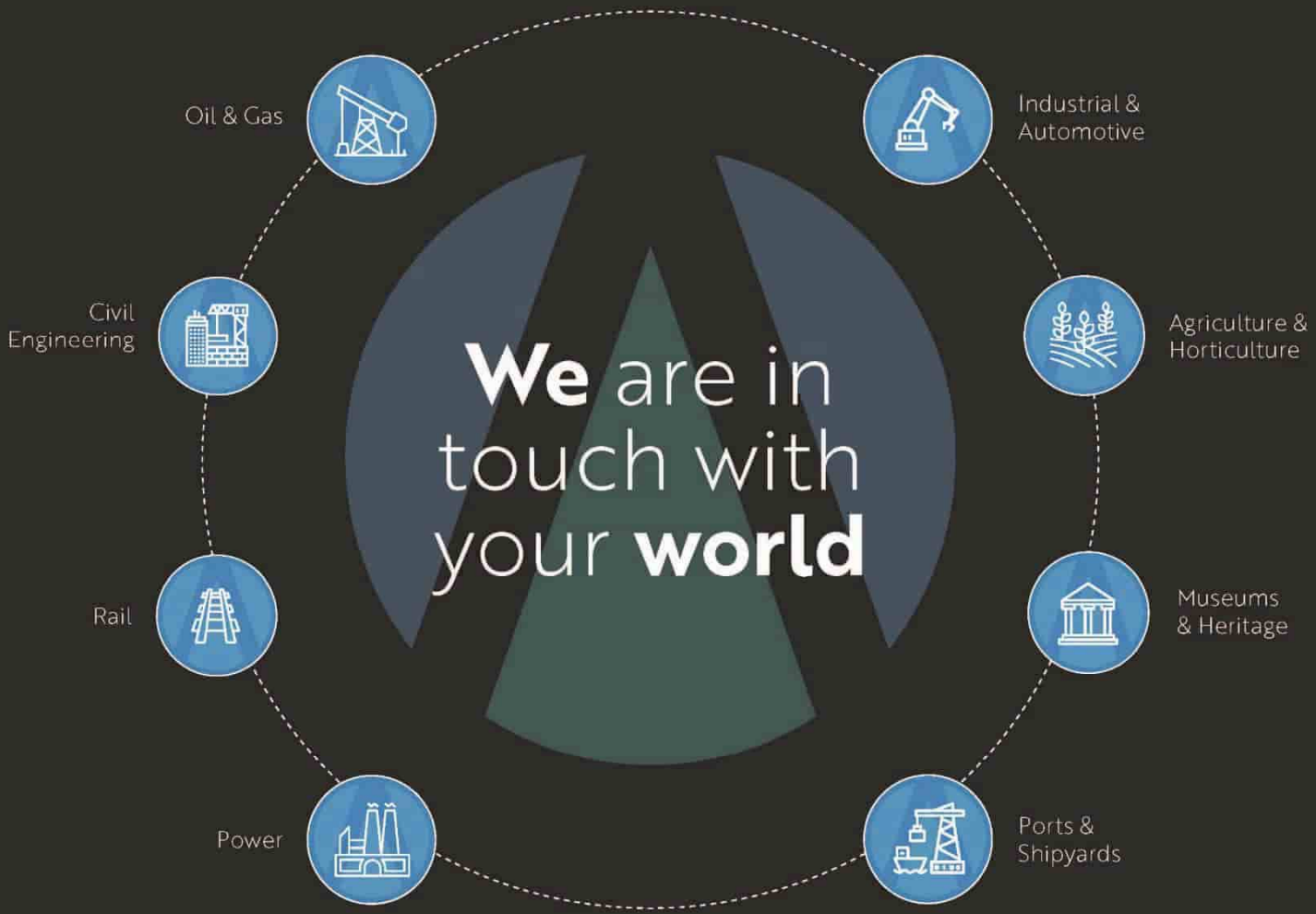
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1. Introduction

1.1. Allelys have been commissioned by SSEN to provide a feasibility study for the transport of two 185te Super Grid Transformers (SGT) from Inverness to their proposed new plinths at LT519 Fort Augustus Substation. Allelys have also been commissioned to conduct Swept Path Assessment (SPA) of the removal of two 131 te Ex SGT1 and 2 and six 109 te sections of SGT5 and 6 offsite from their respective plinths to the existing Fort Augustus Substation access road.

1.2. The objective of this document is to clearly outline a workable delivery concept for the enclosed cargo whilst adhering to UK legislation and equipment capabilities. Our recommendations are based on a wealth of knowledge and experience, however, are subject to relevant permissions at the time of delivery.

2. Definitions & Terminology

2.1. Definition of Abnormal Indivisible Load (AIL)

2.1.1. The Department of Transport, of which the National Highways (NH) is an executive agency, 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)

2.1.2. All equipment should be stripped of their ancillaries before they are transported. The NH 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.

2.2. Legislation

2.2.1. 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.

2.2.2. Where dimensions exceed 6,100 mm in width, 30,000 mm in rigid length or 150 tonnes gross weight, Special Order from NH, is required.

2.2.3. Special Order category AIL movements are authorised by the NH Abnormal Loads team, an executive agency of the Department for Transport (DfT, based in Birmingham).

2.3. *Abbreviations*

AIL	Abnormal Indivisible Load
C&U	Construction and Use
GFT	Girder Frame Trailer
LHA	Local Highway Authority
NH	National Highways
OHL	Overhead Line
PRI	Public Road Improvement
SPA	Swept Path Assessment
STGO	Special Types General Order
TTRO	Temporary Traffic Regulation Order

3. Cargo Summary

3.1. The below information has been supplied by SSEN.

Table 1 Cargo

Description	Qty	Dimensions [mm]	Weight [kg]
New SGT1 & 2	2	L 11,800 x W 4,200 x H 5,200	185,000
SGT5 & 6 split phase units	6	L 5,680 x W 3,595 x H 4,945	109,000
Ex SGT1 & 2	2	L 9,250 x W 4,130 x H 3,900	131,000

4. Locations

4.1. Delivery Address

4.1.1. Fort Augustus Substation is located 36 miles south of Inverness.

4.1.2. The general condition of the local roads is good; however, some junctions require further assessment. See Section 7 for more detail.

4.2. Route Details

4.2.1. Route 1 is as follows, as shown in Figure 1:

Inverness Harbour (port of delivery)
LH turn from **Inverness Harbour AIL access road** onto **Longman Drive**
LH turn at **Longman Roundabout** from **Stadium Road** onto **A9 southbound**
LH turn from **A9** onto **Culloden Road**
LH turn from **Culloden Road** onto **B9006**
LH turn at **Inshes Roundabout** from **B9006** onto **A8082**
Straight on at **A8082/Inshes Rd rbt** continuing on **A8082**
Straight on at **A8082/Stevenson Rd rbt** continuing on **A8082**
Straight on at **Slackbuie Roundabout** continuing on **A8082**
Straight on at **Asda Roundabout** continuing on **A8082**
Straight on at **A8082/B861 rbt** continuing on **A8082**
Straight on at **A8082/Culduthel Mains Rd rbt** continuing on **A8082**
Straight on at **A8082/Stratherrick Rd rbt** continuing on **A8082**
Straight on at **Holm Roundabout** continuing on **A8082**
Straight on at **A8082/Ness-side rbt** continuing on **A8082**
LH turn at **A8082/Evelix Pl rbt** continuing on **A8082**
LH turn at **Queens Park Roundabout** from **A8082** onto **unclassified road**
Straight on at **UC road/A82/General Booth Rd rbt** from **unclassified road** onto **A82**
Shunt manoeuvre over **A82 1400 Drumnadrochit** continuing on **A82** utilising **A831**
Straight on at **A82 Drumnadrochit rbt** continuing on **A82**
RH turn from **A82** onto **Great Glen Way**
Shunt manoeuvre from **Great Glen Way** onto **unclassified road**
LH turn from **unclassified road** onto **Fort Augustus Substation access road**
Fort Augustus Substation (delivery point)

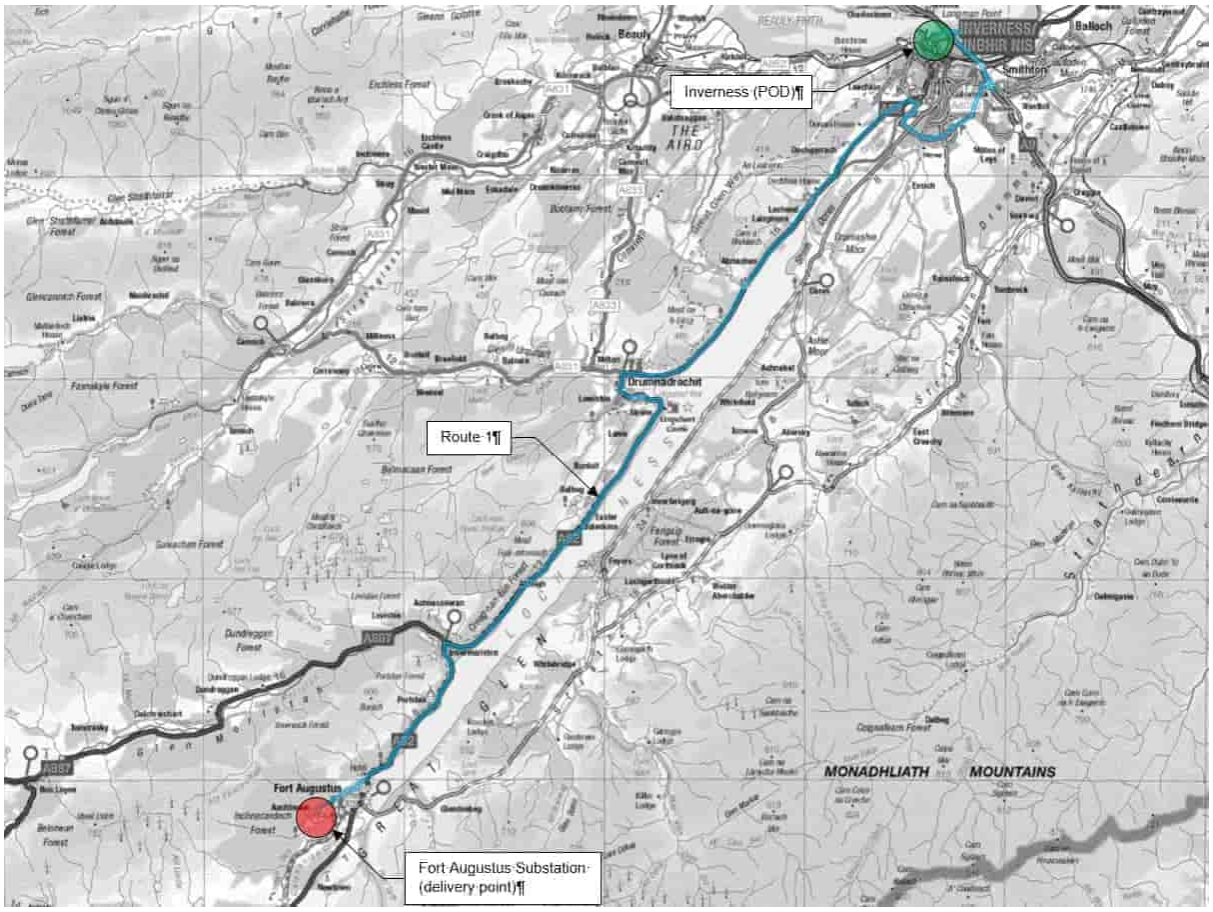


Figure 1 Inverness to Fort Augustus Substation delivery route

4.2.2. Full maps of the route are included under Appendix B.

4.2.3. Police Scotland would be required to provide full escort for the duration of the movement.

5. Equipment

5.1. Delivery Vehicle

5.1.1. For this assessment, it is proposed that the 185 te New SGT1 & 2 be transported separately on a 16-axle GFT, as seen in Figure 2.

5.1.2. This transport arrangement has a gross weight 284.6 te, width 4.5 m, height 5.35 m and axle line load 17.8 te. Therefore, it is to be carried under Special Order legislation. Full technical drawing no. ALL-A232071-TA-01 is included under Appendix A.

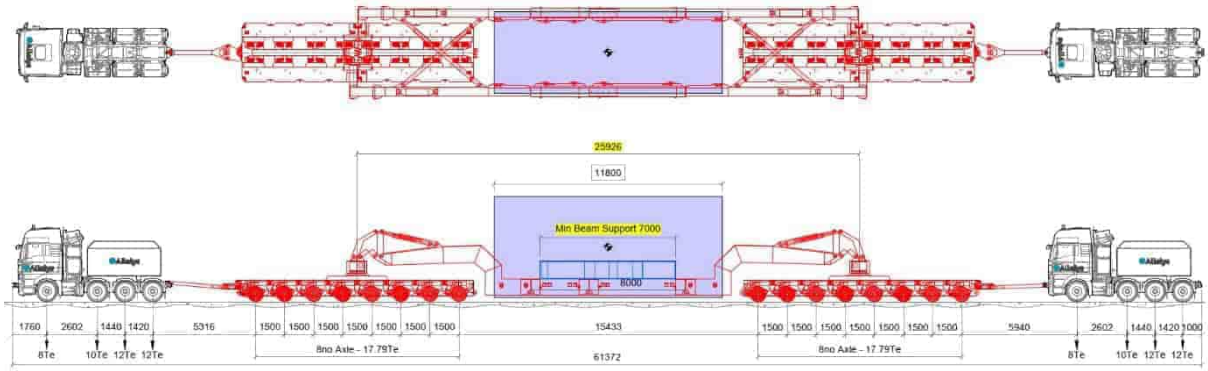


Figure 2 185 te New SGT1 / 2 loaded onto 16-axle girder frame trailer

5.1.3. For this assessment, it is proposed that the 109 te split phase sections of SGT5 & 6 be transported separately on a 6-axle bed 6-axle drawbar trailer, as seen in Figure 3.

5.1.4. This transport arrangement has a gross weight 161.5 te, width 3.6 m, height 5.3 m and axle line load 13.5 te. Therefore, it is to be carried under Special Order legislation. Full technical drawing no. ALL-A232071-TA-02 is included under Appendix A.

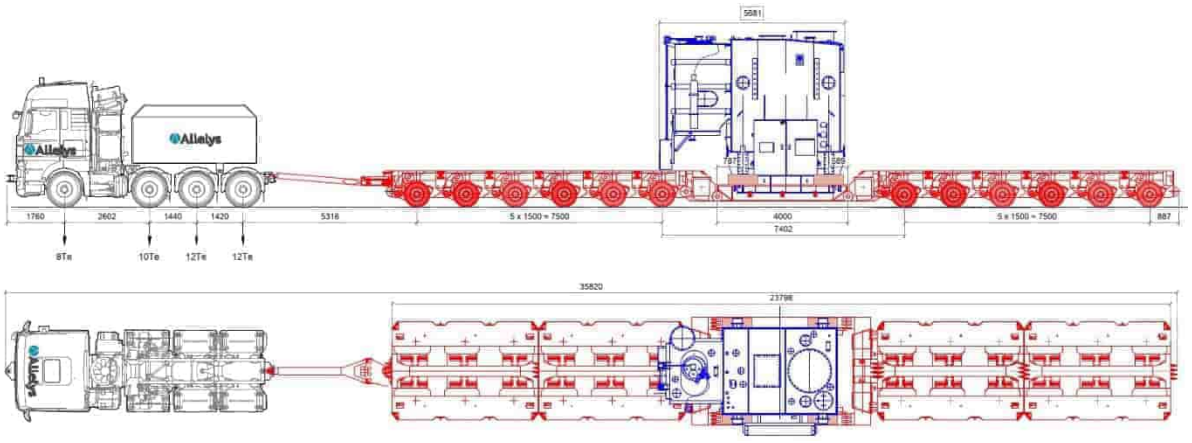


Figure 3 109 te split phase section of SGT5 / 6 loaded onto 6-axle bed 6-axle trailer

5.1.5. For this assessment, it is proposed that the 131 te Ex SGT1 & 2 be transported separately on 12-axle flat top trailer, as seen in Figure 4.

5.1.6. This transport arrangement has a gross weight 169.4 te, width 4.13 m, height 4.95 m and axle line load 14.1 te. Therefore, it is to be carried under Special Order legislation. Full technical drawing no. ALL-A232071-TA-03 is included under Appendix A.

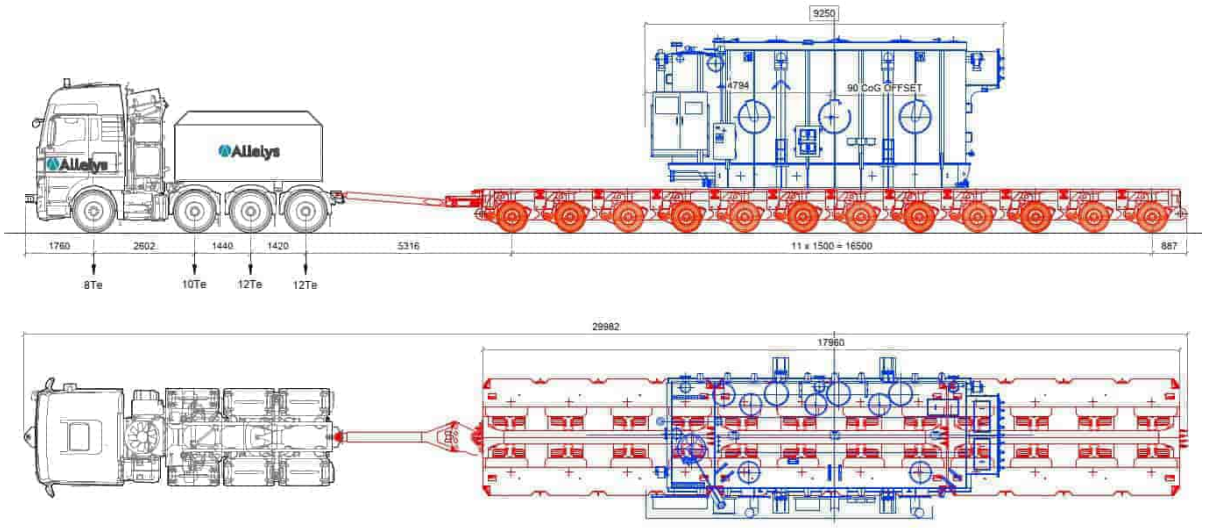


Figure 4 131 te Ex SGT1 / 2 loaded onto 12-axle flat top trailer

6. Structures Details

6.1. Transport Scotland/BEAR NW and Highland Council (THC) have been contacted as the Local Highway Authorities (LHA) to confirm the current structural capacity of the route and have collectively advised that there are seven structures that require full structural assessment and one structure that has been approved under caution.

6.2. Transport Scotland/BEAR NW have advised that structure no's A82 1390 Borlum and A82 1290 Allt A' Mhuilinn require full structural assessment.

6.3. The span of structure no. A82 1390 Borlum has been advised as 28.9 m, which exceeds the maximum overbridging equipment available for use, therefore, the results of the assessment for this structure poses a risk to delivery of the 185 te SGT to site.

6.4. Structure no. A82 1290 Allt A' Mhuilinn has an advised span of 10.6 m, which would be suitable for overbridging, should the structural assessment results be negative.

6.5. Transport Scotland/BEAR NW have approved structure no. A82 1400 Drumnadrochit for the 185te SGT loaded onto 16-axle GFT under the condition that the structure is to be crossed on the older eastern section. This would be facilitated by the GFT travelling westbound from the A82 onto the A831 before carrying out a shunt manoeuvre and turning right from the A831 back onto the A82 and across the River Enrick.

6.6. THC have advised that structure no's A80820020 Holm Mills and A80820030 Queens Park Underpass 1 require full structural assessment.

6.7. A80820020 Holm Mills is a long span bridge and, therefore, unsuitable for overbridging should a full structural assessment fail.

6.8. A80820030 Queens Park Underpass 1 is a short span structure and would be suitable for overbridging, should the structural assessment results be negative.

6.9. There are also three structures that are currently managed by THC, but are in the process of being adopted by Transport Scotland/BEAR NW, that have also failed THC basic structural feasibility checks.

