Scottish & Southern Electricity Networks

Fanellan Hub 400 kV Substation and Converter Station Environmental Impact Assessment Report Volume 4 | Technical Appendices

Appendix 12.3 – Abnormal Load and Construction Traffic Assessment Report

February 2025

Fanellan

400kV Switching Station and HVDC Converter Station

Abnormal Load and Construction Traffic Assessment Report
LT459-SWE-XX-XX-T-H-1001

SWECO

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1 Introduction

This report details the abnormal load assessment and subsequent improvements or modifications required to the public roads to facilitate the transportation of the Abnormal Indivisible Loads (AILs) and general construction traffic as part of the Fanellan 400kV Switching Station and HVDC Convertor Station, on behalf of Scottish and Southern Energy Networks (SSEN) Transmission. The information contained in this report details the proposed route the transformer units and construction traffic could take from the port of entry to the sub-station site and summarises any improvements to the existing road network required to facilitate the proposed vehicle types.

1.1 Site Location

The proposed Fanellan development lies approximately 5km south west of Beauly within the Highland Council local authority. The OS Grid northings and eastings of the site are approximately 248404, 843094 (to the middle of the proposed development site). Access to the site can be taken from the A831 via the A862 and C1106 over the Black Bridge and finally onto Fanellan Road. Refer to Figure 1.1 for details of the location and Appendix A for the location drawing.

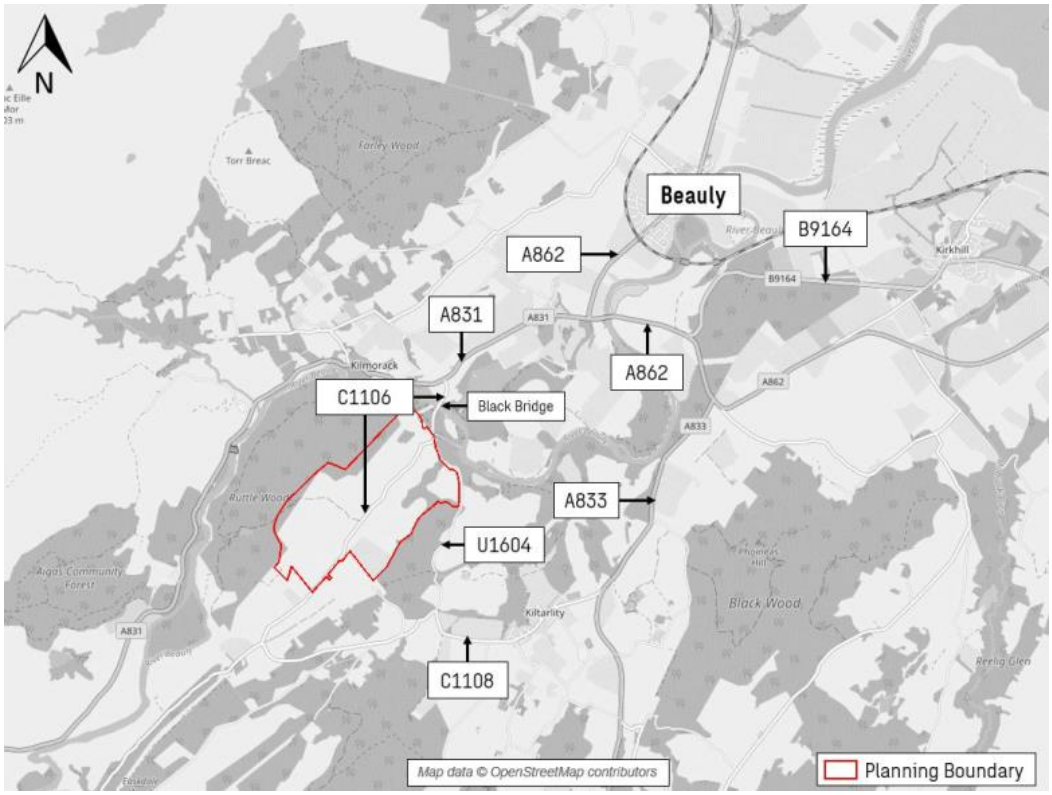


Figure 1.1 Site location plan

The site is currently a mixture of arable and grassland used for agricultural operations with some areas of plantation forest. The Upper Fanellan Cottages are located within close proximity to the site, however, these will be removed as part of the works. There is also an existing small holding farm building located within the proposed site boundary.

1.2 Proposed Development

The development consists primarily of a new 400kV convertor station and adjoining sub-station with associated access roads and drainage features. There are also a number of new or diverted high voltage

overhead lines terminating into the sub-station. To form a level platform for the sub-station and convertor station, significant earthworks is required with surplus material being used to form landscape landforms to shiel the eastern extents of the site, adjacent to Fanellan Road.

1.3 Purpose of this Report

This report has been prepared to detail the assessment of the transportation of AILs and larger construction vehicles to the site and describe any improvements which are required to the public road network in line with the requirements of Planning Advice Note (PAN) 75. PAN 75 requires a transport assessment to be undertaken where significant vehicle and travel movements will be generated due to the scale of the development. The report provides a summary of the roads on the route and highlights any modification required. The report considers a number of routes to the site based on the port of entry of the transformer units and routes where minimal improvement work or modification is required to the road network. Where improvement works are noted on the swept path analysis drawings, these are outline high level improvements and not confirmed due to the potential of the route assessed being unsuitable. Detailed public road improvement drawings are provided in Appendix F. Finally, after each route assessment, a summary and recommendation is provided with respect to the feasibility of using the route.

Where structures are noted as being crossed in this report, the suitability of the structure from a capacity point of view has not been confirmed. Once a preferred route has been identified, structural assessments can be undertaken to confirm the capacity of the asset.

For details of the Construction Traffic Management Plan, reference should be made to report LT459-SWE-XX-XX-T-H-1002.

1.4 Abnormal Indivisible Loads (AILs)

The route assessment has been based on a tractor and trailer arrangement provided by Allelys Group totalling almost 80.3m in length. The weight of the transformer on the trailer unit is 290 tonnes with the total AIL weight being 433.75 tonne and a weight per axel of 14.45 tonne. A schematic of the vehicle is shown in Figure 1.2 and the drawing provided in Appendix B. Details of the transformer unit being transported are provided in Appendix C.

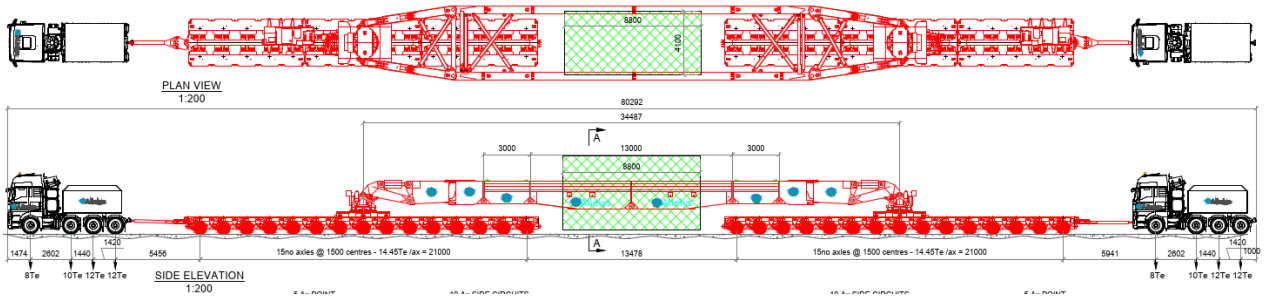


Figure 1.2 Proposed abnormal indivisible load arrangement (Image courtesy of Allelys Transport)

The trailer units used are Goldhofer Modular Trailer units, Figure 1.3. The trailer width is 3m and can support a maximum load of 30 tonnes per axel. The heigh of the trailer units is 1.150m with an allowance of 300mm up or down, where required.

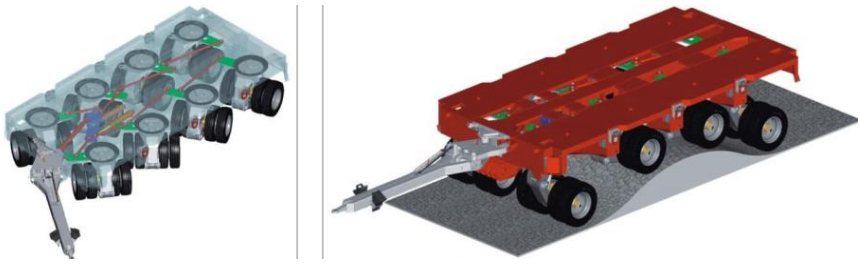


Figure 1.3 Proposed steerable trailer units (Image courtesy of Allelys Transport)

A full AutoCAD Vehicle Tracking model has been created to b mimic the AIL (as shown in Figure 1.2). This vehicle tracking is the basis on which recommendations for any required modifications or improvements to the public road network are based.

Due to the size of the tractor and trailer unit and the payload it is moving, notification and authorisation is required as the weight is over 44 tonnes, the length is greater than 18.3m and width is greater than 2.9m. The AIL requires a Special Order to move between the port of entry and the site location at Fanellan. Consultation and agreement with Police Scotland is also required.

1.5 Construction Vehicles

A number of standard Heavy Goods Vehicles (HGVs) have been considered as part of the assessment. These focused on standard artic lorry of a maximum length of 16.5m with a maximum weight of 44 tonnes through to 400 tonne cranes which will be required at various points during the construction. It is considered that HGVs shall be coming to the site via a number of routes, however, the routes assessed in this report, primarily focusing on the AIL, are relevant to typical HGVs. Section 6 of this report looks at specific improvements required to facilitate HGV movements near the development site.

2 Route Assessment – Invergordon to Fanellan

2.1 Invergordon to Fanellan

The first route considered as part of this assessment report is between the heavy lift port at Invergordon (Port of Cromarty Firth) and the site at Fanellen, Figure 2.1. This route has previously been utilised as a heavy load route between Invergordon and the existing Beauly sub-station and utilises the B817 between Invergordon and Alness, the A9 over the Cromarty Bridge to Tore Roundabout, the A832 to Muir of Ord before using the A862, A831 and Black Bridge to reach the site. The route is approximately 27 miles and consists of roads owned and operated by both Transport Scotland (A9) and The Highland Council (B817, A862, A831, C1106 Fanellan Road).

Figure 2.1 Proposed route to Fanellan from Invergordon (image courtesy of Google maps)

2.2 Swept Path Analysis and Road Modifications

The chapters below describe the assessment undertaken and the corresponding improvements required to the public road network to facilitate the passage of the AILs. The chapters below should be read in conjunction with the route assessment drawings provided in Appendix D. The drawings are based on OS

master map data and C2 utility enquiries where appropriate. The information contained within the drawings assess the horizontal geometry of the route and highlights where above ground services are present. The vertical geometry of the routes and any structures has not been assessed. Due to the variability of the overhead lines, the report cannot confirm that there is sufficient headroom for the AIL to pass under it. Targeted survey will be required to confirm this. A video assessment has already been completed in August 2023 and C2 enquires were returned in November 2023.

2.3 Port of Cromarty Firth, Invergordon, to Alness

The AIL leaves the Port of Cromarty Firth at Invergordon heading west on the B817 towards Alness. The load will take the full width of the carriageway cross-section, therefore, traffic heading east will need to temporarily be stopped in Alness to allow the AIL to reach the A9. Limited improvement measures are need along this section of the route. Refer to swept path analysis drawings 65209842-SWE-XX-XX-D-H-0001 to 65209842-SWE-XX-XX-D-H-0005 inclusive for the specific locations of the improvements or modifications required. The route is summarised in Table 2.1, below.

Table 2.1 Summary of B817 improvements or modifications

Location Image from Route Survey	Improvement or Modification Works Required
	The entrance to the Cromarty Firth Port at Invergordon has a substantial bell mouth to facilitate AILs, however, some hardening of the verge is required to allow the load to exit the port and head west. The B817 route to Alness appears to be in the region of 7.5 – 8.0m wide in cross section, therefore, traffic will need to be stopped in both directions (at Alness Lidl junction and at the junction with the port entrance) to allow the AIL to pass.
	The AIL passes over the Rosskeen bridge which is a relatively modern structure.. The available cross section accommodates the AIL. The structure is owned by The Highland Council. **IMPORTANT** Rosskean Bridge is located on the B817 between Invergordon and the A9. No further information was available for the structure. The structure was assessed as part of the 2016 route report and deemed to have the required capacity for the 16 axle AIL. No further assessment information was provided. The structure would need to be reinspected and assessed for the proposed AIL if to be used as part of the route for Fanellan.

Location Image from Route Survey	Improvement or Modification Works Required
	The AIL crosses the A9 via the Alness Bridge which is operated by Transport Scotland. **IMPORTANT** The Alness bridge has a capacity a factor of safety of 1.16. No structural information was provided for the structure. The structure was assessed via Scotland Transerv for the 2016 route report and deemed to have the required capacity for the 16 axle AIL if straddling the lanes with no other vehicles present on the bridge. The structure would need to be reinspected and assessed for the proposed AIL if to be used as part of the route for Fanellan.
	At the B817 mini roundabout junction in Alness heading towards the A9 dedicated slip road, there are a number of Diagram 610 non-illuminated bollards located on the deflection islands. Due to the width of the AIL and required oversail area, these will need to be removed and reinstated. The swept path analysis undertaken assumes that the trailer units can overrun the 75mm upstand splay kerbs. This haulage company will be required to confirm this.
	The AIL will require the full cross section of the carriageway to access the A9 (southbound). To enter the A9, the load will need to pass on to the northbound A9 off slip carriageway. The first non-illuminated deflection bollard will need to be removed and reinstated to allow the load to pass through.

2.4 Dalmore to Tore Roundabout via A9

The A9 is of a high geometric standard between Alness and Tore Roundabout, therefore any improvement required is limited to Ardullie and Tore Roundabouts where the AIL needs to make a reasonable change in direction to negotiate the junctions. Refer to swept path analysis drawings 65209842-SWE-XX-XX-D-H-0006 to 65209842-SWE-XX-XX-D-H-0027 inclusive for the specific locations of the improvements or modifications required. The route is summarised in Table 2.2 below.

Table 2.2 Alness to Tore Roundabout

Location Image from Route Survey	Improvement or Modification Works Required
	The AIL heads south along the A9 for approximately 6.8 miles to Tore Roundabout. The A9 is of a good geometric standard with carriageway widths of 3.75m or greater. Due to the width of the AIL, northbound traffic will have to be controlled to pass the AIL safely. The load passes under a bridge structure which carries the B817 over the A9. The headroom of this bridge is a minimum of 5.3m. Overhead services are at sufficient clearance to not impact the load. however, targeted survey will be required to confirm this,
	The AIL passes over a number of structures while travelling south on the A9 namely the River Averon Bridge, Allt Graad Bridge, River Sgitheah Bridge/Culvert and A9 bridge over Airfiled Road near Evanton **IMPORTANT** No assessment information is currently known about the structure. BEAR Scotland have been contacted and asked to provide additional information.
	The AIL passes over an existing culvert on the A9. The carriageway cross section remains of a high standard. **IMPORTANT** No assessment information is currently known about the structure. BEAR Scotland have been contacted and asked to provide additional information.
	There are numerous services passing over the A9 carriageway. The overhead lines appear to have more than sufficient clearance to allow the AIL to pass under them, however, targeted survey will be required to confirm this.

Location Image from Route Survey	Improvement or Modification Works Required
 	The entrance to Tore Roundabout is wide enough to allow the load to enter the roundabout. The load will be required to pass through part of the centre of the roundabout.. A temporary running surface will be required through the area of central roundabout island. No modification will be required at the entries or exists to the roundabout which would be more complex. See drawing 65209842-SWE-XX-XX-D-H-0016 for the extents of the improvement required. The exit of the roundabout is similarly wide and able to facilitate the AIL passing without the need to modify any of the existing roadside furniture.

2.5 Tore Roundabout to Muir of Ord via A832

A summary and proposed improvements or modification relating to the road network between Tore Roundabout and Muir of Ord are noted in Table 2.3, below. Refer to swept path analysis drawings 65209842-SWE-XX-XX-D-H-000 to 65209842-SWE-XX-XX-D-H-0037 inclusive for the specific locations of the improvements or modifications required.

Table 2.3 Tore to Muir of Ord Assessment

Location Image from Route Survey	Improvement or Modification Works Required
	The AIL passes over the Cromarty Frith bridge, owned by Transport Scotland, which has a cross section capable of accommodating the transformer unit. The load continues south on the A9 towards Tore Roundabout. The AIL will straddle over both the north and southbound A9 carriageways, therefore, traffic will need to be held to allow the load to pass. **IMPORTANT** Cromarty Bridge comprises 68no. 21.5m long spans of beam and slab construction. The structure was assessed via Scotland Transerv for the 2016 route report and deemed to have the required capacity for the 16 axle AIL if straddling the lanes with no other vehicles present on the bridge. The factor of safety derived during that assessment was 1.07 for a load much smaller than the AIL considered under this report.

Location Image from Route Survey	Improvement or Modification Works Required
	The structure would need to be reinspected and assessed for the proposed AIL if to be used as part of the route for Fanellan.
	Tore Roundabout is a significant interchange on the A9 to which the AIL will take the exit to the A832 heading west towards Muir of Ord. Some minor hardening of verges may be required on the entry to Tore Roundabout. Due to the very minor nature of widening shown on drawing 65209842-SWE-XX-XX-D-H-0027, the specialist haulage contractor should be consulted to confirm if is required.
	The A832 has a suitable cross section to allow the AIL to pass. The load will need the full width of the carriageway. From the route survey carried out, there does not appear to be any factors which would impact the AIL. There are numerous overhead services along the route, however, these appear from visual survey to have suitable clearance to the load, however, targeted survey will be required to confirm this.
	The junction with the A832 to the B9169 shouldn't require any modification. It is proposed the AIL maintains its direction on the A832 heading west and then manoeuvres into the B9169 using the existing informal widening which is already present at the junction. The suitability of this movement should be confirmed with the appointed haulage contractor as it likely needs a change of direction of the tractors pulling and pushing the load.
	The B9169 has lane widths of approximately 3.3m and total cross section width of 6.6m – 6.8m. The AIL will need the full width of the road, therefore, traffic will need to be held in Muir of Ord.
	The junction with the B9169 and A862 requires widening into the nearside verge to allow the AIL to pass safely. There may also be interaction with a small wall on the northbound verge of the B9169 which may need to be removed to facilitate the load passing. This will need to be confirmed by the specialist haulage company.

2.6 Muir of Ord to Wester Balblair via A862

A summary and proposed improvements or modification relating to the road network between Muir of Ord and Wester Balblair are noted in Table 2.4, below. Refer to swept path analysis drawings 65209842-SWE-XX-XX-D-H-00038 to 65209842-SWE-XX-XX-D-H-0041 for the specific locations of the improvements or modifications required.

Table 2.4 Muir of Ord to Wester Balblair Assessment

Location Image from Route Survey	Improvement or Modification Works Required
	The AIL heads south on the A862 heading towards Beauly. The road is of a good standard with cross section in the region of 7.0m. The AIL will take the full cross section of the road. Large sections of the route are tree lined which may require localised trimming so not to damage the transformer unit.
	The AIL passes over the Blackburn bridge which carries the A862 over a minor watercourse. The cross section is adequate to let the AIL pass over. **IMPORTANT** Blackburn Bridge is located on the A832, north of Beauly. The structure comprises precast prestressed concrete beams, with insitu concrete infill supported by reinforced concrete abutments with piled foundations. The structure was assessed by Arup in 2011 and deemed to have the required capacity for the 16 axle AIL if straddling the lanes, with no other vehicles present on the bridge. The structure would need to be reinspected and assessed for the proposed AIL if to be used as part of the route for Fanellan.
	The AIL makes its way south through Beauly town centre. Parking restrictions will need to be put in place to prevent on street parking. There are speed control table tops and humps in the road which it is assumed the load can negotiate. This will need to be confirmed by the specialist haulage company.

Location Image from Route Survey	Improvement or Modification Works Required
	Through Beauly the load crosses the existing Bridgend Burn bridge. **IMPORTANT** Bridgend Bridge is located on the A832, north of Beauly. The bridge is a single span masonry arch spanning a small stream. The structure was assessed by Arup in 2011 and deemed to have the required capacity for the 16 axle AIL if straddling the lanes with no other vehicles present on the bridge. The spandrels were not assessed for the AIL deviating from the centre line of the carriageway. The structure would need to be reinspected and assessed for the proposed AIL if to be used as part of the route for Fanellan.
	The load passes over the Beauly Railway bridge to the south of the town. **IMPORTANT** Beauly Railway Bridge is located on the A832, in Beauly. The structure is a single span masonry arch. The structure was assessed as part of the 2016 route report and deemed to have the required capacity for the 16 axle AIL. No further assessment information was provided. The structure would need to be reinspected and assessed for the proposed AIL if to be used as part of the route for Fanellan.
 Image above taken from Google Earth	**IMPORTANT** Teawig culvert is located on the A832, south of Beauly. The structure is corrugated steel pipe with concrete headwalls at both ends. The structure was assessed by Arup in 2011 and deemed to have the required capacity for the 16 axle AIL if straddling the lanes with no other vehicles present on the bridge. The headwalls were not assessed for the AIL deviating from the centre line of the carriageway. The structure would need to be reinspected and assessed for the proposed AIL if to be used as part of the route for Fanellan.

Location Image from Route Survey	Improvement or Modification Works Required
	The load then negotiates the junction at the A862 and A831. Turning the AIL directly into the A831 would require significant works. It is proposed the load continues to towards the Lovat bridge and the current tractor detach and new tractors are connected which provide a straight run towards the A831. The existing no entry road signs and diagram 610 bollards will need to be removed as the load will overhang into the verge and deflection island.

2.7 Wester Balblair to Fanellan

The last section of the route leaves the A862 head south towards the C1106 Fanellan Road via the Black Bridge (C1106). Refer to swept path drawings 65209842-SWE-XX-XX-D-H-00042 to 65209842-SWE-XX-XX-D-H-0045 and 65209842-SWE-XX-XX-D-H-0084 and 65209842-SWE-XX-XX-D-H-0087. The Black Bridge has undergone a full structural assessment undertaken by Sweco and Category 3 check by Tony Gee and Partners**. The current bridge does not have suitable capacity to carry the AIL**, therefore, improvement and strengthening works are required. The Black Bridge assessment report provides detailed analysis of the condition of the structure. Table 2.5 below summaries the route.

Table 2.5 Wester Balblair to Fanellan Assessment

Location Image from Route Survey	Improvement or Modification Works Required
	The AIL heads west along the A831 past the existing Beauly sub-station. The carriageway cross section is of a reasonable standard and no modification works are required. The AIL will require the full cross section of the road.
	The existing junction on the A831 needs some reasonably substantial widening to facilitate the load passing through. There is existing communications chambers and cabinets which will require re-located to allow the AIL to safely negotiate the junction. The widening to the north of the junction extents outwith the highway boundary into private land which will require consultation and agreement with the landowner.

Location Image from Route Survey	Improvement or Modification Works Required
 	The AIL is proposed to access Fanellan over the Black Bridge (C1106) heading towards the C1106 Fanellan Road. The current cross section is narrow due to temporary vario guard being in place to protect the substandard parapets. Temporary removal of the vario guard is likely needed, however confirmation by the haulage company would be required. **IMPORTANT** ***The Black Bridge does not have sufficient capacity to carry the proposed AIL. It is also considered from the route assessment work that it would be unsuitable to carry daily construction traffic or specialist construction vehicles.***
	Immediately prior to the junction with the U1604 just beyond the access to Forest Lodge, the AIL will head south onto a purpose built access route towards the Fanellan site. The access track will be appropriately sized to accommodate the load. The haulage company is required to confirm gradients can be negotiated by the AIL.

2.8 Summary and Recommendation

The Invergordon to Beauly route has been used previously by SSEN to transport AILs to the existing Beauly sub-station, however, having reviewed the previous route assessments, the load proposed under this commission is significantly larger. The road improvements from a horizontal perspective are relatively minor consisting of removal of street furniture and localised road widening, however some localised intrusion into private land is required.

There are concerns regarding the suitability of a number of structures on the route, primarily the Cromarty Bridge. Previous assessments of the bridge for much lighter loads confirm a factor of safety of 1.07. It is considered this is not suitable to carry the proposed Fanellan AIL. Any improvement to the Cromarty Bridge would be significant, costly and take a considerable amount of time. It is not considered effective to undertake strengthening works of the existing bridge to achieve the current works programme.

The full length of the route is considered acceptable for all other types of non-abnormal vehicles which will attend the site with the proposed improvement works noted in Section 6.

3 Route Assessment – Port of Nigg to Alness

3.1 Route Assessed

Should the port at Invergordon not have suitable lifting equipment, the route from the Port of Nigg has been assessed as an alternative. This section of the report only assess the B9175 the junction on the A9 at Alness. The remainder of the route is assessed under Section 2 of this report. This route assessment section assumes the same vehicle parameters as noted in Section 1.

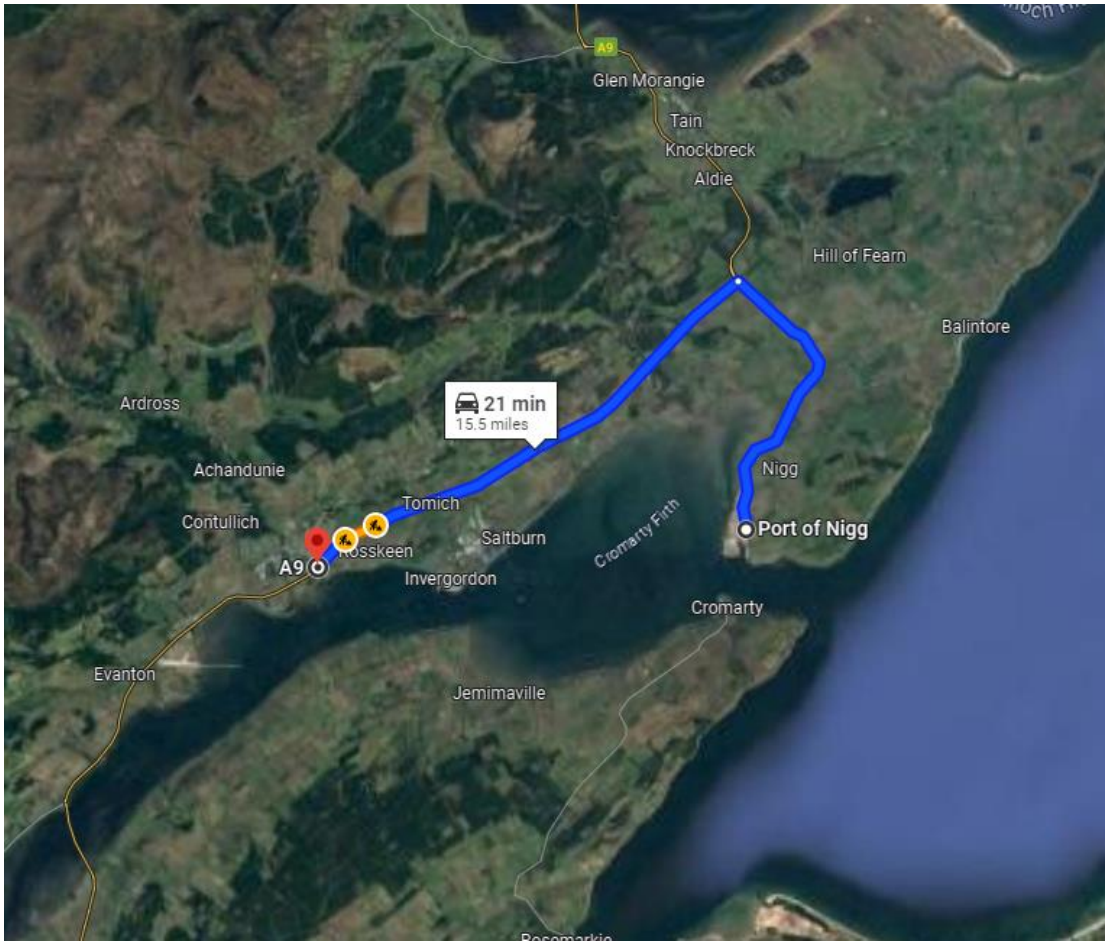


Figure 3.1 Route from Nigg to Alness (image courtesy of Google maps)

3.2 Port of Nigg to Nigg Roundabout

The improvements or modifications required to the route between the Port of Nigg and Nigg Roundabout junction on the A9 are summarised in Table 3.1 below. Refer to drawings 65209842-SWE-XX-XX-D-H-0058 to 65209842-SWE-XX-XX-D-H-0067, inclusive, for details of the swept path analysis and proposed outline locations of public road improvements or modifications.

Table 3.1 Port of Nigg to Nigg Roundabout Summary

Location Image from Route Survey	Improvement or Modification Works Required
 	The AIL leaves the Port of Nigg heading north on the B9175. The current egress from the port requires over-run onto the existing verge. This requires hardening of the verge to facilitate the AIL safely leaving the port. From the swept path analysis it is likely modification to the port security building, placed in the centre of the egress from the port, requires temporarily removed to allow the load to pass.
	The B9175 is of a good horizontal standard and has a suitable cross section for the AIL. There are numerous overhead services along the route (electricity and openreach). These appear to be at suitable clearance so not to impact the AIL. however, targeted survey will be required to confirm this. There are numerous junctions and private dwellings along the route which will need to be temporarily controlled as the AIL will need the full width of the carriageway.
	**IMPORTANT** The AIL is required to pass over a railway level crossing on the B9175 at Nigg Station. Close consultation with Network Rail is required to confirm crossing sequencing. Indemnity insurance is required for crossing the Network Rail asset.

Location Image from Route Survey	Improvement or Modification Works Required
	The AIL is required to enter the Nigg Roundabout in an anti-clockwise direction. The diagram 610 non-illuminated bollards located on the deflection island at the B9175 will be required to be removed and replaced and the load will over run the deflection island. The AIL enters the A9 on the northbound carriageway, towards oncoming traffic. Some localised widening of the carriageway is required in both the inner and outer circumference of the roundabout to allow the load to pass.

3.3 Nigg Roundabout to Alness

The improvements or modifications required to the route between the Port of Nigg and Nigg Roundabout junction on the A9 are summarised in Table 3.2 below. Refer to drawings 65209842-SWE-XX-XX-D-H-0068 to 65209842-SWE-XX-XX-D-H-0083, inclusive, for details of the swept path analysis and proposed outline indicative public road improvements or modifications.

Table 3.2 Nigg Roundabout to Alness Summary

Location Image from Route Survey	Improvement or Modification Works Required
	The AIL enters the A9 heading south towards Alness. The A9 is of a high geometric standard. Numerous services pass overhead but these appear to have suitable clearance ,however, targeted survey will be required to confirm this. The AIL will require the full width of the carriageway cross section.
	The AIL continues south on the A9 passing over the Kildary Bridge which carries the A9 over B817. The structure has suitable cross section to allow the load to pass over. The structure is operated by Transport Scotland. **IMPORTANT** No assessment information is currently known about the structure. BEAR Scotland have been contacted and asked to provide additional information.
 Image above taken from Google Earth	The AIL continues south on the A9 passing over the Railway structure carrying the A9 over the northern railway line. The structure has suitable cross section to allow the load to pass over. The structure is operated by Network Rail. **IMPORTANT** No assessment information is currently known about the structure. BEAR Scotland and Network Rail have been contacted and asked to provide additional information.

Location Image from Route Survey	Improvement or Modification Works Required
	The AIL then reaches the Alness junction. The remainder of the route is summarised in Section 2 of this report.

3.4 Summary and Recommendation

Minor road widening modification is required along the length of the route. As shown on the swept path drawings, the A9 requires no modification beyond some minor widening at Nigg Roundabout. Similarly, the B817 is of suitable standard to allow the AIL to pass with the exception of modification works at the Port of Nigg entrance. Network Rail are required to confirm the AIL can pass over the level crossing at Nigg Station without causing any damage to the tracks.

Reference should be made the Section 2.8 of this report which summarises the potential issue with the Cromarty Bridge in terms of its factor of safety for carrying such loads associated with the AILs considered in this report. Due to this, it likely makes the route from Nigg unfeasible due any improvements required to the Cromarty Bridge.

The full length of the route is considered acceptable for all other types of non-abnormal vehicles which will attend the site.

4 Route Assessment - Lovat Bridge to Fanellan via Kiltarlity

4.1 Route Assessed

A route assessment has also been undertaken on an additional route to the Fanellan site which avoids the Black Bridge. Prior to the finalisation of the Black Bridge assessment, there was already queries whether the bridge would be able to accommodate the significant weight of the AIL and that of day to day construction traffic. The route assessed begins to the west of the Lovat Bridge on the A862 heading east to the junction with the A833, then heading south to the village of Kiltarlity via Allarburn Drive, Figure 4.1. The AIL would then head north along the eastern extents of Fanellan Wood before reaching the purpose built access track at Forest Lodge approximately 200m south of the existing Black Bridge abutment.

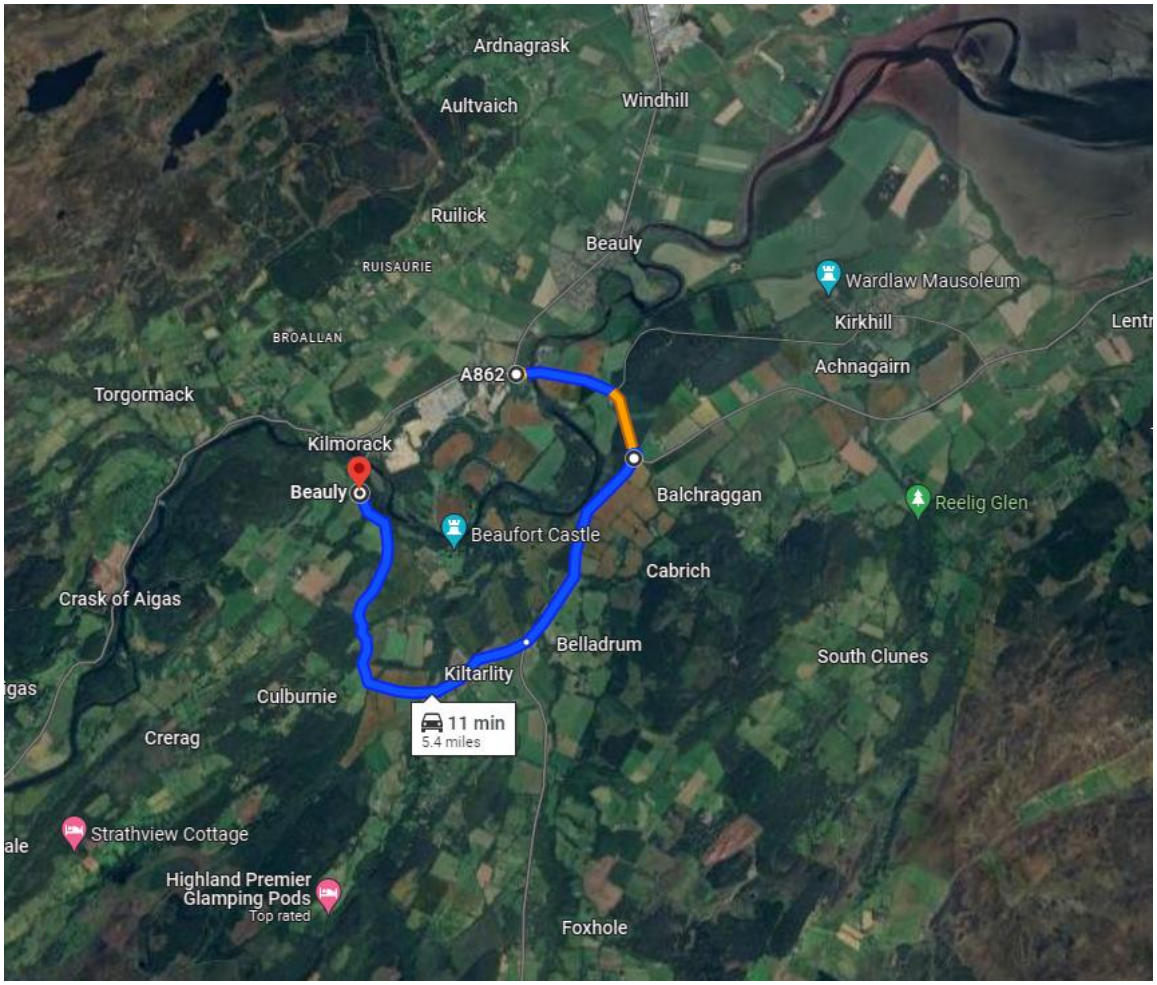


Figure 4.1 Lovat Bridge to Fanellan Route via Kiltarlity (image courtesy of Google maps)

4.2 Lovat Bridge to Fanellan

The improvements or modifications required to the route between the Lovat Bridge and Fanellan are summarised in Table 4.2 below. Refer to drawings 65209842-SWE-XX-XX-D-H-0048 to 65209842-SWE-XX-XX-D-H-0057, inclusive, for details of the swept path analysis and proposed public road improvements or modifications.

Table 4.1 Lovatt Bridge to Fanellan via Kiltarlity Assessment Summary

Location Image from Route Survey	Improvement or Modification Works Required
 	The AIL begins by crossing the Lovat Bridge built by Thomas Telford and a Category A listed structure and scheduled monument. The bridge is signal controlled as its cross section only accommodates a single lane of approximately 6m in width. The bridge is a masonry bridge and has sandstone parapets and significant vertical curvature. The vertical curvature would potentially bottom out the transformer cradle unit due to the transport height, however this would need to be confirmed by the specialist haulage company. **IMPORTANT** ***The Lovat Bridge has insufficient cross section to allow the AIL to pass over it without interacting with the existing parapets. Extensive modification would be required to the listed structure and scheduled monument. ***
	The junction between the A862 and A833 is too small currently to allow the AIL to pass. Significant road widening is required which extents out with the highway boundary. This requires the removal of the small walls which delineate the bell mouth to the A833.
	The A833 is narrow in cross section. The verges are narrow which does not allow any accommodate vehicle overhand due to stone walls being located on either side.

Location Image from Route Survey	Improvement or Modification Works Required
	The AIL then heads from the A833 to Allarburn Drive into Kiltarlity. The cross section of Allarburn Drive is a narrow two-way road with significant mature tree overgrowth above the road. Through Kiltarlity the AIL passes in close proximity to a primary school with associated zebra crossings.
	To the west of Kiltarlity there is a small structure which carries the road over the Bruiach Burn. The cross section of the carriageway here is narrow with stone parapets either side. **IMPORTANT** The Bruiach Burn structure does not have sufficient cross section to allow the AIL to pass over it. Modification of the existing parapets would be required as a minimum
	**IMPORTANT** The Black Burn structure does not have sufficient cross section to accommodate the AIL. A new structure would be required to allow the AIL to pass.
	**IMPORTANT** The Culburnie Burn structure does not have sufficient cross section to accommodate the AIL. Improvement work would not be economical and a full new structure would be required.

Location Image from Route Survey	Improvement or Modification Works Required
 Image above taken from Google Earth	The load continues north towards Fanellan using a single track road (U1604). The road is not of suitable standard to allow the AIL to progress and significant widening is required at various points combined with significant vegetation clearance.

4.3 Summary

The route to Fanellan via the Lovat Bridge and Kiltarlity is not considered feasible for an AIL to negotiate. Any modification to the Lovat Bridge would require significant consultation with statutory bodies to modify the listed structure and scheduled monument. To the west of Kiltarlity there are a number of minor structures which are not adequate due to restricted cross section and load limitations. These structures would need to be replaced with new bridges or box culvert sections. Taking the above into consideration, this route is deemed to increase costs and project durations due to the significant improvement works required.

The route may be suitable for other types of site traffic including HGVs to access the development site when the Black Bridge is being replaced. Some minor modification/widening would be required to facilitate this.

5 Route Assessment: North Kessock to Tore Roundabout

5.1 Route Assessed

A further route assessment has been undertaken between North Kessock and Tore Roundabout with the anticipation that larger loads can be brought to a dedicated quay at Oakleigh Road, North Kessock. This route would remove any uncertainty regarding the capacity of the Cromarty Firth bridge and would ultimately join the previously assessed routes at Tore Roundabout on the A9, Figure 5.1. The route comprises of leaving North Kessock via Millbank, then heading north on the A9 through the Black Isle to Tore Roundabout. At Tore Roundabout, the route followed matches that of Section 2.0 of this report.

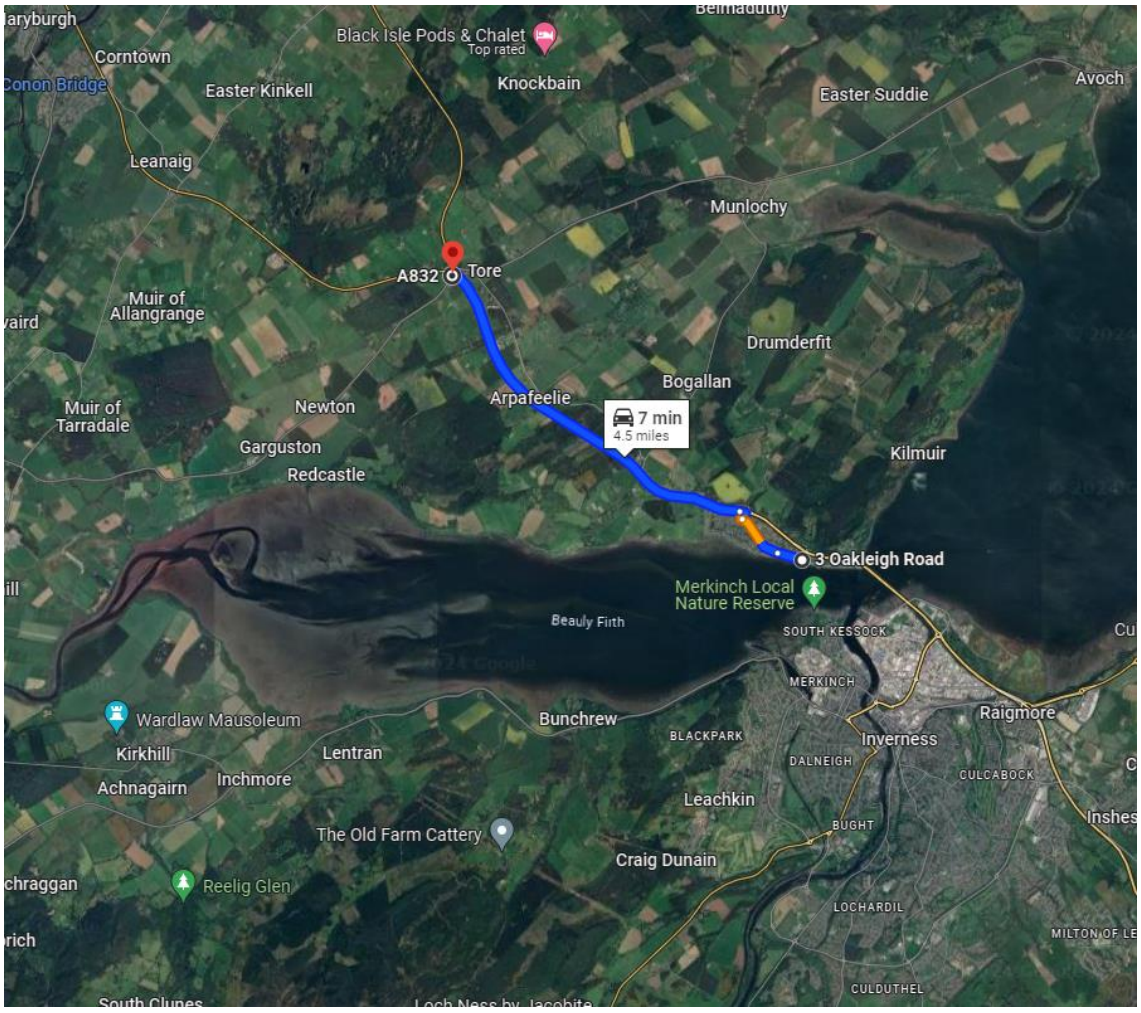


Figure 5.1 North Kessock to Tore Roundabout Route

5.2 North Kessock to Tore Roundabout

The route from North Kessock to Tore Roundabout is summarised in Table 5.1, below. The route would use a temporary quay located in the Beauly Firth to land barges carrying the transformer units at which point they would be loaded onto the road train. This section of the report only deals with the assessment of the road network and not the suitability of landing barges at North Kessock, which has been assessed by others. Refer

to drawings 65209842-SWE-XX-XX-D-H-0088 to 65209842-SWE-XX-XX-D-H-0095 for details of the swept paths.

Table 5.1 North Kessock to Tore Roundabout

Location Image from Route Survey	Improvement or Modification Works Required
 Image above taken from Google Earth	The AIL will be loaded at the existing car park in North Kessock at Oakleigh Road. The transformer shall be unloaded from a barge and onto the road train before heading west along Oakleigh Road. Separate assessments shall be produced to confirm the suitability of landing the loads via barge in the Beauly Firth.
 Image above taken from Google Earth	The AIL continues west onto Millbank taking up the full cross section of the road. There are utilities passing overhead which appear to have suitable clearance. Millbank is of reasonable vertical gradient but there are no steep gradient signs, therefore, it is assumed the AIL has capacity to negotiate this.
 Image above taken from Google Earth	The AIL reaches the roundabout oat Millbank and the access/exit to the northbound A9. Modification of a number of street furniture elements is required to allow the vehicle to overrun and oversail the verges. This includes street lighting columns, a traffic signal pole and a number of road signs and deflection bollards.
 Image above taken from Google Earth	The AIL heads north on the A9 towards Tore Roundabout. The A9 is dual carriageway between North Kessock and Tore Roundabout, therefore, no modification of the carriageway or furniture is required. There are a number of small span structures along the route which need their structural capacity to be confirmed. Upon reaching Tore Roundabout, the AIL follows the route described in Section 2.5 of this report,

5.3 Hitachi Route Assessment

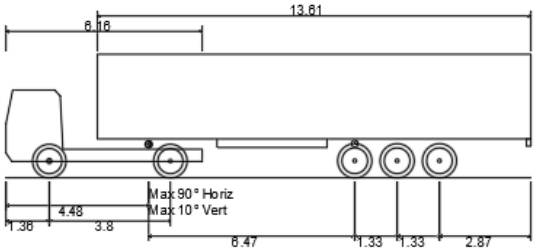
In December 2023, Hitachi, commissioned a route feasibility report to be undertaken by Allelys to assess the suitability of the route from North Kessock to Tore Roundabout continuing to the site at Fanellan. The draft report is appended to this documents in Appendix E. The Hitachi report provides details of the assessment works undertaken and the suitability of bringing the heavy loads into North Kessock via a barge. It must be noted that this report is still in draft and subject to change.

5.4 Summary

The route from North Kessock to Tore Roundabout is suitable to accommodate the AIL vehicle with minor modification of the of the existing road side furniture. Consultation with both The Highland Council and Transport Scotland is required due to ownership responsibilities along the route and further work is required to ensure the landing area for the barge is suitable in terms of the depth of water.

6 Heavy Goods Vehicles (HGVs) Routing

A number of varying HGVs shall be attending the development site over the course of the construction programme which are much less onerous than the AIL units. Specific points on the road network have been assessed to ensure there is suitable capacity to handle the HGV movements without requiring unsafe manoeuvres or impacting wider traffic movements. There will be far more HGV vehicle movements on a day to day basis than the AILs, therefore, swept path analysis has been undertaken to identify where improvement is required. The swept paths shown in this section use the vehicle noted in Figure 6.1 as the largest non-abnormal load vehicle accounting for older wagons being used on the site. Reference should be made to the Outline Construction Traffic Management Plan (CTMP), document number LT459-SWE-XX-XX-T-H-1002, for details of the proposed routes to the site and when they will be used.



FTA Design Articulated Vehicle (2006)	
Overall Length	16.480m
Overall Width	2.550m
Overall Body Height	3.870m
Min Body Ground Clearance	0.515m
Max Track Width	2.470m
Lock to lock time	3.00s
Kerb to Kerb Turning Radius	6.600m

Figure 6.1 Proposed swept path vehicle

6.1 A831 / C1106 Fanellan Road Junction

The A831 carriageway is approximately 6.5m (minimum) wide and is suitable to accommodate HGVs passing each other in different directions. The junction of the A831 and C1106 requires to be widened to allow the AIL to pass through but also benefits from widening to allow two HGVs to enter and exit the junction at the same time which may not be uncommon during the construction works. Figures 6.2 and 6.3 show the swept paths of the HGVs with the junction improvements. This junction will only be used for HGVs upon completion of the Black Bridge replacement works. It is anticipated these works will be complete by August 2027.

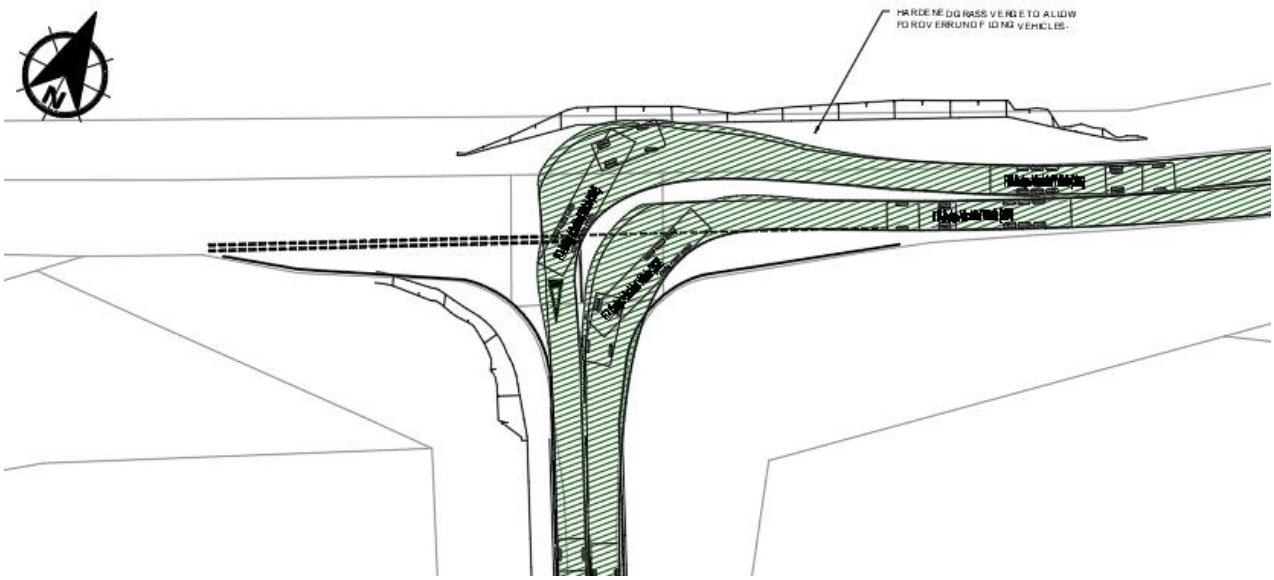


Figure 6.2 HGVs entering / existing the C1106 heading (east)

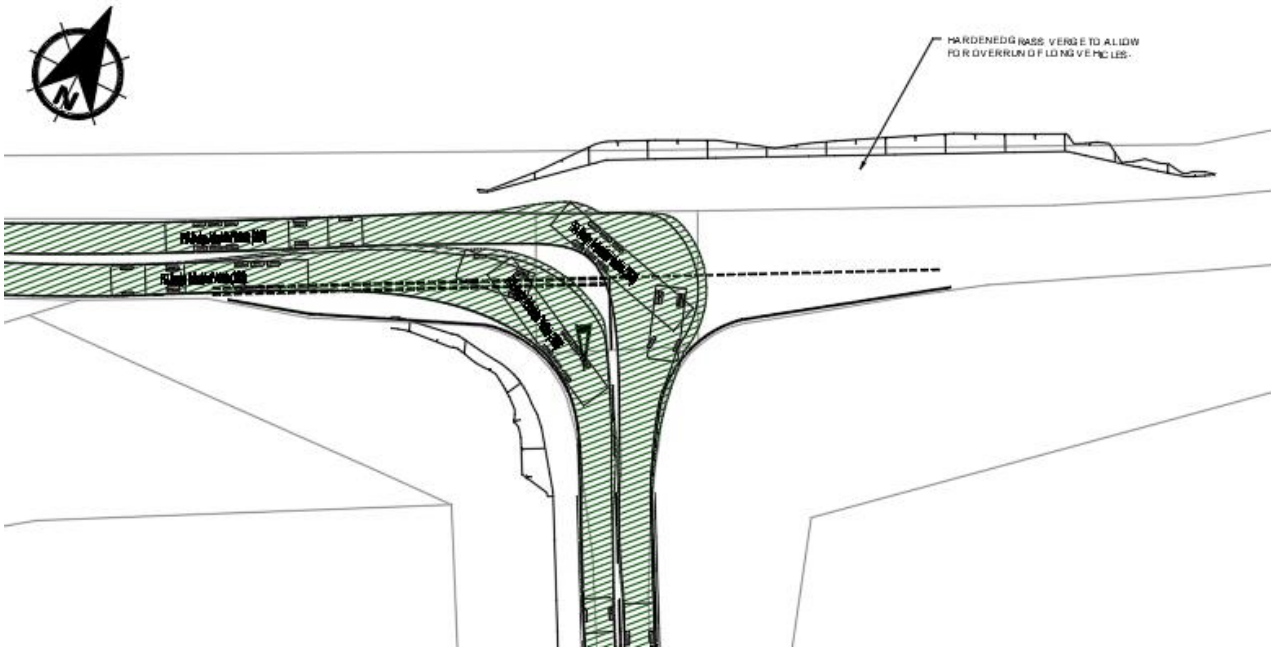


Figure 6.3 HGVs entering / existing the C1106 (west)

It is proposed to widen the C1106 Fanellan Road between the A831 junction and the U1604 Kiltarlity Road Junction to a 6.5m cross section to accommodate two HGVs passing each other.

6.2 C1106 Fanellan Road / U1604 Kiltarlity Road Junction

The existing junction at the C1106 Fanllen Road and the U1604 Kiltarlity Road requires improvement to facilitate the passing of the AIL vehicle which will take up the whole of the new junction, however, the junction

also needs to be of suitable standard for normal HGV activity. Figure 6.4 shows the proposed widened junction available to accommodate two articulated vehicles in conjunction with the widened C1106 and partial widening of the U1604 to accommodate the new junction.

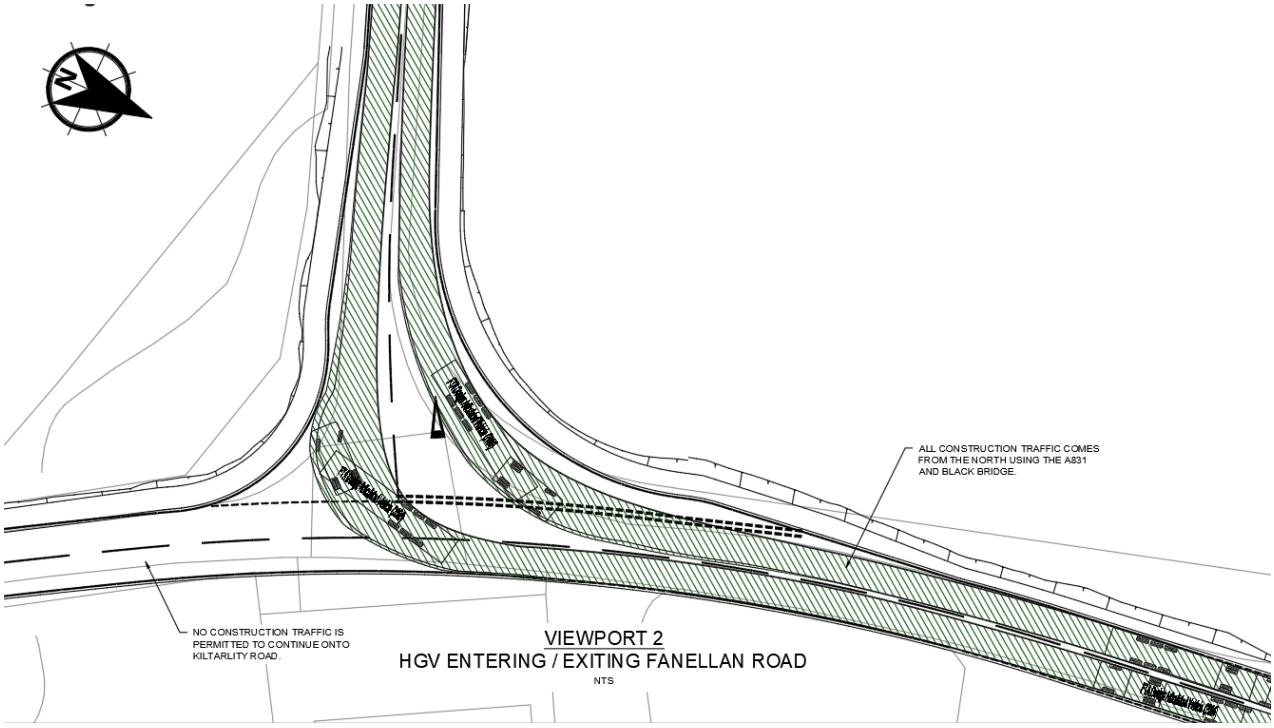


Figure 6.4 HGVs entering / existing junction with U1604 Kiltarlity Road

6.3 C1106 Fanellan Road to Sub-Station Access Road Junction

At the junction with Kiltarlity Road, Fanellan Road reduces to single carriageway with passing places and is unsuitable for the proposed volumes of construction traffic, particularly HGVs. This section of Fanellan Road shall be widened to 6.5m cross section, minimum, to facilitate two way running of HGVs, between the U1604 junction with the new sub-station access road located 120m to the south. Figure 6.5 shows the swept paths of the HGVs passing each other when accessing the development access road. It is proposed that all construction traffic leaves the C1106 Fanellan Road at this point and no traffic continues south along Fanellan Road. This shall be the case all phases of the project.

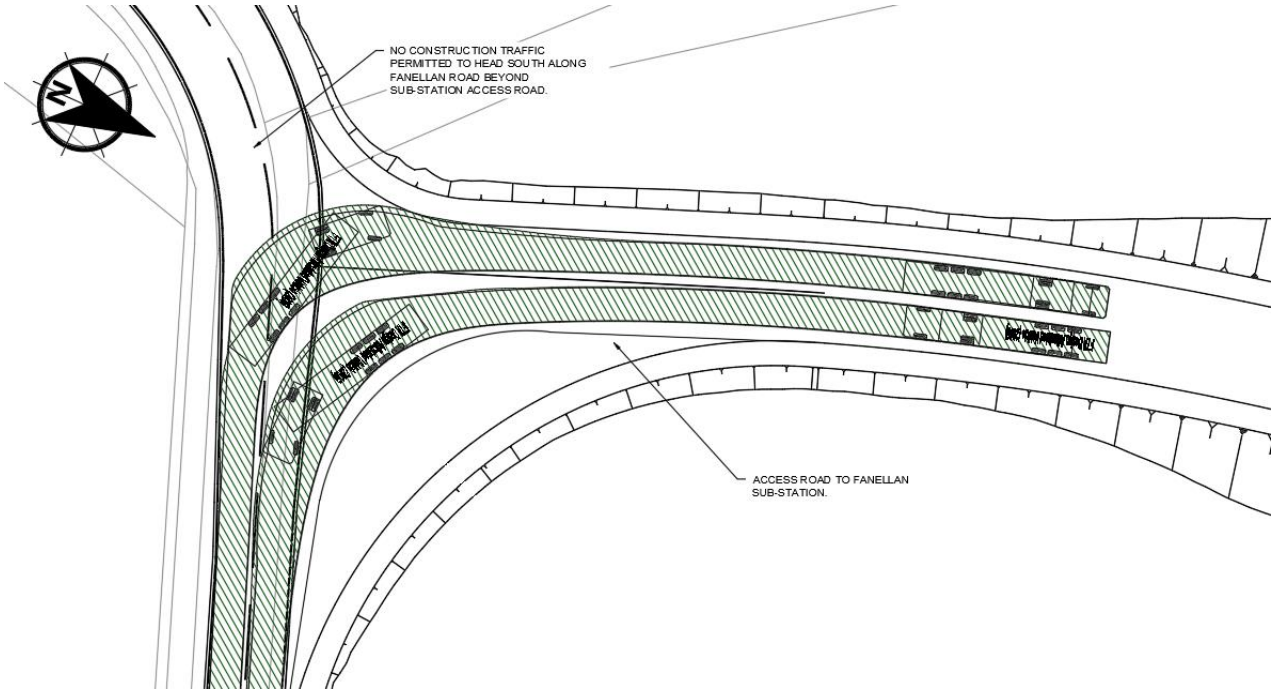


Figure 6.5 HGVs entering / existing C1106 / sub-station access road junction

6.4 A862 to A833 Junction

During the initial months of the construction programme, HGVs will need to be routed to site avoiding the Black Bridge as the replacement works will be commencing. It is proposed to route HGVs, vans and cars via the A862, A833 and through the grounds of Beaufort Castle. The A862 and A833 have suitable cross sections to allow two HGVs to pass each other in opposite directions. Figure 6.6 and Figure 6.7 show the swept path arrangement of two HGVs entering and existing the A833

Figure 6.6 HGVs entering / exiting the A833 junction with the A862 westbound

Figure 6.7 HGVs entering / exiting the A833 junction with the A862 eastbound

It is recommend a topographical survey of the junction is procured to validate the swept paths noted in the figures above. Some overhang of the verges is noted in both arrangements which is considered acceptable in the worst case arrangement of two artic lorries negotiating the junction at the same time.

6.5 A833 to Beaufort Castle

There is potential option to route construction traffic through the Beaufort Castle estate leaving the A833 southbound approximately 2.0km north of Kiltarlity, at the eastern access to the castle. This would require prior agreement with the land owner to proceed with this option. The access to the castle is via a narrow gate which will be supervised by an operative to ensure HGVs can without impacting other road users. Only a single vehicle can pass through the gate at a time. A holding area within the castle estate where construction traffic can be managed to ensure vehicles are not meeting each other at the gates could be implemented. Figure 6.8 shows the swept path arrangement entering the castle grounds from the A833. There is good visibility on approaches to the castle grounds which will allow the HGVs to safely make the turn. It is recommended the clearance to the gate towers is confirmed.

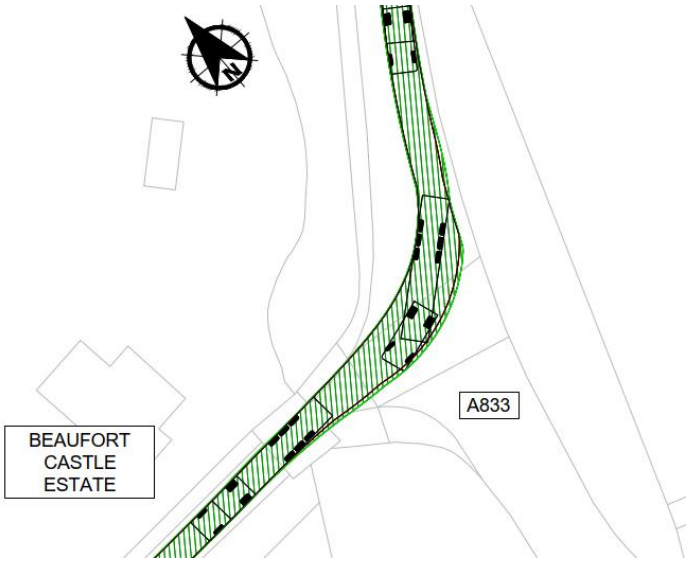


Figure 6.8 Access to Beaufort Castle from the A833

6.6 Beaufort Castle to C1106 Fanellan Road

HGVs shall leave the grounds of Beaufort Castle at the west access approximately 0.5km to the south east of the C1106 junction with the U1604. Traffic will head north west on the U1604 to the junction with the C1106 Fanellan Road. The U1604 is of varying cross section but can facilitate small cars, vans and light good vehicles passing each other safely between the C1106 and the castle access. It is proposed to hold HGVs within the castle grounds until such time they can safely negotiate the U1604 without meeting other HGVs.

7 Preferred Route and Public Road Improvements

7.1 Preferred Route

This report has assessed in detail, the suitability of a number of route to the Fanellan site and concluded that landing the transformers at North Kessock and transporting the loads via the A9 and then to Fanellan via Muir of Ord and Beauly is the most suitable route. Utilisation of this route still requires replacement/upgrade to the Black Bridge on the C1106 and a number of junction modifications, however, this route will minimise the impact on local communities. Figure 7.1 shows the most feasible route of the AIL to the site.

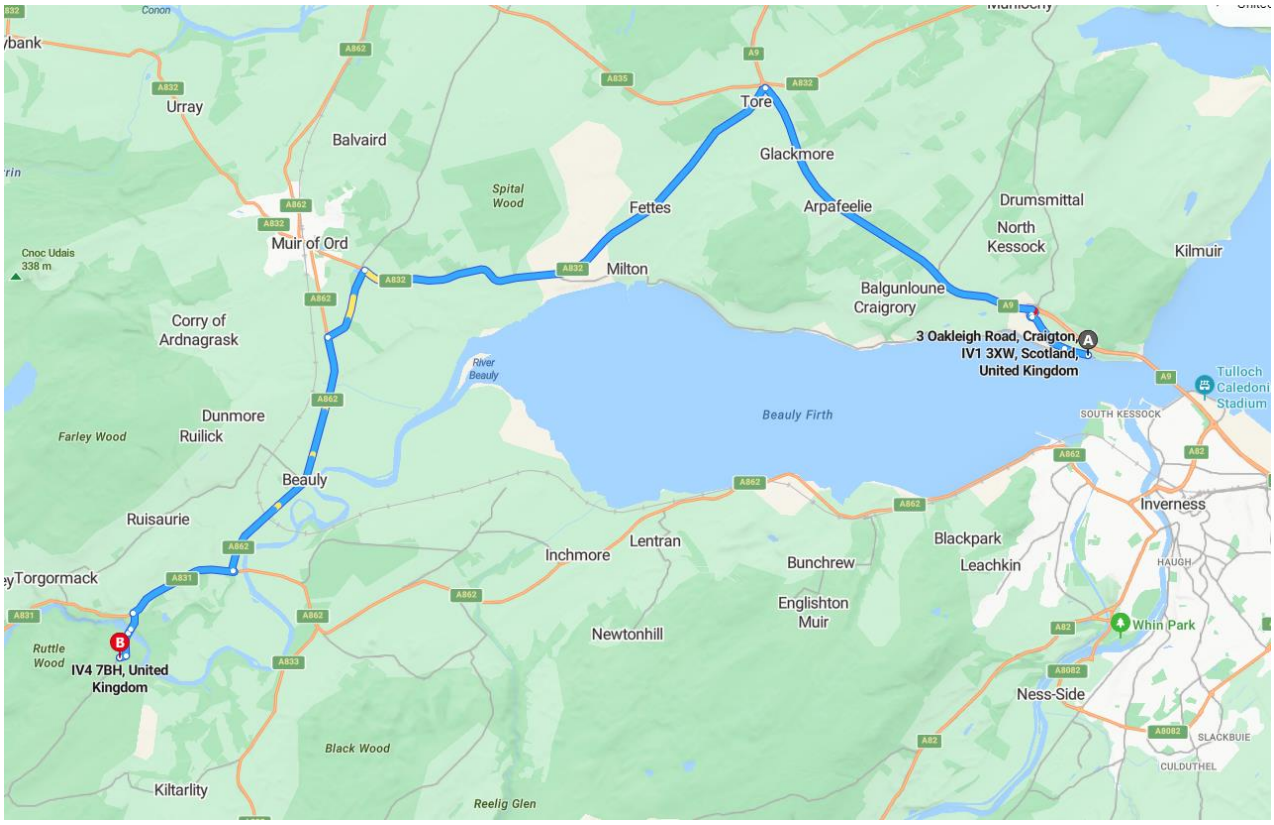


Figure 7.1 The preferred route of the AIL from North Kessock (image courtesy of Bing Maps)

General construction traffic will use two routes to access the site at Fanellan. In the early parts of the project (September 2025 to August 2027) construction traffic shall be route via the A833 and Beaufort Castle estate, Figure 7.2. Acceptability of the using Beaufort Castle shall be agreed with the landowner and any accommodation works provided.

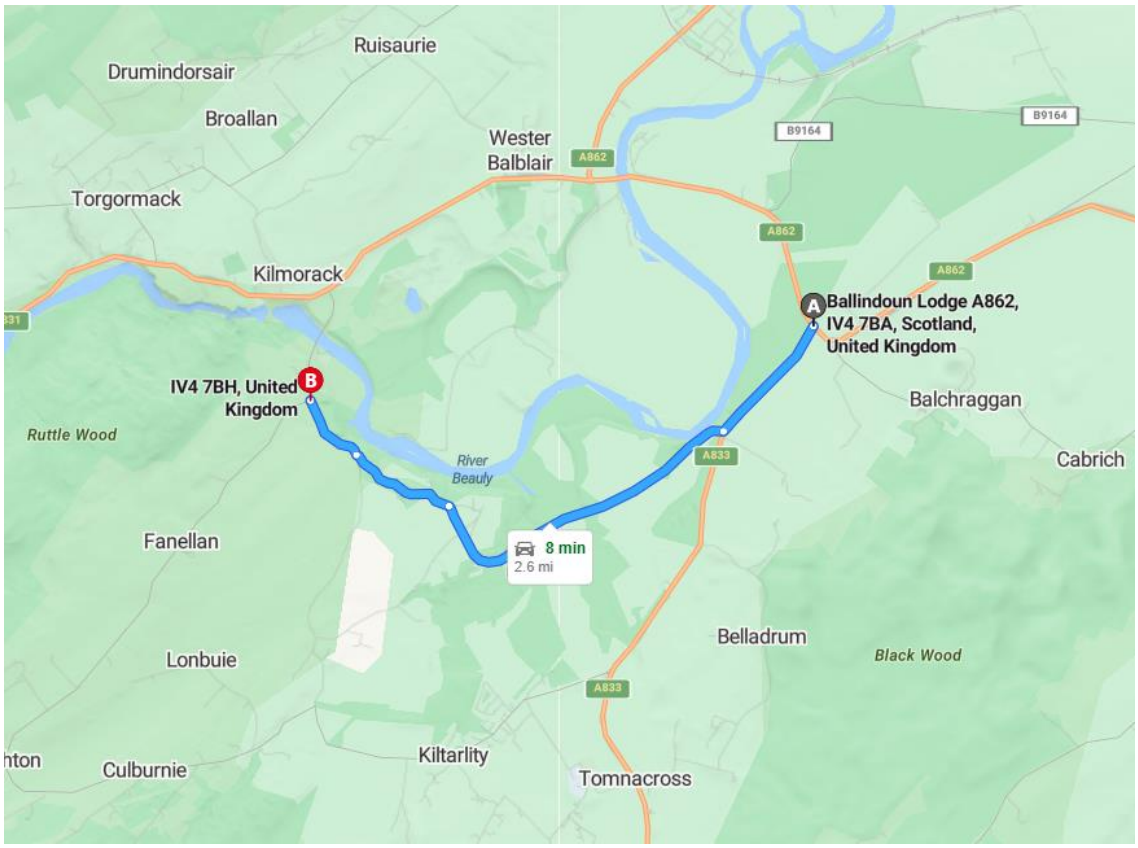


Figure 7.2 Preferred route via the A833 and Beaufort Castle Estate before the Black Bridge completion (image courtesy of Bing Maps)

Upon completion of the Black Bridge replacement works, all construction traffic shall be routed as shown in Figure 7.3, using the Black Bridge to pass over the River Beauly.

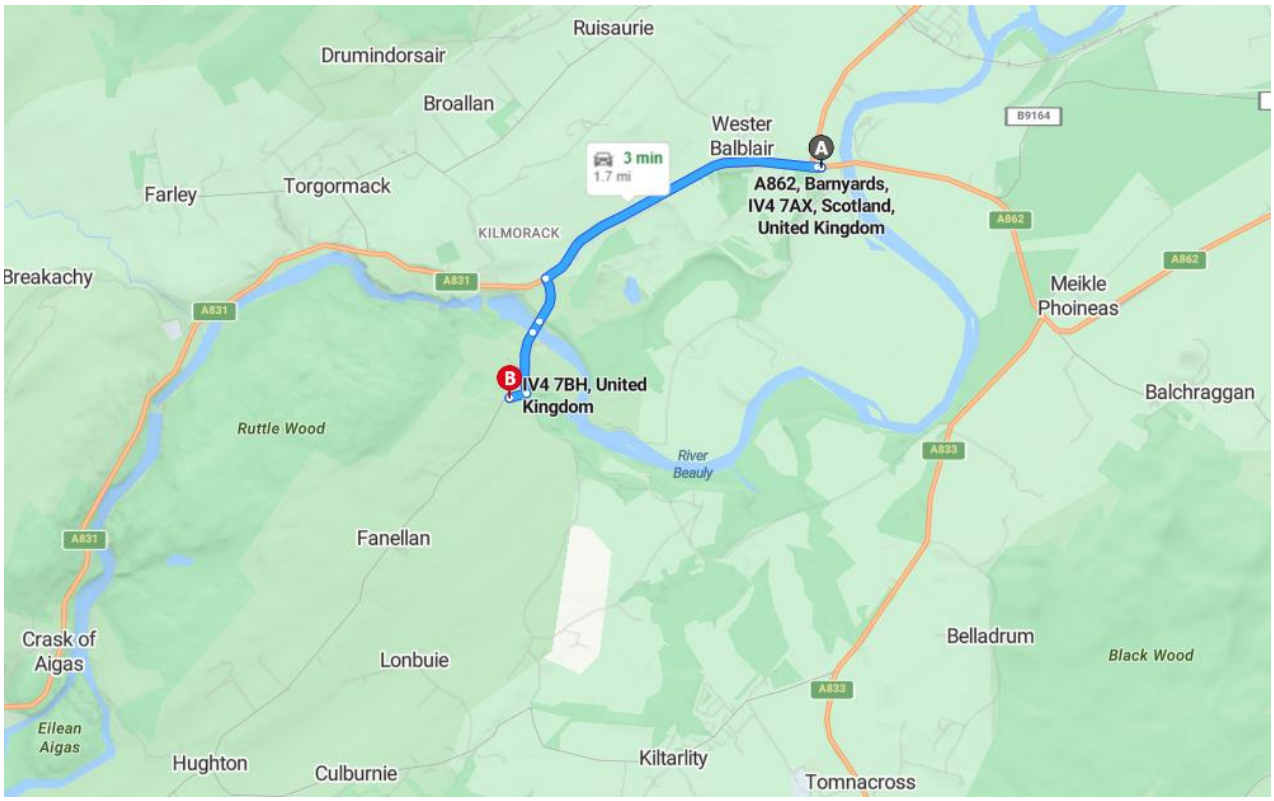


Figure 7.3 Access route for all construction traffic post the Black Bridge replacement (image courtesy of Bing Maps)

7.2 Construction Traffic Impact Assessment

During the construction phase of the works, an increase in traffic associated with the development will be felt on the local roads surrounding the development. The anticipated vehicle movements to the site over the course of the works is noted in Table 7.1 which are subject to refinement as the works are programmed in more detail. AILs are not considered in this table as these will move under special traffic orders and the impact on the road network will be managed by specialist sub-contractors and Police Scotland.

Table 7.1 Anticipated vehicles movements associated with the works

Haulage	Expected Vehicle Type	Duration	Peak Two-way Trips per Day / Week	Total Two-way Trips
Staff	Cars / Vans	Sep 2025 – Feb 2031	110 / day	54,500
Workforce and subcontractor	Cars / Vans	Sep 2025 – Feb 2031	300 / day	143,000
Site accommodation and maintenance	Vans	Sep 2025 – Feb 2031	7 / week	670
Skips	HGVs / Skips	Sep 2025 – Feb 2031	12 / week	930
Heavy Goods Vehicle	Flatbed lorry	Sep 2025 – Feb 2031	31 / week	1800
Septic Tank waste removal	HGV	Sep 2025 – Feb 2031	3 / week	250

Haulage	Expected Vehicle Type	Duration	Peak Two-way Trips per Day / Week	Total Two-way Trips
Aggregates	Flatbed lorry	Sep 2025 – Feb 2028	40 / day	9,130
Disposal of excess material	Tipper lorry	Sept 2027 – Nov 2028	150 / day	9,150
Ready-Mix concrete	Tipper lorry / Mixer	Nov 2025 – Feb 2028	30 / day	6,900
Pre-cast foundations	Flatbed lorry	July 2026 – Jan 2028	15 / day	3,300
Delivery of materials	Various	Sep 2025 – June 2029	60/ day	21,900
Substation road construction	Tipper lorry	Apr 2027 – Dec 2027	10 / week	130
Light Goods Vehicles	Rigid body up 7.5 tonnes	June 2027– June 2029	32 / week	1700
Cable Drums	HGV / Flatbed lorry	Jan 2028 – Jan 2030	4 / day	365
Plant Delivery	HGV / Flatbed lorry	Jul 2027 – April 2030-	15 / day	4,300
Miscellaneous	Various	July 2027 – May 2029	15 / day	5,500

Chapter 12 of the Environmental Impact Assessment Report (EIAR) provides an assessment of the percentage increase in the year 2027 of traffic movements due to the works. The main impact is on the C1106 Fanellan Road which sees a considerable increase in HGV and non-HGV traffic movements. To mitigate and in conjunction with the CTMP, the C1106 shall be upgraded to a 6.5m minimum carriageway cross section. The junctions at the A831 and U1604 are also to be significantly upgraded and a dedicated access road to the development site is to be installed. These measure will ensure the C1106 is in suitable condition to deal with the increased traffic levels.

The A831, A833 and A862 will also see a considerable increase in traffic volumes. The A831, A833 and A862 are already of a good standard and able to accommodate HGVs passing each other in opposite directions. The recommendations of the CTMP will be put in place to mitigate any negative impacts of the increased traffic volumes. This will include set delivery times for HGVs attending site and ensuring restrictions are put in place when required to minimise the impact.

Chapter 12 of the EIAR provides the theoretical space capacity of each of the road links impacted by the development works and all roads have sufficient capacity to cope with the increased traffic flows.

7.3 Public Road Improvements

The proposed public road improvements associated with the scheme are summarised below and cross referenced to the drawings where the improvements are noted. The public road improvement drawings are appended to this document in Appendix F.

1. LT459-SWE-XX-XX-D-H-0101 – A831 Junction Improvements: It is proposed to provide hardened verges on the A831 and C1106 at the junction area to allow the AIL to turn into the C1106 to head south over the Black Bridge.

2. LT459-SWE-XX-XX-D-H-0102 – A831 / A862 Junction Improvements: Minor amendments are required to some road side furniture to allow the AIL to negotiate the junction.

3. LT459-SWE-XX-XX-D-H-0103 – A862 / B9169 Junction Improvements: Minor amendments required to one existing traffic sign.

4. LT459-SWE-XX-XX-D-H-0104 – A9 North Kessock Junction: Minor amendments required to one existing Diagram 610 bollard.

5. LT459-SWE-XX-XX-D-H-0105 – Millbank Roundabout Improvements: A number of modifications are required to some of the existing roadside furniture including lighting columns and traffic signals to allow the AIL to pass.

6. LT459-SWE-XX-XX-D-H-0106 – A831 to Fanellan Sheet 1 of 3: The C1106 is proposed to be formally widened to a 6.5m cross section. Upon completion of the works and delivery of the AIL, the road will have a new surface course overlaid.

7. LT459-SWE-XX-XX-D-H-0107 - A831 to Fanellan Sheet 2 of 3: Continuation of widening the C1106 to a 6.5m cross section and applying a new overlaid surface.

8. LT459-SWE-XX-XX-D-H-0108 - A831 to Fanellan Sheet 3 of 3: Improvements to the existing junction with the C1106 and U1604 to widen out the carriageway and upgrade the initial section of Fanellan Road to a 6.5m cross section for two way traffic and provide curve widening.

9. LT459-SWE-XX-XX-D-X-0103 – Details of the outline sub-station access road junction with the C1106 Fanellan Road to facilitate construction and operational access.

8 Operational Phase

Upon completion of the development, both the sub-station and convertor station will be accessed on an ongoing basis for maintenance and training purposes. Both the sub-station and convertor station compounds include adequate parking provision and inclusions for laydown and unloading. Transport numbers to the site on a daily basis will be small and have a negligible impact on the local road network. All traffic going to the Fanellan site will be instructed to follow the preferred route noted in Section 7.

9 Conclusion

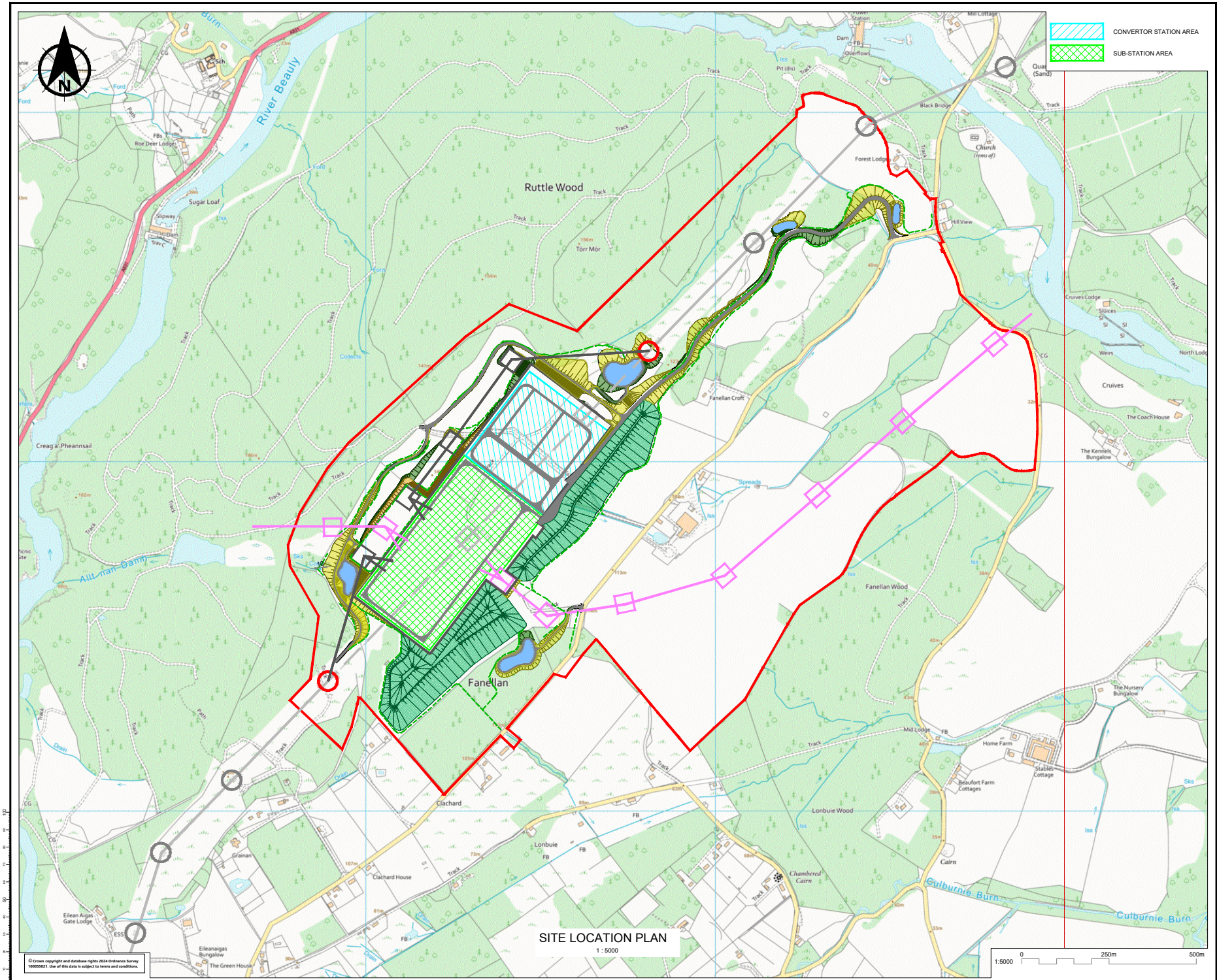
The route assessment report has provided an analysis of the road network between the ports of Invergordon and Nigg to the Fanellan site. The road networks to both Invergordon and Nigg require minor horizontal improvement to facilitate the transportation of the AIL. The biggest challenges noted in the assessment is the capacity of a number of structures along the route. The Black Bridge requires complete replacement to accommodate the AILs. Similarly, the Transport Scotland owned Cromarty Bridge does not appear to have sufficient capacity to support the AIL.

It is considered the most suitable means of getting the AIL to the site at Fanellan is to via a dedicated quay at North Kessock and following the route from Tore Roundabout to Beauly and then to the A831 to the Black Bridge. This removes any uncertainty with the capacity of the Cromarty Firth bridge and also ensures the Black Bridge replacement or strengthening works are undertaken to route all construction traffic via the A831 to minimise disruption in the surrounding minor roads. The report provides an alternative construction traffic route via Beaufort Castle (subject to land owner agreement) or via Kiltarlity and the U1604 during the period when the works are proposed on the Black Bridge. This will ensure the construction programme can be achieved while minimising the impact on the local communities.

Improvements are required to the C1106 and corresponding junctions to allow the volume of HGVs to access the site without causing issues for other road users. These improvements will allow traffic to pass each other in different directions safely and avoid the need for stoppages on the road network.

Appendix A

Fanellan Development Site Layout



SITE LOCATION PLAN
1 : 5000

1:5000 0 250m 500m

NOTES

1. The Planning Red Line Boundary includes the proposed platform together with all other potential site requirements, including site compounds, drainage, access, parking, laydown and storage areas and landscaping proposals. Many of these requirements will be temporary and will be permanently removed upon completion. The temporary requirements are indicative at this stage and are subject to change as the construction phase is developed.

LEGEND

Proposed Fanellan 400kV Substation and Convertor
- Indicative Planning Red Line Boundary
- Substation Boundary

Drainage
- New SuDS Basin
- New Indicative Cut-Off Ditch

Landscape and Visual Mitigation
- Landform Providing Visual Screening

Access and Earthworks
- New Access Tracks and Roads
- Cut Earthworks Slope
- Fill Earthworks Slope
- Rock Cut Earthworks Slope

Proposed Beauly - Denny OHL Diversion (separate S37 consent)
- New Tower
- Existing Tower to be Removed
- Existing Tower to be Replaced
- Existing Tower to be Retained
- New OHL
- Existing OHL to be Retained
- Existing OHL to be Removed

Proposed new 400kV Overhead Lines from Spittal and Peterhead (separate S37 consents)
- Potential New Tower Location
- Potential OHL Alignments

Rev	Date	Amendment Details	Dr'n	Chk'	App'
P07	10/02/2025	ACCESS ROADS UPDATED	RL	NG	CB
P06	20/08/2024	LAYOUT FINALISED	RL	NG	CB

2nd Floor, Quay 2
139 Fountainbridge
Edinburgh
EH3 9QG
Tel: +44 (0)131 550 6300
Web: www.sweco.co.uk

SWECO

Client: Scottish & Southern Electricity Networks TRANSMISSION

Project Title
FANELLAN
400kV SWITCHING STATION AND HVDC CONVERTOR STATION

Drawing Title
PROPOSED PERMANENT LAYOUT
SHEET 1 OF 1

Purpose Of Issue: FOR CONSULTATION

Status	Status Description
S5	FOR REVIEW AND ACCEPTANCE

Drawn	Designed	Checked	Approved
RL	RL	NG	CB

Sheet Size	Scale	Sweco Ref	Revision
A1	1:5000	65209842	P07

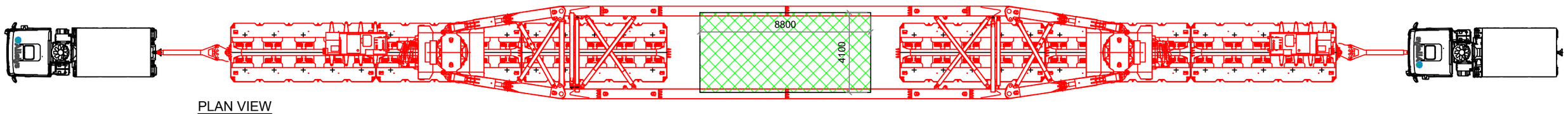
Drawing Number: LT459-SWE-XX-XX-D-X-0004

P:\6551\65209842_Beauly_Hub\000\D-Z-0000_Drawings\Site Layout Drawings\AutoCAD\0000 - Planning Application Notice\ LT459-SWE-XX-XX-D-X-0004_P07 Simplified.dwg

Appendix B

Proposed Abnormal Indivisible Load Vehicle

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



PLAN VIEW
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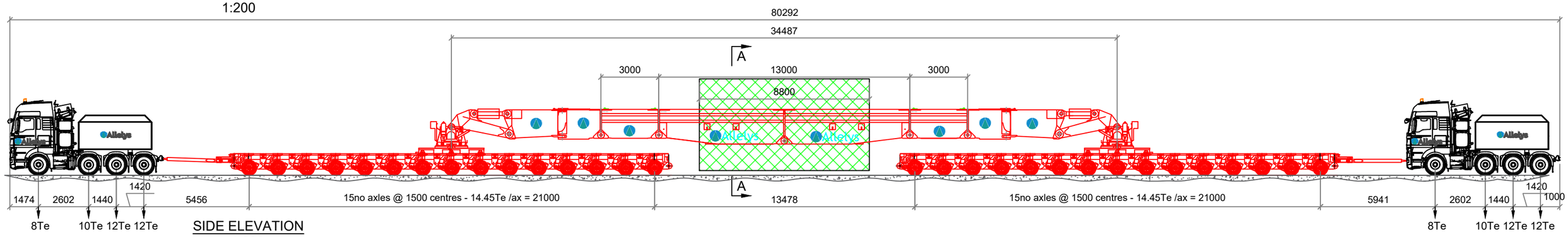

SIDE ELEVATION
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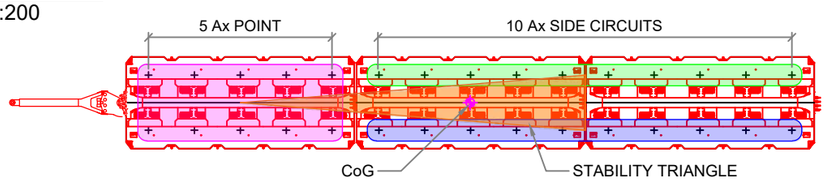
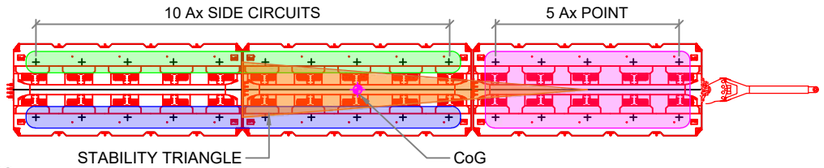
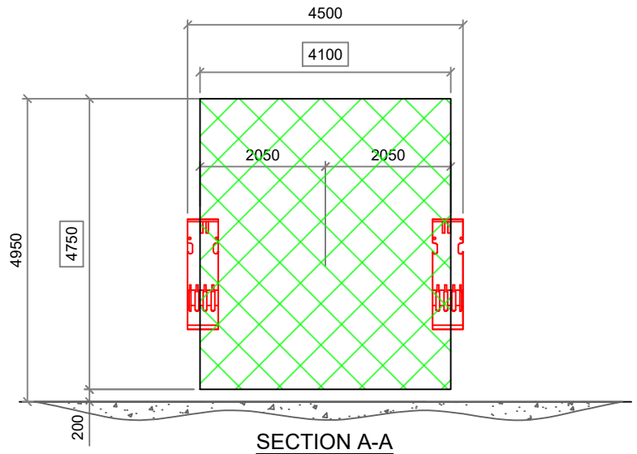




STABILITY CIRCUITS
1:200



SECTION A-A
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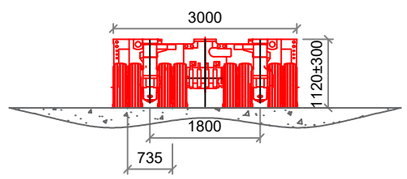

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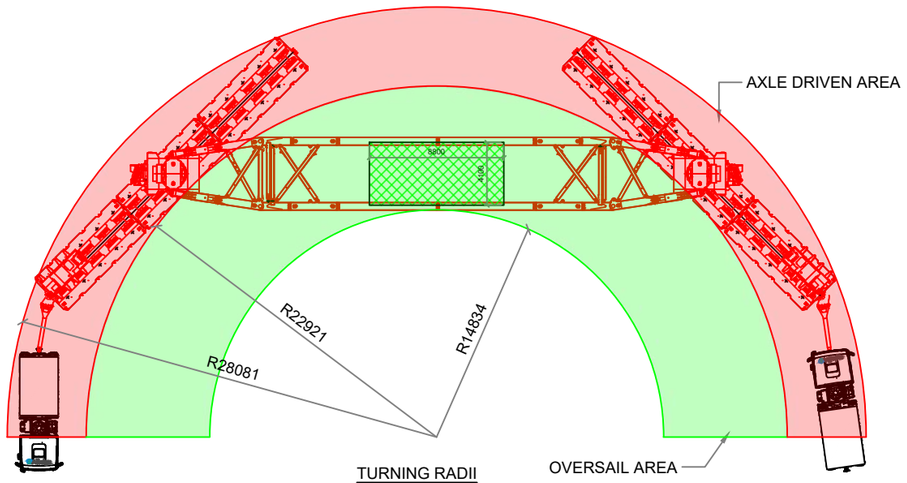


TURNING RADII
1:400

FRICTION PACKING ON ALL STEEL/STEEL INTERFACES

LASHING CHAINS TO BE APPLIED

DRAWING NOTES:

- ALL DIMENSIONS IN mm UNLESS OTHERWISE STATED.
- ALL WEIGHTS ARE IN Te (METRIC TONNES) UNLESS OTHERWISE STATED.
- ALL DETAILS ARE PRELIMINARY AND ARE SUBJECT TO CONFIRMATION.

TECHNICAL NOTES:

LOAD TABLE	
Applied Load Weight (Te)	275.00
Trailer Tare Weight (Te)	158.45
Auxiliary Steel Work (Te)	0.00
Trailer Gross Weight (Te)	433.45
Load per Bogie (Te)	216.73
Load per Axle (Te)	14.45
Block Ground Loading (Te/m²)	3.21

CLIENT REFERENCE DOCUMENTS

REV	DATE	DOCUMENT REFERENCE No.

REVISION HISTORY

REV	DATE	DESCRIPTION	DRAWN	CHECKED	APPROVED
00	17/11/23	First issue	EDA		
A					
B					
C					

Allelys
The Slough,
Studley,
Warwickshire,
B80 7EN
Tel: +44 (0) 1527 852 408
e-mail: enquiries@allelys.co.uk

Client	Hitachi (Sweden)
Project	Route Survey
Title	275 Te Transformer F5.5 HGB 30 Axle Trailer
Scale (A3)	AS SHOWN
Sheet No.	1
Total No.	1
Dwg. No	ALL-A232037-TA-01

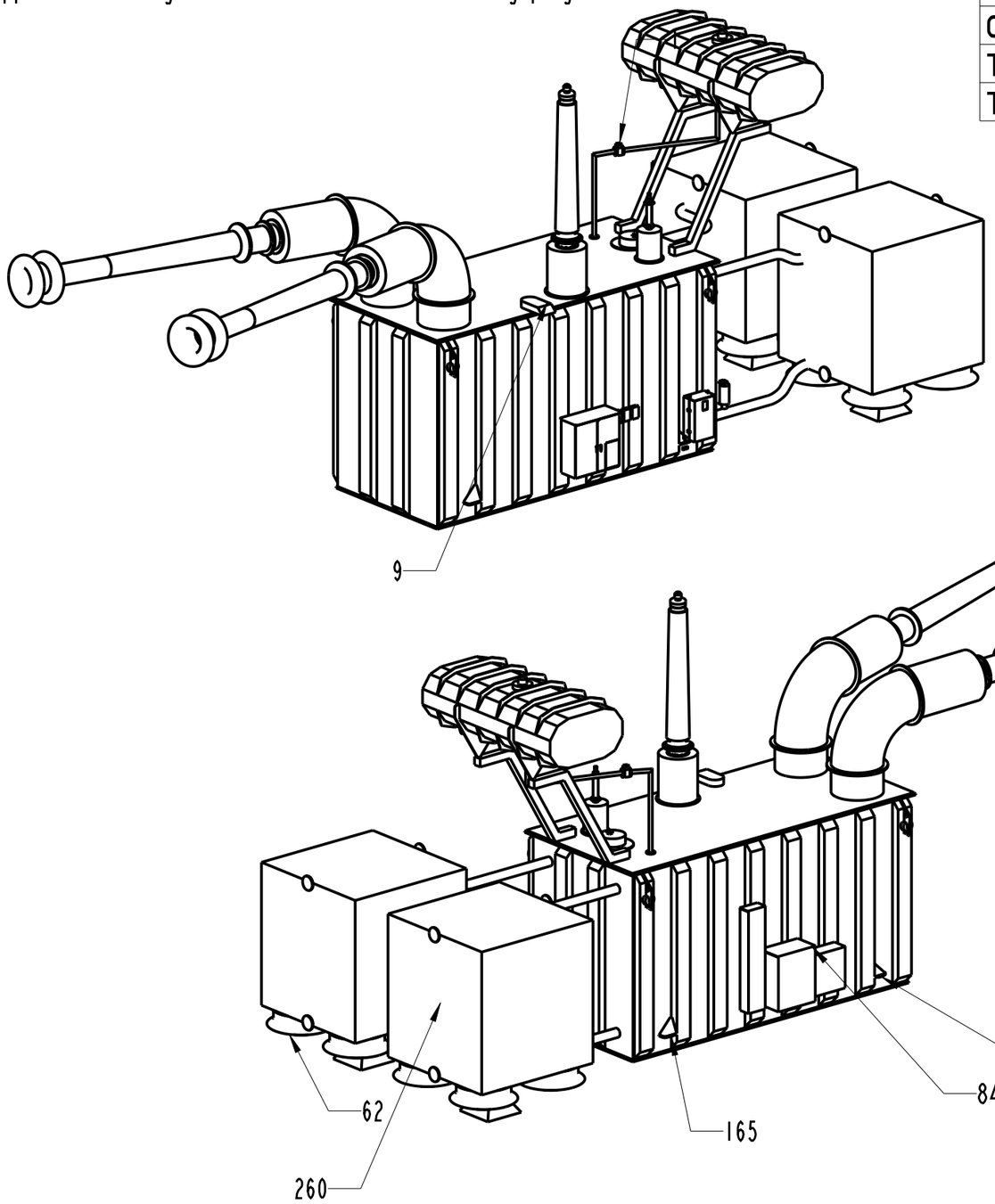
Appendix C

Proposed transformer units

Position of radiators can change to fit site arrangements.
Supports for long tubes need to be added during project

Masses	Kg
Core and coils	215500
Oil	101000
Total	426000
Transport	258000

Transport dimensions	mm
Height	4800
Width	4050
Width lifting hook	4400
Length	8700



Fittings

1 Gas operated relay
3 Oil level indicator
4 Thermometer for oil temperature
5 Thermometer for winding temperature
9 Relief vent
61 Pump (motor)
62 Fan (motor)
82 Control cabinet
83 Driving mechanism
84 Auxillary power cabinet
103 Silica-gel breather
120 Rating plate
165 Jacking point
215 Earthing terminal
260 Radiotor

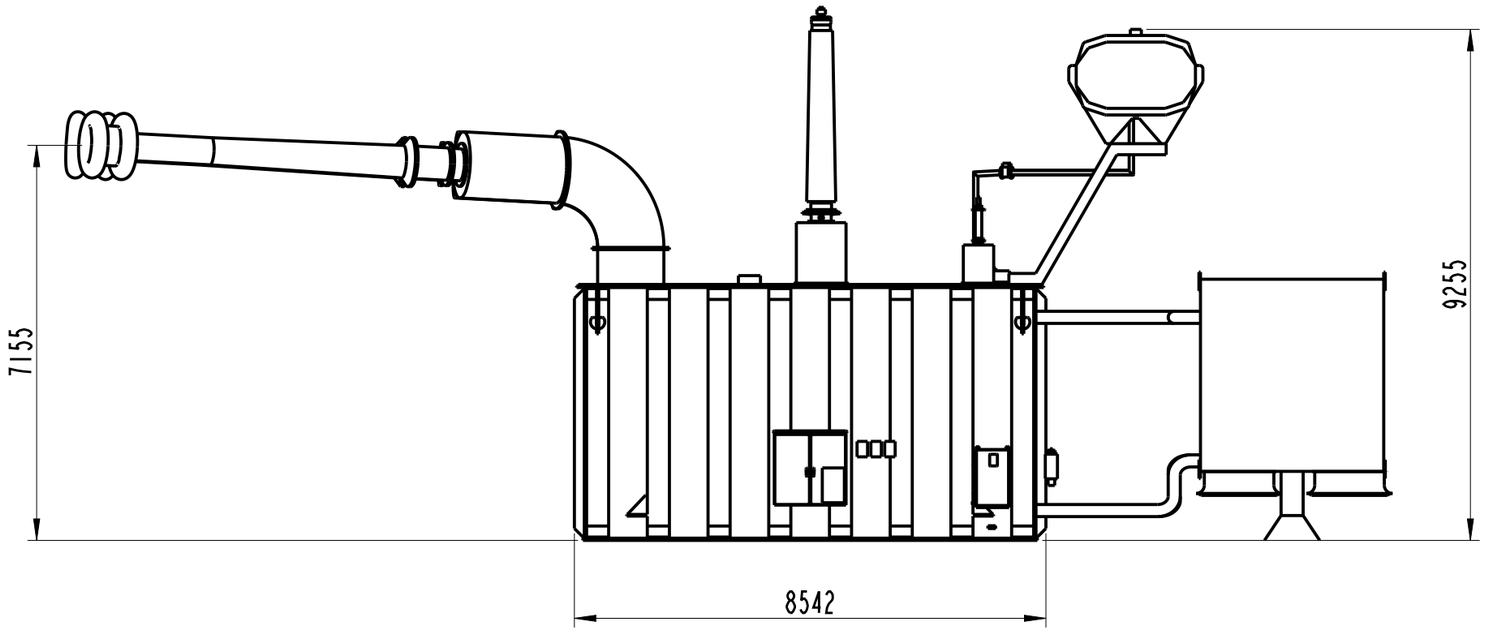
For tender purpose only
all dimensions and masses are approximate

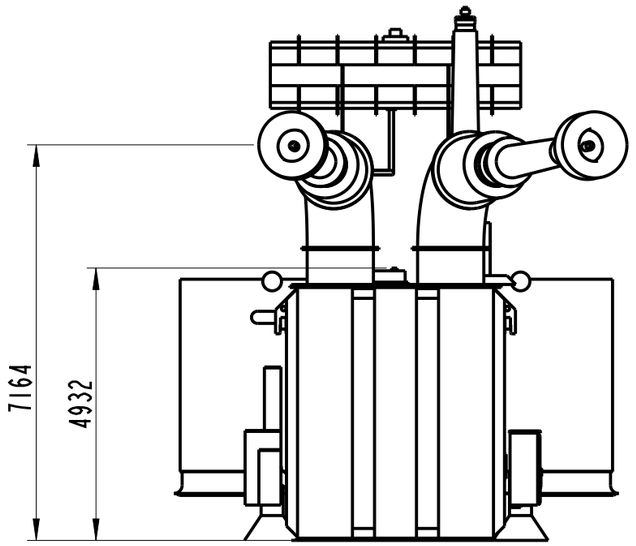
kV	MVA	Hz
400	426	50

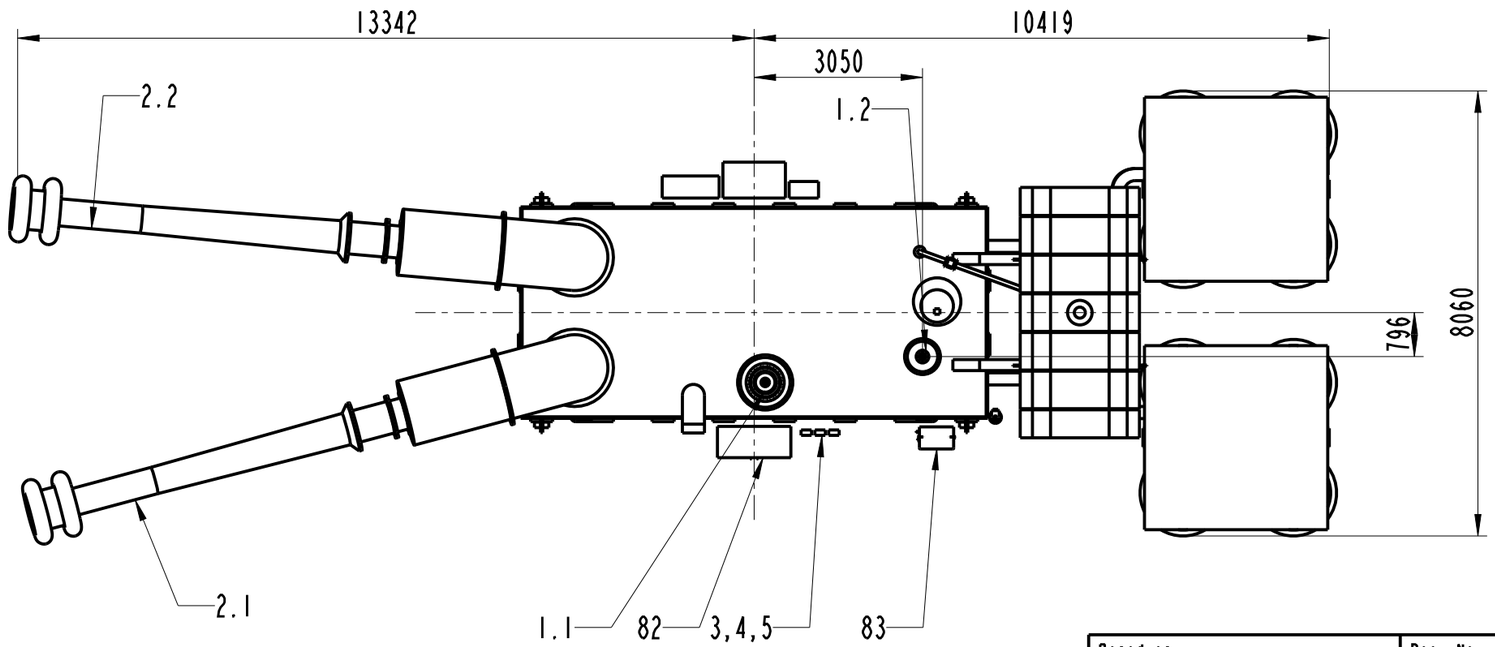
Rev Ind	Revision	Appd	Date
A	First Issue	A.Q	2023-04-26

Based on	Reg. No.	Title: 1-Phase Transformer	Scale: 0.008
Prepared: A.Qvicker 2023-04-26	Responsible department: PG/TR/DK		
Approved: J.Häggman 2023-04-26	Take over department		Language: en
Revision	Mass	Order: OPP 22 6856183 Pos 2 Alt 1	Page: 1
ABB AB Power Transformers		Document No.: XZ250365C5611	Total: 3

Production engineering review
Design engineering review
Inspection engineering review





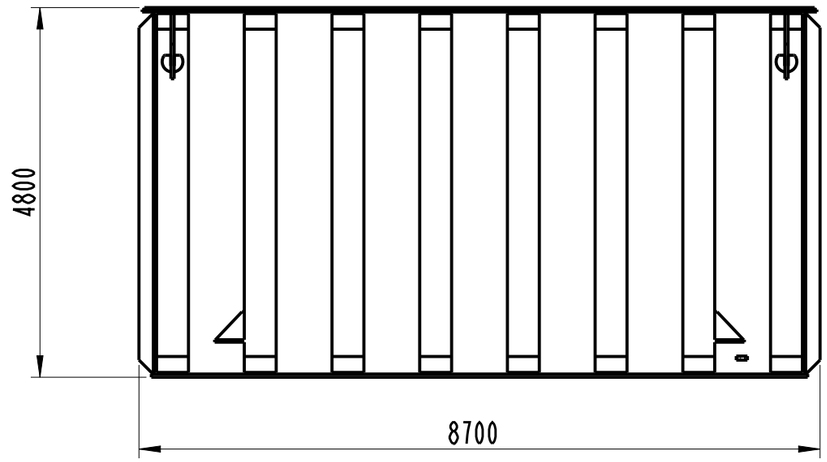


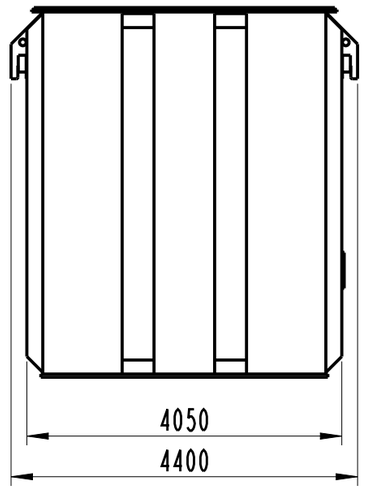
A	First Issue	A.Q	2023-04-26
Rev Ind	Revision	Appd	Date

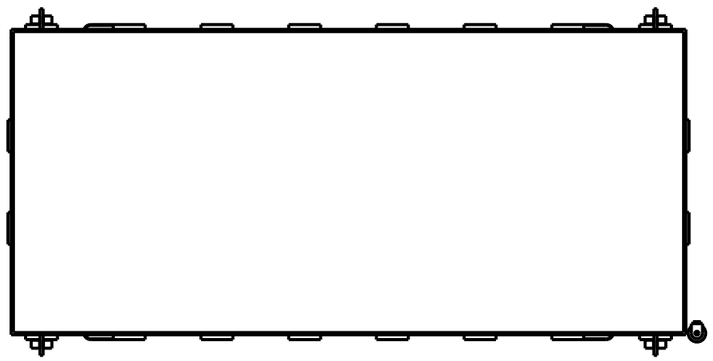
Production engineering review
Inspection engineering review
Design engineering review

Based on	Reg. No.	Title	Scale 0.009
Prepared A. Qvicker 2023-04-26	Responsible department PG/TR/DK	1-Phase Transformer	
Approved J. Häggman 2023-04-26	Take over department		Language en
Revision	Mass	Order OPP 22 6856183 Pos2 Alt1	Page 2
ABB AB Power Transformers		Document No. XZ250365C5611	Total 3

Transport dimensions







Production engineering review

Inspection engineering review

Design engineering review

Rev Ind	Revision	Appd	Date
A	First issue	A.Q	2023-04-26

Based on	Reg. No.	Title: 1-Phase Transformer	Scale: 0.013
Prepared: A. Qvicker 2023-04-26	Responsible department: PG/TR/DK		
Approved: J.Häggman 2023-04-26	Take over department		Language: en
Revision	Mass	Order: OPP 22 6856183 Pos1 Alt 1	Page: 3
ABB AB Power Transformers		Document No.: XZ250365C5268	Total: 3

Appendix D

Swept Path Analysis Drawings

P:\6551\65209842_Beauly_Hub\000\D-Z-0000_Drawings\Route Assessment Drawings\B817 - Invergordon to Dalmore\ 65209842-SWE-XX-XX-D-H-0001.dwg

NOTES

1. DO NOT SCALE FROM THIS DRAWING MANUALLY OR ELECTRONICALLY.
2. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL OTHER RELEVANT PROJECT INFORMATION.
3. ALL DATUM LEVELS ARE IN METRES AND DIMENSIONS ARE IN METRES (m) UNLESS OTHERWISE STATED.

KEY TO DRAWING

- WHEEL TRACK EXTENTS
- VEHICLE OVER SAIL
- EXISTING ROAD EXTENTS
- PROPOSED CARRIAGEWAY WIDENING

IMPORTANT

HEALTH, SAFETY & ENVIRONMENTAL INFORMATION

IN ADDITION TO THE HAZARDS AND RISKS NORMALLY ASSOCIATED WITH THE TYPE OF WORK DETAILED ON THIS DRAWING, PLEASE NOTE THE FOLLOWING SIGNIFICANT RISKS TO HEALTH, SAFETY & ENVIRONMENT

THE SIGNIFICANT RISKS ASSOCIATED WITH THE PROJECT ARE NOTED BELOW

1 STREET LIGHTING FURNITURE TO BE REMOVED AND REINSTALLED.

IT IS ASSUMED THAT ALL WORKS SHALL BE UNDERTAKEN BY A COMPETENT CONTRACTOR WORKING WHERE APPROPRIATE TO AN APPROVED SAFE SYSTEM OF WORK

P01	06/12/2023	FOR COMMENT	MA	RL	CB
Rev	Date	Amendment Details	Dr'n	Chk'	App'

2nd Floor, Quay 2
139 Fountainbridge
Edinburgh
EH3 9QG
Tel: +44 (0)131 550 6300
Web: www.sweco.co.uk

Client

Project Title

BEAULY HUB
400kV SWITCHING STATION AND HVDC CONVERTOR STATION

Drawing Title

ABNORMAL INDIVISIBLE LOAD ROUTE ASSESSMENT - INVERGORDON TO DALMORE SHEET 1

Purpose Of Issue

PRELIMINARY

Status	Status Description		
S0	INITIAL STATUS OR WIP		
Drawn	Designed	Checked	Approved
MA	MA	RL	CB
Sheet Size	Scale	Sweco Ref	Revision
A1	1:500	65209842	P01

Drawing Number

65209842-SWE-XX-XX-D-H-0001

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IMPORTANT

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P01	06/12/2023	FOR COMMENT	MA	RL	CB

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Project Title

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Drawing Title

ABNORMAL INDIVISIBLE LOAD ROUTE ASSESSMENT - INVERGORDON TO DALMORE SHEET 2

Purpose Of Issue

PRELIMINARY

Status	Status Description
S0	INITIAL STATUS OR WIP

Drawn	Designed	Checked	Approved
MA	MA	RL	CB

Sheet Size	Scale	Sweco Ref	Revision
A1	1:500	65209842	P01

Drawing Number

65209842-SWE-XX-XX-D-H-0002

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KEY TO DRAWING

- WHEEL TRACK EXTENTS
- VEHICLE OVER SAIL
- EXISTING ROAD EXTENTS
- PROPOSED CARRIAGEWAY WIDENING

IMPORTANT

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Rev	Date	Amendment Details	Dr'n	Chk'	App'

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Client

Project Title

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Drawing Title

ABNORMAL INDIVISIBLE LOAD ROUTE ASSESSMENT - INVERGORDON TO DALMORE SHEET 3

Purpose Of Issue

PRELIMINARY

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Drawn	Designed	Checked	Approved
MA	MA	RL	CB
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Drawing Number

65209842-SWE-XX-XX-D-H-0003

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- VEHICLE OVER SAIL
- EXISTING ROAD EXTENTS
- PROPOSED CARRIAGEWAY WIDENING

IMPORTANT

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THE SIGNIFICANT RISKS ASSOCIATED WITH THE PROJECT ARE NOTED BELOW

REF:

1 OVERHEAD TELECOMMUNICATIONS CABLE LOCATED IN VERGE CLOSE TO ROAD.

REFERENCE RESIDUAL RISK LOG FOR FURTHER DETAILS
REF: 65209642-SWE-XX-XX-T-V-0001

IT IS ASSUMED THAT ALL WORKS SHALL BE UNDERTAKEN BY A COMPETENT CONTRACTOR WORKING WHERE APPROPRIATE TO AN APPROVED SAFE SYSTEM OF WORK

Rev	Date	Amendment Details	Dr'n	Chk'	App'
P01	06/12/2023	FOR COMMENT	MA	RL	CB

2nd Floor, Quay 2
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Tel: +44 (0)131 550 6300
Web: www.sweco.co.uk

SWECO

Client

Scottish & Southern Electricity Networks
TRANSMISSION

Project Title

BEAULY HUB
400kV SWITCHING STATION AND HVDC CONVERTOR STATION

Drawing Title

ABNORMAL INDIVISIBLE LOAD ROUTE ASSESSMENT - INVERGORDON TO DALMORE SHEET 4

Purpose Of Issue

PRELIMINARY

Status	Status Description		
S0	INITIAL STATUS OR WIP		
Drawn	**Designed**	**Checked**	**Approved**
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Sheet Size	**Scale**	**Sweco Ref**	**Revision**
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Drawing Number

65209842-SWE-XX-XX-D-H-0004

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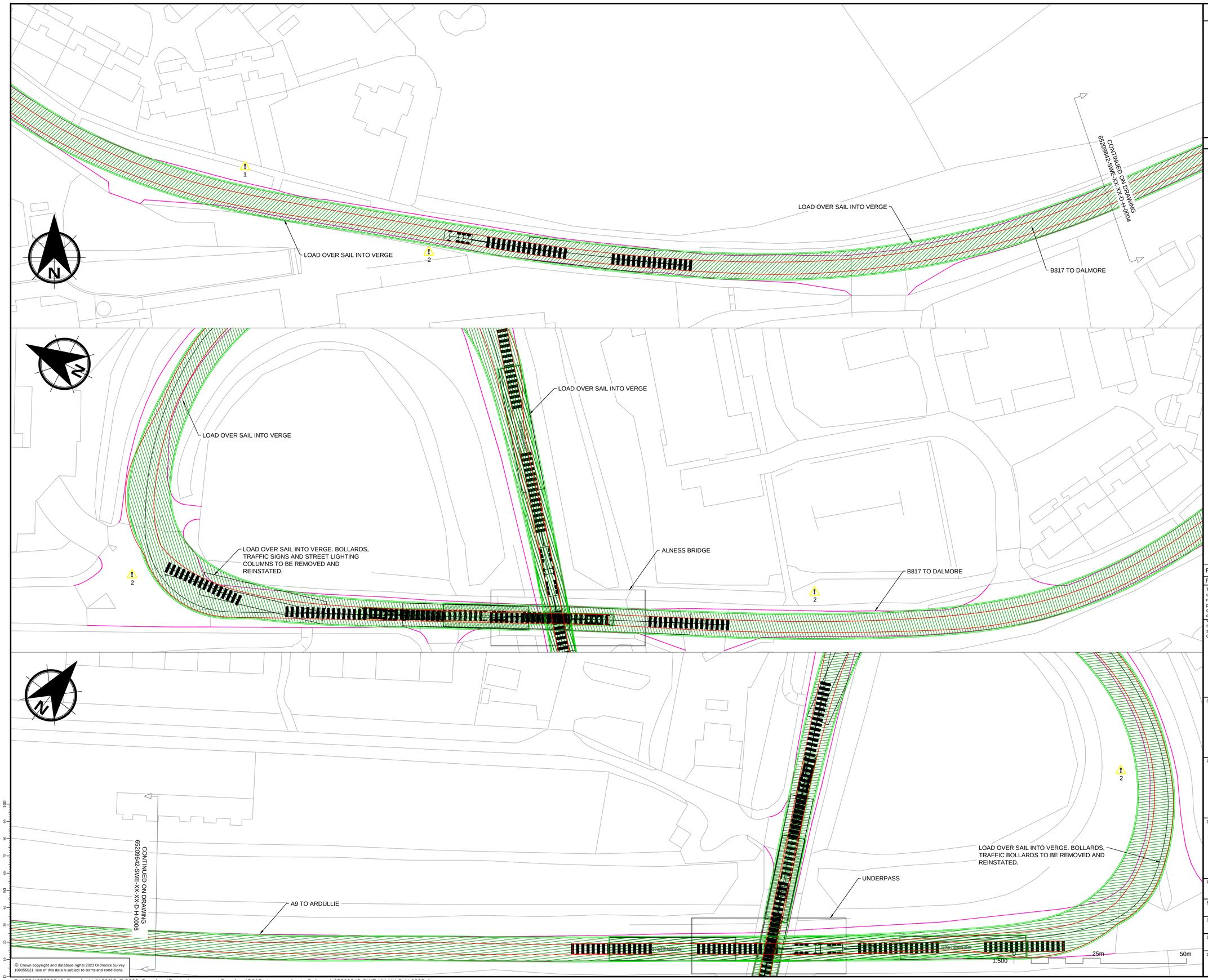

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- WHEEL TRACK EXTENTS
- VEHICLE OVER SAIL
- EXISTING ROAD EXTENTS
- PROPOSED CARRIAGEWAY WIDENING

IMPORTANT

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THE SIGNIFICANT RISKS ASSOCIATED WITH THE PROJECT ARE NOTED BELOW

REF:

1 OVERHEAD TELECOMMUNICATIONS CABLE PASSES OVER THE ROAD.

2 LIGHTING COLUMNS LOCATED IN ROAD VERGE.

REFERENCE RESIDUAL RISK LOG FOR FURTHER DETAILS
REF: 65209642-SWE-XX-XX-T-V-0001

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Rev	Date	Amendment Details	Dr'n	Chk'	App'
P01	06/12/2023	FOR COMMENT	MA	RL	CB

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139 Fountainbridge
Edinburgh
EH3 9QG
Tel: +44 (0)131 550 6300
Web: www.sweco.co.uk

Client: Scottish & Southern Electricity Networks TRANSMISSION

Project Title
BEAULY HUB
400kV SWITCHING STATION AND HVDC CONVERTOR STATION

Drawing Title
ABNORMAL INDIVISIBLE LOAD ROUTE ASSESSMENT - INVERGORDON TO DALMORE SHEET 5

Purpose Of Issue: PRELIMINARY

Status	Status Description
S0	INITIAL STATUS OR WIP

Drawn	Designed	Checked	Approved
MA	MA	RL	CB

Sheet Size	Scale	Sweco Ref	Revision
A1	1:500	65209842	P01

Drawing Number
65209842-SWE-XX-XX-D-H-0005

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EXISTING CULVERT

VEHICLE REQUIRES FULL CARRIAGEWAY WIDTH

A9 TO ARDULLIE

CONTINUED ON DRAWING 65209842-SWE-XX-XX-D-H-0005

VEHICLE REQUIRES FULL CARRIAGEWAY WIDTH

A9 TO ARDULLIE

BRIDGE OVER RIVER AVERON

CONTINUED ON DRAWING 65209842-SWE-XX-XX-D-H-0007

A9 TO ARDULLIE

VEHICLE REQUIRES FULL CARRIAGEWAY WIDTH

0 25m 50m

1:500

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- WHEEL TRACK EXTENTS
- VEHICLE OVER SAIL
- EXISTING ROAD EXTENTS
- PROPOSED CARRIAGEWAY WIDENING

IMPORTANT

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Rev	Date	Amendment Details	Dr'n	Chk'	App'
P01	06/12/2023	FOR COMMENT	MA	RL	CB

2nd Floor, Quay 2
139 Fountainbridge
Edinburgh
EH3 9QG
Tel: +44 (0)131 550 6300
Web: www.sweco.co.uk

SWECO

Client

Scottish & Southern Electricity Networks TRANSMISSION

Project Title

BEAULY HUB
400kV SWITCHING STATION AND HVDC CONVERTOR STATION

Drawing Title

ABNORMAL INDIVISIBLE LOAD ROUTE ASSESSMENT - DALMORE TO ARDULLIE SHEET 1

Purpose Of Issue

PRELIMINARY

Status	Status Description
S0	INITIAL STATUS OR WIP

Drawn	Designed	Checked	Approved
MA	MA	RL	CB

Sheet Size	Scale	Sweco Ref	Revision
A1	1:500	65209842	P01

Drawing Number

65209842-SWE-XX-XX-D-H-0006

1:500 0 25m 50m

NOTES

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IMPORTANT

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THE SIGNIFICANT RISKS ASSOCIATED WITH THE PROJECT ARE NOTED BELOW

REF:

1 — OVERHEAD ELECTRICAL LINE IN CLOSE PROXIMITY TO CARRIAGEWAY.

2 — EXISTING LIGHTING COLUMNS LOCATED IN THE ROAD VERGE.

REFERENCE RESIDUAL RISK LOG FOR FURTHER DETAILS
REF: 65209642-SWE-XX-XX-T-V-0001

IT IS ASSUMED THAT ALL WORKS SHALL BE UNDERTAKEN BY A COMPETENT CONTRACTOR WORKING WHERE APPROPRIATE TO AN APPROVED SAFE SYSTEM OF WORK

Rev	Date	Amendment Details	Dr'n	Chk'	App'
P01	06/12/2023	FOR COMMENT	MA	RL	CB

Sweco
Atria One, Level 2
144 Morrison Street
Edinburgh
EH3 9QG
Tel: +44 (0)131 550 6300
Web: www.sweco.co.uk

Client: Scottish & Southern Electricity Networks TRANSMISSION

Project Title: BEAULY HUB
400kV SWITCHING STATION AND HVDC CONVERTOR STATION

Drawing Title: ABNORMAL INDIVISIBLE LOAD ROUTE ASSESSMENT - DALMORE TO ARDULLIE SHEET 2

Purpose Of Issue: PRELIMINARY

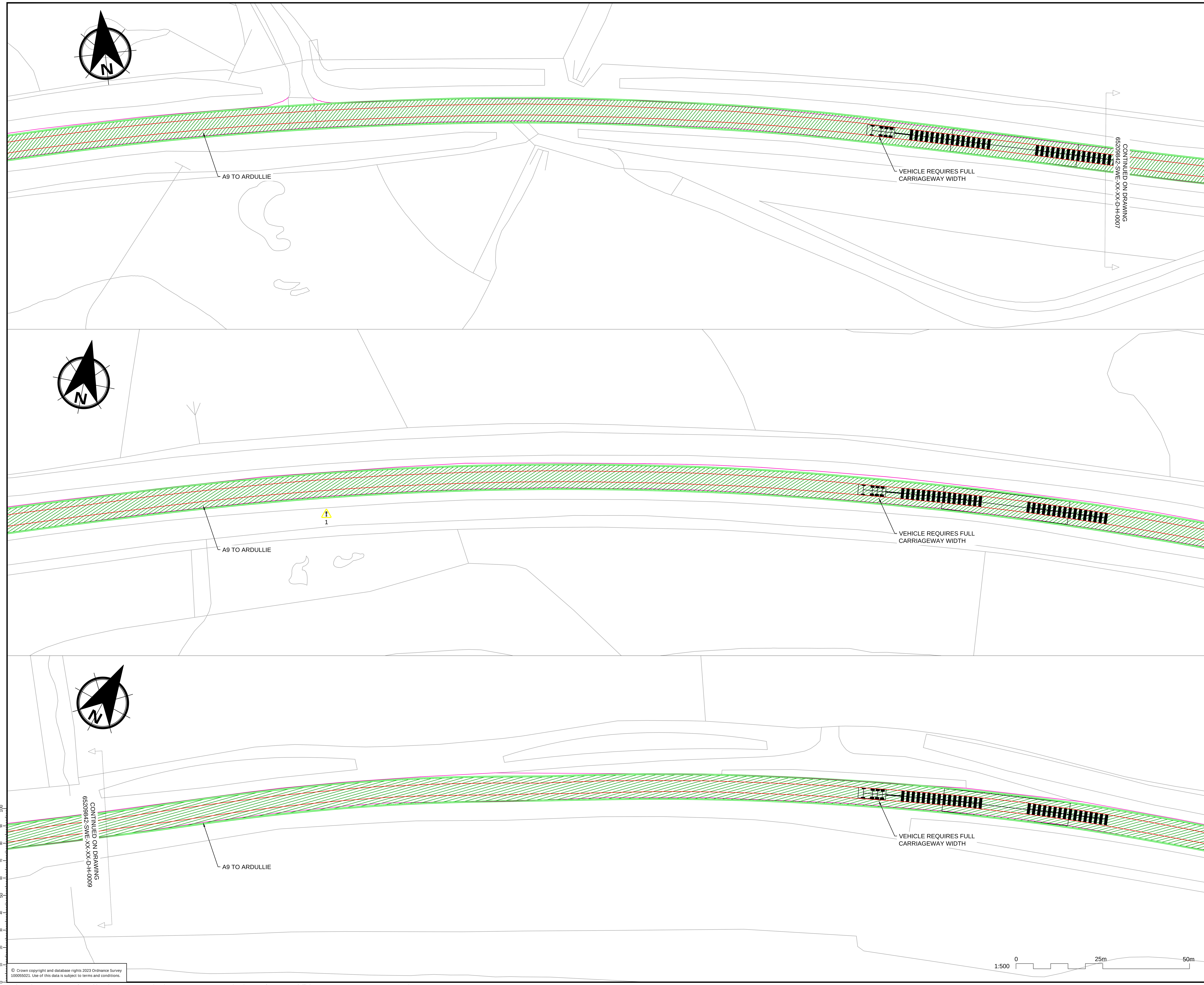
Status	Status Description
S0	INITIAL STATUS OR WIP

Drawn	Designed	Checked	Approved
MA	MA	RL	CB

Sheet Size	Scale	Sweco Ref	Revision
A1	1:500	65209842	P01

Drawing Number: 65209842-SWE-XX-XX-D-H-0007

P:\6551\65209842_Beauly_Hub\000\D-Z-0000_Drawings\Route Assessment Drawings\A9 - Dalmore to Ardullie\ 65209842-SWE-XX-XX-D-H-0007.dwg



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KEY TO DRAWING

- WHEEL TRACK EXTENTS
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- EXISTING ROAD EXTENTS
- PROPOSED CARRIAGEWAY WIDENING

IMPORTANT

HEALTH, SAFETY & ENVIRONMENTAL INFORMATION

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REFERENCE RESIDUAL RISK LOG FOR FURTHER DETAILS
REF: 65209642-SWE-XX-XX-T-V-0001

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P01	06/12/2023	FOR COMMENT	MA	RL	CB

2nd Floor, Quay 2
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Tel: +44 (0)131 550 6300
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Client

Project Title

BEAULY HUB
400kV SWITCHING STATION AND HVDC CONVERTOR STATION

Drawing Title

ABNORMAL INDIVISIBLE LOAD ROUTE ASSESSMENT - DALMORE TO ARDULLIE SHEET 3

Purpose Of Issue: PRELIMINARY

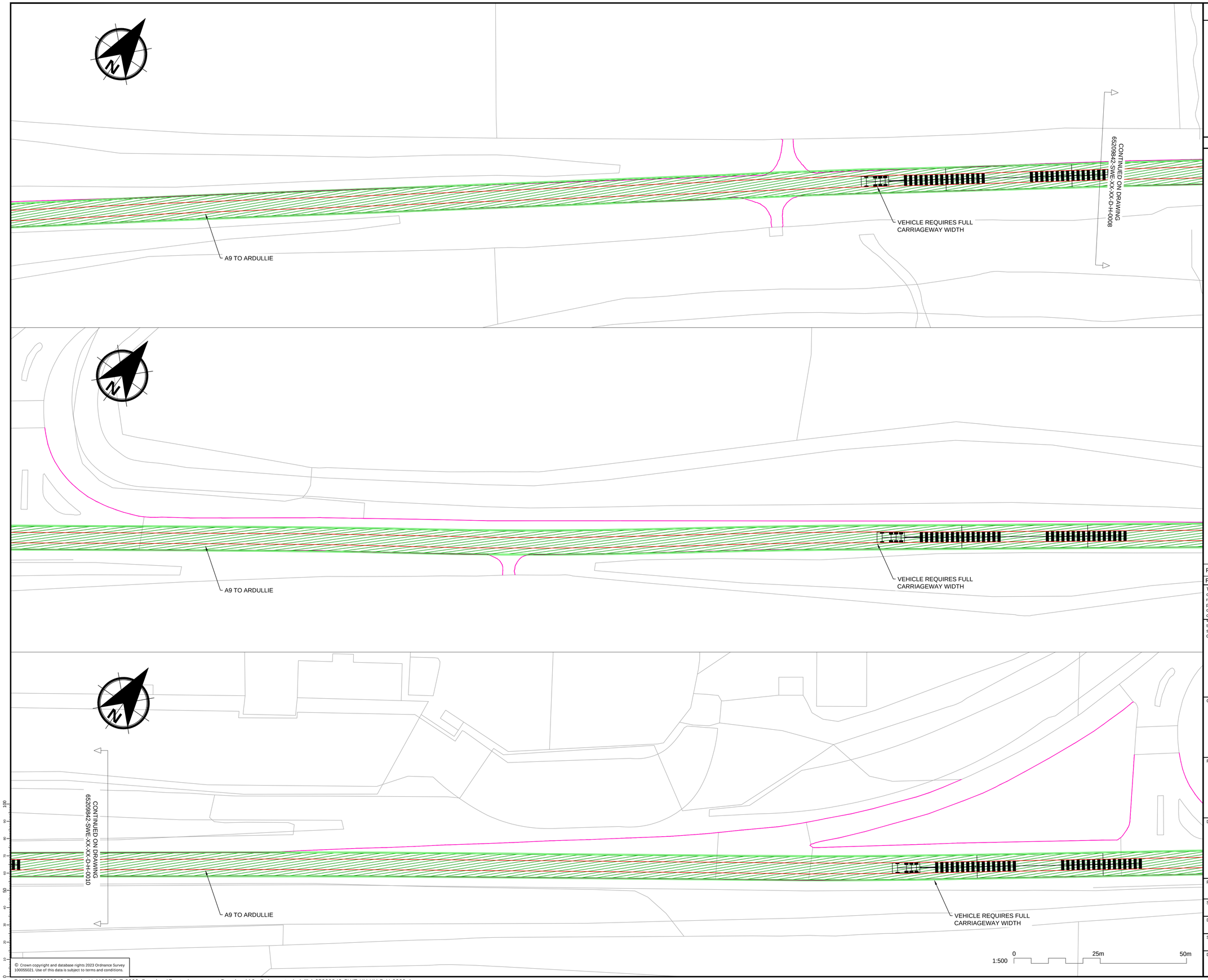
Status	Status Description
S0	INITIAL STATUS OR WIP

Drawn	Designed	Checked	Approved
MA	MA	RL	CB

Sheet Size	Scale	Sweco Ref	Revision
A1	1:500	65209842	P01

Drawing Number

65209842-SWE-XX-XX-D-H-0008



NOTES

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KEY TO DRAWING

- WHEEL TRACK EXTENTS
- VEHICLE OVER SAIL
- EXISTING ROAD EXTENTS
- PROPOSED CARRIAGEWAY WIDENING

IMPORTANT

HEALTH, SAFETY & ENVIRONMENTAL INFORMATION

IN ADDITION TO THE HAZARDS AND RISKS NORMALLY ASSOCIATED WITH THE TYPE OF WORK DETAILED ON THIS DRAWING, PLEASE NOTE THE FOLLOWING SIGNIFICANT RISKS TO HEALTH, SAFETY & ENVIRONMENT

THE SIGNIFICANT RISKS ASSOCIATED WITH THE PROJECT ARE NOTED BELOW

IT IS ASSUMED THAT ALL WORKS SHALL BE UNDERTAKEN BY A COMPETENT CONTRACTOR WORKING WHERE APPROPRIATE TO AN APPROVED SAFE SYSTEM OF WORK

Rev	Date	Amendment Details	Dr'n	Chk'	App'
P01	06/12/2023	FOR COMMENT	MA	RL	CB

Sweco
Atria One
144 Morrison Street
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EH3 9QG
Tel: +44 (0)131 550 6300
Web: www.sweco.co.uk

Client

Scottish & Southern Electricity Networks TRANSMISSION

Project Title

BEAULY HUB
400kV SWITCHING STATION AND HVDC CONVERTOR STATION

Drawing Title

ABNORMAL INDIVISIBLE LOAD ROUTE ASSESSMENT - DALMORE TO ARDULLIE SHEET 4

Purpose Of Issue

PRELIMINARY

Status	Status Description
S0	INITIAL STATUS OR WIP

Drawn	Designed	Checked	Approved
MA	MA	RL	CB

Sheet Size	Scale	Sweco Ref	Revision
A1	1:500	65209842	P01

Drawing Number

65209842-SWE-XX-XX-D-H-0009

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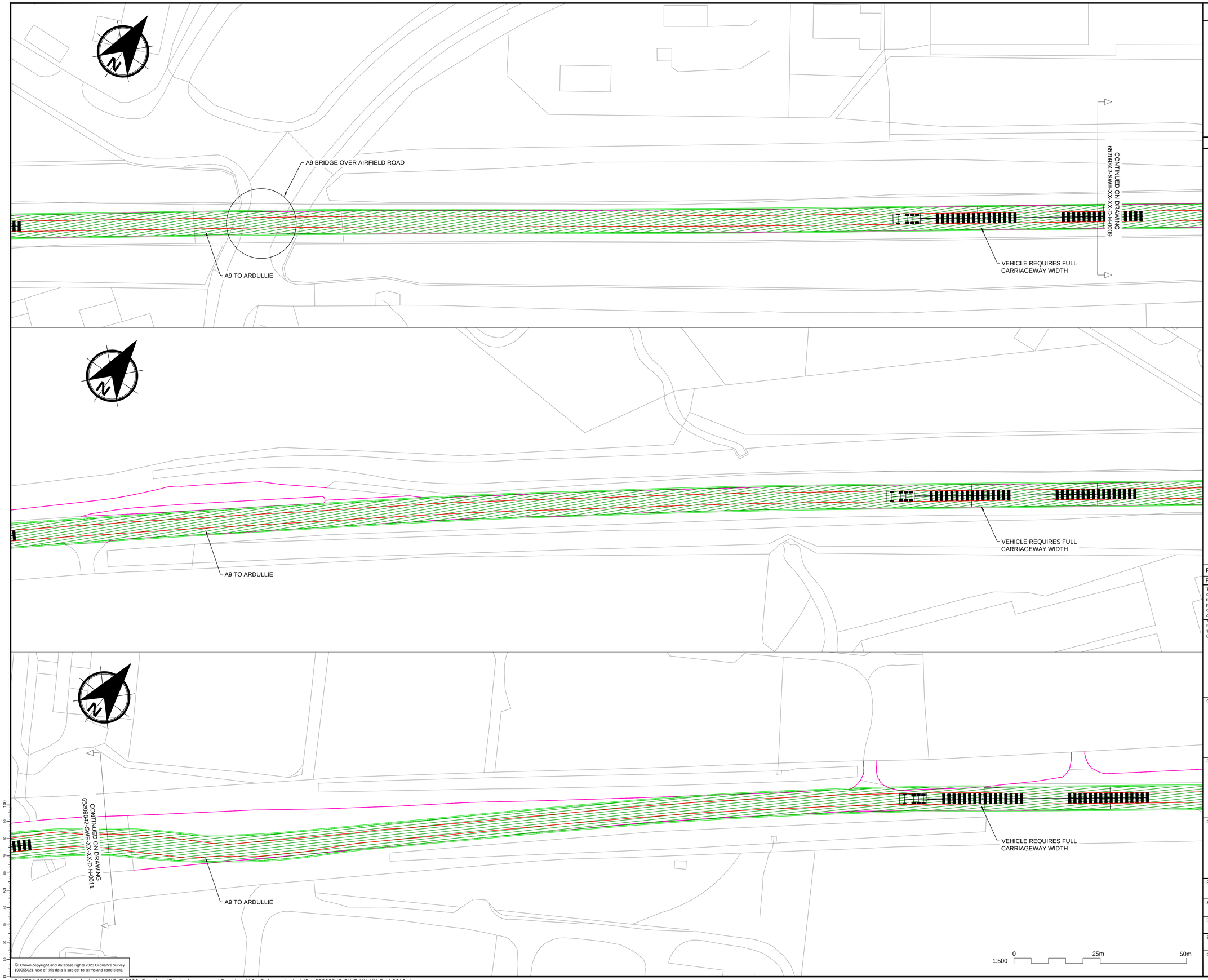

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- VEHICLE OVER SAIL
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IMPORTANT

HEALTH, SAFETY & ENVIRONMENTAL INFORMATION

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Rev	Date	Amendment Details	Dr'n	Chk'	App'
P01	06/12/2023	FOR COMMENT	MA	RL	CB

2nd Floor, Quay 1
139 Fountainbridge
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Web: www.sweco.co.uk

SWECO

Client

Scottish & Southern Electricity Networks TRANSMISSION

Project Title

BEAULY HUB
400kV SWITCHING STATION AND HVDC CONVERTOR STATION

Drawing Title

ABNORMAL INDIVISIBLE LOAD ROUTE ASSESSMENT - DALMORE TO ARDULLIE SHEET 5

Purpose Of Issue

PRELIMINARY

Status	Status Description
S0	INITIAL STATUS OR WIP

Drawn	Designed	Checked	Approved
MA	MA	RL	CB

Sheet Size	Scale	Sweco Ref	Revision
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Drawing Number

65209842-SWE-XX-XX-D-H-0010

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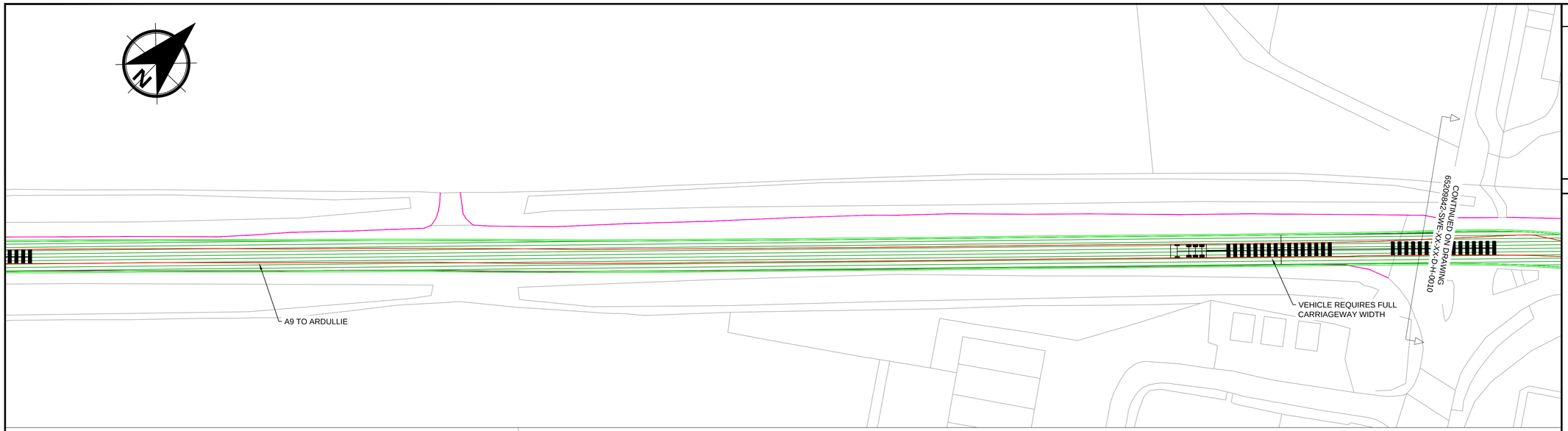

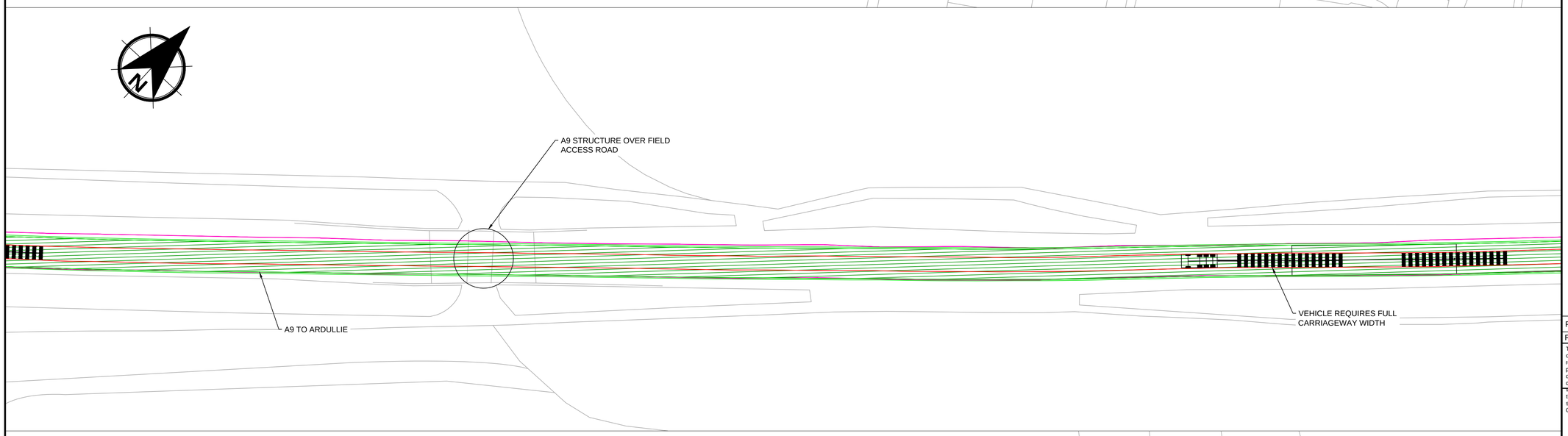

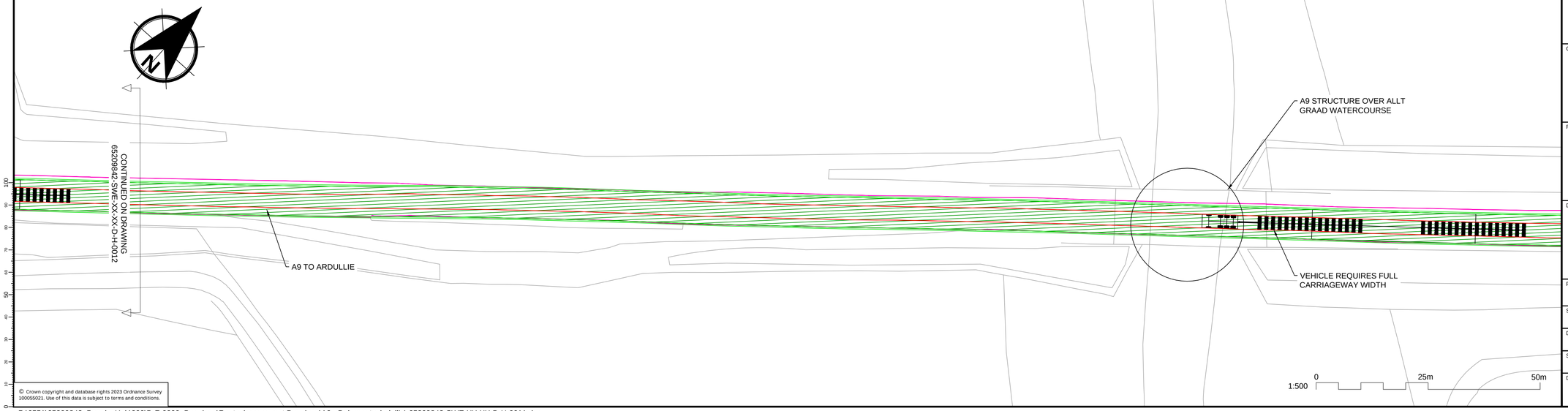

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KEY TO DRAWING

- WHEEL TRACK EXTENTS
- VEHICLE OVER SAIL
- EXISTING ROAD EXTENTS
- PROPOSED CARRIAGEWAY WIDENING

IMPORTANT

HEALTH, SAFETY & ENVIRONMENTAL INFORMATION

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Rev	Date	Amendment Details	Dr'n	Chk'	App'
P01	06/12/2023	FOR COMMENT	MA	RL	CB

2nd Floor, Quay 2
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Tel: +44 (0)131 550 6300
Web: www.sweco.co.uk

Client

Scottish & Southern Electricity Networks TRANSMISSION

Project Title

BEAULY HUB
400kV SWITCHING STATION AND HVDC CONVERTOR STATION

Drawing Title

ABNORMAL INDIVISIBLE LOAD ROUTE ASSESSMENT - DALMORE TO ARDULLIE SHEET 6

Purpose Of Issue

PRELIMINARY

Status	Status Description
S0	INITIAL STATUS OR WIP

Drawn	Designed	Checked	Approved
MA	MA	RL	CB

Sheet Size	Scale	Sweco Ref	Revision
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Drawing Number

65209842-SWE-XX-XX-D-H-0011

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IMPORTANT

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P01	06/12/2023	FOR COMMENT	MA	RL	CB

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Edinburgh
EH3 9QG
Tel: +44 (0)131 550 6300
Web: www.sweco.co.uk

SWECO

Client

Scottish & Southern Electricity Networks
TRANSMISSION

Project Title

BEAULY HUB
400kV SWITCHING STATION AND HVDC CONVERTOR STATION

Drawing Title

ABNORMAL INDIVISIBLE LOAD ROUTE ASSESSMENT - DALMORE TO ARDULLIE SHEET 7

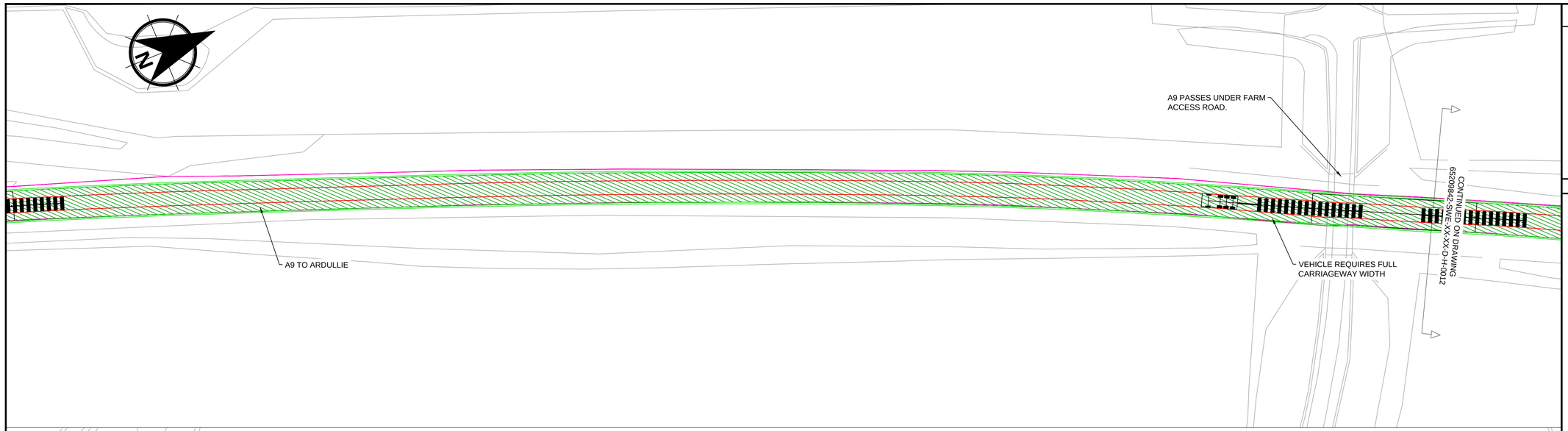
Purpose Of Issue

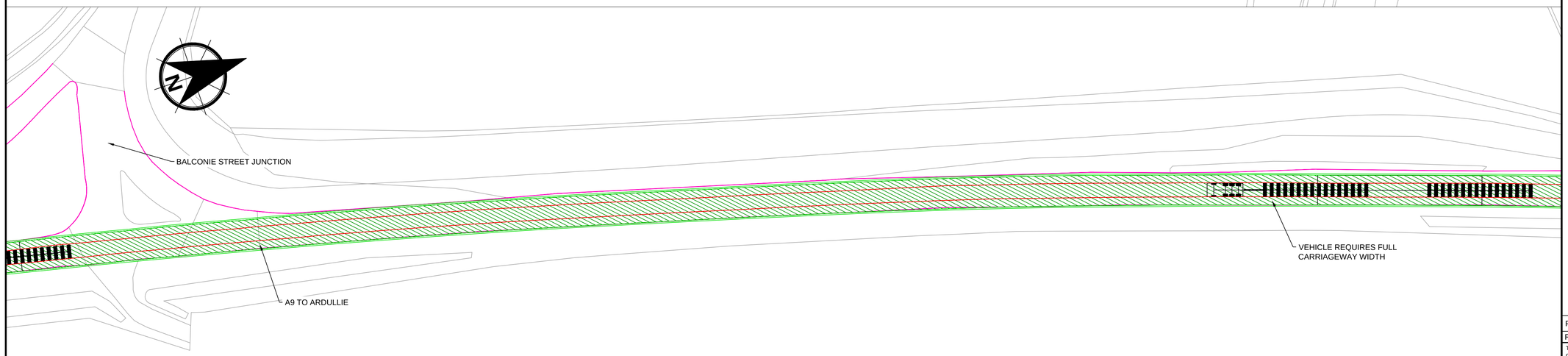
PRELIMINARY

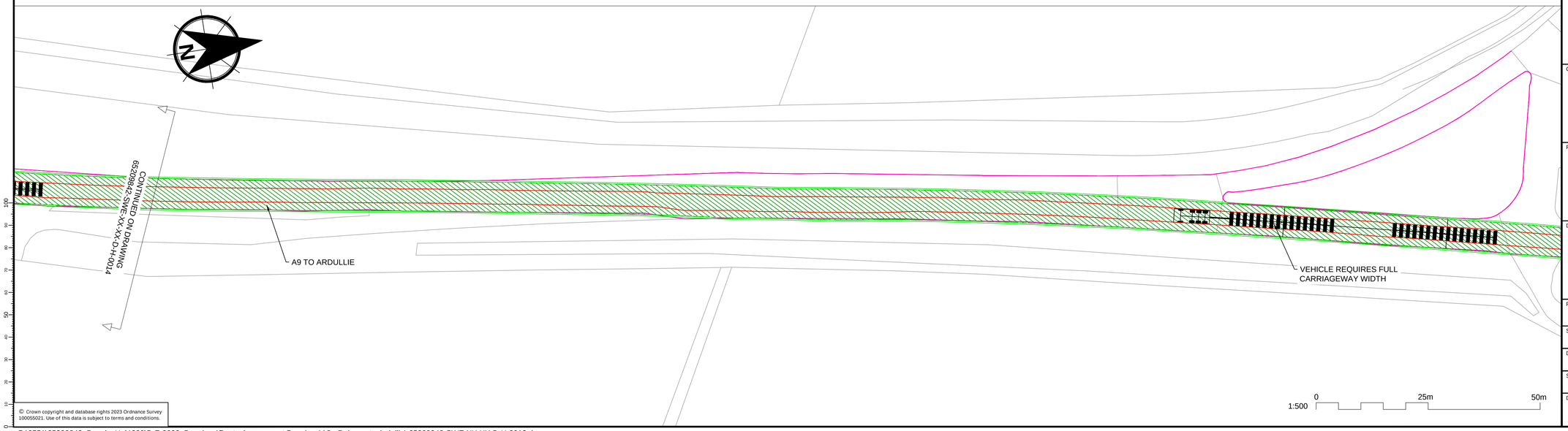
Status	Status Description		
S0	INITIAL STATUS OR WIP		
Drawn	Designed	Checked	Approved
MA	MA	RL	CB
Sheet Size	Scale	Sweco Ref	Revision
A1	1:500	65209842	P01

Drawing Number

65209842-SWE-XX-XX-D-H-0012







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KEY TO DRAWING

- WHEEL TRACK EXTENTS
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- PROPOSED CARRIAGEWAY WIDENING

IMPORTANT

HEALTH, SAFETY & ENVIRONMENTAL INFORMATION

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Rev	Date	Amendment Details	Dr'n	Chk'	App'
P01	06/12/2023	FOR COMMENT	MA	RL	CB

2nd Floor, Quay 2
139 Fountainbridge
Edinburgh
EH3 9QG
Tel: +44 (0)131 550 6300
Web: www.sweco.co.uk

Client: Scottish & Southern Electricity Networks TRANSMISSION

Project Title: BEAULY HUB
400kV SWITCHING STATION AND HVDC CONVERTOR STATION

Drawing Title: ABNORMAL INDIVISIBLE LOAD ROUTE ASSESSMENT - DALMORE TO ARDULLIE SHEET 8

Purpose Of Issue: PRELIMINARY

Status	Status Description
S0	INITIAL STATUS OR WIP

Drawn	Designed	Checked	Approved
MA	MA	RL	CB

Sheet Size	Scale	Sweco Ref	Revision
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Drawing Number: 65209842-SWE-XX-XX-D-H-0013

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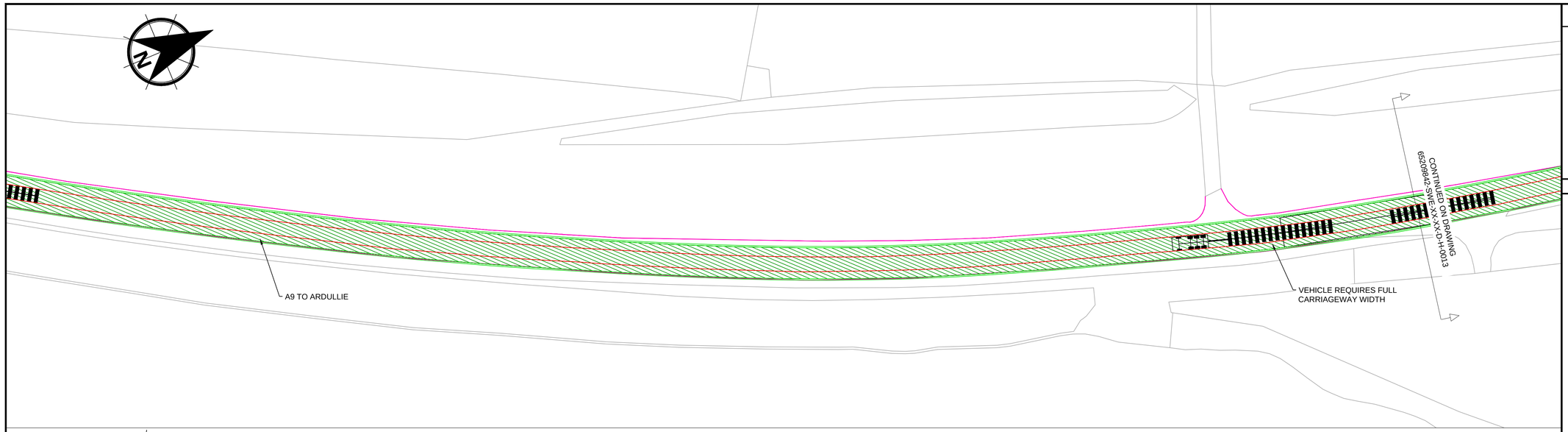

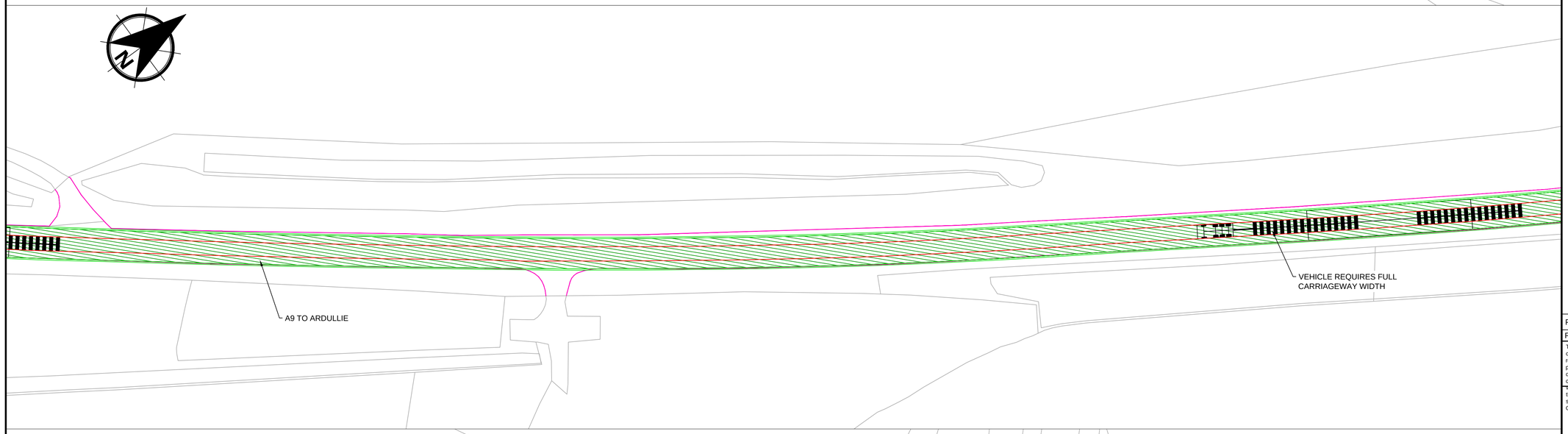

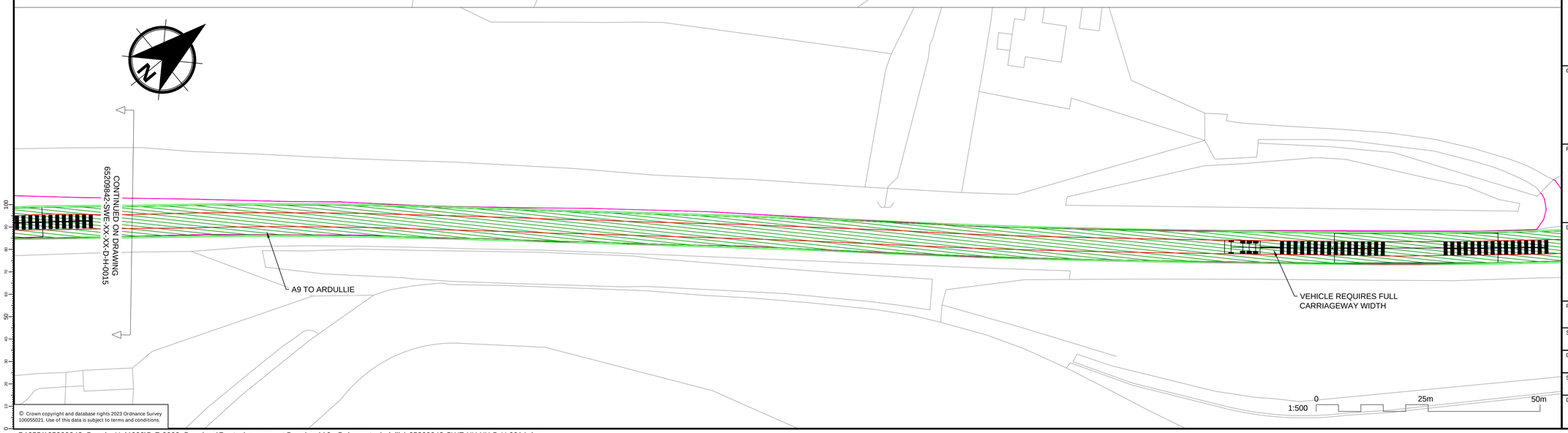

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KEY TO DRAWING

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- VEHICLE OVER SAIL
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- PROPOSED CARRIAGEWAY WIDENING

IMPORTANT

HEALTH, SAFETY & ENVIRONMENTAL INFORMATION

IN ADDITION TO THE HAZARDS AND RISKS NORMALLY ASSOCIATED WITH THE TYPE OF WORK DETAILED ON THIS DRAWING, PLEASE NOTE THE FOLLOWING SIGNIFICANT RISKS TO HEALTH, SAFETY & ENVIRONMENT

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Rev	Date	Amendment Details	Dr'n	Chk'	App'
P01	06/12/2023	FOR COMMENT	MA	RL	CB

2nd Floor, Quartermile One
15 Lauriston Place
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EH3 9QG
Tel: +44 (0)131 550 6300
Web: www.sweco.co.uk

Client: Scottish & Southern Electricity Networks TRANSMISSION

Project Title: BEAULY HUB
400kV SWITCHING STATION AND HVDC CONVERTOR STATION

Drawing Title: ABNORMAL INDIVISIBLE LOAD ROUTE ASSESSMENT - DALMORE TO ARDULLIE SHEET 9

Purpose Of Issue: PRELIMINARY

Status	Status Description
S0	INITIAL STATUS OR WIP

Drawn	Designed	Checked	Approved
MA	MA	RL	CB

Sheet Size	Scale	Sweco Ref	Revision
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Drawing Number: 65209842-SWE-XX-XX-D-H-0014

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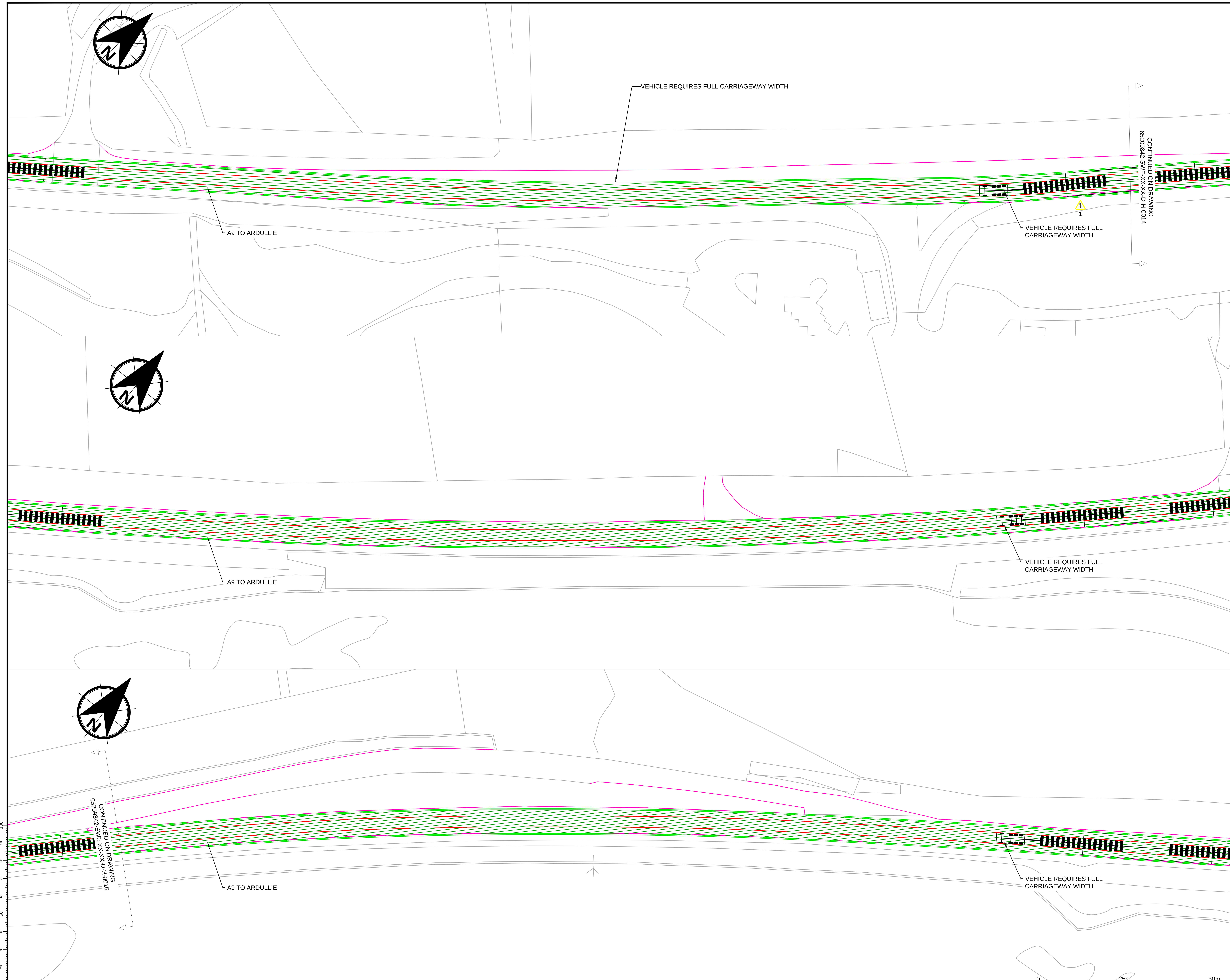

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IMPORTANT

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REF:

REF	RISK
1	OVERHEAD ELECTRICAL LINE IN CLOSE PROXIMITY TO CARRIAGEWAY.