6.10. Queens Park Underpass 2, Torvean Swing Bridge and Torvean Underpass all require full structural assessment.

6.11. Queens Park Underpass 2 and Torvean Underpass are both short span structures suitable for overbridging should they fail further structural assessment.

6.12. The span of Torvean Swing Bridge exceeds the length of available overbridging equipment and, therefore, poses a risk to delivery of the 185 te SGT should the results of the structural assessment be negative.

6.13. There are two structures on the main Fort Augustus Substation access road that are managed by SSEN and structural approval is required before the 16-axle GFT is permitted to cross these structures. Alternatively, both structures are short span and could be overbridged, if necessary

6.14. Quotes can be provided to carry out the further inspections and assessments of the effected structures, on request. Quotes can also be provided for overbridging, again, on request.

6.15. Full details of all structures on the route are included in Table 2 included in Appendix C.

7. Route Survey

7.1. Route Survey Reference Sheet Notes

7.1.1. Route feasibility recommendations have been identified in Section 7.3 and classified in terms of risk to delivery as follows:

High risk

- Third party land owner(s) permission
- PRI works
- Structure replacement

Medium risk

- Street furniture removals
- Vegetation pruning
- Independent structural assessment
- Structural overbridging
- Shunt/contraflow manoeuvre

Low risk

- Swept path analysis
- Temporary surfacing
- Parking restrictions
- Additional tractor unit
- Oversail of low-level street furniture and verges

7.1.2. Risk has been assessed in terms of enabling works time and complexity.

7.1.3. It should be noted that where route survey photos are of insufficient quality, Google Streetview images have been used.

7.2. Route Survey High Level Notes

7.2.1. The entire length of Longman Drive and Stadium Road is single carriageway, therefore, road to be closed under Temporary Traffic Restriction Order (TTRO) or Police to hold opposing traffic once the vehicle has joined from Inverness Harbour and exited onto the A9.

7.2.2. The entire length of the route from where the vehicle leaves the A9 until joining the Fort Augustus Substation access road is single carriageway, therefore, road to be closed under Temporary Traffic Restriction Order (TTRO) or Police to opposing traffic at strategic points once the vehicle has turned left onto Culloden Road and exited onto site.

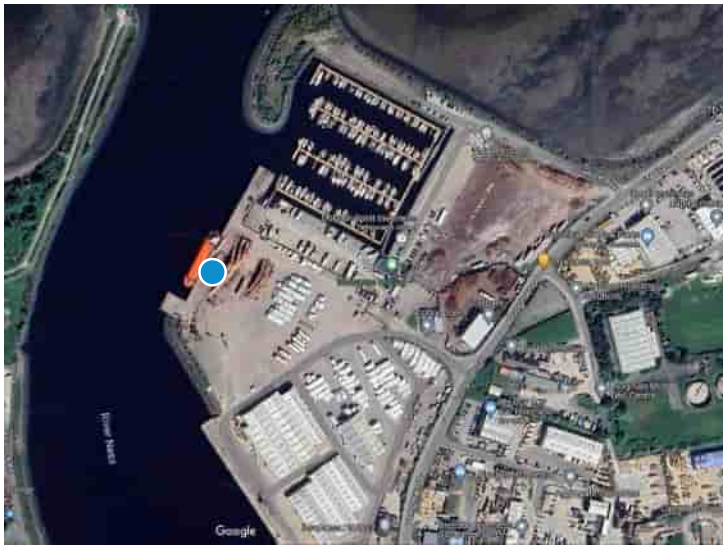
7.2.3. Depending upon growth at the time of delivery, trimming of vegetation will be required on the A82, Great Glen Way and unclassified roads to accommodate a vehicle height of 5.35 m.

7.3. *Route Survey Reference Sheets*

7.3.1. Inverness Harbour to Fort Augustus Substation

Ref. ALL-A232071-RS-01

Inverness Harbour quay (POD)





Direction of Travel Location:	**Coordinates:**
Inverness Harbour quay	57.493167, -4.235917
Enabling Works Required:	**Enabling Work Grade:**
N/A	N/A
Assessment Works Required:	**Assessment Work Grade:**
Route survey carried out - negotiable	Complete

Ref. ALL-A232071-RS-02

Inverness Harbour access route





Direction of Travel Location:	**Coordinates:**
Southbound from quay to AIL gate	57.493139, -4.234528
Enabling Works Required:	**Enabling Work Grade:**
To be cleared of equipment prior to delivery	**Low**
Assessment Works Required:	**Assessment Work Grade:**
Route survey carried out	Complete

Ref. ALL-A232071-RS-03

Inverness Harbour AIL gate





Direction of Travel Location**:** Southbound on Inverness Harbour access road through AIL gate	**C**oordinates**:** 57.492806, -4.233389
Enabling Works Required**:** N/A	Enabling Work Grade**:** N/A
Assessment Works Required**:** Route survey carried out, gate width 7.86 m - negotiable	Assessment Work **Grade:** Complete

Ref. ALL-A232071-RS-04

Inverness Harbour access road/Longman Dr LH turn





Direction of Travel Location: Left hand turn Inverness Harbour access road onto Longman Drive	**Coordinates:** 57.492222, -4.231722
Enabling Works Required: N/A	**Enabling Work Grade:** N/A
Assessment Works Required: Route survey carried out - negotiable	**Assessment Work Grade:** Complete

Ref. ALL-A232071-RS-05

A82 Longman Roundabout





Direction of Travel Location:	**Coordinates:**
LH turn at Longman Roundabout onto A9	57.491750, -4.215056
Enabling Works Required:	**Enabling Work Grade:**
N/A	N/A
Assessment Works Required:	**Assessment Work Grade:**
Route survey carried out - negotiable	Complete

Ref. ALL-A232071-RS-06

A9/Culloden Rd LH turn





Direction of Travel Location: LH turn from A9 onto Culloden Rd	**Coordinates:** 57.471528, -4.183861
Enabling Works Required: N/A	**Enabling Work Grade:** N/A
Assessment Works Required: Route survey carried out - negotiable	**Assessment Work Grade:** Complete

Ref. ALL-A232071-RS-07

Culloden Rd/B9006 LH turn



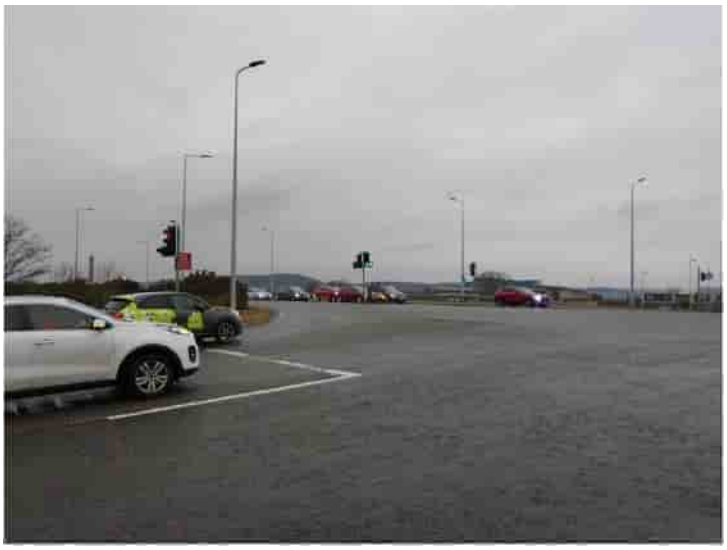


Direction of Travel Location: LH turn from Culloden Rd onto B9006	**Coordinates:** 57.471611, -4.181306
Enabling Works Required: N/A	**Enabling Work Grade:** N/A
Assessment Works Required: Route survey carried out - negotiable	**Assessment Work Grade:** Complete

Ref. ALL-A231940-RS-07 cont'd

Culloden Rd/B9006 LH turn





Direction of Travel Location:	**Coordinates:**
LH turn from Culloden Rd onto B9006	57.471611, -4.181306
Enabling Works Required:	**Enabling Work Grade:**
N/A	N/A
Assessment Works Required:	**Assessment Work Grade:**
Route survey carried out - negotiable	Complete

Ref. ALL-A232071-RS-08

B9006/A8082 Inshes Roundabout





Direction of Travel Location: LH turn at Inshes Roundabout from B9006 onto A8082	**Coordinates:** 57.471778, -4.190111
Enabling Works Required: Removal of 1 no. traffic signal and section of metal railings	**Enabling Work Grade:** **Medium**
Assessment Works Required: Route survey carried out	**Assessment Work Grade:** Complete

Ref. ALL-A232071-RS-08 cont'd

B9006/A8082 Inshes Roundabout



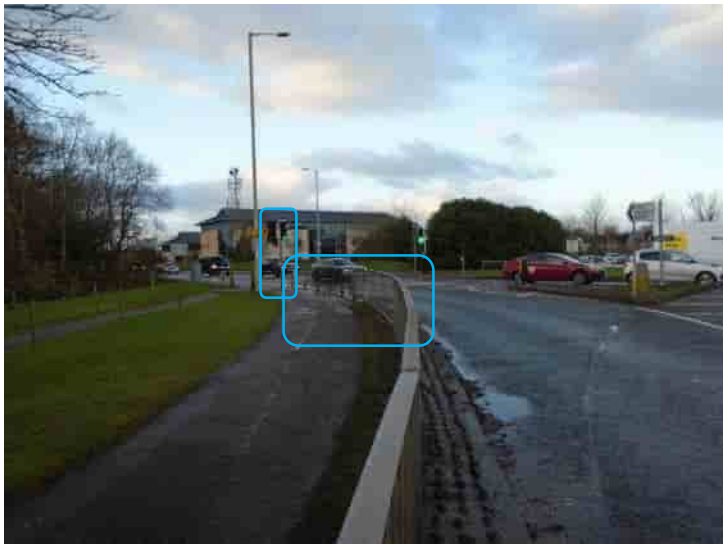


Direction of Travel Location: LH turn at Inshes Roundabout from B9006 onto A8082	**Coordinates:** 57.471778, -4.190111
Enabling Works Required: Removal of 1 no. traffic signal and section of metal railings	**Enabling Work Grade:** **Medium**
Assessment Works Required: Route survey carried out	**Assessment Work Grade:** Complete

Ref. ALL-A232071-RS-08 cont'd

B9006/A8082 Inshes Roundabout

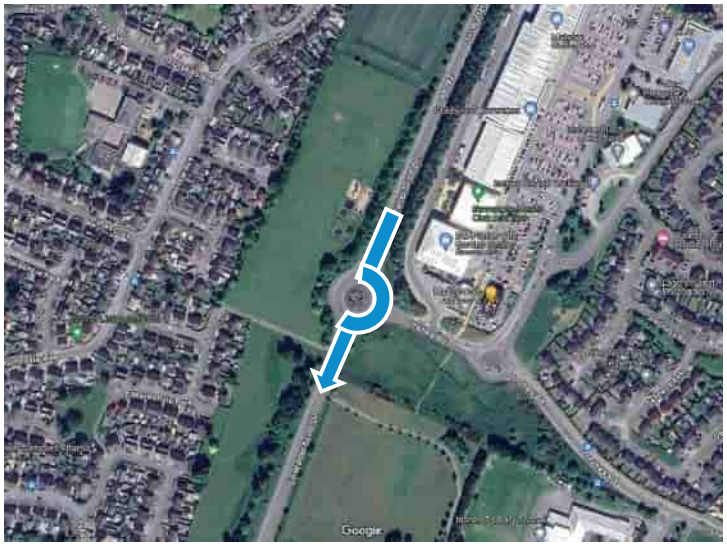




Direction of Travel Location: LH turn at Inshes Roundabout from B9006 onto A8082	**Coordinates:** 57.471778, -4.190111
Enabling Works Required: Removal of 1 no. traffic signal and section of metal railings	**Enabling Work Grade:** **Medium**
Assessment Works Required: Route survey carried out	**Assessment Work Grade:** Complete

Ref. ALL-A232071-RS-09

A8082/Inshes Rd rbt

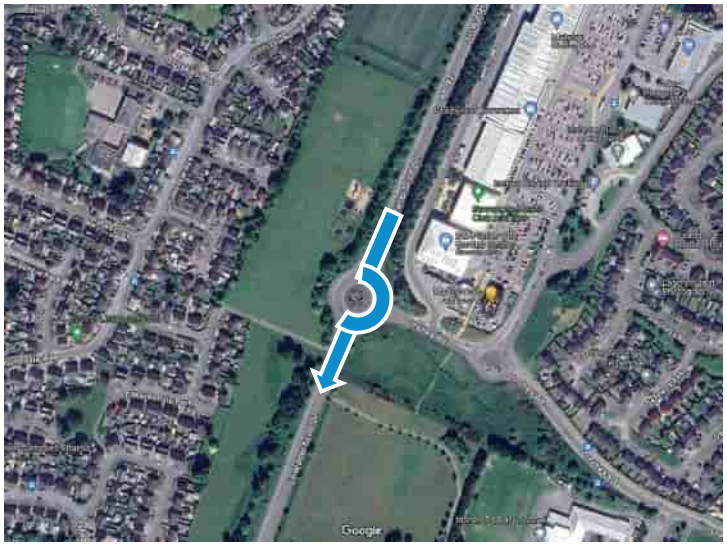




Direction of Travel Location:	**Coordinates:**
Straight on at A8082/Inshes Rd rbt continuing on A8082	57.466472, -4.194306
Enabling Works Required:	**Enabling Work Grade:**
N/A	N/A
Assessment Works Required:	**Assessment Work Grade:**
Route survey carried out - negotiable	Complete

Ref. ALL-A232071-RS-09 cont'd

A8082/Inshes Rd rbt





Direction of Travel Location:	**Coordinates:**
Straight on at A8082/Inshes Rd rbt continuing on A8082	57.466472, -4.194306
Enabling Works Required:	**Enabling Work Grade:**
N/A	N/A
Assessment Works Required:	**Assessment Work Grade:**
Route survey carried out - negotiable	Complete

Ref. ALL-A232071-RS-10

A8082/Stevenson Rd rbt





Direction of Travel Location:	**Coordinates:**
Straight on at A8082/Stevenson Rd rbt continuing on A8082	57.459278, -4.200444
Enabling Works Required:	**Enabling Work Grade:**
N/A	N/A
Assessment Works Required:	**Assessment Work Grade:**
Route survey carried out - negotiable	Complete

Ref. ALL-A232071-RS-10 cont'd

A8082/Stevenson Rd rbt





Direction of Travel Location:	**Coordinates:**
Straight on at A8082/Stevenson Rd rbt continuing on A8082	57.459278, -4.200444
Enabling Works Required:	**Enabling Work Grade:**
N/A	N/A
Assessment Works Required:	**Assessment Work Grade:**
Route survey carried out - negotiable	Complete

Ref. ALL-A232071-RS-10 cont'd

A8082/Stevenson Rd rbt





Direction of Travel Location:	**Coordinates:**
Straight on at A8082/Stevenson Rd rbt continuing on A8082	57.459278, -4.200444
Enabling Works Required:	**Enabling Work Grade:**
N/A	N/A
Assessment Works Required:	**Assessment Work Grade:**
Route survey carried out - negotiable	Complete

Ref. ALL-A232071-RS-11

A8082 Slackbuie Roundabout





Direction of Travel Location:	**Coordinates:**
Straight on at Slackbuie Roundabout continuing on A8082	57.452778, -4.215750
Enabling Works Required:	**Enabling Work Grade:**
N/A	N/A
Assessment Works Required:	**Assessment Work Grade:**
Route survey carried out - negotiable	Complete

Ref. ALL-A232071-RS-11 cont'd

A8082 Slackbuie Roundabout





Direction of Travel Location:	**Coordinates:**
Straight on at Slackbuie Roundabout continuing on A8082	57.452778, -4.215750
Enabling Works Required:	**Enabling Work Grade:**
N/A	N/A
Assessment Works Required:	**Assessment Work Grade:**
Route survey carried out - negotiable	Complete

Ref. ALL-A232071-RS-12

A8082 Asda Roundabout





Direction of Travel Location:	**Coordinates:**
Straight on at Asda Roundabout continuing on A8082	57.450278, -4.218472
Enabling Works Required:	**Enabling Work Grade:**
N/A	N/A
Assessment Works Required:	**Assessment Work Grade:**
Route survey carried out - negotiable	Complete

Ref. ALL-A232071-RS-12 cont'd

A8082 Asda Roundabout





Direction of Travel Location:	**Coordinates:**
Straight on at Asda Roundabout continuing on A8082	57.450278, -4.218472
Enabling Works Required:	**Enabling Work Grade:**
N/A	N/A
Assessment Works Required:	**Assessment Work Grade:**
Route survey carried out - negotiable	Complete

Ref. ALL-A232071-RS-12 cont'd

A8082 Asda Roundabout





Direction of Travel Location: Straight on at Asda Roundabout continuing on A8082	**Coordinates:** 57.450278, -4.218472
Enabling Works Required: N/A	**Enabling Work Grade:** N/A
Assessment Works Required: Route survey carried out - negotiable	**Assessment Work Grade:** Complete

Ref. ALL-A232071-RS-13

A8082/B861 rbt





Direction of Travel Location:	**Coordinates:**
Straight on at A8082/B861 rbt continuing on A8082	57.447750, -4.222444
Enabling Works Required:	**Enabling Work Grade:**
N/A	N/A
Assessment Works Required:	**Assessment Work Grade:**
Route survey carried out - negotiable	Complete

Ref. ALL-A232071-RS-13 cont'd

A8082/B861 rbt





Direction of Travel Location: Straight on at A8082/B861 rbt continuing on A8082	**Coordinates:** 57.447750, -4.222444
Enabling Works Required: N/A	**Enabling Work Grade:** N/A
Assessment Works Required: Route survey carried out - negotiable	**Assessment Work Grade:** Complete

Ref. ALL-A232071-RS-14

A8082/Culduthel Mains Rd rbt





Direction of Travel Location:	**Coordinates:**
Straight on at A8082/Culduthel Mains Rd rbt continuing on A8082	57.447389, -4.232806
Enabling Works Required:	**Enabling Work Grade:**
N/A	N/A
Assessment Works Required:	**Assessment Work Grade:**
Route survey carried out - negotiable	Complete

Ref. ALL-A232071-RS-14 cont'd

A8082/Culduthel Mains Rd rbt





Direction of Travel Location:	**Coordinates:**
Straight on at A8082/Culduthel Mains Rd rbt continuing on A8082	57.447389, -4.232806
Enabling Works Required:	**Enabling Work Grade:**
N/A	N/A
Assessment Works Required:	**Assessment Work Grade:**
Route survey carried out - negotiable	Complete

Ref. ALL-A232071-RS-14 cont'd

A8082/Culduthel Mains Rd rbt





Direction of Travel Location:	**Coordinates:**
Straight on at A8082/Culduthel Mains Rd rbt continuing on A8082	57.447389, -4.232806
Enabling Works Required:	**Enabling Work Grade:**
N/A	N/A
Assessment Works Required:	**Assessment Work Grade:**
Route survey carried out - negotiable	Complete

Ref. ALL-A232071-RS-15

A8082/Stratherrick Rd rbt





Direction of Travel Location:	**Coordinates:**
Straight on at A8082/Stratherrick Rd rbt continuing on A8082	57.447917, -4.238861
Enabling Works Required:	**Enabling Work Grade:**
Removal of 1 no. illuminated road sign and 2 no. non-illuminated road sign	**Medium**
Assessment Works Required:	**Assessment Work Grade:**
Route survey carried out	Complete

Ref. ALL-A232071-RS-15 cont'd

A8082/Stratherrick Rd rbt





Direction of Travel Location: Straight on at A8082/Stratherrick Rd rbt continuing on A8082	**Coordinates:** 57.447917, -4.238861
Enabling Works Required: Removal of 1 no. illuminated road sign and 2 no. non-illuminated road sign	**Enabling Work Grade:** Medium
Assessment Works Required: Route survey carried out	**Assessment Work Grade:** Complete

Ref. ALL-A232071-RS-15 cont'd

A8082/Stratherrick Rd rbt





Direction of Travel Location: Straight on at A8082/Stratherrick Rd rbt continuing on A8082	**Coordinates:** 57.447917, -4.238861
Enabling Works Required: Removal of 1 no. illuminated road sign and 2 no. non-illuminated road sign	**Enabling Work Grade:** **Medium**
Assessment Works Required: Route survey carried out	**Assessment Work Grade:** Complete