REFERENCE RESIDUAL RISK LOG FOR FURTHER DETAILS
REF: 65209842-SWE-XX-XX-T-V-0001

IT IS ASSUMED THAT ALL WORKS SHALL BE UNDERTAKEN BY A COMPETENT CONTRACTOR WORKING WHERE APPROPRIATE TO AN APPROVED SAFE SYSTEM OF WORK

Rev	Date	Amendment Details	Dr'n	Chk'	App'
P01	06/12/2023	FOR COMMENT	MA	RL	CB

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Web: www.sweco.co.uk

Client

Project Title

BEAULY HUB
400kV SWITCHING STATION AND HVDC CONVERTOR STATION

Drawing Title

ABNORMAL INDIVISIBLE LOAD ROUTE ASSESSMENT - DALMORE TO ARDULLIE
SHEET 10

Purpose Of Issue

PRELIMINARY

Status	Status Description
S0	INITIAL STATUS OR WIP

Drawn	Designed	Checked	Approved
MA	MA	RL	CB

Sheet Size	Scale	Sweco Ref	Revision
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Drawing Number

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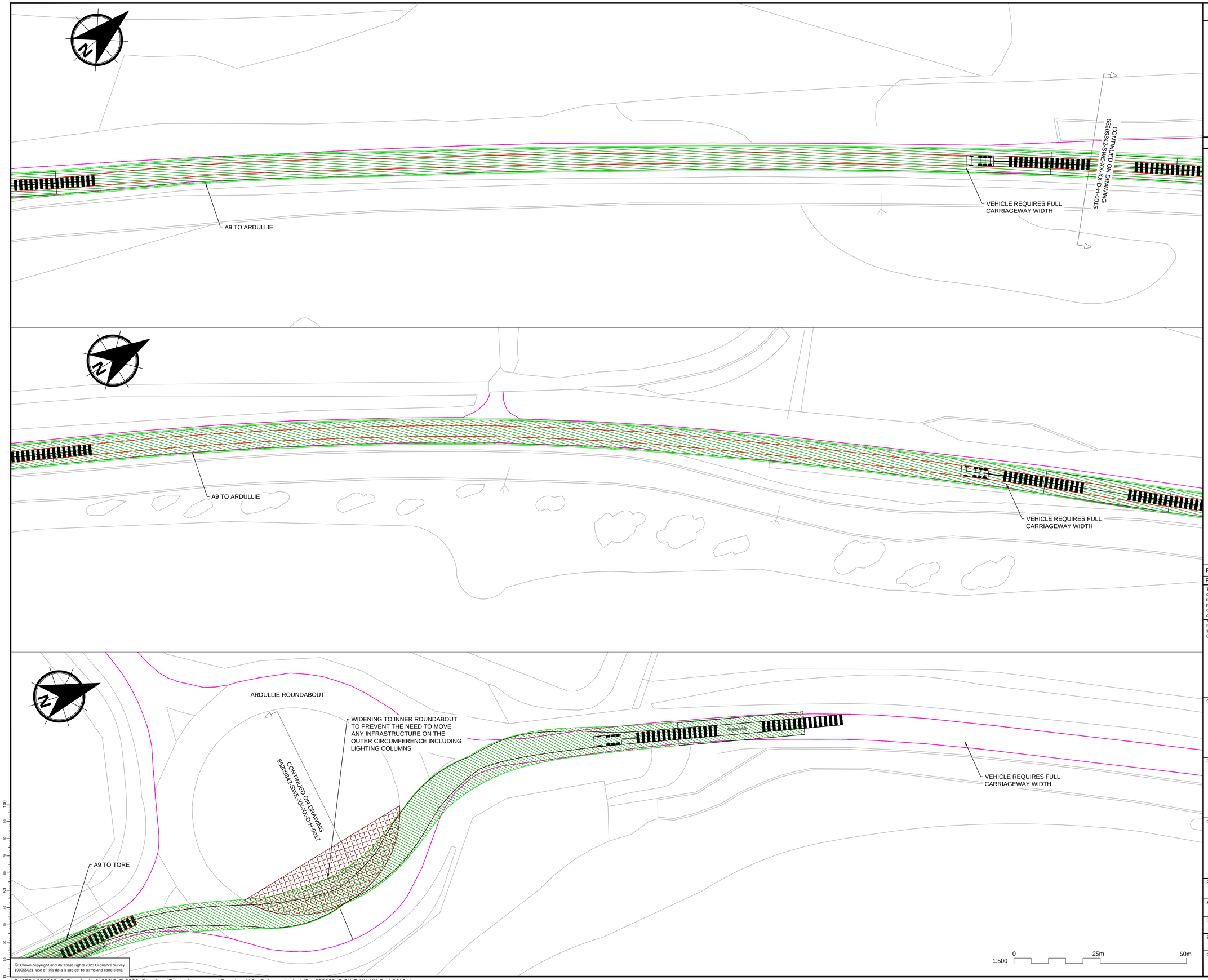

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P01	06/12/2023	FOR COMMENT	MA	RL	CB

Sweco
2nd Floor, Quay 2
139 Fountainbridge
Edinburgh
EH3 9QG
Tel: +44 (0)131 550 6300
Web: www.sweco.co.uk

Client: Scottish & Southern Electricity Networks TRANSMISSION

Project Title: BEAULY HUB
400kV SWITCHING STATION AND HVDC CONVERTOR STATION

Drawing Title: ABNORMAL INDIVISIBLE LOAD ROUTE ASSESSMENT - DALMORE TO ARDULLIE SHEET 11

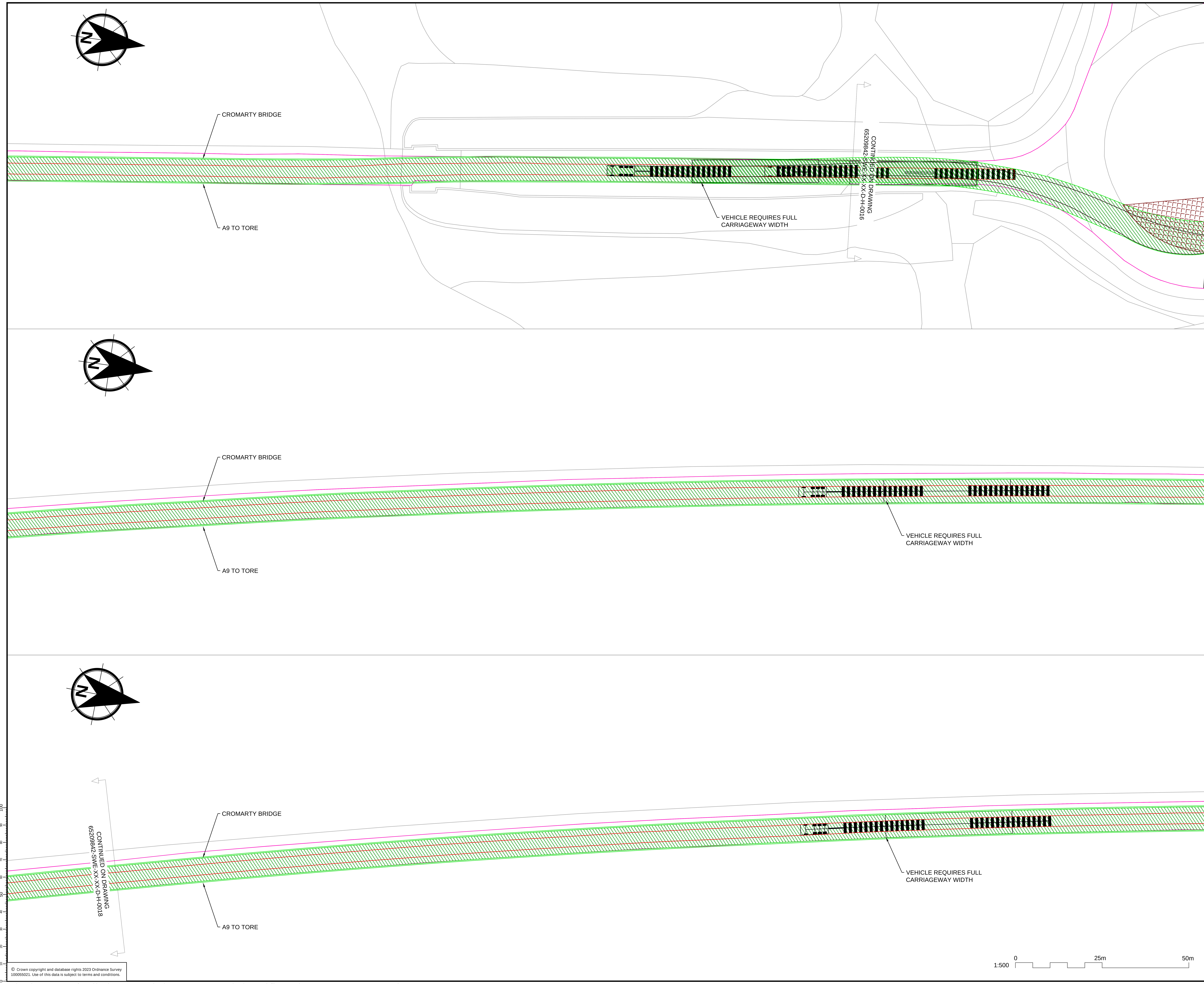
Purpose Of Issue: PRELIMINARY

Status	Status Description
S0	INITIAL STATUS OR WIP

Drawn	Designed	Checked	Approved
MA	MA	RL	CB

Sheet Size	Scale	Sweco Ref	Revision
A1	1:500	65209842	P01

Drawing Number: 65209842-SWE-XX-XX-D-H-0016



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IMPORTANT

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Rev	Date	Amendment Details	Dr'n	Chk'	App'
P01	06/12/2023	FOR COMMENT	MA	RL	CB

3rd Floor, Quay 2
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Web: www.sweco.co.uk

SWECO

Client

Scottish & Southern Electricity Networks TRANSMISSION

Project Title

BEAULY HUB
400kV SWITCHING STATION AND HVDC CONVERTOR STATION

Drawing Title

ABNORMAL INDIVISIBLE LOAD ROUTE ASSESSMENT - ARDULLIE TO TORE
SHEET 1

Purpose Of Issue			
PRELIMINARY			
Status: S0	Status Description: INITIAL STATUS OR WIP		
Drawn: MA	Designed: MA	Checked: RL	Approved: CB
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Drawing Number

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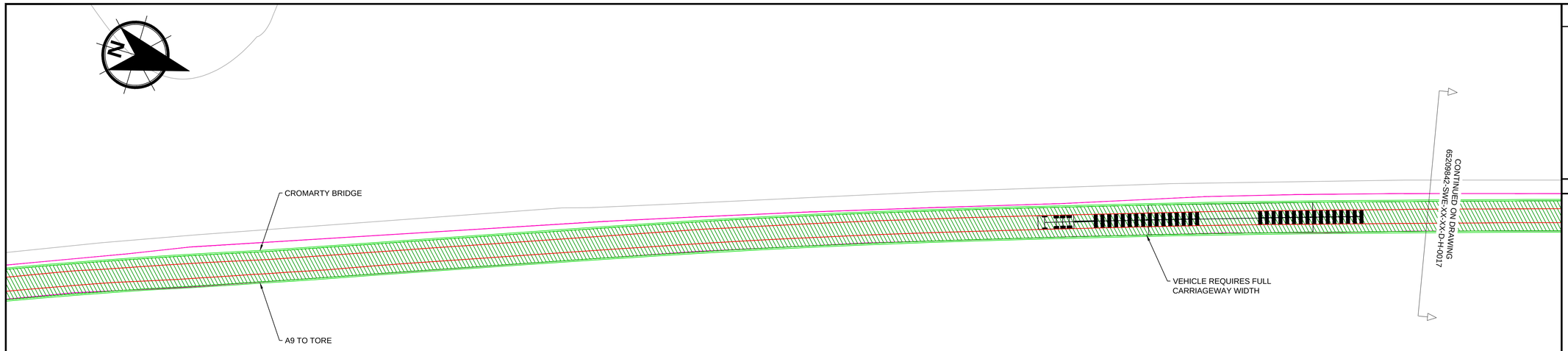

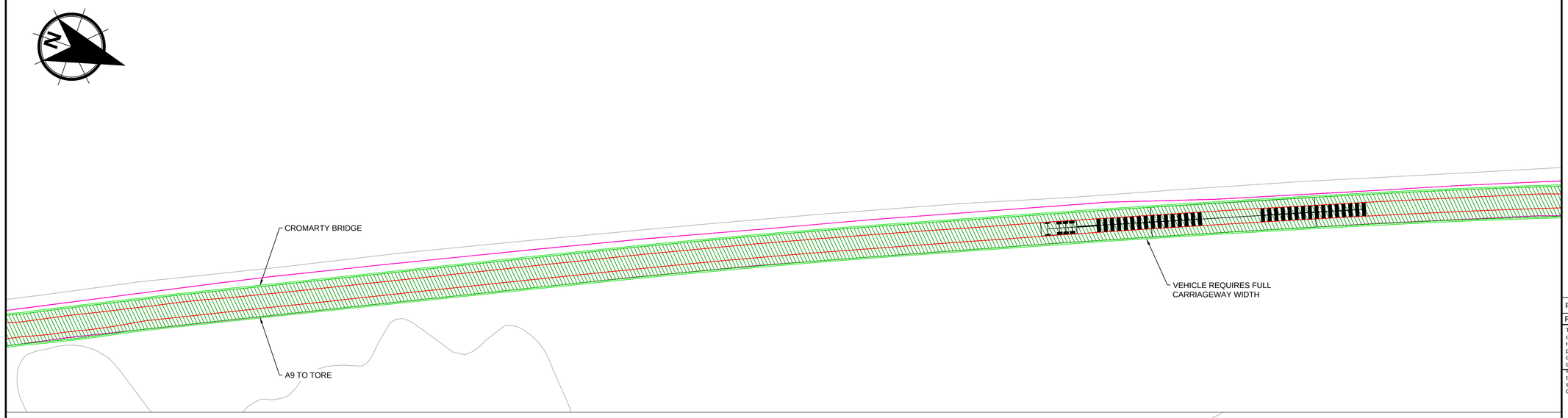

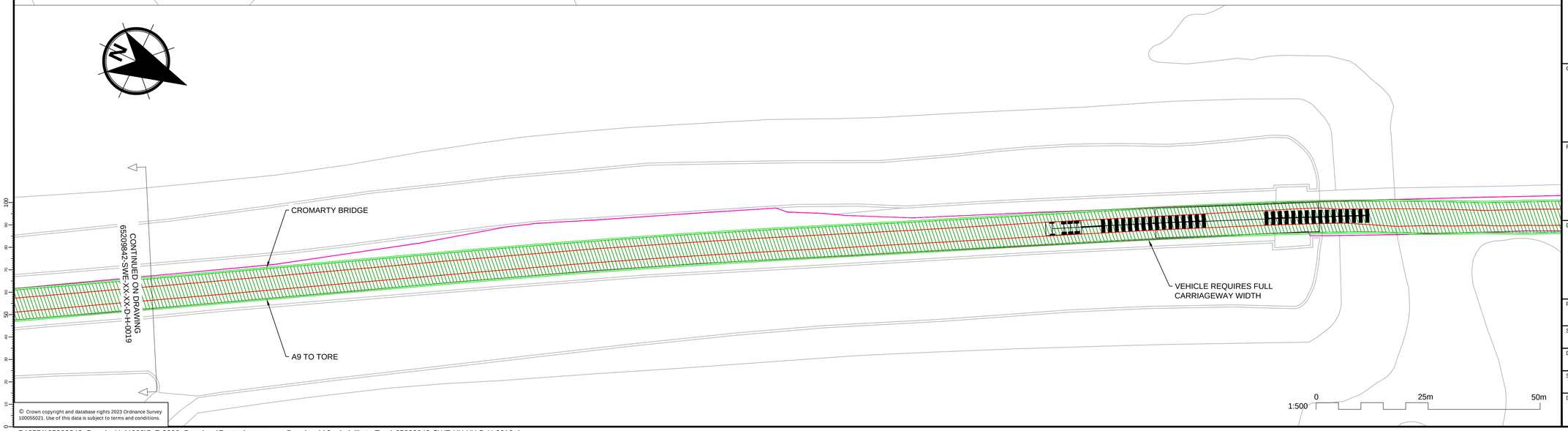

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3. ALL DATUM LEVELS ARE IN METRES AND DIMENSIONS ARE IN METRES (m) UNLESS OTHERWISE STATED.

KEY TO DRAWING

- WHEEL TRACK EXTENTS
- VEHICLE OVER SAIL
- EXISTING ROAD EXTENTS
- PROPOSED CARRIAGEWAY WIDENING

IMPORTANT

HEALTH, SAFETY & ENVIRONMENTAL INFORMATION

IN ADDITION TO THE HAZARDS AND RISKS NORMALLY ASSOCIATED WITH THE TYPE OF WORK DETAILED ON THIS DRAWING, PLEASE NOTE THE FOLLOWING SIGNIFICANT RISKS TO HEALTH, SAFETY & ENVIRONMENT

THE SIGNIFICANT RISKS ASSOCIATED WITH THE PROJECT ARE NOTED BELOW

NO SIGNIFICANT HAZARDS IDENTIFIED

IT IS ASSUMED THAT ALL WORKS SHALL BE UNDERTAKEN BY A COMPETENT CONTRACTOR WORKING WHERE APPROPRIATE TO AN APPROVED SAFE SYSTEM OF WORK

Rev	Date	Amendment Details	Dr'n	Chk'	App'
P01	06/12/2023	FOR COMMENT	MA	RL	CB

2nd Floor, Quartermile One
15 Lauriston Place
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EH3 9QG
Tel: +44 (0)131 550 6300
Web: www.sweco.co.uk

Client: Scottish & Southern Electricity Networks TRANSMISSION

Project Title: BEAULY HUB
400kV SWITCHING STATION AND HVDC CONVERTOR STATION

Drawing Title: ABNORMAL INDIVISIBLE LOAD ROUTE ASSESSMENT - ARDULLIE TO TORE SHEET 2

Purpose Of Issue: PRELIMINARY

Status	Status Description
S0	INITIAL STATUS OR WIP

Drawn	Designed	Checked	Approved
MA	MA	RL	CB

Sheet Size	Scale	Sweco Ref	Revision
A1	1:500	65209842	P01

Drawing Number: 65209842-SWE-XX-XX-D-H-0018

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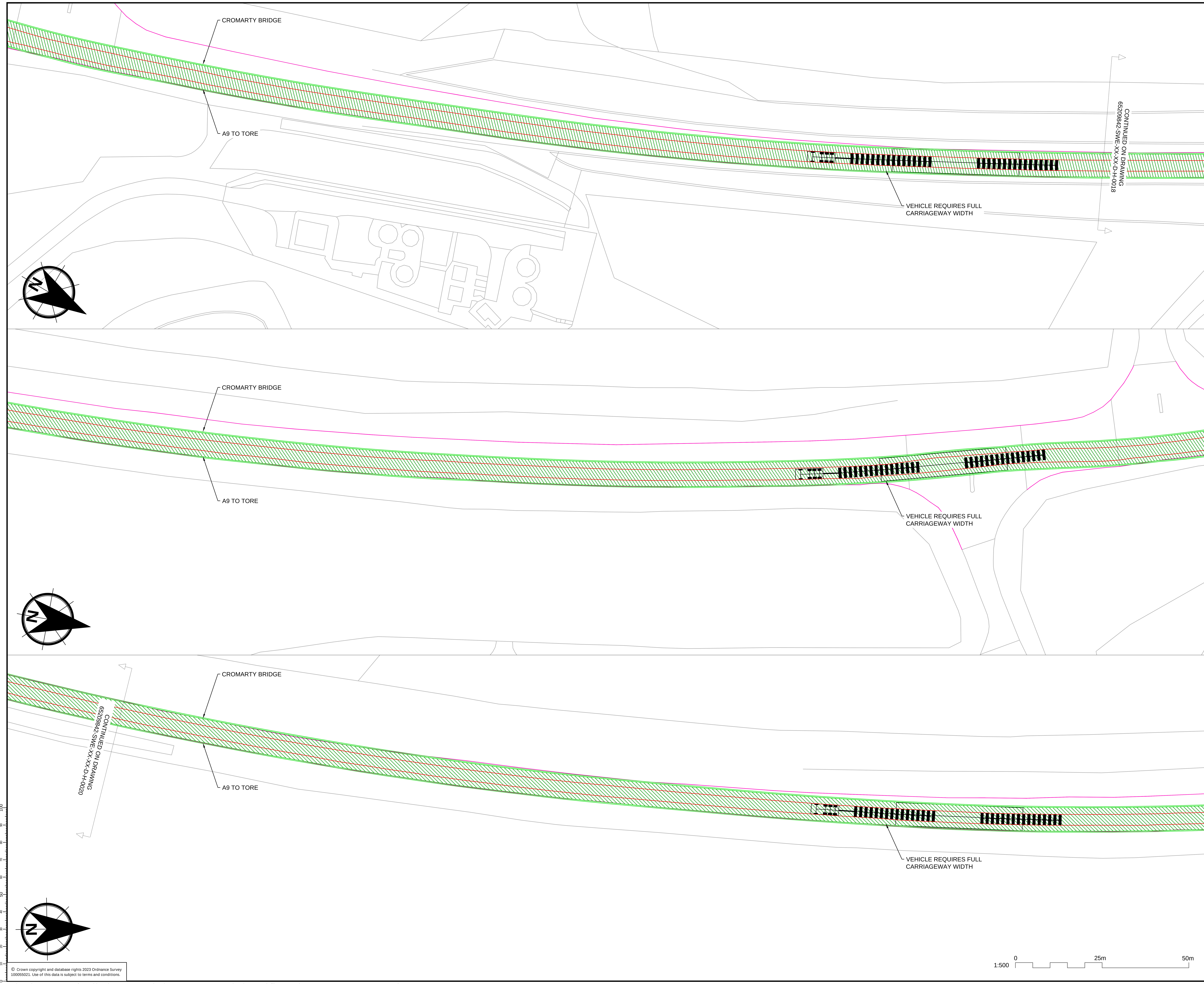

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NOTES

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KEY TO DRAWING

- WHEEL TRACK EXTENTS
- VEHICLE OVER SAIL
- EXISTING ROAD EXTENTS
- PROPOSED CARRIAGEWAY WIDENING

IMPORTANT

HEALTH, SAFETY & ENVIRONMENTAL INFORMATION

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P01	06/12/2023	FOR COMMENT	MA	RL	CB
Rev	Date	Amendment Details	Dr'n	Chk'	App'

2nd Floor, Quay 2
139 Fountainbridge
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Tel: +44 (0)131 550 6300
Web: www.sweco.co.uk

SWECO

Client

Scottish & Southern Electricity Networks
TRANSMISSION

Project Title

BEAULY HUB
400kV SWITCHING STATION AND HVDC CONVERTOR STATION

Drawing Title

ABNORMAL INDIVISIBLE LOAD ROUTE ASSESSMENT - ARDULLIE TO TORE SHEET 3

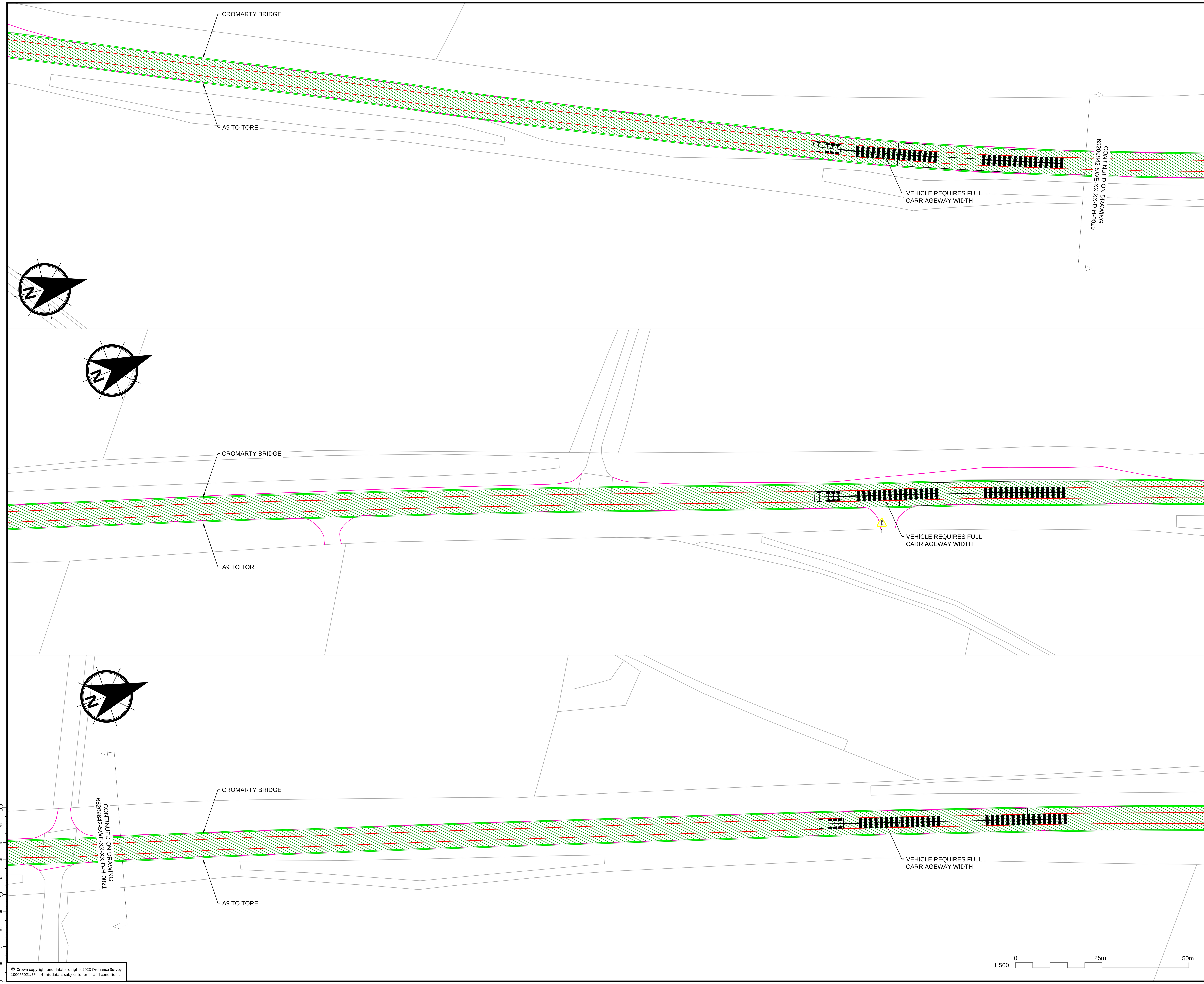
Purpose Of Issue

PRELIMINARY

Status	Status Description		
S0	INITIAL STATUS OR WIP		
Drawn	Designed	Checked	Approved
MA	MA	RL	CB
Sheet Size	Scale	Sweco Ref	Revision
A1	1:500	65209842	P01

Drawing Number

65209842-SWE-XX-XX-D-H-0019



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KEY TO DRAWING

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- VEHICLE OVER SAIL
- EXISTING ROAD EXTENTS
- PROPOSED CARRIAGEWAY WIDENING

IMPORTANT

HEALTH, SAFETY & ENVIRONMENTAL INFORMATION

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THE SIGNIFICANT RISKS ASSOCIATED WITH THE PROJECT ARE NOTED BELOW

REF:

1 OVERHEAD ELECTRICAL LINES PASS OVER THE A9.

REFERENCE RESIDUAL RISK LOG FOR FURTHER DETAILS
REF: 65209642-SWE-XX-XX-T-V-0001

IT IS ASSUMED THAT ALL WORKS SHALL BE UNDERTAKEN BY A COMPETENT CONTRACTOR WORKING WHERE APPROPRIATE TO AN APPROVED SAFE SYSTEM OF WORK

Rev	Date	Amendment Details	Dr'n	Chk'	App'
P01	06/12/2023	FOR COMMENT	MA	RL	CB

2nd Floor, Quay 2
139 Fountainbridge
Edinburgh
EH3 9QG
Tel: +44 (0)131 550 6300
Web: www.sweco.co.uk

Client: Scottish & Southern Electricity Networks TRANSMISSION

Project Title
BEAULY HUB 400kV SWITCHING STATION AND HVDC CONVERTOR STATION

Drawing Title
ABNORMAL INDIVISIBLE LOAD ROUTE ASSESSMENT - ARDULLIE TO TORE SHEET 4

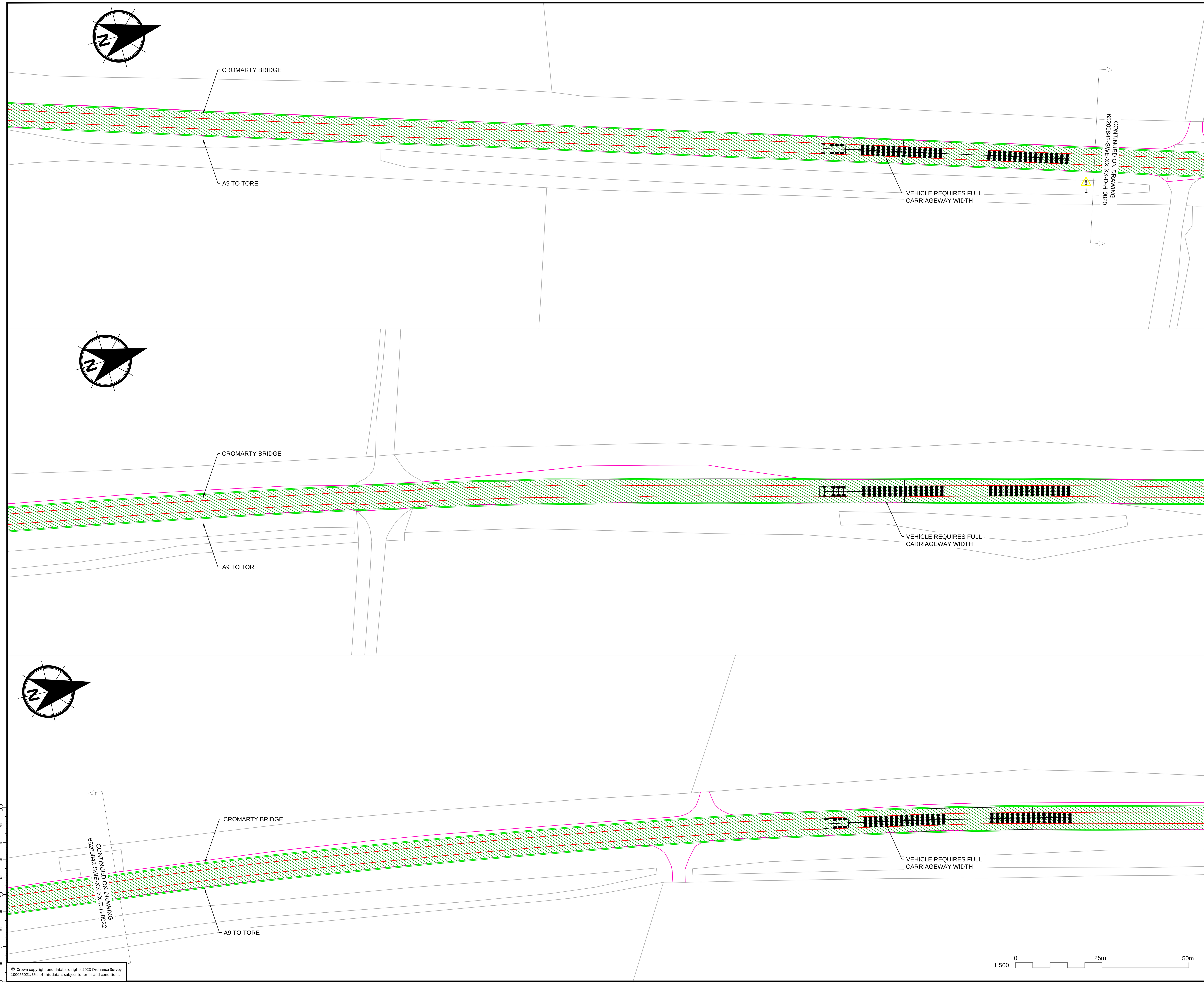
Purpose Of Issue: PRELIMINARY

Status	Status Description
S0	INITIAL STATUS OR WIP

Drawn	Designed	Checked	Approved
MA	MA	RL	CB

Sheet Size	Scale	Sweco Ref	Revision
A1	1:500	65209842	P01

Drawing Number
65209842-SWE-XX-XX-D-H-0020



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KEY TO DRAWING

- WHEEL TRACK EXTENTS
- VEHICLE OVER SAIL
- EXISTING ROAD EXTENTS
- PROPOSED CARRIAGEWAY WIDENING

IMPORTANT

HEALTH, SAFETY & ENVIRONMENTAL INFORMATION

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REF:

1 OVERHEAD ELECTRICAL LINES PASS OVER THE A9.

REFERENCE RESIDUAL RISK LOG FOR FURTHER DETAILS REF: 65209642-SWE-XX-XX-T-V-0001

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Rev	Date	Amendment Details	Dr'n	Chk'	App'
P01	06/12/2023	FOR COMMENT	MA	RL	CB

2nd Floor, Quay 2
139 Fountainbridge
Edinburgh
EH3 9QG
Tel: +44 (0)131 550 6300
Web: www.sweco.co.uk

Client

Project Title

BEAULY HUB
400kV SWITCHING STATION AND HVDC CONVERTOR STATION

Drawing Title

ABNORMAL INDIVISIBLE LOAD ROUTE ASSESSMENT - ARDULLIE TO TORE SHEET 5

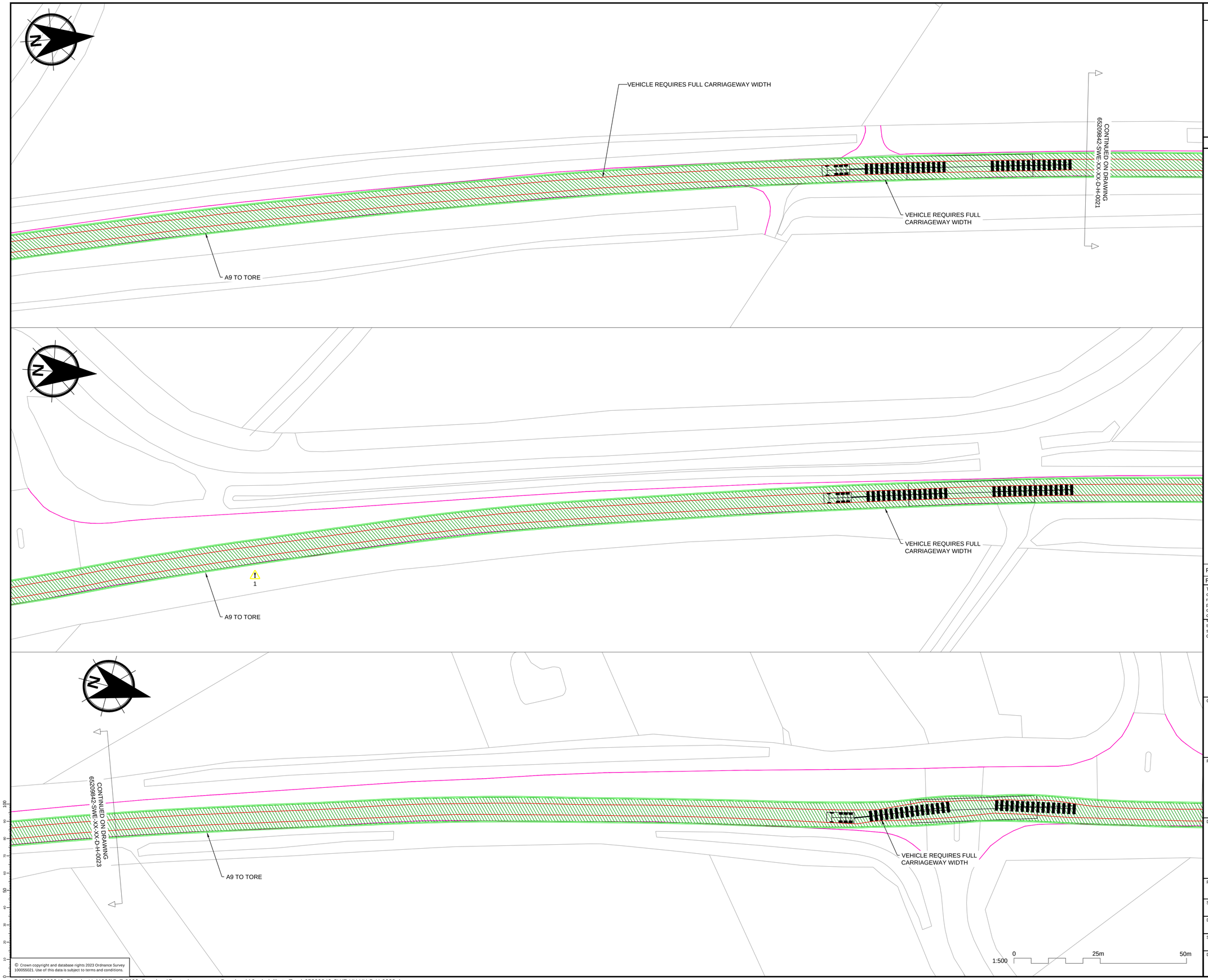
Purpose Of Issue

PRELIMINARY

Status	Status Description		
S0	INITIAL STATUS OR WIP		
Drawn	Designed	Checked	Approved
MA	MA	RL	CB
Sheet Size	Scale	Sweco Ref	Revision
A1	1:500	65209842	P01

Drawing Number

65209842-SWE-XX-XX-D-H-0021



NOTES

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KEY TO DRAWING

- WHEEL TRACK EXTENTS
- VEHICLE OVER SAIL
- EXISTING ROAD EXTENTS
- PROPOSED CARRIAGEWAY WIDENING

IMPORTANT

HEALTH, SAFETY & ENVIRONMENTAL INFORMATION

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THE SIGNIFICANT RISKS ASSOCIATED WITH THE PROJECT ARE NOTED BELOW

REF:

1	OVERHEAD ELECTRICAL LINES PASS OVER THE A9.

REFERENCE RESIDUAL RISK LOG FOR FURTHER DETAILS
REF: 65209642-SWE-XX-XX-T-V-0001

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Rev	Date	Amendment Details	Dr'n	Chk'	App'
P01	06/12/2023	FOR COMMENT	MA	RL	CB

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Fountainbridge
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EH3 9QG
Tel: +44 (0)131 550 6300
Web: www.sweco.co.uk

SWECO

Client

Scottish & Southern Electricity Networks
TRANSMISSION

Project Title

BEAULY HUB
400kV SWITCHING STATION AND HVDC CONVERTOR STATION

Drawing Title

ABNORMAL INDIVISIBLE LOAD ROUTE ASSESSMENT - ARDULLIE TO TORE
SHEET 6

Purpose Of Issue

PRELIMINARY

Status	Status Description
S0	INITIAL STATUS OR WIP

Drawn	Designed	Checked	Approved
MA	MA	RL	CB

Sheet Size	Scale	Sweco Ref	Revision
A1	1:500	65209842	P01

Drawing Number

65209842-SWE-XX-XX-D-H-0022

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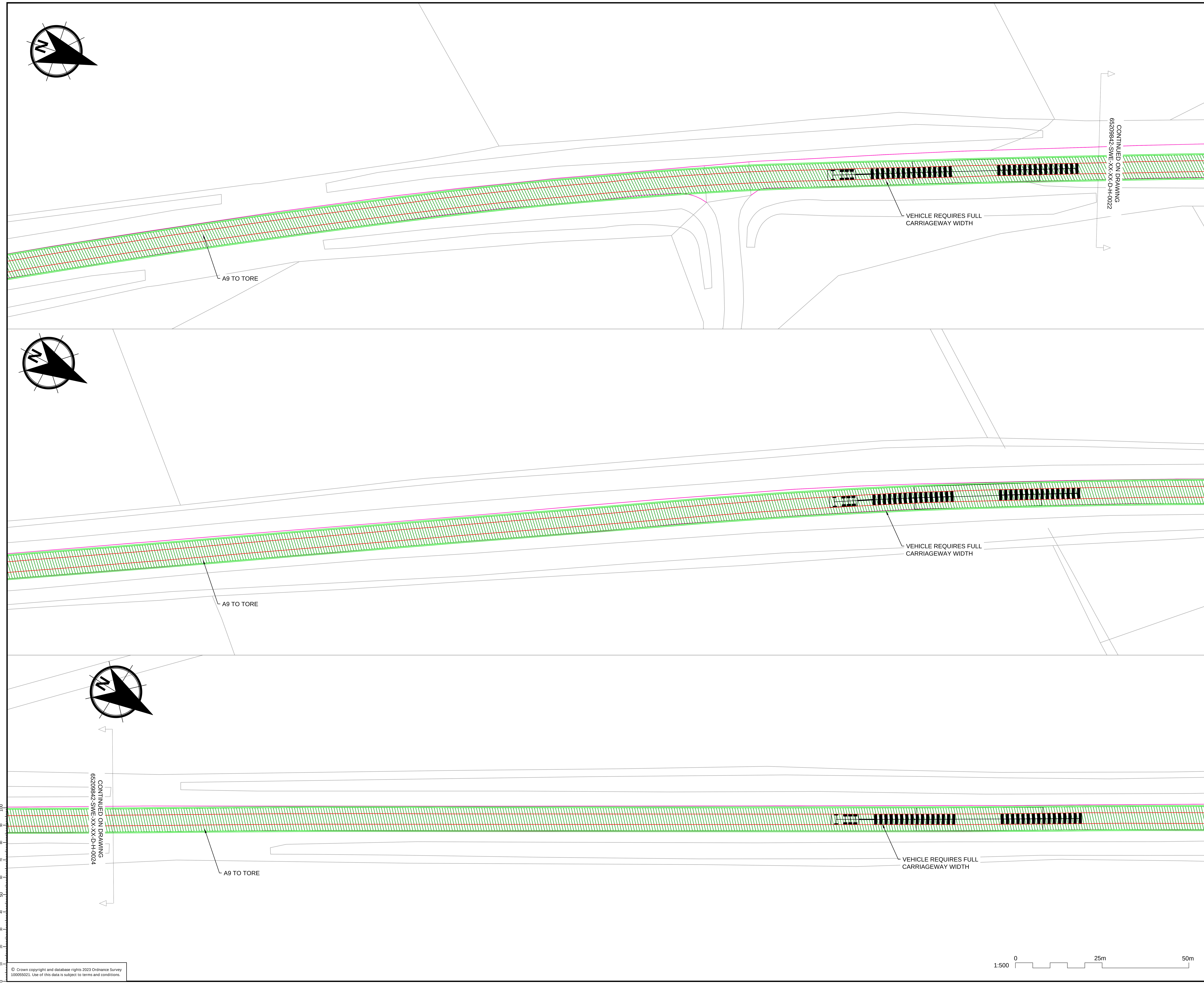

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KEY TO DRAWING

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- VEHICLE OVER SAIL
- EXISTING ROAD EXTENTS
- PROPOSED CARRIAGEWAY WIDENING

IMPORTANT

HEALTH, SAFETY & ENVIRONMENTAL INFORMATION

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Rev	Date	Amendment Details	Dr'n	Chk'	App'
P01	06/12/2023	FOR COMMENT	MA	RL	CB

139 Fountainbridge
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Tel: +44 (0)131 550 6300
Web: www.sweco.co.uk

SWECO

Client

Scottish & Southern Electricity Networks
TRANSMISSION

Project Title

BEAULY HUB
400kV SWITCHING STATION AND HVDC CONVERTOR STATION

Drawing Title

ABNORMAL INDIVISIBLE LOAD ROUTE ASSESSMENT - ARDULLIE TO TORE SHEET 7

Purpose Of Issue

PRELIMINARY

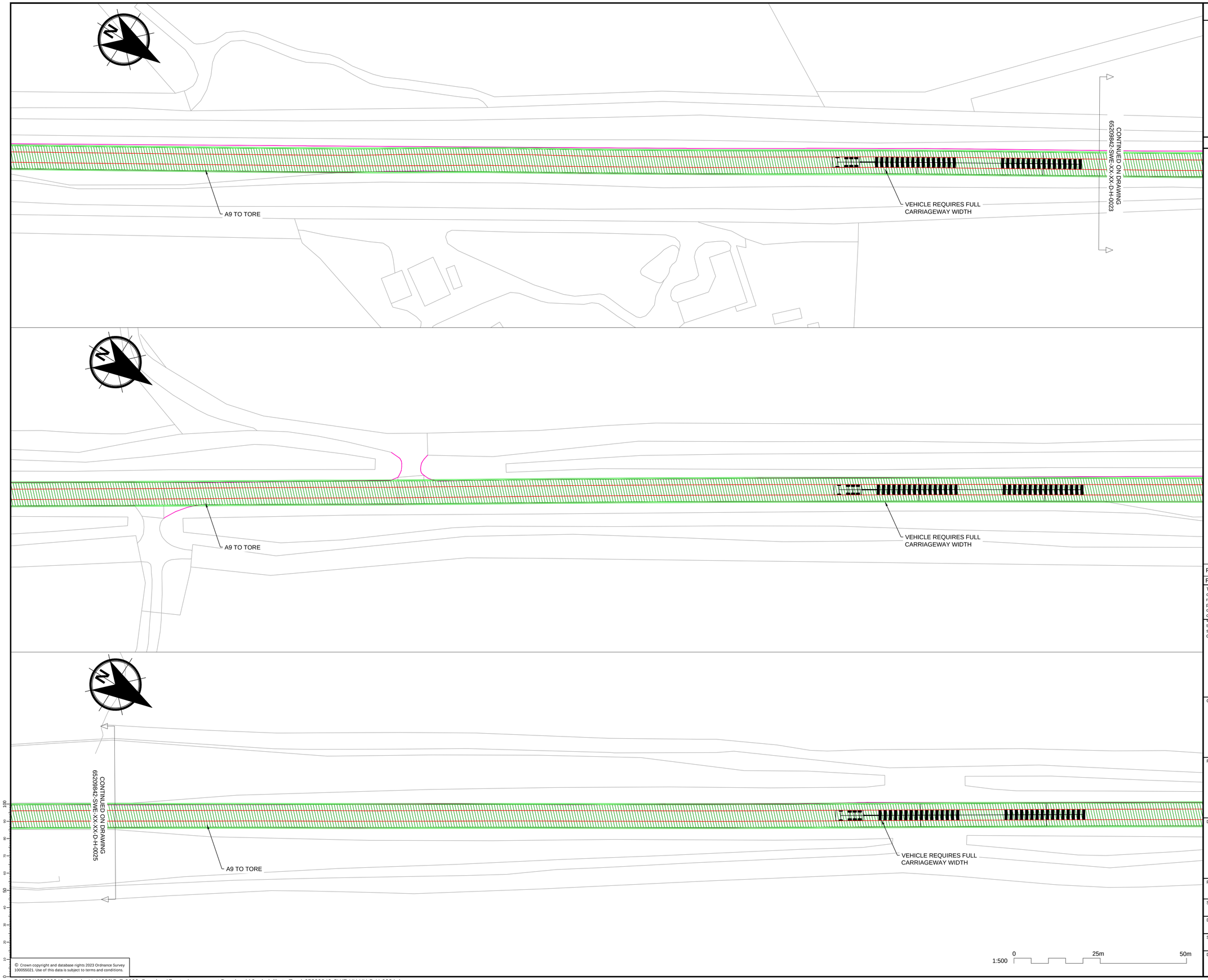
Status	Status Description
S0	INITIAL STATUS OR WIP

Drawn	Designed	Checked	Approved
MA	MA	RL	CB

Sheet Size	Scale	Sweco Ref	Revision
A1	1:500	65209842	P01

Drawing Number

65209842-SWE-XX-XX-D-H-0023



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KEY TO DRAWING

- WHEEL TRACK EXTENTS
- VEHICLE OVER SAIL
- EXISTING ROAD EXTENTS
- PROPOSED CARRIAGEWAY WIDENING

IMPORTANT

HEALTH, SAFETY & ENVIRONMENTAL INFORMATION

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Rev	Date	Amendment Details	Dr'n	Chk'	App'
P01	06/12/2023	FOR COMMENT	MA	RL	CB

Sweco
Atholl Exchange
6 Canning Street
Edinburgh
EH3 9QG
Tel: +44 (0)131 550 6300
Web: www.sweco.co.uk

Client: Scottish & Southern Electricity Networks TRANSMISSION

Project Title
BEAULY HUB
400kV SWITCHING STATION AND HVDC CONVERTOR STATION

Drawing Title
ABNORMAL INDIVISIBLE LOAD ROUTE ASSESSMENT - ARDULLIE TO TORE
SHEET 8

Purpose Of Issue
PRELIMINARY

Status	Status Description
S0	INITIAL STATUS OR WIP

Drawn	Designed	Checked	Approved
MA	MA	RL	CB

Sheet Size	Scale	Sweco Ref	Revision
A1	1:500	65209842	P01

Drawing Number
65209842-SWE-XX-XX-D-H-0024

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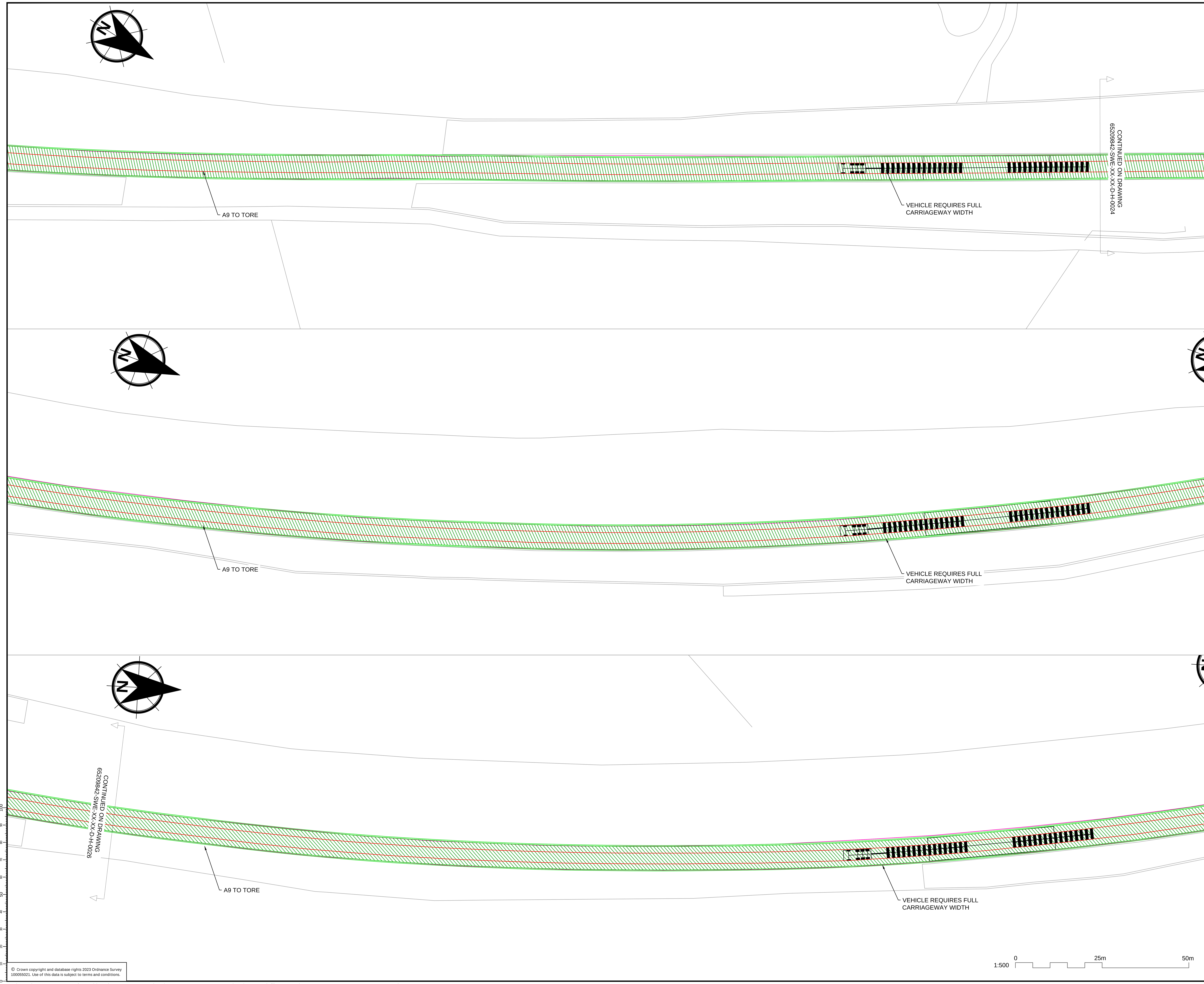

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Rev	Date	Amendment Details	Dr'n	Chk'	App'
P01	06/12/2023	FOR COMMENT	MA	RL	CB

2nd Floor, Quay 2
139 Fountainbridge
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Tel: +44 (0)131 550 6300
Web: www.sweco.co.uk

Client

Project Title

BEAUTY HUB

Drawing Title

ABNORMAL INDIVISIBLE LOAD ROUTE ASSESSMENT - ARDULLIE TO TORE SHEET 9

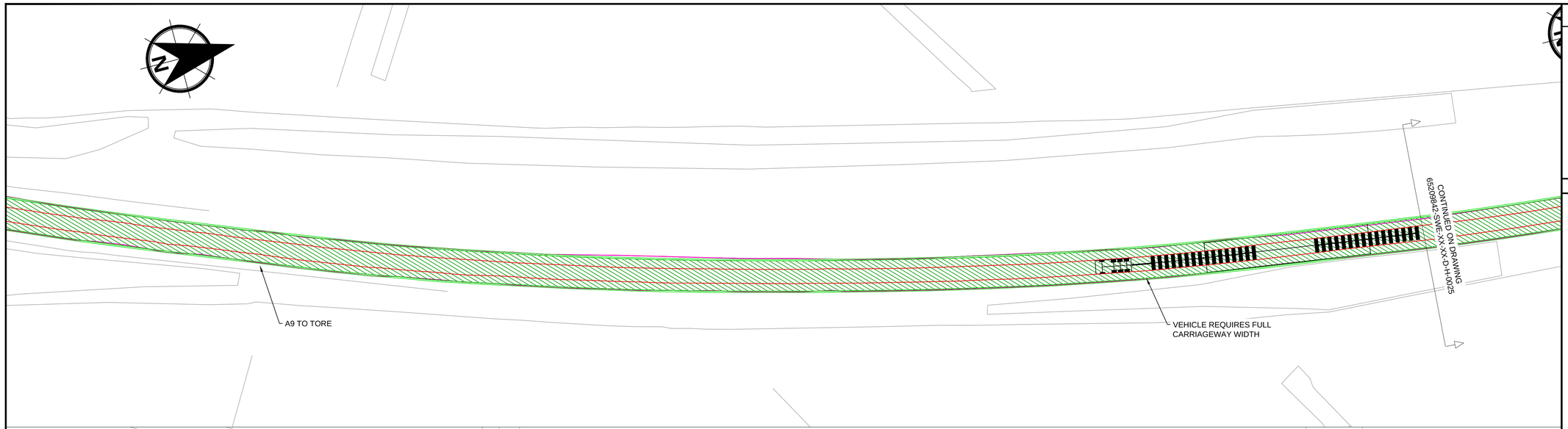
Purpose Of Issue

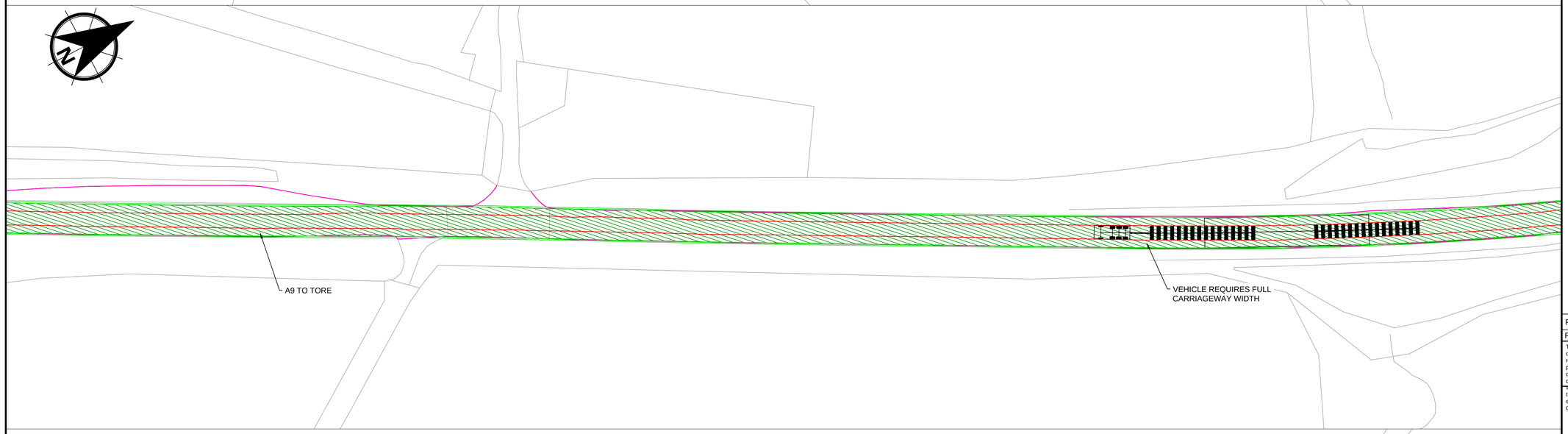
PRELIMINARY

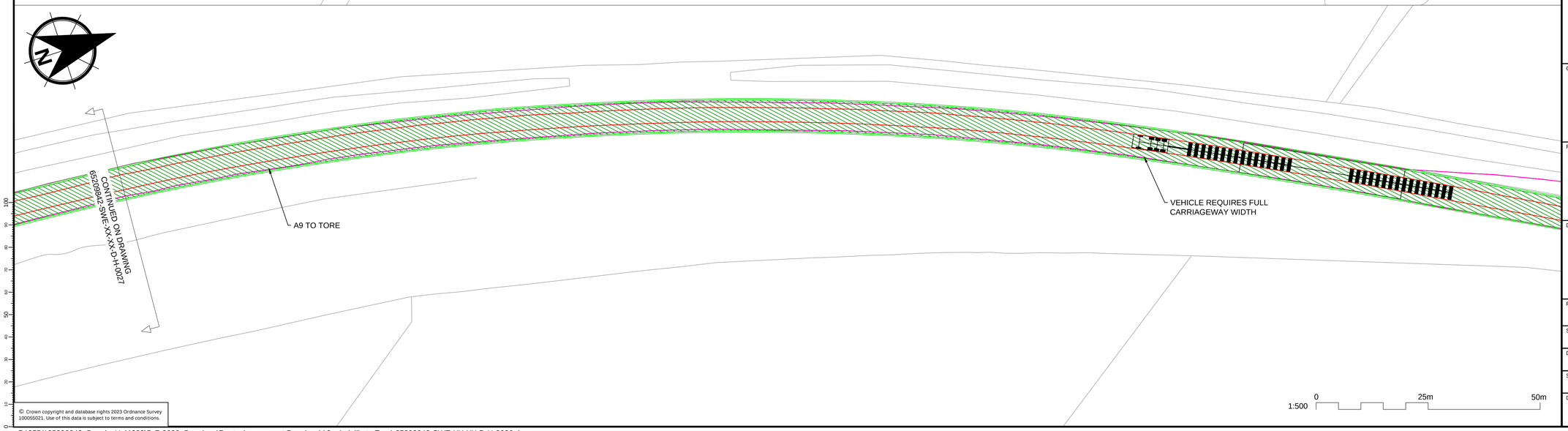
Status	Status Description		
S0	INITIAL STATUS OR WIP		
Drawn: MA	Designed: MA	Checked: RL	Approved: CB
Sheet Size: A1	Scale: 1:500	Sweco Ref: 65209842	Revision: P01

Drawing Number

65209842-SWE-XX-XX-D-H-0025







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KEY TO DRAWING

- WHEEL TRACK EXTENTS
- VEHICLE OVER SAIL
- EXISTING ROAD EXTENTS
- PROPOSED CARRIAGEWAY WIDENING

IMPORTANT

HEALTH, SAFETY & ENVIRONMENTAL INFORMATION

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Rev	Date	Amendment Details	Dr'n	Chk'	App'
P01	06/12/2023	FOR COMMENT	MA	RL	CB

2nd Floor, Quartermile
2 Lister Square
Edinburgh
EH3 9GG
Tel: +44 (0)131 550 6300
Web: www.sweco.co.uk

Client: Scottish & Southern Electricity Networks TRANSMISSION

Project Title: BEAULY HUB
400kV SWITCHING STATION AND HVDC CONVERTOR STATION

Drawing Title: ABNORMAL INDIVISIBLE LOAD ROUTE ASSESSMENT - ARDULLIE TO TORE SHEET 10

Purpose Of Issue: PRELIMINARY

Status	Status Description
S0	INITIAL STATUS OR WIP

Drawn	Designed	Checked	Approved
MA	MA	RL	CB

Sheet Size	Scale	Sweco Ref	Revision
A1	1:500	65209842	P01

Drawing Number: 65209842-SWE-XX-XX-D-H-0026

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- WHEEL TRACK EXTENTS
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IMPORTANT

HEALTH, SAFETY & ENVIRONMENTAL INFORMATION

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THE SIGNIFICANT RISKS ASSOCIATED WITH THE PROJECT ARE NOTED BELOW

REF:

1 OVERHEAD ELECTRICAL LINES PASS OVER THE A9.

2 LIGHTING COLUMNS LOCATED IN VERGE.

REFERENCE RESIDUAL RISK LOG FOR FURTHER DETAILS
REF: 65209642-SWE-XX-XX-T-V-0001

IT IS ASSUMED THAT ALL WORKS SHALL BE UNDERTAKEN BY A COMPETENT CONTRACTOR WORKING WHERE APPROPRIATE TO AN APPROVED SAFE SYSTEM OF WORK

Rev	Date	Amendment Details	Dr'n	Chk'	App'
P01	06/12/2023	FOR COMMENT	MA	RL	CB

2nd Floor, Quay 2
139 Fountainbridge
Edinburgh
EH3 9QG
Tel: +44 (0)131 550 6300
Web: www.sweco.co.uk

Client

Project Title

BEAULY HUB
400kV SWITCHING STATION AND HVDC CONVERTOR STATION

Drawing Title

ABNORMAL INDIVISIBLE LOAD ROUTE ASSESSMENT - ARDULLIE TO TORE
SHEET 11

Purpose Of Issue

PRELIMINARY

Status	Status Description		
S0	INITIAL STATUS OR WIP		
Drawn	**Designed**	**Checked**	**Approved**
MA	MA	RL	CB
Sheet Size	**Scale**	**Sweco Ref**	**Revision**
A1	1:500	65209842	P01

Drawing Number

65209842-SWE-XX-XX-D-H-0027

1:500 0 25m 50m

NOTES

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- WHEEL TRACK EXTENTS
- VEHICLE OVER SAIL
- EXISTING ROAD EXTENTS
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IMPORTANT

HEALTH, SAFETY & ENVIRONMENTAL INFORMATION

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THE SIGNIFICANT RISKS ASSOCIATED WITH THE PROJECT ARE NOTED BELOW

REF:

1	OVERHEAD ELECTRICAL LINES PASS OVER THE A832.

REFERENCE RESIDUAL RISK LOG FOR FURTHER DETAILS
REF: 65209642-SWE-XX-XX-T-V-0001

IT IS ASSUMED THAT ALL WORKS SHALL BE UNDERTAKEN BY A COMPETENT CONTRACTOR WORKING WHERE APPROPRIATE TO AN APPROVED SAFE SYSTEM OF WORK

Rev	Date	Amendment Details	Dr'n	Chk'	App'
P01	06/12/2023	FOR COMMENT	MA	RL	CB

Sweco UK Limited
Atria One
144 Morrison Street
Edinburgh
EH3 9QG
Tel: +44 (0)131 550 6300
Web: www.sweco.co.uk

Client: Scottish & Southern Electricity Networks TRANSMISSION

Project Title: BEAULY HUB
400kV SWITCHING STATION AND HVDC CONVERTOR STATION

Drawing Title: ABNORMAL INDIVISIBLE LOAD ROUTE ASSESSMENT - TORE TO MUIR OF ORD SHEET 1

Purpose Of Issue: PRELIMINARY

Status	Status Description
S0	INITIAL STATUS OR WIP

Drawn	Designed	Checked	Approved
MA	MA	RL	CB

Sheet Size	Scale	Sweco Ref	Revision
A1	1:500	65209842	P01

Drawing Number: 65209842-SWE-XX-XX-D-H-0028

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1:500 0 25m 50m

NOTES

1. DO NOT SCALE FROM THIS DRAWING MANUALLY OR ELECTRONICALLY.
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3. ALL DATUM LEVELS ARE IN METRES AND DIMENSIONS ARE IN METRES (m) UNLESS OTHERWISE STATED.

KEY TO DRAWING

- WHEEL TRACK EXTENTS
- VEHICLE OVER SAIL
- EXISTING ROAD EXTENTS
- PROPOSED CARRIAGEWAY WIDENING

IMPORTANT

HEALTH, SAFETY & ENVIRONMENTAL INFORMATION

IN ADDITION TO THE HAZARDS AND RISKS NORMALLY ASSOCIATED WITH THE TYPE OF WORK DETAILED ON THIS DRAWING, PLEASE NOTE THE FOLLOWING SIGNIFICANT RISKS TO HEALTH, SAFETY & ENVIRONMENT

THE SIGNIFICANT RISKS ASSOCIATED WITH THE PROJECT ARE NOTED BELOW

REF:

1	OVERHEAD ELECTRICAL LINES PASS OVER THE A832.

REFERENCE RESIDUAL RISK LOG FOR FURTHER DETAILS
REF: 65209642-SWE-XX-XX-T-V-0001

IT IS ASSUMED THAT ALL WORKS SHALL BE UNDERTAKEN BY A COMPETENT CONTRACTOR WORKING WHERE APPROPRIATE TO AN APPROVED SAFE SYSTEM OF WORK

Rev	Date	Amendment Details	Dr'n	Chk'	App'
P01	06/12/2023	FOR COMMENT	MA	RL	CB

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189 Fountainbridge
Edinburgh
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Tel: +44 (0)131 550 6300
Web: www.sweco.co.uk

Client: Scottish & Southern Electricity Networks TRANSMISSION

Project Title: BEAULY HUB
400kV SWITCHING STATION AND HVDC CONVERTOR STATION

Drawing Title: ABNORMAL INDIVISIBLE LOAD ROUTE ASSESSMENT - TORE TO MUIR OF ORD SHEET 2

Purpose Of Issue: PRELIMINARY

Status	Status Description
S0	INITIAL STATUS OR WIP

Drawn	Designed	Checked	Approved
MA	MA	RL	CB

Sheet Size	Scale	Sweco Ref	Revision
A1	1:500	65209842	P01

Drawing Number: 65209842-SWE-XX-XX-D-H-0029

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KEY TO DRAWING

- WHEEL TRACK EXTENTS
- VEHICLE OVER SAIL
- EXISTING ROAD EXTENTS
- PROPOSED CARRIAGEWAY WIDENING

IMPORTANT

HEALTH, SAFETY & ENVIRONMENTAL INFORMATION

IN ADDITION TO THE HAZARDS AND RISKS NORMALLY ASSOCIATED WITH THE TYPE OF WORK DETAILED ON THIS DRAWING, PLEASE NOTE THE FOLLOWING SIGNIFICANT RISKS TO HEALTH, SAFETY & ENVIRONMENT

THE SIGNIFICANT RISKS ASSOCIATED WITH THE PROJECT ARE NOTED BELOW

REF:

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1	OVERHEAD ELECTRICAL LINES PASS OVER THE A832.