Ref. ALL-A232071-RS-16

A8082/B862 Holm Roundabout





Direction of Travel Location:	**Coordinates:**
Straight on at Holm Roundabout from A8082 onto B862	57.450556, -4.251111
Enabling Works Required:	**Enabling Work Grade:**
N/A	N/A
Assessment Works Required:	**Assessment Work Grade:**
Route survey carried out - negotiable	Complete

Ref. ALL-A232071-RS-16 cont'd

A8082/B862 Holm Roundabout





Direction of Travel Location:	**Coordinates:**
Straight on at Holm Roundabout continuing on A8082	57.450556, -4.251111
Enabling Works Required:	**Enabling Work Grade:**
N/A	N/A
Assessment Works Required:	**Assessment Work Grade:**
Route survey carried out - negotiable	Complete

Ref. ALL-A232071-RS-17

A8082/Ness-side rbt





Direction of Travel Location:	**Coordinates:**
Straight on at A8082/Ness-side rbt continuing on A8082	57.452528, -4.256611
Enabling Works Required:	**Enabling Work Grade:**
N/A	N/A
Assessment Works Required:	**Assessment Work Grade:**
Route survey carried out - negotiable	Complete

Ref. ALL-A232071-RS-17 cont'd

A8082/Ness-side rbt

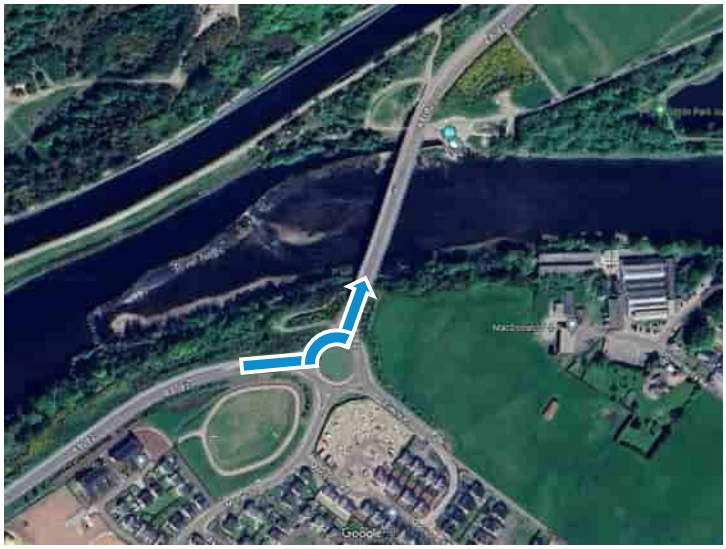




Direction of Travel Location:	**Coordinates:**
Straight on at A8082/Ness-side rbt continuing on A8082	57.452528, -4.256611
Enabling Works Required:	**Enabling Work Grade:**
N/A	N/A
Assessment Works Required:	**Assessment Work Grade:**
Route survey carried out - negotiable	Complete

Ref. ALL-A232071-RS-18

A8082/Evelix Pl rbt

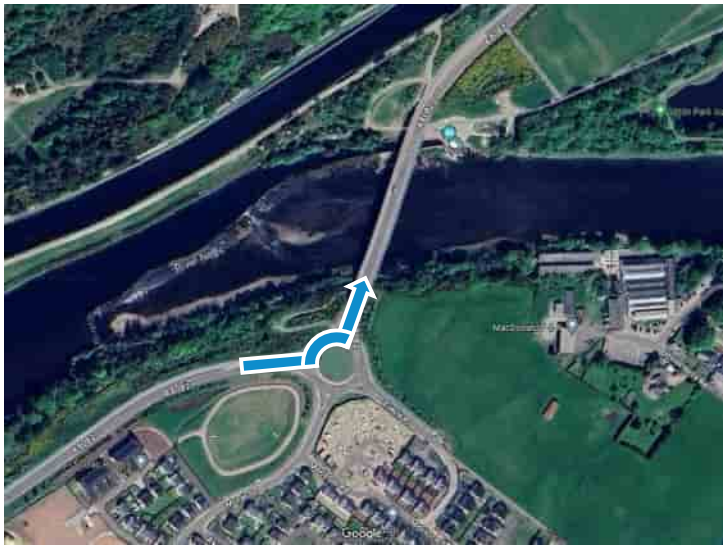




Direction of Travel Location: LH turn at A8082/Evelix Pl rbt continuing on A8082	**Coordinates:** 57.457889, -4.248111
Enabling Works Required: N/A	**Enabling Work Grade:** N/A
Assessment Works Required: Route survey carried out - negotiable	**Assessment Work Grade:** Complete

Ref. ALL-A232071-RS-18 cont'd

A8082/Evelix Pl rbt





Direction of Travel Location: LH turn at A8082/Evelix Pl rbt continuing on A8082	**Coordinates:** 57.457889, -4.248111
Enabling Works Required: N/A	**Enabling Work Grade:** N/A
Assessment Works Required: Route survey carried out - negotiable	**Assessment Work Grade:** Complete

Ref. ALL-A232071-RS-19

A80820020 Holm Mills





Direction of Travel Location: Northbound on A8082 over structure no. A80820020 Holm Mills	**Coordinates:** 57.459083, -4.247361
Enabling Works Required: TBC	**Enabling Work Grade:** TBC
Assessment Works Required: Failed Highland Council checks, structural assessment required Route survey carried out	**Assessment Work Grade:** **Medium** Complete

Ref. ALL-A232071-RS-20

A80820030 Queens Park Underpass 1

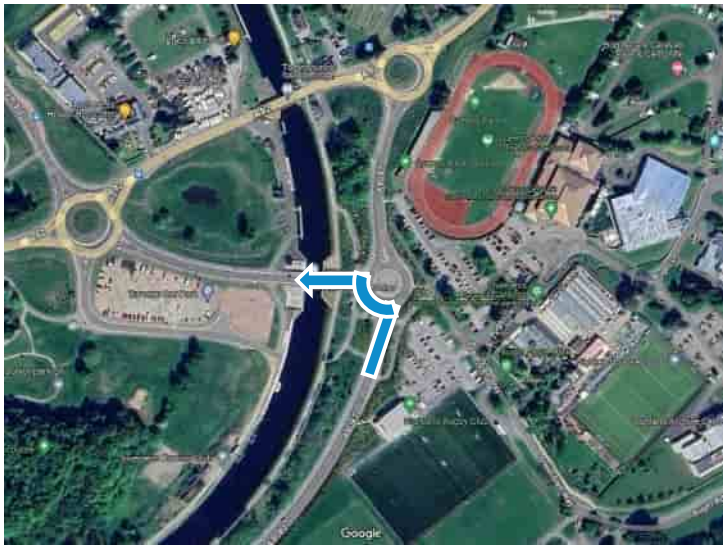




Direction of Travel Location: Northbound on A8082 over structure no. A80820030 Queens Park Underpass 1	**Coordinates:** 57.463056, -4.242639
Enabling Works Required: TBC	**Enabling Work Grade:** TBC
Assessment Works Required: Failed Highland Council checks, structural assessment required Route survey carried out	**Assessment Work Grade:** **Medium** Complete

Ref. ALL-A232071-RS-21

A8082 Queens Park Roundabout

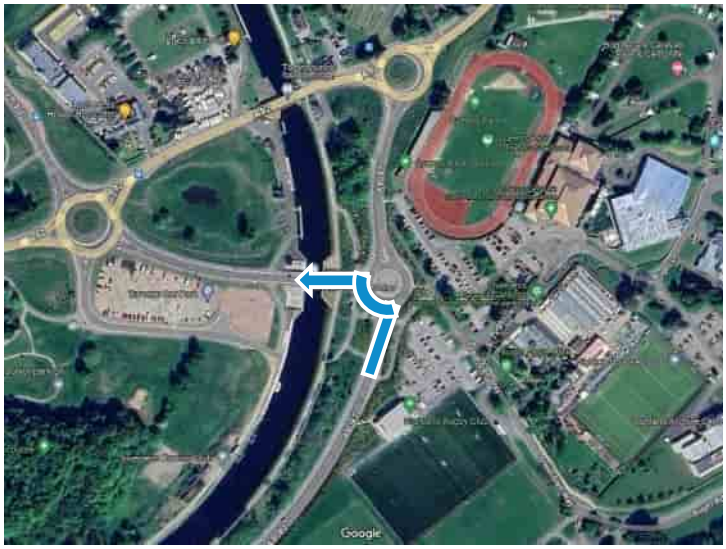




Direction of Travel Location: LH turn at Queens Park Roundabout from A8082 onto unclassified road	**Coordinates:** 57.463361, -4.242583
Enabling Works Required: N/A	**Enabling Work Grade:** N/A
Assessment Works Required: Route survey carried out - negotiable	**Assessment Work Grade:** Complete

Ref. ALL-A232071-RS-21 cont'd

A8082 Queens Park Roundabout





Direction of Travel Location: LH turn at Queens Park Roundabout from A8082 onto unclassified road	**Coordinates:** 57.463361, -4.242583
Enabling Works Required: N/A	**Enabling Work Grade:** N/A
Assessment Works Required: Route survey carried out - negotiable	**Assessment Work Grade:** Complete

Ref. ALL-A232071-RS-22

Queens Park Underpass 2





Direction of Travel Location: Westbound on unclassified road over structure no. Queens Park Underpass 2	**Coordinates:** 57.463361, -4.243028
Enabling Works Required: TBC	**Enabling Work Grade:** TBC
Assessment Works Required: Failed Highland Council checks, structural assessment required Route survey carried out	**Assessment Work Grade:** **Medium** Complete

Ref. ALL-A232071-RS-23

Torvean Swing Bridge





Direction of Travel Location: Westbound on unclassified road over Torvean Swing Bridge	**Coordinates:** 57.463389, -4.243861
Enabling Works Required: TBC	**Enabling Work Grade:** TBC
Assessment Works Required: Failed Highland Council checks, structural assessment required Route survey carried out	**Assessment Work Grade:** **Medium** Complete

Ref. ALL-A232071-RS-24

UC road/A82/General Booth Rd rbt





Direction of Travel Location: Straight on at UC road/A82/General Booth Rd rbt from unclassified road onto A82	**Coordinates:** 57.463861, -4.247139
Enabling Works Required: N/A	**Enabling Work Grade:** N/A
Assessment Works Required: Route survey carried out - negotiable	**Assessment Work Grade:** Complete

Ref. ALL-A232071-RS-25

Torvean Underpass





Direction of Travel Location: Westbound on A82 over Torvean Underpass	**Coordinates:** 57.463611, -4.248750
Enabling Works Required: TBC	**Enabling Work Grade:** TBC
Assessment Works Required: Failed Highland Council checks, structural assessment required Route survey carried out	**Assessment Work Grade:** **Medium** Complete

Ref. ALL-A232071-RS-26

A82/A831 Drumnadrochit shunt manoeuvre





Direction of Travel Location: Straight on from A82 onto A831	**Coordinates:** 57.337361, -4.479972
Enabling Works Required: Shunt manoeuvre to cross structure no. A82 1400 Drumnadrochit on eastern side	**Enabling Work Grade:** **Medium**
Assessment Works Required: Route survey carried out	**Assessment Work Grade:** Complete

Ref. ALL-A232071-RS-26 cont'd

A82/A831 Drumnadrochit shunt manoeuvre





Direction of Travel Location: RH turn from A831 onto A82	**Coordinates:** 57.337361, -4.479972
Enabling Works Required: Shunt manoeuvre to cross structure no. A82 1400 Drumnadrochit on eastern side	**Enabling Work Grade:** **Medium**
Assessment Works Required: Route survey carried out	**Assessment Work Grade:** Complete

Ref. ALL-A232071-RS-27

A82 1400 Drumnadrochit





Direction of Travel Location: Southbound on A82 over structure no. A82 1400 Drumnadrochit	**Coordinates:** 57.337167, -4.480194
Enabling Works Required: Eastern half (old section) of structure to be used – shunt manoeuvre around LH bend required (see ALL-A232071-RS-26)	**Enabling Work Grade:** **Medium**
Assessment Works Required: Passed Transport Scotland/BEAR NW checks with above caution Route survey carried out	**Assessment Work Grade:** Complete Complete

Ref. ALL-A232071-RS-28

A82 Drumnadrochit rbt





Direction of Travel Location: Straight on at A82 Drumnadrochit rbt continuing on A82	**Coordinates:** 57.328889, -4.477722
Enabling Works Required: Removal of 1 no. illuminated road sign and 1 no. non-illuminated road sign	**Enabling Work Grade:** **Medium**
Assessment Works Required: Route survey carried out	**Assessment Work Grade:** Complete

Ref. ALL-A232071-RS-28 cont'd

A82 Drumnadrochit rbt





Direction of Travel Location: Straight on at A82 Drumnadrochit rbt continuing on A82	**Coordinates:** 57.328889, -4.477722
Enabling Works Required: Removal of 1 no. illuminated road sign and 1 no. non-illuminated road sign	**Enabling Work Grade:** **Medium**
Assessment Works Required: Route survey carried out	**Assessment Work Grade:** Complete

Ref. ALL-A232071-RS-29

A82 1390 Borlum





Direction of Travel Location: Eastbound on A82 over structure no. A82 1390 Borlum	**Coordinates:** 57.328056, -4.471806
Enabling Works Required: TBC	**Enabling Work Grade:** TBC
Assessment Works Required: Failed Transport Scotland/BEAR NW checks, structural assessment required Route survey carried out	**Assessment Work Grade:** **Medium** Complete

Ref. ALL-A232071-RS-30

A82 1290 Allt A' Mhuilinn



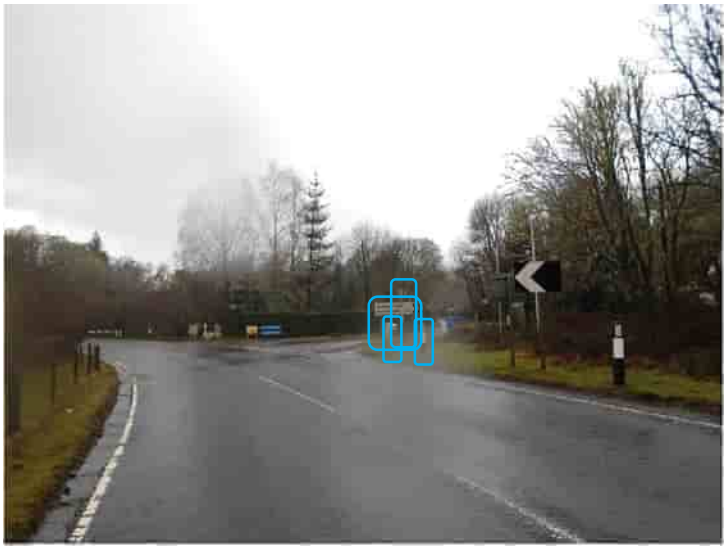


Direction of Travel Location: Southbound on A82 over structure no. A82 1290 Allt A' Mhuilinn	**Coordinates:** 57.178323, -4.6366405
Enabling Works Required: TBC	**Enabling Work Grade:** TBC
Assessment Works Required: Failed Transport Scotland/BEAR NW checks, structural assessment required Route survey carried out	**Assessment Work Grade:** **Medium** Complete

Ref. ALL-A232071-RS-31

A82/Great Glen Way RH turn





Direction of Travel Location:	**Coordinates:**
RH turn from A82 onto Great Glen Way	57.153056, -4.678694
Enabling Works Required:	**Enabling Work Grade:**
Removal of 4 no. non-illuminated road sign and 2 no. plastic bollard	**Medium**
Assessment Works Required:	**Assessment Work Grade:**
Route survey carried out	Complete

Ref. ALL-A232071-RS-31 cont'd

A82/Great Glen Way RH turn





Direction of Travel Location: RH turn from A82 onto Great Glen Way	**Coordinates:** 57.153056, -4.678694
Enabling Works Required: Removal of 4 no. non-illuminated road sign and 2 no. plastic bollard	**Enabling Work Grade:** **Medium**
Assessment Works Required: Route survey carried out	**Assessment Work Grade:** Complete

Ref. ALL-A232071-RS-32

Great Glen Way/UC road shunt manoeuvre





Direction of Travel Location: Shunt manoeuvre from Great Glen Way onto unclassified road	**Coordinates:** 57.149417, -4.683889
Enabling Works Required: Shunt manoeuvre	**Enabling Work Grade:** **Medium**
Assessment Works Required: Route survey carried out	**Assessment Work Grade:** Complete

Ref. ALL-A232071-RS-32 cont'd

Great Glen Way/UC road shunt manoeuvre





Direction of Travel Location:	**Coordinates:**
Shunt manoeuvre from Great Glen Way onto unclassified road	57.149417, -4.683889
Enabling Works Required:	**Enabling Work Grade:**
Shunt manoeuvre	**Medium**
Assessment Works Required:	**Assessment Work Grade:**
Route survey carried out	Complete

Ref. ALL-A232071-RS-33

UC road/Jenkins Park LH bend





Direction of Travel Location: Westbound on unclassified road past junction with Jenkins Park	**Coordinates:** 57.147694, -4.691111
Enabling Works Required: Removal of 1 no. lamp post	**Enabling Work Grade:** **Medium**
Assessment Works Required: Route survey carried out	**Assessment Work Grade:** Complete

Ref. ALL-A232071-RS-33 cont'd

UC road/Jenkins Park LH bend





Direction of Travel Location: Westbound on unclassified road past junction with Jenkins Park	**Coordinates:** 57.147694, -4.691111
Enabling Works Required: Removal of 1 no. non-illuminated road sign	**Enabling Work Grade:** **Medium**
Assessment Works Required: Route survey carried out	**Assessment Work Grade:** Complete

Ref. ALL-A232071-RS-34

UC road/Fort Augustus Substation access road S-bend and OHL





Direction of Travel Location: LH turn from unclassified road onto Fort Augustus Substation access road around S-bend	**Coordinates:** 57.139806, -4.716000
Enabling Works Required: Third party land uptake to inside of bend to allow girder frame oversail Removal of sections of post and wire fencing to inside of bend	**Enabling Work Grade:** **High** **Medium**
Assessment Works Required: Route survey carried out	**Assessment Work Grade:** Complete

Ref. ALL-A232071-RS-34 cont'd

UC road/Fort Augustus Substation access road S-bend and OHL





Direction of Travel Location:	**Coordinates:**
RH turn on Fort Augustus Substation access road around S-bend	57.139444, -4.715944
Enabling Works Required:	**Enabling Work Grade:**
Third party land uptake required to nearside of access road	**High**
Road widening and fence relocation required to eastern side of access road to accommodate vehicle track in order to avoid conflict with electricity pole to inside of bend	**High**
Confirmation of max. permitted vehicle height below OHL, sign stating max. height 4.8 m noted, vs overall vehicle height 5.35 m	**Medium**
Removal of OHL goal post	**Low**
Assessment Works Required:	**Assessment Work Grade:**
Route survey carried out	Complete

Ref. ALL-A232071-RS-35

Allt na Fearna structure





Direction of Travel Location: Southbound on Fort Augustus Substation access road over Allt na Fearna structure	**Coordinates:** 57.268361, -4.473222
Enabling Works Required: Removal of parapets to both sides and sections of wooden fencing Subject to structural assessment, can be overbridged (approx. span 5 m)	**Enabling Work Grade:** **Medium** TBC
Assessment Works Required: Awaiting approval	**Assessment Work Grade:** **Medium**

Ref. ALL-A232071-RS-36

Substation access road structure no.1





Direction of Travel Location: Southbound on Fort Augustus Substation access road over structure no.1	**Coordinates:** 57.138250, -4.717806
Enabling Works Required: Subject to structural assessment, can be overbridged (approx. span 2 m)	**Enabling Work Grade:** TBC
Assessment Works Required: Awaiting approval	**Assessment Work Grade:** **Medium**