REFERENCE RESIDUAL RISK LOG FOR FURTHER DETAILS
REF: 65209642-SWE-XX-XX-T-V-0001

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Rev	Date	Amendment Details	Dr'n	Chk'	App'
P01	06/12/2023	FOR COMMENT	MA	RL	CB

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Tel: +44 (0)131 550 6300
Web: www.sweco.co.uk

Client

Project Title

BEAULY HUB
400kV SWITCHING STATION AND HVDC CONVERTOR STATION

Drawing Title

ABNORMAL INDIVISIBLE LOAD ROUTE ASSESSMENT - TORE TO MUIR OF ORD SHEET 3

Purpose Of Issue

PRELIMINARY

Status	Status Description		
S0	INITIAL STATUS OR WIP		
Drawn	Designed	Checked	Approved
MA	MA	RL	CB
Sheet Size	Scale	Sweco Ref	Revision
A1	1:500	65209842	P01

Drawing Number

65209842-SWE-XX-XX-D-H-0030

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NOTES

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KEY TO DRAWING

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- VEHICLE OVER SAIL
- EXISTING ROAD EXTENTS
- PROPOSED CARRIAGEWAY WIDENING

IMPORTANT

HEALTH, SAFETY & ENVIRONMENTAL INFORMATION

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THE SIGNIFICANT RISKS ASSOCIATED WITH THE PROJECT ARE NOTED BELOW

REF:

1 OVERHEAD TELECOMMUNICATIONS LINES PASS OVER THE A832.

REFERENCE RESIDUAL RISK LOG FOR FURTHER DETAILS
REF: 65209642-SWE-XX-XX-T-V-0001

IT IS ASSUMED THAT ALL WORKS SHALL BE UNDERTAKEN BY A COMPETENT CONTRACTOR WORKING WHERE APPROPRIATE TO AN APPROVED SAFE SYSTEM OF WORK

Rev	Date	Amendment Details	Dr'n	Chk'	App'
P01	06/12/2023	FOR COMMENT	MA	RL	CB

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Tel: +44 (0)131 550 6300
Web: www.sweco.co.uk

Client

Project Title

BEAULY HUB
400kV SWITCHING STATION AND HVDC CONVERTOR STATION

Drawing Title

ABNORMAL INDIVISIBLE LOAD ROUTE ASSESSMENT - TORE TO MUIR OF ORD SHEET 4

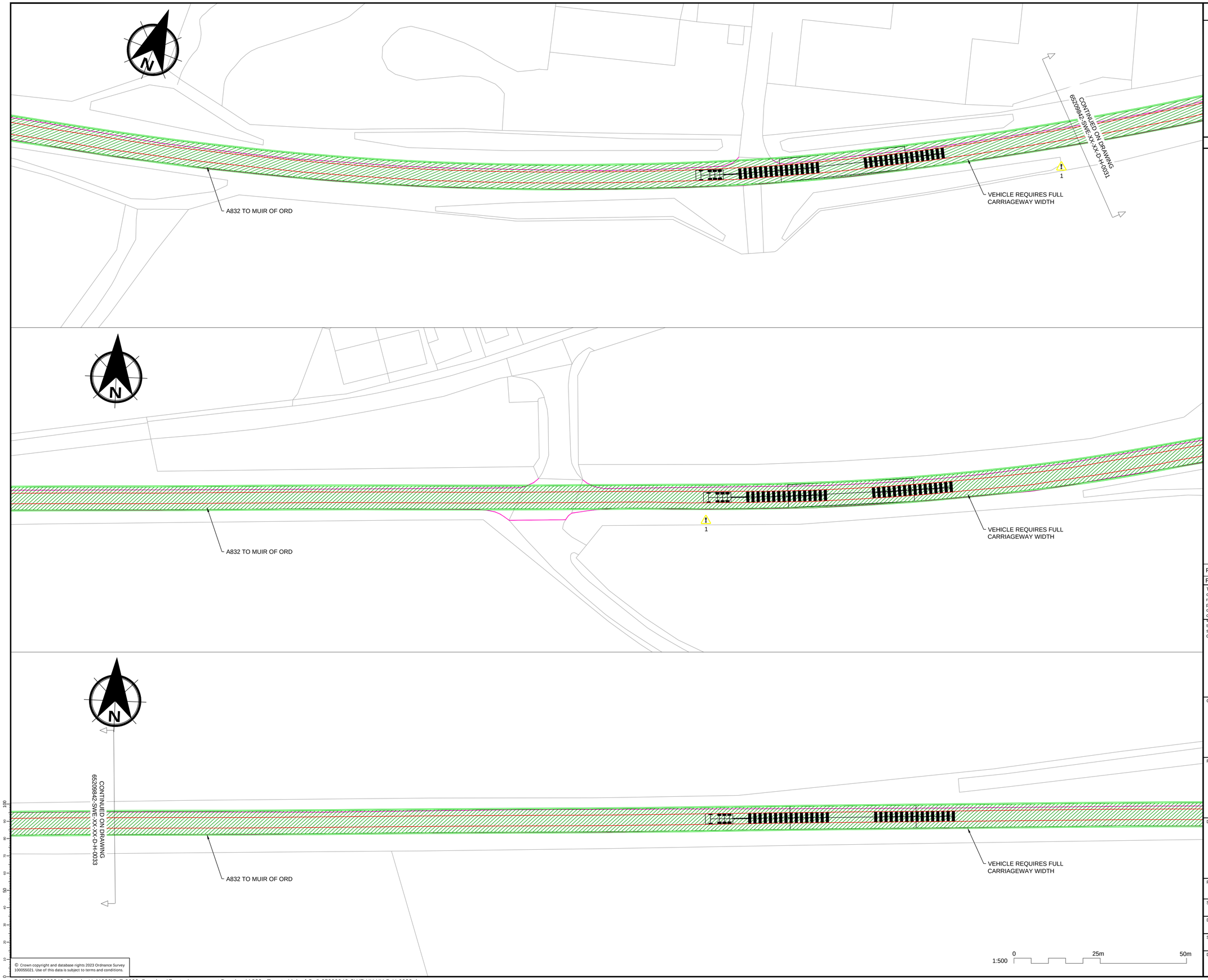
Purpose Of Issue

PRELIMINARY

Status	Status Description		
S0	INITIAL STATUS OR WIP		
Drawn	**Designed**	**Checked**	**Approved**
MA	MA	RL	CB
Sheet Size	**Scale**	**Sweco Ref**	**Revision**
A1	1:500	65209842	P01

Drawing Number

65209842-SWE-XX-XX-D-H-0031



NOTES

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KEY TO DRAWING

- WHEEL TRACK EXTENTS
- VEHICLE OVER SAIL
- EXISTING ROAD EXTENTS
- PROPOSED CARRIAGEWAY WIDENING

IMPORTANT

HEALTH, SAFETY & ENVIRONMENTAL INFORMATION

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REFERENCE RESIDUAL RISK LOG FOR FURTHER DETAILS
REF: 65209642-SWE-XX-XX-T-V-0001

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Rev	Date	Amendment Details	Dr'n	Chk'	App'
P01	06/12/2023	FOR COMMENT	MA	RL	CB

Sweco UK Limited
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Tel: +44 (0)131 550 6300
Web: www.sweco.co.uk

Client: Scottish & Southern Electricity Networks TRANSMISSION

Project Title: BEAULY HUB
400kV SWITCHING STATION AND HVDC CONVERTOR STATION

Drawing Title: ABNORMAL INDIVISIBLE LOAD ROUTE ASSESSMENT - TORE TO MUIR OF ORD SHEET 5

Purpose Of Issue: PRELIMINARY

Status	Status Description
S0	INITIAL STATUS OR WIP

Drawn	Designed	Checked	Approved
MA	MA	RL	CB

Sheet Size	Scale	Sweco Ref	Revision
A1	1:500	65209842	P01

Drawing Number: 65209842-SWE-XX-XX-D-H-0032

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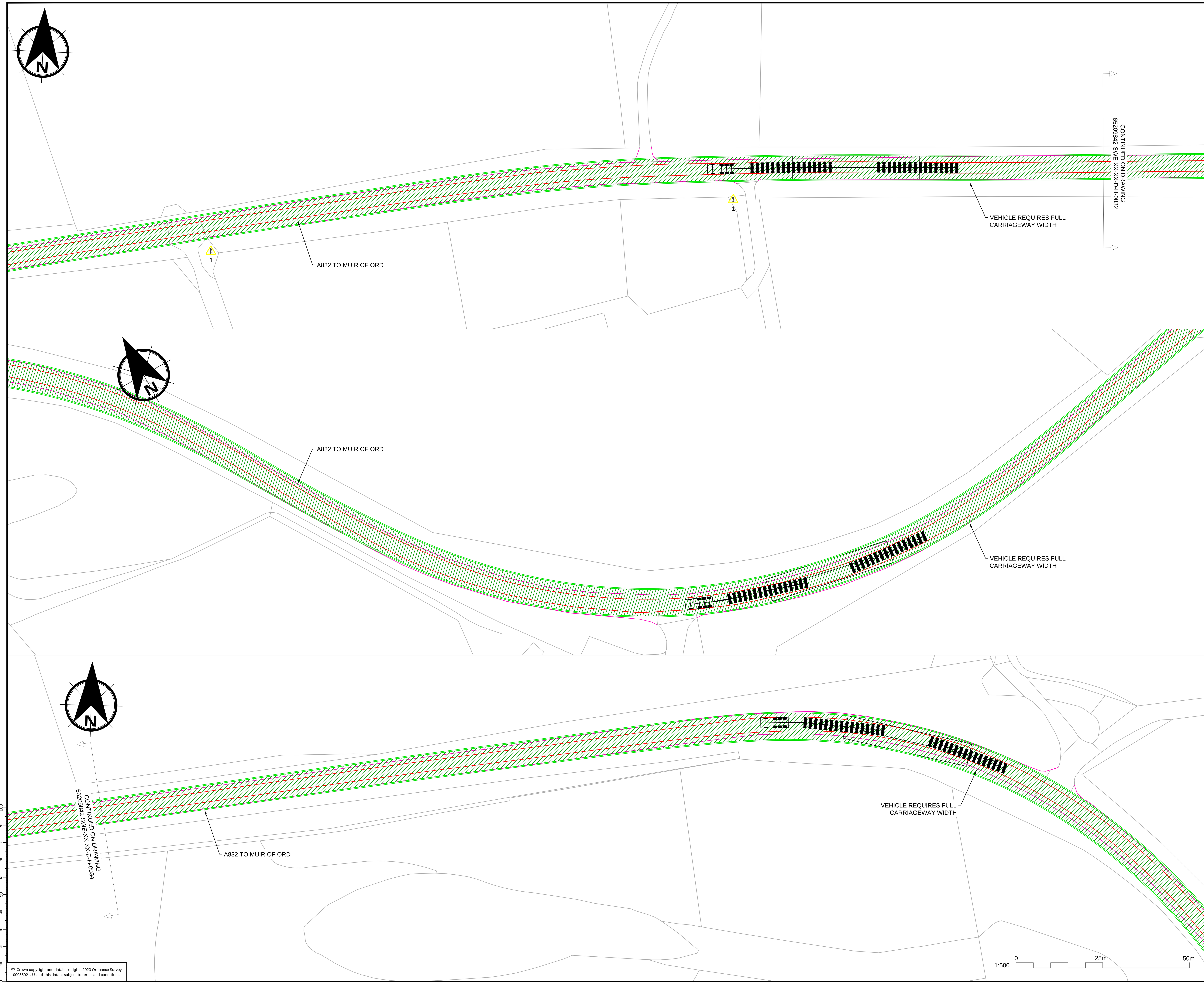

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KEY TO DRAWING

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- VEHICLE OVER SAIL
- EXISTING ROAD EXTENTS
- PROPOSED CARRIAGEWAY WIDENING

IMPORTANT

HEALTH, SAFETY & ENVIRONMENTAL INFORMATION

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1 — OVERHEAD ELECTRICAL LINES PASS OVER THE A832.

REFERENCE RESIDUAL RISK LOG FOR FURTHER DETAILS
REF: 65209642-SWE-XX-XX-T-V-0001

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Rev	Date	Amendment Details	Dr'n	Chk'	App'
P01	06/12/2023	FOR COMMENT	MA	RL	CB

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Tel: +44 (0)131 550 6300
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Client
Scottish & Southern Electricity Networks
TRANSMISSION

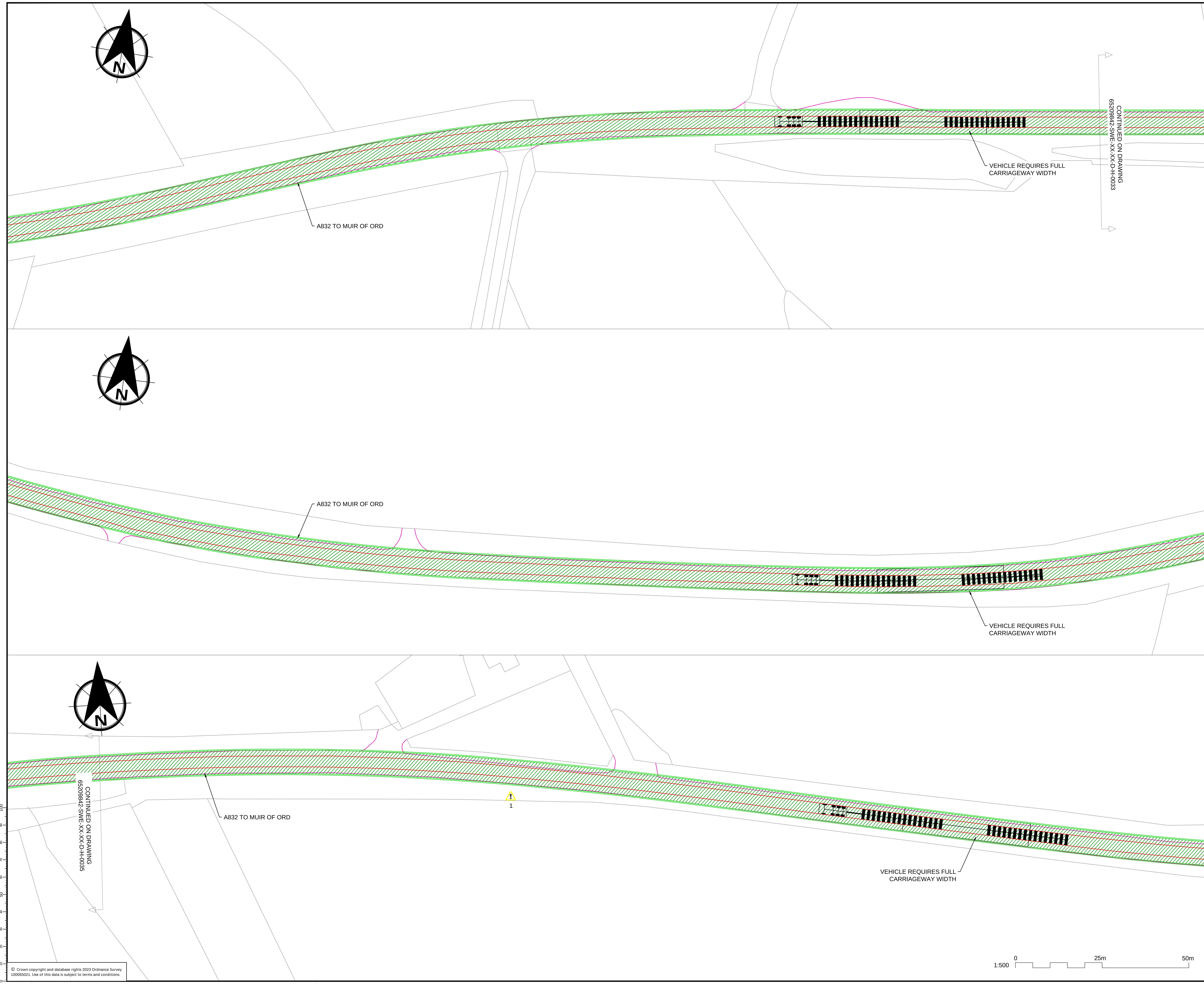
Project Title
BEAULY HUB
400kV SWITCHING STATION AND HVDC CONVERTOR STATION

Drawing Title
ABNORMAL INDIVISIBLE LOAD ROUTE ASSESSMENT - TORE TO MUIR OF ORD SHEET 6

Purpose Of Issue
PRELIMINARY

Status	Status Description		
S0	INITIAL STATUS OR WIP		
Drawn: MA	Designed: MA	Checked: RL	Approved: CB
Sheet Size: A1	Scale: 1:500	Sweco Ref: 65209842	Revision: P01

Drawing Number
65209842-SWE-XX-XX-D-H-0033



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NOTES

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KEY TO DRAWING

- WHEEL TRACK EXTENTS
- VEHICLE OVER SAIL
- EXISTING ROAD EXTENTS
- PROPOSED CARRIAGEWAY WIDENING

IMPORTANT

HEALTH, SAFETY & ENVIRONMENTAL INFORMATION

IN ADDITION TO THE HAZARDS AND RISKS NORMALLY ASSOCIATED WITH THE TYPE OF WORK DETAILED ON THIS DRAWING, PLEASE NOTE THE FOLLOWING SIGNIFICANT RISKS TO HEALTH, SAFETY & ENVIRONMENT

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REF:

1	OVERHEAD ELECTRICAL LINES PASS OVER THE A832.

REFERENCE RESIDUAL RISK LOG FOR FURTHER DETAILS
REF: 65209642-SWE-XX-XX-T-V-0001

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P01	06/12/2023	FOR COMMENT	MA	RL	CB
Rev	Date	Amendment Details	Dr'n	Chk'	App'

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Tel: +44 (0)131 550 6300
Web: www.sweco.co.uk

Client

Project Title

BEAULY HUB
400kV SWITCHING STATION AND HVDC CONVERTOR STATION

Drawing Title

ABNORMAL INDIVISIBLE LOAD ROUTE ASSESSMENT - TORE TO MUIR OF ORD SHEET 7

Purpose Of Issue

PRELIMINARY

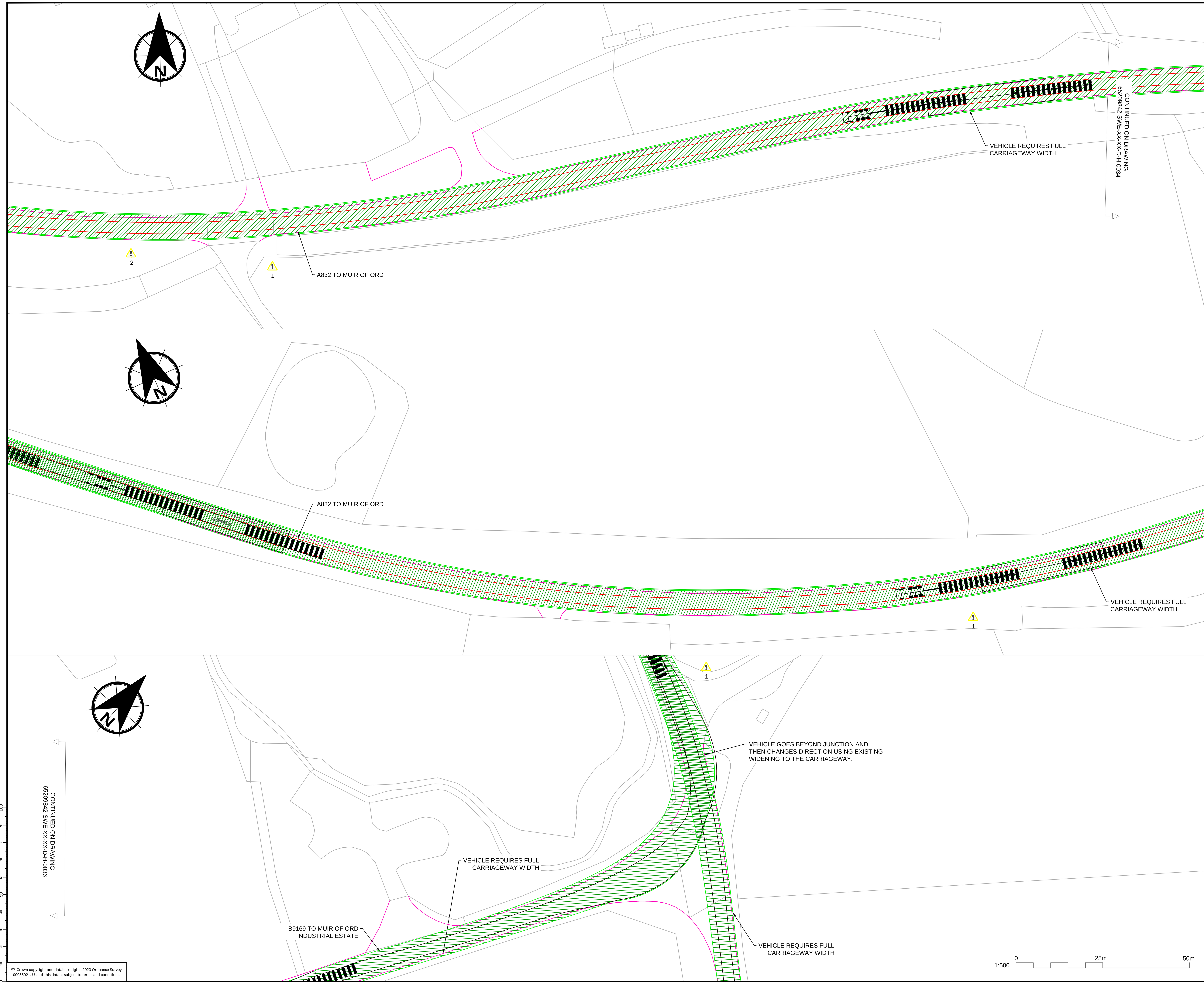
Status	Status Description
S0	INITIAL STATUS OR WIP

Drawn	Designed	Checked	Approved
MA	MA	RL	CB

Sheet Size	Scale	Sweco Ref	Revision
A1	1:500	65209842	P01

Drawing Number

65209842-SWE-XX-XX-D-H-0034



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KEY TO DRAWING

- WHEEL TRACK EXTENTS
- VEHICLE OVER SAIL
- EXISTING ROAD EXTENTS
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IMPORTANT

HEALTH, SAFETY & ENVIRONMENTAL INFORMATION

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THE SIGNIFICANT RISKS ASSOCIATED WITH THE PROJECT ARE NOTED BELOW

REF:

1 OVERHEAD ELECTRICAL LINES PASS OVER THE A832.

2 OVERHEAD TELECOMMUNICATION LINES PASS OVER THE A832.

REFERENCE RESIDUAL RISK LOG FOR FURTHER DETAILS
REF: 65209642-SWE-XX-XX-T-V-0001

IT IS ASSUMED THAT ALL WORKS SHALL BE UNDERTAKEN BY A COMPETENT CONTRACTOR WORKING WHERE APPROPRIATE TO AN APPROVED SAFE SYSTEM OF WORK

Rev	Date	Amendment Details	Dr'n	Chk'	App'
P01	06/12/2023	FOR COMMENT	MA	RL	CB

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EH3 9QG
Tel: +44 (0)131 550 6300
Web: www.sweco.co.uk

Client

Project Title

BEAULY HUB
400kV SWITCHING STATION AND HVDC CONVERTOR STATION

Drawing Title

ABNORMAL INDIVISIBLE LOAD ROUTE ASSESSMENT - TORE TO MUIR OF ORD SHEET 8

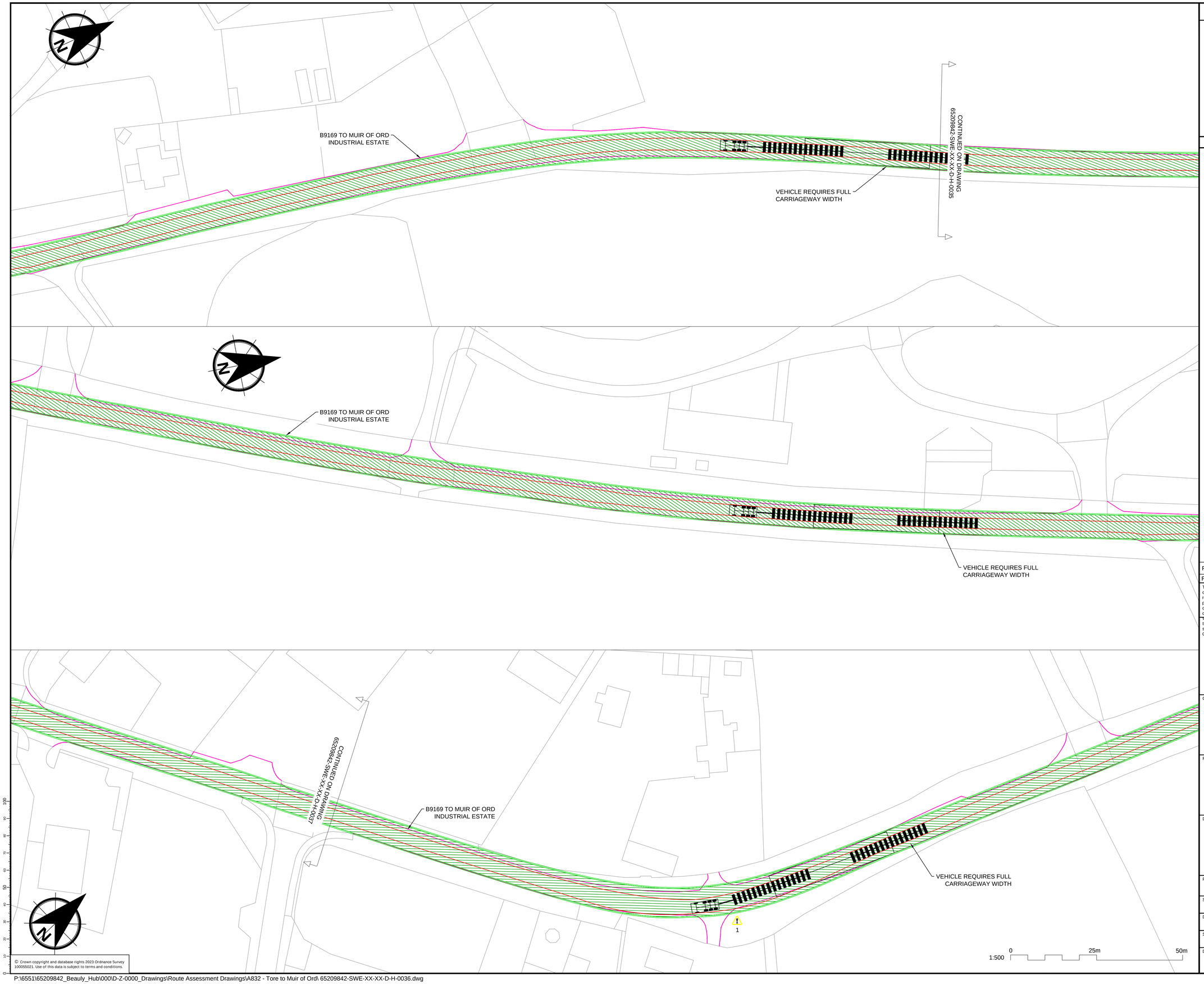
Purpose Of Issue: PRELIMINARY

Status	Status Description
S0	INITIAL STATUS OR WIP

Drawn	Designed	Checked	Approved
MA	MA	RL	CB

Sheet Size	Scale	Sweco Ref	Revision
A1	1:500	65209842	P01

Drawing Number: 65209842-SWE-XX-XX-D-H-0035



NOTES

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KEY TO DRAWING

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IMPORTANT

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THE SIGNIFICANT RISKS ASSOCIATED WITH THE PROJECT ARE NOTED BELOW

REF:

1	OVERHEAD TELECOMMUNICATION LINES PASS OVER THE B9169.

REFERENCE RESIDUAL RISK LOG FOR FURTHER DETAILS
REF: 65209642-SWE-XX-XX-T-V-0001

IT IS ASSUMED THAT ALL WORKS SHALL BE UNDERTAKEN BY A COMPETENT CONTRACTOR WORKING WHERE APPROPRIATE TO AN APPROVED SAFE SYSTEM OF WORK

Rev	Date	Amendment Details	Dr'n	Chk'	App'
P01	06/12/2023	FOR COMMENT	MA	RL	CB

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Tel: +44 (0)131 550 6300
Web: www.sweco.uk

Client: Scottish & Southern Electricity Networks TRANSMISSION

Project Title
BEAULY HUB
400kV SWITCHING STATION AND HVDC CONVERTOR STATION

Drawing Title
ABNORMAL INDIVISIBLE LOAD ROUTE ASSESSMENT -
TORE TO MUIR OF ORD
SHEET 9

Purpose Of Issue: PRELIMINARY

Status	Status Description
S0	INITIAL STATUS OR WIP

Drawn	Designed	Checked	Approved
MA	MA	RL	CB

Sheet Size	Scale	Sweco Ref	Revision
A1	1:500	65209842	P01

Drawing Number: 65209842-SWE-XX-XX-D-H-0036

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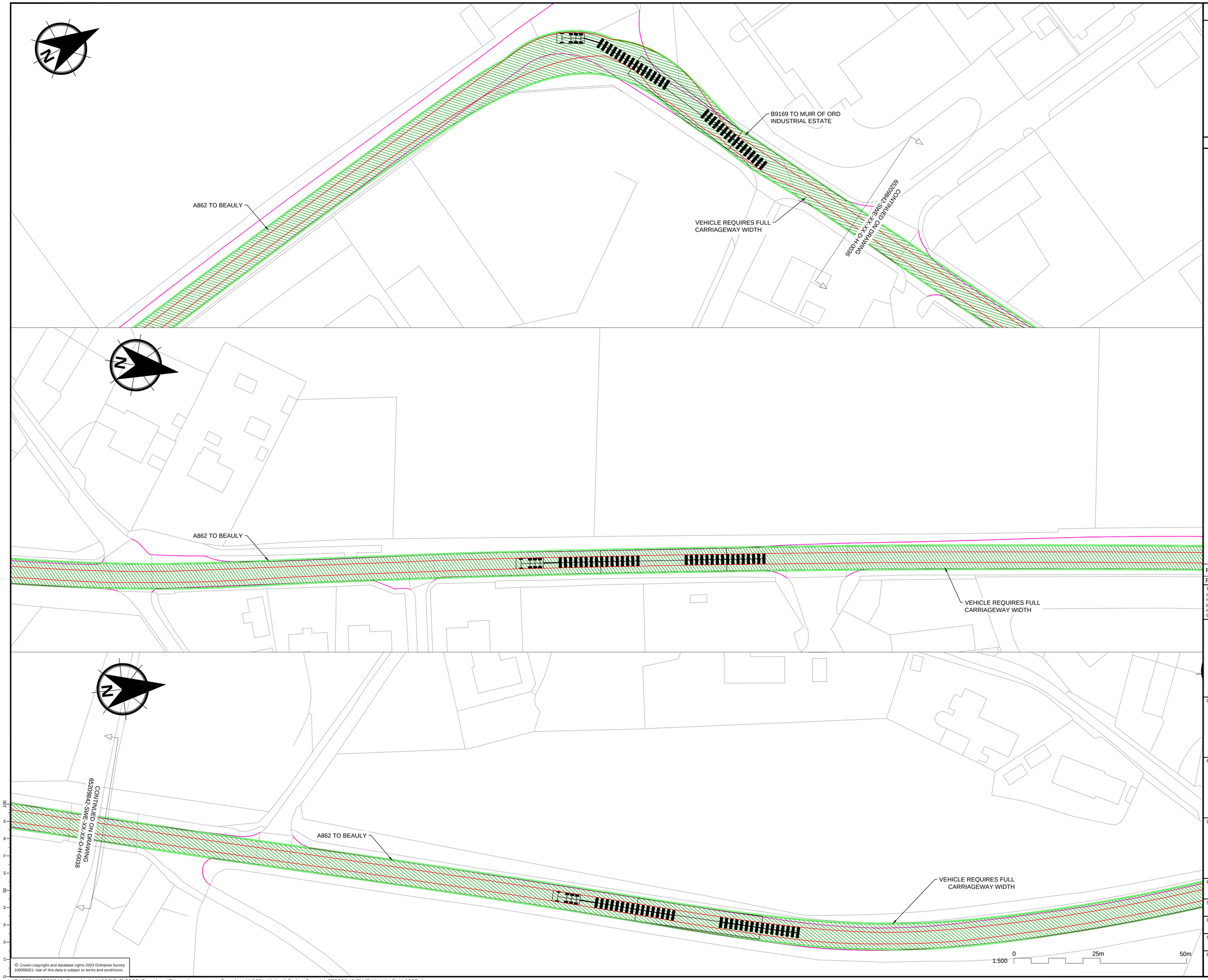

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- WHEEL TRACK EXTENTS
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- PROPOSED CARRIAGEWAY WIDENING

IMPORTANT

HEALTH, SAFETY & ENVIRONMENTAL INFORMATION

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P01	06/12/2023	FOR COMMENT	MA	RL	CB

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SWECO

Client

Scottish & Southern Electricity Networks TRANSMISSION

Project Title

BEAULY HUB
400kV SWITCHING STATION AND HVDC CONVERTOR STATION

Drawing Title

ABNORMAL INDIVISIBLE LOAD ROUTE ASSESSMENT - MUIR OF ORD TO BEAULY SHEET 1

Purpose Of Issue: PRELIMINARY

Status	Status Description
S0	INITIAL STATUS OR WIP

Drawn	Designed	Checked	Approved
MA	MA	RL	CB

Sheet Size	Scale	Sweco Ref	Revision
A1	1:500	65209842	P01

Drawing Number: 65209842-SWE-XX-XX-D-H-0037

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REF:

1	OVERHEAD TELECOMMUNICATION LINES PASS OVER THE A832.

REFERENCE RESIDUAL RISK LOG FOR FURTHER DETAILS
REF: 65209642-SWE-XX-XX-T-V-0001

IT IS ASSUMED THAT ALL WORKS SHALL BE UNDERTAKEN BY A COMPETENT CONTRACTOR WORKING WHERE APPROPRIATE TO AN APPROVED SAFE SYSTEM OF WORK

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P01	06/12/2023	FOR COMMENT	MA	RL	CB

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Tel: +44 (0)131 550 6300
Web: www.sweco.co.uk

SWECO

Client: Scottish & Southern Electricity Networks TRANSMISSION

Project Title
BEAULY HUB
400kV SWITCHING STATION AND HVDC CONVERTOR STATION

Drawing Title
ABNORMAL INDIVISIBLE LOAD ROUTE ASSESSMENT - MUIR OF ORD TO BEAULY SHEET 2

Purpose Of Issue: PRELIMINARY

Status	Status Description
S0	INITIAL STATUS OR WIP

Drawn	Designed	Checked	Approved
MA	MA	RL	CB

Sheet Size	Scale	Sweco Ref	Revision
A1	1:500	65209842	P01

Drawing Number: 65209842-SWE-XX-XX-D-H-0038

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NOTES

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IN ADDITION TO THE HAZARDS AND RISKS NORMALLY ASSOCIATED WITH THE TYPE OF WORK DETAILED ON THIS DRAWING, PLEASE NOTE THE FOLLOWING SIGNIFICANT RISKS TO HEALTH, SAFETY & ENVIRONMENT

THE SIGNIFICANT RISKS ASSOCIATED WITH THE PROJECT ARE NOTED BELOW

REF:

1 — LIGHTING COLUMNS LOCATED AT THE BACK OF VERGE OR FOOTPATH.

2 — TRAFFIC SIGNAL POLES LOCATED CLOSE TO THE EDGE OF CARRIAGEWAY.

3 — SIGNIFICANT PEDESTRIAN TRAFFIC LIKELY IN THE AREA.

REFERENCE RESIDUAL RISK LOG FOR FURTHER DETAILS
REF: 65209642-SWE-XX-XX-T-V-0001

IT IS ASSUMED THAT ALL WORKS SHALL BE UNDERTAKEN BY A COMPETENT CONTRACTOR WORKING WHERE APPROPRIATE TO AN APPROVED SAFE SYSTEM OF WORK

Rev	Date	Amendment Details	Dr'n	Chk'	App'
P01	06/12/2023	FOR COMMENT	MA	RL	CB

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139 Fountainbridge
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SWECO

Client: Scottish & Southern Electricity Networks TRANSMISSION

Project Title
BEAULY HUB
400kV SWITCHING STATION AND HVDC CONVERTOR STATION

Drawing Title
ABNORMAL INDIVISIBLE LOAD ROUTE ASSESSMENT - MUIR OF ORD TO BEAULY SHEET 3

Purpose Of Issue: PRELIMINARY

Status	Status Description
S0	INITIAL STATUS OR WIP

Drawn	Designed	Checked	Approved
MA	MA	RL	CB

Sheet Size	Scale	Sweco Ref	Revision
A1	1:500	65209842	P01

Drawing Number: 65209842-SWE-XX-XX-D-H-0039

P:\6551\65209842_Beauly_Hub\000\D-Z-0000_Drawings\Route Assessment Drawings\A862 - Muir of Ord to Beauly\ 65209842-SWE-XX-XX-D-H-0039.dwg

NOTES

1. DO NOT SCALE FROM THIS DRAWING MANUALLY OR ELECTRONICALLY.
2. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL OTHER RELEVANT PROJECT INFORMATION.
3. ALL DATUM LEVELS ARE IN METRES AND DIMENSIONS ARE IN METRES (m) UNLESS OTHERWISE STATED.

KEY TO DRAWING

- WHEEL TRACK EXTENTS
- VEHICLE OVER SAIL
- EXISTING ROAD EXTENTS
- PROPOSED CARRIAGEWAY WIDENING

IMPORTANT

HEALTH, SAFETY & ENVIRONMENTAL INFORMATION

IN ADDITION TO THE HAZARDS AND RISKS NORMALLY ASSOCIATED WITH THE TYPE OF WORK DETAILED ON THIS DRAWING, PLEASE NOTE THE FOLLOWING SIGNIFICANT RISKS TO HEALTH, SAFETY & ENVIRONMENT

THE SIGNIFICANT RISKS ASSOCIATED WITH THE PROJECT ARE NOTED BELOW

REF:

1	LIGHTING COLUMNS LOCATED AT THE BACK OF VERGE OR FOOTPATH.

REFERENCE RESIDUAL RISK LOG FOR FURTHER DETAILS
REF: 65209642-SWE-XX-XX-T-V-0001

IT IS ASSUMED THAT ALL WORKS SHALL BE UNDERTAKEN BY A COMPETENT CONTRACTOR WORKING WHERE APPROPRIATE TO AN APPROVED SAFE SYSTEM OF WORK

Rev	Date	Amendment Details	Dr'n	Chk'	App'
P01	06/12/2023	FOR COMMENT	MA	RL	CB

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Web: www.sweco.co.uk

SWECO

Client

Scottish & Southern Electricity Networks TRANSMISSION

Project Title

BEAULY HUB
400kV SWITCHING STATION AND HVDC CONVERTOR STATION

Drawing Title

ABNORMAL INDIVISIBLE LOAD ROUTE ASSESSMENT - MUIR OF ORD TO BEAULY SHEET 4

Purpose Of Issue

PRELIMINARY

Status	Status Description
S0	INITIAL STATUS OR WIP

Drawn	Designed	Checked	Approved
MA	MA	RL	CB

Sheet Size	Scale	Sweco Ref	Revision
A1	1:500	65209842	P01

Drawing Number

65209842-SWE-XX-XX-D-H-0040

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P:\6551\65209842_Beauly_Hub\000\D-Z-0000_Drawings\Route Assessment Drawings\A862 - Muir of Ord to Beauly\ 65209842-SWE-XX-XX-D-H-0041.dwg

NOTES

1. DO NOT SCALE FROM THIS DRAWING MANUALLY OR ELECTRONICALLY.
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KEY TO DRAWING

- WHEEL TRACK EXTENTS
- VEHICLE OVER SAIL
- EXISTING ROAD EXTENTS
- PROPOSED CARRIAGEWAY WIDENING

IMPORTANT

HEALTH, SAFETY & ENVIRONMENTAL INFORMATION

IN ADDITION TO THE HAZARDS AND RISKS NORMALLY ASSOCIATED WITH THE TYPE OF WORK DETAILED ON THIS DRAWING, PLEASE NOTE THE FOLLOWING SIGNIFICANT RISKS TO HEALTH, SAFETY & ENVIRONMENT

THE SIGNIFICANT RISKS ASSOCIATED WITH THE PROJECT ARE NOTED BELOW

REF:

1	OVERHEAD ELECTRICAL LINES PASS OVER THE A862.

REFERENCE RESIDUAL RISK LOG FOR FURTHER DETAILS
REF: 65209642-SWE-XX-XX-T-V-0001

IT IS ASSUMED THAT ALL WORKS SHALL BE UNDERTAKEN BY A COMPETENT CONTRACTOR WORKING WHERE APPROPRIATE TO AN APPROVED SAFE SYSTEM OF WORK

Rev	Date	Amendment Details	Dr'n	Chk'	App'
P01	06/12/2023	FOR COMMENT	MA	RL	CB

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Tel: +44 (0)131 550 6300
Web: www.sweco.co.uk

SWECO

Client: Scottish & Southern Electricity Networks TRANSMISSION

Project Title
BEAULY HUB
400kV SWITCHING STATION AND HVDC CONVERTOR STATION

Drawing Title
ABNORMAL INDIVISIBLE LOAD ROUTE ASSESSMENT - MUIR OF ORD TO BEAULY SHEET 5

Purpose Of Issue: PRELIMINARY

Status	Status Description
S0	INITIAL STATUS OR WIP

Drawn	Designed	Checked	Approved
MA	MA	RL	CB

Sheet Size	Scale	Sweco Ref	Revision
A1	1:500	65209842	P01

Drawing Number: 65209842-SWE-XX-XX-D-H-0041

NOTES

1. DO NOT SCALE FROM THIS DRAWING MANUALLY OR ELECTRONICALLY.
2. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL OTHER RELEVANT PROJECT INFORMATION.
3. ALL DATUM LEVELS ARE IN METRES AND DIMENSIONS ARE IN METRES (m) UNLESS OTHERWISE STATED.

KEY TO DRAWING

- WHEEL TRACK EXTENTS
- VEHICLE OVER SAIL
- EXISTING ROAD EXTENTS
- PROPOSED CARRIAGEWAY WIDENING

IMPORTANT

HEALTH, SAFETY & ENVIRONMENTAL INFORMATION

IN ADDITION TO THE HAZARDS AND RISKS NORMALLY ASSOCIATED WITH THE TYPE OF WORK DETAILED ON THIS DRAWING, PLEASE NOTE THE FOLLOWING SIGNIFICANT RISKS TO HEALTH, SAFETY & ENVIRONMENT

THE SIGNIFICANT RISKS ASSOCIATED WITH THE PROJECT ARE NOTED BELOW

1	EXISTING HIGH VOLTAGE ELECTRICAL LINE PASSES OVERHEAD.

IT IS ASSUMED THAT ALL WORKS SHALL BE UNDERTAKEN BY A COMPETENT CONTRACTOR WORKING WHERE APPROPRIATE TO AN APPROVED SAFE SYSTEM OF WORK

Rev	Date	Amendment Details	Dr'n	Chk'	App'
P01	06/12/2023	FOR COMMENT	MA	RL	CB

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Tel: +44 (0)131 550 6300
Web: www.sweco.co.uk

Client: Scottish & Southern Electricity Networks TRANSMISSION

Project Title: BEAULY HUB
400kV SWITCHING STATION AND HVDC CONVERTOR STATION

Drawing Title: ABNORMAL INDIVISIBLE LOAD ROUTE ASSESSMENT - MUIR OF ORD TO BEAULY SHEET 6

Purpose Of Issue: PRELIMINARY

Status	Status Description
S0	INITIAL STATUS OR WIP

Drawn	Designed	Checked	Approved
MA	MA	RL	CB

Sheet Size	Scale	Sweco Ref	Revision
A1	1:500	65209842	P01

Drawing Number: 65209842-SWE-XX-XX-D-H-0042

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NOTES

1. DO NOT SCALE FROM THIS DRAWING MANUALLY OR ELECTRONICALLY.
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KEY TO DRAWING

- WHEEL TRACK EXTENTS
- VEHICLE OVER SAIL
- EXISTING ROAD EXTENTS
- PROPOSED CARRIAGEWAY WIDENING

IMPORTANT

HEALTH, SAFETY & ENVIRONMENTAL INFORMATION

IN ADDITION TO THE HAZARDS AND RISKS NORMALLY ASSOCIATED WITH THE TYPE OF WORK DETAILED ON THIS DRAWING, PLEASE NOTE THE FOLLOWING SIGNIFICANT RISKS TO HEALTH, SAFETY & ENVIRONMENT

THE SIGNIFICANT RISKS ASSOCIATED WITH THE PROJECT ARE NOTED BELOW

1 EXISTING HIGH VOLTAGE ELECTRICAL LINE PASSES OVERHEAD.

IT IS ASSUMED THAT ALL WORKS SHALL BE UNDERTAKEN BY A COMPETENT CONTRACTOR WORKING WHERE APPROPRIATE TO AN APPROVED SAFE SYSTEM OF WORK

Rev	Date	Amendment Details	Dr'n	Chk'	App'
P01	06/12/2023	FOR COMMENT	MA	RL	CB

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Web: www.sweco.co.uk

Client

Project Title
BEAULY HUB
400kV SWITCHING STATION AND HVDC CONVERTOR STATION

Drawing Title
ABNORMAL INDIVISIBLE LOAD ROUTE ASSESSMENT - MUIR OF ORD TO BEAULY SHEET 7

Purpose Of Issue
PRELIMINARY

Status	Status Description
S0	INITIAL STATUS OR WIP

Drawn	Designed	Checked	Approved
MA	MA	RL	CB

Sheet Size	Scale	Sweco Ref	Revision
A1	1:500	65209842	P01

Drawing Number
65209842-SWE-XX-XX-D-H-0043

NOTES

1. DO NOT SCALE FROM THIS DRAWING MANUALLY OR ELECTRONICALLY.
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KEY TO DRAWING

- WHEEL TRACK EXTENTS
- VEHICLE OVER SAIL
- EXISTING ROAD EXTENTS
- PROPOSED CARRIAGEWAY WIDENING

IMPORTANT

HEALTH, SAFETY & ENVIRONMENTAL INFORMATION

IN ADDITION TO THE HAZARDS AND RISKS NORMALLY ASSOCIATED WITH THE TYPE OF WORK DETAILED ON THIS DRAWING, PLEASE NOTE THE FOLLOWING SIGNIFICANT RISKS TO HEALTH, SAFETY & ENVIRONMENT

THE SIGNIFICANT RISKS ASSOCIATED WITH THE PROJECT ARE NOTED BELOW

REF:

1	OVERHEAD TELECOMMUNICATION LINES PASS OVER THE A862.

REFERENCE RESIDUAL RISK LOG FOR FURTHER DETAILS
REF: 65209642-SWE-XX-XX-T-V-0001

IT IS ASSUMED THAT ALL WORKS SHALL BE UNDERTAKEN BY A COMPETENT CONTRACTOR WORKING WHERE APPROPRIATE TO AN APPROVED SAFE SYSTEM OF WORK

Rev	Date	Amendment Details	Dr'n	Chk'	App'
P01	06/12/2023	FOR COMMENT	MA	RL	CB

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Tel: +44 (0)131 550 6300
Web: www.sweco.co.uk

Client: Scottish & Southern Electricity Networks TRANSMISSION

Project Title
BEAULY HUB
400kV SWITCHING STATION AND HVDC CONVERTOR STATION

Drawing Title
ABNORMAL INDIVISIBLE LOAD ROUTE ASSESSMENT - LOVAT BRIDGE TO FANELLAN SHEET 1 OF 10

Purpose Of Issue: PRELIMINARY

Status	Status Description
S0	INITIAL STATUS OR WIP

Drawn	Designed	Checked	Approved
MA	MA	RL	CB

Sheet Size	Scale	Sweco Ref	Revision
A1	1:500	65209842	P01

Drawing Number: 65209842-SWE-XX-XX-D-H-0048

P:\6551\65209842_Beauly_Hub\000\D-Z-0000_Drawings\Route Assessment Drawings\Lovat Bridge to Fanellan Road\ 65209842-SWE-XX-XX-D-H-0048.dwg

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NOTES

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KEY TO DRAWING

- WHEEL TRACK EXTENTS
- VEHICLE OVER SAIL
- EXISTING ROAD EXTENTS
- PROPOSED CARRIAGEWAY WIDENING

IMPORTANT

HEALTH, SAFETY & ENVIRONMENTAL INFORMATION

IN ADDITION TO THE HAZARDS AND RISKS NORMALLY ASSOCIATED WITH THE TYPE OF WORK DETAILED ON THIS DRAWING, PLEASE NOTE THE FOLLOWING SIGNIFICANT RISKS TO HEALTH, SAFETY & ENVIRONMENT

THE SIGNIFICANT RISKS ASSOCIATED WITH THE PROJECT ARE NOTED BELOW

REF:

1 OVERHEAD TELECOMMUNICATION LINES PASS OVER THE A862.

2 OVERHEAD ELECTRICAL LINES PASS OVER THE A862.

REFERENCE RESIDUAL RISK LOG FOR FURTHER DETAILS
REF: 65209842-SWE-XX-XX-T-V-0001

IT IS ASSUMED THAT ALL WORKS SHALL BE UNDERTAKEN BY A COMPETENT CONTRACTOR WORKING WHERE APPROPRIATE TO AN APPROVED SAFE SYSTEM OF WORK

Rev	Date	Amendment Details	Dr'n	Chk'	App'
P01	06/12/2023	FOR COMMENT	MA	RL	CB

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139 Fountainbridge
Edinburgh
EH3 9QG
Tel: +44 (0)131 550 6300
Web: www.sweco.co.uk

Client

Project Title

BEAULY HUB
400kV SWITCHING STATION AND HVDC CONVERTOR STATION

Drawing Title

ABNORMAL INDIVISIBLE LOAD ROUTE ASSESSMENT - LOVAT BRIDGE TO FANELLAN SHEET 2 OF 10

Purpose Of Issue: PRELIMINARY

Status	Status Description
S0	INITIAL STATUS OR WIP

Drawn	Designed	Checked	Approved
MA	MA	RL	CB

Sheet Size	Scale	Sweco Ref	Revision
A1	1:500	65209842	P01

Drawing Number

65209842-SWE-XX-XX-D-H-0049

NOTES

1. DO NOT SCALE FROM THIS DRAWING MANUALLY OR ELECTRONICALLY.
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KEY TO DRAWING

- WHEEL TRACK EXTENTS
- VEHICLE OVER SAIL
- EXISTING ROAD EXTENTS
- PROPOSED CARRIAGEWAY WIDENING

IMPORTANT

HEALTH, SAFETY & ENVIRONMENTAL INFORMATION

IN ADDITION TO THE HAZARDS AND RISKS NORMALLY ASSOCIATED WITH THE TYPE OF WORK DETAILED ON THIS DRAWING, PLEASE NOTE THE FOLLOWING SIGNIFICANT RISKS TO HEALTH, SAFETY & ENVIRONMENT

THE SIGNIFICANT RISKS ASSOCIATED WITH THE PROJECT ARE NOTED BELOW

REF:

1. OVERHEAD TELECOMMUNICATION LINES PASS OVER THE A833.
2. OVERHEAD ELECTRICAL LINES PASS OVER THE A833.

REFERENCE RESIDUAL RISK LOG FOR FURTHER DETAILS
REF: 65209642-SWE-XX-XX-T-V-0001

IT IS ASSUMED THAT ALL WORKS SHALL BE UNDERTAKEN BY A COMPETENT CONTRACTOR WORKING WHERE APPROPRIATE TO AN APPROVED SAFE SYSTEM OF WORK

Rev	Date	Amendment Details	Dr'n	Chk'	App'
P01	06/12/2023	FOR COMMENT	MA	RL	CB

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Tel: +44 (0)131 550 6300
Web: www.sweco.co.uk

SWECO

Client: Scottish & Southern Electricity Networks TRANSMISSION

Project Title: BEAUFY HUB 400kV SWITCHING STATION AND HVDC CONVERTOR STATION

Drawing Title: ABNORMAL INDIVISIBLE LOAD ROUTE ASSESSMENT - LOVAT BRIDGE TO FANELLAN SHEET 3 OF 10

Purpose Of Issue: PRELIMINARY

Status	Status Description		
S0	INITIAL STATUS OR WIP		
Drawn	Designed	Checked	Approved
MA	MA	RL	CB
Sheet Size	Scale	Sweco Ref	Revision
A1	1:500	65209842	P01

Drawing Number: 65209842-SWE-XX-XX-D-H-0050

P:\6551\65209842_Beauly_Hub\000\D-Z-0000_Drawings\Route Assessment Drawings\Lovat Bridge to Fanellan Road\ 65209842-SWE-XX-XX-D-H-0050.dwg

NOTES

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KEY TO DRAWING

- WHEEL TRACK EXTENTS
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- EXISTING ROAD EXTENTS
- PROPOSED CARRIAGEWAY WIDENING

IMPORTANT

HEALTH, SAFETY & ENVIRONMENTAL INFORMATION

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THE SIGNIFICANT RISKS ASSOCIATED WITH THE PROJECT ARE NOTED BELOW

REF:

NO SIGNIFICANT HAZARDS IDENTIFIED.

REFERENCE RESIDUAL RISK LOG FOR FURTHER DETAILS
REF: 65209642-SWE-XX-XX-T-V-0001

IT IS ASSUMED THAT ALL WORKS SHALL BE UNDERTAKEN BY A COMPETENT CONTRACTOR WORKING WHERE APPROPRIATE TO AN APPROVED SAFE SYSTEM OF WORK

Rev	Date	Amendment Details	Dr'n	Chk'	App'
P01	06/12/2023	FOR COMMENT	MA	RL	CB

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Web: www.sweco.co.uk

Client

Scottish & Southern Electricity Networks
TRANSMISSION

Project Title

BEAULY HUB
400kV SWITCHING STATION AND
HVDC CONVERTOR STATION

Drawing Title

ABNORMAL INDIVISIBLE LOAD ROUTE ASSESSMENT -
LOVAT BRIDGE TO FANELLAN
SHEET 4 OF 10

Purpose Of Issue

PRELIMINARY

Status	Status Description
S0	INITIAL STATUS OR WIP

Drawn	Designed	Checked	Approved
MA	MA	RL	CB

Sheet Size	Scale	Sweco Ref	Revision
A1	1:500	65209842	P01

Drawing Number

65209842-SWE-XX-XX-D-H-0051

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OVERSAIL OF LOAD CLASHES WITH EXISTING STONE WALL

A833 TOWARDS KILTARLITY

BELLADRUM BURN CROSSING

CONTINUED ON DRAWING 65209842-SWE-XX-XX-D-H-0051

A833 JUNCTION

ALLARBURN DRIVE TOWARDS KILTARLITY

EXISTING DIRECTIONAL SIGN TO BE REMOVED AND REPLACED.

ALLARBURN DRIVE TOWARDS KILTARLITY

CONTINUED ON DRAWING 65209842-SWE-XX-XX-D-H-0053

1:500 0 25m 50m

NOTES

1. DO NOT SCALE FROM THIS DRAWING MANUALLY OR ELECTRONICALLY.
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KEY TO DRAWING

- WHEEL TRACK EXTENTS
- VEHICLE OVER SAIL
- EXISTING ROAD EXTENTS
- PROPOSED CARRIAGEWAY WIDENING

IMPORTANT

HEALTH, SAFETY & ENVIRONMENTAL INFORMATION

IN ADDITION TO THE HAZARDS AND RISKS NORMALLY ASSOCIATED WITH THE TYPE OF WORK DETAILED ON THIS DRAWING, PLEASE NOTE THE FOLLOWING SIGNIFICANT RISKS TO HEALTH, SAFETY & ENVIRONMENT

THE SIGNIFICANT RISKS ASSOCIATED WITH THE PROJECT ARE NOTED BELOW

NO SIGNIFICANT HAZARDS IDENTIFIED.

IT IS ASSUMED THAT ALL WORKS SHALL BE UNDERTAKEN BY A COMPETENT CONTRACTOR WORKING WHERE APPROPRIATE TO AN APPROVED SAFE SYSTEM OF WORK

Rev	Date	Amendment Details	Dr'n	Chk'	App'
P01	06/12/2023	FOR COMMENT	MA	RL	CB

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Tel: +44 (0)131 550 6300
Web: www.sweco.co.uk

Client: Scottish & Southern Electricity Networks TRANSMISSION

Project Title
BEAULY HUB
400kV SWITCHING STATION AND HVDC CONVERTOR STATION

Drawing Title
ABNORMAL INDIVISIBLE LOAD ROUTE ASSESSMENT - LOVAT BRIDGE TO FANELLAN SHEET 5 OF 10

Purpose Of Issue: PRELIMINARY

Status	Status Description
S0	INITIAL STATUS OR WIP

Drawn	Designed	Checked	Approved
MA	MA	RL	CB

Sheet Size	Scale	Sweco Ref	Revision
A1	1:500	65209842	P01

Drawing Number: 65209842-SWE-XX-XX-D-H-0052

P:\6551\65209842_Beauly_Hub\000\D-Z-0000_Drawings\Route Assessment Drawings\Lovat Bridge to Fanellan Road\ 65209842-SWE-XX-XX-D-H-0052.dwg

LOAD OVERSAILS BEYOND BOUNDARY FENCE. FENCE TO BE REMOVED AND REINSTATED AFTER LOAD HAS PASSED.

ALLARBURN DRIVE

LOAD OVER SAIL INTO VERGE

CONTINUED ON DRAWING 65209842-SWE-XX-XX-D-H-0052

EXISTING CULVERT. LOAD OVERSAILS OVER EXISTING PARAPET WALLS.

WIDENED STRUCTURE REQUIRED UNLESS LOAD HEIGHT CLEARANCE INCREASED.

ALLARBURN DRIVE

1

2

ALLARBURN PARK

LOAD EXTREMELY CLOSE TO EXISTING PROPERTY BOUNDARY FENCE/WALL.

EXISTING BRUIACH BURN STRUCTURE. LOAD OVERSAILS OVER EXISTING PARAPET WALLS.

WIDENED STRUCTURE REQUIRED.

ALLARBURN DRIVE

LOAD OVERSAILS OUTWITH HIGHWAYS BOUNDARY. POST AND RAIL FENCE TO BE REMOVED AND REINSTATED.

TRAFFIC DIRECTION SIGN TO BE REMOVED AND REPLACED.

CONTINUED ON DRAWING 65209842-SWE-XX-XX-D-H-0054

1:500 0 25m 50m

NOTES

1. DO NOT SCALE FROM THIS DRAWING MANUALLY OR ELECTRONICALLY.
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KEY TO DRAWING

- WHEEL TRACK EXTENTS
- VEHICLE OVER SAIL
- EXISTING ROAD EXTENTS
- PROPOSED CARRIAGEWAY WIDENING

IMPORTANT

HEALTH, SAFETY & ENVIRONMENTAL INFORMATION

IN ADDITION TO THE HAZARDS AND RISKS NORMALLY ASSOCIATED WITH THE TYPE OF WORK DETAILED ON THIS DRAWING, PLEASE NOTE THE FOLLOWING SIGNIFICANT RISKS TO HEALTH, SAFETY & ENVIRONMENT

THE SIGNIFICANT RISKS ASSOCIATED WITH THE PROJECT ARE NOTED BELOW

REF:

1	OVERHEAD TELECOMMUNICATION LINES PASS OVER THE A833.
2	LIGHTING AND ELECTRICAL INFRASTRUCTURE IN CLOSE PROXIMITY TO THE EDGE OF CARRIAGEWAY.

REFERENCE RESIDUAL RISK LOG FOR FURTHER DETAILS
REF: 65209642-SWE-XX-XX-T-V-0001

IT IS ASSUMED THAT ALL WORKS SHALL BE UNDERTAKEN BY A COMPETENT CONTRACTOR WORKING WHERE APPROPRIATE TO AN APPROVED SAFE SYSTEM OF WORK

Rev	Date	Amendment Details	Dr'n	Chk'	App'
P01	06/12/2023	FOR COMMENT	MA	RL	CB

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2 Lochside View
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Web: www.sweco.co.uk

Client: Scottish & Southern Electricity Networks TRANSMISSION

Project Title: BEAULY HUB
400kV SWITCHING STATION AND HVDC CONVERTOR STATION

Drawing Title: ABNORMAL INDIVISIBLE LOAD ROUTE ASSESSMENT - LOVAT BRIDGE TO FANELLAN SHEET 6 OF 10

Purpose Of Issue: PRELIMINARY

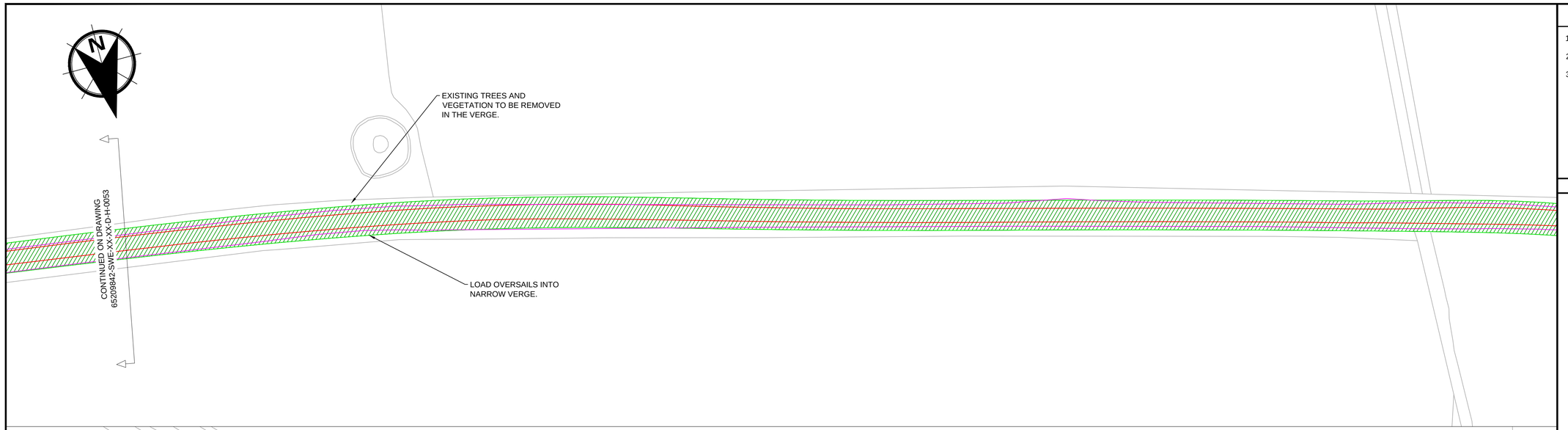
Status	Status Description
S0	INITIAL STATUS OR WIP

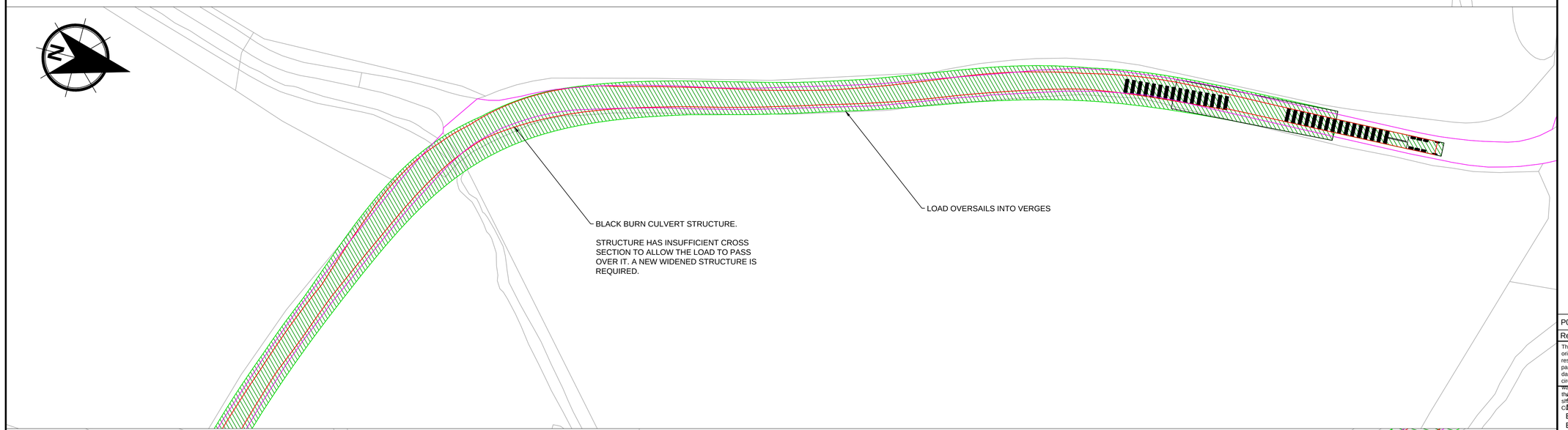
Drawn	Designed	Checked	Approved
MA	MA	RL	CB

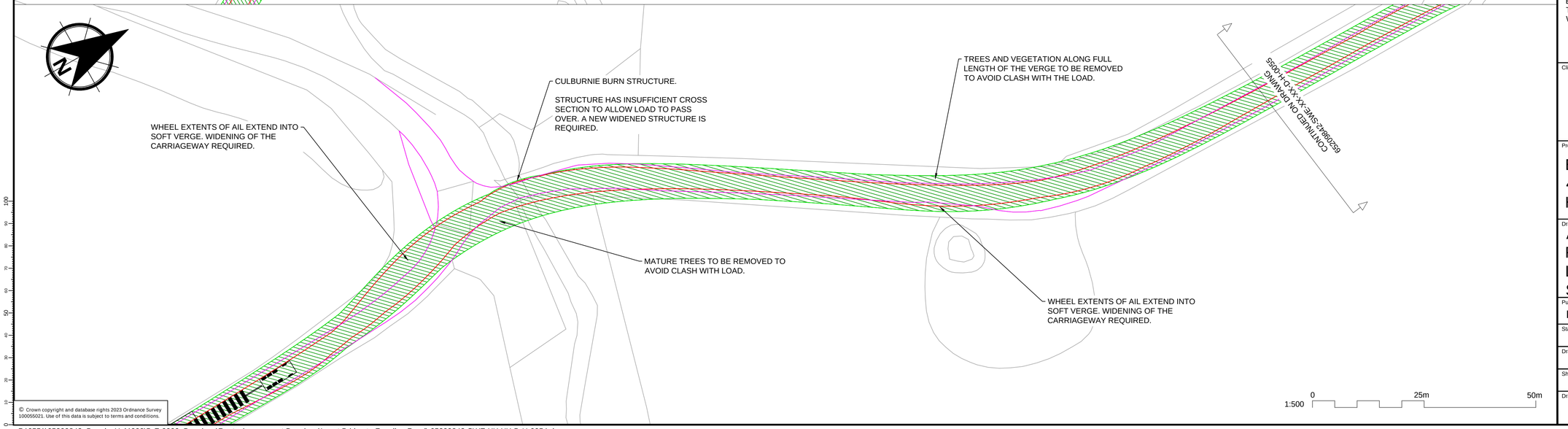
Sheet Size	Scale	Sweco Ref	Revision
A1	1:500	65209842	P01

Drawing Number: 65209842-SWE-XX-XX-D-H-0053

P:\6551\65209842_Beauly_Hub\000\D-Z-0000_Drawings\Route Assessment Drawings\Lovat Bridge to Fanellan Road\ 65209842-SWE-XX-XX-D-H-0053.dwg







NOTES

1. DO NOT SCALE FROM THIS DRAWING MANUALLY OR ELECTRONICALLY.
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3. ALL DATUM LEVELS ARE IN METRES AND DIMENSIONS ARE IN METRES (m) UNLESS OTHERWISE STATED.

KEY TO DRAWING

- WHEEL TRACK EXTENTS
- VEHICLE OVER SAIL
- EXISTING ROAD EXTENTS
- PROPOSED CARRIAGEWAY WIDENING

IMPORTANT

HEALTH, SAFETY & ENVIRONMENTAL INFORMATION

IN ADDITION TO THE HAZARDS AND RISKS NORMALLY ASSOCIATED WITH THE TYPE OF WORK DETAILED ON THIS DRAWING, PLEASE NOTE THE FOLLOWING SIGNIFICANT RISKS TO HEALTH, SAFETY & ENVIRONMENT

THE SIGNIFICANT RISKS ASSOCIATED WITH THE PROJECT ARE NOTED BELOW

NO SIGNIFICANT HAZARDS IDENTIFIED.

IT IS ASSUMED THAT ALL WORKS SHALL BE UNDERTAKEN BY A COMPETENT CONTRACTOR WORKING WHERE APPROPRIATE TO AN APPROVED SAFE SYSTEM OF WORK

Rev	Date	Amendment Details	Dr'n	Chk'	App'
P01	06/12/2023	FOR COMMENT	MA	RL	CB

Sweco
2nd Floor, Quay 2
139 Fountainbridge
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EH3 9QG
Tel: +44 (0)131 550 6300
Web: www.sweco.co.uk

Client: Scottish & Southern Electricity Networks TRANSMISSION

Project Title
BEAULY HUB
400kV SWITCHING STATION AND HVDC CONVERTOR STATION

Drawing Title
ABNORMAL INDIVISIBLE LOAD ROUTE ASSESSMENT - LOVAT BRIDGE TO FANELLAN SHEET 7 OF 10

Purpose Of Issue: PRELIMINARY

Status	Status Description
S0	INITIAL STATUS OR WIP

Drawn	Designed	Checked	Approved
MA	MA	RL	CB

Sheet Size	Scale	Sweco Ref	Revision
A1	1:500	65209842	P01

Drawing Number: 65209842-SWE-XX-XX-D-H-0054

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NOTES

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2. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL OTHER RELEVANT PROJECT INFORMATION.
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KEY TO DRAWING

- WHEEL TRACK EXTENTS
- VEHICLE OVER SAIL
- EXISTING ROAD EXTENTS
- PROPOSED CARRIAGEWAY WIDENING

IMPORTANT

HEALTH, SAFETY & ENVIRONMENTAL INFORMATION

IN ADDITION TO THE HAZARDS AND RISKS NORMALLY ASSOCIATED WITH THE TYPE OF WORK DETAILED ON THIS DRAWING, PLEASE NOTE THE FOLLOWING SIGNIFICANT RISKS TO HEALTH, SAFETY & ENVIRONMENT

THE SIGNIFICANT RISKS ASSOCIATED WITH THE PROJECT ARE NOTED BELOW

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IT IS ASSUMED THAT ALL WORKS SHALL BE UNDERTAKEN BY A COMPETENT CONTRACTOR WORKING WHERE APPROPRIATE TO AN APPROVED SAFE SYSTEM OF WORK

Rev	Date	Amendment Details	Dr'n	Chk'	App'
P01	06/12/2023	FOR COMMENT	MA	RL	CB

139 Fountainbridge
Edinburgh
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Tel: +44 (0)131 550 6300
Web: www.sweco.co.uk

SWECO

Client

Scottish & Southern Electricity Networks TRANSMISSION

Project Title

BEAULY HUB
400kV SWITCHING STATION AND HVDC CONVERTOR STATION

Drawing Title

ABNORMAL INDIVISIBLE LOAD ROUTE ASSESSMENT - LOVAT BRIDGE TO FANELLAN SHEET 8 OF 10

Purpose Of Issue: PRELIMINARY

Status	Status Description
S0	INITIAL STATUS OR WIP

Drawn	Designed	Checked	Approved
MA	MA	RL	CB

Sheet Size	Scale	Sweco Ref	Revision
A1	1:500	65209842	P01

Drawing Number

65209842-SWE-XX-XX-D-H-0055

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NOTES

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3. ALL DATUM LEVELS ARE IN METRES AND DIMENSIONS ARE IN METRES (m) UNLESS OTHERWISE STATED.

KEY TO DRAWING

- WHEEL TRACK EXTENTS
- VEHICLE OVER SAIL
- EXISTING ROAD EXTENTS
- PROPOSED CARRIAGEWAY WIDENING

IMPORTANT

HEALTH, SAFETY & ENVIRONMENTAL INFORMATION

IN ADDITION TO THE HAZARDS AND RISKS NORMALLY ASSOCIATED WITH THE TYPE OF WORK DETAILED ON THIS DRAWING, PLEASE NOTE THE FOLLOWING SIGNIFICANT RISKS TO HEALTH, SAFETY & ENVIRONMENT

THE SIGNIFICANT RISKS ASSOCIATED WITH THE PROJECT ARE NOTED BELOW

NO SIGNIFICANT HAZARDS IDENTIFIED.

IT IS ASSUMED THAT ALL WORKS SHALL BE UNDERTAKEN BY A COMPETENT CONTRACTOR WORKING WHERE APPROPRIATE TO AN APPROVED SAFE SYSTEM OF WORK

Rev	Date	Amendment Details	Dr'n	Chk'	App'
P01	06/12/2023	FOR COMMENT	MA	RL	CB

2nd Floor, Quay 2
139 Fountainbridge
Edinburgh
EH3 9QG
Tel: +44 (0)131 550 6300
Web: www.sweco.co.uk

Client: Scottish & Southern Electricity Networks TRANSMISSION

Project Title: BEAULY HUB
400kV SWITCHING STATION AND HVDC CONVERTOR STATION

Drawing Title: ABNORMAL INDIVISIBLE LOAD ROUTE ASSESSMENT - LOVAT BRIDGE TO FANELLAN SHEET 9 OF 10

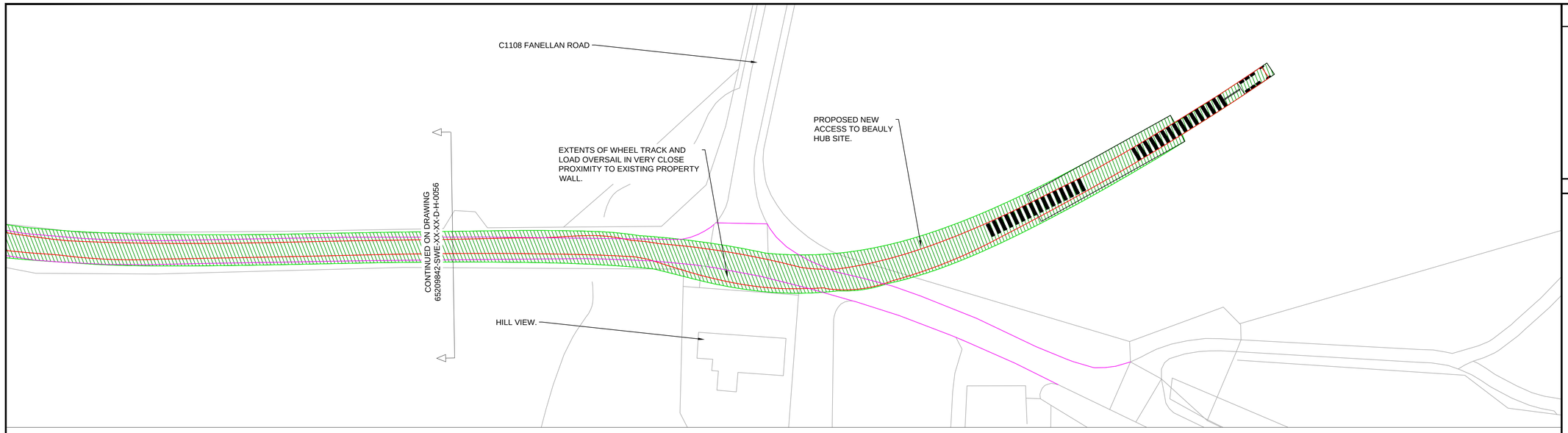
Purpose Of Issue: PRELIMINARY

Status	Status Description
S0	INITIAL STATUS OR WIP

Drawn	Designed	Checked	Approved
MA	MA	RL	CB

Sheet Size	Scale	Sweco Ref	Revision
A1	1:500	65209842	P01

Drawing Number: 65209842-SWE-XX-XX-D-H-0056



NOTES

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KEY TO DRAWING

- WHEEL TRACK EXTENTS
- VEHICLE OVER SAIL
- EXISTING ROAD EXTENTS
- PROPOSED CARRIAGEWAY WIDENING

IMPORTANT

HEALTH, SAFETY & ENVIRONMENTAL INFORMATION

IN ADDITION TO THE HAZARDS AND RISKS NORMALLY ASSOCIATED WITH THE TYPE OF WORK DETAILED ON THIS DRAWING, PLEASE NOTE THE FOLLOWING SIGNIFICANT RISKS TO HEALTH, SAFETY & ENVIRONMENT

THE SIGNIFICANT RISKS ASSOCIATED WITH THE PROJECT ARE NOTED BELOW

REF:

NO SIGNIFICANT HAZARDS IDENTIFIED.

REFERENCE RESIDUAL RISK LOG FOR FURTHER DETAILS
REF: 65209642-SWE-XX-XX-T-V-0001

IT IS ASSUMED THAT ALL WORKS SHALL BE UNDERTAKEN BY A COMPETENT CONTRACTOR WORKING WHERE APPROPRIATE TO AN APPROVED SAFE SYSTEM OF WORK

Rev	Date	Amendment Details	Dr'n	Chk'	App'
P01	06/12/2023	FOR COMMENT	MA	RL	CB

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Web: www.sweco.co.uk

Client

Project Title

BEAULY HUB
400kV SWITCHING STATION AND HVDC CONVERTOR STATION

Drawing Title

ABNORMAL INDIVISIBLE LOAD ROUTE ASSESSMENT - LOVAT BRIDGE TO FANELLAN SHEET 10 OF 10

Purpose Of Issue

PRELIMINARY

Status	Status Description
S0	INITIAL STATUS OR WIP

Drawn	Designed	Checked	Approved
MA	MA	RL	CB

Sheet Size	Scale	Sweco Ref	Revision
A1	1:500	65209842	P01

Drawing Number

65209842-SWE-XX-XX-D-H-0057

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NOTES

1. DO NOT SCALE FROM THIS DRAWING MANUALLY OR ELECTRONICALLY.
2. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL OTHER RELEVANT PROJECT INFORMATION.
3. ALL DATUM LEVELS ARE IN METRES AND DIMENSIONS ARE IN METRES (m) UNLESS OTHERWISE STATED.

KEY TO DRAWING

- WHEEL TRACK EXTENTS
- VEHICLE OVER SAIL
- EXISTING ROAD EXTENTS
- PROPOSED CARRIAGEWAY WIDENING

IMPORTANT

HEALTH, SAFETY & ENVIRONMENTAL INFORMATION

IN ADDITION TO THE HAZARDS AND RISKS NORMALLY ASSOCIATED WITH THE TYPE OF WORK DETAILED ON THIS DRAWING, PLEASE NOTE THE FOLLOWING SIGNIFICANT RISKS TO HEALTH, SAFETY & ENVIRONMENT

THE SIGNIFICANT RISKS ASSOCIATED WITH THE PROJECT ARE NOTED BELOW

REF:

1 — UNCHARTED SERVICES MAY BE PRESENT WITHIN THE HIGHWAYS VERGE.

REFERENCE RESIDUAL RISK LOG FOR FURTHER DETAILS
REF: 65209642-SWE-XX-XX-T-V-0001

IT IS ASSUMED THAT ALL WORKS SHALL BE UNDERTAKEN BY A COMPETENT CONTRACTOR WORKING WHERE APPROPRIATE TO AN APPROVED SAFE SYSTEM OF WORK

Rev	Date	Amendment Details	Dr'n	Chk'	App'
P01	06/12/2023	FOR COMMENT	MA	RL	CB

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Atria One, Level 2
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Edinburgh
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Tel: +44 (0)131 550 6300
Web: www.sweco.co.uk

Client: Scottish & Southern Electricity Networks TRANSMISSION

Project Title
BEAULY HUB
400kV SWITCHING STATION AND HVDC CONVERTOR STATION

Drawing Title
ABNORMAL INDIVISIBLE LOAD ROUTE ASSESSMENT - PORT OF NIGG TO NIGG ROUNDABOUT SHEET 1 OF 10

Purpose Of Issue: PRELIMINARY

Status	Status Description
S0	INITIAL STATUS OR WIP

Drawn	Designed	Checked	Approved
MA	MA	RL	CB

Sheet Size	Scale	Sweco Ref	Revision
A1	1:500	65209842	P01

Drawing Number
65209842-SWE-XX-XX-D-H-0058

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NOTES

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KEY TO DRAWING

- WHEEL TRACK EXTENTS
- VEHICLE OVER SAIL
- EXISTING ROAD EXTENTS
- PROPOSED CARRIAGEWAY WIDENING

IMPORTANT

HEALTH, SAFETY & ENVIRONMENTAL INFORMATION

IN ADDITION TO THE HAZARDS AND RISKS NORMALLY ASSOCIATED WITH THE TYPE OF WORK DETAILED ON THIS DRAWING, PLEASE NOTE THE FOLLOWING SIGNIFICANT RISKS TO HEALTH, SAFETY & ENVIRONMENT

THE SIGNIFICANT RISKS ASSOCIATED WITH THE PROJECT ARE NOTED BELOW

REF:

1	OVERHEAD ELECTRICAL LINE IN CLOSE PROXIMITY TO CARRIAGEWAY.

REFERENCE RESIDUAL RISK LOG FOR FURTHER DETAILS
REF: 65209642-SWE-XX-XX-T-V-0001

IT IS ASSUMED THAT ALL WORKS SHALL BE UNDERTAKEN BY A COMPETENT CONTRACTOR WORKING WHERE APPROPRIATE TO AN APPROVED SAFE SYSTEM OF WORK

Rev	Date	Amendment Details	Dr'n	Chk'	App'
P01	06/12/2023	FOR COMMENT	MA	RL	CB

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139 Fountainbridge
Edinburgh
EH3 9QG
Tel: +44 (0)131 550 6300
Web: www.sweco.co.uk

Client

Project Title

BEAULY HUB
400kV SWITCHING STATION AND HVDC CONVERTOR STATION

Drawing Title

ABNORMAL INDIVISIBLE LOAD ROUTE ASSESSMENT - PORT OF NIGG TO NIGG ROUNDABOUT SHEET 2 OF 10

Purpose Of Issue

PRELIMINARY

Status	Status Description
S0	INITIAL STATUS OR WIP

Drawn	Designed	Checked	Approved
MA	MA	RL	CB

Sheet Size	Scale	Sweco Ref	Revision
A1	1:500	65209842	P01

Drawing Number

65209842-SWE-XX-XX-D-H-0059

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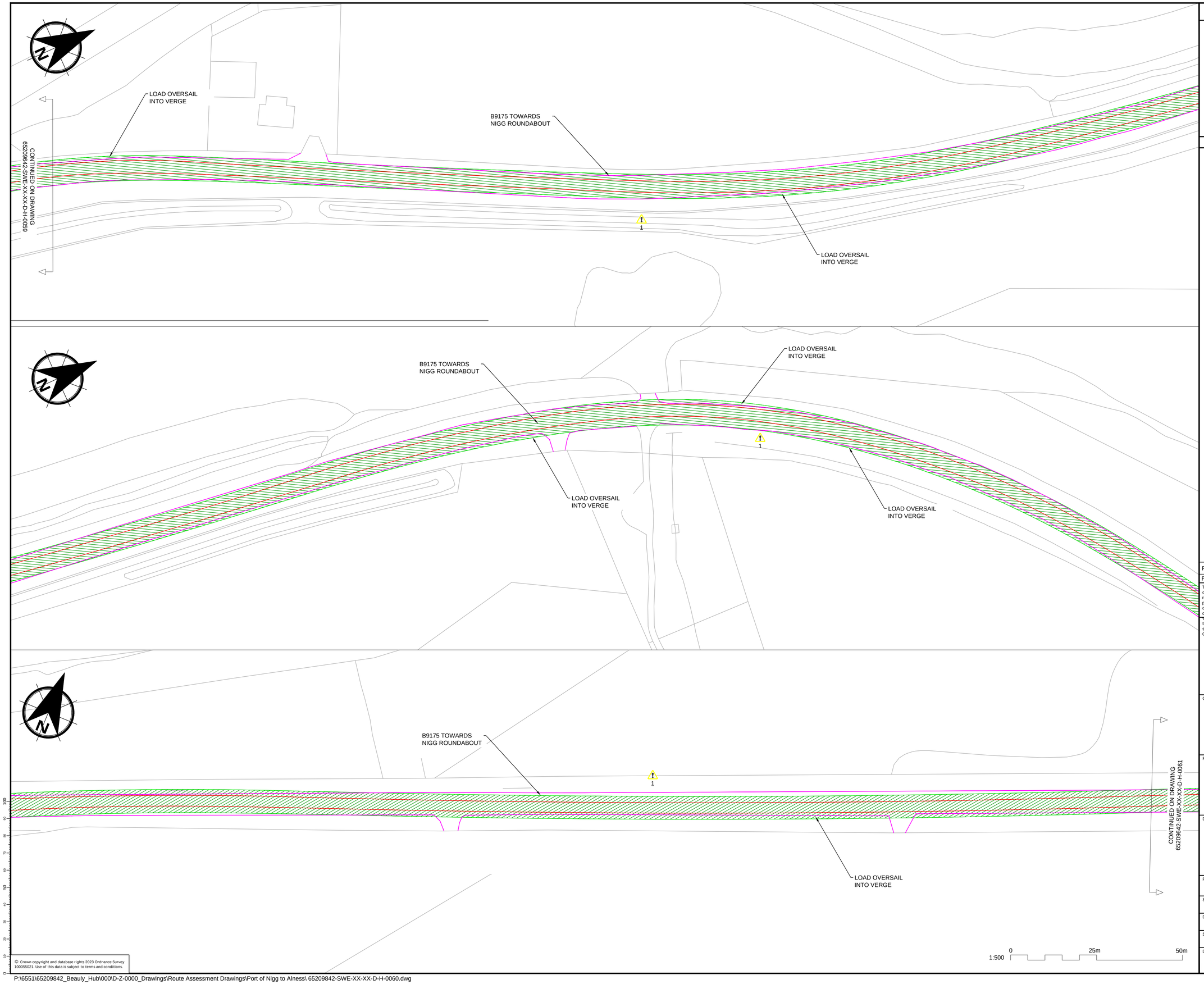

NOTES

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KEY TO DRAWING

- WHEEL TRACK EXTENTS
- VEHICLE OVER SAIL
- EXISTING ROAD EXTENTS
- PROPOSED CARRIAGEWAY WIDENING

IMPORTANT

HEALTH, SAFETY & ENVIRONMENTAL INFORMATION

IN ADDITION TO THE HAZARDS AND RISKS NORMALLY ASSOCIATED WITH THE TYPE OF WORK DETAILED ON THIS DRAWING, PLEASE NOTE THE FOLLOWING SIGNIFICANT RISKS TO HEALTH, SAFETY & ENVIRONMENT

THE SIGNIFICANT RISKS ASSOCIATED WITH THE PROJECT ARE NOTED BELOW

REF:

1	OVERHEAD ELECTRICAL LINE IN CLOSE PROXIMITY TO CARRIAGEWAY.

REFERENCE RESIDUAL RISK LOG FOR FURTHER DETAILS
REF: 65209642-SWE-XX-XX-T-V-0001

IT IS ASSUMED THAT ALL WORKS SHALL BE UNDERTAKEN BY A COMPETENT CONTRACTOR WORKING WHERE APPROPRIATE TO AN APPROVED SAFE SYSTEM OF WORK

Rev	Date	Amendment Details	Dr'n	Chk'	App'
P01	06/12/2023	FOR COMMENT	MA	RL	CB

Sweco
2nd Floor, Quay 2
139 Fountainbridge
Edinburgh
EH3 9QG
Tel: +44 (0)131 550 6300
Web: www.sweco.co.uk

Client

Scottish & Southern Electricity Networks
TRANSMISSION

Project Title

BEAULY HUB
400kV SWITCHING STATION AND HVDC CONVERTOR STATION

Drawing Title

ABNORMAL INDIVISIBLE LOAD ROUTE ASSESSMENT -
PORT OF NIGG TO NIGG ROUNDABOUT SHEET 3 OF 10

Purpose Of Issue

PRELIMINARY

Status	Status Description
S0	INITIAL STATUS OR WIP

Drawn	Designed	Checked	Approved
MA	MA	RL	CB

Sheet Size	Scale	Sweco Ref	Revision
A1	1:500	65209842	P01

Drawing Number

65209842-SWE-XX-XX-D-H-0060

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KEY TO DRAWING

- WHEEL TRACK EXTENTS
- VEHICLE OVER SAIL
- EXISTING ROAD EXTENTS
- PROPOSED CARRIAGEWAY WIDENING

IMPORTANT

HEALTH, SAFETY & ENVIRONMENTAL INFORMATION

IN ADDITION TO THE HAZARDS AND RISKS NORMALLY ASSOCIATED WITH THE TYPE OF WORK DETAILED ON THIS DRAWING, PLEASE NOTE THE FOLLOWING SIGNIFICANT RISKS TO HEALTH, SAFETY & ENVIRONMENT

THE SIGNIFICANT RISKS ASSOCIATED WITH THE PROJECT ARE NOTED BELOW

REF:

1	OVERHEAD ELECTRICAL LINE IN CLOSE PROXIMITY TO CARRIAGEWAY.

REFERENCE RESIDUAL RISK LOG FOR FURTHER DETAILS
REF: 65209642-SWE-XX-XX-T-V-0001

IT IS ASSUMED THAT ALL WORKS SHALL BE UNDERTAKEN BY A COMPETENT CONTRACTOR WORKING WHERE APPROPRIATE TO AN APPROVED SAFE SYSTEM OF WORK

Rev	Date	Amendment Details	Dr'n	Chk'	App'
P01	06/12/2023	FOR COMMENT	MA	RL	CB

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Web: www.sweco.co.uk

SWECO

Client

Scottish & Southern Electricity Networks TRANSMISSION

Project Title

BEAULY HUB
400kV SWITCHING STATION AND HVDC CONVERTOR STATION

Drawing Title

ABNORMAL INDIVISIBLE LOAD ROUTE ASSESSMENT - PORT OF NIGG TO NIGG ROUNDABOUT SHEET 4 OF 10

Purpose Of Issue

PRELIMINARY

Status	Status Description
S0	INITIAL STATUS OR WIP

Drawn	Designed	Checked	Approved
MA	MA	RL	CB

Sheet Size	Scale	Sweco Ref	Revision
A1	1:500	65209842	P01

Drawing Number

65209842-SWE-XX-XX-D-H-0061

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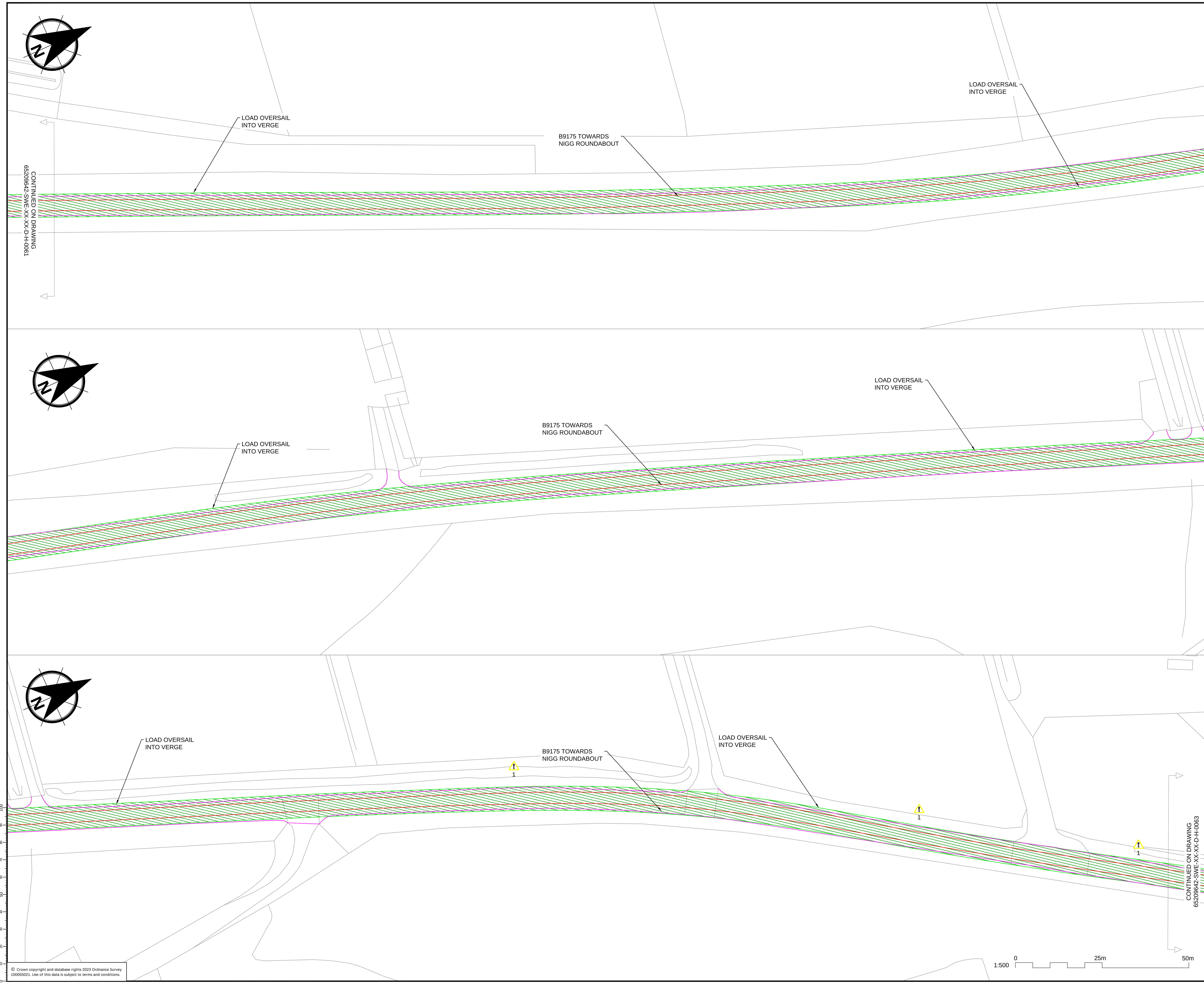

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NOTES

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KEY TO DRAWING

- WHEEL TRACK EXTENTS
- VEHICLE OVER SAIL
- EXISTING ROAD EXTENTS
- PROPOSED CARRIAGEWAY WIDENING

IMPORTANT

HEALTH, SAFETY & ENVIRONMENTAL INFORMATION

IN ADDITION TO THE HAZARDS AND RISKS NORMALLY ASSOCIATED WITH THE TYPE OF WORK DETAILED ON THIS DRAWING, PLEASE NOTE THE FOLLOWING SIGNIFICANT RISKS TO HEALTH, SAFETY & ENVIRONMENT

THE SIGNIFICANT RISKS ASSOCIATED WITH THE PROJECT ARE NOTED BELOW

REF:

1 OVERHEAD TELECOMMUNICATIONS LINE PASSES OVER THE CARRIAGEWAY.

REFERENCE RESIDUAL RISK LOG FOR FURTHER DETAILS
REF: 65209642-SWE-XX-XX-T-V-0001

IT IS ASSUMED THAT ALL WORKS SHALL BE UNDERTAKEN BY A COMPETENT CONTRACTOR WORKING WHERE APPROPRIATE TO AN APPROVED SAFE SYSTEM OF WORK

Rev	Date	Amendment Details	Dr'n	Chk'	App'
P01	06/12/2023	FOR COMMENT	MA	RL	CB

2nd Floor, Quay 2
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EH3 9QG
Tel: +44 (0)131 550 6300
Web: www.sweco.co.uk

Client

Project Title

BEAULY HUB
400kV SWITCHING STATION AND HVDC CONVERTOR STATION

Drawing Title

ABNORMAL INDIVISIBLE LOAD ROUTE ASSESSMENT - PORT OF NIGG TO NIGG ROUNDABOUT SHEET 5 OF 10

Purpose Of Issue

PRELIMINARY

Status	Status Description
S0	INITIAL STATUS OR WIP

Drawn	Designed	Checked	Approved
MA	MA	RL	CB

Sheet Size	Scale	Sweco Ref	Revision
A1	1:500	65209842	P01

Drawing Number

65209842-SWE-XX-XX-D-H-0062

1:500 0 25m 50m

NOTES

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KEY TO DRAWING

- WHEEL TRACK EXTENTS
- VEHICLE OVER SAIL
- EXISTING ROAD EXTENTS
- PROPOSED CARRIAGEWAY WIDENING

IMPORTANT

HEALTH, SAFETY & ENVIRONMENTAL INFORMATION

IN ADDITION TO THE HAZARDS AND RISKS NORMALLY ASSOCIATED WITH THE TYPE OF WORK DETAILED ON THIS DRAWING, PLEASE NOTE THE FOLLOWING SIGNIFICANT RISKS TO HEALTH, SAFETY & ENVIRONMENT

THE SIGNIFICANT RISKS ASSOCIATED WITH THE PROJECT ARE NOTED BELOW

REF:

1	OVERHEAD ELECTRICAL LINE IN CLOSE PROXIMITY TO CARRIAGEWAY.

REFERENCE RESIDUAL RISK LOG FOR FURTHER DETAILS
REF: 65209642-SWE-XX-XX-T-V-0001

IT IS ASSUMED THAT ALL WORKS SHALL BE UNDERTAKEN BY A COMPETENT CONTRACTOR WORKING WHERE APPROPRIATE TO AN APPROVED SAFE SYSTEM OF WORK

Rev	Date	Amendment Details	Dr'n	Chk'	App'
P01	06/12/2023	FOR COMMENT	MA	RL	CB

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Tel: +44 (0)131 550 6300
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Client: Scottish & Southern Electricity Networks TRANSMISSION

Project Title: BEAULY HUB
400kV SWITCHING STATION AND HVDC CONVERTOR STATION

Drawing Title: ABNORMAL INDIVISIBLE LOAD ROUTE ASSESSMENT - PORT OF NIGG TO NIGG ROUNDABOUT SHEET 6 OF 10

Purpose Of Issue: PRELIMINARY

Status	Status Description
S0	INITIAL STATUS OR WIP

Drawn	Designed	Checked	Approved
MA	MA	RL	CB

Sheet Size	Scale	Sweco Ref	Revision
A1	1:500	65209842	P01

Drawing Number: 65209842-SWE-XX-XX-D-H-0063

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NOTES

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KEY TO DRAWING

- WHEEL TRACK EXTENTS
- VEHICLE OVER SAIL
- EXISTING ROAD EXTENTS
- PROPOSED CARRIAGEWAY WIDENING

IMPORTANT

HEALTH, SAFETY & ENVIRONMENTAL INFORMATION

IN ADDITION TO THE HAZARDS AND RISKS NORMALLY ASSOCIATED WITH THE TYPE OF WORK DETAILED ON THIS DRAWING, PLEASE NOTE THE FOLLOWING SIGNIFICANT RISKS TO HEALTH, SAFETY & ENVIRONMENT

THE SIGNIFICANT RISKS ASSOCIATED WITH THE PROJECT ARE NOTED BELOW

REF:

1 — OVERHEAD ELECTRICAL LINE IN CLOSE PROXIMITY TO CARRIAGEWAY.

REFERENCE RESIDUAL RISK LOG FOR FURTHER DETAILS
REF: 65209642-SWE-XX-XX-T-V-0001

IT IS ASSUMED THAT ALL WORKS SHALL BE UNDERTAKEN BY A COMPETENT CONTRACTOR WORKING WHERE APPROPRIATE TO AN APPROVED SAFE SYSTEM OF WORK

Rev	Date	Amendment Details	Dr'n	Chk'	App'
P01	06/12/2023	FOR COMMENT	MA	RL	CB

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Client: Scottish & Southern Electricity Networks TRANSMISSION

Project Title
BEAULY HUB
400kV SWITCHING STATION AND HVDC CONVERTOR STATION

Drawing Title
ABNORMAL INDIVISIBLE LOAD ROUTE ASSESSMENT - PORT OF NIGG TO NIGG ROUNDABOUT SHEET 7 OF 10

Purpose Of Issue: PRELIMINARY

Status	Status Description
S0	INITIAL STATUS OR WIP

Drawn	Designed	Checked	Approved
MA	MA	RL	CB

Sheet Size	Scale	Sweco Ref	Revision
A1	1:500	65209842	P01

Drawing Number: 65209842-SWE-XX-XX-D-H-0064

P:\6551\65209842_Beauly_Hub\000\D-Z-0000_Drawings\Route Assessment Drawings\Port of Nigg to Alness\ 65209842-SWE-XX-XX-D-H-0064.dwg

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P:\6551\65209842_Beauly_Hub\000\D-Z-0000_Drawings\Route Assessment Drawings\Port of Nigg to Alness\ 65209842-SWE-XX-XX-D-H-0065.dwg

NOTES

1. DO NOT SCALE FROM THIS DRAWING MANUALLY OR ELECTRONICALLY.
2. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL OTHER RELEVANT PROJECT INFORMATION.
3. ALL DATUM LEVELS ARE IN METRES AND DIMENSIONS ARE IN METRES (m) UNLESS OTHERWISE STATED.

KEY TO DRAWING

- WHEEL TRACK EXTENTS
- VEHICLE OVER SAIL
- EXISTING ROAD EXTENTS
- PROPOSED CARRIAGEWAY WIDENING

IMPORTANT

HEALTH, SAFETY & ENVIRONMENTAL INFORMATION

IN ADDITION TO THE HAZARDS AND RISKS NORMALLY ASSOCIATED WITH THE TYPE OF WORK DETAILED ON THIS DRAWING, PLEASE NOTE THE FOLLOWING SIGNIFICANT RISKS TO HEALTH, SAFETY & ENVIRONMENT

THE SIGNIFICANT RISKS ASSOCIATED WITH THE PROJECT ARE NOTED BELOW

REF:

1 LIGHTING COLUMNS PRESENT IN THE VERGE.

REFERENCE RESIDUAL RISK LOG FOR FURTHER DETAILS
REF: 65209642-SWE-XX-XX-T-V-0001

IT IS ASSUMED THAT ALL WORKS SHALL BE UNDERTAKEN BY A COMPETENT CONTRACTOR WORKING WHERE APPROPRIATE TO AN APPROVED SAFE SYSTEM OF WORK

Rev	Date	Amendment Details	Dr'n	Chk'	App'
P01	06/12/2023	FOR COMMENT	MA	RL	CB

2nd Floor Quay 2
139 Fountainbridge
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SWECO

Client: Scottish & Southern Electricity Networks TRANSMISSION

Project Title
BEAULY HUB
400kV SWITCHING STATION AND HVDC CONVERTOR STATION

Drawing Title
ABNORMAL INDIVISIBLE LOAD ROUTE ASSESSMENT - PORT OF NIGG TO NIGG ROUNDABOUT SHEET 8 OF 10

Purpose Of Issue: PRELIMINARY

Status	Status Description		
S0	INITIAL STATUS OR WIP		
Drawn	Designed	Checked	Approved
MA	MA	RL	CB
Sheet Size	Scale	Sweco Ref	Revision
A1	1:500	65209842	P01

Drawing Number
65209842-SWE-XX-XX-D-H-0065

P:\6551\65209842_Beauly_Hub\000\D-Z-0000_Drawings\Route Assessment Drawings\Port of Nigg to Alness\ 65209842-SWE-XX-XX-D-H-0066.dwg

NOTES

1. DO NOT SCALE FROM THIS DRAWING MANUALLY OR ELECTRONICALLY.
2. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL OTHER RELEVANT PROJECT INFORMATION.
3. ALL DATUM LEVELS ARE IN METRES AND DIMENSIONS ARE IN METRES (m) UNLESS OTHERWISE STATED.

KEY TO DRAWING

- WHEEL TRACK EXTENTS
- VEHICLE OVER SAIL
- EXISTING ROAD EXTENTS
- PROPOSED CARRIAGEWAY WIDENING

IMPORTANT

HEALTH, SAFETY & ENVIRONMENTAL INFORMATION

IN ADDITION TO THE HAZARDS AND RISKS NORMALLY ASSOCIATED WITH THE TYPE OF WORK DETAILED ON THIS DRAWING, PLEASE NOTE THE FOLLOWING SIGNIFICANT RISKS TO HEALTH, SAFETY & ENVIRONMENT

THE SIGNIFICANT RISKS ASSOCIATED WITH THE PROJECT ARE NOTED BELOW

REF:

1	OVERHEAD TELECOMMUNICATIONS CABLE PASSES OVER CARRIAGEWAY.
2	LIGHTING COLUMNS PRESENT IN THE VERGE.
3	RAILWAY LEVEL CROSSING WITH AUTOMATED BARRIER SYSTEM.

REFERENCE RESIDUAL RISK LOG FOR FURTHER DETAILS
REF: 65209642-SWE-XX-XX-T-V-0001

IT IS ASSUMED THAT ALL WORKS SHALL BE UNDERTAKEN BY A COMPETENT CONTRACTOR WORKING WHERE APPROPRIATE TO AN APPROVED SAFE SYSTEM OF WORK

Rev	Date	Amendment Details	Dr'n	Chk'	App'
P01	06/12/2023	FOR COMMENT	MA	RL	CB

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Tel: +44 (0)131 550 6300
Web: www.sweco.co.uk

Client

Project Title

BEAULY HUB
400kV SWITCHING STATION AND HVDC CONVERTOR STATION

Drawing Title

ABNORMAL INDIVISIBLE LOAD ROUTE ASSESSMENT - PORT OF NIGG TO NIGG ROUNDABOUT SHEET 9 OF 10

Purpose Of Issue: PRELIMINARY

Status	Status Description
S0	INITIAL STATUS OR WIP

Drawn	Designed	Checked	Approved
MA	MA	RL	CB

Sheet Size	Scale	Sweco Ref	Revision
A1	1:500	65209842	P01

Drawing Number: 65209842-SWE-XX-XX-D-H-0066

P:\6551\65209842_Beauly_Hub\000\D-Z-0000_Drawings\Route Assessment Drawings\Port of Nigg to Alness\ 65209842-SWE-XX-XX-D-H-0067.dwg

NOTES

1. DO NOT SCALE FROM THIS DRAWING MANUALLY OR ELECTRONICALLY.
2. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL OTHER RELEVANT PROJECT INFORMATION.
3. ALL DATUM LEVELS ARE IN METRES AND DIMENSIONS ARE IN METRES (m) UNLESS OTHERWISE STATED.

KEY TO DRAWING

- WHEEL TRACK EXTENTS
- VEHICLE OVER SAIL
- EXISTING ROAD EXTENTS
- PROPOSED CARRIAGEWAY WIDENING

IMPORTANT

HEALTH, SAFETY & ENVIRONMENTAL INFORMATION

IN ADDITION TO THE HAZARDS AND RISKS NORMALLY ASSOCIATED WITH THE TYPE OF WORK DETAILED ON THIS DRAWING, PLEASE NOTE THE FOLLOWING SIGNIFICANT RISKS TO HEALTH, SAFETY & ENVIRONMENT

THE SIGNIFICANT RISKS ASSOCIATED WITH THE PROJECT ARE NOTED BELOW

REF:

1 — LIGHTING COLUMNS PRESENT IN THE VERGE.

2 — LOW VOLTAGE UNDERGROUND ELECTRICAL CABLE PRESENT IN THE VERGE.

REFERENCE RESIDUAL RISK LOG FOR FURTHER DETAILS
REF: 65209642-SWE-XX-XX-T-V-0001

IT IS ASSUMED THAT ALL WORKS SHALL BE UNDERTAKEN BY A COMPETENT CONTRACTOR WORKING WHERE APPROPRIATE TO AN APPROVED SAFE SYSTEM OF WORK

Rev	Date	Amendment Details	Dr'n	Chk'	App'
P01	06/12/2023	FOR COMMENT	MA	RL	CB

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Web: www.sweco.co.uk

Client

Scottish & Southern Electricity Networks
TRANSMISSION

Project Title

BEAULY HUB
400kV SWITCHING STATION AND HVDC CONVERTOR STATION

Drawing Title

ABNORMAL INDIVISIBLE LOAD ROUTE ASSESSMENT - PORT OF NIGG TO NIGG ROUNDABOUT SHEET 10 OF 10

Purpose Of Issue

PRELIMINARY

Status	Status Description
S0	INITIAL STATUS OR WIP

Drawn	Designed	Checked	Approved
MA	MA	RL	CB

Sheet Size	Scale	Sweco Ref	Revision
A1	1:500	65209842	P01

Drawing Number

65209842-SWE-XX-XX-D-H-0067

NOTES

1. DO NOT SCALE FROM THIS DRAWING MANUALLY OR ELECTRONICALLY.
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3. ALL DATUM LEVELS ARE IN METRES AND DIMENSIONS ARE IN METRES (m) UNLESS OTHERWISE STATED.

KEY TO DRAWING

- WHEEL TRACK EXTENTS
- VEHICLE OVER SAIL
- EXISTING ROAD EXTENTS
- PROPOSED CARRIAGEWAY WIDENING

IMPORTANT

HEALTH, SAFETY & ENVIRONMENTAL INFORMATION

IN ADDITION TO THE HAZARDS AND RISKS NORMALLY ASSOCIATED WITH THE TYPE OF WORK DETAILED ON THIS DRAWING, PLEASE NOTE THE FOLLOWING SIGNIFICANT RISKS TO HEALTH, SAFETY & ENVIRONMENT

THE SIGNIFICANT RISKS ASSOCIATED WITH THE PROJECT ARE NOTED BELOW

1	EXISTING ELECTRICAL LINE PASSES OVERHEAD.

IT IS ASSUMED THAT ALL WORKS SHALL BE UNDERTAKEN BY A COMPETENT CONTRACTOR WORKING WHERE APPROPRIATE TO AN APPROVED SAFE SYSTEM OF WORK

Rev	Date	Amendment Details	Dr'n	Chk'	App'
P01	06/12/2023	FOR COMMENT	MA	RL	CB

Sweco
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Tel: +44 (0)131 550 6300
Web: www.sweco.co.uk

Client: Scottish & Southern Electricity Networks TRANSMISSION

Project Title: BEAULY HUB
400kV SWITCHING STATION AND HVDC CONVERTOR STATION

Drawing Title: ABNORMAL INDIVISIBLE LOAD ROUTE ASSESSMENT - NIGG ROUNDABOUT TO ALNESS SHEET 1 OF 16

Purpose Of Issue: PRELIMINARY

Status	Status Description
S0	INITIAL STATUS OR WIP

Drawn	Designed	Checked	Approved
MA	MA	RL	CB

Sheet Size	Scale	Sweco Ref	Revision
A1	1:500	65209842	P01

Drawing Number: 65209842-SWE-XX-XX-D-H-0068

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BRIDGE

A9 TOWARDS ALNESS

CONTINUED ON DRAWING
65209842-SWE-XX-XX-D-H-0068

A9 TOWARDS ALNESS

A9 TOWARDS ALNESS

CONTINUED ON DRAWING
65209842-SWE-XX-XX-D-H-0070

1:500 0 25m 50m

NOTES

1. DO NOT SCALE FROM THIS DRAWING MANUALLY OR ELECTRONICALLY.
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3. ALL DATUM LEVELS ARE IN METRES AND DIMENSIONS ARE IN METRES (m) UNLESS OTHERWISE STATED.

KEY TO DRAWING

- WHEEL TRACK EXTENTS
- VEHICLE OVER SAIL
- EXISTING ROAD EXTENTS
- PROPOSED CARRIAGEWAY WIDENING

IMPORTANT

HEALTH, SAFETY & ENVIRONMENTAL INFORMATION

IN ADDITION TO THE HAZARDS AND RISKS NORMALLY ASSOCIATED WITH THE TYPE OF WORK DETAILED ON THIS DRAWING, PLEASE NOTE THE FOLLOWING SIGNIFICANT RISKS TO HEALTH, SAFETY & ENVIRONMENT

THE SIGNIFICANT RISKS ASSOCIATED WITH THE PROJECT ARE NOTED BELOW

NO SIGNIFICANT HAZARDS IDENTIFIED.

IT IS ASSUMED THAT ALL WORKS SHALL BE UNDERTAKEN BY A COMPETENT CONTRACTOR WORKING WHERE APPROPRIATE TO AN APPROVED SAFE SYSTEM OF WORK

Rev	Date	Amendment Details	Dr'n	Chk'	App'
P01	06/12/2023	FOR COMMENT	MA	RL	CB

Sweco UK Limited
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EH3 9QG
Tel: +44 (0)131 550 6300
Web: www.sweco.co.uk

Client

Scottish & Southern Electricity Networks TRANSMISSION

Project Title

BEAULY HUB
400kV SWITCHING STATION AND HVDC CONVERTOR STATION

Drawing Title

ABNORMAL INDIVISIBLE LOAD ROUTE ASSESSMENT - NIGG ROUNDABOUT TO ALNESS SHEET 2 OF 16

Purpose Of Issue

PRELIMINARY

Status	Status Description
S0	INITIAL STATUS OR WIP

Drawn	Designed	Checked	Approved
MA	MA	RL	CB

Sheet Size	Scale	Sweco Ref	Revision
A1	1:500	65209842	P01

Drawing Number

65209842-SWE-XX-XX-D-H-0069

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NOTES

1. DO NOT SCALE FROM THIS DRAWING MANUALLY OR ELECTRONICALLY.
2. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL OTHER RELEVANT PROJECT INFORMATION.
3. ALL DATUM LEVELS ARE IN METRES AND DIMENSIONS ARE IN METRES (m) UNLESS OTHERWISE STATED.

KEY TO DRAWING

- WHEEL TRACK EXTENTS
- VEHICLE OVER SAIL
- EXISTING ROAD EXTENTS
- PROPOSED CARRIAGEWAY WIDENING

IMPORTANT

HEALTH, SAFETY & ENVIRONMENTAL INFORMATION

IN ADDITION TO THE HAZARDS AND RISKS NORMALLY ASSOCIATED WITH THE TYPE OF WORK DETAILED ON THIS DRAWING, PLEASE NOTE THE FOLLOWING SIGNIFICANT RISKS TO HEALTH, SAFETY & ENVIRONMENT

THE SIGNIFICANT RISKS ASSOCIATED WITH THE PROJECT ARE NOTED BELOW

NO SIGNIFICANT HAZARDS IDENTIFIED.

IT IS ASSUMED THAT ALL WORKS SHALL BE UNDERTAKEN BY A COMPETENT CONTRACTOR WORKING WHERE APPROPRIATE TO AN APPROVED SAFE SYSTEM OF WORK

Rev	Date	Amendment Details	Dr'n	Chk'	App'
P01	06/12/2023	FOR COMMENT	MA	RL	CB

2nd Floor, Quay 2
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Edinburgh
EH3 9QG
Tel: +44 (0)131 550 6300
Web: www.sweco.co.uk

Client

Project Title

BEAUHY HUB
400kV SWITCHING STATION AND HVDC CONVERTOR STATION

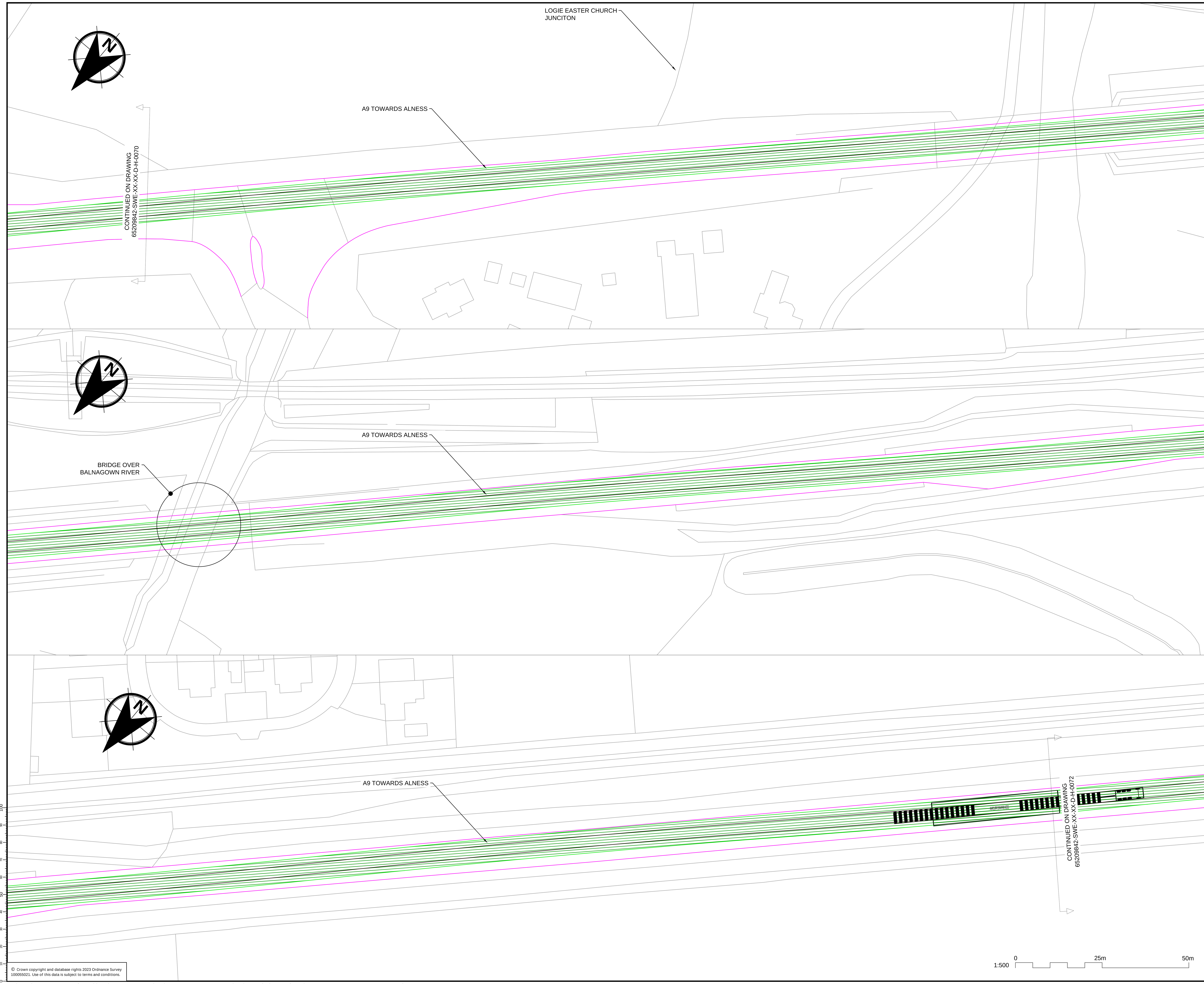
Drawing Title

ABNORMAL INDIVISIBLE LOAD ROUTE ASSESSMENT - NIGG ROUNDABOUT TO ALNESS SHEET 3 OF 16

Purpose Of Issue: PRELIMINARY

Status	Status Description		
S0	INITIAL STATUS OR WIP		
Drawn	Designed	Checked	Approved
MA	MA	RL	CB
Sheet Size	Scale	Sweco Ref	Revision
A1	1:500	65209842	P01

Drawing Number: 65209842-SWE-XX-XX-D-H-0070



NOTES

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2. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL OTHER RELEVANT PROJECT INFORMATION.
3. ALL DATUM LEVELS ARE IN METRES AND DIMENSIONS ARE IN METRES (m) UNLESS OTHERWISE STATED.

KEY TO DRAWING

- WHEEL TRACK EXTENTS
- VEHICLE OVER SAIL
- EXISTING ROAD EXTENTS
- PROPOSED CARRIAGEWAY WIDENING

IMPORTANT

HEALTH, SAFETY & ENVIRONMENTAL INFORMATION

IN ADDITION TO THE HAZARDS AND RISKS NORMALLY ASSOCIATED WITH THE TYPE OF WORK DETAILED ON THIS DRAWING, PLEASE NOTE THE FOLLOWING SIGNIFICANT RISKS TO HEALTH, SAFETY & ENVIRONMENT

THE SIGNIFICANT RISKS ASSOCIATED WITH THE PROJECT ARE NOTED BELOW

NO SIGNIFICANT HAZARDS IDENTIFIED.

IT IS ASSUMED THAT ALL WORKS SHALL BE UNDERTAKEN BY A COMPETENT CONTRACTOR WORKING WHERE APPROPRIATE TO AN APPROVED SAFE SYSTEM OF WORK

Rev	Date	Amendment Details	Dr'n	Chk'	App'
P01	06/12/2023	FOR COMMENT	MA	RL	CB

3rd Floor, Quay 2
139 Fountainbridge
Edinburgh
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Tel: +44 (0)131 550 6300
Web: www.sweco.co.uk

SWECO

Client

Scottish & Southern Electricity Networks
TRANSMISSION

Project Title

BEAULY HUB
400kV SWITCHING STATION AND HVDC CONVERTOR STATION

Drawing Title

ABNORMAL INDIVISIBLE LOAD ROUTE ASSESSMENT - NIGG ROUNDABOUT TO ALNESS SHEET 4 OF 16

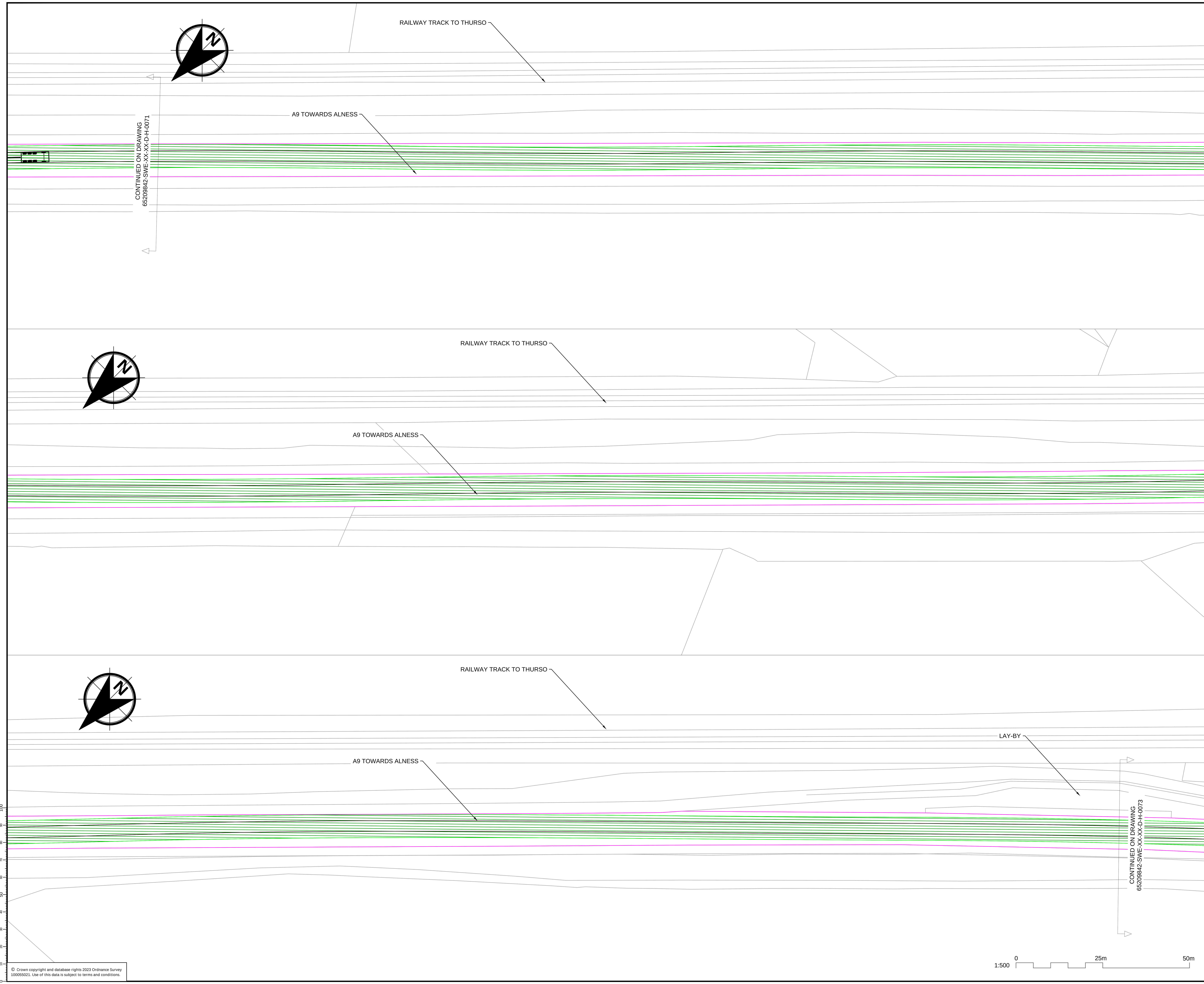
Purpose Of Issue

PRELIMINARY

Status	Status Description		
S0	INITIAL STATUS OR WIP		
Drawn	Designed	Checked	Approved
MA	MA	RL	CB
Sheet Size	Scale	Sweco Ref	Revision
A1	1:500	65209842	P01

Drawing Number

65209842-SWE-XX-XX-D-H-0071



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NOTES

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KEY TO DRAWING

- WHEEL TRACK EXTENTS
- VEHICLE OVER SAIL
- EXISTING ROAD EXTENTS
- PROPOSED CARRIAGEWAY WIDENING

IMPORTANT

HEALTH, SAFETY & ENVIRONMENTAL INFORMATION

IN ADDITION TO THE HAZARDS AND RISKS NORMALLY ASSOCIATED WITH THE TYPE OF WORK DETAILED ON THIS DRAWING, PLEASE NOTE THE FOLLOWING SIGNIFICANT RISKS TO HEALTH, SAFETY & ENVIRONMENT

THE SIGNIFICANT RISKS ASSOCIATED WITH THE PROJECT ARE NOTED BELOW

NO SIGNIFICANT HAZARDS IDENTIFIED.

IT IS ASSUMED THAT ALL WORKS SHALL BE UNDERTAKEN BY A COMPETENT CONTRACTOR WORKING WHERE APPROPRIATE TO AN APPROVED SAFE SYSTEM OF WORK

Rev	Date	Amendment Details	Dr'n	Chk'	App'
P01	06/12/2023	FOR COMMENT	MA	RL	CB

2nd Floor, Quay 2
139 Fountainbridge
Edinburgh
EH3 9QG
Tel: +44 (0)131 550 6300
Web: www.sweco.co.uk

Client

Project Title

BEAULY HUB
400kV SWITCHING STATION AND HVDC CONVERTOR STATION

Drawing Title

ABNORMAL INDIVISIBLE LOAD ROUTE ASSESSMENT - NIGG ROUNDABOUT TO ALNESS SHEET 5 OF 16

Purpose Of Issue: PRELIMINARY

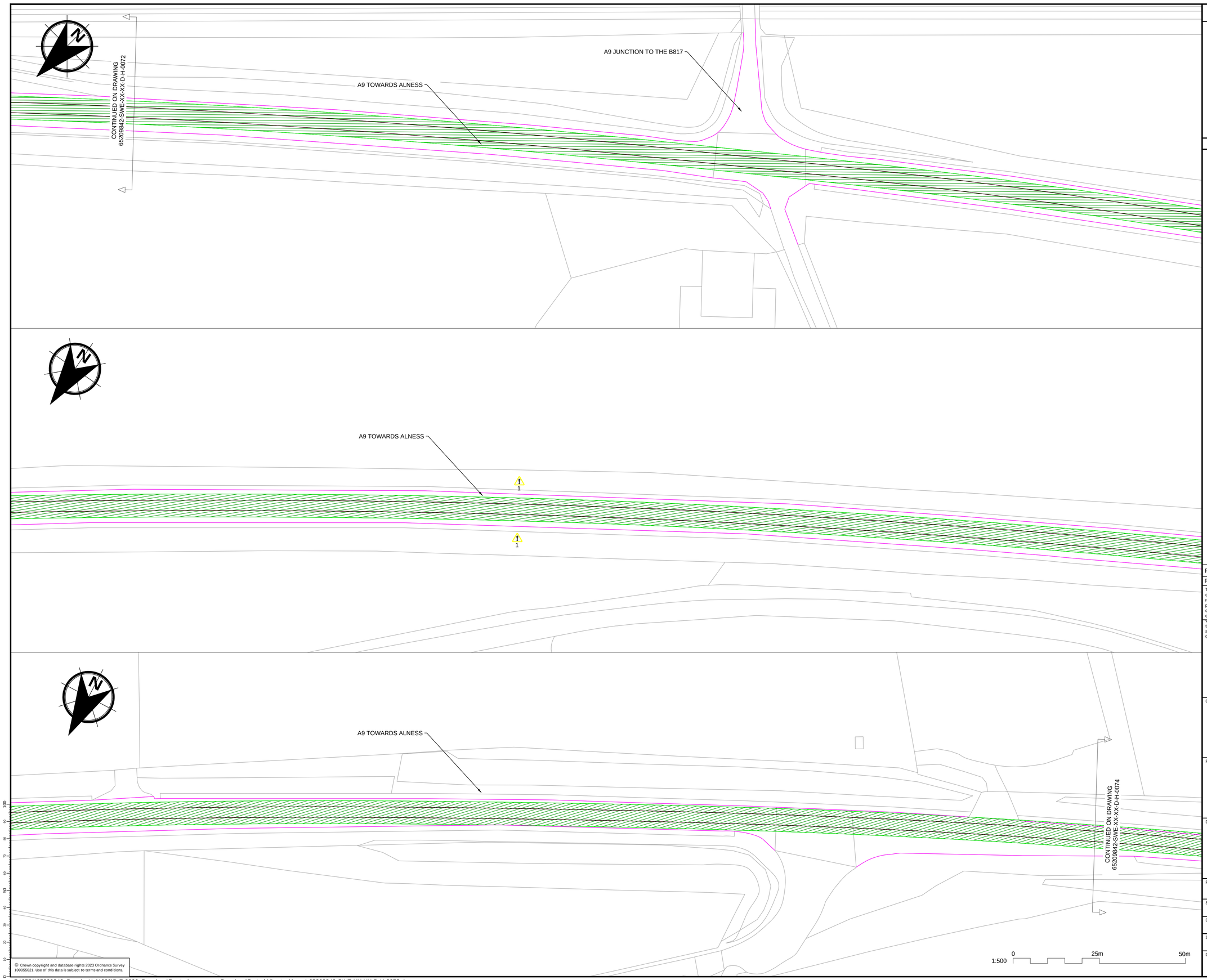
Status	Status Description
S0	INITIAL STATUS OR WIP

Drawn	Designed	Checked	Approved
MA	MA	RL	CB

Sheet Size	Scale	Sweco Ref	Revision
A1	1:500	65209842	P01

Drawing Number

65209842-SWE-XX-XX-D-H-0072



P:\6551\65209842_Beauly_Hub\000\D-Z-0000_Drawings\Route Assessment Drawings\Port of Nigg to Alness\ 65209842-SWE-XX-XX-D-H-0073.dwg

NOTES

1. DO NOT SCALE FROM THIS DRAWING MANUALLY OR ELECTRONICALLY.
2. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL OTHER RELEVANT PROJECT INFORMATION.
3. ALL DATUM LEVELS ARE IN METRES AND DIMENSIONS ARE IN METRES (m) UNLESS OTHERWISE STATED.

KEY TO DRAWING

- WHEEL TRACK EXTENTS
- VEHICLE OVER SAIL
- EXISTING ROAD EXTENTS
- PROPOSED CARRIAGEWAY WIDENING

IMPORTANT

HEALTH, SAFETY & ENVIRONMENTAL INFORMATION

IN ADDITION TO THE HAZARDS AND RISKS NORMALLY ASSOCIATED WITH THE TYPE OF WORK DETAILED ON THIS DRAWING, PLEASE NOTE THE FOLLOWING SIGNIFICANT RISKS TO HEALTH, SAFETY & ENVIRONMENT

THE SIGNIFICANT RISKS ASSOCIATED WITH THE PROJECT ARE NOTED BELOW

1	EXISTING ELECTRICAL LINE PASSES OVERHEAD.

IT IS ASSUMED THAT ALL WORKS SHALL BE UNDERTAKEN BY A COMPETENT CONTRACTOR WORKING WHERE APPROPRIATE TO AN APPROVED SAFE SYSTEM OF WORK

Rev	Date	Amendment Details	Dr'n	Chk'	App'
P01	06/12/2023	FOR COMMENT	MA	RL	CB

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SWECO

Client

Scottish & Southern Electricity Networks TRANSMISSION

Project Title

BEAULY HUB
400kV SWITCHING STATION AND HVDC CONVERTOR STATION

Drawing Title

ABNORMAL INDIVISIBLE LOAD ROUTE ASSESSMENT - NIGG ROUNDABOUT TO ALNESS SHEET 6 OF 16

Purpose Of Issue

PRELIMINARY

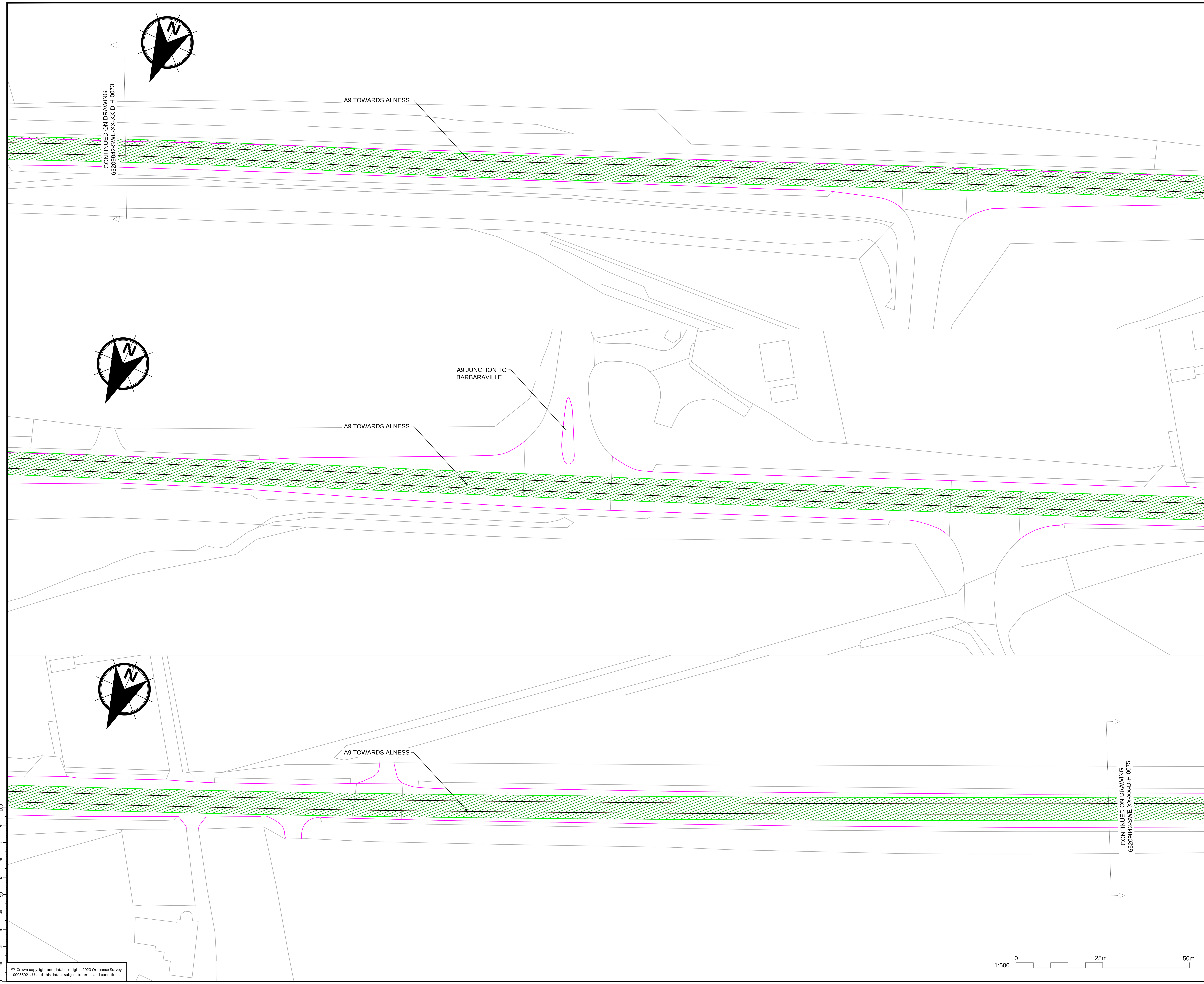
Status	Status Description
S0	INITIAL STATUS OR WIP

Drawn	Designed	Checked	Approved
MA	MA	RL	CB

Sheet Size	Scale	Sweco Ref	Revision
A1	1:500	65209842	P01

Drawing Number

65209842-SWE-XX-XX-D-H-0073



P:\6551\65209842_Beauly_Hub\000\D-Z-0000_Drawings\Route Assessment Drawings\Port of Nigg to Alness\ 65209842-SWE-XX-XX-D-H-0074.dwg

NOTES

1. DO NOT SCALE FROM THIS DRAWING MANUALLY OR ELECTRONICALLY.
2. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL OTHER RELEVANT PROJECT INFORMATION.
3. ALL DATUM LEVELS ARE IN METRES AND DIMENSIONS ARE IN METRES (m) UNLESS OTHERWISE STATED.

KEY TO DRAWING

- WHEEL TRACK EXTENTS
- VEHICLE OVER SAIL
- EXISTING ROAD EXTENTS
- PROPOSED CARRIAGEWAY WIDENING

IMPORTANT

HEALTH, SAFETY & ENVIRONMENTAL INFORMATION

IN ADDITION TO THE HAZARDS AND RISKS NORMALLY ASSOCIATED WITH THE TYPE OF WORK DETAILED ON THIS DRAWING, PLEASE NOTE THE FOLLOWING SIGNIFICANT RISKS TO HEALTH, SAFETY & ENVIRONMENT

THE SIGNIFICANT RISKS ASSOCIATED WITH THE PROJECT ARE NOTED BELOW

NO SIGNIFICANT HAZARDS IDENTIFIED.

IT IS ASSUMED THAT ALL WORKS SHALL BE UNDERTAKEN BY A COMPETENT CONTRACTOR WORKING WHERE APPROPRIATE TO AN APPROVED SAFE SYSTEM OF WORK

Rev	Date	Amendment Details	Dr'n	Chk'	App'
P01	06/12/2023	FOR COMMENT	MA	RL	CB

2nd Floor, Quay 2
139 Fountainbridge
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Tel: +44 (0)131 550 6300
Web: www.sweco.co.uk

Client

Scottish & Southern Electricity Networks TRANSMISSION

Project Title

BEAULY HUB
400kV SWITCHING STATION AND HVDC CONVERTOR STATION

Drawing Title

ABNORMAL INDIVISIBLE LOAD ROUTE ASSESSMENT - NIGG ROUNDABOUT TO ALNESS SHEET 7 OF 16

Purpose Of Issue

PRELIMINARY

Status	Status Description		
S0	INITIAL STATUS OR WIP		
Drawn	**Designed**	**Checked**	**Approved**
MA	MA	RL	CB
Sheet Size	**Scale**	**Sweco Ref**	**Revision**
A1	1:500	65209842	P01

Drawing Number

65209842-SWE-XX-XX-D-H-0074

NOTES

1. DO NOT SCALE FROM THIS DRAWING MANUALLY OR ELECTRONICALLY.
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3. ALL DATUM LEVELS ARE IN METRES AND DIMENSIONS ARE IN METRES (m) UNLESS OTHERWISE STATED.

KEY TO DRAWING

- WHEEL TRACK EXTENTS
- VEHICLE OVER SAIL
- EXISTING ROAD EXTENTS
- PROPOSED CARRIAGEWAY WIDENING

IMPORTANT

HEALTH, SAFETY & ENVIRONMENTAL INFORMATION

IN ADDITION TO THE HAZARDS AND RISKS NORMALLY ASSOCIATED WITH THE TYPE OF WORK DETAILED ON THIS DRAWING, PLEASE NOTE THE FOLLOWING SIGNIFICANT RISKS TO HEALTH, SAFETY & ENVIRONMENT

THE SIGNIFICANT RISKS ASSOCIATED WITH THE PROJECT ARE NOTED BELOW

1	EXISTING ELECTRICAL LINE PASSES OVERHEAD.

IT IS ASSUMED THAT ALL WORKS SHALL BE UNDERTAKEN BY A COMPETENT CONTRACTOR WORKING WHERE APPROPRIATE TO AN APPROVED SAFE SYSTEM OF WORK

Rev	Date	Amendment Details	Dr'n	Chk'	App'
P01	06/12/2023	FOR COMMENT	MA	RL	CB

Sweco UK Limited
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Tel: +44 (0)131 550 6300
Web: www.sweco.co.uk

Client

Project Title

BEAULY HUB
400kV SWITCHING STATION AND HVDC CONVERTOR STATION

Drawing Title

ABNORMAL INDIVISIBLE LOAD ROUTE ASSESSMENT - NIGG ROUNDABOUT TO ALNESS SHEET 8 OF 16

Purpose Of Issue

PRELIMINARY

Status	Status Description
S0	INITIAL STATUS OR WIP

Drawn	Designed	Checked	Approved
MA	MA	RL	CB

Sheet Size	Scale	Sweco Ref	Revision
A1	1:500	65209842	P01

Drawing Number

65209842-SWE-XX-XX-D-H-0075

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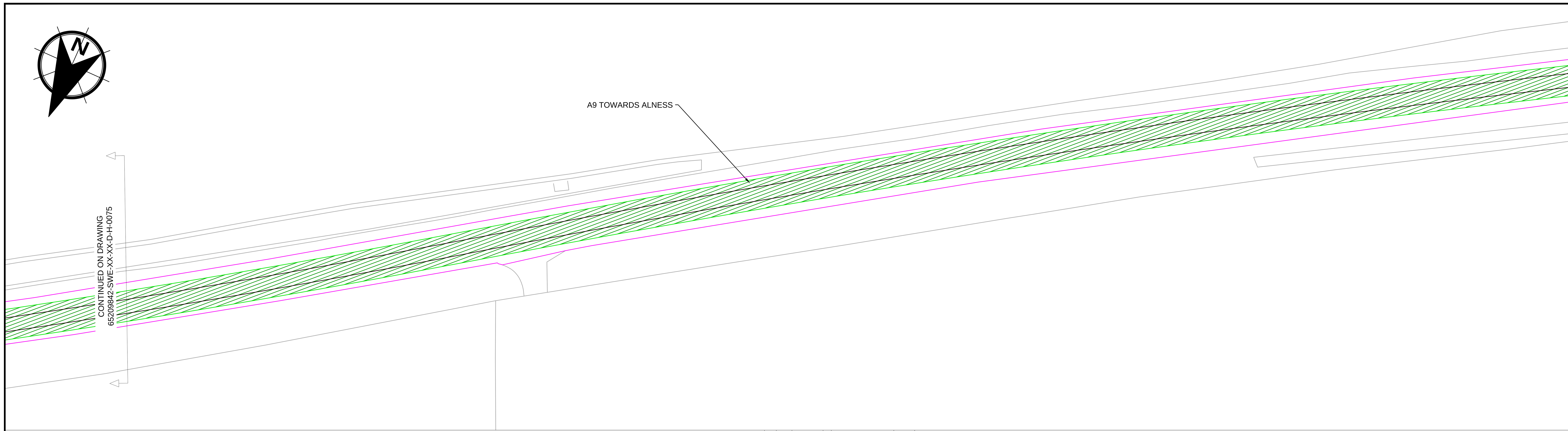

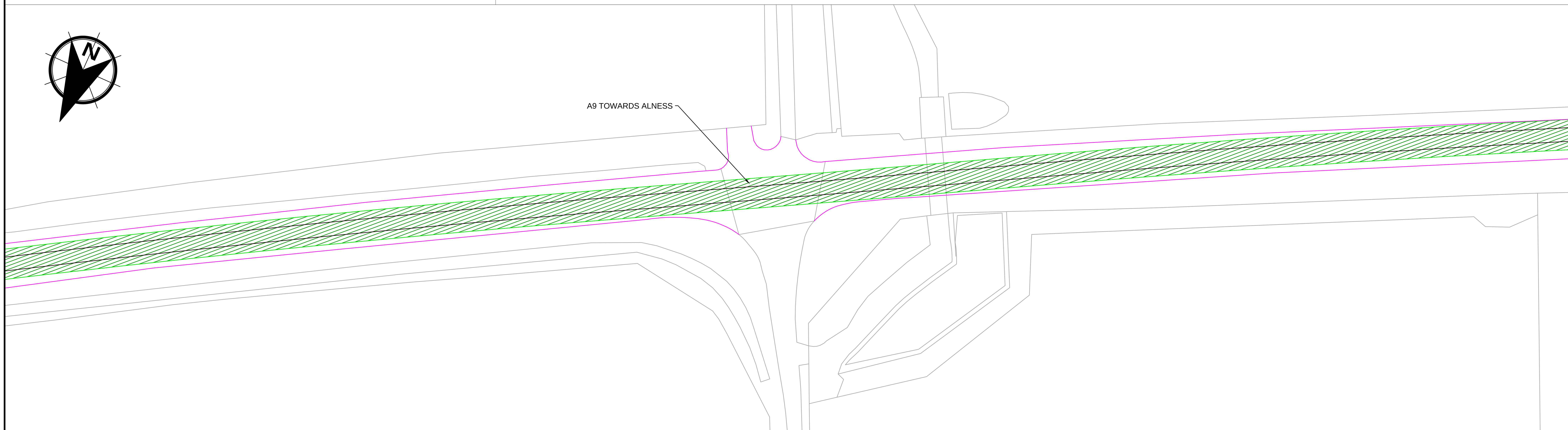

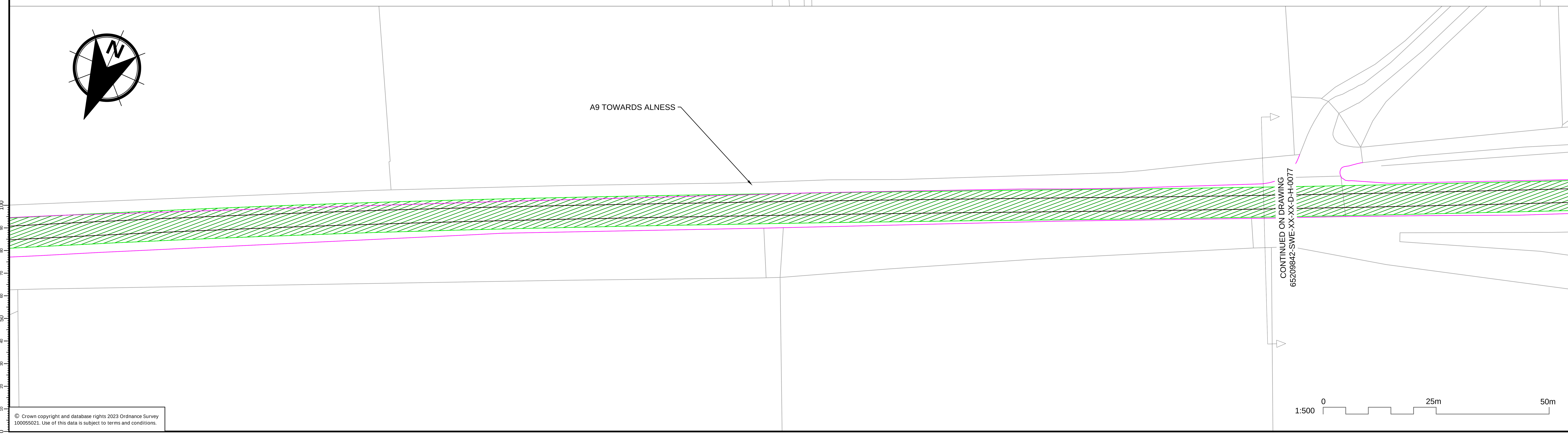

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NOTES

1. DO NOT SCALE FROM THIS DRAWING MANUALLY OR ELECTRONICALLY.
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3. ALL DATUM LEVELS ARE IN METRES AND DIMENSIONS ARE IN METRES (m) UNLESS OTHERWISE STATED.

KEY TO DRAWING

- WHEEL TRACK EXTENTS
- VEHICLE OVER SAIL
- EXISTING ROAD EXTENTS
- PROPOSED CARRIAGEWAY WIDENING

IMPORTANT

HEALTH, SAFETY & ENVIRONMENTAL INFORMATION

IN ADDITION TO THE HAZARDS AND RISKS NORMALLY ASSOCIATED WITH THE TYPE OF WORK DETAILED ON THIS DRAWING, PLEASE NOTE THE FOLLOWING SIGNIFICANT RISKS TO HEALTH, SAFETY & ENVIRONMENT

THE SIGNIFICANT RISKS ASSOCIATED WITH THE PROJECT ARE NOTED BELOW

NO SIGNIFICANT HAZARDS IDENTIFIED.

IT IS ASSUMED THAT ALL WORKS SHALL BE UNDERTAKEN BY A COMPETENT CONTRACTOR WORKING WHERE APPROPRIATE TO AN APPROVED SAFE SYSTEM OF WORK

Rev	Date	Amendment Details	Dr'n	Chk'	App'
P01	06/12/2023	FOR COMMENT	MA	RL	CB

2nd Floor, Quay 2
139 Fountainbridge
Edinburgh
EH3 9QG
Tel: +44 (0)131 550 6300
Web: www.sweco.co.uk

Client

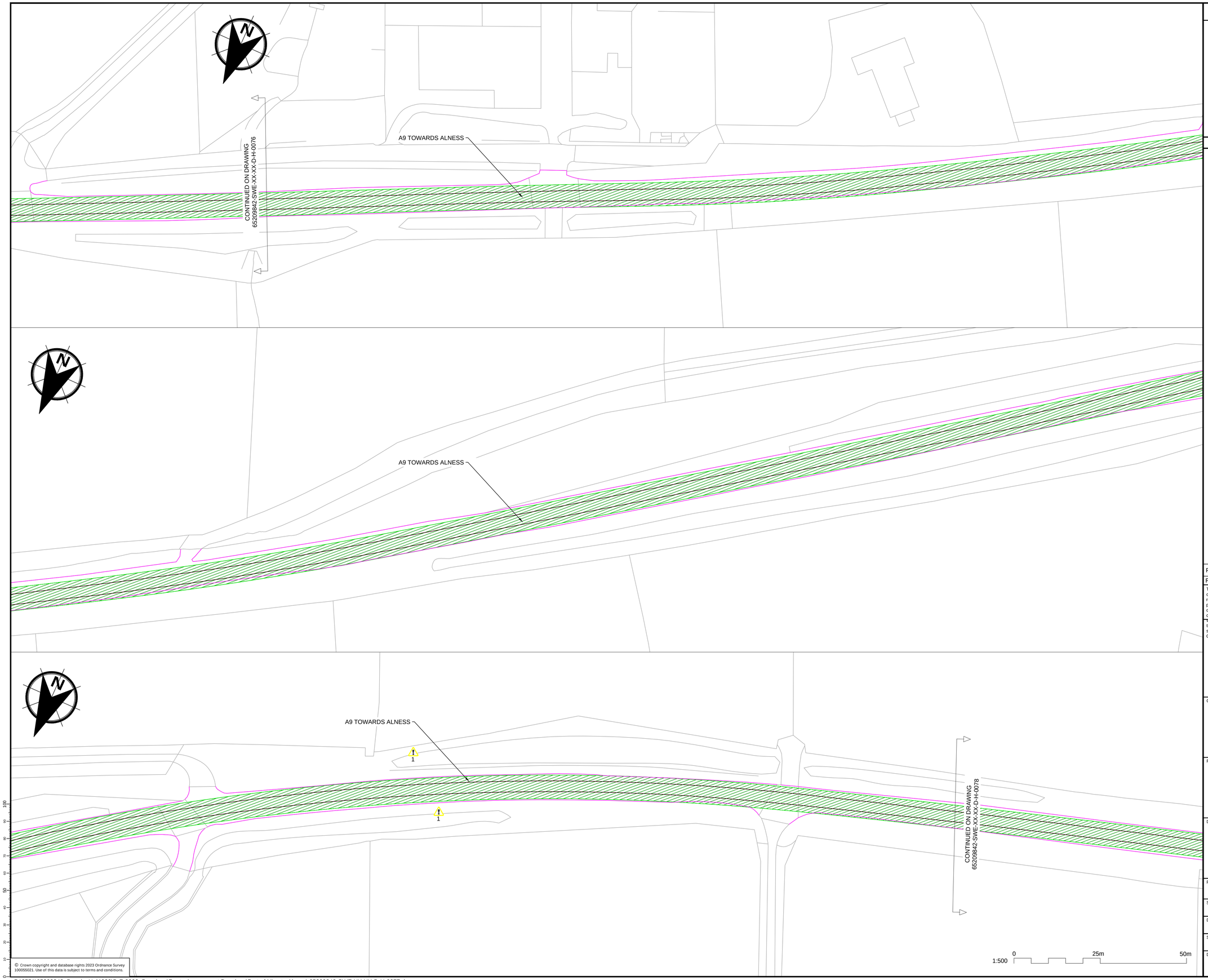
Project Title
BEAULY HUB
400kV SWITCHING STATION AND HVDC CONVERTOR STATION

Drawing Title
ABNORMAL INDIVISIBLE LOAD ROUTE ASSESSMENT - NIGG ROUNDABOUT TO ALNESS SHEET 9 OF 16

Purpose Of Issue
PRELIMINARY

Status	Status Description		
S0	INITIAL STATUS OR WIP		
Drawn	Designed	Checked	Approved
MA	MA	RL	CB
Sheet Size	Scale	Sweco Ref	Revision
A1	1:500	65209842	P01

Drawing Number
65209842-SWE-XX-XX-D-H-0076



P:\6551\65209842_Beauly_Hub\000\D-Z-0000_Drawings\Route Assessment Drawings\Port of Nigg to Alness\ 65209842-SWE-XX-XX-D-H-0077.dwg

NOTES

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KEY TO DRAWING

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- VEHICLE OVER SAIL
- EXISTING ROAD EXTENTS
- PROPOSED CARRIAGEWAY WIDENING

IMPORTANT

HEALTH, SAFETY & ENVIRONMENTAL INFORMATION

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THE SIGNIFICANT RISKS ASSOCIATED WITH THE PROJECT ARE NOTED BELOW

1	EXISTING ELECTRICAL LINE PASSES OVERHEAD.

IT IS ASSUMED THAT ALL WORKS SHALL BE UNDERTAKEN BY A COMPETENT CONTRACTOR WORKING WHERE APPROPRIATE TO AN APPROVED SAFE SYSTEM OF WORK

Rev	Date	Amendment Details	Dr'n	Chk'	App'
P01	06/12/2023	FOR COMMENT	MA	RL	CB

2nd Floor, Quay 2
139 Fountainbridge
Edinburgh
EH3 9QG
Tel: +44 (0)131 550 6300
Web: www.sweco.co.uk

Client: Scottish & Southern Electricity Networks TRANSMISSION

Project Title: BEAULY HUB
400kV SWITCHING STATION AND HVDC CONVERTOR STATION

Drawing Title: ABNORMAL INDIVISIBLE LOAD ROUTE ASSESSMENT - NIGG ROUNDABOUT TO ALNESS SHEET 10 OF 16

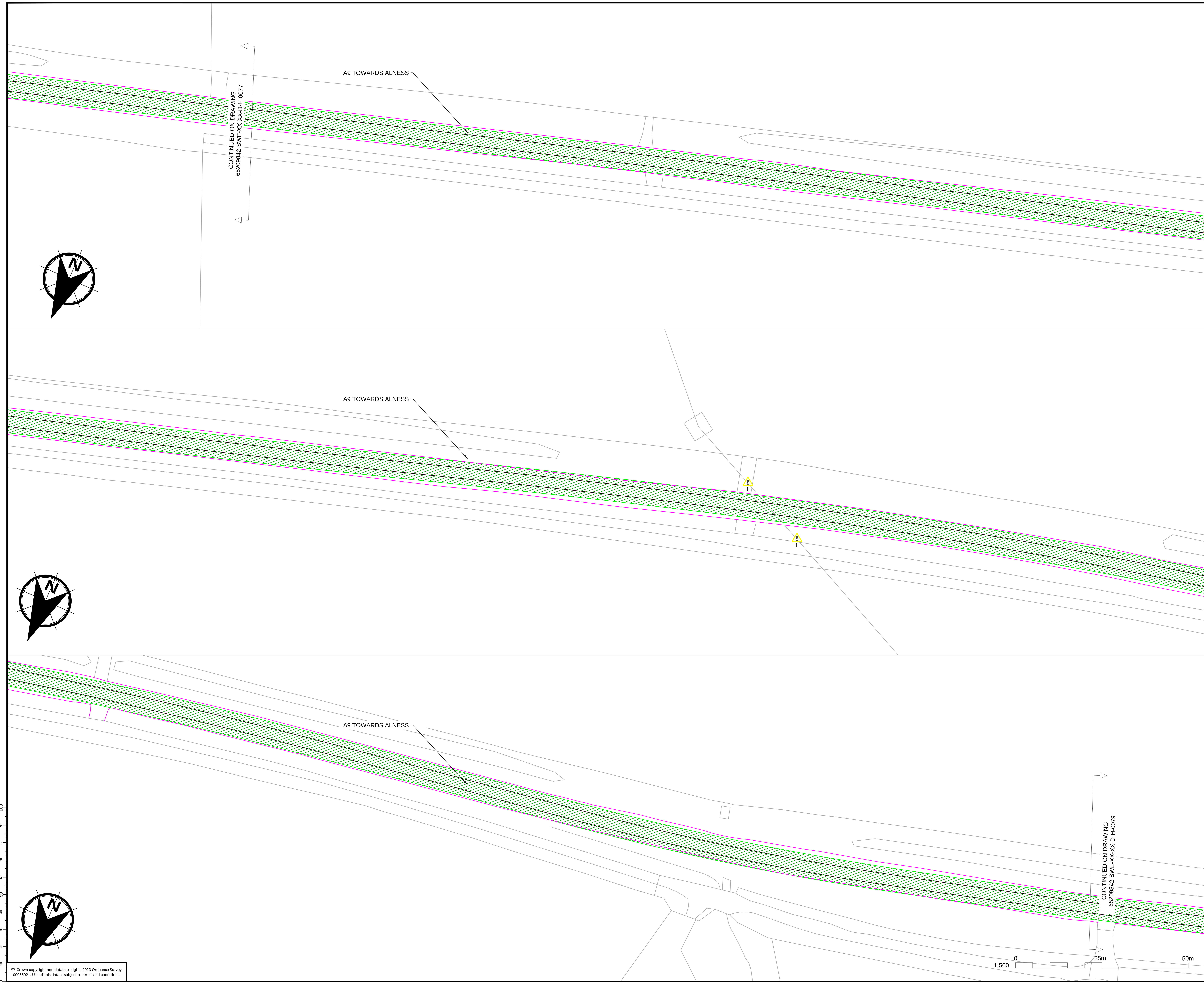
Purpose Of Issue: PRELIMINARY

Status	Status Description
S0	INITIAL STATUS OR WIP

Drawn	Designed	Checked	Approved
MA	MA	RL	CB

Sheet Size	Scale	Sweco Ref	Revision
A1	1:500	65209842	P01

Drawing Number: 65209842-SWE-XX-XX-D-H-0077



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NOTES

1. DO NOT SCALE FROM THIS DRAWING MANUALLY OR ELECTRONICALLY.
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KEY TO DRAWING

- WHEEL TRACK EXTENTS
- VEHICLE OVER SAIL
- EXISTING ROAD EXTENTS
- PROPOSED CARRIAGEWAY WIDENING

IMPORTANT

HEALTH, SAFETY & ENVIRONMENTAL INFORMATION

IN ADDITION TO THE HAZARDS AND RISKS NORMALLY ASSOCIATED WITH THE TYPE OF WORK DETAILED ON THIS DRAWING, PLEASE NOTE THE FOLLOWING SIGNIFICANT RISKS TO HEALTH, SAFETY & ENVIRONMENT

THE SIGNIFICANT RISKS ASSOCIATED WITH THE PROJECT ARE NOTED BELOW

1 EXISTING HIGH VOLTAGE ELECTRICAL LINE PASSES OVERHEAD.

IT IS ASSUMED THAT ALL WORKS SHALL BE UNDERTAKEN BY A COMPETENT CONTRACTOR WORKING WHERE APPROPRIATE TO AN APPROVED SAFE SYSTEM OF WORK

Rev	Date	Amendment Details	Dr'n	Chk'	App'
P01	06/12/2023	FOR COMMENT	MA	RL	CB

2nd Floor, Quay 2
139 Fountainbridge
Edinburgh
EH3 9QG
Tel: +44 (0)131 550 6300
Web: www.sweco.co.uk

Client

Project Title

BEAULY HUB
400kV SWITCHING STATION AND HVDC CONVERTOR STATION

Drawing Title

ABNORMAL INDIVISIBLE LOAD ROUTE ASSESSMENT - NIGG ROUNDABOUT TO ALNESS SHEET 11 OF 16

Purpose Of Issue: PRELIMINARY

Status	Status Description		
S0	INITIAL STATUS OR WIP		
Drawn	**Designed**	**Checked**	**Approved**
MA	MA	RL	CB
Sheet Size	**Scale**	**Sweco Ref**	**Revision**
A1	1:500	65209842	P01

Drawing Number

65209842-SWE-XX-XX-D-H-0078

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NOTES

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- WHEEL TRACK EXTENTS
- VEHICLE OVER SAIL
- EXISTING ROAD EXTENTS
- PROPOSED CARRIAGEWAY WIDENING

IMPORTANT

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Rev	Date	Amendment Details	Dr'n	Chk'	App'
P01	06/12/2023	FOR COMMENT	MA	RL	CB

Sweco UK Limited
2nd Floor, Quay 2
139 Fountainbridge
Edinburgh
EH3 9QG
Tel: +44 (0)131 550 6300
Web: www.sweco.co.uk

Client: Scottish & Southern Electricity Networks TRANSMISSION

Project Title: BEAULY HUB
400kV SWITCHING STATION AND HVDC CONVERTOR STATION

Drawing Title: ABNORMAL INDIVISIBLE LOAD ROUTE ASSESSMENT - NIGG ROUNDABOUT TO ALNESS SHEET 12 OF 16

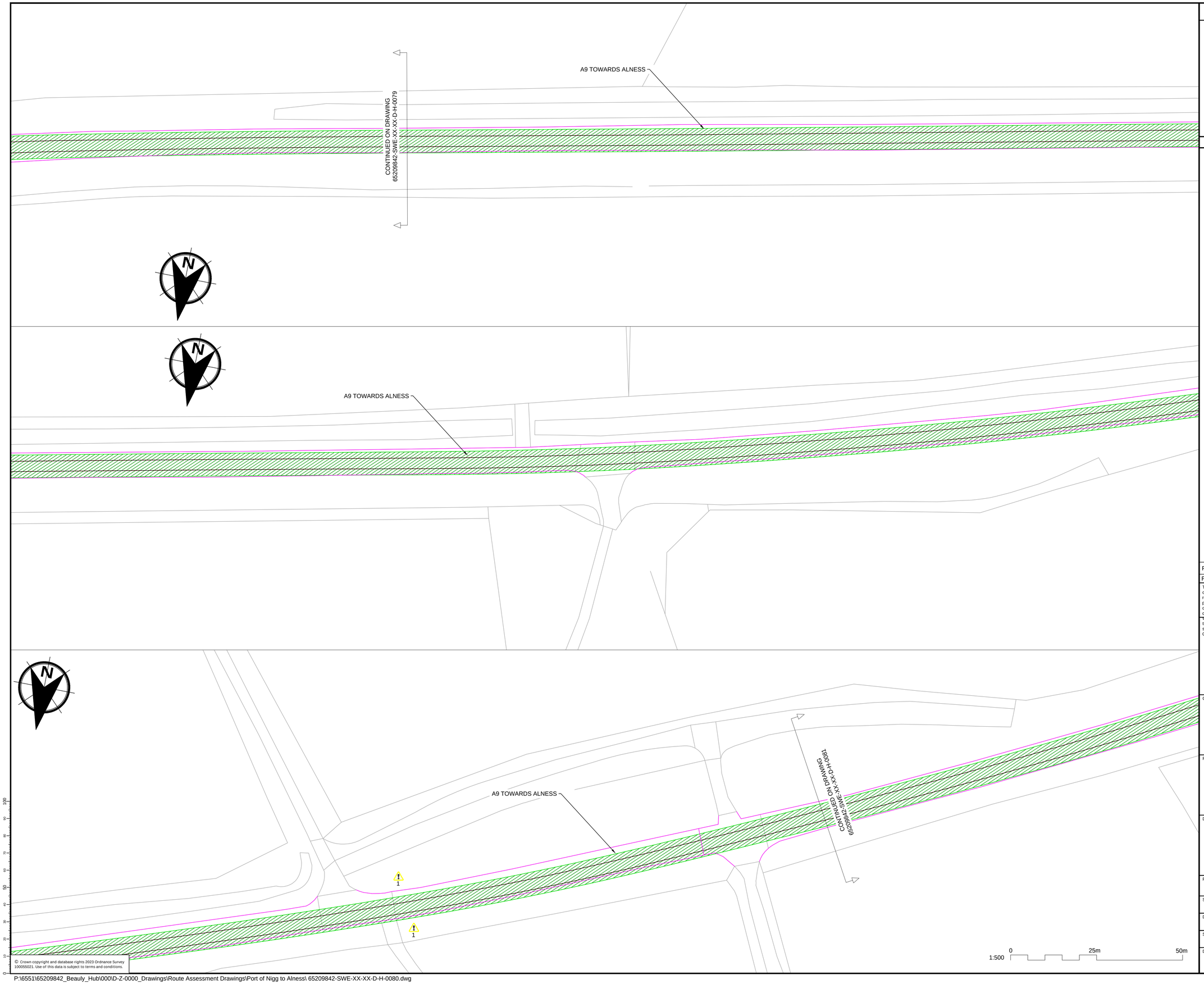
Purpose Of Issue: PRELIMINARY

Status	Status Description
S0	INITIAL STATUS OR WIP

Drawn	Designed	Checked	Approved
MA	MA	RL	CB

Sheet Size	Scale	Sweco Ref	Revision
A1	1:500	65209842	P01

Drawing Number: 65209842-SWE-XX-XX-D-H-0079



NOTES

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KEY TO DRAWING

- WHEEL TRACK EXTENTS
- VEHICLE OVER SAIL
- EXISTING ROAD EXTENTS
- PROPOSED CARRIAGEWAY WIDENING

IMPORTANT

HEALTH, SAFETY & ENVIRONMENTAL INFORMATION

IN ADDITION TO THE HAZARDS AND RISKS NORMALLY ASSOCIATED WITH THE TYPE OF WORK DETAILED ON THIS DRAWING, PLEASE NOTE THE FOLLOWING SIGNIFICANT RISKS TO HEALTH, SAFETY & ENVIRONMENT

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Rev	Date	Amendment Details	Dr'n	Chk'	App'
P01	06/12/2023	FOR COMMENT	MA	RL	CB

Sweco
Client
189 Fountainbridge
Edinburgh
EH3 9QG
Tel: +44 (0)131 550 6300
Web: www.sweco.co.uk

Client: Scottish & Southern Electricity Networks TRANSMISSION

Project Title
BEAULY HUB
400kV SWITCHING STATION AND HVDC CONVERTOR STATION

Drawing Title
ABNORMAL INDIVISIBLE LOAD ROUTE ASSESSMENT - NIGG ROUNDABOUT TO ALNESS SHEET 13 OF 16

Purpose Of Issue
PRELIMINARY

Status	Status Description
S0	INITIAL STATUS OR WIP

Drawn	Designed	Checked	Approved
MA	MA	RL	CB

Sheet Size	Scale	Sweco Ref	Revision
A1	1:500	65209842	P01

Drawing Number
65209842-SWE-XX-XX-D-H-0080

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NOTES

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KEY TO DRAWING

- WHEEL TRACK EXTENTS
- VEHICLE OVER SAIL
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IMPORTANT

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1 1	EXISTING ELECTRICAL LINE PASSES OVERHEAD.