Ref. ALL-A232071-RS-37

External substation site access gate





Direction of Travel Location: Southbound on Fort Augustus Substation access road through external site access gate	**Coordinates:** 57.137972, -4.718139
Enabling Works Required: Removal of 1 no. gate panel, 1 no. gate post and section of metal railing	**Enabling Work Grade:** **Medium**
Assessment Works Required: Route survey carried out Swept path assessment carried out, drawing no. ALL-A232071-SPA-04 included in Appendix D	**Assessment Work Grade:** Complete Complete

Ref. ALL-A232071-RS-38

Site access road LH turn no.1





Direction of Travel Location: Southbound on Fort Augustus Substation access road around LH bend	**Coordinates:** 57.137778, -4.718222
Enabling Works Required: Removal of section of concrete wall and embankment to allow girder frame oversail Removal of metal railing	**Enabling Work Grade:** **High** **Medium**
Assessment Works Required: Route survey carried out Swept path assessment carried out, drawing no. ALL-A232071-SPA-04 included in Appendix D	**Assessment Work Grade:** Complete Complete

Ref. ALL-A232071-RS-38 cont'd

Site access road LH turn no.1





Direction of Travel Location: Southbound on Fort Augustus Substation access road around LH bend	**Coordinates:** 57.137778, -4.718222
Enabling Works Required: Removal of section of concrete wall and embankment to allow girder frame oversail Removal of 1 no. CCTV post and 3 no. sections of metal railing Temporary steel plating of hardcore to accommodate vehicle track	**Enabling Work Grade:** **High** **Medium** **Low**
Assessment Works Required: Route survey carried out Swept path assessment carried out, drawing no. ALL-A232071-SPA-04 included in Appendix D	**Assessment Work Grade:** Complete Complete

Ref. ALL-A232071-RS-39

Proposed SGT2 plinth



Direction of Travel Location:	**Coordinates:**
Eastbound on proposed Fort Augustus Substation access road in line with new SGT1 and SGT2 plinth centrelines	57.136944, -4.716111
Enabling Works Required:	**Enabling Work Grade:**
New SGTs to be offloaded from 16-axle girder frame trailer using hydraulic jacks before skidding into position on plinth Auxiliary equipment to be installed after transformer	**Medium** **Low**
Assessment Works Required:	**Assessment Work Grade:**
Route survey carried out Swept path assessment carried out, drawing no. ALL-A232071-SPA-01 included in Appendix D. Proposed site layout design is negotiable although internal fence line opening is not shown.	Complete Complete

Ref. ALL-A232071-RS-40

Ex SGT2 plinth





Direction of Travel Location:	**Coordinates:**
Southbound from Ex SGT2 plinth onto site access road	57.136472, -4.718333
Enabling Works Required:	**Enabling Work Grade:**
Removal of fire exclusion wall	**Medium**
Hydraulic jacking and skidding of Ex SGT2 from plinth onto site access road	**Medium**
Loading of Ex SGT2 onto 12-axle flat top trailer	**Medium**
Assessment Works Required:	**Assessment Work Grade:**
Route survey carried out	Complete
Swept path assessment carried out, drawing no. ALL-A232071-SPA-02 sht 1 of 4 included in Appendix D	Complete

Ref. ALL-A232071-RS-40 cont'd

Ex SGT2 offsite LH turn no.1



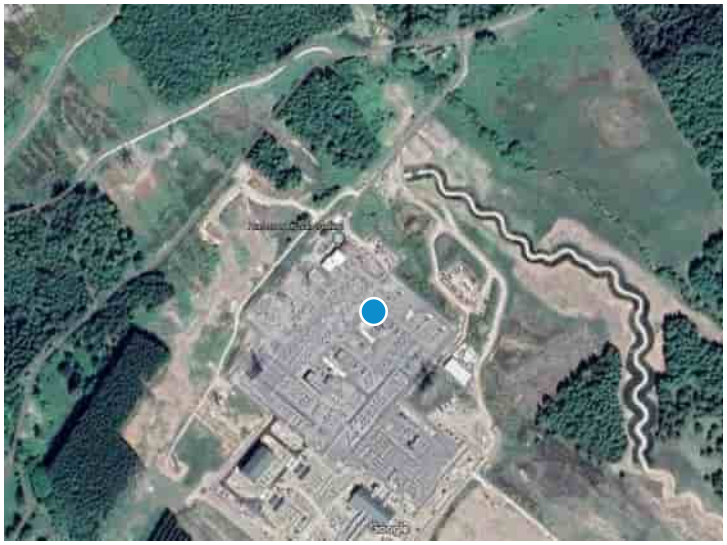


Note: - vehicle approaches camera

Direction of Travel Location:	**Coordinates:**
Northbound on site access road around LH turn	57.136222, -4.718111
Enabling Works Required:	**Enabling Work Grade:**
N/A	N/A
Assessment Works Required:	**Assessment Work Grade:**
Route survey carried out	Complete
Swept path assessment carried out, drawing no. ALL-A232071-SPA-02 sht 1 of 4 included in Appendix D - negotiable	Complete

Ref. ALL-A232071-RS-41

Ex SGT1 plinth





Direction of Travel Location:	**Coordinates:**
Southbound from Ex SGT1 plinth onto site access road	57.136722, -4.717917
Enabling Works Required:	**Enabling Work Grade:**
Removal of fire exclusion wall	**Medium**
Hydraulic jacking and skidding of Ex SGT1 from plinth onto site access road	**Medium**
Loading of Ex SGT1 onto 12-axle flat top trailer	**Medium**
Assessment Works Required:	**Assessment Work Grade:**
Route survey carried out	Complete
Swept path assessment carried out, drawing no. ALL-A232071-SPA-02 sht 1 of 4 included in Appendix D	Complete

Ref. ALL-A232071-RS-41 cont'd

Ex SGT1 offsite LH turn no.2





Note: - vehicle approaches camera

Direction of Travel Location:	**Coordinates:**
Northbound on site access road around LH turn	57.136556, -4.717583
Enabling Works Required:	**Enabling Work Grade:**
N/A	N/A
Assessment Works Required:	**Assessment Work Grade:**
Route survey carried out	Complete
Swept path assessment carried out, drawing no. ALL-A232071-SPA-02 sht 1 of 4 included in Appendix D - negotiable	Complete

Ref. ALL-A232071-RS-42

Cable trough no.1





Note: - vehicle approaches camera

Direction of Travel Location:	**Coordinates:**
Northbound on site access road over cable trough no.1	57.136778, -4.717167
Enabling Works Required:	**Enabling Work Grade:**
To be over plated (approx. span 0.5 m)	**Low**
Assessment Works Required:	**Assessment Work Grade:**
Route survey carried out	Complete

Ref. ALL-A232071-RS-43

Ex SGT1 & 2 offsite LH turn no.3





Note: - vehicle approaches camera

Direction of Travel Location:	**Coordinates:**
Northbound on site access road around LH turn	57.137028, -4.716917
Enabling Works Required:	**Enabling Work Grade:**
N/A	N/A
Assessment Works Required:	**Assessment Work Grade:**
Route survey carried out	Complete
Swept path assessment carried out, drawing no. ALL-A232071-SPA-02 sht 2 of 4 included in Appendix D - negotiable	Complete

Ref. ALL-A232071-RS-43 cont'd

Ex SGT1 & 2 offsite LH turn no.3





Note: - vehicle approaches camera

Direction of Travel Location:	**Coordinates:**
Northbound on site access road around LH turn	57.137028, -4.716917
Enabling Works Required:	**Enabling Work Grade:**
N/A	N/A
Assessment Works Required:	**Assessment Work Grade:**
Route survey carried out	Complete
Swept path assessment carried out, drawing no. ALL-A232071-SPA-02 sht 2 of 4 included in Appendix D - negotiable	Complete

Ref. ALL-A232071-RS-44

Internal substation access gate





Note: - vehicle approaches camera

Direction of Travel Location:	**Coordinates:**
Northbound on site access road through internal access gate	57.137306, -4.717389
Enabling Works Required:	**Enabling Work Grade:**
N/A	N/A
Assessment Works Required:	**Assessment Work Grade:**
Route survey carried out – gate opening width approx. 5.7 m Swept path assessment carried out, drawing no. ALL-A232071-SPA-02 sht 3 of 4 included in Appendix D - negotiable	Complete Complete

Ref. ALL-A232071-RS-45

SGT6 plinth





Direction of Travel Location:	**Coordinates:**
Westbound from SGT6 plinth onto site access road	57.135278, -4.719083
Enabling Works Required:	**Enabling Work Grade:**
Removal of auxiliary equipment	**Medium**
Hydraulic jacking and skidding of SGT6 from plinth onto site access road	**Medium**
Loading of SGT6 onto 6-axle bed 6-axle trailer	**Medium**
Assessment Works Required:	**Assessment Work Grade:**
Route survey carried out	Complete
Swept path assessment carried out, drawing no. ALL-A232071-SPA-03 sht 1 of 6 included in Appendix D	Complete

Ref. ALL-A232071-RS-46

Cable trough no's 2 & 3





Direction of Travel Location: Southbound on site access road over cable trough no's 2 & 3	**Coordinates:** 57.135361, -4.719306
Enabling Works Required: To be over plated (approx. span 0.5 m)	**Enabling Work Grade:** **Low**
Assessment Works Required: Route survey carried out	**Assessment Work Grade:** Complete

Ref. ALL-A232071-RS-47

SGT5 plinth





Direction of Travel Location:	**Coordinates:**
Westbound from SGT5 plinth onto site access road	57.134944, -4.719611
Enabling Works Required:	**Enabling Work Grade:**
Removal of auxiliary equipment	**Medium**
Hydraulic jacking and skidding of SGT5 from plinth onto site access road	**Medium**
Loading of SGT5 onto 6-axle bed 6-axle trailer	**Medium**
Assessment Works Required:	**Assessment Work Grade:**
Route survey carried out	Complete
Swept path assessment carried out, drawing no. ALL-A232071-SPA-03 sht 1 of 6 included in Appendix D	Complete

Ref. ALL-A232071-RS-48

Cable trough no's 4 & 5





Direction of Travel Location:	**Coordinates:**
Southbound on site access road over cable trough no's 4 & 5	57.135028, -4.719806
Enabling Works Required:	**Enabling Work Grade:**
To be over plated (approx. span 0.5 m)	**Low**
Assessment Works Required:	**Assessment Work Grade:**
Route survey carried out	Complete

Ref. ALL-A232071-RS-49

SGT5 & 6 offsite LH turn no.1





Direction of Travel Location:	**Coordinates:**
Eastbound on site access road around LH turn	57.134889, -4.719944
Enabling Works Required:	**Enabling Work Grade:**
N/A	N/A
Assessment Works Required:	**Assessment Work Grade:**
Route survey carried out	Complete
Swept path assessment carried out, drawing no. ALL-A232071-SPA-03 sht 1 of 6 included in Appendix D - negotiable	Complete

Ref. ALL-A232071-RS-49 cont'd

SGT5 & 6 offsite LH turn no.1





Direction of Travel Location:	**Coordinates:**
Eastbound on site access road around LH turn	57.134889, -4.719944
Enabling Works Required:	**Enabling Work Grade:**
N/A	N/A
Assessment Works Required:	**Assessment Work Grade:**
Route survey carried out	Complete
Swept path assessment carried out, drawing no. ALL-A232071-SPA-03 sht 1 of 6 included in Appendix D - negotiable	Complete

Ref. ALL-A232071-RS-50

SGT5 & 6 offsite LH turn no.2





Direction of Travel Location:	**Coordinates:**
Northbound on site access road around LH turn	57.134028, -4.718056
Enabling Works Required:	**Enabling Work Grade:**
N/A	N/A
Assessment Works Required:	**Assessment Work Grade:**
Route survey carried out	Complete
Swept path assessment carried out, drawing no. ALL-A232071-SPA-03 sht 2 of 6 included in Appendix D - negotiable	Complete

Ref. ALL-A232071-RS-51

SGT5 & 6 offsite exit gate





Direction of Travel Location:	**Coordinates:**
Northbound on site access road through external site access gate	57.135556, -4.715889
Enabling Works Required:	**Enabling Work Grade:**
N/A	N/A
Assessment Works Required:	**Assessment Work Grade:**
Route survey carried out – gate opening width approx. 6.0 m	Complete
Swept path assessment carried out, drawing no. ALL-A232071-SPA-03 sht 3 of 6 included in Appendix D - negotiable	Complete

Ref. ALL-A232071-RS-51 cont'd

SGT5 & 6 offsite exit gate





Direction of Travel Location: Northbound on site access road through external site access gate	**Coordinates:** 57.135556, -4.715889
Enabling Works Required: N/A	**Enabling Work Grade:** N/A
Assessment Works Required: Route survey carried out – gate opening width approx. 6.0 m Swept path assessment carried out, drawing no. ALL-A232071-SPA-03 sht 3 of 6 included in Appendix D - negotiable	**Assessment Work Grade:** Complete Complete

Ref. ALL-A232071-RS-52

SGT5 & 6 offsite S-bend no.1



Direction of Travel Location:	**Coordinates:**
Northbound on proposed substation access road around S-bend	57.135833, -4.714722
Enabling Works Required:	**Enabling Work Grade:**
Site layout design to be amended to suit 6-axle bed 6-axle trailer track	**High**
Assessment Works Required:	**Assessment Work Grade:**
Route survey carried out Swept path assessment carried out, drawing no. ALL-A232071-SPA-03 sht 4 of 6 included in Appendix D	Complete Complete

Ref. ALL-A232071-RS-53

SGT5 & 6 offsite LH turn no.3



Direction of Travel Location:	**Coordinates:**
Westbound on proposed substation access road around LH turn	57.136667, -4.713611
Enabling Works Required:	**Enabling Work Grade:**
Site layout design to be amended to suit 6-axle bed 6-axle trailer track	**High**
Assessment Works Required:	**Assessment Work Grade:**
Route survey carried out Swept path assessment carried out, drawing no. ALL-A232071-SPA-03 sht 5 of 6 included in Appendix D	Complete Complete

Ref. ALL-A232071-RS-54

SGT5 & 6 offsite RH turn no.1





Note: - vehicle approaches camera

Direction of Travel Location:	**Coordinates:**
RH turn from proposed site access road onto existing substation access road	57.138333, -4.717611
Enabling Works Required:	**Enabling Work Grade:**
Site layout design to be amended to suit 6-axle bed 6-axle trailer track Removal of 1 no. gate and section of wooden fencing	**High** **Medium**
Assessment Works Required:	**Assessment Work Grade:**
Route survey carried out Swept path assessment carried out, drawing no. ALL-A232071-SPA-03 sht 6 of 6 included in Appendix D	Complete Complete

HSEQ

We put **health** and **safety** first.

Health, safety, environment and quality are paramount to Allelys and are at the heart of our business.

Allelys are committed to providing a safe and healthy working environment for our employees and every person that interacts with the organisation. We recognise that the services we provide and the sectors we work in present challenges in terms of managing risk, but we are committed to protecting our people, environment and assets on every project we undertake.

Our safety performance is critical to the success of our business and our projects and therefore it's essential that we continuously identify, assess and act upon any areas that can be improved. Any areas that are identified are reported, recorded, investigated, analysed and then lessons learnt published within safety bulletins and toolbox talks.

Quality is a key component of our management system and customer care is paramount to us. We strive for 100% satisfaction and encourage our customers to get in touch with any feedback they would like to provide. If there are any instances where it's believed that a good quality service has not been delivered, we have procedures in place to investigate and act upon any necessary changes.



8. Conclusion

8.1. Allelys have been commissioned by SSEN to provide a feasibility study for the transport of two 185 te Super Grid Transformers (SGT) from Inverness to their proposed new plinths at LT519 Fort Augustus Substation. Allelys have also been commissioned to conduct Swept Path Assessment (SPA) of the removal of two 131 te Ex SGT1 and 2 and six 109 te sections of SGT5 and 6 offsite from their respective plinths to the existing Fort Augustus Substation access road.

8.2. The objective of this document is to clearly outline a workable delivery concept for the enclosed cargo whilst adhering to UK legislation and equipment capabilities. Our recommendations are based on a wealth of knowledge and experience, however, are subject to relevant permissions at the time of delivery.

8.3. As the transport is classified as Special Order, in accordance with the Water Preferred Policy, Inverness has been considered as port of delivery as it is the closest marine facility to site capable of dealing with this size of cargo. Inverness Harbour has one quay suitable for receiving the Abnormal Indivisible Loads (AILs), but a detailed a marine facility study has not been carried out as part of this report.

8.4. The nominated transport configuration for delivery of the SGT is a 16-axle Girder Frame Trailer (GFT) subject to structural assessments.

8.5. Transport Scotland/BEAR NW and Highland Council (THC) have been contacted as the Local Highway Authorities (LHA) to confirm the current structural capacity of the route and have collectively advised that there are seven structures that require full structural assessment and one structure that has been approved under caution.

8.6. Transport Scotland/BEAR NW have advised that structure no's A82 1390 Borlum and A82 1290 Allt A' Mhuilinn require full structural assessment and that structure no. A82 1400 Drumnadrochit is to be crossed on the eastern side. The span of structure no. A82 1390 Borlum has been advised as 28.9 m, which exceeds the maximum overbridging equipment available for use, therefore, the results of the assessment for this structure poses a risk to delivery of the 185 te SGT to site. Structure no. A82 1290 Allt A' Mhuilinn has an advised span of 10.6 m, which would be suitable for overbridging, should the structural assessment results be negative.

8.7. THC have advised that structure no's A80820020 Holm Mills and A80820030 Queens Park Underpass 1 require full structural assessment. A80820020 Holm Mills is a long span bridge and, therefore, unsuitable for overbridging should a full structural assessment fail. A80820030 Queens Park Underpass 1, however, is a short span structure and would be suitable for overbridging, should the structural assessment results be negative.

8.8. There are also three structures that are currently managed by THC, but are in the process of being adopted by Transport Scotland/BEAR NW, that have also failed THC basic structural feasibility checks. Queens Park Underpass 2, Torvean Swing Bridge and Torvean Underpass all require full structural assessment. Queens Park Underpass 2 and Torvean Underpass are both short span structures suitable for overbridging should they fail further structural assessment, however, the span of Torvean Swing Bridge exceeds the length of available overbridging equipment and, therefore, poses a risk to delivery of the 185 te SGT as there are no feasible alternative routes from Inverness Harbour to site available.

8.9. There are two structures on the main Fort Augustus Substation access road that are managed by SSEN and structural approval is required before the 16-axle GFT is permitted to cross these structures. Alternatively, both structures are short span and so could be overbridged, if necessary.

8.10. Full structural assessment and overbridge engineering have not been carried out as part of this report.

8.11. The route is considered negotiable with Police Escort, Temporary Traffic Regulation Orders (TTRO), special manoeuvres and street furniture removals. TTROs can take 12 weeks plus to process and should be planned accordingly.

8.12. The 16-axle GFT is to carry out a shunt manoeuvre in order to cross structure no. A82 1390 Drumnadrochit using the eastern section, as specified by Transport Scotland/BEAR NW. This manoeuvre would remain within highway limits with no requirement for street furniture removals.

8.13. The 16-axle GFT is also to carry out a shunt manoeuvre in order to turn from the Great Glen Way onto an unclassified road junction in Fort Augustus. This is to avoid conflict between the girder frame and a databox and lamp post to the inside of the turn, if the vehicle was to turn right at this junction in conventional fashion. The shunt manoeuvre is negotiable for the 16-axle GFT with no need for street furniture removals, therefore, it is preferential to the conventional right-hand turn.

8.14. In order for the 16-axle GFT trailer to turn left from an unclassified road onto the Fort Augustus Substation access road, third-party land uptake is required to the inside of the turn along with relocation or removal of a section of post and wire fence to accommodate the girder frame oversail. Third-party land owner permission was not granted for the same manoeuvre when the existing 131 te SGT1 & 2 units were delivered in 2013. At that time, a shunt manoeuvre was carried out to avoid the need for third-party land uptake, which was possible with vegetation pruning, however, it would be preferential for the 16-axle GFT to turn left conventionally and so early stakeholder engagement is required to ascertain whether access permissions would be granted.

8.15. Immediately after the left-hand turn onto the existing substation access road, there is a right-hand bend. In order to avoid conflict between the 16-axle GFT and an electricity pole located to the western side of the substation access road at this right-hand bend, third-party land uptake and road widening is required to the eastern side of the road. Public Road Improvement (PRI) designs have not been developed as part of this report. The overhead line (OHL) crossing at the right-hand bend has an advised maximum permitted vehicle height of 4.8 m. Due to the overall vehicle height of 5.35 m, confirmation is required from SSEN that the vehicle is permitted to travel beneath the OHL.