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Rev	Date	Amendment Details	Dr'n	Chk'	App'
P01	06/12/2023	FOR COMMENT	MA	RL	CB

2nd Floor, Quay 2
139 Fountainbridge
Edinburgh
EH3 9QG
Tel: +44 (0)131 550 6300
Web: www.sweco.co.uk

Client

Project Title

BEAULY HUB
400kV SWITCHING STATION AND HVDC CONVERTOR STATION

Drawing Title

ABNORMAL INDIVISIBLE LOAD ROUTE ASSESSMENT - NIGG ROUNDABOUT TO ALNESS SHEET 14 OF 16

Purpose Of Issue

PRELIMINARY

Status	Status Description
S0	INITIAL STATUS OR WIP

Drawn	Designed	Checked	Approved
MA	MA	RL	CB

Sheet Size	Scale	Sweco Ref	Revision
A1	1:500	65209842	P01

Drawing Number

65209842-SWE-XX-XX-D-H-0081

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NOTES

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KEY TO DRAWING

- WHEEL TRACK EXTENTS
- VEHICLE OVER SAIL
- EXISTING ROAD EXTENTS
- PROPOSED CARRIAGEWAY WIDENING

IMPORTANT

HEALTH, SAFETY & ENVIRONMENTAL INFORMATION

IN ADDITION TO THE HAZARDS AND RISKS NORMALLY ASSOCIATED WITH THE TYPE OF WORK DETAILED ON THIS DRAWING, PLEASE NOTE THE FOLLOWING SIGNIFICANT RISKS TO HEALTH, SAFETY & ENVIRONMENT

THE SIGNIFICANT RISKS ASSOCIATED WITH THE PROJECT ARE NOTED BELOW

NO SIGNIFICANT HAZARDS IDENTIFIED.

IT IS ASSUMED THAT ALL WORKS SHALL BE UNDERTAKEN BY A COMPETENT CONTRACTOR WORKING WHERE APPROPRIATE TO AN APPROVED SAFE SYSTEM OF WORK

Rev	Date	Amendment Details	Dr'n	Chk'	App'
P01	06/12/2023	FOR COMMENT	MA	RL	CB

2nd Floor, Quay 2
139 Fountainbridge
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EH3 9QG
Tel: +44 (0)131 550 6300
Web: www.sweco.co.uk

Client

Project Title

BEAUTY HUB

Drawing Title

ABNORMAL INDIVISIBLE LOAD ROUTE ASSESSMENT - NIGG ROUNDABOUT TO ALNESS SHEET 15 OF 16

Purpose Of Issue

PRELIMINARY

Status	Status Description		
S0	INITIAL STATUS OR WIP		
Drawn	Designed	Checked	Approved
MA	MA	RL	CB
Sheet Size	Scale	Sweco Ref	Revision
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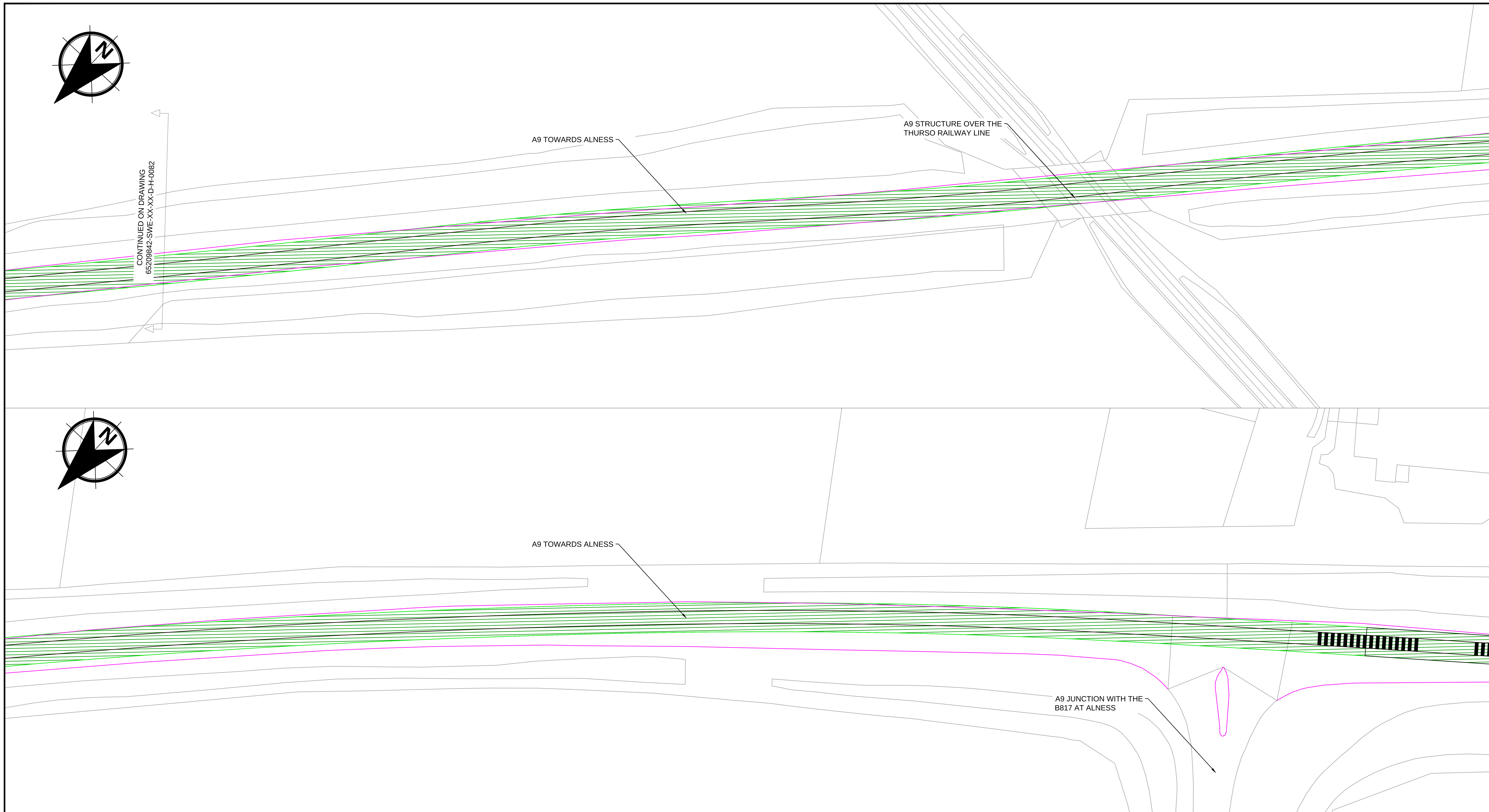
Drawing Number

65209842-SWE-XX-XX-D-H-0082



1:500 0 25m 50m

NOTES

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KEY TO DRAWING

- WHEEL TRACK EXTENTS
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- EXISTING ROAD EXTENTS
- PROPOSED CARRIAGEWAY WIDENING

IMPORTANT

HEALTH, SAFETY & ENVIRONMENTAL INFORMATION

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Rev	Date	Amendment Details	Dr'n	Chk'	App'
P01	06/12/2023	FOR COMMENT	MA	RL	CB

2nd Floor, Quay 2
139 Fountainbridge
Edinburgh
EH3 9QG
Tel: +44 (0)131 550 6300
Web: www.sweco.co.uk

Client

Project Title

BEAULY HUB
400kV SWITCHING STATION AND HVDC CONVERTOR STATION

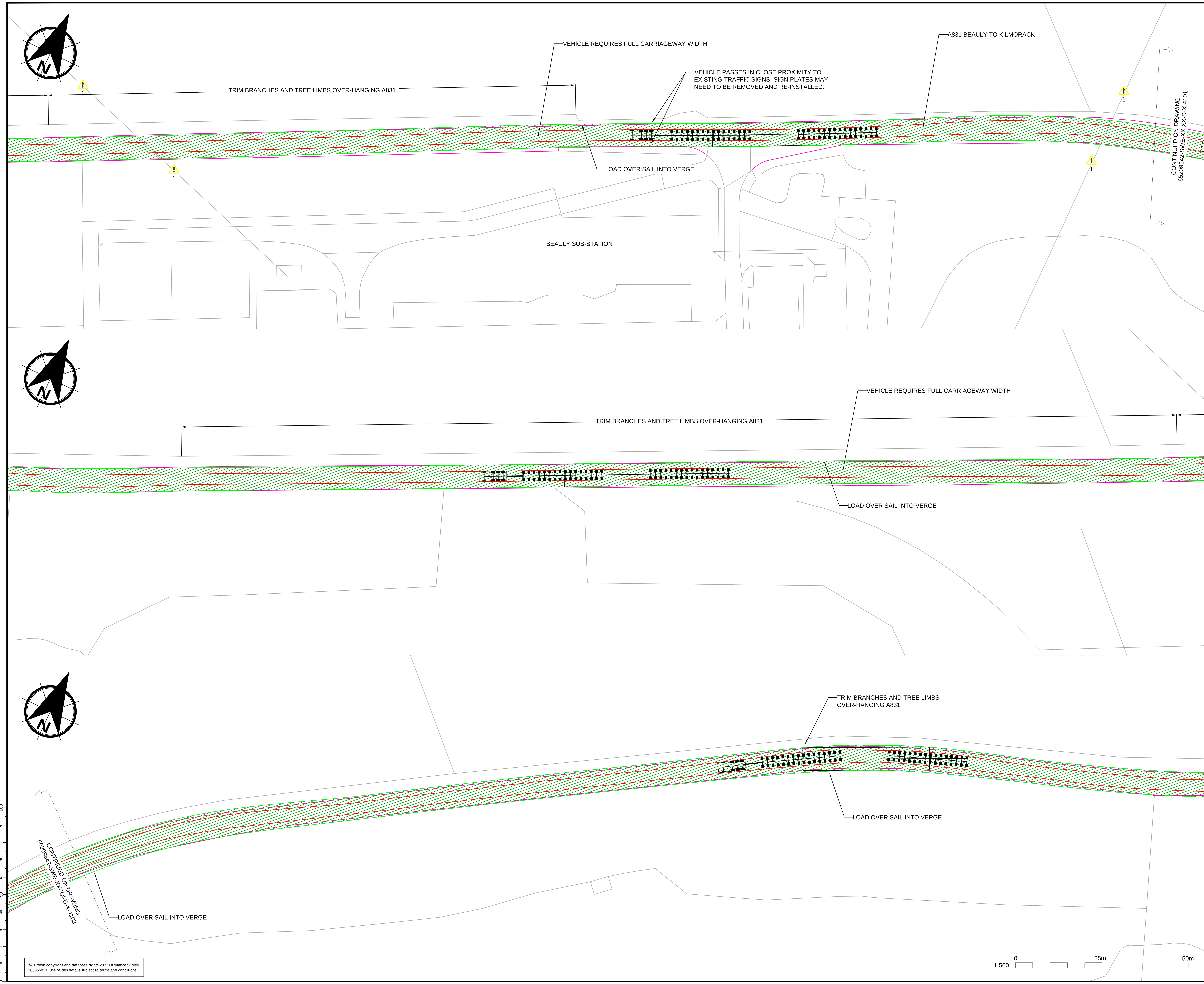
Drawing Title

ABNORMAL INDIVISIBLE LOAD ROUTE ASSESSMENT - NIGG ROUNDABOUT TO ALNESS
SHEET 16 OF 16

Purpose Of Issue: PRELIMINARY

Status	Status Description		
S0	INITIAL STATUS OR WIP		
Drawn	Designed	Checked	Approved
MA	MA	RL	CB
Sheet Size	Scale	Sweco Ref	Revision
A1	1:500	65209842	P01

Drawing Number: 65209842-SWE-XX-XX-D-H-0083



NOTES

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IMPORTANT

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THE SIGNIFICANT RISKS ASSOCIATED WITH THE PROJECT ARE NOTED BELOW

REF:

1	HIGH VOLTAGE OVERHEAD LINES PASS OVER THE A831.

REFERENCE RESIDUAL RISK LOG FOR FURTHER DETAILS
REF: 65209842-SWE-XX-XX-T-V-0001

IT IS ASSUMED THAT ALL WORKS SHALL BE UNDERTAKEN BY A COMPETENT CONTRACTOR WORKING WHERE APPROPRIATE TO AN APPROVED SAFE SYSTEM OF WORK

Rev	Date	Amendment Details	Dr'n	Chk'	App'
P01	06/12/2023	FOR COMMENT	RL	NG	CB

2nd Floor, Quay 2
139 Fountainbridge
Edinburgh
EH3 9QG
Tel: +44 (0)131 550 6300
Web: www.sweco.co.uk

SWECO

Client
Scottish & Southern Electricity Networks TRANSMISSION

Project Title
BEAULY HUB
400kV SWITCHING STATION AND HVDC CONVERTOR STATION

Drawing Title
ABNORMAL INDIVISIBLE LOAD ROUTE ASSESSMENT - BEAULY SUBSTATION TO FANELLEN SHEET 1

Purpose Of Issue
PRELIMINARY

Status	Status Description		
S0	INITIAL STATUS OR WIP		
Drawn	**Designed**	**Checked**	**Approved**
RL	RL	NG	CB
Sheet Size	**Scale**	**Sweco Ref**	**Revision**
A1	1:500	65209842	P01

Drawing Number
65209842-SWE-XX-XX-D-H-0084

P:\6551\65209842_Beauly_Hub\000\D-Z-0000_Drawings\Route Assessment Drawings\A862 - Beauly to Fanellen\ 65209842-SWE-XX-XX-D-H-0084.dwg

HARDENED VERGE - GRASSCRETE CELLULAR BLOCKS OR SIMILAR

HARDENED VERGE - GRASSCRETE CELLULAR BLOCKS OR SIMILAR

58.25

31.82

EXISTING COMMUNICATIONS CABINET AND CHAMBER REMOVED AND REINSTALLED.

HARDENED VERGE - GRASSCRETE CELLULAR BLOCKS OR SIMILAR

KILMORACK JUNCTION

EXISTING BARN AND COTTAGE

CONTINUED ON DRAWING 65209642-SWE-XX-XX-D-X-0084

BLACK BRIDGE

RIVER BEAULY

2m OVER SAIL INTO VERGE. TRIMMING BACK OF GORSE REQUIRED.

EXISTING OVERHEAD TELECOMS LINE AND POLE TO BE REMOVED OUTWITH TEMPORARY ACCESS JUNCTION.

CONTINUED ON DRAWING 65209842-SWE-XX-XX-D-H-0086

LOCAL AUTHORITY ACCESS ROAD

VERGE TO BE HARDENED BY 1m TO ALLOW OVER-RUN OF AIL.

VEHICLE OVER-SAIL ACROSS VERGE

1:500 0 25m 50m

NOTES

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KEY TO DRAWING

- WHEEL TRACK EXTENTS
- VEHICLE OVER SAIL
- EXISTING ROAD EXTENTS
- PROPOSED CARRIAGEWAY WIDENING

IMPORTANT

HEALTH, SAFETY & ENVIRONMENTAL INFORMATION

IN ADDITION TO THE HAZARDS AND RISKS NORMALLY ASSOCIATED WITH THE TYPE OF WORK DETAILED ON THIS DRAWING, PLEASE NOTE THE FOLLOWING SIGNIFICANT RISKS TO HEALTH, SAFETY & ENVIRONMENT

THE SIGNIFICANT RISKS ASSOCIATED WITH THE PROJECT ARE NOTED BELOW

REF:

1	EXISTING TELECOM INFRASTRUCTURE IN THE VERGE TO BE REMOVED.
2	EXISTING HIGH VOLTAGE ELECTRICAL LINE PASSES OVERHEAD AT THE BLACK BRIDGE.
3	EXISTING TELECOM INFRASTRUCTURE (POLES AND OVERHEAD LINE) TO BE REMOVED AND REPOSITIONED.

REFERENCE RESIDUAL RISK LOG FOR FURTHER DETAILS
REF: 65209642-SWE-XX-XX-T-V-0001

IT IS ASSUMED THAT ALL WORKS SHALL BE UNDERTAKEN BY A COMPETENT CONTRACTOR WORKING WHERE APPROPRIATE TO AN APPROVED SAFE SYSTEM OF WORK

Rev	Date	Amendment Details	Dr'n	Chk'	App'
P01	06/12/2023	FOR COMMENT	RL	NG	CB

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EH3 9QG
Tel: +44 (0)131 550 6300
Web: www.sweco.co.uk

Client: Scottish & Southern Electricity Networks TRANSMISSION

Project Title: BEAULY HUB 400kV SWITCHING STATION AND HVDC CONVERTOR STATION

Drawing Title: ABNORMAL INDIVISIBLE LOAD ROUTE ASSESSMENT - BEAULY SUBSTATION TO FANELLEN SHEET 2

Purpose Of Issue: PRELIMINARY

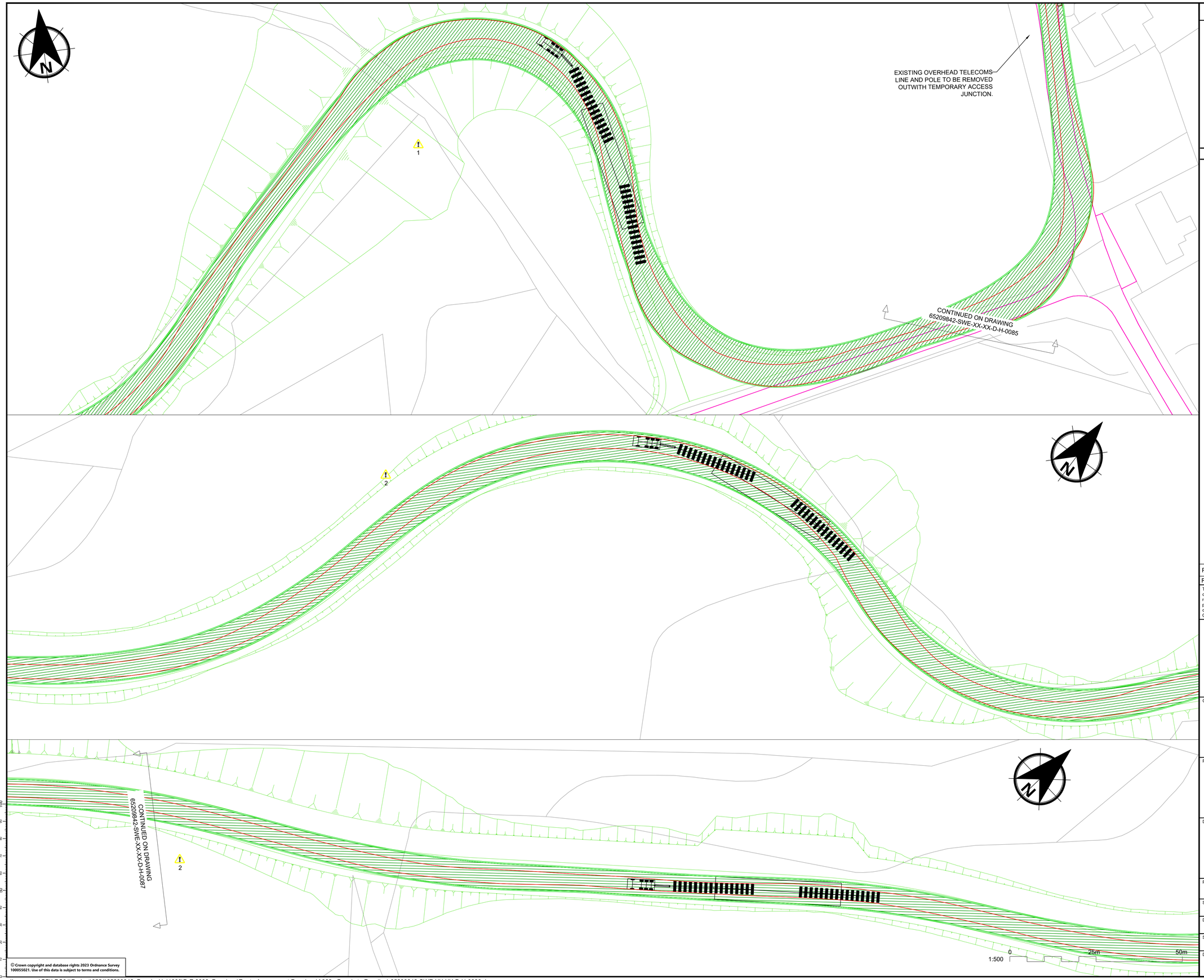
Status	Status Description
S0	INITIAL STATUS OR WIP

Drawn	Designed	Checked	Approved
ABC	DEF	GHI	JKL

Sheet Size	Scale	Sweco Ref	Revision
A1	1:500	12345678	P01

Drawing Number: 65209842-SWE-XX-XX-D-H-0085

\\sweco.se\GB\LDS01\Project\6551\65209842_Beauly_Hub\000\D-Z-0000_Drawings\Route Assessment Drawings\A862 - Beauly to Fanellen\ 65209842-SWE-XX-XX-D-H-0085.dwg



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KEY TO DRAWING

- WHEEL TRACK EXTENTS
- VEHICLE OVER SAIL
- EXISTING ROAD EXTENTS
- PROPOSED CARRIAGEWAY WIDENING

IMPORTANT

HEALTH, SAFETY & ENVIRONMENTAL INFORMATION

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THE SIGNIFICANT RISKS ASSOCIATED WITH THE PROJECT ARE NOTED BELOW

REF:

1	EXISTING HIGH VOLTAGE ELECTRICAL LINE PASSES OVERHEAD.
2	EXISTING HIGH VOLTAGE ELECTRICAL LINE PYLON LOCATED IN CLOSE PROXIMITY.

REFERENCE RESIDUAL RISK LOG FOR FURTHER DETAILS
REF: 65209642-SWE-XX-XX-T-V-0001

IT IS ASSUMED THAT ALL WORKS SHALL BE UNDERTAKEN BY A COMPETENT CONTRACTOR WORKING WHERE APPROPRIATE TO AN APPROVED SAFE SYSTEM OF WORK

Rev	Date	Amendment Details	Dr'n	Chk'	App'
P01	06/12/2023	FOR COMMENT	RL	NG	CB

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139 Fountainbridge
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Tel: +44 (0)131 550 6300
Web: www.sweco.co.uk

SWECO

Client: Scottish & Southern Electricity Networks TRANSMISSION

Project Title
BEAULY HUB
400kV SWITCHING STATION AND HVDC CONVERTOR STATION

Drawing Title
ABNORMAL INDIVISIBLE LOAD ROUTE ASSESSMENT - BEAULY TO FANELLEN SHEET 4

Purpose Of Issue: PRELIMINARY

Status	Status Description
S0	INITIAL STATUS OR WIP

Drawn	Designed	Checked	Approved
RL	RL	NG	CB

Sheet Size	Scale	Sweco Ref	Revision
A1	1:500	65209842	P01

Drawing Number
65209842-SWE-XX-XX-D-X-0086

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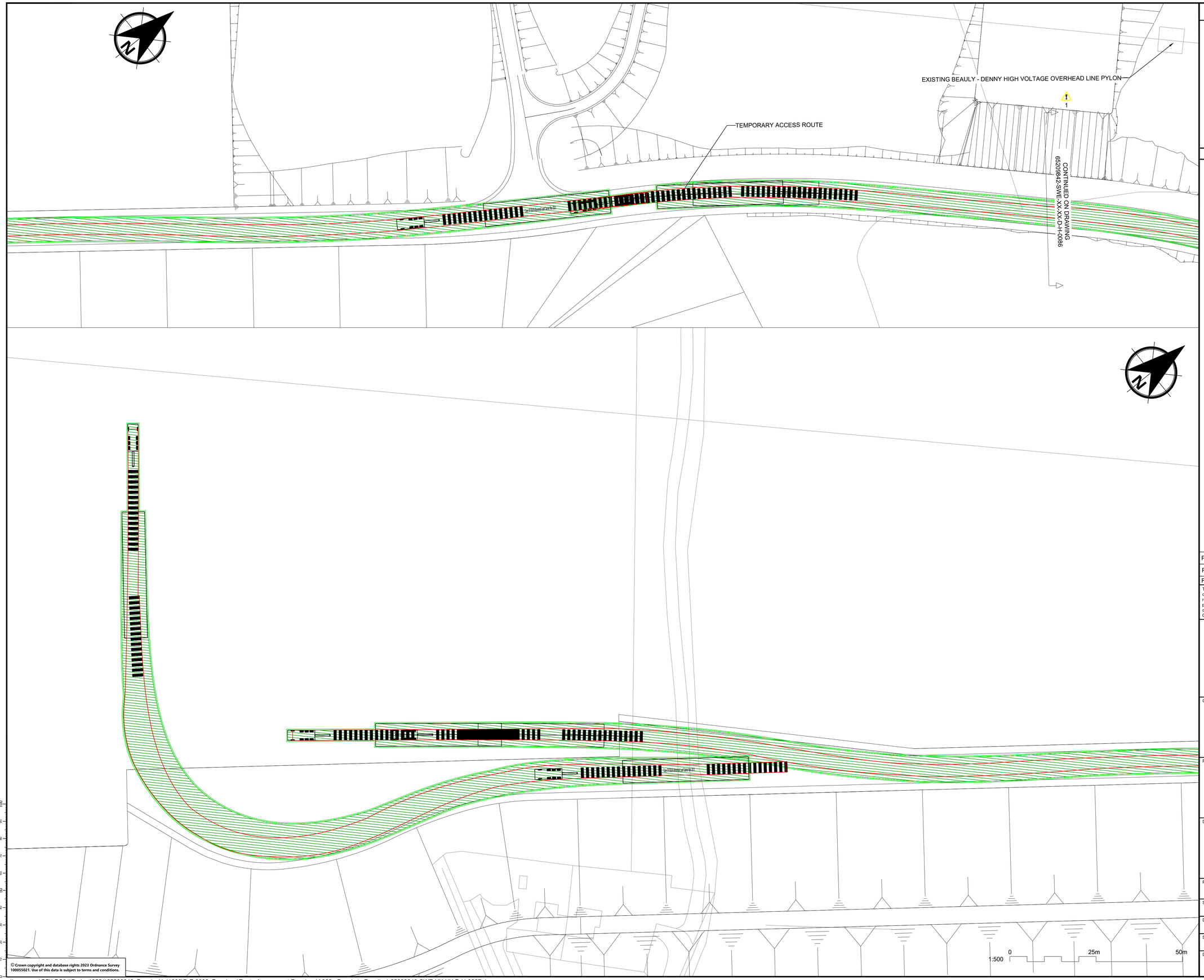

NOTES

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KEY TO DRAWING

- WHEEL TRACK EXTENTS
- VEHICLE OVER SAIL
- EXISTING ROAD EXTENTS
- PROPOSED CARRIAGEWAY WIDENING

IMPORTANT

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Rev	Date	Amendment Details	Dr'n	Chk'	App'
P02	05/03/2024	LAYOUT UPDATED	RL	NG	CB
P01	06/12/2023	FOR COMMENT	RL	NG	CB

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Web: www.sweco.co.uk

Client: Scottish & Southern Electricity Networks TRANSMISSION

Project Title
BEAULY HUB
400kV SWITCHING STATION AND HVDC CONVERTOR STATION

Drawing Title
ABNORMAL INDIVISIBLE LOAD ROUTE ASSESSMENT - BEAULY TO FANELLEN SHEET 5

Purpose Of Issue: PRELIMINARY

Status	Status Description
S0	INITIAL STATUS OR WIP

Drawn	Designed	Checked	Approved
RL	RL	NG	CB

Sheet Size	Scale	Sweco Ref	Revision
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Drawing Number: 65209842-SWE-XX-XX-D-X-0087

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P01	14/08/2024	FOR COMMENT	MA	RL	CB

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Client

Scottish & Southern Electricity Networks TRANSMISSION

Project Title

BEAULY HUB
400kV SWITCHING STATION AND HVDC CONVERTOR STATION

Drawing Title

ABNORMAL INDIVISIBLE LOAD ROUTE ASSESSMENT - NORTH KESSOCK TO TORE
SHEET 1 OF 8

Purpose Of Issue

PRELIMINARY

Status	Status Description
S0	INITIAL STATUS OR WIP

Drawn	Designed	Checked	Approved
MA	MA	RL	CB

Sheet Size	Scale	Sweco Ref	Revision
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Drawing Number

65209842-SWE-XX-XX-D-H-0088

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Tel: +44 (0)131 550 6300
Web: www.sweco.co.uk

Client: Scottish & Southern Electricity Networks TRANSMISSION

Project Title: BEAULY HUB
400kV SWITCHING STATION AND HVDC CONVERTOR STATION

Drawing Title: ABNORMAL INDIVISIBLE LOAD ROUTE ASSESSMENT - NORTH KESSOCK TO TORE
SHEET 2 OF 8

Purpose Of Issue: PRELIMINARY

Status	Status Description
S0	INITIAL STATUS OR WIP

Drawn	Designed	Checked	Approved
MA	MA	RL	CB

Sheet Size	Scale	Sweco Ref	Revision
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Drawing Number: 65209842-SWE-XX-XX-D-H-0089

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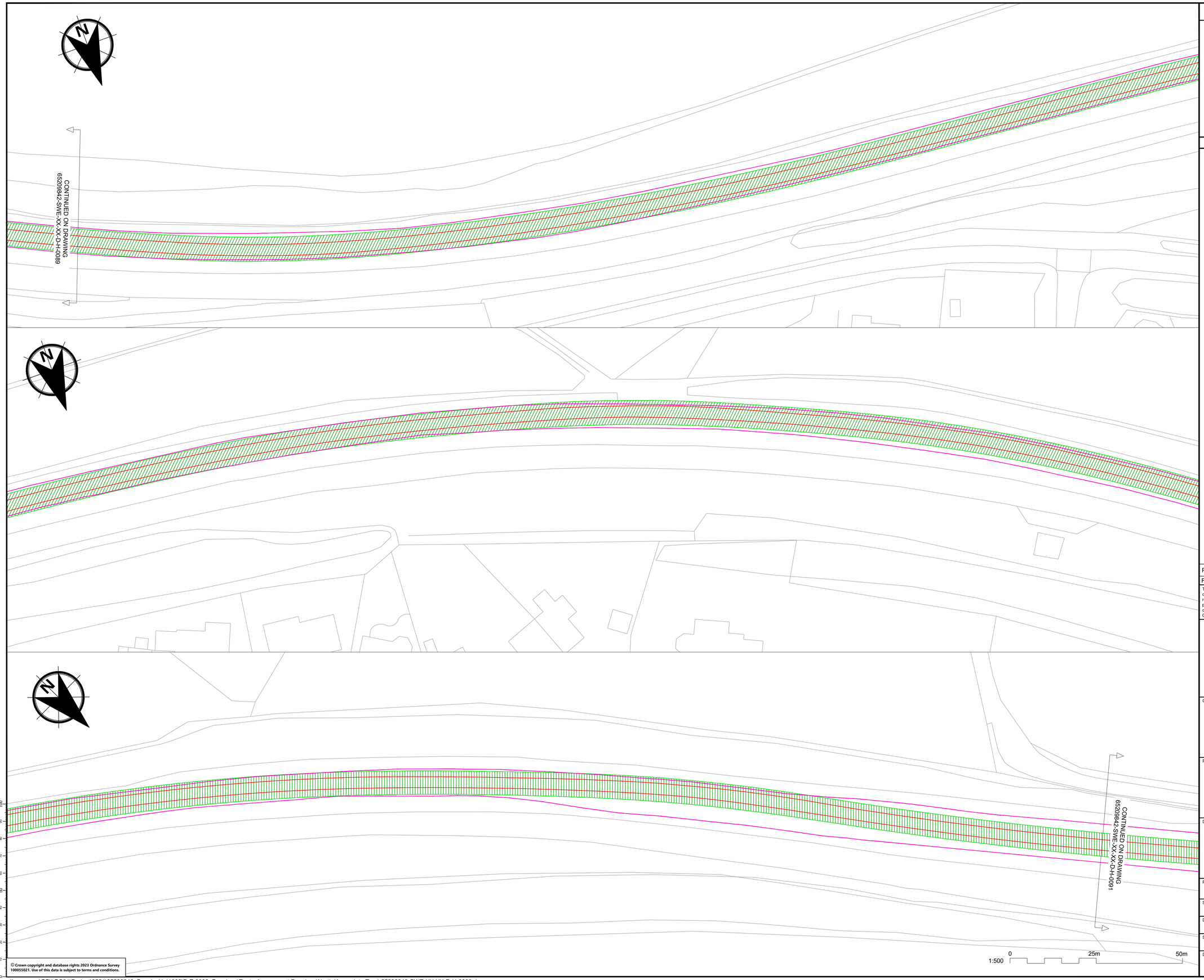

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Tel: +44 (0)131 550 6300
Web: www.sweco.co.uk

Client: Scottish & Southern Electricity Networks TRANSMISSION

Project Title: BEAULY HUB
400kV SWITCHING STATION AND HVDC CONVERTOR STATION

Drawing Title: ABNORMAL INDIVISIBLE LOAD ROUTE ASSESSMENT - NORTH KESSOCK TO TORE SHEET 3 OF 8

Purpose Of Issue: PRELIMINARY

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Drawn	Designed	Checked	Approved
MA	MA	RL	CB

Sheet Size	Scale	Sweco Ref	Revision
A1	1:500	65209842	P01

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SWECO

Client

Scottish & Southern Electricity Networks TRANSMISSION

Project Title

BEAULY HUB
400kV SWITCHING STATION AND HVDC CONVERTOR STATION

Drawing Title

ABNORMAL INDIVISIBLE LOAD ROUTE ASSESSMENT - NORTH KESSOCK TO TORE
SHEET 4 OF 8

Purpose Of Issue

PRELIMINARY

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S0	INITIAL STATUS OR WIP

Drawn	Designed	Checked	Approved
MA	MA	RL	CB

Sheet Size	Scale	Sweco Ref	Revision
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Drawing Number

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Scottish & Southern Electricity Networks TRANSMISSION

Project Title

BEAULY HUB
400kV SWITCHING STATION AND HVDC CONVERTOR STATION

Drawing Title

ABNORMAL INDIVISIBLE LOAD ROUTE ASSESSMENT - NORTH KESSOCK TO TORE SHEET 5 OF 8

Purpose Of Issue

PRELIMINARY

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S0	INITIAL STATUS OR WIP

Drawn	Designed	Checked	Approved
MA	MA	RL	CB

Sheet Size	Scale	Sweco Ref	Revision
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Drawing Number

65209842-SWE-XX-XX-D-H-0092

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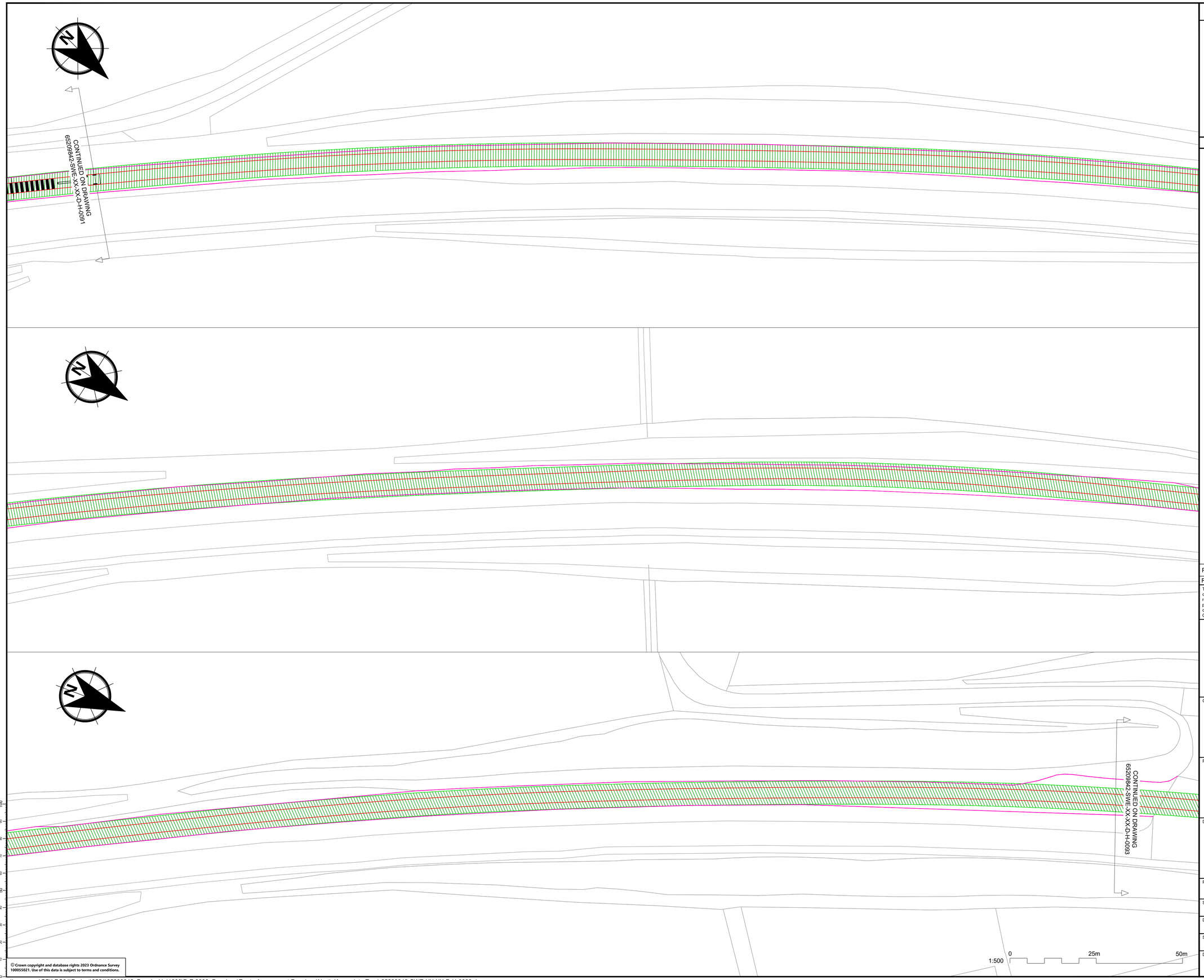

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Scottish & Southern Electricity Networks
TRANSMISSION

Project Title

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400kV SWITCHING STATION AND HVDC CONVERTOR STATION

Drawing Title

ABNORMAL INDIVISIBLE LOAD ROUTE ASSESSMENT - NORTH KESSOCK TO TORE
SHEET 6 OF 8

Purpose Of Issue

PRELIMINARY

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Drawn	Designed	Checked	Approved
MA	MA	RL	CB

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Drawing Number

65209842-SWE-XX-XX-D-H-0093

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Client

Scottish & Southern Electricity Networks TRANSMISSION

Project Title

BEAULY HUB
400kV SWITCHING STATION AND HVDC CONVERTOR STATION

Drawing Title

ABNORMAL INDIVISIBLE LOAD ROUTE ASSESSMENT - NORTH KESSOCK TO TORE
SHEET 7 OF 8

Purpose Of Issue

PRELIMINARY

Status	Status Description
S0	INITIAL STATUS OR WIP

Drawn	Designed	Checked	Approved
MA	MA	RL	CB

Sheet Size	Scale	Sweco Ref	Revision
A1	1:500	65209842	P01

Drawing Number

65209842-SWE-XX-XX-D-H-0094

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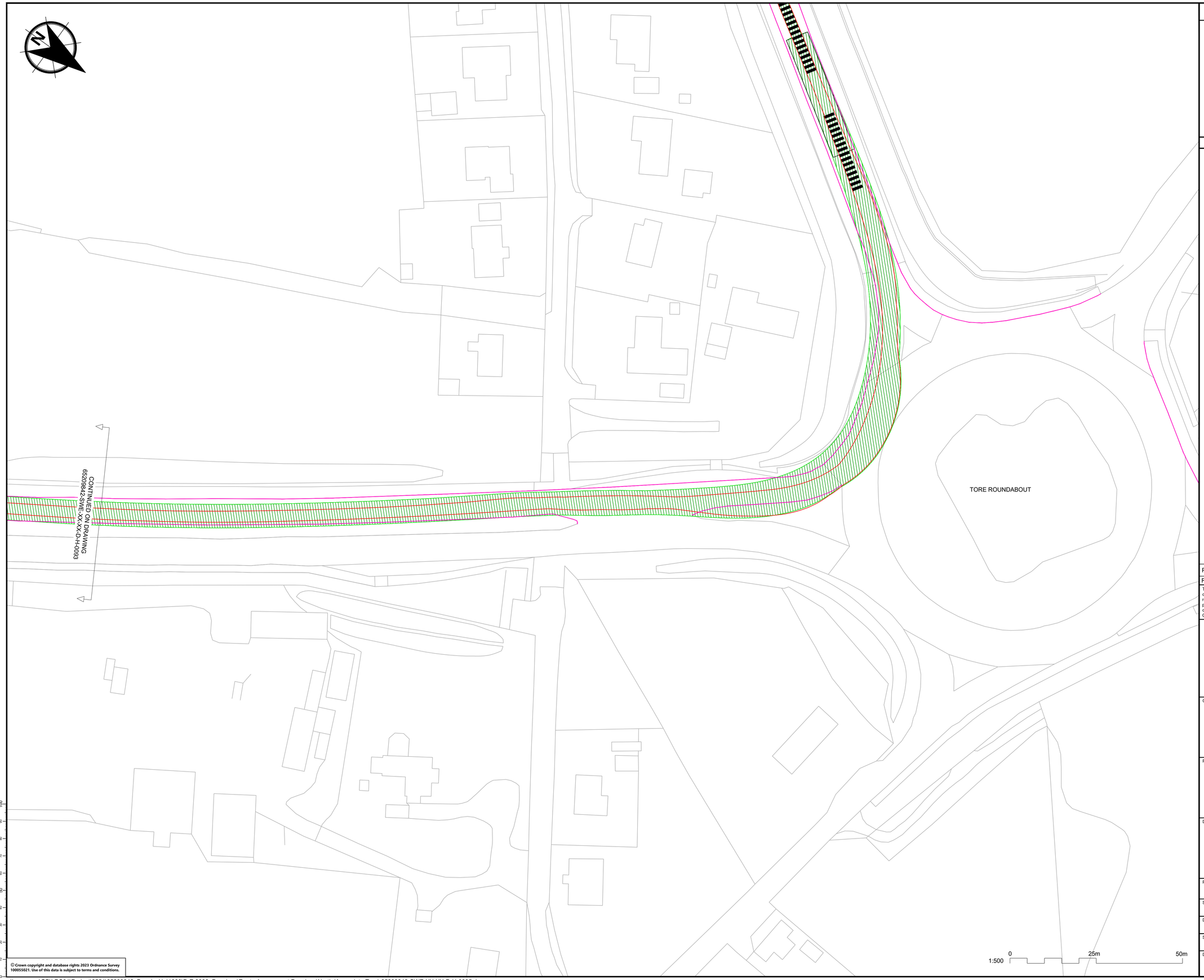

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Project Title

BEAULY HUB
400kV SWITCHING STATION AND HVDC CONVERTOR STATION

Drawing Title

ABNORMAL INDIVISIBLE LOAD ROUTE ASSESSMENT - NORTH KESSOCK TO TORE
SHEET 8 OF 8

Purpose Of Issue

PRELIMINARY

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S0	INITIAL STATUS OR WIP

Drawn	Designed	Checked	Approved
MA	MA	RL	CB

Sheet Size	Scale	Sweco Ref	Revision
A1	1:500	65209842	P01

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65209842-SWE-XX-XX-D-H-0095

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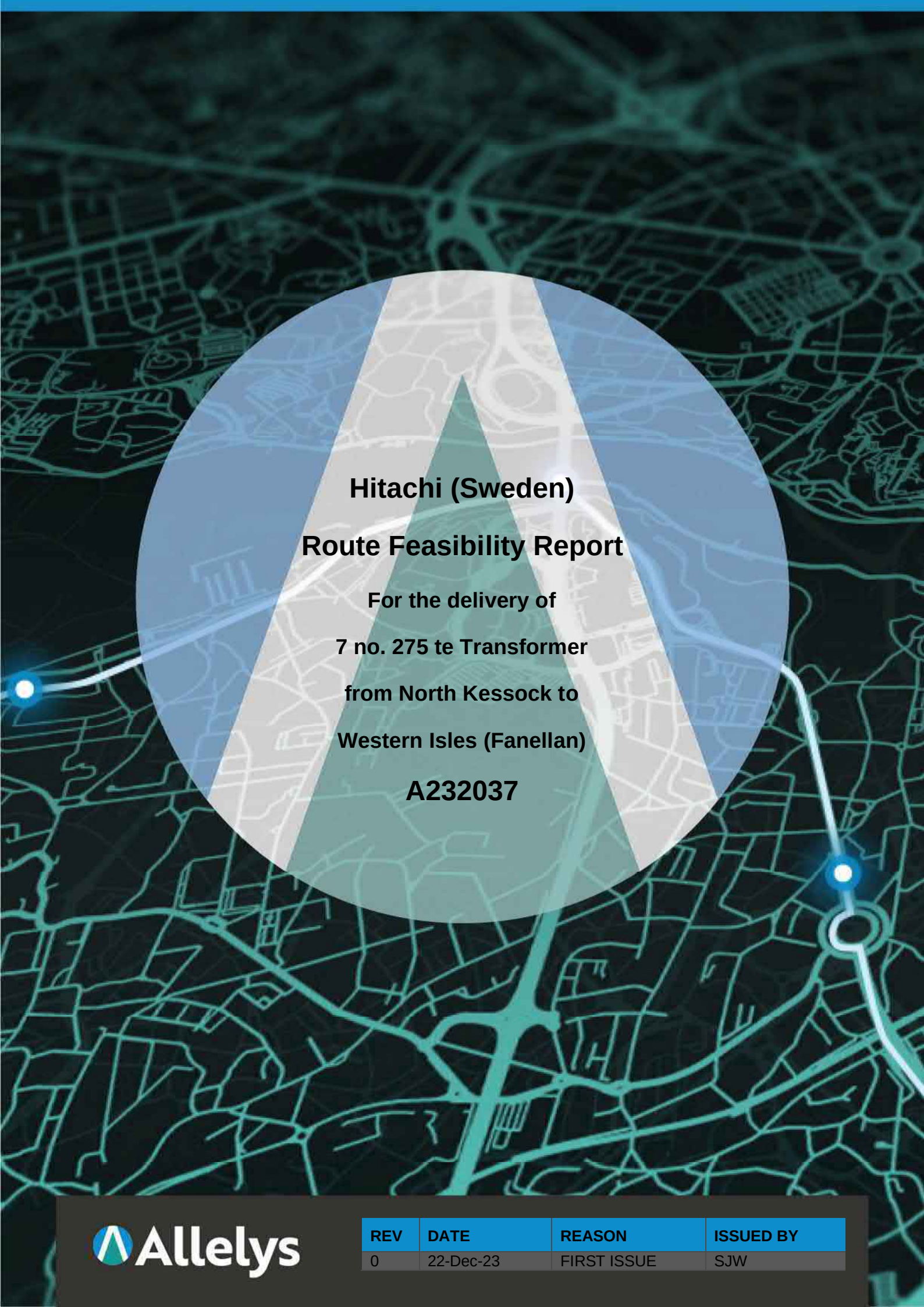
Appendix E

Hitachi Route Feasibility Report



Hitachi (Sweden)

Route Feasibility Report

For the delivery of

7 no. 275 te Transformer

from North Kessock to

Western Isles (Fanellan)

A232037

Allelys

REV	DATE	REASON	ISSUED BY
0	22-Dec-23	FIRST ISSUE	SJW

Executive Summary

Allelys have been commissioned by Hitachi (Sweden) to provide a feasibility survey for the transport of 7 no. 275 te transformers from Inverness to the Western Isles (Fanellan) site.

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 is the closest marine facility to site capable of receiving the Abnormal Indivisible Loads (AIL), however, due to structural challenges getting the transformers to the northern side of the Beauly Firth the transformers are to be transhipped from the deep-sea delivery vessel onto a suitable barge elsewhere before delivery by barge to North Kessock where the barge will be beach landed ready for roll-off of the transformers ready for onward delivery by road.

Suitable beach landing areas have been identified in North Kessock adjacent to a Highland Council operated public car park on Oakleigh Road. Permission is required from Highland Council for the car park to be used as the whole area will need to be closed to the public for the duration of the beach landing and transhipment operations. Initial contact has been made with the relevant personnel at Highland Council, however, dialogue has not been opened with them at the time of writing this report.

Engineering works are required to determine a suitable load spreading mat and bridging ramp arrangement needed for the roll-off the transformers loaded on Self Propelled Modular Trailers (SPMT) from the nominated barge. Suitable equipment is available for use; therefore, this operation is deemed to be feasible. A detailed marine study has been carried out and is included as part of this report.

The nominated transport configuration for delivery of the transformer from North Kessock to site, following transhipment from SPMT, is a 30-axle Girder Frame Trailer (GFT), subject to structural assessments.

Route 1 from North Kessock to the Western Isles (Fanellan) site is not currently considered feasible in terms of structural capacity, as Highland Council, the Local Highway Authority (LHA) have advised that structure no. C1160010 Black Bridge Kilmorack requires further assessment before the transformer delivery vehicle can be approved to cross the structure. It is thought that the structure will fail further assessment and it has been advised that the structure is likely to be replaced as part of the wider development scheme. Any new structure should be constructed such to be able to accommodate the 30-axle GFT.

Transport Scotland/BEAR NW have also been contacted to comment on the structural capacity of the route and at the time of writing this report, they are yet to comment on the structural capacity of their assets, however, all of their structures on the route are short span and suitable for alternative engineering solutions, should they fail further structural assessment, if any are to require this.

Route 1 is considered negotiable with Police Escort, street furniture removals, vegetation clearance and Temporary Traffic Regulation Orders (TTRO). TTROs can take 12 weeks plus to process and should be planned accordingly.

Oversail beyond highway limits is required to the inside of the right-hand turn from unclassified road onto unclassified road at approx. lat/long 57.458267, -4.508055, for which third party land owner(s) permission will be required. Overrun beyond the road edge is also required at the junction with Public Road Improvement (PRI) works recommended to accommodate the vehicle track.

Oversail beyond highway limits is also required to the inside of a left-hand bend on the unclassified road at approx. lat/long 57.457915, -4.510317, for which third party land owner(s) permission will again be required. A mature tree has been noted within the oversail area to the inside of the bend, which would need to be removed to allow access for the 30-axle GFT. Again, PRI works are recommended to facilitate areas of overrun beyond the road edge around the bend along with general widening works for the full length of the unclassified road from the UC road RH turn to the junction with the proposed site access road.

An assessment of the negotiability of the proposed access road design has not been included as part of this report as the design was not available at the time of writing this report. However, once the design is available it should be shared with Allelys to allow an assessment of the right-hand turn from the unclassified road along with the route from the public road to the plinth. Offload and installation of the transformer from the delivery vehicle to final position on the plinth has also not been considered as part of this report.

Table of Contents

All the way with Allelys.

Together, we move it all. We believe any challenge, no matter how big or small, is better tackled as a team. We ALL have a part to play and that starts with getting to know each other better.

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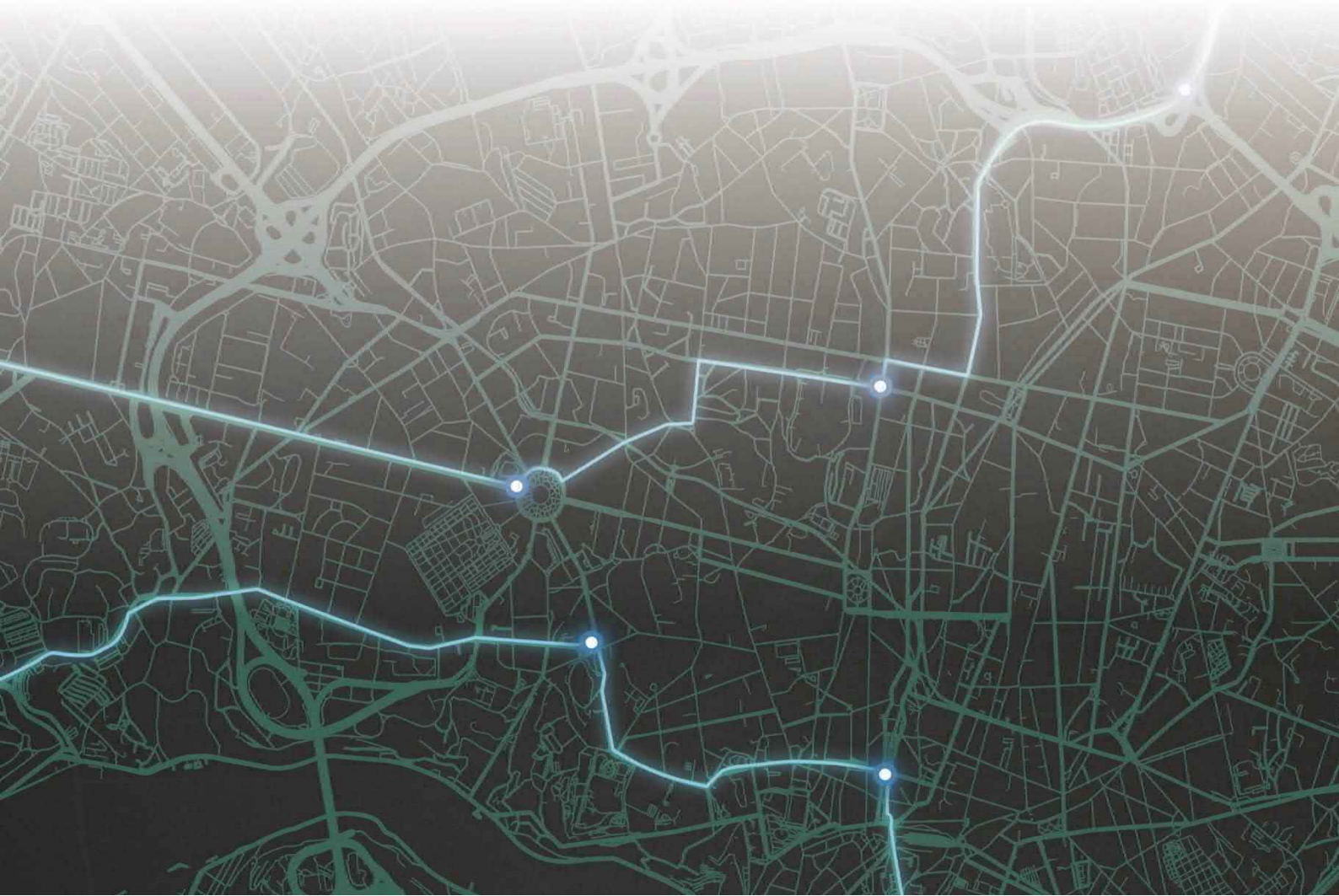

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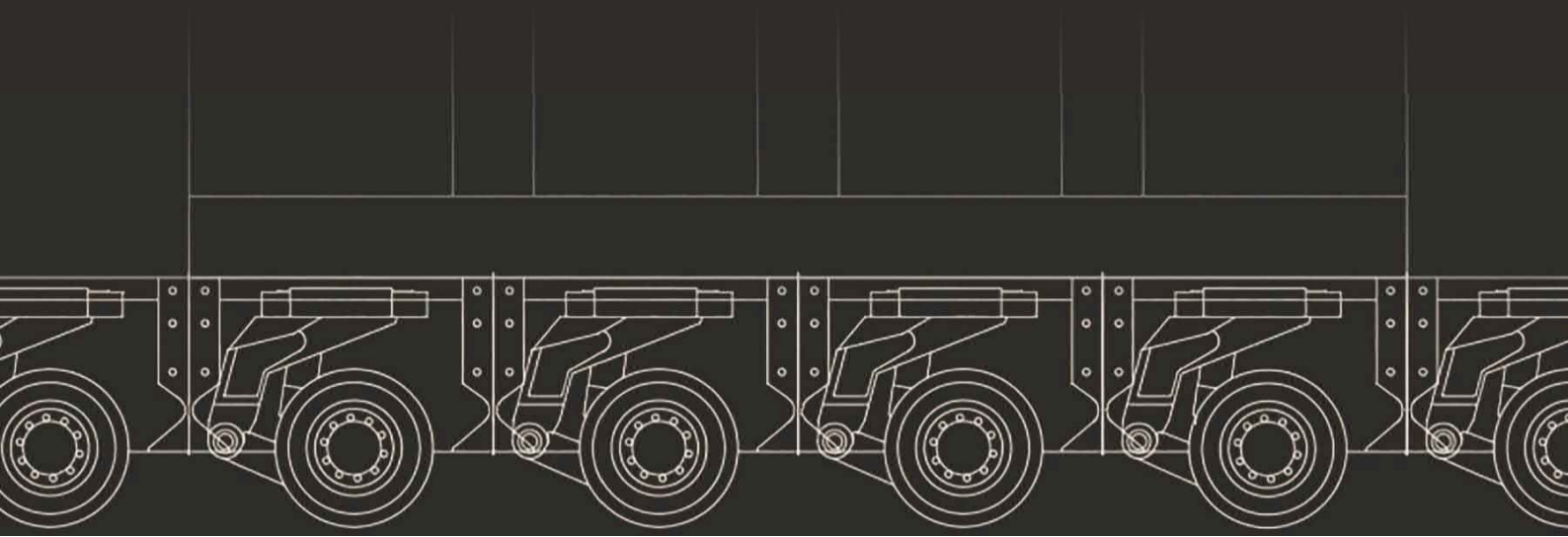

SECTORS

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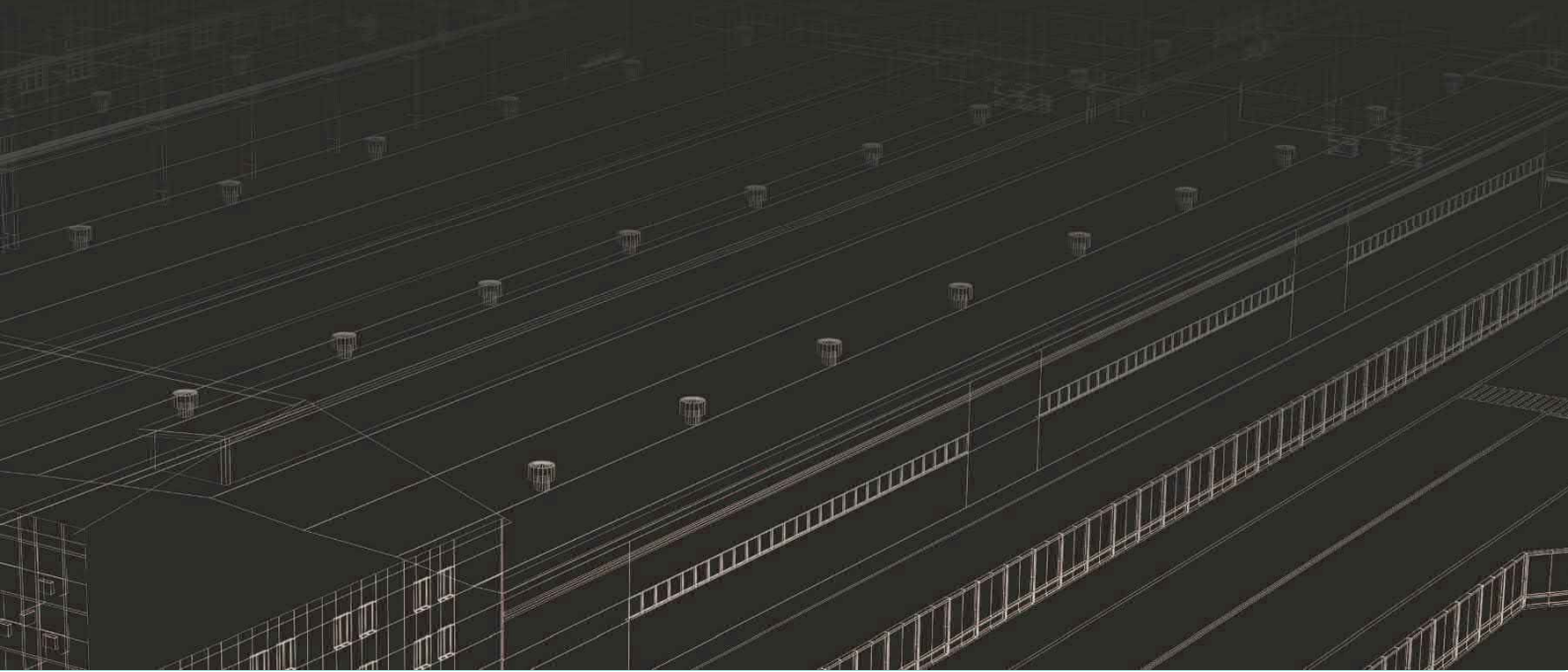


1. Introduction

1.1. Allelys have been commissioned by Hitachi (Sweden) to provide a feasibility survey for the transport of 7 no. 275 te transformers from Inverness to the Western Isles (Fanellan) site.

1.2. It is known that the structural capacity of the route from Inverness to the northern side of the Beauly Firth is not capable of accommodating AILs of this size, therefore, the route study is to be carried out from North Kessock, which is the closest suitable beach landing location, to site.

1.3. 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
LHA	Local Highway Authority
NH	National Highways
PRI	Public Road Improvement
SPMT	Self-Propelled Modular Trailer
STGO	Special Types General Order
TTRO	Temporary Traffic Regulation Order

3. Cargo Summary

3.1. The below information has been supplied by Hitachi (Sweden).

Table 1 Cargo Details

Description	Qty	Dimensions [mm]	Weight [kg]
Transformer	7	L 8,800 x W 4,100 x H 4,750	275,000

4. Locations

4.1. *Delivery Address*

4.1.1. Western Isles (Fanellan) is located 13.8 miles west of Inverness and 15.4 miles west of North Kessock

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:

North Kessock (port of delivery)
LH turn onto **Oakleigh Rd**
RH turn at **Millbank/UC road rbt** from **Millbank** onto **UC road**
LH turn from **UC road** onto **A9**
LH turn at **Tore Roundabout** from **A9** onto **A832**
LH turn from **A832** onto **B9169**
LH turn from **B9169** onto **A862**
RH turn from **A862** onto **A831**
LH turn from **A831** onto **unclassified road**
RH turn from **unclassified road** onto **unclassified road**
RH turn from **unclassified road** onto **proposed site access road**
Western Isles (Fanellan) (delivery point)

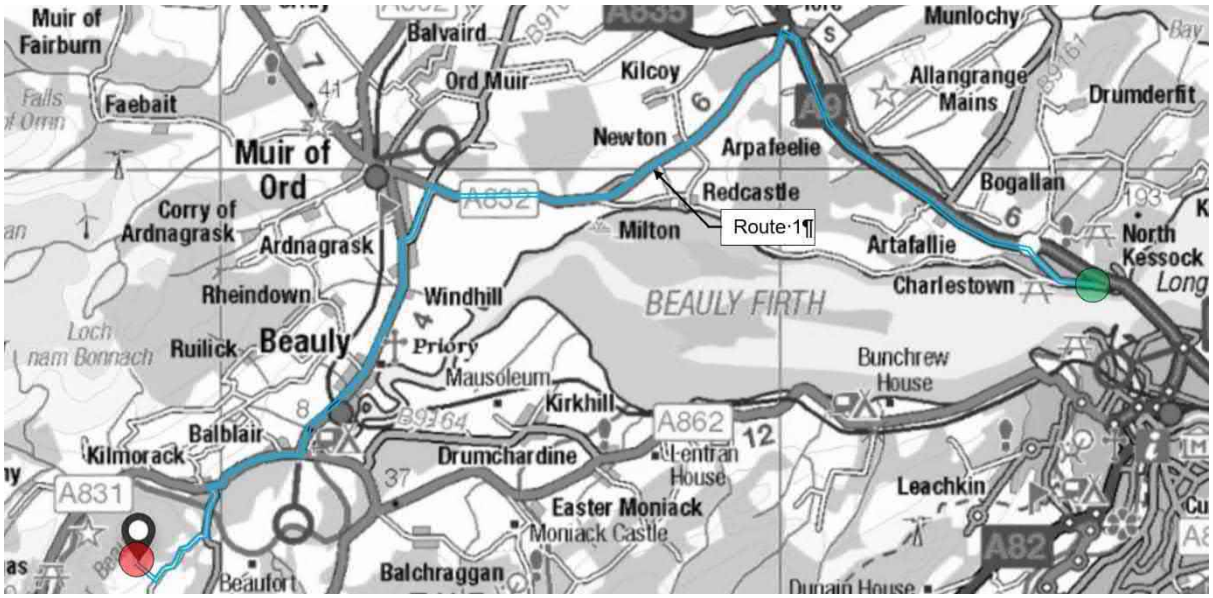


Figure 1 North Kessock to Western Isles (Fanellan) delivery route

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 275 te transformer be transported on a 30-axle Girder Frame Trailer, as seen in Figure 2, subject to structural assessments.

5.1.2. This transport arrangement has a gross weight 433.5 te, width 4.5 m, height 4.95 m and axle line load 14.5 te. Therefore, it is to be carried under Special Order legislation. Full technical drawing no. ALL-A232037-TA-01 is included under Appendix A.

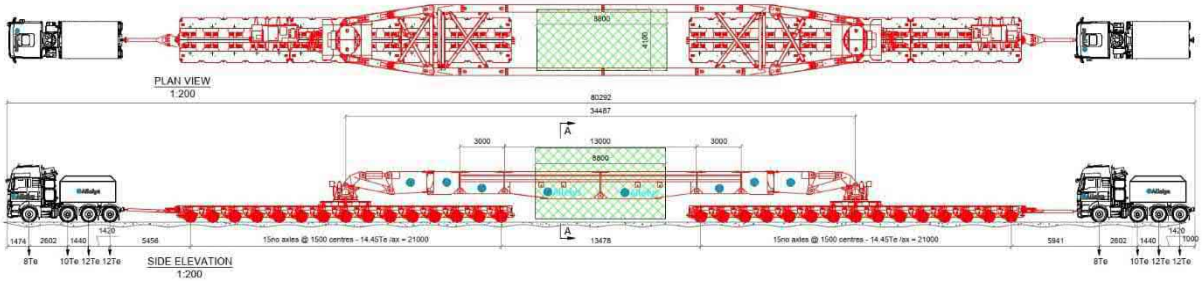


Figure 2 275 te transformer loaded onto 30-axle Girder Frame Trailer

6. Structures Details

6.1. Transport Scotland/BEAR NW and Highland Council have been consulted to advise on the current structural capacity of the route.

6.2. At the time of writing this report, Transport Scotland/BEAR NW were yet to comment on the structural capacity of their assets, however, all of their structures on the route are short span and suitable for alternative engineering solutions, should they fail further structural assessment, if any are to require this.

6.3. Highland Council have advised that structure no. C1160010 Black Bridge Kilmorack requires further assessment before the transformer delivery vehicle can be approved to cross the structure. It is thought that the structure will fail further assessment and it has been advised that the structure is likely to be replaced as part of the wider development scheme. Any new structure should be constructed such to be able to accommodate the 30-axle GFT.

6.4. Full details of all structures 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 route from the transhipment location on Oakleigh Road to the A9 is single carriageway, therefore, the roads are to be closed under Temporary Traffic Restriction Order (TTRO) or Police to hold opposing traffic at suitable points once the vehicle has joined from Oakleigh Road car park and exited onto the A9.

7.2.2. The entire route from A9 Tore Roundabout is single carriageway, therefore, the roads are to be closed under Temporary Traffic Restriction Order (TTRO) or Police to hold opposing traffic at suitable points once the vehicle has joined from the A9 and exited onto the Western Isles (Arnish) site access road.

7.2.3. Depending upon growth at the time delivery, vegetation pruning may be required on the unclassified road sections of the route.

7.3. *Route Survey Reference Sheets*

7.3.1. Route 1 North Kessock to Western Isles (Fanellan) site

Ref. ALL-A232037-RS-01

North Kessock beach landing

Note: - vehicle approaches camera

Direction of Travel Location: Northbound from delivery barge onto North Kessock car park	**Coordinates:** 57.501156, -4.248051
Enabling Works Required: Sole use of car park Load spreading mats for landing of bridging ramps	**Enabling Work Grade:** Medium Low
Assessment Works Required: Confirmation of max. GBP on car park from Highland Council Route survey carried out RWSL survey carried out, doc. No. ENQ1432-23.SUV01 - North Kessock Survey Report V1s included in Appendix E	**Assessment Work Grade:** Medium Complete Complete

Ref. ALL-A232037-RS-02

Oakleigh Rd public car park transhipment area

Direction of Travel Location: Oakleigh Rd public car park transhipment area	**Coordinates:** 57.501610, -4.249159
Enabling Works Required: Highland Council permission to use car park Temporary closure of car park	**Enabling Work Grade:** Medium Medium
Assessment Works Required: Route survey carried out	**Assessment Work Grade:** Complete

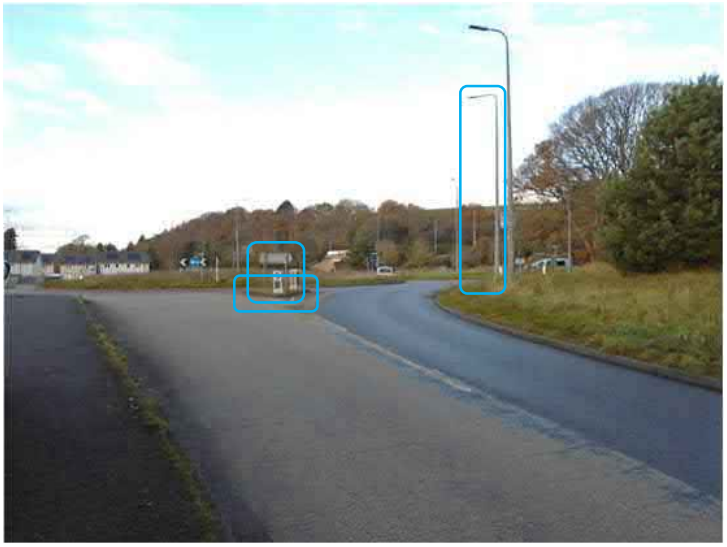
Ref. ALL-A232037-RS-03

Millbank/UC road rbt

Direction of Travel Location: RH turn at Millbank/UC road rbt	**Coordinates:** 57.507343, -4.264262
Enabling Works Required: Removal of 1 no. traffic signal	**Enabling Work Grade:** **Medium**
Assessment Works Required: Route survey carried out	**Assessment Work Grade:** Complete

Ref. ALL-A232037-RS-03 cont'd

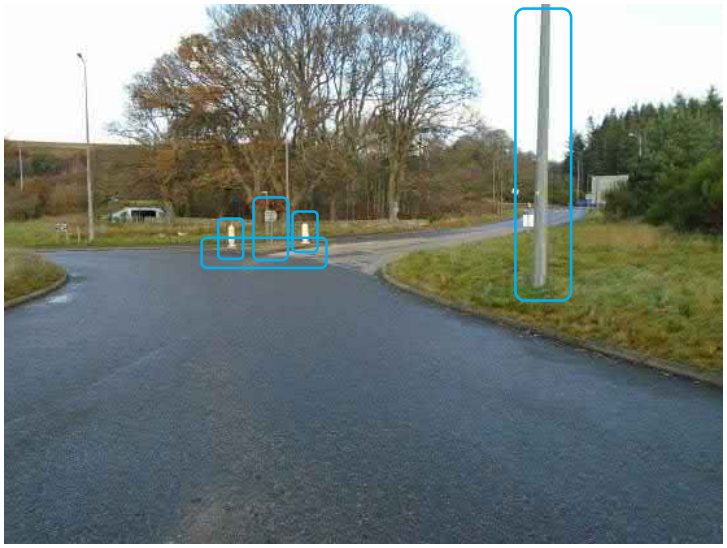
Millbank/UC road rbt



Direction of Travel Location: RH turn at Millbank/UC road rbt	**Coordinates:** 57.507343, -4.264262
Enabling Works Required: Contraflow manoeuvre Removal of 1 no. street lamp, 1 no. non-illuminated road sign and 2 no. keep left bollard Temporary steel plating of central splitter island	**Enabling Work Grade:** **Medium** **Medium** **Low**
Assessment Works Required: Route survey carried out	**Assessment Work Grade:** Complete

Ref. ALL-A232037-RS-03 cont'd

Millbank/UC road rbt



Direction of Travel Location: RH turn at Millbank/UC road rbt	**Coordinates:** 57.507343, -4.264262
Enabling Works Required: Contraflow manoeuvre Removal of 1 no. street lamp, 1 no. non-illuminated road sign and 2 no. keep left bollard Temporary steel plating of central splitter island	**Enabling Work Grade:** **Medium** **Medium** **Low**
Assessment Works Required: Route survey carried out	**Assessment Work Grade:** Complete

Ref. ALL-A232037-RS-04

UC road/A9 LH turn

Direction of Travel Location: LH turn from UC road onto A9	**Coordinates:** 57.508080, -4.263452
Enabling Works Required: Removal of 1 no. keep left bollard Temporary steel plating of central splitter island	**Enabling Work Grade:** Medium Low
Assessment Works Required: Route survey carried out	**Assessment Work Grade:** Complete

Ref. ALL-A232037-RS-04 cont'd

UC road/A9 LH turn

Direction of Travel Location: LH turn from UC road onto A9	**Coordinates:** 57.508080, -4.263452
Enabling Works Required: Temporary steel plating of central splitter island	**Enabling Work Grade:** **Low**
Assessment Works Required: Route survey carried out	**Assessment Work Grade:** Complete

Ref. ALL-A232037-RS-05

A9 1355 Charlestown Ped U/P

Direction of Travel Location: Westbound on A9 over structure no. A9 1355 Charlestown Pedestrian U/P	**Coordinates:** 57.508282, -4.2641884
Enabling Works Required: TBC	**Enabling Work Grade:** TBC
Assessment Works Required: Awaiting Transport Scotland/BEAR NW structural checks	**Assessment Work Grade:** **Medium**

Ref. ALL-A232037-RS-06

A9 1356 North Kessock U/P

Direction of Travel Location: Westbound on A9 over structure no. A9 1356 North Kessock U/P	**Coordinates:** 57.508517, -4.2656220
Enabling Works Required: TBC	**Enabling Work Grade:** TBC
Assessment Works Required: Awaiting Transport Scotland/BEAR NW structural checks	**Assessment Work Grade:** **Medium**

Ref. ALL-A232037-RS-07

A9 1355 C25 Teandore Pasture

Direction of Travel Location: Westbound on A9 over structure no. A9 1355 C25 Teandore Pasture	**Coordinates:** 57.521016, -4.3101697
Enabling Works Required: TBC	**Enabling Work Grade:** TBC
Assessment Works Required: Awaiting Transport Scotland/BEAR NW structural checks	**Assessment Work Grade:** **Medium**

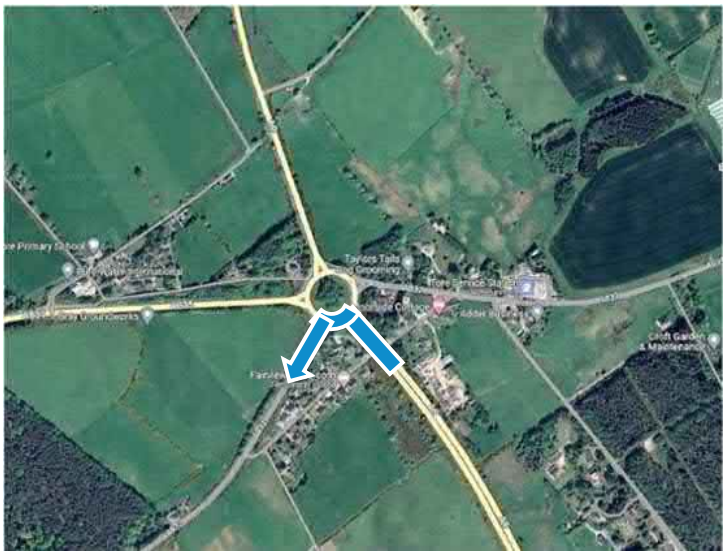
Ref. ALL-A232037-RS-08

A9 1355 C32 Glackmore

Direction of Travel Location: Westbound on A9 over structure no. A9 1355 C32 Glackmore	**Coordinates:** 57.526673, -4.3231220
Enabling Works Required: TBC	**Enabling Work Grade:** TBC
Assessment Works Required: Awaiting Transport Scotland/BEAR NW structural checks	**Assessment Work Grade:** **Medium**

Ref. ALL-A232037-RS-09

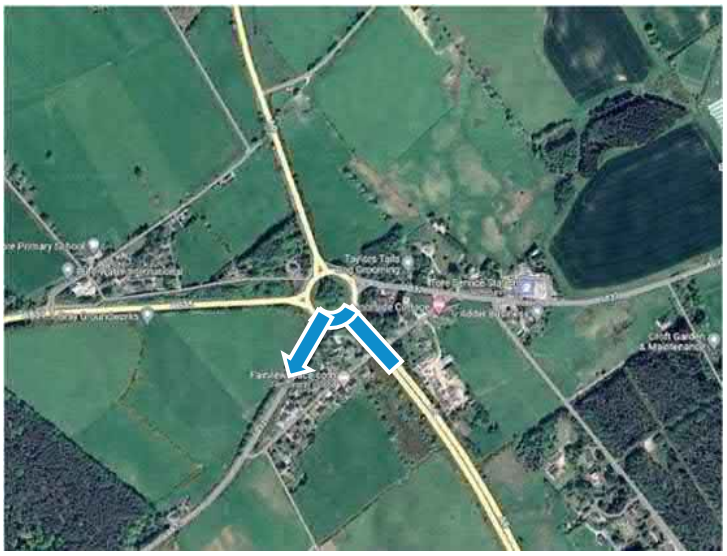
A9/A832 Tore Roundabout



Direction of Travel Location: LH turn at A9 Tore Roundabout from A9 onto A832	**Coordinates:** 57.540651, -4.336175
Enabling Works Required: N/A	**Enabling Work Grade:** N/A
Assessment Works Required: Route survey carried out - negotiable	**Assessment Work Grade:** Complete

Ref. ALL-A232037-RS-09 cont'd

A9/A832 Tore Roundabout



Direction of Travel Location: LH turn at A9 Tore Roundabout from A9 onto A832	**Coordinates:** 57.540651, -4.336175
Enabling Works Required: N/A	**Enabling Work Grade:** N/A
Assessment Works Required: Route survey carried out - negotiable	**Assessment Work Grade:** Complete

Ref. ALL-A232037-RS-10

A832/B9169 LH turn

Direction of Travel Location: LH turn from A832 onto B9169	**Coordinates:** 57.513979, -4.443835
Enabling Works Required: N/A	**Enabling Work Grade:** N/A
Assessment Works Required: Route survey carried out - negotiable	**Assessment Work Grade:** Complete

Ref. ALL-A232037-RS-11

B9169/A862 LH turn

Direction of Travel Location: LH turn from B9169 onto A862	**Coordinates:** 57.504308, -4.453572
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-A232037-RS-12

A862/A831 shunt manoeuvre

Direction of Travel Location: RH turn from A862 onto A831	**Coordinates:** 57.470525, -4.479264
Enabling Works Required: Shunt manoeuvre	**Enabling Work Grade:** **Medium**
Assessment Works Required: Route survey carried out	**Assessment Work Grade:** Complete

Ref. ALL-A232037-RS-12 cont'd

A862/A831 shunt manoeuvre

Direction of Travel Location: RH turn from A862 onto A831	**Coordinates:** 57.470525, -4.479264
Enabling Works Required: Shunt manoeuvre Removal of 2 no. non-illuminated road sign, 9 no. plastic bollard and 2 no. keep left bollard	**Enabling Work Grade:** Medium Medium
Assessment Works Required: Route survey carried out - negotiable	**Assessment Work Grade:** Complete

Ref. ALL-A232037-RS-13

A831/UC road shunt manoeuvre

Direction of Travel Location: Shunt manoeuvre from A831 onto UC road	**Coordinates:** 57.464435, -4.506118
Enabling Works Required: Removal of 1 no. non-illuminated road sign	**Enabling Work Grade:** Medium
Assessment Works Required: Route survey carried out SPA of LH turn carried out indicates conflict with databox located on eastern verge of UC road, therefore, shunt manoeuvre to be carried out. Drawing no. ALL-A232037-SPA-01 included in Appendix D.	**Assessment Work Grade:** Complete Complete

Ref. ALL-A232037-RS-13 cont'd

A831/UC road shunt manoeuvre

Direction of Travel Location: Shunt manoeuvre from A831 onto UC road	**Coordinates:** 57.464435, -4.506118
Enabling Works Required: Removal of 1 no. non-illuminated road sign	**Enabling Work Grade:** **Medium**
Assessment Works Required: Route survey carried out SPA of LH turn carried out indicates conflict with databox located on eastern verge of UC road, therefore, shunt manoeuvre to be carried out. Drawing no. ALL-A232037-SPA-01 included in Appendix D.	**Assessment Work Grade:** Complete Complete

Ref. ALL-A232037-RS-13 cont'd

A831/UC road shunt manoeuvre

Direction of Travel Location: Shunt manoeuvre from A831 onto UC road	**Coordinates:** 57.464435, -4.506118
Enabling Works Required: Removal of 1 no. non-illuminated road sign	**Enabling Work Grade:** **Medium**
Assessment Works Required: Route survey carried out SPA of LH turn carried out indicates conflict with databox located on eastern verge of UC road, therefore, shunt manoeuvre to be carried out. Drawing no. ALL-A232037-SPA-01 included in Appendix D.	**Assessment Work Grade:** Complete Complete

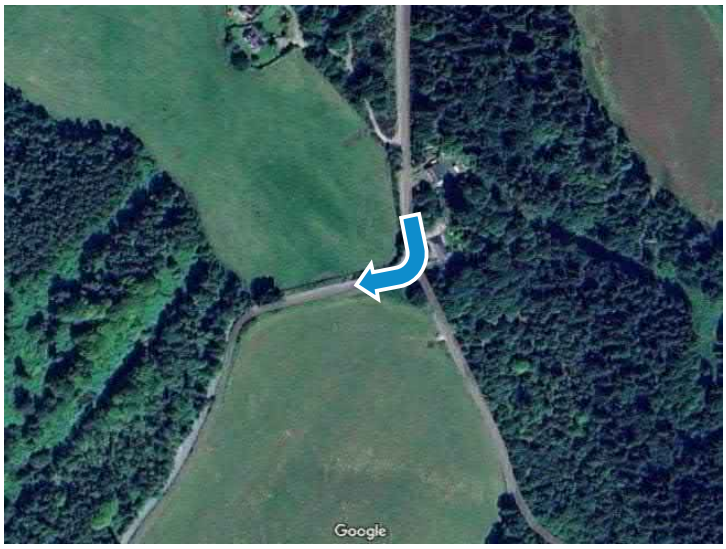
Ref. ALL-A232037-RS-14

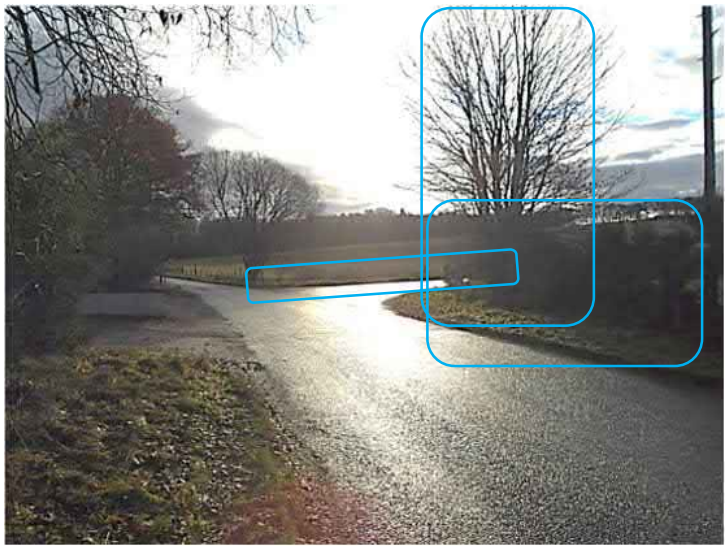
C1160010 Black Bridge Kilmorack

Direction of Travel Location: Southbound on UC road over structure no. C1160010 Black Bridge Kilmorack	**Coordinates:** 57.461849, -4.5070250
Enabling Works Required: Potential structure replacement	**Enabling Work Grade:** **High**
Assessment Works Required: Failed Highland Council structural checks, full assessment unlikely to be positive	**Assessment Work Grade:** Complete

Ref. ALL-A232037-RS-15

UC road/UC road RH turn

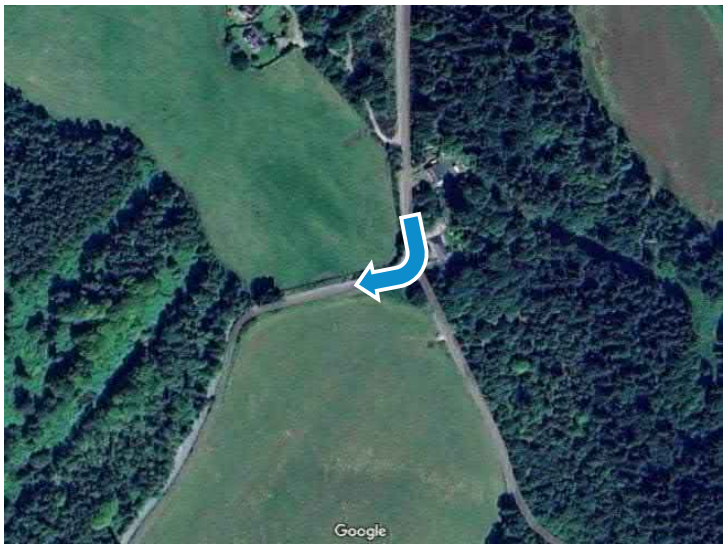


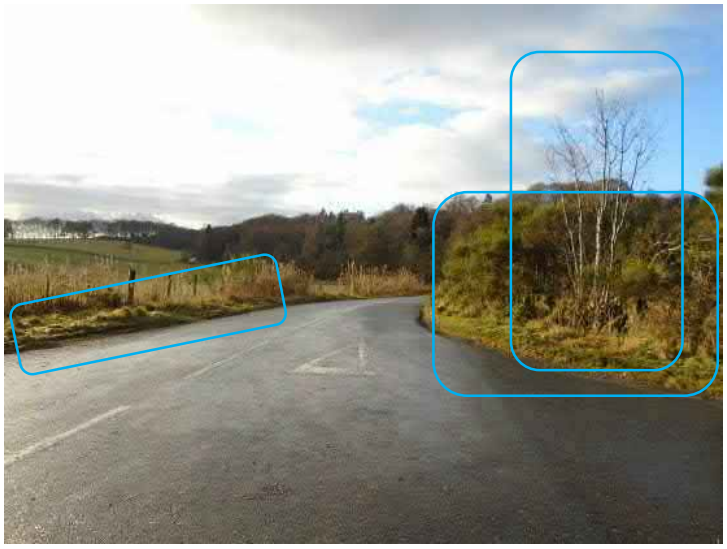


Direction of Travel Location: RH turn from UC road onto UC road	**Coordinates:** 57.458267, -4.508055
Enabling Works Required: Third party land uptake to inside of turn Vegetation clearance to inside of turn Temporary steel plating for overrun beyond road edge	**Enabling Work Grade:** **High** **High** **Low**
Assessment Works Required: Route survey carried out SPA carried out, drawing no. ALL-A232037-SPA-02 included in Appendix D	**Assessment Work Grade:** Complete Complete

Ref. ALL-A232037-RS-15 cont'd

UC road/UC road RH turn

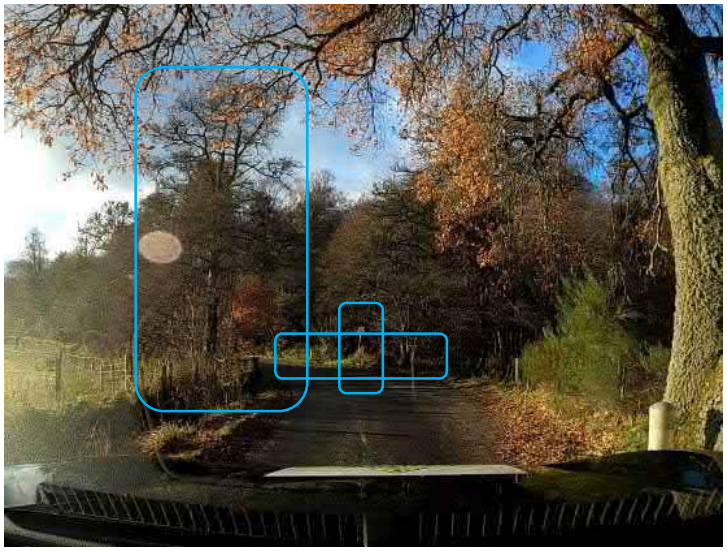




Direction of Travel Location: RH turn from UC road onto UC road	**Coordinates:** 57.458267, -4.508055
Enabling Works Required: Third party land uptake to inside of turn Vegetation clearance to inside of turn Temporary steel plating for overrun beyond road edge	**Enabling Work Grade:** **High** **High** **Low**
Assessment Works Required: Route survey carried out SPA carried out, drawing no. ALL-A232037-SPA-02 included in Appendix D	**Assessment Work Grade:** Complete Complete

Ref. ALL-A232037-RS-16

UC road/UC road LH bend



Direction of Travel Location: LH bend on UC road	**Coordinates:** 57.457915, -4.510317
Enabling Works Required: Third party land uptake to inside of turn Vegetation clearance to inside of turn PRI widening works Removal of 1 no. non-illuminated road sign	**Enabling Work Grade:** **High** **High** **High** **Medium**
Assessment Works Required: Route survey carried out SPA carried out, drawing no. ALL-A232037-SPA-03 included in Appendix D	**Assessment Work Grade:** Complete Complete

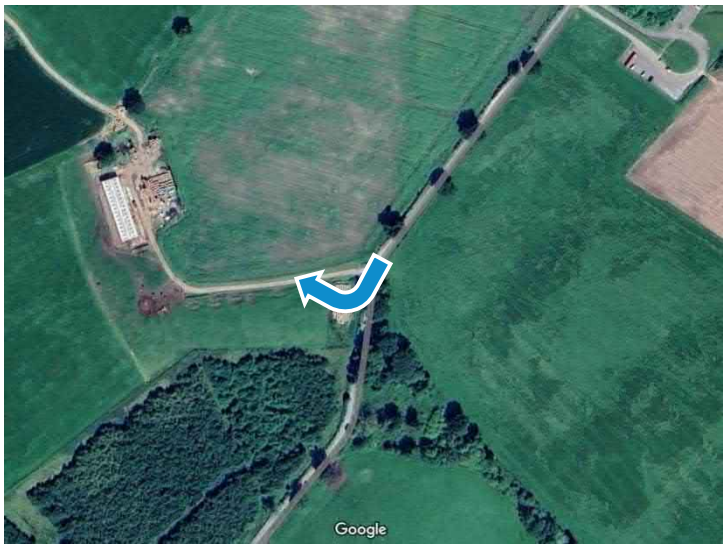
Ref. ALL-A232037-RS-21 cont'd

UC road/UC road LH bend

Direction of Travel Location: LH bend on UC road	**Coordinates:** 57.457915, -4.510317
Enabling Works Required: Third party land uptake to inside of turn Vegetation clearance to inside of turn PRI widening works Removal of 1 no. non-illuminated road sign	**Enabling Work Grade:** **High** **High** **High** **Medium**
Assessment Works Required: Route survey carried out SPA carried out, drawing no. ALL-A232037-SPA-03 included in Appendix D	**Assessment Work Grade:** Complete Complete

Ref. ALL-A232037-RS-17

UC road/site access road RH turn



Direction of Travel Location: RH turn from UC road onto site access road	**Coordinates:** 57.448227, -4.524278
Enabling Works Required: TBC	**Enabling Work Grade:** TBC
Assessment Works Required: Route survey carried out Require site access road design to check negotiability	**Assessment Work Grade:** Complete **Low**

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. As the proposed 275 te transformer transport configuration is classified as Special Order, in accordance with the Water Preferred Policy, Inverness is the closest marine facility to site capable of receiving the Abnormal Indivisible Loads (AIL), however, due to structural challenges getting the transformers to the northern side of the Beauly Firth the transformers are to be transhipped from the deep-sea delivery vessel onto a suitable barge elsewhere before delivery by barge to North Kessock where the barge will be beach landed ready for roll-off of the transformers ready for onward delivery by road.

8.2. Suitable beach landing areas have been identified in North Kessock adjacent to a Highland Council operated public car park on Oakleigh Road. Permission is required from Highland Council for the car park to be used as the whole area will need to be closed to the public for the duration of the beach landing and transhipment operations. Initial contact has been made with the relevant personnel at Highland Council, however, dialogue has not been opened with them at the time of writing this report.

8.3. Engineering works are required to determine a suitable load spreading mat and bridging ramp arrangement needed for the roll-off the transformers loaded on Self Propelled Modular Trailers (SPMT) from the nominated barge. Suitable equipment is available for use; therefore, this operation is deemed to be feasible. A detailed marine study has been carried out and is included as part of this report.

8.4. The nominated transport configuration for delivery of the transformer from North Kessock to site, following transhipment from SPMT, is a 30-axle Girder Frame Trailer (GFT), subject to structural assessments.

8.5. Route 1 from North Kessock to the Western Isles (Fanellan) site is not currently considered feasible in terms of structural capacity, as Highland Council, the Local Highway Authority (LHA) have advised that structure no. C1160010 Black Bridge Kilmorack requires further assessment before the transformer delivery vehicle can be approved to cross the structure. It is thought that the structure will fail further assessment and it has been advised that the structure is likely to be replaced as part of the wider development scheme. Any new structure should be constructed such to be able to accommodate the 30-axle GFT.

8.6. Transport Scotland/BEAR NW have also been contacted to comment on the structural capacity of the route and at the time of writing this report, they are yet to comment on the structural capacity of their assets, however, all of their structures on the route are short span and suitable for alternative engineering solutions, should they fail further structural assessment, if any are to require this.

8.7. Route 1 is considered negotiable with Police Escort, street furniture removals, vegetation clearance and Temporary Traffic Regulation Orders (TTRO). TTROs can take 12 weeks plus to process and should be planned accordingly.

8.8. Oversail beyond highway limits is required to the inside of the right-hand turn from unclassified road onto unclassified road at approx. lat/long 57.458267, -4.508055, for which third party land owner(s) permission will be required. Overrun beyond the road edge is also required at the junction with Public Road Improvement (PRI) works recommended to accommodate the vehicle track.

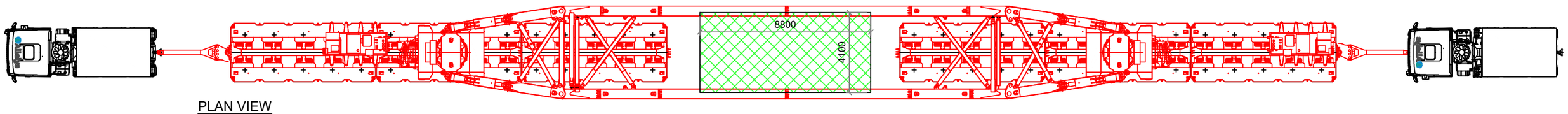
8.9. Oversail beyond highway limits is also required to the inside of a left-hand bend on the unclassified road at approx. lat/long 57.457915, -4.510317, for which third party land owner(s) permission will again be required. A mature tree has been noted within the oversail area to the inside of the bend, which would need to be removed to allow access for the 30-axle GFT. Again, PRI works are recommended to facilitate areas of overrun beyond the road edge around the bend along with general widening works for the full length of the unclassified road from the UC road RH turn to the junction with the proposed site access road.

8.10. An assessment of the negotiability of the proposed access road design has not been included as part of this report as the design was not available at the time of writing this report. However, once the design is available it should be shared with Allelys to allow an assessment of the right-hand turn from the unclassified road along with the route from the public road to the plinth. Offload and installation of the transformer from the delivery vehicle to final position on the plinth has also not been considered as part of this report.

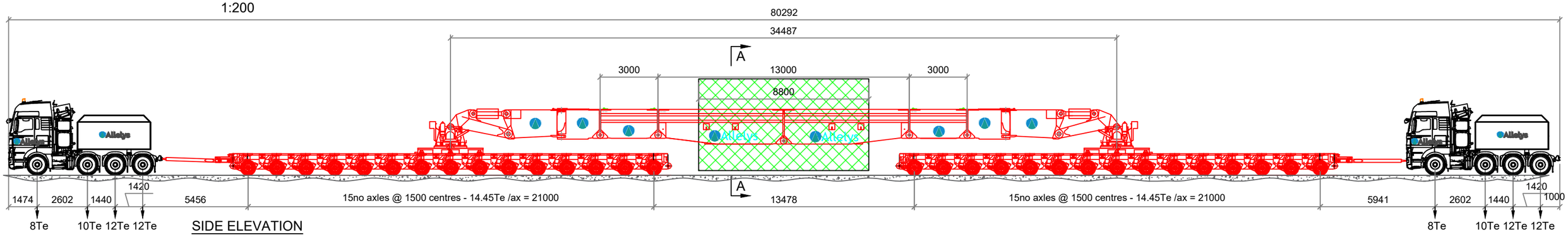
Appendix A

Trailer Arrangement Drawings

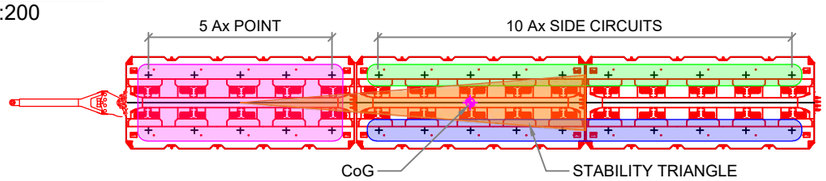
DO NOT SCALE | **IF IN DOUBT ASK**

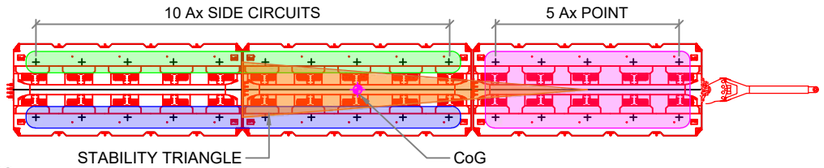


PLAN VIEW
1:200

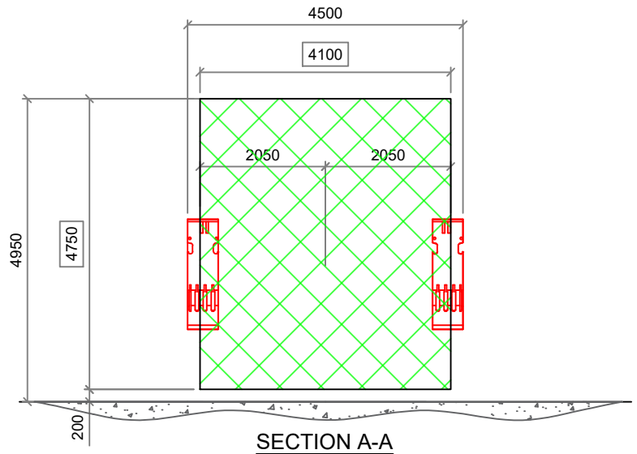


SIDE ELEVATION
1:200

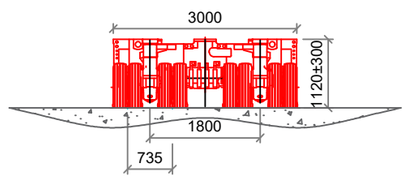




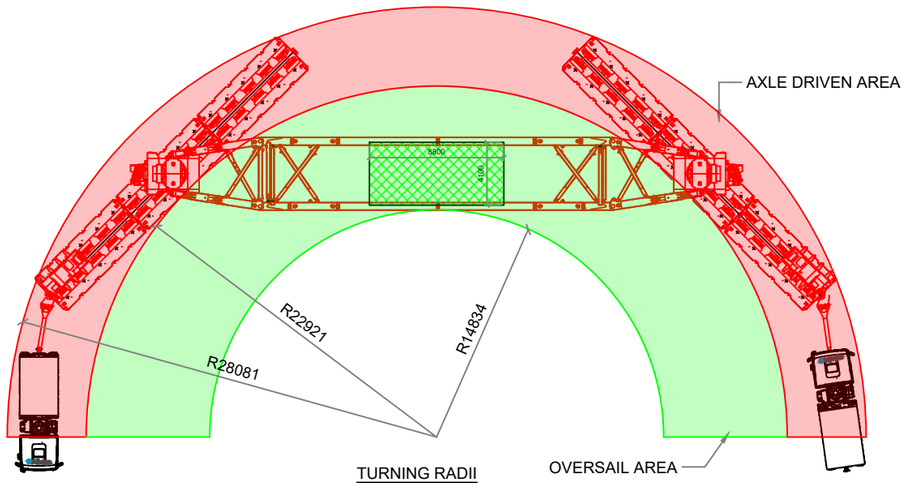
STABILITY CIRCUITS
1:200



SECTION A-A
1:100



BOGIE SECTION
1:100



TURNING RADII
1:400

FRICTION PACKING ON ALL STEEL/STEEL INTERFACES

LASHING CHAINS TO BE APPLIED

DRAWING NOTES:

- ALL DIMENSIONS IN mm UNLESS OTHERWISE STATED.
- ALL WEIGHTS ARE IN Te (METRIC TONNES) UNLESS OTHERWISE STATED.
- ALL DETAILS ARE PRELIMINARY AND ARE SUBJECT TO CONFIRMATION.

TECHNICAL NOTES:

LOAD TABLE	
Applied Load Weight (Te)	275.00
Trailer Tare Weight (Te)	158.45
Auxiliary Steel Work (Te)	0.00
Trailer Gross Weight (Te)	433.45
Load per Bogie (Te)	216.73
Load per Axle (Te)	14.45
Block Ground Loading (Te/m²)	3.21

CLIENT REFERENCE DOCUMENTS

REV	DATE	DOCUMENT REFERENCE No.

REVISION HISTORY

REV	DATE	DESCRIPTION	DRAWN	CHECKED	APPROVED
00	17/11/23	First issue	EDA		
A					
B					
C					

Allelys
The Slough,
Studley,
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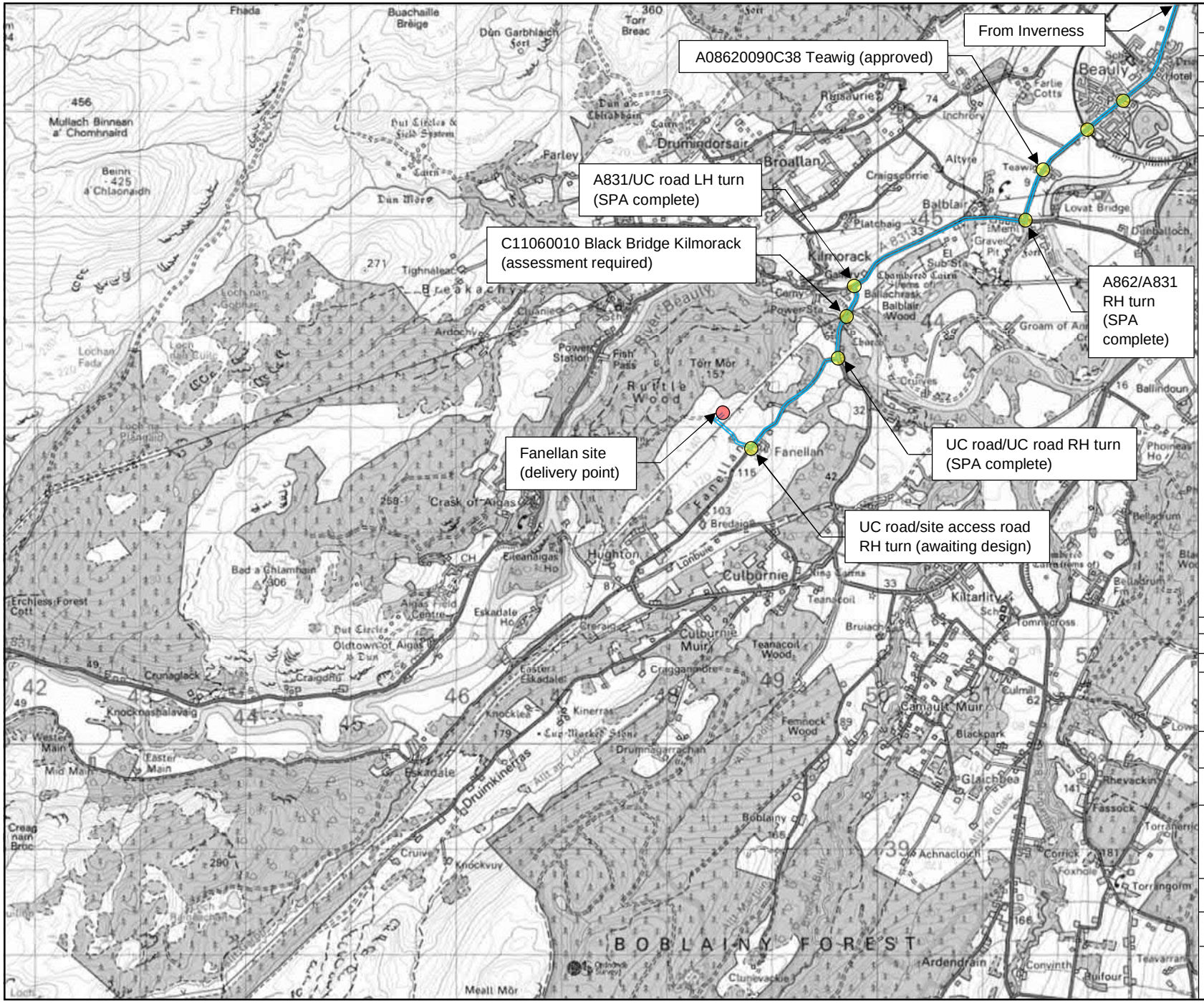
B80 7EN
Tel: +44 (0) 1527 852 408
e-mail: enquiries@allelys.co.uk

Client	Hitachi (Sweden)
Project	Route Survey
Title	275 Te Transformer F5.5 HGB 30 Axle Trailer
Scale (A3)	AS SHOWN
Sheet No.	1
Total No.	1
Dwg. No	ALL-A232037-TA-01

Appendix B

Maps



Key

Route 1	
Collection point	
Point of interest	
Delivery point	

Rev.	Date	Amendments
0	22/12/23	First issue

Revisions

Allelys
The Slough,
Studley,
Warwickshire,
B80 7EN
Tel: +44 (0) 1527 852 408
e-mail: enquiries@allelys.co.uk

Client: Hitachi (Sweden)

Project: A232037 Western Isles (Fanellan)

Title: 275 te Transformer
North Kessock to Fanellan

Doc. no.: ALL-A232037-MAP-001

Sheet: 3 of 3

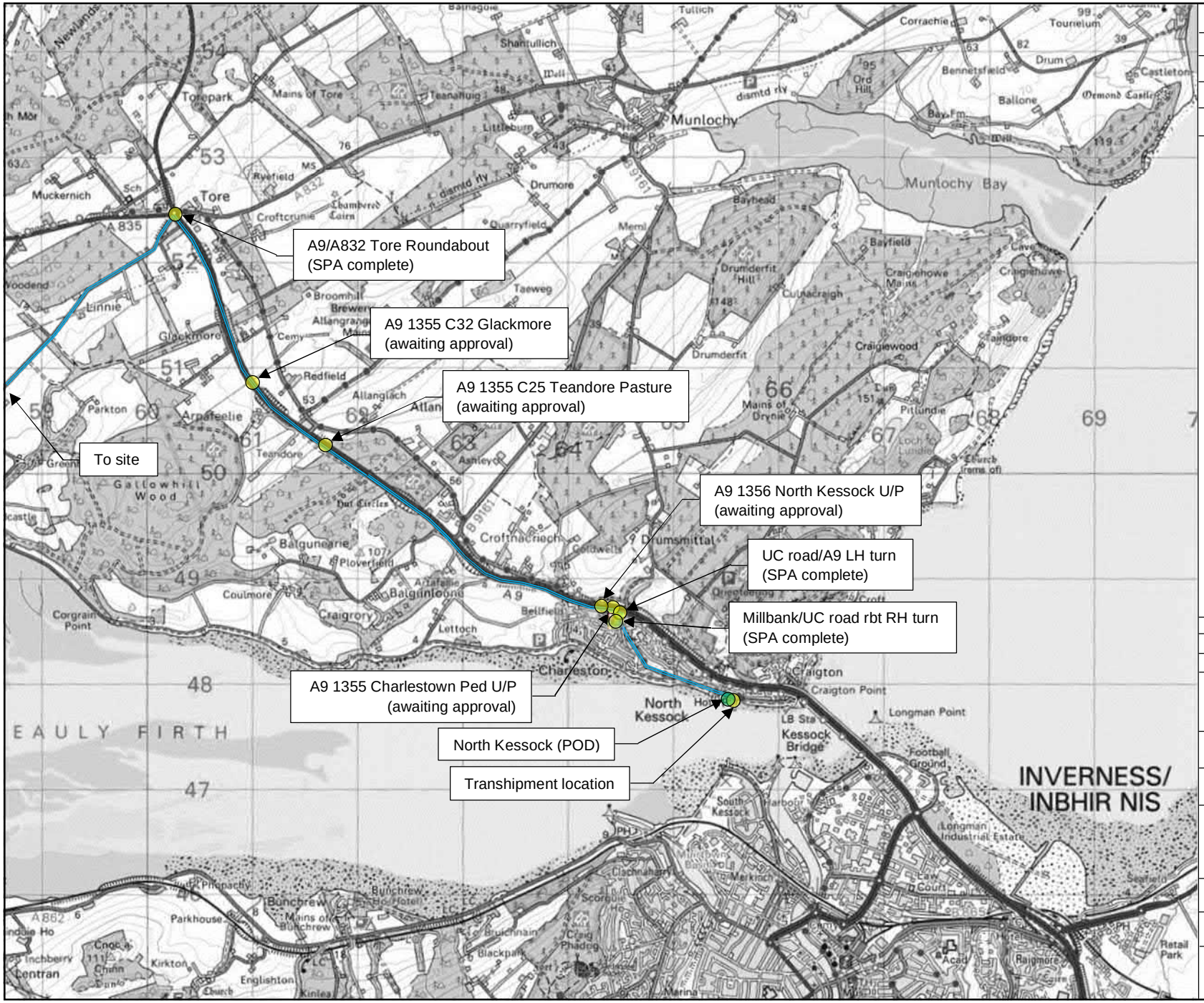
Rev.: 0

Appendix C

Structures Details & Assessments

Table 2 Route 1 structures

Structure ID	Structure name	Structural authority	Check result	Easting	Northing	Category	Type	Class	Length [m]
A9 1355	CHARLESTOWN PED U/P	TRANSPORT SCOTLAND /BEAR NW		264446	848716	ACCOMMODATION ACCESS UNDER	FIXED	UNDERBRIDGE	4.7
A9 1356	NORTH KESSOCK U/P	TRANSPORT SCOTLAND /BEAR NW		264361	848745	ROAD BRIDGE	INTEGRAL STRUCTURE	UNDER AND OVER BRIDGE	9.3
A9 1355 C25	TEANDORE PASTURE	TRANSPORT SCOTLAND /BEAR NW		261740	850226	CULVERT	-	UNDERBRIDGE	-
A9 1355 C32	GLACKMORE	TRANSPORT SCOTLAND /BEAR NW		260986	850882	CULVERT	-	UNDERBRIDGE	-
A08620120	BLACKBURN (TOMICH)	HIGHLAND COUNCIL	Approved	253112	847892	ROAD BRIDGE	-	UNDERBRIDGE	-
A08620110	BRIDGEND	HIGHLAND COUNCIL	Approved	252301	846087	ROAD BRIDGE	-	UNDERBRIDGE	-
A08620100	A9 BEAULY ROAD (OP)	HIGHLAND COUNCIL	Approved	251988	845827	ROAD BRIDGE	-	UNDERBRIDGE	-
A08620090C38	TEAWIG	HIGHLAND COUNCIL	Approved	251570	845432	CULVERT	-	UNDERBRIDGE	-
C11060010	BLACK BRIDGE KILMORACK	HIGHLAND COUNCIL	Assessment required	249710	844060	ROAD BRIDGE	-	UNDERBRIDGE	-



Key

	Route 1
	Collection point
	Point of interest
	Delivery point

Rev.	Date	Amendments
0	22/12/23	First issue

Revisions

Allelys
The Slough,
Studley,
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Tel: +44 (0) 1527 852 408
e-mail: enquiries@allelys.co.uk

Client: Hitachi (Sweden)

Project: Western Isles (Fanellan)

Title: 275 te Transformer
North Kessock to Fanellan

Doc. no.: ALL-A232037-MAP-001

Sheet: 1 of 3

Rev.: 0

Key

	Route 1
	Collection point
	Point of interest
	Delivery point

Rev.	Date	Amendments
0	22/12/23	First issue

Revisions

Allelys
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Tel: +44 (0) 1527 852 408
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Client: Hitachi (Sweden)

Project: Western Isles (Fanellan)

Title: 275 te Transformer
North Kessock to Fanellan

Doc. no.: ALL-A232037-MAP-001

Sheet: 2 of 3

Rev.: 0

Sally Weston

From: Simon Farrow (Infrastructure) <Simon.Farrow@highland.gov.uk>
Sent: 06 November 2023 17:27
To: David Allely; Sally Weston; Abnormal Loads
Subject: RE: Western Isles HVDC convertor stations

David,

From memory, the limiting factor was Beauly Rail bridge, which was assessed for the 14.6te axle loads you mention. I will go and check what information we have for the other bridges along this route – I think for Lovat Bridge it will depend on how the proposed 256te vehicle compares to previous AIL movements. There are also 5-6 small bridges on the Kiltarlity loop that I think will need checked.

I would note that SSE are assessing Black Bridge Kilmorack for this project with a view to strengthening (or possibly replacement). If this bridge is suitable then it would be our preferred route to Fanellan as it avoids site traffic going through Kiltarlity.

I'll get back to you with the list of structures on the Kilarlity route in the next week or so.

Routes on the Isle of Lewis are maintained by Comhairle nan Eilean Siar. ESDAL lists their abnormal loads officer as:

Authority	Abnormal Loads Officer	E
Comhairle nan Eilean Siar (Western Isles Council)	Donald A Macleay	d

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: David Allely <david.allely@allelys.co.uk>
Sent: Monday, November 6, 2023 4:06 PM
To: Simon Farrow (Infrastructure) <Simon.Farrow@highland.gov.uk>; Sally Weston <sally.weston@allelys.co.uk>; Abnormal Loads <Abnormal.Loads@highland.gov.uk>
Subject: RE: Western Isles HVDC convertor stations

Hello Simon

Hope you are well, we did some work on the Western Isles project a few years ago and I had been talking to Norman Smart, this project is now live again and the substation location is now confirmed which is to the West of the existing Beauly substation but on the other side of the River Beauly.

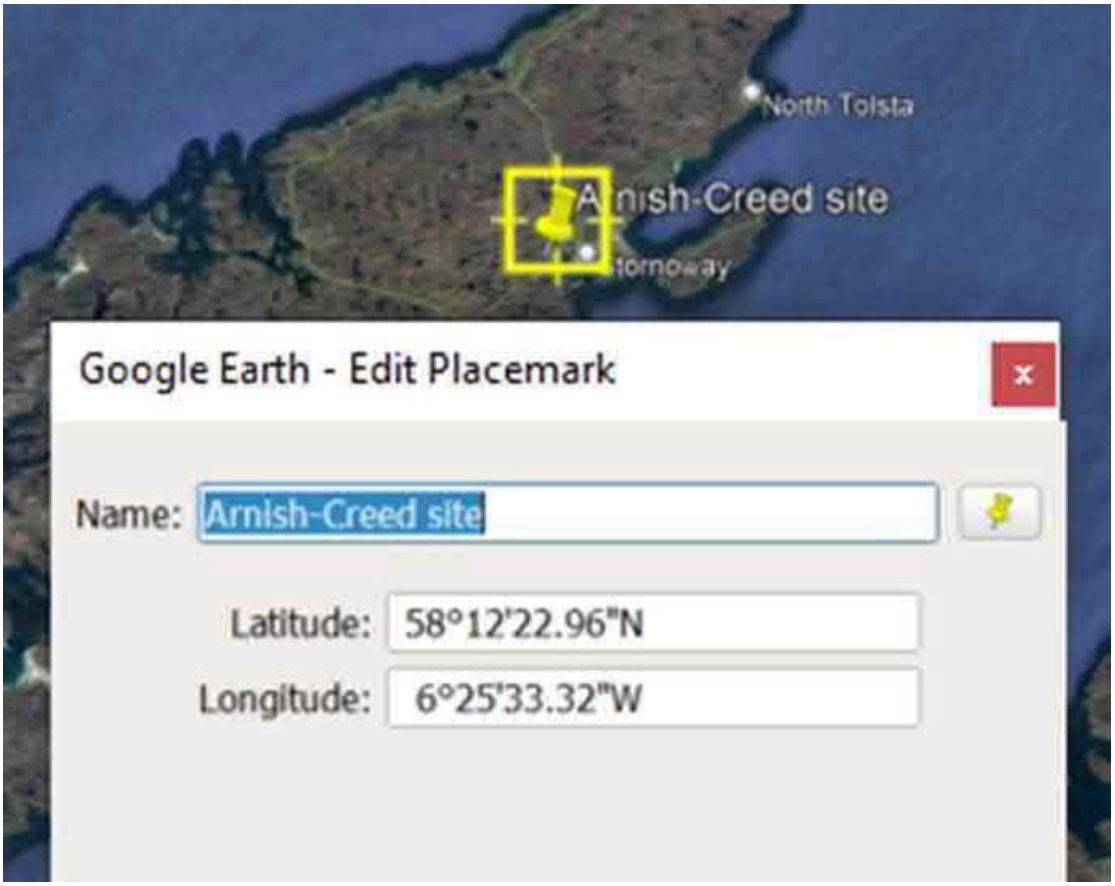
The units for this project are quite heavy at 256 te each and as such when I look previously we were considering landing in North Kessock at the old ferry ramp, this then avoids North Kessock Bridge and Cromarty Firth Viaduct, we previously conducted assessments on Blackburn Bridge, Bridge end, Beauly Rail and Teawig and the results were a max axle load of 14.6 te as being the limiting factor (not sure how much you knew about what has been done previously).

From what I can see we have 2 options either Lovat bridge and then go in via the Cul'na'kirk rd A833 to Kiltarlity and loop in from the South, or we pass Beauly Substation and cross the River Beauly West of the Quarry near Kilmorack, previously Norman was relaxed about Lovat as long as we checked the foundations for scouring around the caisson before crossing but understand if you think this needs more assessment work for these loads, I don't know if the alternate route via the other bridge at Kilmorack would work but would be pleased to understand its capacity and your thoughts.

The site co-ordinates are below.

The other end of this project is on the Isle of Lewis West of Arnish, therefore not sure if it is better to look at Stornoway or Arnish to land the units before travelling to the site below, again not sure if you look after Lewis or are the roads looked after locally.

If you could let me know if you look after the Isle of Lewis as well I can then look at trailer options if we can understand the likely restrictions.



I will get a transport arrangement completed to start with for Beauly.

thanks

Regards

David Allely
Director
Allelys

Tel: 01527 852 408 (Option 1)
Mob: 07836 549 285
Web: www.allelys.co.uk
Email: David.Allely@allelys.co.uk
Address: The Slough, Studley, Warwickshire, B80 7EN

From: Simon Farrow (Infrastructure) <Simon.Farrow@highland.gov.uk>
Sent: 02 May 2023 19:07
To: David Allely <david.allely@allelys.co.uk>; Sally Weston <sally.weston@allelys.co.uk>; Abnormal Loads <Abnormal.Loads@highland.gov.uk>
Cc: Anthony Callachan <Anthony.Callachan@allelys.co.uk>
Subject: RE: A220894 Loch Lundie 320 te transformer feasibility study

David,

Thanks – I will aim to get this back to you next week sometime.

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: David Allely <david.allely@allelys.co.uk>
Sent: 02 May 2023 17:33
To: Simon Farrow (Infrastructure) <Simon.Farrow@highland.gov.uk>; Sally Weston <sally.weston@allelys.co.uk>; Abnormal Loads <Abnormal.Loads@highland.gov.uk>
Cc: Anthony Callachan <Anthony.Callachan@allelys.co.uk>
Subject: RE: A220894 Loch Lundie 320 te transformer feasibility study

Hello Simon

I have received confirmation regarding the proposed weights and dims and can use the attached transport arrangement for this project, please find a drawing attached, we can of course add more axles but would prefer to start with this as the large we get the harder any route becomes to negotiate.

Thank you.

Regards

David Allely
Director
Allelys

Tel: 01527 852 408 (Option 1)
Mob: 07836 549 285
Web: www.allelys.co.uk
Email: David.Allely@allelys.co.uk
Address: The Slough, Studley, Warwickshire, B80 7EN

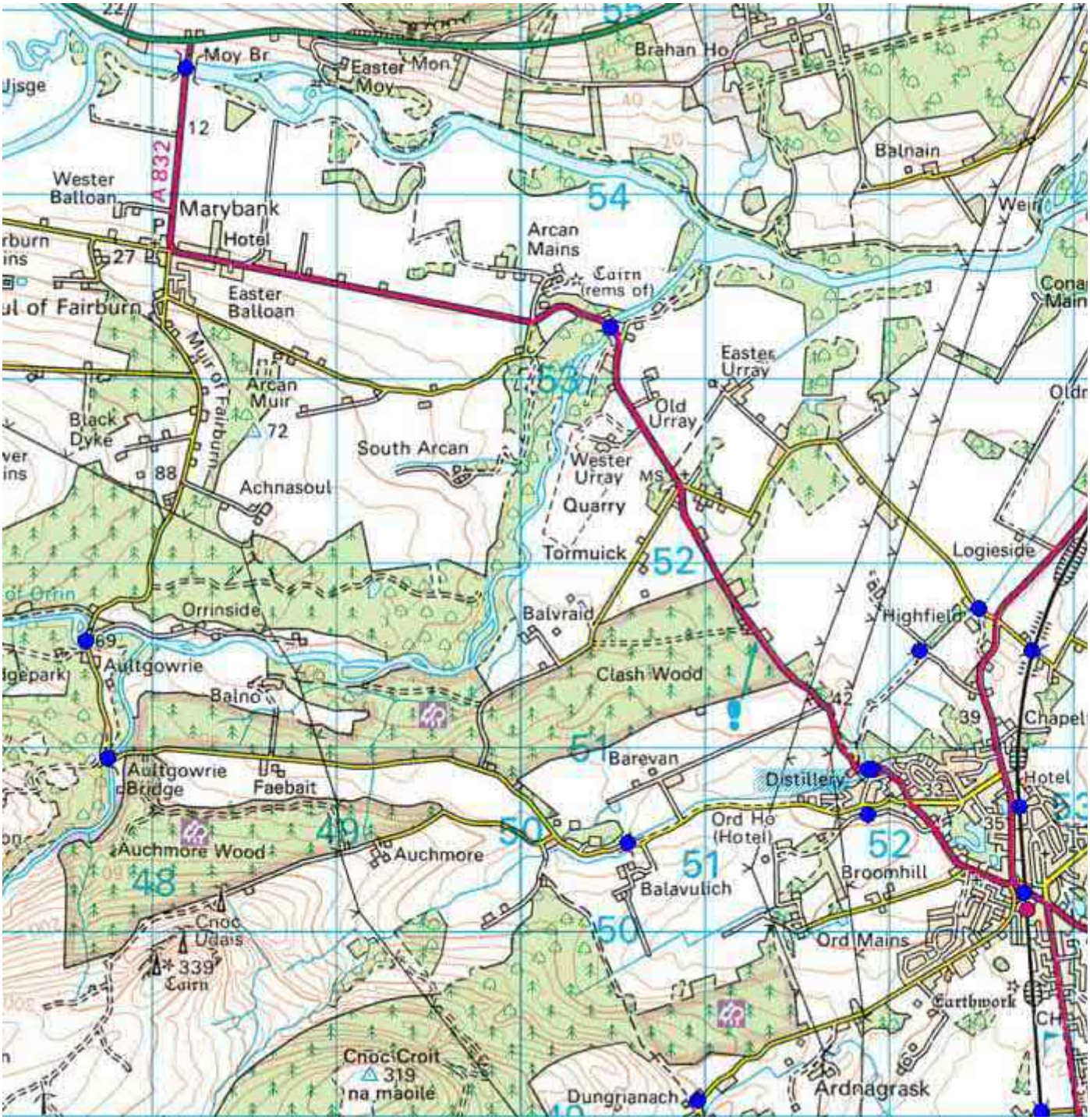
From: Simon Farrow (Infrastructure) <Simon.Farrow@highland.gov.uk>
Sent: 02 May 2023 16:08
To: David Allely <david.allely@allelys.co.uk>; Sally Weston <sally.weston@allelys.co.uk>; Abnormal Loads <Abnormal.Loads@highland.gov.uk>
Cc: Anthony Callachan <Anthony.Callachan@allelys.co.uk>
Subject: RE: A220894 Loch Lundie 320 te transformer feasibility study

David,

See an extract below from our database showing bridge locations (culverts and retaining walls not shown).

Muir of Ord Rail bridge is ours and was replaced in the recent past. It was designed for SV100 vehicles.

I don't have much information on the other bridges – therefore assessment is likely required. I can give a more detailed response when the axle loads are known.



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

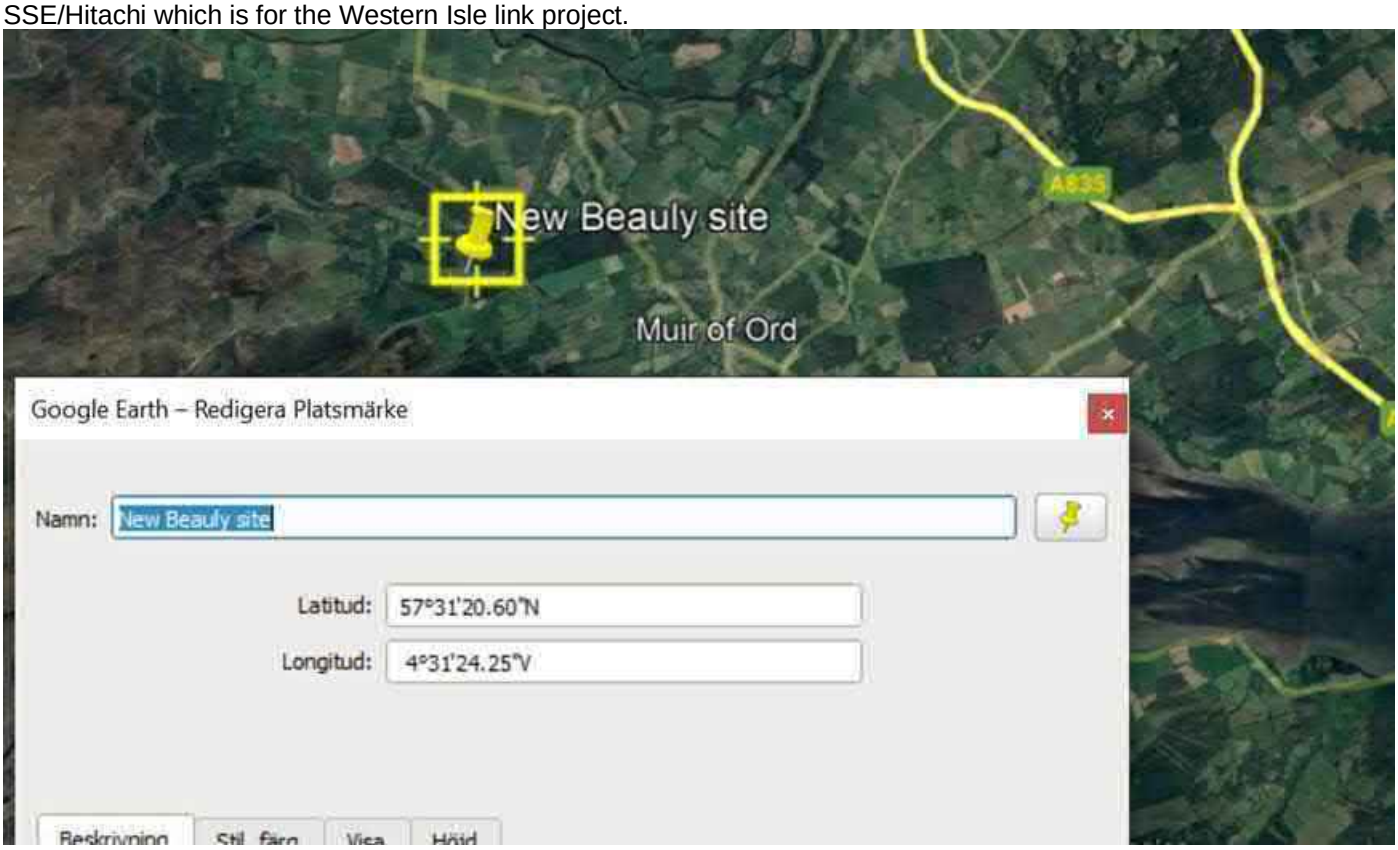
---

From: David Allely <david.allely@allelys.co.uk>
Sent: 26 April 2023 10:35
To: Simon Farrow (Infrastructure) <Simon.Farrow@highland.gov.uk>; Sally Weston <sally.weston@allelys.co.uk>; Abnormal Loads <Abnormal.Loads@highland.gov.uk>
Cc: Anthony Callachan <Anthony.Callachan@allelys.co.uk>
Subject: RE: A220894 Loch Lundie 320 te transformer feasibility study

Hello Simon

I just wanted to say hello, I have done a lot in the past with both David Mackensie and Norman Smart and have the information to hand on the structures on the route via Beauly, we did get Beauly Rail to work at 14.6 te axles but that was the limit at the time, Arups did the assessments for us along with Blackburn Bridge, Teawig, Bridge-end all in and around Beauly, and Rosskean at the time as we were travelling from Invergordon.

There is also a proposed new Substation to the West of Muir of Ord which we have been asked to look at for SSE/Hitachi which is for the Western Isle link project.



Again the units for this site are quite large and I think the best route will be from the Black Isle however I don't think we will get over Cromarty Firth Viaduct as we were at limits with the units we have previously delivered to Fort Augustus and Beauly via the Beauly route and we will be considerably heavier.

Therefore I think I may be looking at North Kessock in more detail, I have previously looked at it an think there are possibilities, however ignoring North Kessock at present could you let me know what restrictions and bridges there are on the A832 beyond where we normally turn off towards the Black Isle Showground into Muir of Ord and out the other side and then the smaller road towards the proposed site.
Ie is the railway bridge a Highland structure?

I will confirm axle loads shortly but we can adjust these depending on trailer size.

Thank you.

Regards

David Allely
Director
Allelys

Tel: 01527 852 408 (Option 1)
Mob: 07836 549 285
Web: www.allelys.co.uk
Email: David.Allely@allelys.co.uk
Address: The Slough, Studley, Warwickshire, B80 7EN

From: Simon Farrow (Infrastructure) <Simon.Farrow@highland.gov.uk>
Sent: 25 April 2023 21:17
To: Sally Weston <sally.weston@allelys.co.uk>; Abnormal Loads <Abnormal.Loads@highland.gov.uk>
Cc: Anthony Callachan <Anthony.Callachan@allelys.co.uk>; David Allely <david.allely@allelys.co.uk>
Subject: RE: A220894 Loch Lundie 320 te transformer feasibility study

Sally,

Apologies – the South Loch Ness route has a lot of history and I need a bit more time to sort through the list of structures along the route. See my comments on the other proposed routes:

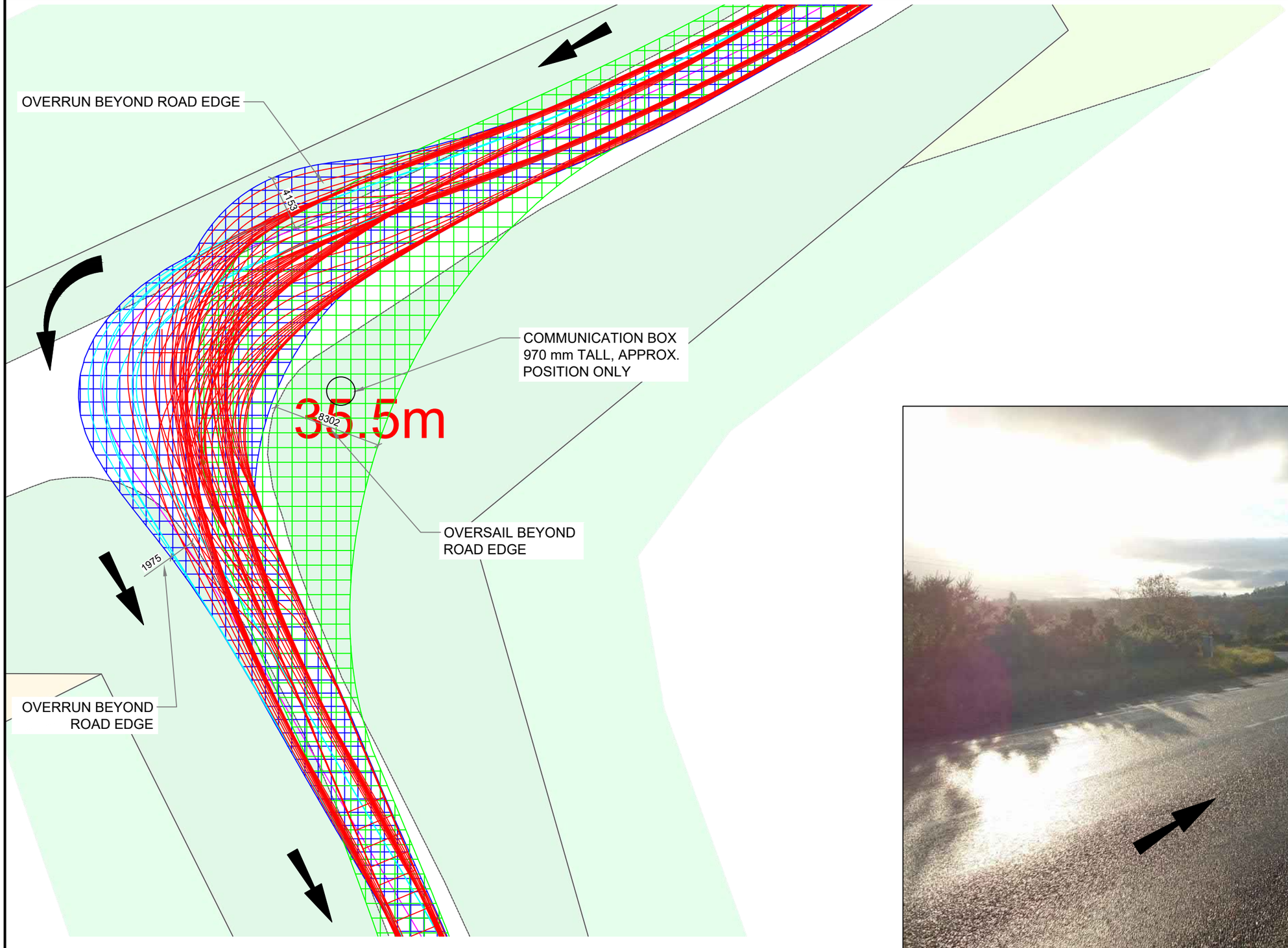
- Inverness POD (southern route): https://goo.gl/maps/wDMhB8AcRLx96sji8 - To follow - I think your vehicle is heavier than previous movements therefore some assessment work is likely required. Flichity Bridge is being replaced this summer, therefore it should in theory not be an issue. I have a meeting about it tomorrow so hopefully I will have more info in my next reply.

- Inverness POD (northern route): https://goo.gl/maps/JNmWErL3d7uVoS9v7 This route is almost entirely on the trunk road network. Please contact BEAR/Transport Scotland for advice. Note that you will likely be required to use the new Torvean Swing Bridge when crossing the canal and not the older bridge. Torvean

Appendix D

Swept Path Assessments

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



COMMENTS

TL from A831 requires to get on the verge offside before turning to UC road. Steel plating will be needed for plating the area outside the road boundaries.

Communication box is on the swept path of the girder frame. The box is 970mm tall and that can be oversailed by frame if the roads are flat. Moreover, the UC road drops down with unknown gradient. Further investigation survey is required in order to measurer the road height difference and determinate for sure can the box be oversailed or not.

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.

LOCATION

TL from A831 to UC

what3words: ///browser.layers.crumples

lat/long 57.464435, -4.506121

TECHNICAL NOTES:

Based on ALL-A232037-TA-01 30 Axle F5.5

- Trailer Wheel Trace
- Tractor Wheel Trace
- Tractor/Trailer Swept Area
- Load/Girder Frame Swept Area

CLIENT REFERENCE DOCUMENTS

REV	DATE	DOCUMENT REFERENCE No.

REVISION HISTORY

REV	DATE	DESCRIPTION	DRAWN	CHECKED	APPROVED
00	15/12/23	First issue	EDA	SJW	
A					
B					
C					

Allelys
The Slough,
Studley,
Warwickshire,
B80 7EN
Tel: +44 (0) 1527 852 408
e-mail: enquiries@allelys.co.uk

Client	Hitachi (Sweden)
Project	Western Isles
Title	Fanellan - 30-axle Faktor 5.5 LH turn A831/UC road
Scale (A3)	1:300
Sheet No.	1
Total No.	1
Dwg. No	ALL-A232037-SPA-01

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

Tracking conclusion

In order for the 30-axle girder frame trailer to turn right on UC road, oversail beyond assumed highway boundary is required to the inside of the turn. Third party land owner(s) permission required. Overrun is also required beyond road edge to the outside of the turn with temporary steel plating needed to accommodate vehicle track. Caution advised due to minimal clearance required to private property wall to outside of turn on approach to junction, which is needed to limit amount of third party land oversail. PRI works recommended at junction to accommodate manoeuvre.
Note: - OS mapping data used only, topographical survey recommended to get accurate positions of street furniture and highway boundaries.

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.

LOCATION

TR to UC;

what3words: ///truth.anchovies.glassware

lat/long 57.458262, -4.508045

TECHNICAL NOTES:

Based on ALL-A232037-TA-01 30 Axle F5.5

- Trailer Wheel Trace
- Tractor Wheel Trace
- Tractor/Trailer Swept Area
- Load/Girder Frame Swept Area

CLIENT REFERENCE DOCUMENTS

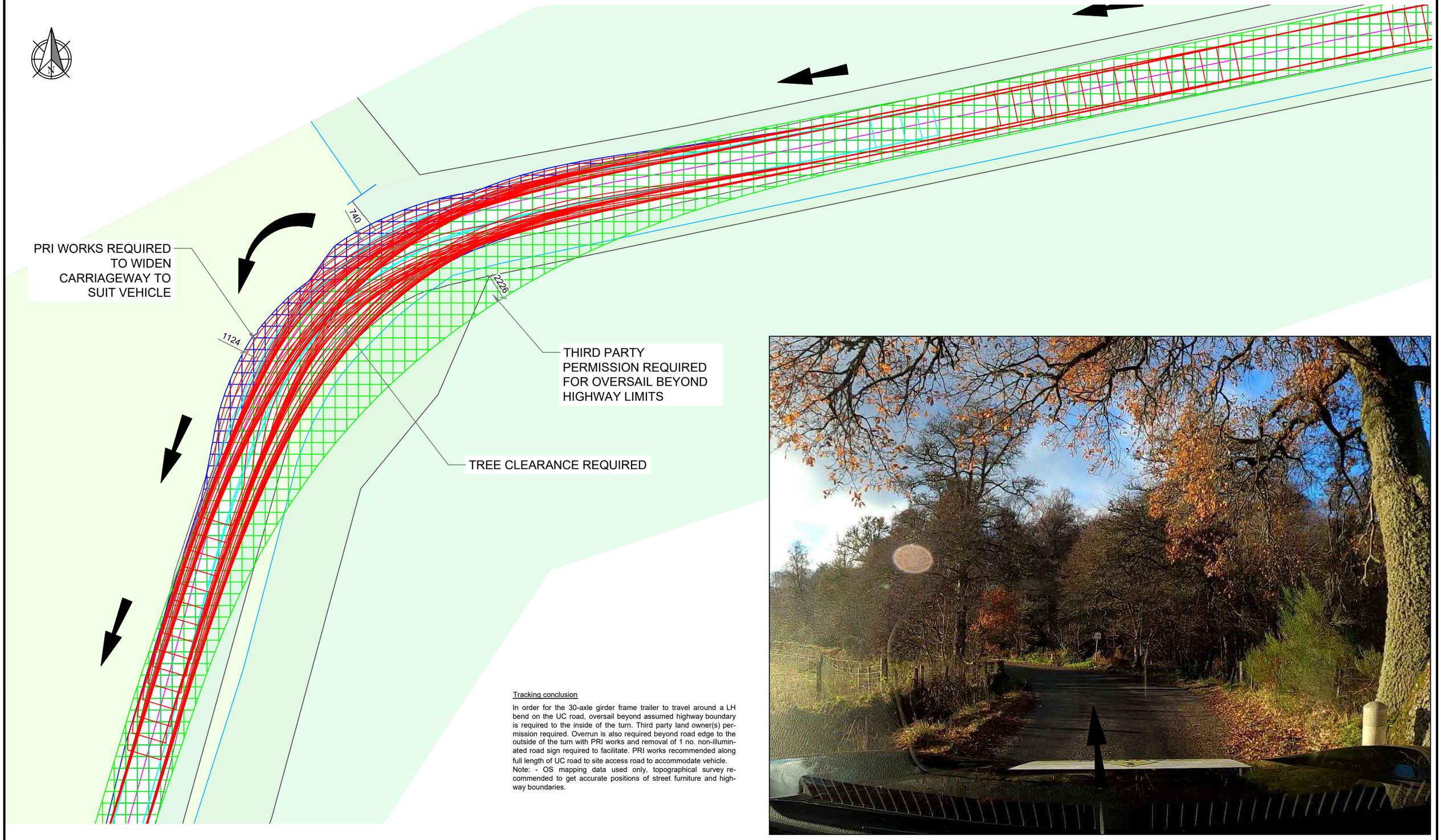
REV	DATE	DOCUMENT REFERENCE No.

REVISION HISTORY

REV	DATE	DESCRIPTION	DRAWN	CHECKED	APPROVED
00	15/12/23	First issue	EDA	SJW	
A					
B					
C					

Allelys
The Slough, Studley, Warwickshire, B80 7EN
Tel: +44 (0) 1527 852 408
e-mail: enquiries@allelys.co.uk

Client	Hitachi (Sweden)
Project	Western Isles
Title	Fanellan - 30-axle Faktor 5.5 UC road RH turn
Scale (A3)	1:300
Sheet No.	1
Total No.	1
Dwg. No	ALL-A232037-SPA-02



Tracking conclusion

In order for the 30-axle girder frame trailer to travel around a LH bend on the UC road, oversail beyond assumed highway boundary is required to the inside of the turn. Third party land owner(s) permission required. Overrun is also required beyond road edge to the outside of the turn with PRI works and removal of 1 no. non-illuminated road sign required to facilitate. PRI works recommended along full length of UC road to site access road to accommodate vehicle.
Note: - OS mapping data used only, topographical survey recommended to get accurate positions of street furniture and highway boundaries.

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.

LOCATION

LH Bend UC;

what3words: ///wiring.spill.fools

lat/long 57.457914, -4.510269

TECHNICAL NOTES:

Based on ALL-A232037-TA-01 30 Axle F5.5

- Trailer Wheel Trace
- Tractor Wheel Trace
- Tractor/Trailer Swept Area
- Load/Girder Frame Swept Area

CLIENT REFERENCE DOCUMENTS

REV	DATE	DOCUMENT REFERENCE No.

REVISION HISTORY

REV	DATE	DESCRIPTION	DRAWN	CHECKED	APPROVED
00	15/12/23	First issue	EDA	SJW	
A					
B					
C					

Allelys
The Slough,
Studley,
Warwickshire,
B80 7EN
Tel: +44 (0) 1527 852 408
e-mail: enquiries@allelys.co.uk

Client	Hitachi (Sweden)
Project	Western Isles
Title	Fanellan - 30-axle Faktor 5.5 UC road LH bend
Scale (A3)	1:300
Sheet No.	1
Total No.	1
Dwg. No	ALL-A232037-SPA-03

Appendix E

North Kessock Marine Study

ROBERT WYNN & SONS LTD.
ESTABLISHED 1863

Survey Report – North Kessock – Bathymetric and Topographic Survey

Prepared for Allelys

2 High Street, Eccleshall, Staffordshire ST21 6BZ
Tel: +44 (0)1785 850334
www.robertwynnandsons.co.uk
Registered in England and Wales No. 03211790

Project Number:	ENQ1432
Project:	North Kessock Survey
Client:	Allelys
Document number:	ENQ1432-23.SUV01

Copyright and Non-Disclosure Notice

Third Party Disclaimer

RWSL						Client	
Issue	Date	Description	Prepared	Checked	Approved	Approved	Date
V1	09.11.23	Original Issue					

Contents Page

1. Introduction

1.1. Robert Wynn and Sons Ltd (RWSL) have been engaged by Allelys to commission a Bathymetric and Topographical survey of the Foreshore and waters off North Kessock and to report on opportunities to Beach Land our vessel the Terra Marique (TM).

1.2. Aspect Land & Hydraulic Surveys Ltd were commissioned to carry out the survey. Their report and results are included in Appendix B

2. Survey Results

2.1. Having reviewed the survey it is our opinion that the best location for discharge is to the western end of the survey area into the car park.

2.2. Drawing showing the proposed location is in appendix A. Photos below

2.3. There is a flat area of beach at this location that appears suitable for beach landing and allows the vessel to get close to land. Subject to suitable ramps discharge directly to the car park appears feasible.

2.4. RWSL's extension ramps are not suitable for this project. Ramps in the region of 20m will be required.

2.5. To position the vessel in the location identified tide heights of MHWS, or at least very close to that will be required.

2.6. This would mean trackway would not be required on the beach.

2.7. The slipways are not suitable, water depth increases steeply at the end meaning it is not suitable for beach landing.

2.8. If this does not prove suitable beach landing slightly further west, discharging onto the beach and making an access point to the beach at the end of the car park may provide an alternative solution.

3. Further Work

3.1. A site visit would be required to inspect the proposed landing area and establish if any preparation work is required prior to beach landing.

3.2. Licensing and permission requirements need to be established. A Marine Licence may not be required for this if no work takes place of the beach, this would need to be confirmed with Marine Scotland.

3.3. While the area below the MLWS line is part of a designated SAC the area above, where it is proposed to work, does not appear to have a special designation, again this would need to be confirmed.

3.4. The suitability of the ground at the car park to take the load needs to be established.

3.5. Suitable bridging ramps need to be identified.

4. Photos

Figure 1 - Car Park Proposed discharge location low tide. Ramps landing approximately where the boat is.

Figure 2 - Car park - Proposed discharge location high tide

Figure 3 - Proposed beach landing area looking west

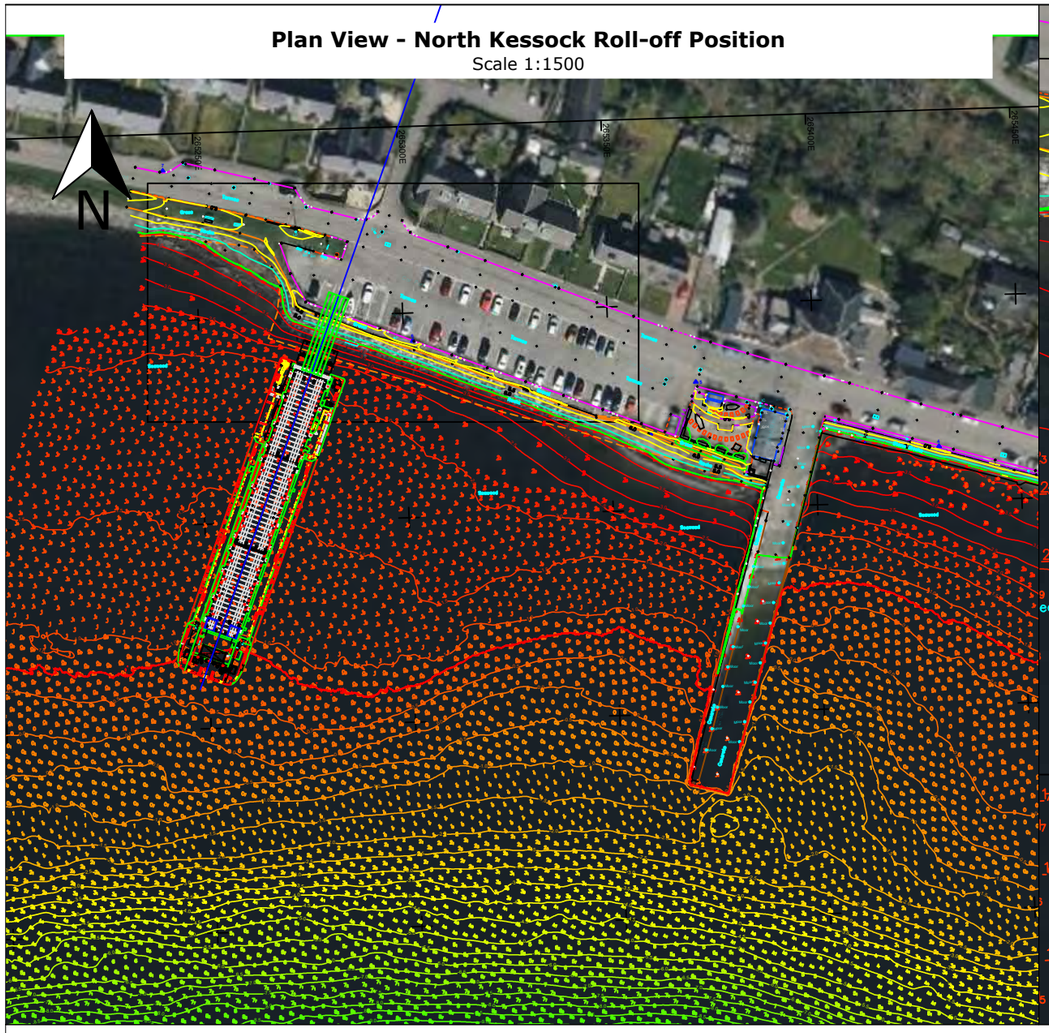
Figure 4 - Proposed beach landing area looking east. Potential alternative access to beach in foreground

Figure 5 - Proposed beach landing area looking east

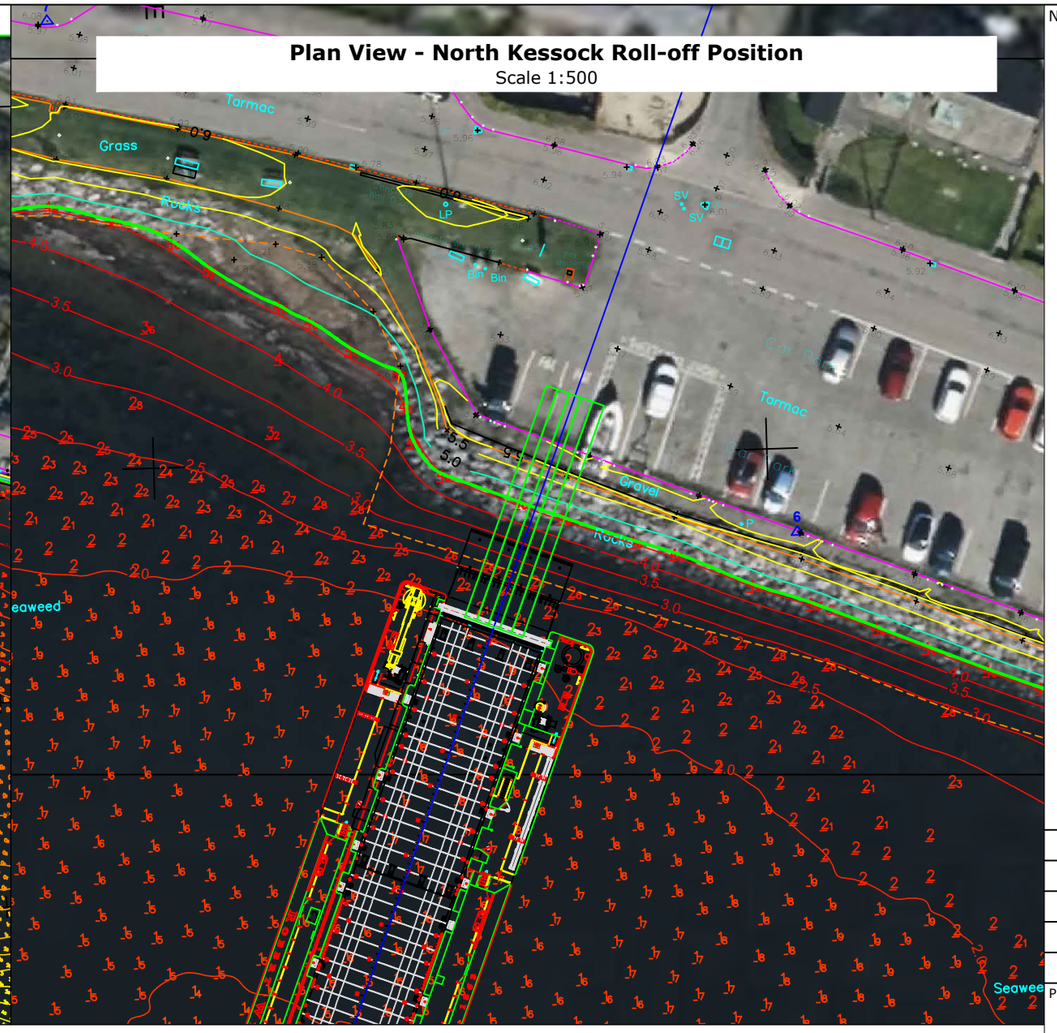
Appendix A

ENQ1432-23.LO01 – Beach Landing Position drawing

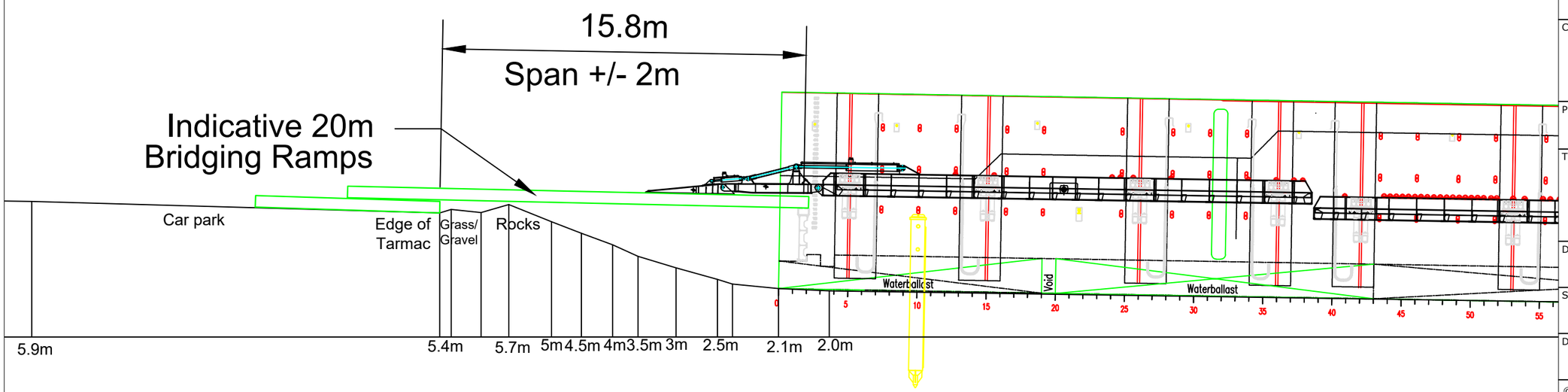
Plan View - North Kessock Roll-off Position
Scale 1:1500



Plan View - North Kessock Roll-off Position
Scale 1:500



Elevation View - Roll-off arrangement
Terra Marique at North Kessock
Scale 1:200



Notes:

[1] All linear measurements shown in metres unless stated otherwise
[2] All levels relative to Chart Datum. CD 2.25m below OD
[3] Levels from Aspect Surveys Topographical and Bathymetric survey, October 2023, Project: A8889
[4] Bridging mats indicative only, suitable mats to be identified. mobile crane required to install.
[5] Max TM draft 2.3m based on one 260te Transformer and trailer.
[6] Landing position requires MHWS (4.6m).
[7] Daylight required for beach landing.
[8] Landing location subject to low tide inspection and removal of any obstructions / rocks that could damage the hull
[9] Landing location subject to deviation +/- 2m longitudinal and +/- 5m transverse.
[10] Landing area to be marked using temporary Buoys. Any other buoys in the area to be removed.

Rev.	Date	Amendments
2		
1		
0	06.11.23	First Issue

Revisions

Prepared by:

ROBERT WYNN & SONS LTD.
ESTABLISHED 1863

Albany House, 4 High Street, Eccleshall,
Stafford, ST21 6BZ
Tel: (01785) 850411 Fax: (01785) 851886

Client: Allelys

Project: **North Kessock Beach Landing**

Title: **Location Drawing**

Drawing Status: Draft Concept Drawing

Scale (A3):	Drawn By:	Checked By:
1:300	AM	PW

DWG. No:	Sheet:	Rev:
ENQ1432-23.lO01	1 of 1	0

P:\Robert Wynn & Sons\Enquiries\No. 1432 - Allely - North Kessock for Western Isle Link\North Kessock Beach Landing lcoation.dwg

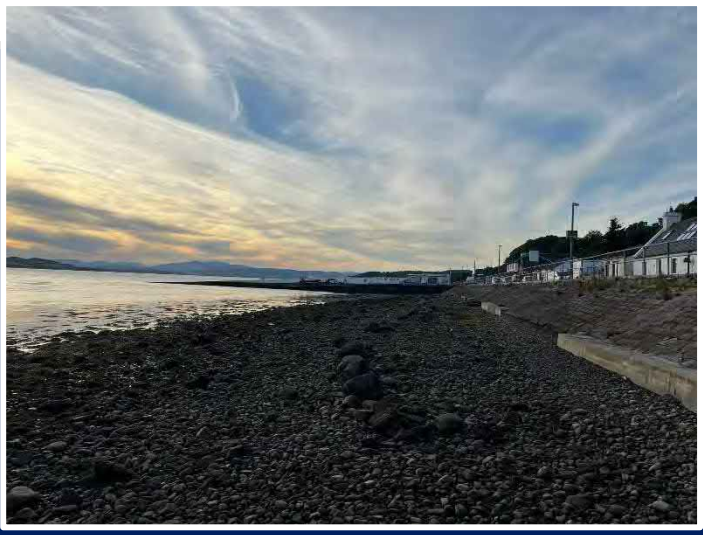
Appendix B

Aspect Surveys Report

Bathymetric and Topographic Survey

Aspect
Land+Hydrographic Surveys
CHARTERED SURVEYORS

TEL: 01294 313 399 • WEB: WWW.ASPECTSURVEYS.COM



TOPOGRAPHIC & MULTIBEAM BATHYMETRIC SURVEY

NORTH KESSOCK, INVERNESS

OCTOBER 2023

PROJECT REF: A8889

REV: 00

Client:

Robert Wynn & Sons Ltd
Shaftesberry House
2 High Street
Eccleshall
Staffordshire
ST21 6BZ

Contents

Table of Figures

TABLE OF REVISIONS

DATE	REVISON	COMPILED	CHECKED	NOTES
30/10/2023	00	AJ	CKS	First Issue

1. SUMMARY

On the instructions of Robert Wynn & Sons Ltd, Aspect Land and Hydrographic Surveys Ltd. (herein ALHS) carried out a topgraphic and bathymetric survey at the North Kessock Pier in North Kessock, Inverness.