8.16. Once the 16-axle GFT has travelled westbound around the right-hand bend on the substation access road it is to cross an existing SSEN managed structure over Allt na Fearna. The width between the parapets of this structure is approximately 4.5 m, which is not negotiable for the 16-axle GFT due to the vehicle overall width of 4.5 m, therefore, both parapets are to be removed to permit access along with two sections of wooden fencing.

8.17. SPA of the left-hand turn through the existing Fort Augustus Substation external access gate has been carried out considerate of the 185 te SGT loaded onto the 16-axle GFT. The results of this SPA show that it is not possible for the vehicle to make this turn due to conflict with an existing concrete wall and earth embankment to the inside of the turn. SPA of a shunt manoeuvre at this location has also been carried out, which shows that it is not possible for the vehicle to make this manoeuvre due to conflict with an existing site building. Therefore, delivery of the new 185 te SGT cannot be made through the existing substation entrance without demolition of the existing concrete wall and earth embankment to the inside of the left-hand turn. Additional site furniture removals are also required to allow access for the 16-axle GFT at this location. Alternatively, a new site entrance is to be designed and constructed to accommodate delivery of the new SGTs. Drawing no. ALL-A232071-SPA-04 showing the left-hand turn and shunt manoeuvre is included within Appendix D of this report.

8.18. It is possible for the 185 te SGTs to be delivered in line with their respective plinth centrelines using the proposed new SGT1 & 2 plinth access road, although it has been noted that a new internal access gate has not been shown on the proposed site layout design to allow access for the 16-axle GFT through an existing internal fence line. The SGTs would then need to be offloaded from the delivery vehicle and manoeuvred into position on the plinths, although final offload and movement of the units from the GFT onto the plinth has not been carried out as part of this report. Drawing no. ALL-A232071-SPA-01 showing the movement of New SGT1 & 2 from the existing site access road to the proposed plinths is included within Appendix D of this report.

8.19. SPA of the removal of 131 te Ex SGT1 & 2 offsite from the respective plinths has been carried out. In order for the units to be removed from their plinths, two fire exclusion walls are to be removed and the units are to be hydraulically jacked and skidded from the plinth to the adjacent site access roads ready to be loaded onto 12-axle flat top trailer, which is the proposed transport configuration for these units. An engineering scheme for removal of the Ex SGTs from plinth onto the proposed vehicle has not been carried out as part of this report. Once loaded onto the 12-axle flat top trailer, the route offsite is negotiable along the existing site access roads and through an existing internal substation access gate. A cable trough located on the site access road is to be overplated to accommodate the wheel loadings of the 12-axle flat top trailer. Drawing no. ALL-A232071-SPA-02 showing the movement of Ex SGT1 & 2 from plinth through the existing internal substation access gate is included within Appendix D of this report.

8.20. SPA of the removal of 3 no. 109 te sections of SGT5 & 6 offsite from the respective plinths has been carried out. In order for the units to be removed from their plinths, existing busbars and associated auxiliary equipment are to be removed and the units are to be hydraulically jacked and skidded from the plinth to the adjacent site access roads ready to be loaded onto 6-axle bed 6-axle trailer, which is the proposed transport configuration for these units. An engineering scheme for removal of SGT5 & 6 from plinth onto the proposed vehicle has not been carried out as part of this report. Four cable troughs located adjacent to the SGT5 & 6 plinths on the site access road are to be overplated to accommodate the wheel loadings of the 6-axle bed 6-axle trailer. Once loaded onto the 6-axle bed 6-axle trailer, the existing route offsite is negotiable along the existing site access roads and through an existing external substation access gate.

8.21. SPA of the removal of the sections of SGT5 & 6 loaded onto the 6-axle bed 6-axle trailer along the proposed site access road has been carried out and it has been found that the current design is not negotiable for the vehicle. The design of the road is to be widened to suit the vehicle track in two locations.

8.22. SPA of the 6-axle bed 6-axle trailer turning right from the proposed site access road onto the existing substation access road has also been carried out and the current junction design is not negotiable for the vehicle. The design of the junction is to be widened to the inside of the turn to suit the vehicle track. 1 no. existing gate and 1 no. section of wooden fencing located to the southern side of the existing substation access road are also to be removed and relocated to permit access for the 6-axle bed 6-axle trailer. Drawing no. ALL-A232071-SPA-03 showing the movement of the sections of SGT5 & 6 offsite from plinth to the existing main substation access road is included within Appendix D of this report.

8.23. Onward movement of the Ex SGT1 & 2 and 6 no. sections of SGT5 & 6 from the existing substation access road to their destination(s) has not been considered as part of this report.

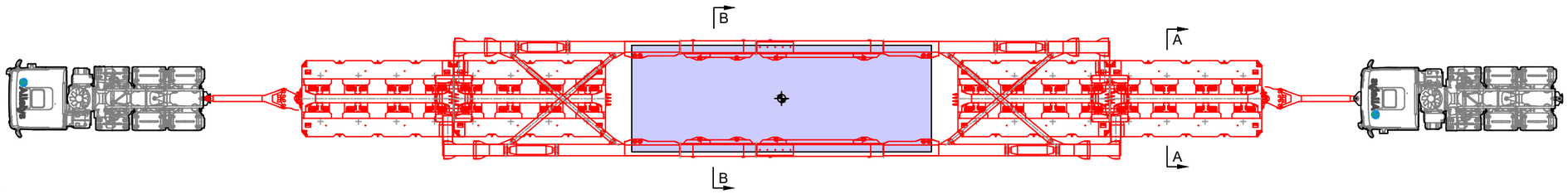
Appendix A

Trailer Arrangement Drawings

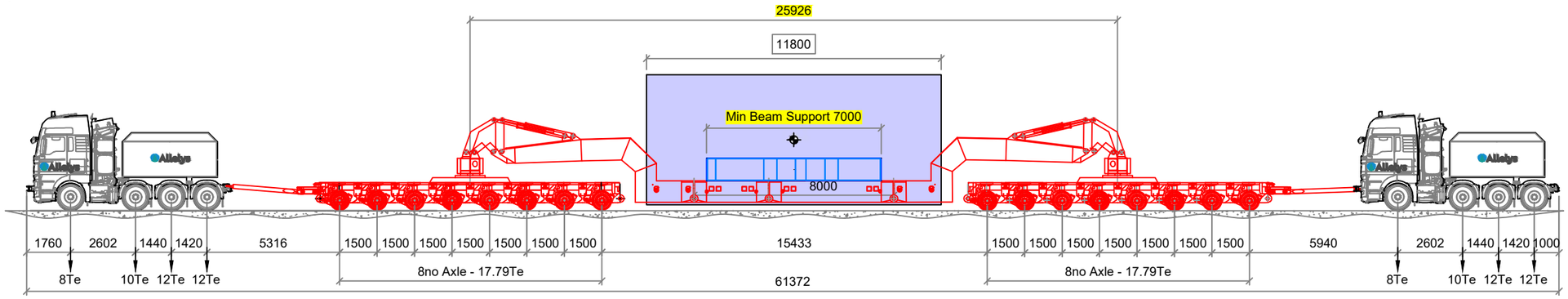
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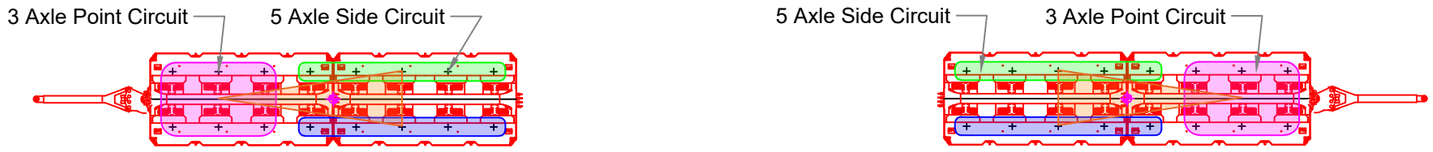
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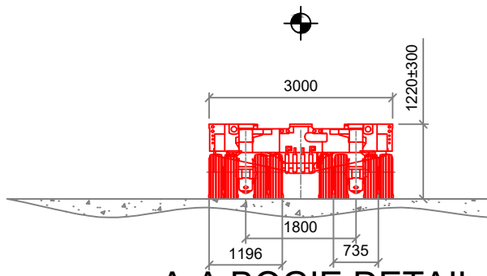
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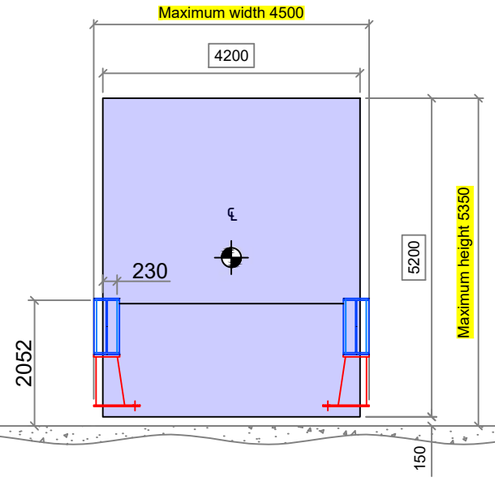
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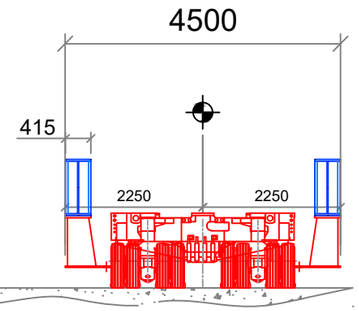
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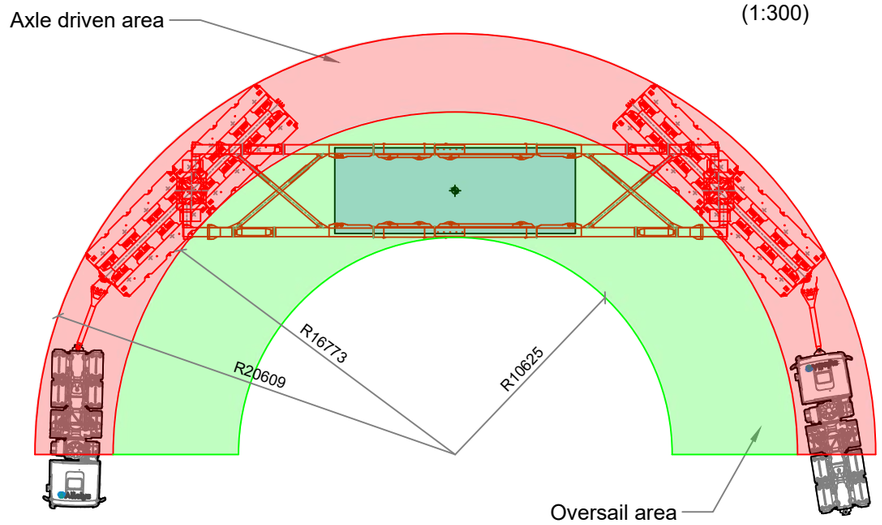
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TRAILER DETAIL
(1:100)



TURNING RADII
(1:300)



DRAWING NOTES:

- All measurements are in millimetres (mm) unless otherwise stated
- All weights are in metric tonnes (Te) unless otherwise stated
- All details are preliminary and subject to confirmation
- CoG and transport bracket position is assumed and subject to confirmation

TRANSFORMER DRAWING TO BE PROVIDED

TECHNICAL NOTES:

LOAD TABLE	
Applied Load Weight (Te)	185.00
Girder Frame Tare Weight (Te)	47.60
Axles Tare Weight (Te)	46.40
Auxiliary Steel Work Weight (Te)	5.60
Transport Gross Weight (Te)	284.60
Load per Bogie (Te)	142.30
Load per Axle (Te)	17.79
Block Ground Loading (Te/m²)	3.95

CLIENT REFERENCE DOCUMENTS		
REV	DATE	DOCUMENT REFERENCE No.

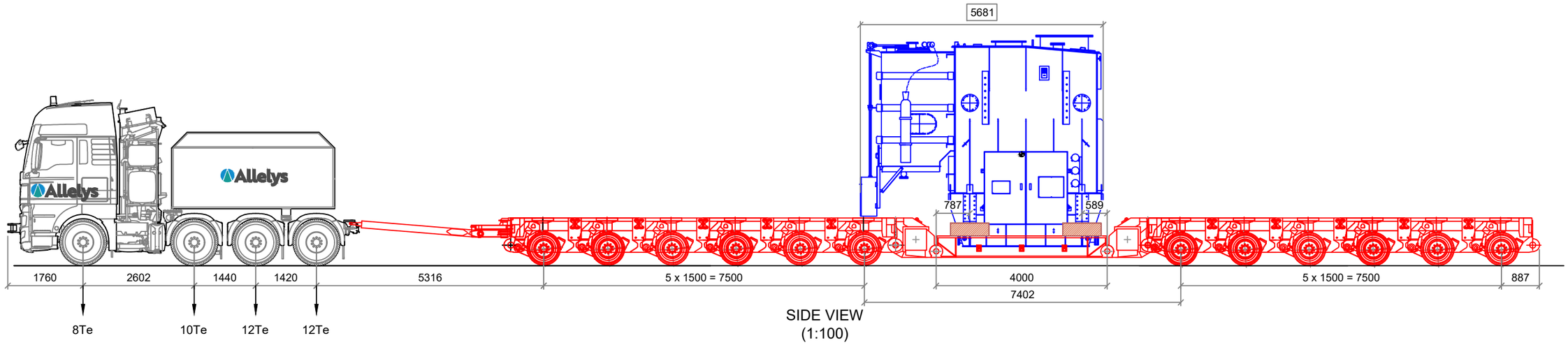
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A					
B					
C					

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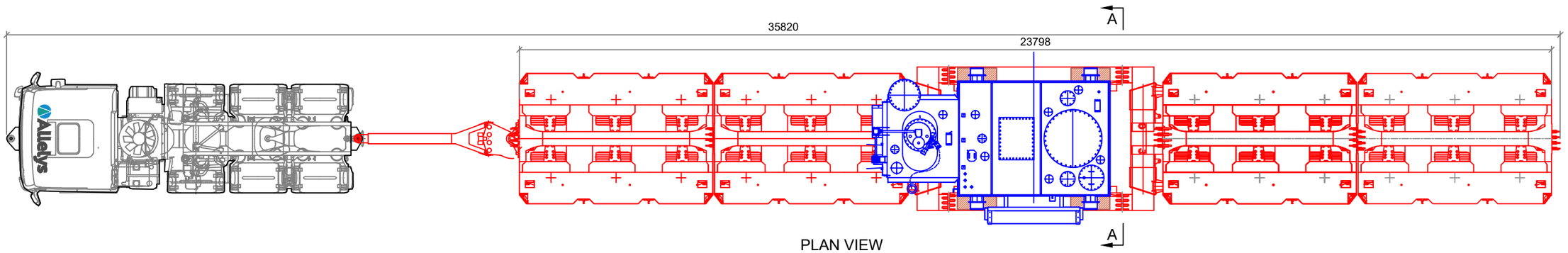
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Project	Fort Augustus Route Survey
Title	185Te Transformer SGF - 16ax Transport Arrangement
Scale (A3)	As shown
Sheet No.	1
Total No.	1
Dwg. No	ALL-A232071-TA-03

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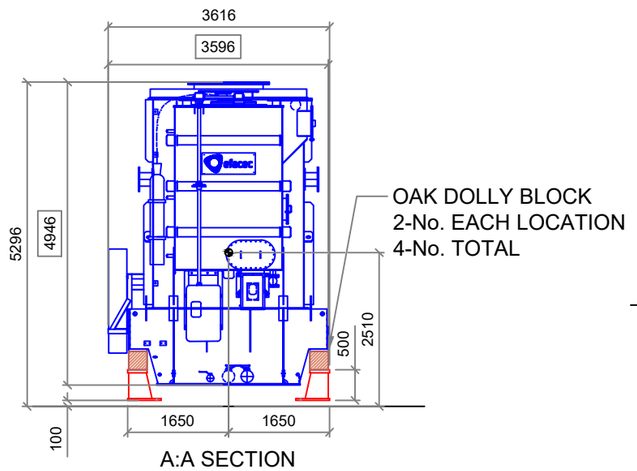
DO NOT SCALE | **IF IN DOUBT ASK**



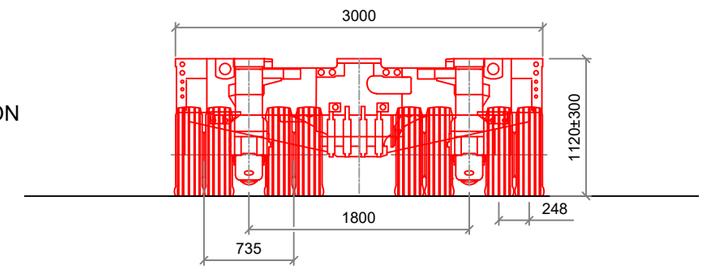
SIDE VIEW
(1:100)



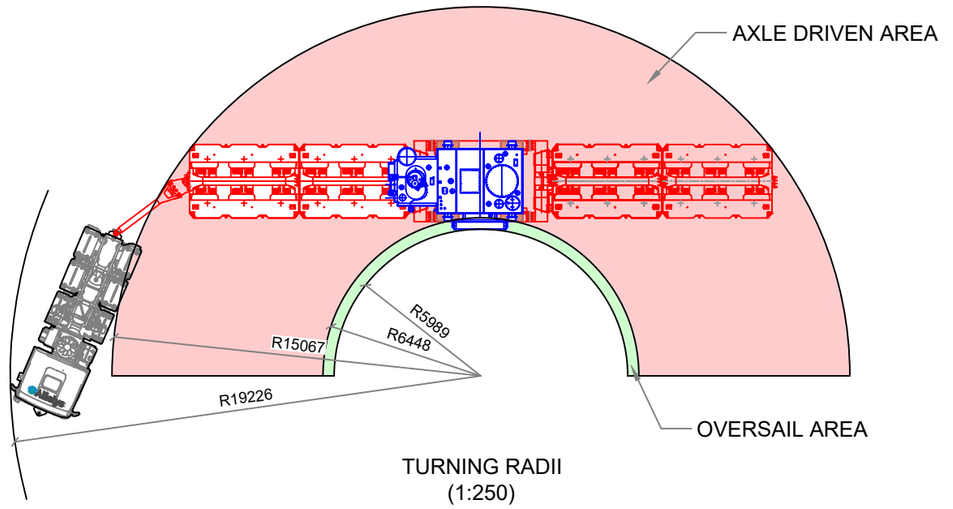
PLAN VIEW
(1:100)



A:A SECTION
(1:100)



BOGIE SECTION
(1:50)



TURNING RADII
(1:250)

DRAWING NOTES:

1. ALL DIMENSIONS ARE IN mm UNLESS OTHERWISE NOTED.
2. ALL WEIGHTS ARE IN Te (METRIC TONNES) UNLESS OTHERWISE STATED.
3. ALL DRAWINGS ARE BASED UPON DETAILS PROVIDED BY THE CLIENT.
4. PLYWOOD/RUBBER SHEETS SHALL BE PROVIDED AT ALL STEEL TO STEEL INTERFACES.

TECHNICAL NOTES:

LOAD TABLE	
Applied Load Weight (Te)	109.00
Trailer Tare Weight (Te)	52.49
Auxiliary Steel Work (Te)	000.00
Trailer Gross Weight (Te)	161.49
Load per Bogie (Te)	80.745
Load per Axle (Te)	13.46
Block Ground Loading (Te/m²)	2.99

CLIENT REFERENCE DOCUMENTS

REV	DATE	DOCUMENT REFERENCE No.

REVISION HISTORY

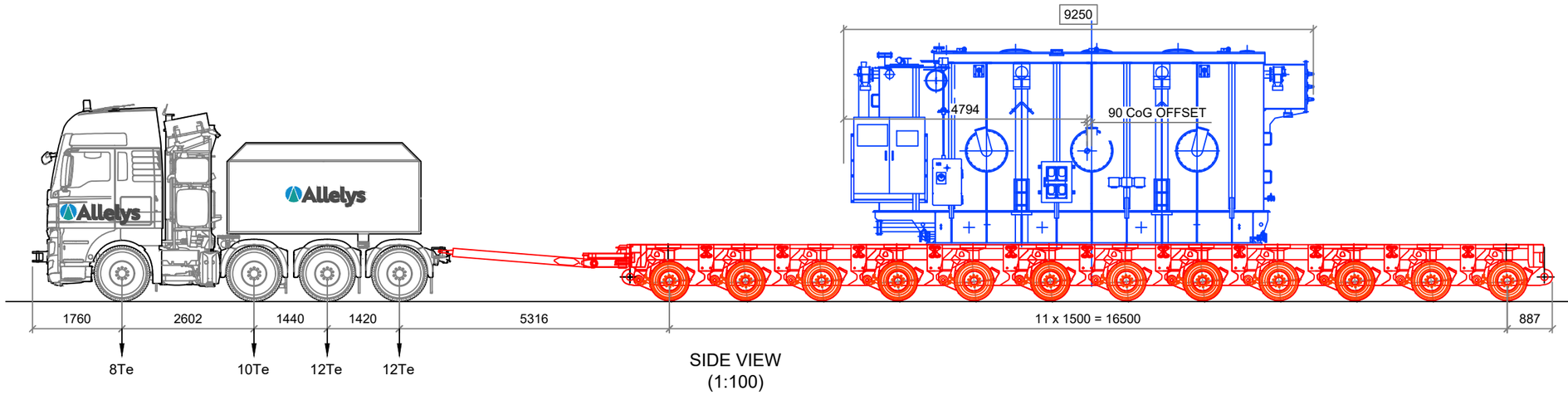
REV	DATE	DESCRIPTION	DRAWN	CHECKED	APPROVED
00	07/02/24	First issue	ADT		
A	15/02/24	Added Width Dimension	ADT		
B					
C					

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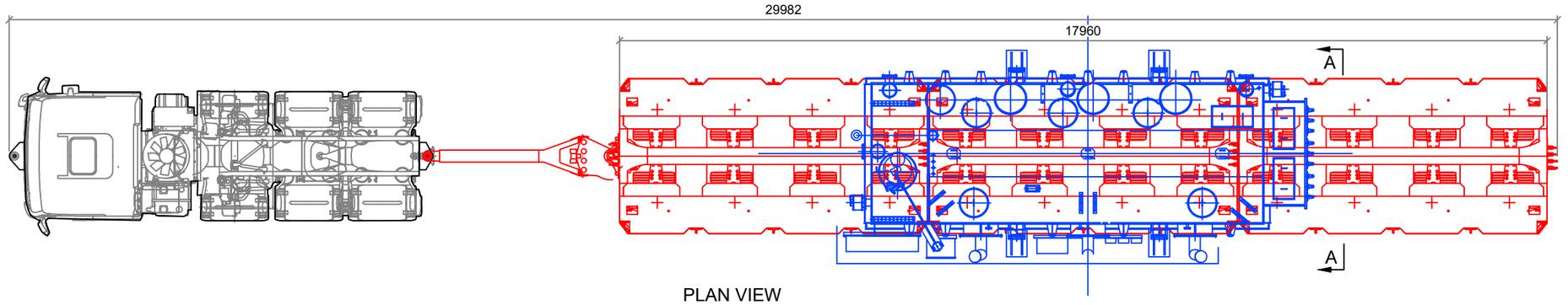
Client	SSEN
Project	Fort Agustus Route Survey
Title	109Te Transformer- Phase C Option 2 6 Bed 6 Trailer
Scale (A3)	As Shown
Sheet No.	1
Total No.	1
Dwg. No	ALL-A232071-TA-02

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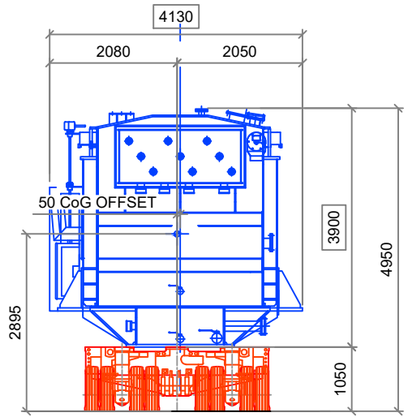
DO NOT SCALE | **IF IN DOUBT ASK**



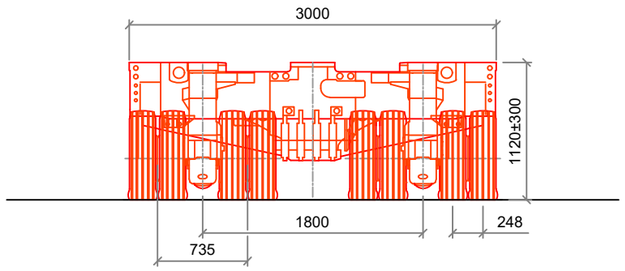
SIDE VIEW
(1:100)



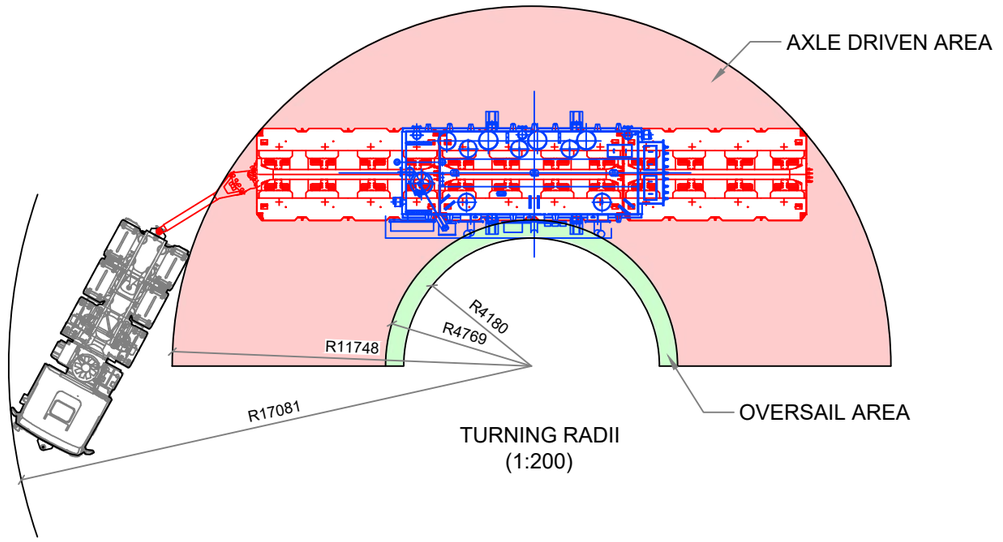
PLAN VIEW
(1:100)



A:A SECTION
(1:100)



BOGIE SECTION
(1:50)



TURNING RADII
(1:200)

DRAWING NOTES:

1. ALL DIMENSIONS ARE IN mm UNLESS OTHERWISE NOTED.
2. ALL WEIGHTS ARE IN Te (METRIC TONNES) UNLESS OTHERWISE STATED.
3. ALL DRAWINGS ARE BASED UPON DETAILS PROVIDED BY THE CLIENT.
4. PLYWOOD/RUBBER SHEETS SHALL BE PROVIDED AT ALL STEEL TO STEEL INTERFACES.

TECHNICAL NOTES:

LOAD TABLE	
Applied Load Weight (Te)	131.00
Trailer Tare Weight (Te)	38.431
Auxiliary Steel Work (Te)	000.00
Trailer Gross Weight (Te)	169.431
Load per Bogie (Te)	169.431
Load per Axle (Te)	14.119
Block Ground Loading (Te/m²)	3.138

CLIENT REFERENCE DOCUMENTS		
REV	DATE	DOCUMENT REFERENCE No.
B	30/03/13	236_1108_1395_00_01 SGT1

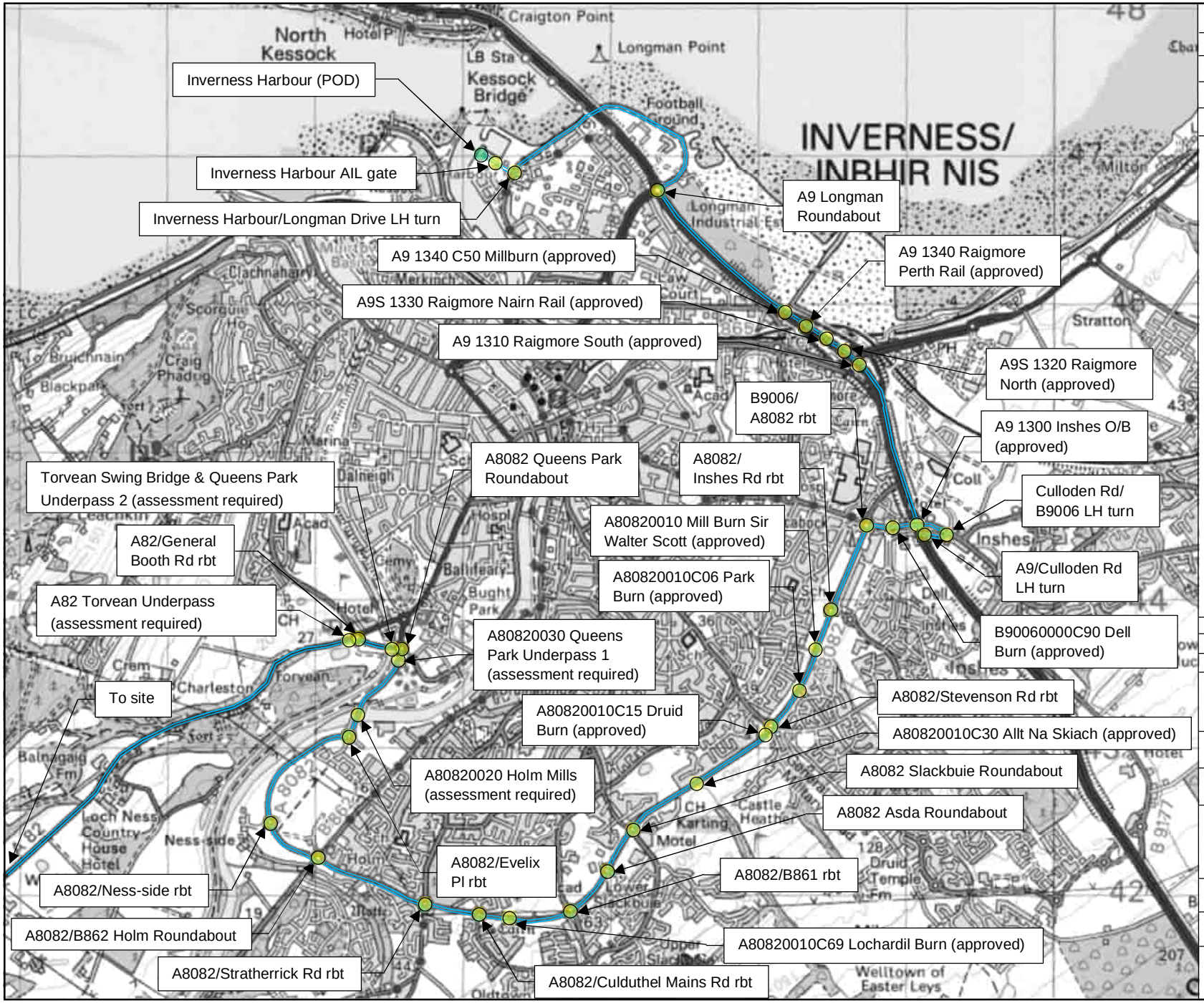
REVISION HISTORY					
REV	DATE	DESCRIPTION	DRAWN	CHECKED	APPROVED
00	08/02/24	First issue	ADT		
A	15/02/24	Added Width Dimension	ADT		
B					
C					

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Client	SSEN
Project	Fort Agustus Route Survey
Title	131Te Super Grid Transformer 12 Axle Flat Top Trailer
Scale (A3)	As Shown
Sheet No.	1
Total No.	1
Dwg. No	ALL-A232071-TA-03

Appendix B

Maps



Key

Route 1	
Collection point	
Point of interest	
Delivery point	

Rev.	Date	Amendments
0	16/02/24	First issue

Revisions

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Client: SSEN

Project: A232071 Fort Augustus

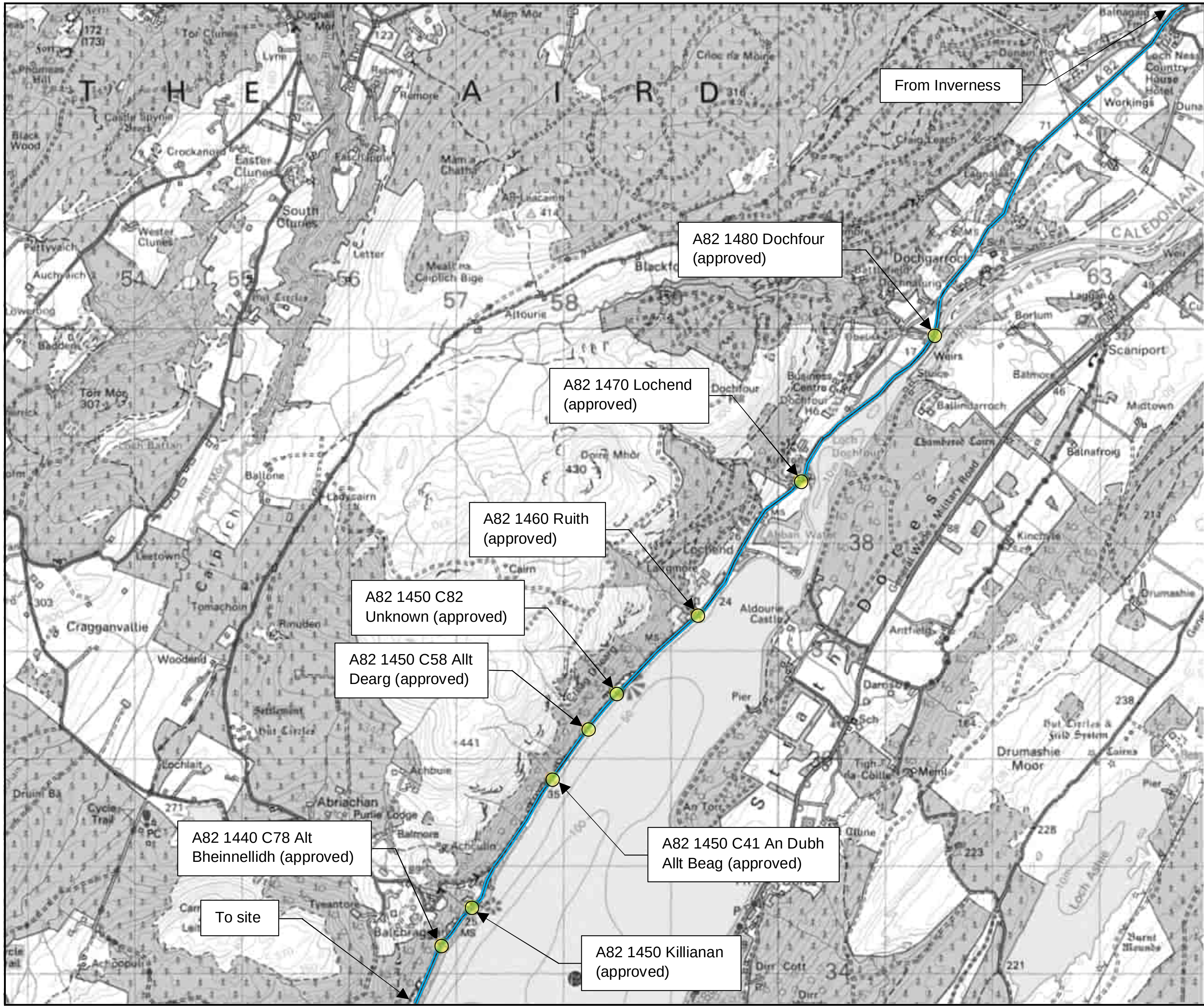
Title: 185 te SGT
Inverness to Fort Augustus Sub.

Doc. no.: ALL-A232071-MAP-001

Sheet: 1 of 6

Rev.: 0

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Key

	Route 1
	Collection point
	Point of interest
	Delivery point

Rev.	Date	Amendments
0	20/02/24	First issue

Revisions

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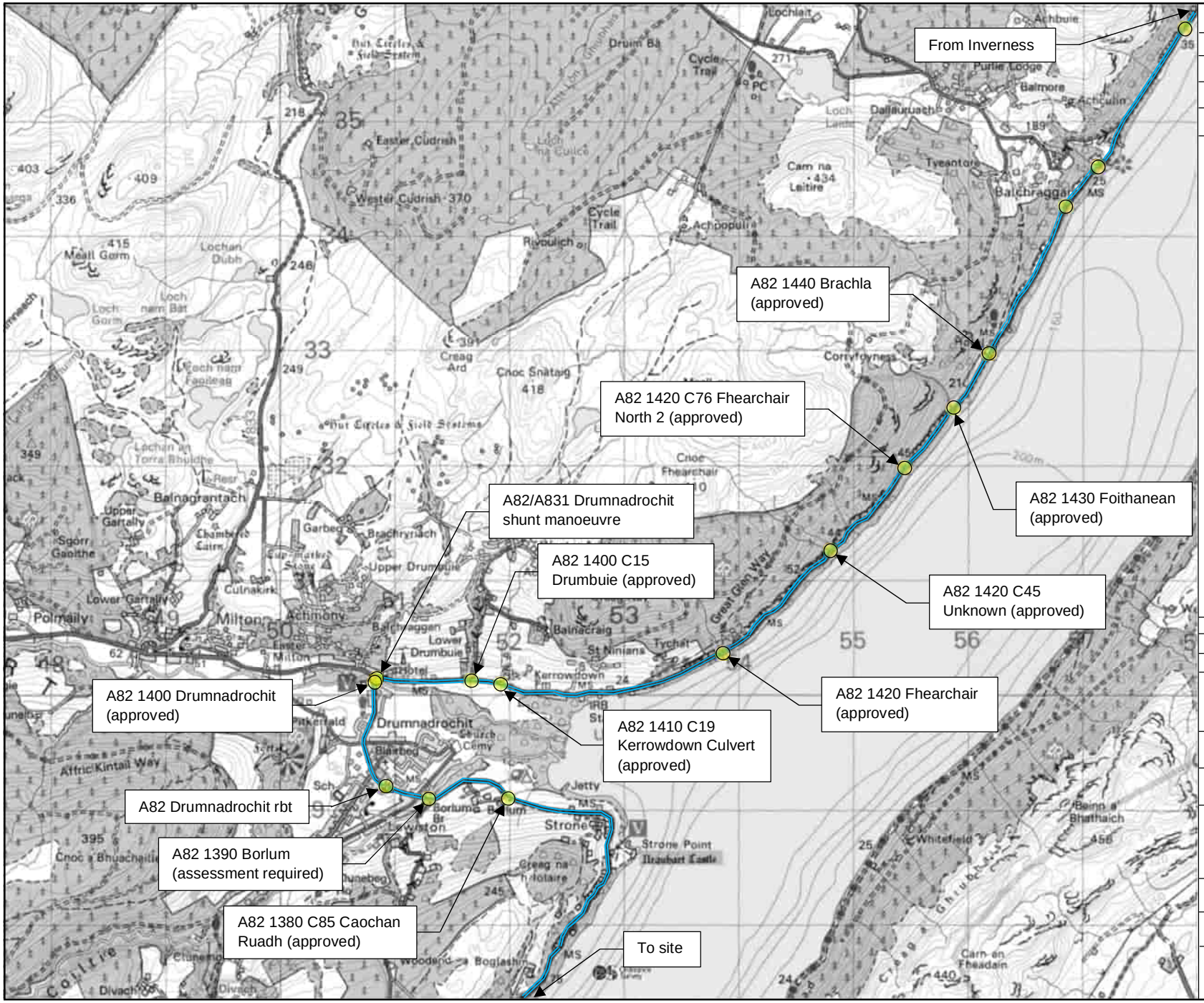
Project: A232071 Fort Augustus

Title: 185 te SGT
Inverness to Fort Augustus Sub.

Doc. no. ALL-A232071-MAP-01

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Key

Route 1	
Collection point	
Point of interest	
Delivery point	

Rev.	Date	Amendments
0	20/02/24	First issue

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Project: A232071 Fort Augustus

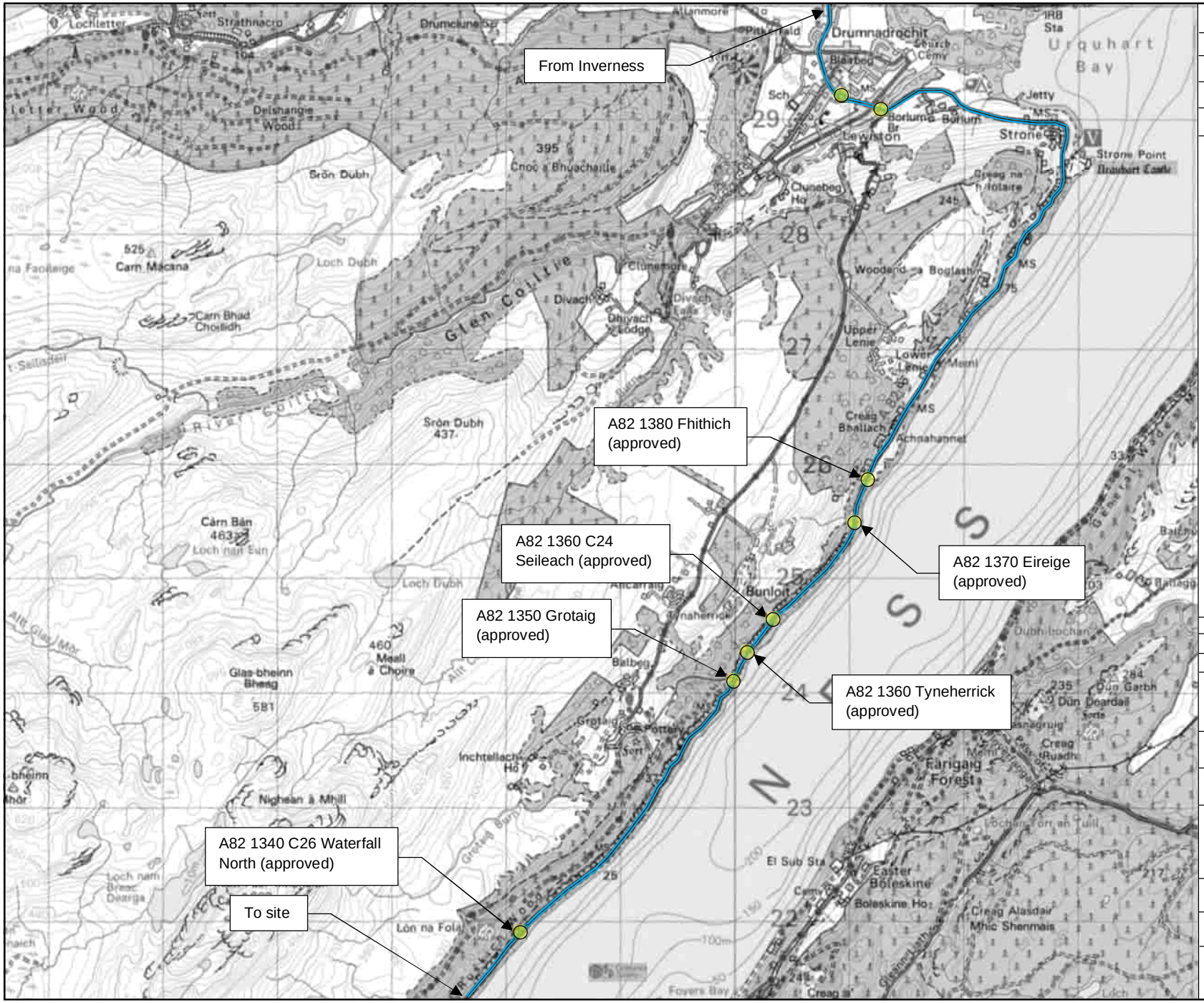
Title: 185 te SGT
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Route 1	
Collection point	
Point of interest	
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Project: A232071 Fort Augustus

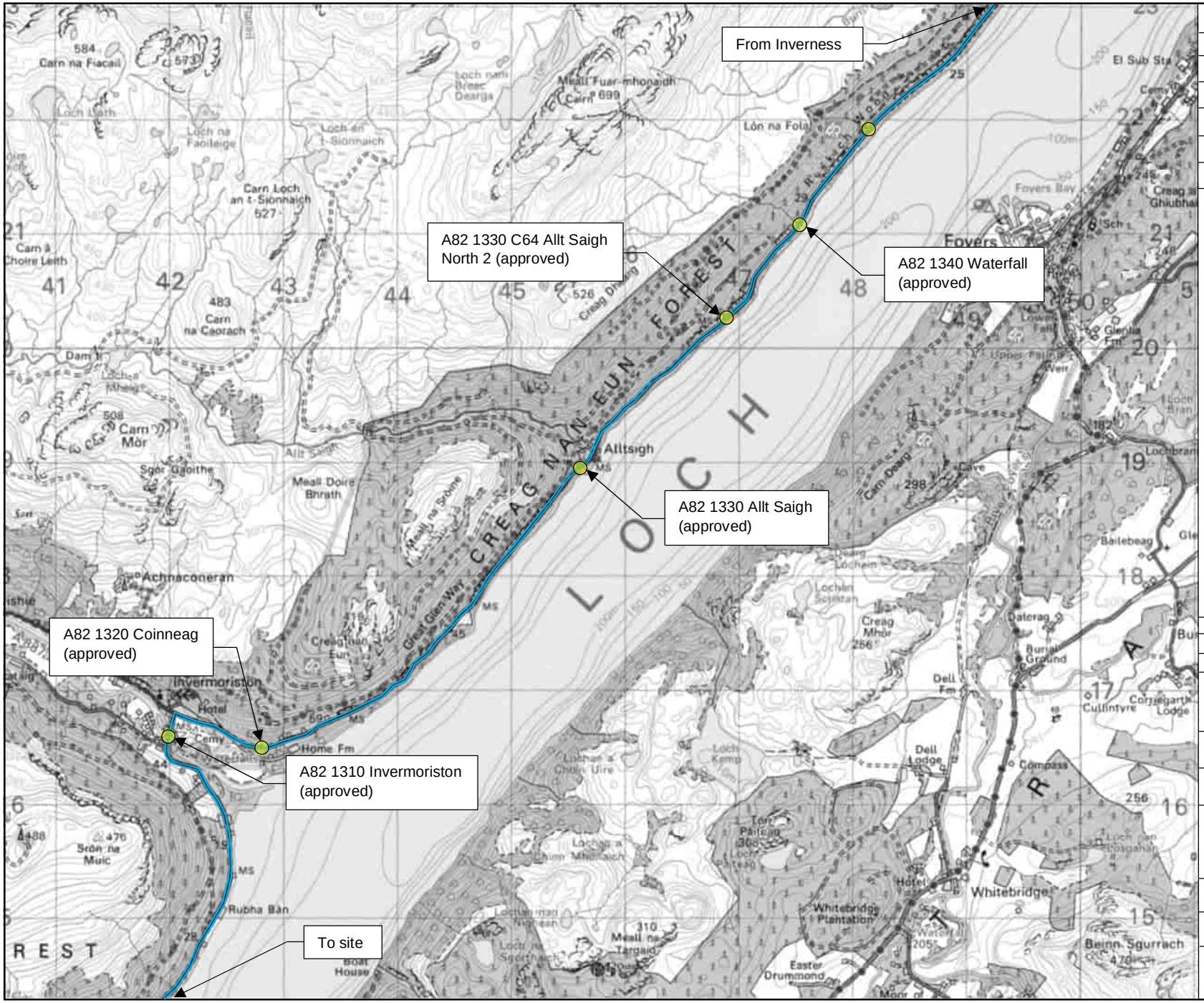
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Key

	Route 1
	Route 2
	Route 3
	Collection point
	Point of interest
	Delivery point

Rev.	Date	Amendments
0	20/02/24	First issue

Revisions

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Project: A232071 Fort Augustus

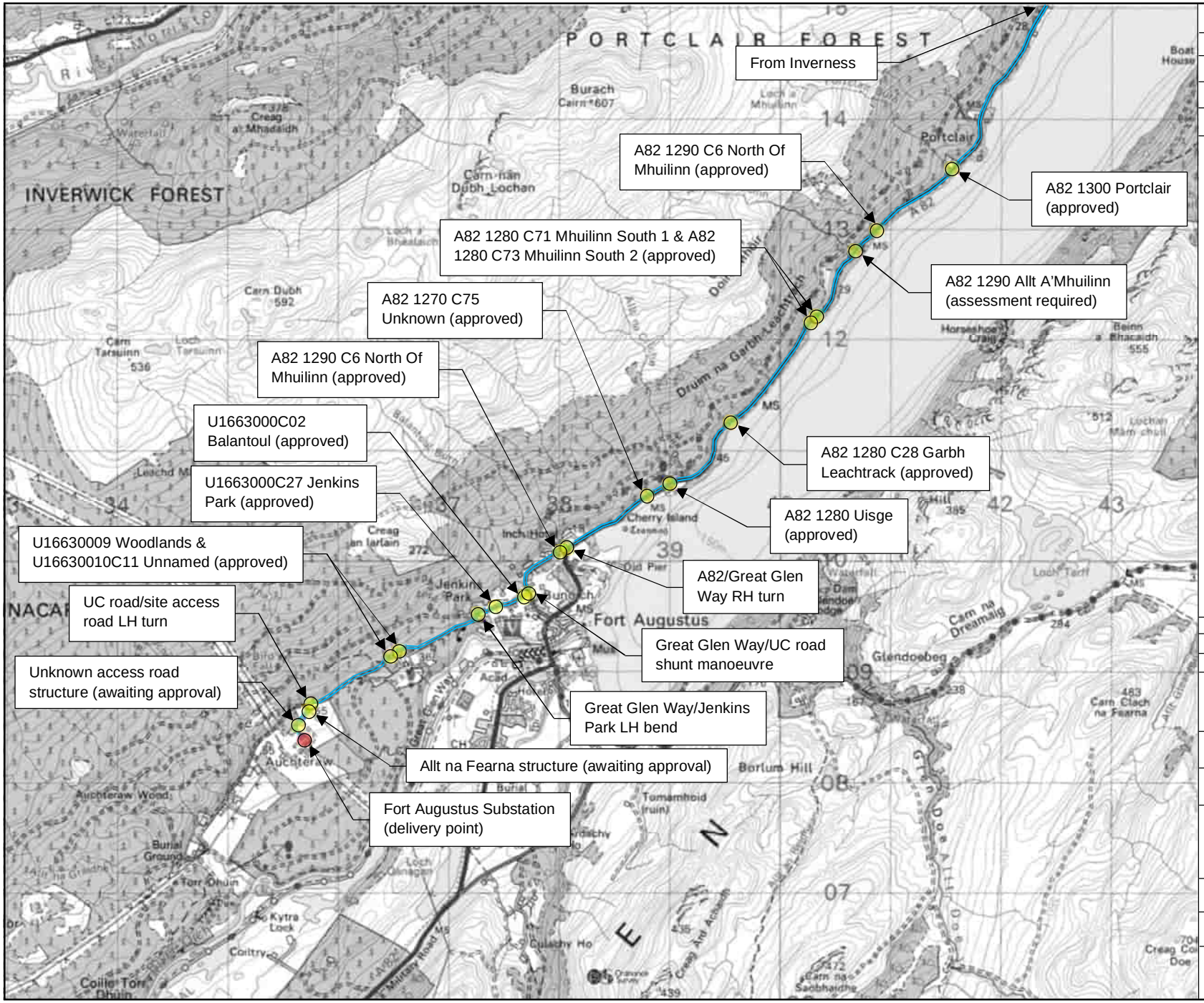
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Client: SSEN

Project: A232071 Fort Augustus

Title: 185 te SGT
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Appendix C

Structures Details

Table 2 Route 1 structures

Structure no.	Structure name	Structural authority	Check result	Easting	Northing	Category	Type	Class	Length [m]
A9 1350	Kessock	Transport Scotland/ BEAR NW	N/A - overbridge	266886	847289	Road bridge	Continuous span	Under and over bridge	1052.00
A9 1340 C50	MILLBURN	Transport Scotland/ BEAR NW	Approved	268205	845918	CULVERT	-	UNDERBRIDGE	-
A9 1340	RAIGMORE PERTH RAIL	Transport Scotland/ BEAR NW	Approved	268331	845834	ROAD BRIDGE	SIMPLY SUPPORTED SPAN	UNDERBRIDGE	10.90
A9 1330	RAIGMORE NAIRN RAIL	Transport Scotland/ BEAR NW	Approved	268424	845777	ROAD BRIDGE	INTEGRAL STRUCTURE	UNDERBRIDGE	7.10
A9S 1320	RAIGMORE NORTH	Transport Scotland/ BEAR NW	Approved	268567	845688	ROAD BRIDGE	CONTINUOUS SPAN	UNDER AND OVER BRIDGE	44.90
A9S 1310	RAIGMORE SOUTH	Transport Scotland/ BEAR NW	Approved	268689	845568	ROAD BRIDGE	CONTINUOUS SPAN	UNDER AND OVER BRIDGE	37.90
A9 1300	INSHES O/B	Transport Scotland/ BEAR NW	Approved	269076	844522	ROAD BRIDGE	SIMPLY SUPPORTED SPAN	UNDER AND OVER BRIDGE	30.80
B90060000C90	DELL BURN	HIGHLAND COUNCIL	Approved	268915	844477	CULVERT	-	UNDERBRIDGE	-
A80820010	MILL BURN SIR WALTER SCOTT	HIGHLAND COUNCIL	Approved	268377	843655	ROAD BRIDGE	-	UNDERBRIDGE	-
A80820010C06	PARK BURN	HIGHLAND COUNCIL	Approved	268280	843426	CULVERT	-	UNDERBRIDGE	-
A80820010C15	DRUID BURN	HIGHLAND COUNCIL	Approved	268071	843091	CULVERT	-	UNDERBRIDGE	-
A80820010C30	ALLT NA SKIACH	HIGHLAND COUNCIL	Approved	267582	842751	CULVERT	-	UNDERBRIDGE	-
A80820010C69	LOCHARDIL BURN	HIGHLAND COUNCIL	Approved	266306	841833	CULVERT	-	UNDERBRIDGE	-
A80820020	HOLM MILLS	HIGHLAND COUNCIL	Assessment required	265284	843222	ROAD BRIDGE	-	UNDERBRIDGE	176.00
A80820030	QUEENS PARK UNDERPASS 1	HIGHLAND COUNCIL	Assessment required	265569	843637	PEDESTRIAN ACCESS	-	UNDERBRIDGE	4.00
TBC	QUEENS PARK UNDERPASS 2 (UC road)	TBC	Assessment required	265547	843675	PEDESTRIAN ACCESS	-	UNDERBRIDGE	-
TBC	TORVEAN SWING BRIDGE (UC road)	TBC	Assessment required	265509	843674	Road bridge	SWING BRIDGE	UNDERBRIDGE	-
TBC	TORVEAN UNDERPASS (A82)	TBC	Assessment required	265204	843709	Road bridge	-	UNDERBRIDGE	-
A82 1480	DOCHFOUR	Transport Scotland/BEAR NW	Approved	261435	839916	Road bridge	SIMPLY SUPPORTED SPAN	UNDERBRIDGE	6.70
A82 1470	LOCHEND	Transport Scotland/BEAR NW	Approved	260239	838603	Road bridge	FIXED, SIMPLY SUPPORTED SPAN	UNDERBRIDGE	11.00
A82 1460	RUITH	Transport Scotland/BEAR NW	Approved	259276	837315	Road bridge	FIXED	UNDERBRIDGE	3.70

A82 1450 C82	UNKNOWN	Transport Scotland/BEAR NW	Approved	258527	836575	CULVERT	-	UNDERBRIDGE	-
A82 1450 C58	ALLT DEARG	Transport Scotland/BEAR NW	Approved	258243	836260	CULVERT	-	UNDERBRIDGE	1.80
A82 1450 C41	AN DUBH ALLT BEAG	Transport Scotland/BEAR NW	Approved	257906	835786	CULVERT	-	UNDERBRIDGE	1.20
A82 1450	KILLIANAN	Transport Scotland/BEAR NW	Approved	257144	834603	Road bridge	TWO HINGED/PINNED	UNDERBRIDGE	6.20
A82 1440 C78	ALLT BHEINNELLIDH	Transport Scotland/BEAR NW	Approved	256877	834269	CULVERT	-	UNDERBRIDGE	-
A82 1440	BRACHLA	Transport Scotland/BEAR NW	Approved	256182	832949	Road bridge	TWO HINGED/PINNED	UNDERBRIDGE	3.90
A82 1430	FOITHANEAN	Transport Scotland/BEAR NW	Approved	255869	832487	Road bridge	TWO HINGED/PINNED	UNDERBRIDGE	4.00
A82 1420 C76	FHEARCHAIR NORTH 2	Transport Scotland/BEAR NW	Approved	255449	831948	CULVERT	-	UNDERBRIDGE	-
A82 1420 C45	UNKNOWN	Transport Scotland/BEAR NW	Approved	254823	831236	CULVERT	-	UNDERBRIDGE	-
A82 1420	FHEARCHAIR	Transport Scotland/BEAR NW	Approved	253861	830335	Road bridge	TWO HINGED/PINNED	UNDERBRIDGE	3.66
A82 1410 C19	KERROWDOWN CULVERT	Transport Scotland/BEAR NW	Approved	251921	830070	CULVERT	-	UNDERBRIDGE	-
A82 1400 C26	DRUMBUIE	Transport Scotland/BEAR NW	Approved	251650	830101	CULVERT	-	UNDERBRIDGE	-
A82 1400	DRUMNADROCHIT	Transport Scotland/BEAR NW	Approved with caution	250813	830124	Road bridge	MORTAR JOINTED	UNDERBRIDGE	30.80
A82 1390	BORLUM	Transport Scotland/BEAR NW	Assessment required	251260	829096	Road bridge	TWO HINGED/PINNED	UNDERBRIDGE	28.90
A82 1380 C85	CAOCHAN RUADH	Transport Scotland/BEAR NW	Approved	251984	829089	CULVERT	-	UNDERBRIDGE	-
A82 1380	FHITHICH	Transport Scotland/BEAR NW	Approved	251152	825864	Road bridge	SIMPLY SUPPORTED SPAN	UNDERBRIDGE	8.80
A82 1370	EIREIGE	Transport Scotland/BEAR NW	Approved	251041	825514	Road bridge	MORTAR JOINTED, TWO HINGED/PINNED	UNDERBRIDGE	9.30
A82 1360 C24	SEILEACH	Transport Scotland/BEAR NW	Approved	250334	824636	CULVERT	-	UNDERBRIDGE	-
A82 1360	TYNEHERRICK	Transport Scotland/BEAR NW	Approved	250133	824349	Road bridge	TWO HINGED/PINNED	UNDERBRIDGE	3.90
A82 1350	GROTAIG	Transport Scotland/BEAR NW	Approved	250020	824125	Road bridge	TWO HINGED/PINNED	UNDERBRIDGE	3.20
A82 1340 C26	WATERFALL NORTH	Transport Scotland/BEAR NW	Approved	248152	821884	CULVERT	-	UNDERBRIDGE	-

A82 1340	WATERFALL	Transport Scotland/BEAR NW	Approved	247542	821067	Road bridge	TWO HINGED/PINNED	UNDERBRIDGE	3.30
A82 1330 C64	ALLT SAIGH NORTH 2	Transport Scotland/BEAR NW	Approved	246911	820242	CULVERT	-	UNDERBRIDGE	-
A82 1330	ALLT SAIGH	Transport Scotland/BEAR NW	Approved	245622	818931	Road bridge	Continuous span	UNDERBRIDGE	23.00
A82 1320	COINNEAG	Transport Scotland/BEAR NW	Approved	242832	816492	Road bridge	MORTAR JOINTED	UNDERBRIDGE	4.00
A82 1310	INVERMORISTON	Transport Scotland/BEAR NW	Approved	241992	816522	Road bridge	FIXED	UNDERBRIDGE	36.60
A82 1300	PORTCLAIR	Transport Scotland/BEAR NW	Approved	241573	813530	Road bridge	TWO HINGED/PINNED	UNDERBRIDGE	4.30
A82 1290 C6	NORTH OF MHUILINN	Transport Scotland/BEAR NW	Approved	240898	812977	CULVERT	-	UNDERBRIDGE	-
A82 1290	ALLT A' MHUILINN	Transport Scotland/BEAR NW	Assessment required	240714	812805	Road bridge	MORTAR JOINTED	UNDERBRIDGE	10.60
A82 1280 C73	MHUILINN SOUTH 2	Transport Scotland/BEAR NW	Approved	240347	812181	CULVERT	-	UNDERBRIDGE	-
A82 1280 C71	MHUILINN SOUTH 1	Transport Scotland/BEAR NW	Approved	240304	812147	CULVERT	-	UNDERBRIDGE	-
A82 1280 C28	GARBH LEACHTRACK	Transport Scotland/BEAR NW	Approved	239556	811241	CULVERT	-	UNDERBRIDGE	-
A82 1280	UISGE	Transport Scotland/BEAR NW	Approved	239055	810699	Road bridge	TWO HINGED/PINNED	UNDERBRIDGE	4.10
A82 1270 C75	UNKNOWN	Transport Scotland/BEAR NW	Approved	238807	810572	CULVERT	-	UNDERBRIDGE	-
A82 1270	BHROCHAIN	Transport Scotland/BEAR NW	Approved	238059	810045	Road bridge	TWO HINGED/PINNED	UNDERBRIDGE	5.70
U16630000C02	BALANTOUL	HIGHLAND COUNCIL	Approved	237708	809689	CULVERT	-	UNDERBRIDGE	-
U16630000C27	JENKINS PARK	HIGHLAND COUNCIL	Approved	237412	809568	CULVERT	-	UNDERBRIDGE	-
U16630009	WOODLANDS	HIGHLAND COUNCIL	Approved	236560	809188	Road bridge	-	UNDERBRIDGE	-
U16630010C11	UNNAMED	HIGHLAND COUNCIL	Approved	236445	809132	CULVERT	-	UNDERBRIDGE	-
-	UNKNOWN (ALLT NA FEARNA)	SSEN	Awaiting approval	235723	808640	Road bridge	-	UNDERBRIDGE	5.00
-	UNKNOWN	SSEN	Awaiting approval	235633	808538	CULVERT	-	UNDERBRIDGE	1.70

Sally Weston

From:	Stephen Oakley <SOakley@bearscotland.co.uk>
Sent:	05 December 2023 13:43
To:	Sally Weston
Cc:	NW AbnormalLoad
Subject:	RE: A232071 Fort Augustus 185 te transformer route feasibility study
Attachments:	Allelys 185T Transformer ALR Results with A9.pdf

I have added the Trunk road Bridges between Longman Roundabout and Inches O/B. The route on the A9 and crossing Inshes O/B is suitable for the proposed vehicle. Raigmore Nairn Rail is well below road level so we are also content for the vehicle to cross that structure.

Regarding Torvean I believe Transport Scotland & BEAR will adopt the structure in the future but it is currently the responsibility of Highland Council.

The local roads including the A8082 are also the responsibility of Highland Council.

Regards

Stephen Oakley
Bridge Engineer | BEAR Scotland | North West Unit
Telephone: 07876 825865 | Visit us @ www.bearscot.com



From: Sally Weston <sally.weston@allelys.co.uk>
Sent: Tuesday, December 5, 2023 12:29 PM
To: Stephen Oakley <SOakley@bearscotland.co.uk>
Cc: NW AbnormalLoad <NWAbnormalLoad@bearscotland.co.uk>
Subject: RE: A232071 Fort Augustus 185 te transformer route feasibility study

Hi Stephen,

Ok, that's great thanks. Have you handed the new Torvean Swing Bridge over to Highland Council now?

Considering the need for assessments when going through the city centre, would the A8082 be a better option?

https://maps.app.goo.gl/F1mE9R2FVkHg4LBE7

Many thanks,

Sally

Sally Weston CEng MRINA
Specialist Transport Route Planner
Allelys

Tel: 01527 852 408 (Option 3)
Mob: +44(0)7985 899 046
Web: www.allelys.co.uk
Email: sally.weston@allelys.co.uk
Address: The Slough, Studley, Warwickshire, B80 7EN

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From: Stephen Oakley <SOakley@bearscotland.co.uk>
Sent: 05 December 2023 10:48
To: Sally Weston <sally.weston@allelys.co.uk>
Cc: NW AbnormalLoad <NWAbnormalLoad@bearscotland.co.uk>
Subject: RE: A232071 Fort Augustus 185 te transformer route feasibility study

Good morning,

I have checked the structures on the two routes with the ALR software available to BEAR. This software is not capable of assessing the more complex structures on the route.

The structures that would require further assessment are Friars, Borlum, and Allt A'Mhuilinn. We are content that the result for Longman Rail is satisfactory, as the ALR tool does not include load factors for the axle weights in the check

BEAR do not currently maintain the swing bridges in Inverness.

Regards

Stephen Oakley
Bridge Engineer | BEAR Scotland | North West Unit
Telephone: 07876 825865 | Visit us @ www.bearscot.com

experience that delivers

From: Sally Weston <sally.weston@allelys.co.uk>
Sent: Monday, December 4, 2023 4:16 PM
To: Simon Farrow (Infrastructure) <Simon.Farrow@highland.gov.uk>; Abnormal Loads <Abnormal.Loads@highland.gov.uk>; NW AbnormalLoad <NWAbnormalLoad@bearscotland.co.uk>; OSD Abnormal Loads Scotland <OSDAbnormalLoadsScotland@scotland.police.uk>; Stephen Oakley <SOakley@bearscotland.co.uk>
Subject: A232071 Fort Augustus 185 te transformer route feasibility study

Good afternoon All,

I've got another route feasibility study to do from Inverness to Fort Augustus/Auchterawe Substation, this time for a 185 te transformer on a 16-axle girder frame trailer.

Route link is here, although we'll be using the bus lane to go straight on at Longman Roundabout as usual: https://maps.app.goo.gl/k78h6A2k54mn4wuK9

Please would you comment on the structural feasibility of this?

Many thanks,

Sally

Sally Weston CEng MRINA
Specialist Transport Route Planner
Allelys

Tel: 01527 852 408 (Option 3)
Mob: +44(0)7985 899 046
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Route	Bridge Code	Bridge Name	Easting	Northing	Length Of Span (m)	Ha Design Loading	Hb Design Loading	Hb Assessed Capacity	Maximum Hb Capacity With Restrictions	Hb Assessment Year	Primary Deck Element	Primary Deck Element Material	HB Restriction Requirement	ALR Result 320T Transformer
A82 Destination to Inverness Longman Routbout	A82 1280	UISGE	239100	810700	4.1	FULL HA	N/A	0	_	0	11 Slab - Solid	A Reinforced Concrete		Cannot be assessed by ALR
	A82 1290	ALLT A' MHUILINN	240698	812806	10.6	FULL HA	45	25	25	1991	01 Arch - Solid Spandrel	B Plain / Mass Concrete	No enhancement considered likely.	32.81 0.76
	A82 1300	PORTCLAIR	241562	813512	4.3	FULL HA	30	30	_	1993	01 Arch - Solid Spandrel	A Reinforced Concrete		Cannot be assessed by ALR
	A82 1310	INVERMORISTON	241989	816543	8/5.4/23.2	FULL HA	45	45	_	1990	01 Arch - Solid Spandrel	A Reinforced Concrete		40.32 1.12
	A82 1320	COINNEAG	242800	816500	4	FULL HA	45	45	_	1991	01 Arch - Solid Spandrel	B Plain / Mass Concrete		19.89 2.26
	A82 1330	ALLT SAIGH	245628	818934	3.4/16.4/3.2	FULL HA	45	45	_	1995	04 Beam / Girder At Or Below Deck Surface	A Reinforced Concrete		39.56 1.14
	A82 1340	WATERFALL	247562	821057	3.3	FULL HA	N/A	0	_	0	11 Slab - Solid	A Reinforced Concrete		Cannot be assessed by ALR
	A82 1350	GROTAIG	250013	824128	3.2	FULL HA	N/A	0	_	0	11 Slab - Solid	A Reinforced Concrete		Cannot be assessed by ALR
	A82 1360	TYNEHERRICK	250128	824343	3.9	FULL HA	45	45	_	1991	11 Slab - Solid	A Reinforced Concrete		Cannot be assessed by ALR
	A82 1370	EIREIGE	251030	825506	3.1	FULL HA	N/A	0	_	0	15 Culvert / Pipe / Subway - Portal / U Shaped	A Reinforced Concrete		Cannot be assessed by ALR
	A82 1380	FHITHICH	251142	825863	8.8	FULL HA	45	45	_	1991	11 Slab - Solid	A Reinforced Concrete		33.88 1.33
	A82 1390	BORLUM	251284	829090	28.9	FULL HA	45	45	_	1995	04 Beam / Girder At Or Below Deck Surface	A Reinforced Concrete		Cannot be assessed by ALR
	A82 1400	DRUMNADROCHIT	250813	830126	15.4/15.4	?	?	45	_	1990	01 Arch - Solid Spandrel	A Reinforced Concrete		36.01 1.25
	A82 1420	FHEARCHAIR	253800	830300	3.66	FULL HA	45	45	_	1991	15 Culvert / Pipe / Subway - Portal / U Shaped	A Reinforced Concrete		Cannot be assessed by ALR
	A82 1430	FOITHANEAN	255800	832500	4	FULL HA	45	45	_	1991	15 Culvert / Pipe / Subway - Portal / U Shaped	A Reinforced Concrete		Cannot be assessed by ALR
	A82 1440	BRACHLA	256172	832959	3.9	FULL HA	30	30	_	1991	15 Culvert / Pipe / Subway - Portal / U Shaped	A Reinforced Concrete		Cannot be assessed by ALR
	A82 1450	KILLIANAN	257100	834600	6.2	FULL HA	N/A	45	_	1991	01 Arch - Solid Spandrel	A Reinforced Concrete		Cannot be assessed by ALR
	A82 1460	RUITH	259266	837322	3.7	FULL HA	45	45	_	_	01 Arch - Solid Spandrel	A Reinforced Concrete		19.53 2.30
	A82 1470	LOCHEND	260227	838602	5.5	FULL HA	45	45	_	1991	11 Slab - Solid	A Reinforced Concrete		Cannot be assessed by ALR
	A82 1480	DOCHFOUR	261437	839916	6.7	FULL HA	45	45	_	1991	11 Slab - Solid	A Reinforced Concrete		30.76 1.46
	A82 1500	FRIARS	266186	845678	37.5/58.5/37.5	FULL HA	37.5	0	_	0	05 Beam / Girder - Box Beams	C Post -tensioned Concrete		75.13 0.50
	A82 1510	INNES STREET SUBWAY	266678	845746	5	FULL HA	37.5	0	_	0	15 Culvert / Pipe / Subway - Portal / U Shaped	A Reinforced Concrete		23.10 1.62
	A82 1520	LONGMAN RAIL	266718	845764	17.9	FULL HA	37.5	0	_	0	04 Beam / Girder At Or Below Deck Surface	D Pre - Tensioned Concrete		41.92 0.89
A9 Inshes i/C to Longman Rdt	A9 1300	INSHES O/B	269100	844500	14.8/16	FULL HA	45	0	_	0	04 Beam / Girder At Or Below Deck Surface	D Pre - Tensioned Concrete		43.39 1.04
	A9 1310	RAIGMORE SOUTH	268691	845588	11.2/15.5/11.2	FULL HA	45	0	_	0	11 Slab - Solid	A Reinforced Concrete		41.23 1.09
	A9 1320	RAIGMORE NORTH	268572	845705	13.2/18.5/13.2	FULL HA	45	0	_	0	11 Slab - Solid	A Reinforced Concrete		42.28 1.06
	A9 1330	RAIGMORE NAIRN RAIL	268465	845785	7.1	FULL HA	45	0	_	0	04 Beam / Girder At Or Below Deck Surface	D Pre - Tensioned Concrete		Cannot be assessed by ALR
	A9 1340	RAIGMORE PERTH RAIL	268390	845830	10.9	FULL HA	45	0	_	0	04 Beam / Girder At Or Below Deck Surface	D Pre - Tensioned Concrete		39.10 1.15

Sally Weston

From: Simon Farrow (Infrastructure) <Simon.Farrow@highland.gov.uk>
Sent: 15 February 2024 17:03
To: Sally Weston
Subject: RE: A232071 Fort Augustus 185 te transformer route feasibility study
Attachments: RTE-2024-01-A Issue 01.xlsx

Sally,

Please find attached the structures on the route below, excluding the sections along the trunk road network. The proposed vehicle looks like it is in excess of the SV196 vehicle, therefore the larger bridges will need a comparative assessment to see whether they will generate larger effects or not. The three bridges at Torvean are in the process of being added to our database (as their adoption is taking longer than expected) – I have manually included them in the spreadsheet for the moment but they are missing a lot of the supporting data at the moment.

Kind regards,

Simon Farrow MEng CEng MIStructE | Principal Engineer (Structures)
The Highland Council, Osprey House, Alness Point Business Park, Alness, IV17 0UP
T:01349 886759 | M:07884 752 354 | simon.farrow@highland.gov.uk

---

From: Sally Weston <sally.weston@allelys.co.uk>
Sent: Tuesday, December 5, 2023 1:53 PM
To: Simon Farrow (Infrastructure) <Simon.Farrow@highland.gov.uk>; Abnormal Loads <Abnormal.Loads@highland.gov.uk>; OSD Abnormal Loads Scotland <OSDAbnormalLoadsScotland@scotland.police.uk>
Subject: RE: A232071 Fort Augustus 185 te transformer route feasibility study

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Good afternoon Simon/Frankie,

BEAR NW have advised that there are a number of failures for our vehicle when travelling through Inverness city centre, therefore, please would you *also* comment on the feasibility of the below route to Fort Augustus/Auchterawe Substation using the A8082 bypass?

https://maps.app.goo.gl/ST4Mz8Cpi6de4hgK6

@Simon Farrow (Infrastructure), BEAR NW have also advised that the new Torvean Swing Bridge is still the responsibility of THC. Please would you comment on the structural feasibility of this one?

Many thanks,

Sally

Sally Weston CEng MRINA
Specialist Transport Route Planner
Allelys

Tel: 01527 852 408 (Option 3)
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From: Sally Weston
Sent: 04 December 2023 16:16
To: Simon Farrow (Infrastructure) <Simon.Farrow@highland.gov.uk>; Abnormal Loads <Abnormal.Loads@highland.gov.uk>; NW AbnormalLoad <NWAbnormalLoad@bearscotland.co.uk>; OSD Abnormal Loads Scotland <OSDAbnormalLoadsScotland@scotland.police.uk>; Stephen Oakley <SOakley@bearscotland.co.uk>
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Please would you comment on the structural feasibility of this?

Many thanks,

Sally

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Item Type	Structure Code	Structure Name	Easting	Northing	Owner	Start Date	Obstacle	No Of Spans	Overall Length Of Structure
BRIDGE	A80820010	MILL BURN SIR WALTER SCOTT	268376	843649	Highland Council	1900	River	1	3.7
BRIDGE	A80820010C06	PARK BURN	268278	843427	Highland Council	1900	River	2	2.1
BRIDGE	A80820010C15	DRUID BURN	268070	843087	Highland Council	1900	River	1	2
BRIDGE	A80820010C30	AULT NA SKIAH	267571	842749	Highland Council	1900	River	1	2.73
MINOR_CULVERT	A80820010C69	LOCHARDIL BURN	266287	841839	Highland Council	1900	River	1	1.8
BRIDGE	A80820020	HOLM MILLS	265284	843222	Highland Council	1900	River	3	176
BRIDGE	A80820030	QUEENS PARK UNDERPASS 1	265569	843637	Highland Council	1900	Pedestrian Access	1	4
BRIDGE	*TBC*	*QUEENS PARK UNDERPASS 1*			*TBC*				
BRIDGE	*TBC*	*Torvean Swing Bridge*			*TBC*				
BRIDGE	*TBC*	*Torvean Underpass*			*TBC*				
BRIDGE	B90060000C90	DELL BURN	268913	844493	Highland Council	1900	River	1	2.98
BRIDGE	B90060010	A9 UNDERBRIDGE	269073	844524	Transport Scotland	1900	Road	1	14.9
BRIDGE	U16630000C02	BALANTOUL	237705	809690	Highland Council	1900	River	1	2.25
BRIDGE	U16630000C27	JENKINS PARK	237415	809568	Highland Council	1900	River	1	2.3
BRIDGE	U16630009	WOODLANDS	236559	809187	Highland Council	1900	River	2	3
MINOR_CULVERT	U16630010C11	UNNAMED	236457	809133	Highland Council	1900	River	1	0.9

Listed Structure	Signed Headroom	Primary Deck Element	Primary Deck Element Material	Secondary Deck Element
?	N/A	Culvert / Pipe / Subway - Box	Reinforced Concrete	Unknown
?	?	Culvert / Pipe / Subway - Box	Reinforced Concrete	No Secondary Deck Element - No Transverse Beams
?	N/A	Culvert / Pipe / Subway - Box	Reinforced Concrete	Unknown
?	N/A	Culvert / Pipe / Subway - Box	Reinforced Concrete	Unknown
?		Unknown	Unknown	Unknown
NO	N/A	Beam / Girder At Or Below Deck Surface	Steel	Slab - No Transverse Beams
?	N/A	Culvert / Pipe / Subway - Box	Reinforced Concrete	No Secondary Deck Element - No Transverse Beams
?	N/A	Slab - Solid	Reinforced Concrete	Unknown
?	N/A	Beam / Girder At Or Below Deck Surface	Pre - Tensioned Concrete	Unknown
?	N/A	Culvert / Pipe / Subway - Box	Reinforced Concrete	No Secondary Deck Element - No Transverse Beams
?	N/A	Arch - Solid Spandrel	Masonry - Stone	No Secondary Deck Element - No Transverse Beams
NO	N/A			
NO		Slab - Solid	Reinforced Concrete	No Secondary Deck Element - No Transverse Beams

Secondary Deck Element Material	Weight Limit	Hb Loading	Assessed Capacity 1	Date Of Assessment 1	Assessed Capacity 2	Date Of Assessment 2	Number Of Panels
Unknown	Constr & Use	?					
No Secondary Element	Constr & Use	?					
Unknown	Constr & Use	?					
Unknown	Constr & Use	?					
Unknown	Constr & Use	?					
Reinforced Concrete	Constr & Use	?					
No Secondary Element	Constr & Use	?					
Unknown	Constr & Use	?					
Unknown	Constr & Use	?					
No Secondary Element	Constr & Use	?	44 tonnes GVW	13/04/1994 00:00	37.5 units HB	13/04/1994 00:00	
Unknown	Constr & Use	?	44 tonnes GVW	01/04/1994 00:00	30 units HB	01/04/1994 00:00	
	Constr & Use	?					
No Secondary Element	Constr & Use	?					

Transverse Location (RW Only)	Maximum Height (RW Only)	Drawings Available	Assessment Available	Assessment Requirements
		N	N	Suitable for proposed vehicle
		N	N	Suitable for proposed vehicle
		N	N	Suitable for proposed vehicle
		N	N	Suitable for proposed vehicle
		N	N	Suitable for proposed vehicle
		Y	N	Comparative assessment required
		Y	N	Comparative assessment required
				Comparative assessment required
				Comparative assessment required
				Comparative assessment required
		N	N	Suitable for proposed vehicle
		N	N	TS Owned
		N	Y	Suitable for proposed vehicle
		N	Y	Suitable for proposed vehicle
		N	N	Suitable for proposed vehicle
		N	N	Suitable for proposed vehicle

Appendix D

Swept Path Assessments