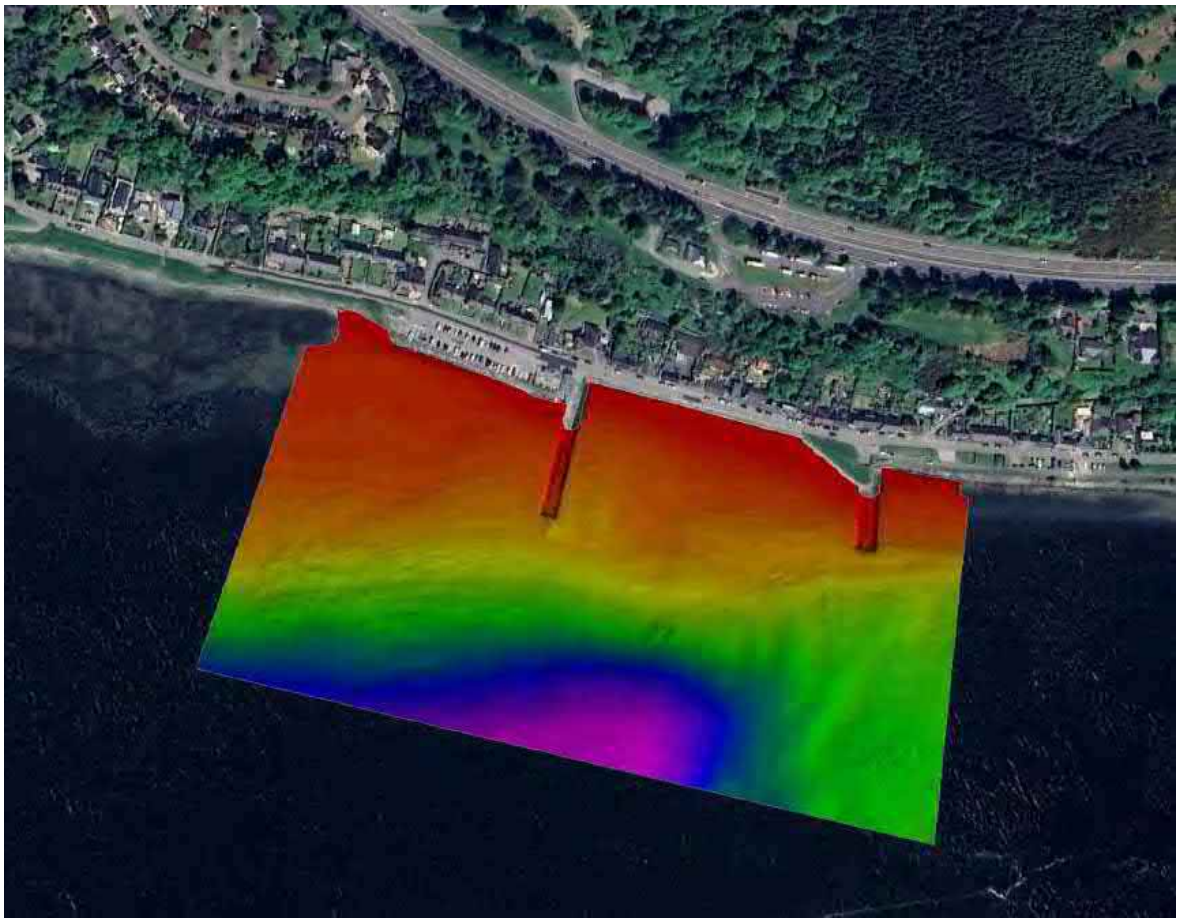


FIGURE 1 - OVERVIEW OF SURVEY AREA

The program of events was as follows:

Date	Activity
17/10/2023	Personnel, vessel and equipment mobilised to site. Topographic survey commenced.
18/10/2023	Topographic survey completed. Survey vessel launched at North Kessock Pier slipway. MBES survey completed. Personnel, vessel and equipment demobilised from site.

2. DELIVERABLES REGISTER

A list of the rendered deliverables is provided in the table below:

File Name	Contents
A8889_North Kessock_Topo-MBES_CD_20231017.dwg A8889_North Kessock_Topo-MBES_CD_20231017.pdf	2D CAD drawing of survey data control to CD also issued as a PDF for ease of viewing
A8889_North Kessock_MBES_Image_20231017.tif A8889_North Kessock_MBES_Image_20231017.tfw A8889_North Kessock_MBES_Image_20231017.png	Imagery from MBES data
A8889_North Kessock_MBES_Image_20231017.kmz	Google Earth view of survey
A8889_North Kessock_TOPO-MBES_CD_20231017.xyz	ASCII xyz of detailed areas at 0.5m grid
A8889_North Kessock_Report of Survey_Rv0.pdf	pdf Report of Survey

3. SCOPE OF WORKS

The scope of works was to provide a combined topographic and bathymetric survey of an area at North Kessock to assist with the selection of a location to beach/land a barge - Terra Marique, in order to discharge abnormal loads. The survey area is outlined in red below in Figure 2.

FIGURE 2 - SURVEY EXTENTS

4. GEODESY AND DATUM

The horizontal datum used throughout the data gathering phase of the survey was OSGB36 (OSTN15). Data has been rendered in OSGB36 Datum, British National Grid.

The vertical datum for all data issued is Chart Datum. OSTN15 defines OSGB36 National Grid in conjunction with the National GPS Network.

In this respect OSTN15 can be considered error free (not including any GPS positional errors). The agreement between OSTN15 and the old triangulation network stations (down to 3rd order) is 0.1m rms.

Chart Datum is 2.25m below Ordnance Datum at Inverness.

5. TOPOGRAPHIC SURVEY

The topographic survey was carried out using a combination of a Trimble S5 Total Station, Trimble SX10 Laser Scanner and Trimble R10 GNSS System. The survey was completed on 18th October 2023.

National Grid coordinates were established using Trimble Active VRS Network

Once National Grid coordinates had been established for the survey station control points, the survey was rotated and transformed. It must be noted that National Grid control was anchored relative to the base station position and therefore local to that point i.e. Scale Factor 1.0000.

Survey detail is published as per the RICS Surveys of Land Buildings and Utility Services guidelines, the standard to which professional land surveyors should adhere.

All data was post-processed within LSS digital terrain modelling software with final reporting in AutoCAD DWG format.

Survey control points were established on-site for the duration of the works and left in-situ to enable further works to be completed, if required, at a later date whilst retaining the same reference points. Details of the survey control are noted below for information:

STATION	EASTING (M)	NORTHING (M)	LEVEL (M CD)	MARKER
1	265623.359	847853.838	6.522	38 x 7mm P-K Mag Nail & Washer
2	265589.534	847837.268	4.666	38 x 7mm P-K Mag Nail & Washer
3	265531.305	847883.328	6.627	38 x 7mm P-K Mag Nail & Washer
4	265430.113	847913.389	6.321	38 x 7mm P-K Mag Nail & Washer
5	265371.149	847930.972	6.002	38 x 7mm P-K Mag Nail & Washer

6	265302.280	847943.163	5.593	38 x 7mm P-K Mag Nail & Washer
7	265242.453	847986.709	6.067	38 x 7mm P-K Mag Nail & Washer

TABLE 1 - STATION COORDINATES (CHART DATUM)

FIGURE 3 - SX10 LASER SCANNER SETUP

FIGURE 4 - S5 TOTAL STATION SETUP

6. MULTIBEAM BATHYMETRIC SURVEY

The equipment used in the completion of the multibeam bathymetric survey can be seen in the table below:

Survey Vessel	Coastal Sensor (MCA Cat III)
Positioning System	Trimble Applanix POS MV
GPS Correction Source	Trimble VRS NOW Active Network
Echosounder	R2Sonic 2022 Multibeam System 400kHz
Motion Compensator	Trimble Applanix POS MV

ALHS' R2Sonic 2022 multibeam sonar system was used for the bathymetric survey. This was controlled using Sonic Control software during data gathering.

Detailed data with full riverbed coverage was gathered throughout the survey area because of the R2Sonic 2022's narrow beam width and high ping rate and the selection of 400kHz as an operating frequency.

The system was operated at the maximum ping rate achievable throughout the survey, such that the ping rate was controlled by the depth of water.

Sound Velocity (SV) dips were carried out prior to commencing survey operations and thereafter whenever the surface sound velocity varied by more than 2 ms^{-1}. The SV dips were carried out using a Valeport Swift dipping probe with Datalog Express software, and the data was incorporated into the Hysweep Survey software for real-time corrections.

Positioning was achieved using an Applanix POS MV Inertial system, providing horizontal and vertical positioning. Motion compensation for the system was provided by an Applanix POS MV motion sensor mounted directly at the sonar head.

An R2Sonic Sonar Interface Module (SIM) was used to control the sonar throughout the course of data gathering. The multibeam data was transmitted to the survey laptop running Hypack Hysweep over an Ethernet connection. Hypack Hysweep Survey was used for data gathering. Hypack MBMax software was used for post-processing. The stages of multibeam processing are detailed in Annex B.

Data was gathered to give at least 100% ensonification over the survey area, and this allowed full quality assurance checks to be carried out.

Calibration values for the survey vessel were calculated from a patch test conducted on the day of data collection. Details of the conduct of the patch test can be seen in Annex C.

The depths encountered when surveying at Kingscross, Isle of Arran area ranged from 2.0m above to 27.0m below CD.

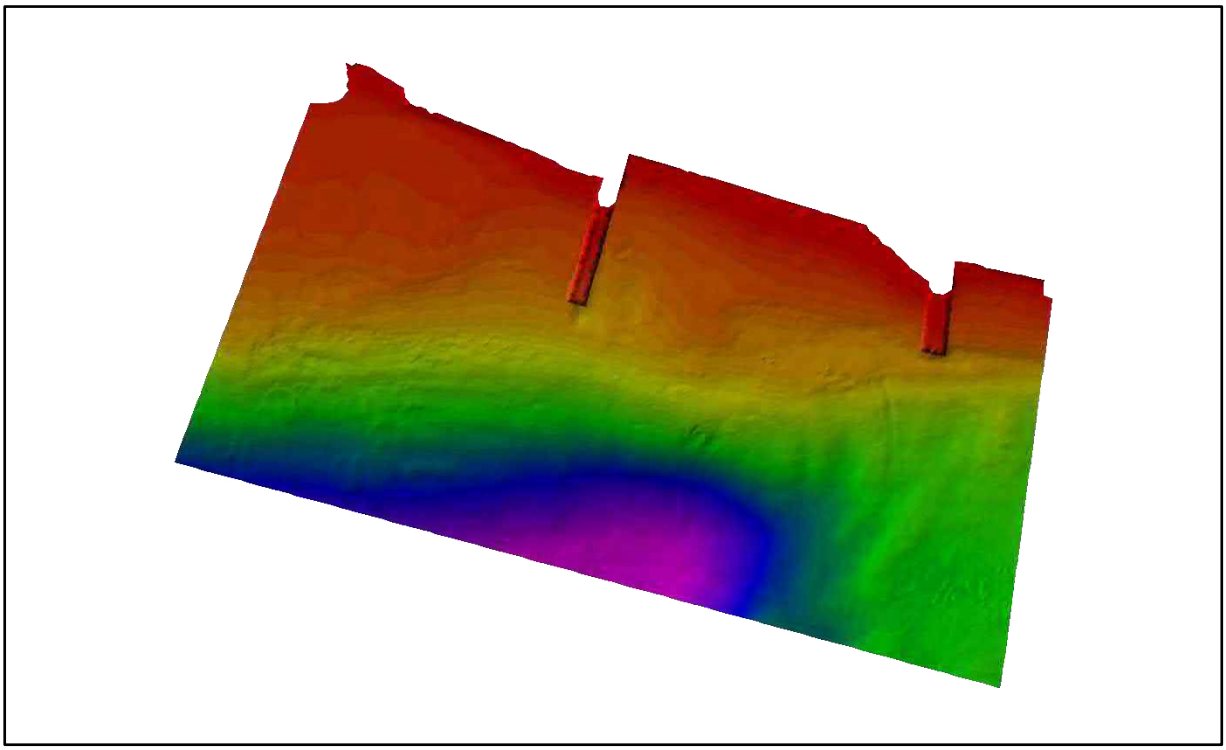


FIGURE 5 - OVERVIEW OF MBES DATA AT NORTH KESSOCK

7. SURVEY VESSEL

ALHS' survey vessel Coastal Sensor (MCA Cat III classification) was used to carry out the mobile mapping and multibeam bathymetric survey.

Coastal Sensor is a Cat III vessel capable of working up to 20nm from a safe haven. The vessel is road transportable and was launched and recovered at North Kessock slipway.

The vessel was fitted with all necessary life-saving equipment, oil spill booms and safety features to ensure there were minimal risks associated with working over water.

The vessel was piloted by an RYA qualified coxswain and a full set of RAMS documents were prepared, approved and disseminated to all survey personnel prior to boarding the vessel.

FIGURE 6 - SURVEY VESSEL COASTAL SENSOR

8. SURVEY PERSONNEL

The following personnel were involved in the data capture, post-processing and QA validation of the survey project:

Name	Position
C. Stephenson	QA and Data Release
J. Hunter	Hydrographic Surveyor
P. Cassap	Vessel Skipper
M. Mowbray	Land Surveyor
S. Davidson	Land Surveyor

9. SURVEY STANDARDS

The Hydrographic survey is considered complete to International Hydrographic Organisation Special Order standard, with a Full Sea Floor Search being achieved as per IHO publication S44, Table 1. A representation of the section of interest within that document is shown below:

Order	Examples of Typical Areas	Horizontal Accuracy (95% Confidence Level)	Depth Accuracy for Reduced Depths (95% Confidence Level)	Bottom Search	System Detection Capability	Maximum Line Spacing
Exclusive	Harbours, berthing area and associated critical channels with strict minimum under keel clearances and manoeuvrability	1m	a = 0.15m b = 0.0075	200%	Cubic features > 0.5m	Not applicable as 200% search compulsory
Special	Harbours, berthing area and associated critical channels with minimum under keel clearances	2m	a = 0.25m b = 0.0075	100%	Cubic features > 1m	Not applicable as 100% search compulsory

Taken from IHO Publication S44, Table 1, Showing Requirements of Exclusive & Special Order Survey

The error limits for depth accuracy are calculated by introducing the values listed in the above table for a and b into the formula $\pm\sqrt{[a^2+(b*d)^2]}$, where:

- a — constant depth error, i.e. the sum of all constant errors
- b*d — depth dependent error, i.e. the sum of all depth dependent errors
- b — factor of depth dependent error
- d — depth[1]

The multibeam system has shown during this survey to be capable of detecting objects far smaller than the 1m cubic features specified for a Special-Order survey.

[1] IHO Standards for Hydrographic Surveys (Edition 6.1.0).

10. QUALITY ASSURANCE STATEMENT

Aspect Land & Hydrographic Surveys Ltd is an ISO PAS 99 accredited company offering a full range of topographic, hydrographic, geophysical, oceanographic, and marine environmental survey services, with expertise in combining multiple disciplines into single projects.

ALHS produce work to the highest quality, certified by our accreditation to numerous organisations including the Royal Institute of Chartered Surveyors, the Institute of Civil Engineering Surveyors and The Scottish Hydrographic Society.

Our administrative procedures are fully audited to ISO9001:2015 standard and maintained via in-house quality control procedures. We are also accredited to Category B1 with Achilles via the UVBD scheme and Constructionline Gold status with Acclaim SSIP accreditation.

These standards are audited annually by external consultants to ensure continued, on-going compliance and copies of these certificates can be submitted if required.

Annex A
Horizontal & Vertical Positioning System Precision

A8889

Applanix POS MV using RTK corrections.

	HORIZONTAL ACCURACY	VERTICAL ACCURACY
REAL TIME KINEMATIC	±10mm + 1ppm RMS	±20mm + 1ppm RMS

All horizontal positions in the survey are referred to OSGB.

Annex B
Data Processing Procedures

A8889

Multibeam Processing Stages

Sonar Control 2000 software was used to control the MBES system during the data gathering phase.

Data was logged in HYPACK HYSWEEP software.

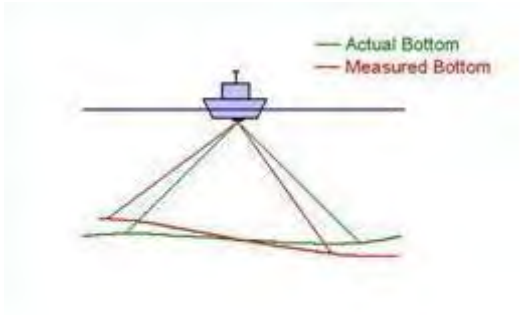
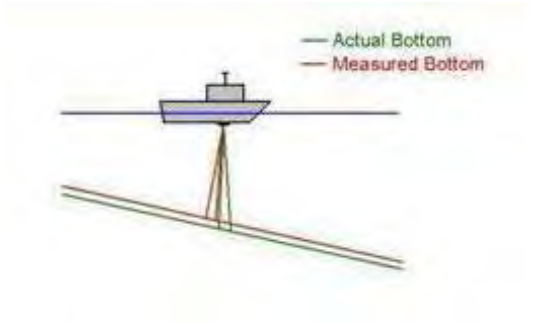
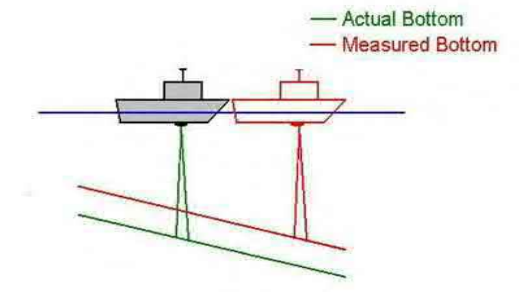
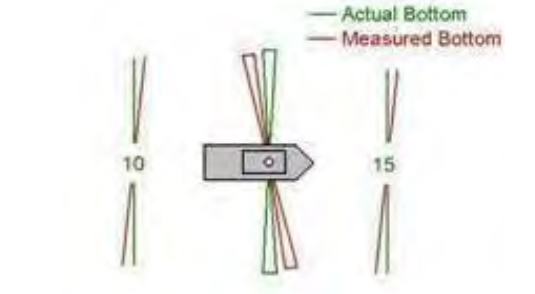
After data gathering the data was post processed in HYPACK MBMax where the following stages of processing were undertaken:

- Navigation data was processed.
- Motion Sensor data was examined and edited as required.
- Tidal data was examined and edited as required
- Automatic filtering of the data was carried out.
- Individual lines of MBES sounding data were manually edited.
- The data was gridded at an appropriate post spacing for the scale of plot requested by the client. This was exported to AutoCAD for presentation.
- The data was contoured at 0.5m intervals in Hypack and exported to AutoCAD.

Patch tests are tests which are performed after initial equipment installation, and periodically thereafter as well as if sensors are modified, to quantify any residual biases from the initial system alignment.

During this calibration series, four separate tests must be performed to determine residual alignment biases for:

- Roll offset
- Position Time Delay (Latency)
- Pitch Offset
- Yaw (Heading) Offset

ROLL 	PITCH 
Sonar and Motion Reference Unit (MRU) alignment relative to vertical. Can cause large depth and position errors at outer beams.	Sonar and MRU alignment relative to vertical. Can cause depth and position errors across the swath.
LATENCY 	YAW (HEADING) 
The delay between position and fix transmission. Will cause positional errors. Error is independent of multibeam system.	Sonar and MRU alignment relative to vertical Can cause depth and position errors across the swath.

Annex D
Standard Disclaimer

A8889

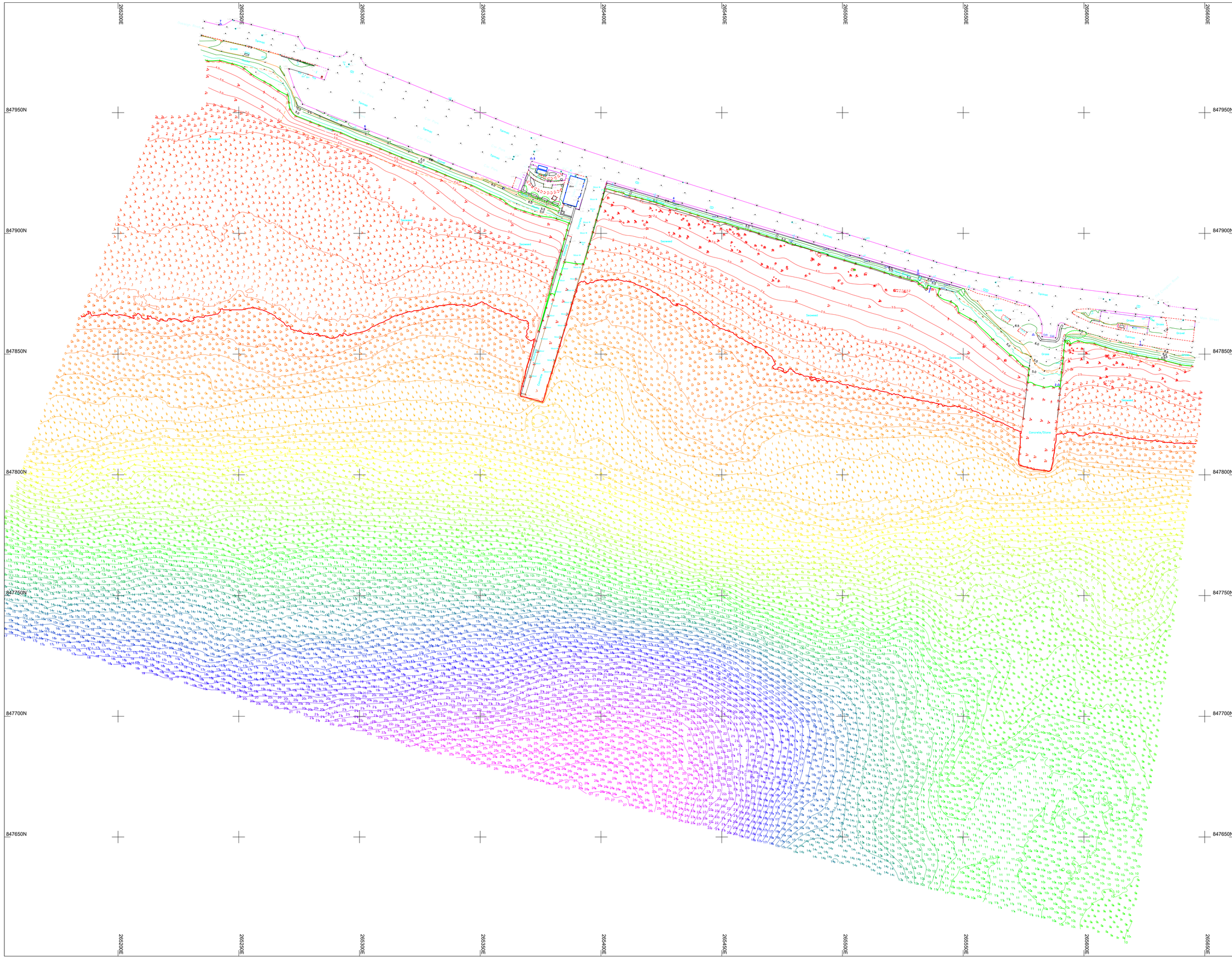
1. All client-supplied data is taken on trust as being accurate and correct, and the sub-contractor cannot be held responsible for the quality and accuracy of that data set.

2. The limits of this survey are defined by the data set; out with the survey limits are not covered at any level by the sub-contractor.

3. The data is accurate at the time of data acquisition, the sub-contractor cannot be held responsible for environmental changes, and the client by accepting this report accepts that the geological environment is subject to continuous change, that items of debris, hard contacts etc. may move, appear, be relocated or removed, thickness of surficial sediment change out with the knowledge of the sub-contractor and they will not be held responsible for such actions at any level.

4. Geophysical interpretation of data is based on an informed opinion of the supplied data, and is subject to inherent errors out with the control of the interpretational geophysicist, which include but are not limited to GPS positioning errors, navigation busts, data quality, assumed speed velocity sediment profiles in the absence of geotechnical data, profile pulse width, and induced scaling errors therein associated with seismic signature.

5. No liability of any kind is accepted by Aspect Land & Hydrographic Surveys Ltd for any error or omission.



Legend

4.56 Heights relative to CHART DATUM.

12_8 Depths relative to CHART DATUM.

Sea-bed contour relative to CHART DATUM.

Mean High Water Springs

Mean Low Water Springs

Topo Feature Legend

Bottom of bank
Building
Fence
Foliage
Hedge
Kerb
Top of bank
Verge
Wall
Bollard
Fire Hydrant
Gully
Lamp Post
Post
Road Sign
Spot level
Stop Cock
Telegraph Pole
Threshold Level

Tree (To scale)

Scale: 1 : 500

0 5 10 20 30 40 50m

SURVEY IS ROTATED TO GRID NORTH.

Survey Parameters & Equipment	
Survey Vessel:	Coastal Sensor (MCA Cat III)
Positioning System:	Trimble Applanix POS MV
GPS Correction Source:	Trimble VRS NOW Network RTK
Echosounder:	R2Sonic 2022 Multibeam System 400kHz
Motion Compensator:	Trimble Applanix POS MV
Positioning System Spheroid & Datum:	ETRS89
Grid System:	National Grid of Great Britain
Geoid Model:	OSGM15
Transformation Parameters:	OSTN15
Spheroid:	Airy
Semi Major Axis:	6377563.396
Flattening (1/f):	299.3249646600
Vertical Datum (Topographic):	Chart Datum
Vertical Datum (Hydrographic):	Chart Datum
Distance Unit:	Metre

Chart Datum is 2.25m below Ordnance Datum.

The datum was established using corrected OS Rinex data and post-processed using Trimble Business Centre Software.

Coloured Depth Bands:

3.00 2.50 2.00 1.50 1.00 0.50 0.00 -0.50 -1.00 -1.50 -2.00 -2.50 -3.00 -3.50 -4.00 -4.50 -5.00 -5.50 -6.00 -6.50 -7.00 -7.50 -8.00 -8.50 -9.00 -9.50 -10.00 -10.50

-11.00 -11.50 -12.00 -12.50 -13.00 -13.50 -14.00 -14.50 -15.00 -15.50 -16.00 -16.50 -17.00 -17.50 -18.00 -18.50 -19.00 -19.50 -20.00 -20.50 -21.00 -21.50 -22.00 -22.50 -23.00 -23.50 -24.00 -24.50 -25.00

Notes:

The Bathymetric survey limits are MHWS, data is relative to Chart Datum.

Heights in metres above Chart Datum (Inverness)

MHWS	MHWN	MLWN	MLWS
4.6	3.5	1.7	0.8

CONTROL STATION COORDINATES (CD)

STN	EASTING	NORTHING	LEVEL
1	265623.359	847853.838	6.522
2	265589.534	847837.268	4.666
3	265531.305	847883.328	6.627
4	265430.113	847913.389	6.321
5	265371.149	847930.972	6.002
6	265302.280	847943.163	5.593
7	265242.453	847986.709	6.067

Aspect
Land + Hydrographic Surveys
CHARTERED SURVEYORS
Thornhouse Business Centre
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KA12 0HW
Tel : 01294 313399 Fax : 01294 313389
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Client :

ROBERT WYNN & SONS LTD
SHAFTESBERRY HOUSE
2 HIGH STREET
ECCLESHALL
STAFFORDSHIRE, ST21 6BZ

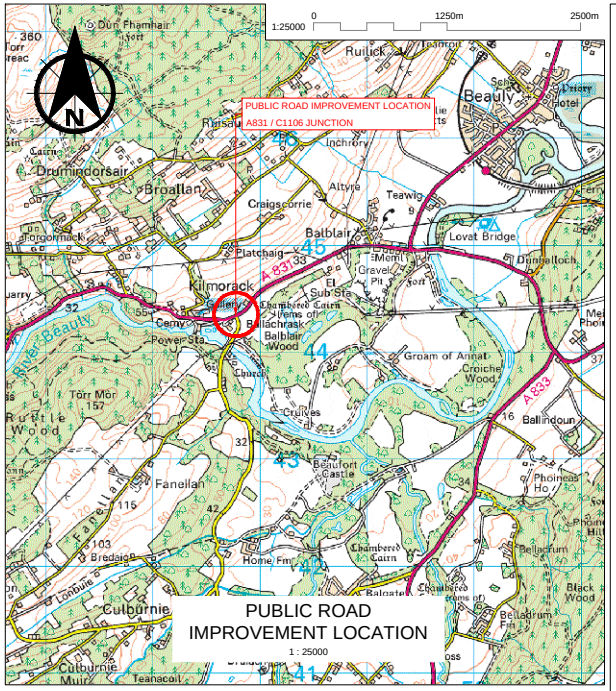
Project Title :

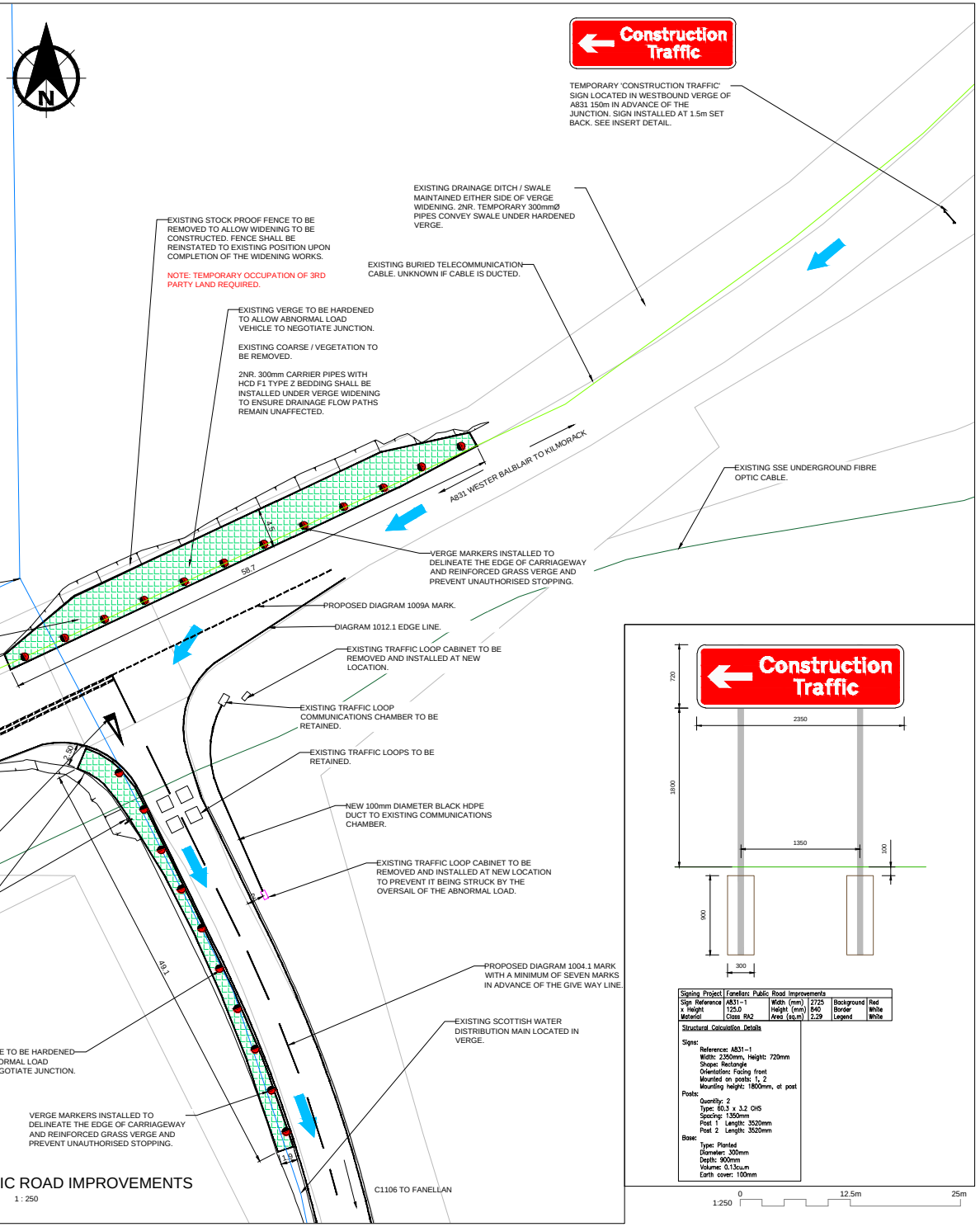
TOPOGRAPHIC & BATHYMETRIC SURVEY
NORTH KESSOCK
BEAULY FIRTH
INVERNESS
SCOTLAND

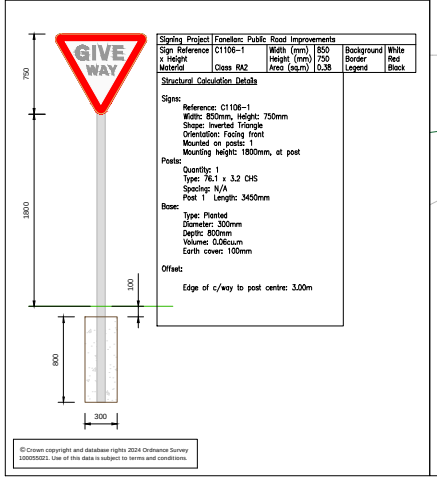
Project No:	Scale :
A8889	1:500
Surveyed date : 17th October 2023	Issued date : 30th October 2023
Surveyed by : JH	Checked by : CKS
Sheet No. : 1 of 1	Plot Scale: 1:1 @ A0

Appendix F

Public Road Improvement Drawings







NOTES

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5. WHERE ANY ROADSIDE FURNITURE IS PROPOSED TO BE MODIFIED, THE AREA SHALL BE SCANNED FOR UNDERGROUND UTILITIES OR PRIVATE INFRASTRUCTURE.
6. ALL CONCRETE USED TO FORM NEW TRAFFIC SIGN FOUNDATIONS IN AUGURED EXCAVATIONS SHALL BE ST2 TO SHW TABLE 26/1.
7. REFER TO DRAWINGS LT459-SWE-XX-XX-D-H-0106 TO LT459-SWE-XX-XX-D-H-0110 FOR DETAILS OF THE PUBLIC ROAD IMPROVEMENTS BETWEEN THE A831 AND FANELLAN.

KEY TO DRAWING

- ABNORMAL LOAD/CONSTRUCTION TRAFFIC ROUTE DIRECTION
- LIGHTING COLUMN TO BE REMOVED AND REINSTATED
- TRAFFIC BOLLARD TO BE REMOVED AND REINSTATED
- TRAFFIC SIGNAL TO BE REMOVED
- TRAFFIC SIGN TO BE REMOVED AND REINSTATED
- VERGE MARKER TO BE INSTALLED
- PROPOSED HARDENED VERGE
- UNDERGROUND TELECOMMUNICATIONS CABLE
- SCOTTISH WATER DISTRIBUTION MAIN
- SSE UNDERGROUND FIBRE OPTIC CABLE

Rev	Date	Amendment Details	Dr'n	Chk'	App'
P03	13/08/2024	FINAL ISSUE	RL	NG	CB
P02	18/04/2024	AMENDMENTS INCLUDED	RL	NG	CB
P01	08/04/2024	FIRST ISSUE	RL	NG	CB

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Web: www.sweco.co.uk
SWECO

Client
Scottish & Southern Electricity Networks TRANSMISSION

Project Title
FANELLAN
400kV SWITCHING STATION AND HVDC CONVERTOR STATION

Drawing Title
PUBLIC ROAD IMPROVEMENTS
A831 / C1106 JUNCTION
SHEET 1 OF 1

Purpose Of Issue
PRELIMINARY

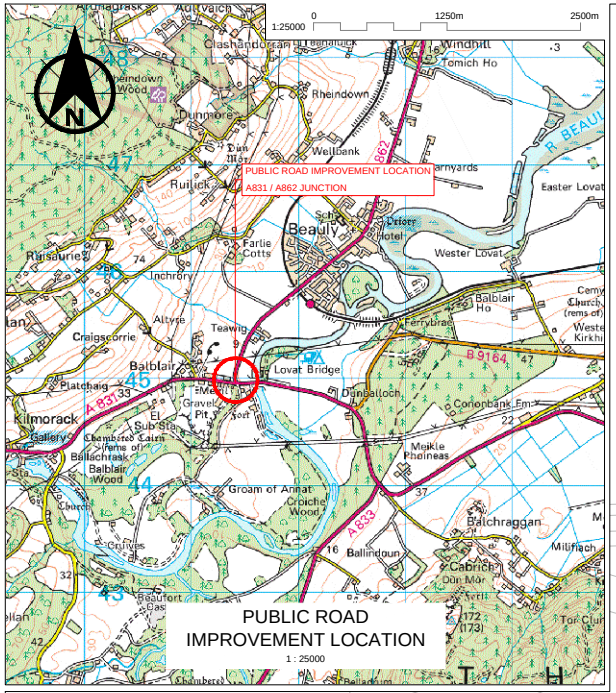
Status	Status Description
S5	FOR REVIEW AND ACCEPTANCE

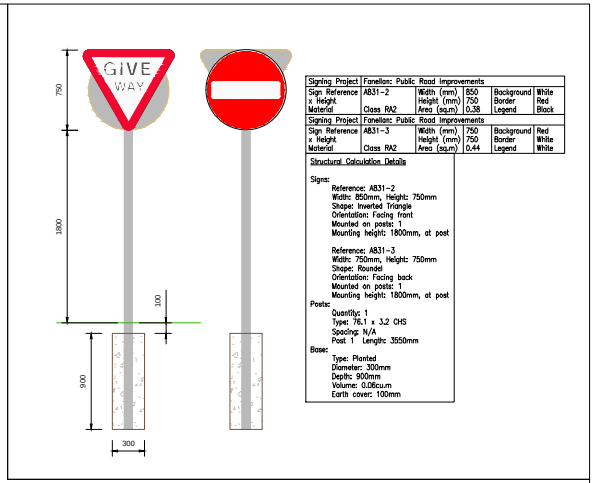
Drawn	Designed	Checked	Approved
RL	RL	NG	CB

Sheet Size	Scale	Sweco Ref	Revision
A1	AS SHOWN	65209842	P03

Drawing Number
LT459-SWE-XX-XX-D-H-0101

P:\6551\65209842_Beauly_Hub\000\D-Z-0000_Drawings\Site Layout Drawings\AutoCAD\0100 - Public Road Improvements\ LT459-SWE-XX-XX-D-H-0101_P03.dwg





Signing Project	Fanellan: Public Road Improvements				
Sign Reference	A831-2	Width (mm)	850	Background	White
x Height		Height (mm)	750	Border	Red
Material	Class RA2	Area (sq.m)	0.38	Legend	Black

Signing Project	Fanellan: Public Road Improvements				
Sign Reference	A831-3	Width (mm)	750	Background	Red
x Height		Height (mm)	750	Border	White
Material	Class RA2	Area (sq.m)	0.44	Legend	White

Structural Calculation Details

Signs:
- Reference: A831-2
  Width: 850mm, Height: 750mm
  Shape: Inverted Triangle
  Orientation: Facing front
  Mounted on posts: 1
  Mounting height: 1800mm, at post
- Reference: A831-3
  Width: 750mm, Height: 750mm
  Shape: Rounded
  Orientation: Facing back
  Mounted on posts: 1
  Mounting height: 1800mm, at post

Posts:
- Quantity: 1
  Type: 76.1 x 3.2 CHS
  Spacing: N/A
  Post 1 Length: 3550mm

Base:
- Type: Planted
  Diameter: 300mm
  Depth: 900mm
  Volume: 0.06cu.m
  Earth cover: 100mm

A862 BEAULY TO CLACHNAHARRY

EXISTING OVERHEAD ELECTRICAL LINE WITH SUITABLE HEIGHT CLEARANCE.

EXISTING OVERHEAD TELECOMMUNICATIONS CABLE (GREEN DASHED LINE).

5.3m CLEARANCE TO CABLE FROM ROAD SURFACE.

EXISTING BLANK FACE NON ILLUMINATED BOLLARD AND DIAGRAM 610 BOLLARD TO BE REMOVED. ONCE ABNORMAL LOADS HAVE PASSED, THE BOLLARD SHALL BE RE-INSTALLED.

A831 WESTER BALBLAIR TO KILMORACK

EXISTING UNDERGROUND TELECOMMUNICATIONS CABLE.

EXISTING 'GIVE WAY' AND 'NO ENTRY' SIGN POST AND PLATE TO BE REMOVED. A NEW DIAGRAM 602 SIGN PLATE (750mm HIGH) AND DIAGRAM 616 (750mm DIAMETER) SHALL BE INSTALLED ON A PASSIVELY SAFE POST AT 1.8m MOUNTING HEIGHT.

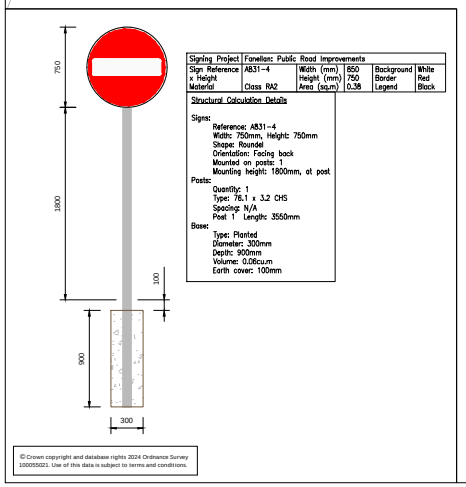
A862 BEAULY TO CLACHNAHARRY

NINE EXISTING BLACK AND WHITE VERGE MARKER POSTS REMOVED AND REPLACED ONCE ABNORMAL LOADS HAVE PASSED.

NO ENTRY SIGNS IN ABEYANCE UNTIL AGREEMENT REACHED WITH THE HIGHLAND COUNCIL ON REQUIREMENTS FOR SIGN LIGHTING. NO ENTRY SIGNS ARE NOT CURRENTLY LIT.

EXISTING 'NO ENTRY' SIGN POST AND PLATE TO BE REMOVED AND REINSTALLED. A NEW DIAGRAM 616 (750mm DIAMETER) SIGN TO BE INSTALLED ON PASSIVELY SAFE SIGN POST AT 1.8m MOUNTING HEIGHT. THE POST SHALL BE INSTALLED IN A SOCKET TO ALLOW FOR FUTURE REMOVAL.

NO ENTRY SIGNS IN ABEYANCE UNTIL AGREEMENT REACHED WITH THE HIGHLAND COUNCIL ON REQUIREMENTS FOR SIGN LIGHTING. NO ENTRY SIGNS ARE NOT CURRENTLY LIT.



Signing Project	Fanellan: Public Road Improvements				
Sign Reference	A831-4	Width (mm)	850	Background	White
x Height		Height (mm)	750	Border	Red
Material	Class RA2	Area (sq.m)	0.38	Legend	Black

Structural Calculation Details

Signs:
- Reference: A831-4
  Width: 750mm, Height: 750mm
  Shape: Rounded
  Orientation: Facing back
  Mounted on posts: 1
  Mounting height: 1800mm, at post

Posts:
- Quantity: 1
  Type: 76.1 x 3.2 CHS
  Spacing: N/A
  Post 1 Length: 3550mm

Base:
- Type: Planted
  Diameter: 300mm
  Depth: 900mm
  Volume: 0.06cu.m
  Earth cover: 100mm

A831 / A862 JUNCTION PUBLIC ROAD IMPROVEMENTS
1 : 250

0 12.5m 25m
1:250

NOTES

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5. WHERE ANY ROADSIDE FURNITURE IS PROPOSED TO BE MODIFIED, THE AREA SHALL BE SCANNED FOR UNDERGROUND UTILITIES OR PRIVATE INFRASTRUCTURE.
6. ALL CONCRETE USED TO FORM NEW TRAFFIC SIGN FOUNDATIONS IN AUGURED EXCAVATIONS SHALL BE ST2 TO SHW TABLE 26/1.

KEY TO DRAWING

- ABNORMAL LOAD/CONSTRUCTION TRAFFIC ROUTE DIRECTION
- LIGHTING COLUMN TO BE REMOVED AND REINSTATED
- TRAFFIC BOLLARD TO BE REMOVED AND REINSTATED
- TRAFFIC SIGNAL TO BE REMOVED
- TRAFFIC SIGN TO BE REMOVED AND REINSTATED
- VERGE MARKER TO BE REMOVED AND REINSTATED
- OVERHEAD HV ELECTRICAL CABLE
- UNDERGROUND TELECOMMUNICATIONS CABLE
- OVERHEAD TELECOMMUNICATIONS CABLE

Rev	Date	Amendment Details	Dr'n	Chk'	App'
P03	13/08/2024	FINAL ISSUE	RL	NG	CB
P02	18/06/2024	DRAWING NUMBER UPDATED	RL	NG	CB
P01	08/04/2024	FIRST ISSUE	RL	NG	CB

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Web: www.sweco.co.uk

SWECO

Client: Scottish & Southern Electricity Networks TRANSMISSION

Project Title
FANELLAN
400kV SWITCHING STATION AND HVDC CONVERTOR STATION

Drawing Title
PUBLIC ROAD IMPROVEMENTS
A831 / A862 JUNCTION
SHEET 1 OF 1

Purpose Of Issue: PRELIMINARY

Status	Status Description
S5	FOR REVIEW AND ACCEPTANCE

Drawn	Designed	Checked	Approved
RL	RL	NG	CB

Sheet Size	Scale	Sweco Ref	Revision
A1	AS SHOWN	65209842	P03

Drawing Number: LT459-SWE-XX-XX-D-H-0102

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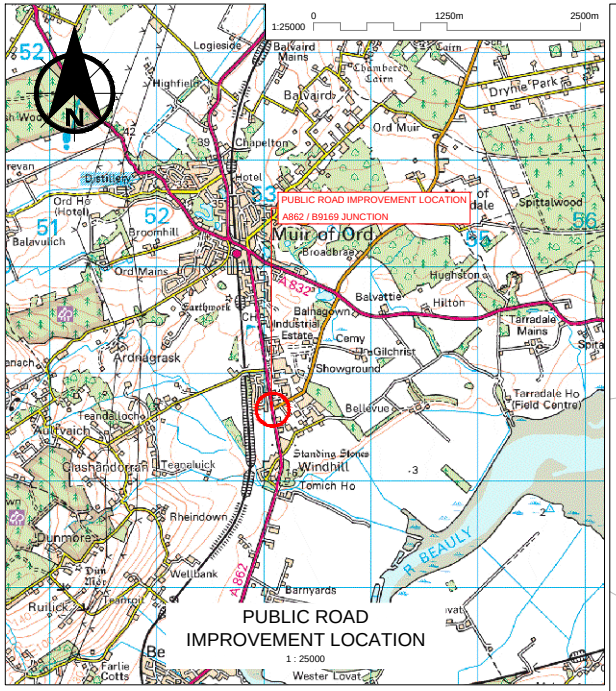

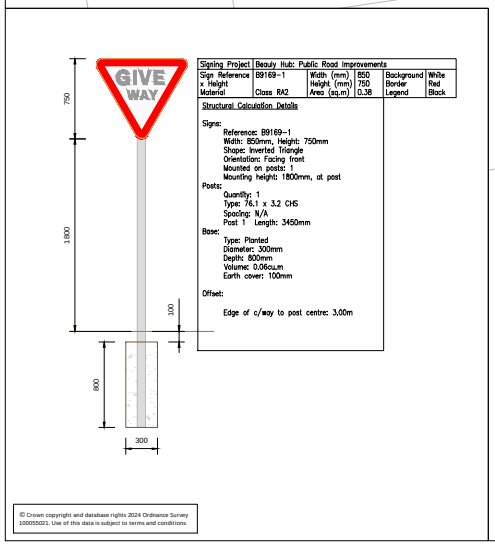

Signing Project	Beauly Hub: Public Road Improvements				
Sign Reference	B9169-1	Width (mm)	850	Background	White
x Height		Height (mm)	750	Border	Red
Material	Class RA2	Area (sq.m)	0.38	Legend	Black

Structural Calculation Details

Signs:
- Reference: B9169-1
- Width: 850mm, Height: 750mm
- Shape: Inverted Triangle
- Orientation: Facing front
- Mounted on posts: 1
- Mounting height: 1800mm, at post

Posts:
- Quantity: 1
- Type: 76.1 x 3.2 CHS
- Spacing: N/A
- Post 1 Length: 3450mm

Base:
- Type: Planted
- Diameter: 300mm
- Depth: 600mm
- Volume: 0.06cu.m
- Earth cover: 100mm

Offset:
- Edge of c/way to post centre: 3.00m

NOTES

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KEY TO DRAWING

- ABNORMAL LOAD ROUTE DIRECTION
- LIGHTING COLUMN TO BE REMOVED AND REINSTATED
- TRAFFIC BOLLARD TO BE REMOVED AND REINSTATED
- TRAFFIC SIGNAL TO BE REMOVED
- TRAFFIC SIGN TO BE REMOVED AND REINSTATED
- UNDERGROUND ELECTRICAL CABLE
- UNDERGROUND TELECOMMUNICATIONS CABLE

Rev	Date	Amendment Details	Dr'n	Chk'	App'
P03	13/08/2024	FINAL STATUS	RL	NG	CB
P02	18/04/2024	DRAWING NUMBER UPDATED	RL	NG	CB
P01	08/04/2024	FIRST ISSUE	RL	NG	CB

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SWECO

Client: Scottish & Southern Electricity Networks TRANSMISSION

Project Title: FANELLAN 400kV SWITCHING STATION AND HVDC CONVERTOR STATION

Drawing Title: PUBLIC ROAD IMPROVEMENTS A862 / B9169 JUNCTION SHEET 1 OF 1

Purpose Of Issue: PRELIMINARY

Status	Status Description
S5	FOR REVIEW AND ACCEPTANCE

Drawn	Designed	Checked	Approved
RL	RL	NG	CB

Sheet Size	Scale	Sweco Ref	Revision
A1	AS SHOWN	65209842	P03

Drawing Number: LT459-SWE-XX-XX-D-H-0103

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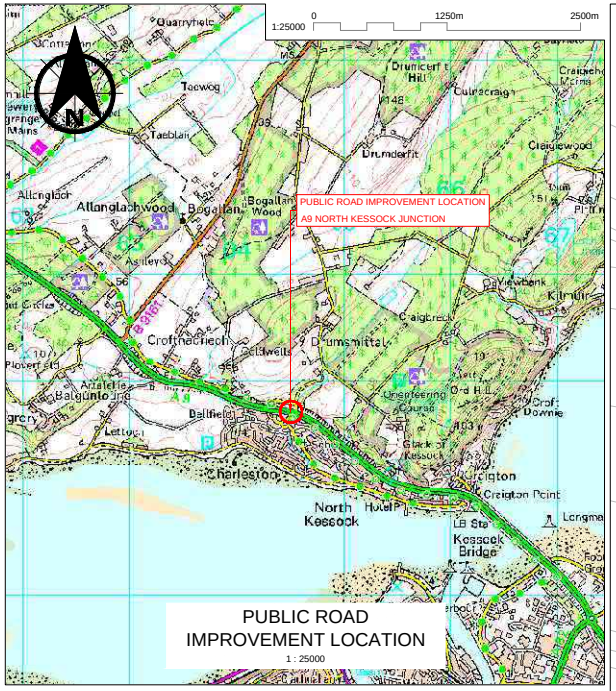

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KEY TO DRAWING

- ABNORMAL LOAD ROUTE DIRECTION
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- TRAFFIC BOLLARD TO BE REMOVED AND REINSTATED
- TRAFFIC SIGNAL TO BE REMOVED
- TRAFFIC SIGN TO BE REMOVED AND REINSTATED

Rev	Date	Amendment Details	Dr'n	Chk'	App'
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P02	18/06/2024	DRAWING NUMBER UPDATED	RL	NG	CB
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SWECO

Client: Scottish & Southern Electricity Networks TRANSMISSION

Project Title: FANELLAN 400kV SWITCHING STATION AND HVDC CONVERTOR STATION

Drawing Title: PUBLIC ROAD IMPROVEMENTS A9 NORTH KESSOCK JUNCTION SHEET 1 OF 1

Purpose Of Issue: PRELIMINARY

Status	Status Description
S5	FOR REVIEW AND ACCEPTANCE

Drawn	Designed	Checked	Approved
RL	RL	NG	CB

Sheet Size	Scale	Sweco Ref	Revision
A1	AS SHOWN	65209842	P03

Drawing Number: LT459-SWE-XX-XX-D-H-0104

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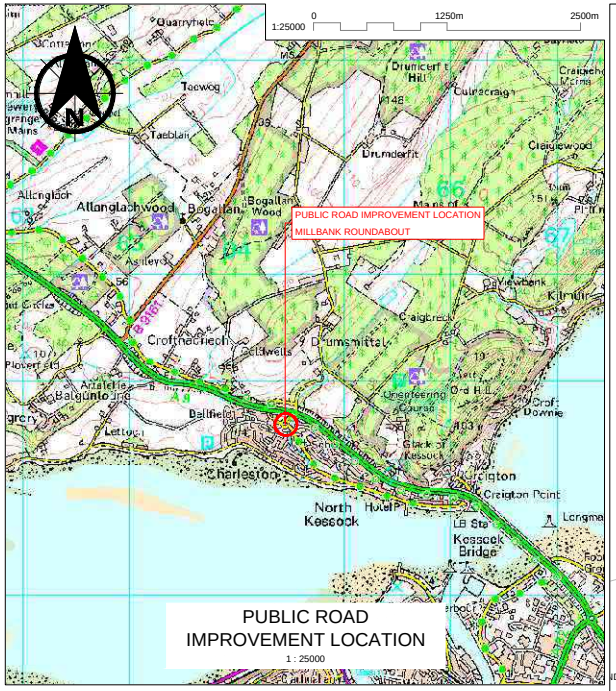

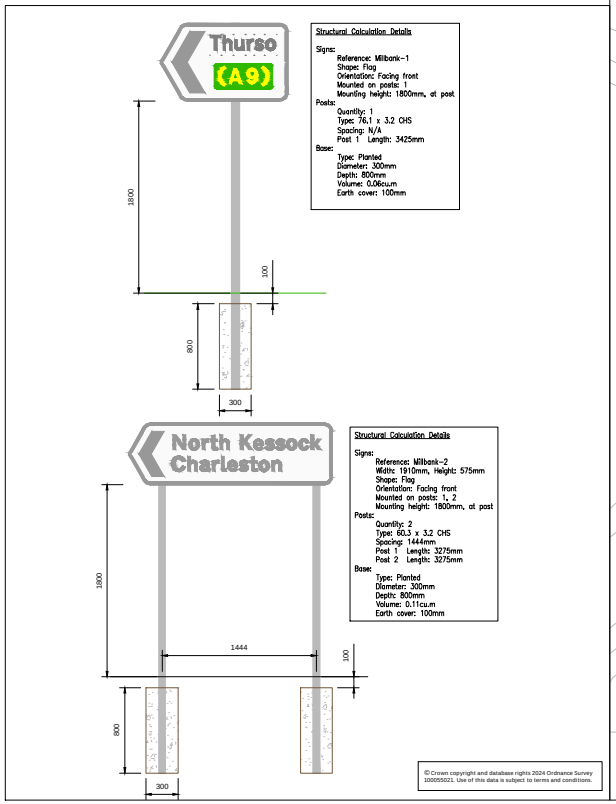

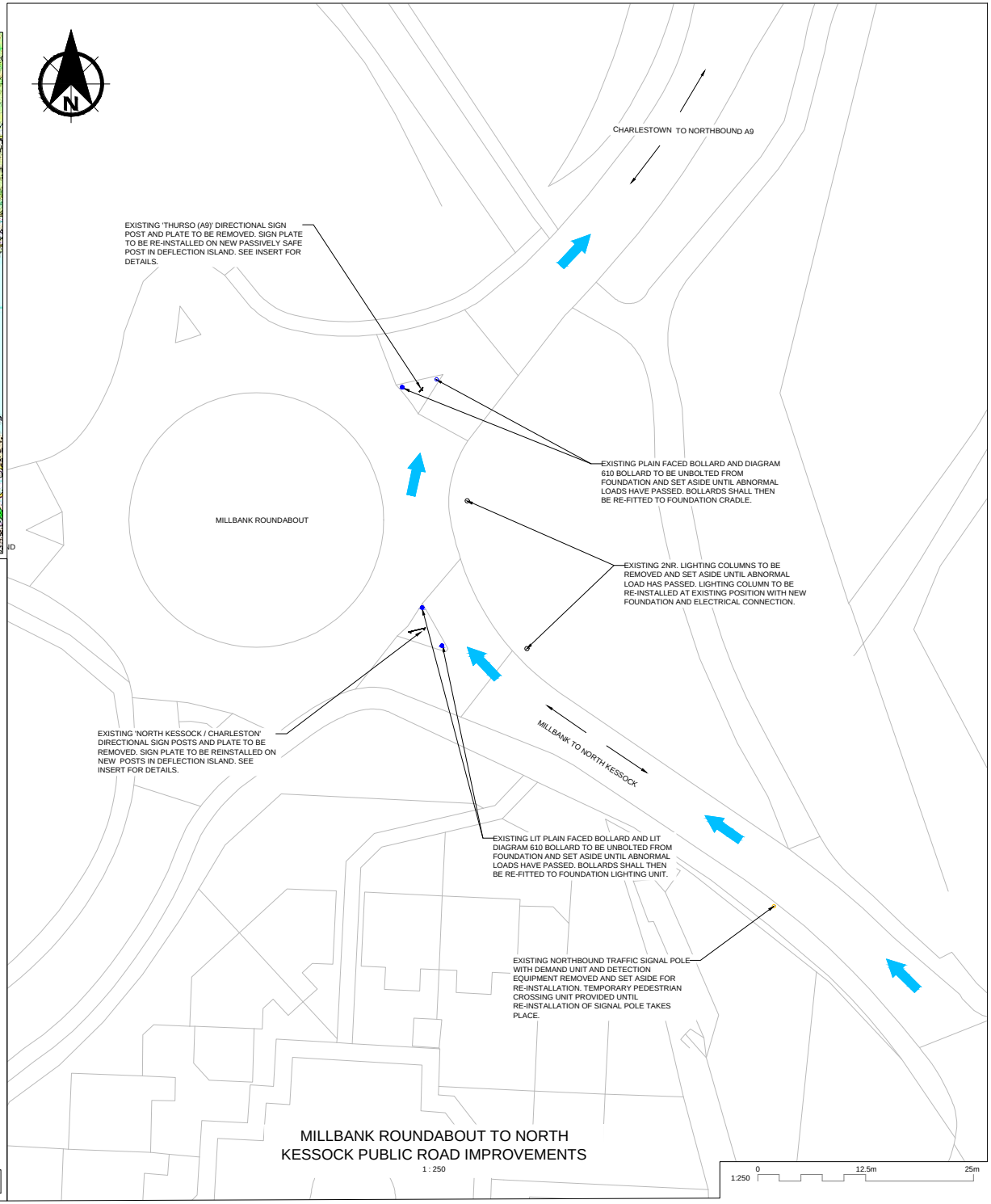

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KEY TO DRAWING

- ABNORMAL LOAD ROUTE DIRECTION
- LIGHTING COLUMN TO BE REMOVED AND REINSTATED
- TRAFFIC BOLLARD TO BE REMOVED AND REINSTATED
- TRAFFIC SIGNAL TO BE REMOVED AND RE-INSTATED
- TRAFFIC SIGN TO BE REMOVED AND REINSTATED

Rev	Date	Amendment Details	Dr'n	Chk'	App'
P03	13/08/2024	FINAL ISSUE	RL	NG	CB
P02	18/04/2024	DRAWING NUMBER UPDATED	RL	NG	CB
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Web: www.sweco.co.uk

SWECO

Client: Scottish & Southern Electricity Networks TRANSMISSION

Project Title: FANELLAN 400kV SWITCHING STATION AND HVDC CONVERTOR STATION

Drawing Title: PUBLIC ROAD IMPROVEMENTS MILLBANK ROUNDAOUT SHEET 1 OF 1

Purpose Of Issue: PRELIMINARY

Status	Status Description
S5	FOR REVIEW AND ACCEPTANCE

Drawn	Designed	Checked	Approved
RL	RL	NG	CB

Sheet Size	Scale	Sweco Ref	Revision
A1	AS SHOWN	65209842	P03

Drawing Number: LT459-SWE-XX-XX-D-H-0105

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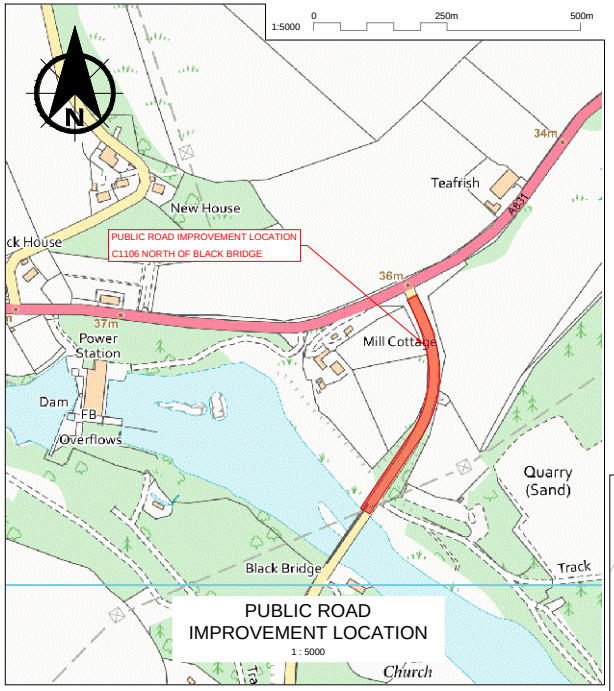

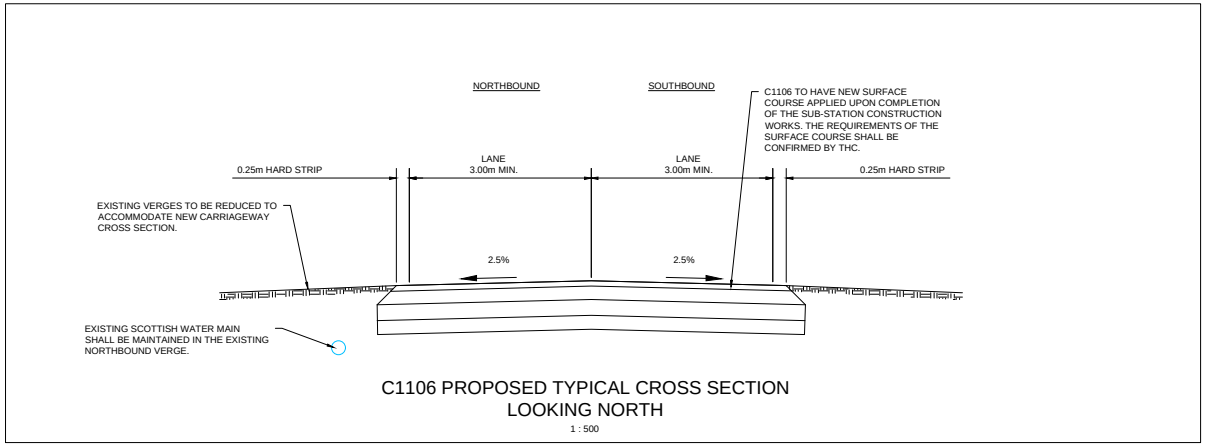

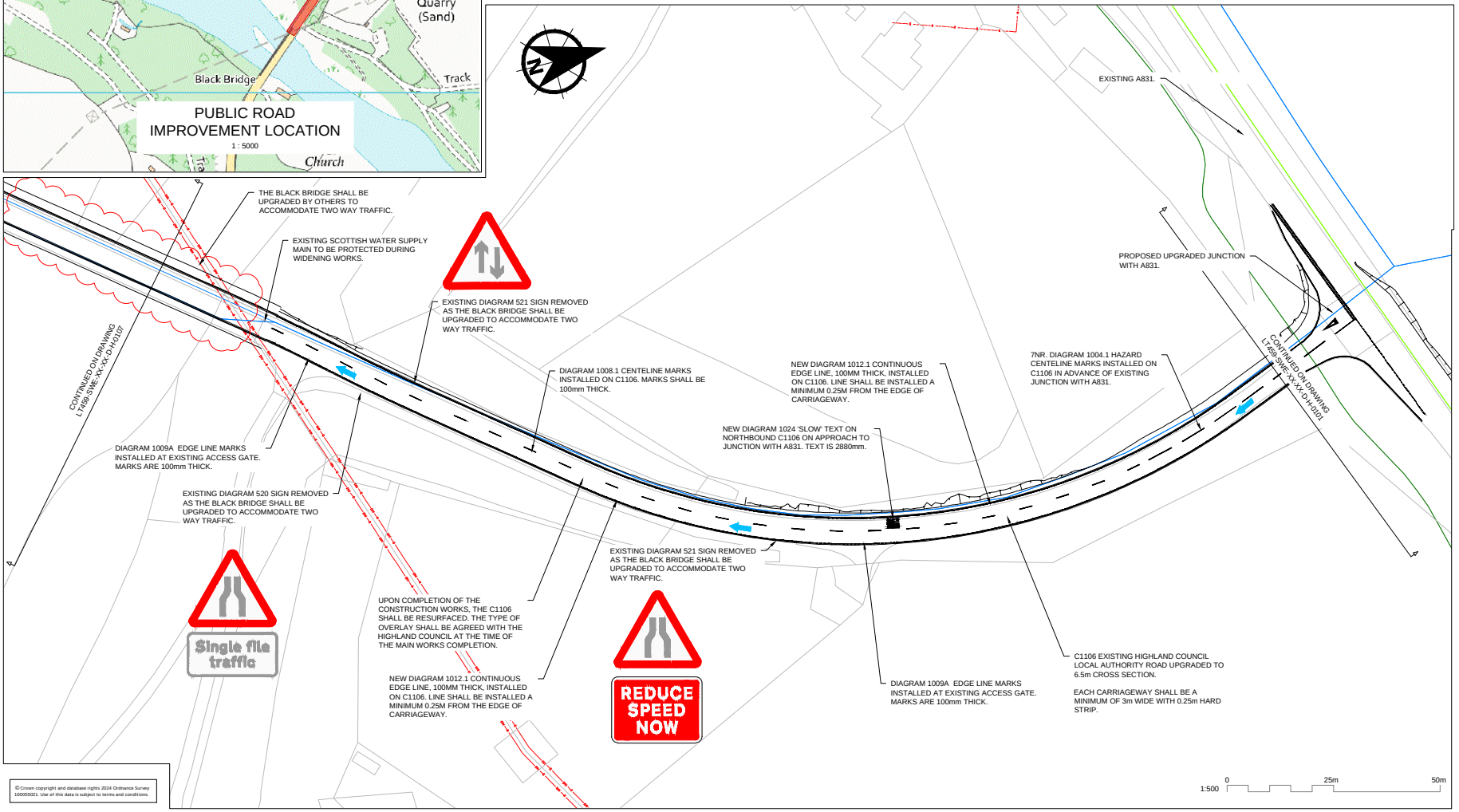

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KEY TO DRAWING

- OVERHEAD HIGH VOLTAGE CABLE
- SCOTTISH WATER DISTRIBUTION MAIN
- OVERHEAD TELECOMMUNICATIONS CABLE
- 400kV OVERHEAD ELECTRICAL LINE
- ABNORMAL LOAD ROUTE DIRECTION

Rev	Date	Amendment Details	Dr'n	Chk'	App'
P02	13/08/2024	FINAL ISSUE	RL	NG	CB
P01	18/06/2024	FIRST ISSUE	RL	NG	CB

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Tel: +44 (0)131 550 6300
Web: www.sweco.co.uk

SWECO

Client: Scottish & Southern Electricity Networks TRANSMISSION

Project Title: FANELLAN 400kV SWITCHING STATION AND HVDC CONVERTOR STATION

Drawing Title: PUBLIC ROAD IMPROVEMENTS A831 TO FANELLAN SHEET 1 OF 3

Purpose Of Issue: PRELIMINARY

Status	Status Description
S5	FOR REVIEW AND ACCEPTANCE

Drawn	Designed	Checked	Approved
RL	RL	NG	CB

Sheet Size	Scale	Sweco Ref	Revision
A1	AS SHOWN	65209842	P02

Drawing Number: LT459-SWE-XX-XX-D-H-0106

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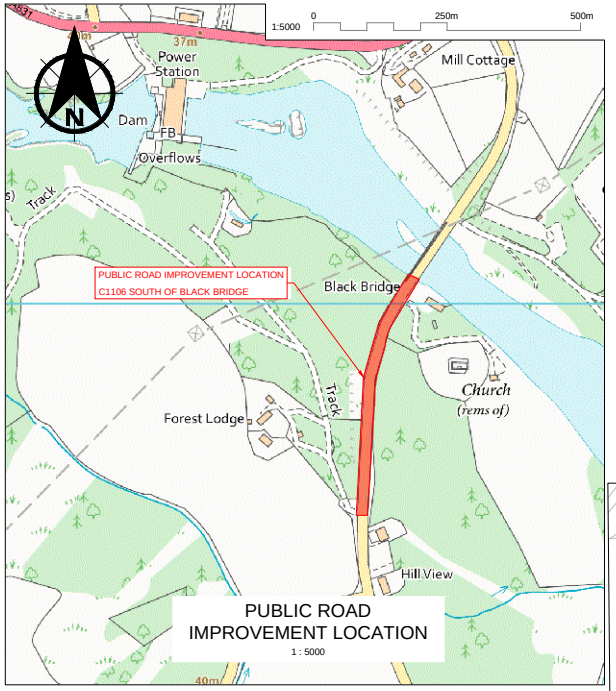
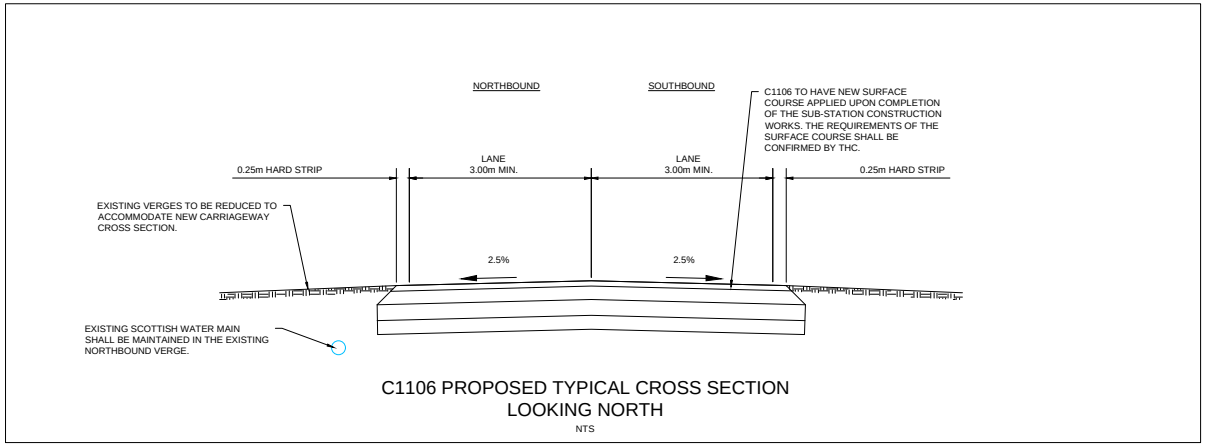
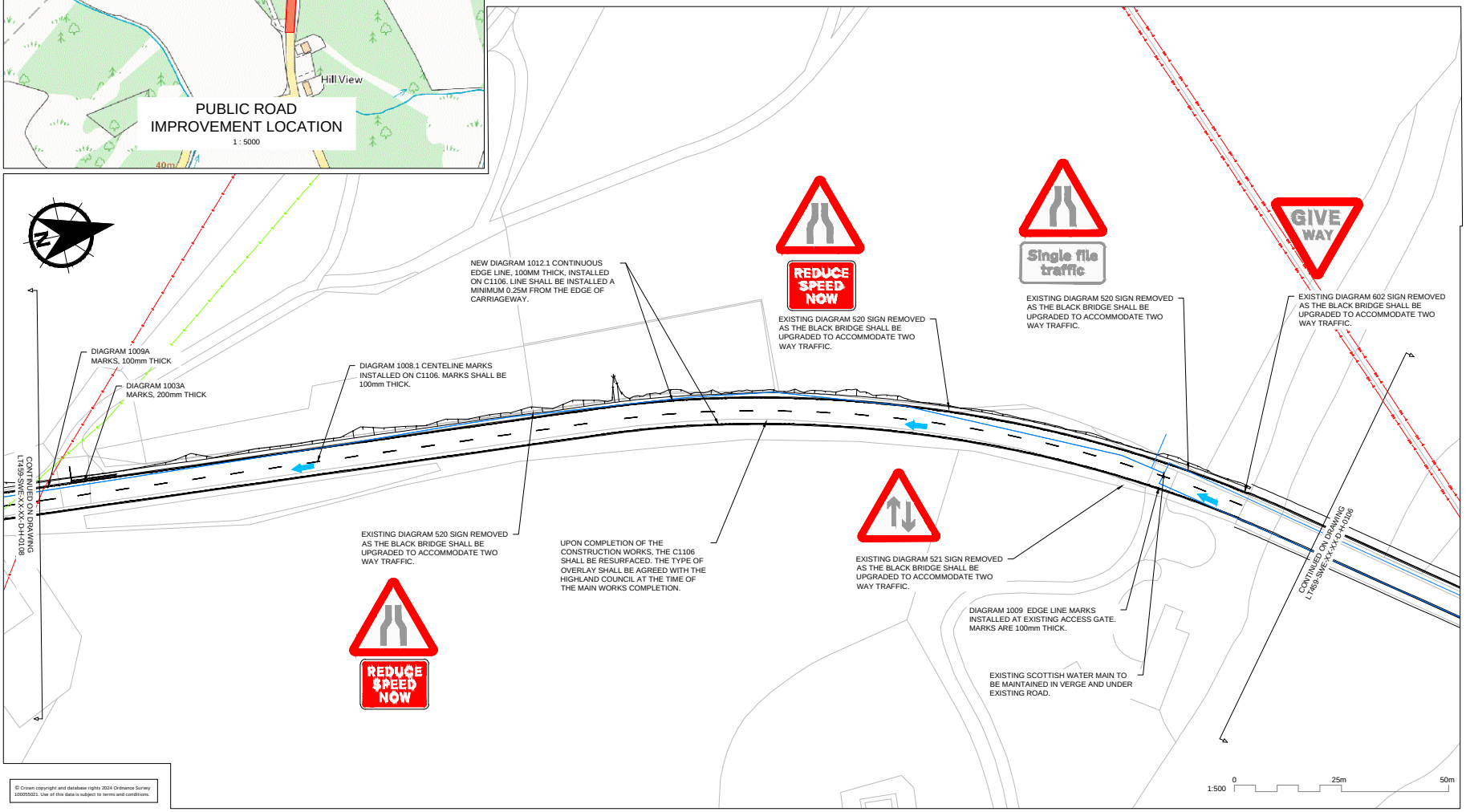




C1106 PROPOSED TYPICAL CROSS SECTION
LOOKING NORTH
NTS



NOTES

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2. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL OTHER RELEVANT PROJECT INFORMATION.
3. ALL DATUM LEVELS ARE IN METRES AND DIMENSIONS ARE IN METRES UNLESS OTHERWISE STATED.
4. WHERE ANY ELECTRIFIED EQUIPMENT IS PROPOSED TO BE MODIFIED, THE SUPPLY SHALL BE ISOLATED PRIOR TO UNDERTAKING ANY MODIFICATION WORK.
5. WHERE ANY ROADSIDE FURNITURE IS PROPOSED TO BE MODIFIED, THE AREA SHALL BE SCANNED FOR UNDERGROUND UTILITIES OR PRIVATE INFRASTRUCTURE.
6. ALL CONCRETE USED TO FORM NEW TRAFFIC SIGN FOUNDATIONS IN AUGURED EXCAVATIONS SHALL BE ST2 TO SHW TABLE 26/1.

KEY TO DRAWING

- OVERHEAD HIGH VOLTAGE CABLE
- SCOTTISH WATER DISTRIBUTION MAIN
- OVERHEAD TELECOMMUNICATIONS CABLE
- 400kV OVERHEAD ELECTRICAL LINE
- ABNORMAL LOAD ROUTE DIRECTION

Rev	Date	Amendment Details	Dr'n	Chk'	App'
P02	13/08/2024	FINAL ISSUE	RL	NG	CB
P01	18/06/2024	FIRST ISSUE	RL	NG	CB

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Web: www.sweco.co.uk

SWECO

Client: Scottish & Southern Electricity Networks TRANSMISSION

Project Title: FANELLAN
400kV SWITCHING STATION AND
HVDC CONVERTOR STATION

Drawing Title: PUBLIC ROAD IMPROVEMENTS
A831 TO FANELLAN
SHEET 2 OF 3

Purpose Of Issue: PRELIMINARY

Status	Status Description
S5	FOR REVIEW AND ACCEPTANCE

Drawn	Designed	Checked	Approved
RL	RL	NG	CB

Sheet Size	Scale	Sweco Ref	Revision
A1	AS SHOWN	65209842	P02

Drawing Number: LT459-SWE-XX-XX-D-H-0107

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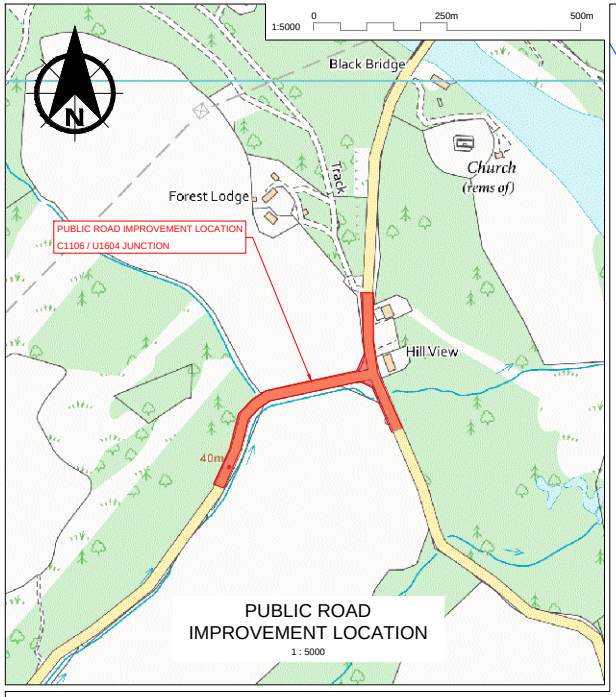

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KEY TO DRAWING

- OVERHEAD HIGH VOLTAGE CABLE
- SCOTTISH WATER DISTRIBUTION MAIN
- OVERHEAD TELECOMMUNICATIONS CABLE
- UNDERGROUND TELECOMMUNICATIONS CABLE
- 400kV OVERHEAD ELECTRICAL LINE
- REDUNDANT SCOTTISH WATER DISTRIBUTION MAIN
- DIVERTED SCOTTISH WATER MAIN
- ABNORMAL LOAD ROUTE DIRECTION

Rev	Date	Amendment Details	Dr'n	Chk'	App'
P02	13/08/2024	FINAL ISSUE	RL	NG	CB
P01	18/06/2024	FIRST ISSUE	RL	NG	CB

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SWECO

Client: Scottish & Southern Electricity Networks TRANSMISSION

Project Title: FANELLAN
400kV SWITCHING STATION AND
HVDC CONVERTOR STATION

Drawing Title: PUBLIC ROAD IMPROVEMENTS
A831 TO FANELLAN
SHEET 3 OF 3

Purpose Of Issue: PRELIMINARY

Status	Status Description
S5	FOR REVIEW AND ACCEPTANCE

Drawn	Designed	Checked	Approved
RL	RL	NG	CB

Sheet Size	Scale	Sweco Ref	Revision
A1	AS SHOWN	65209842	P02

Drawing Number: LT459-SWE-XX-XX-D-H-0108

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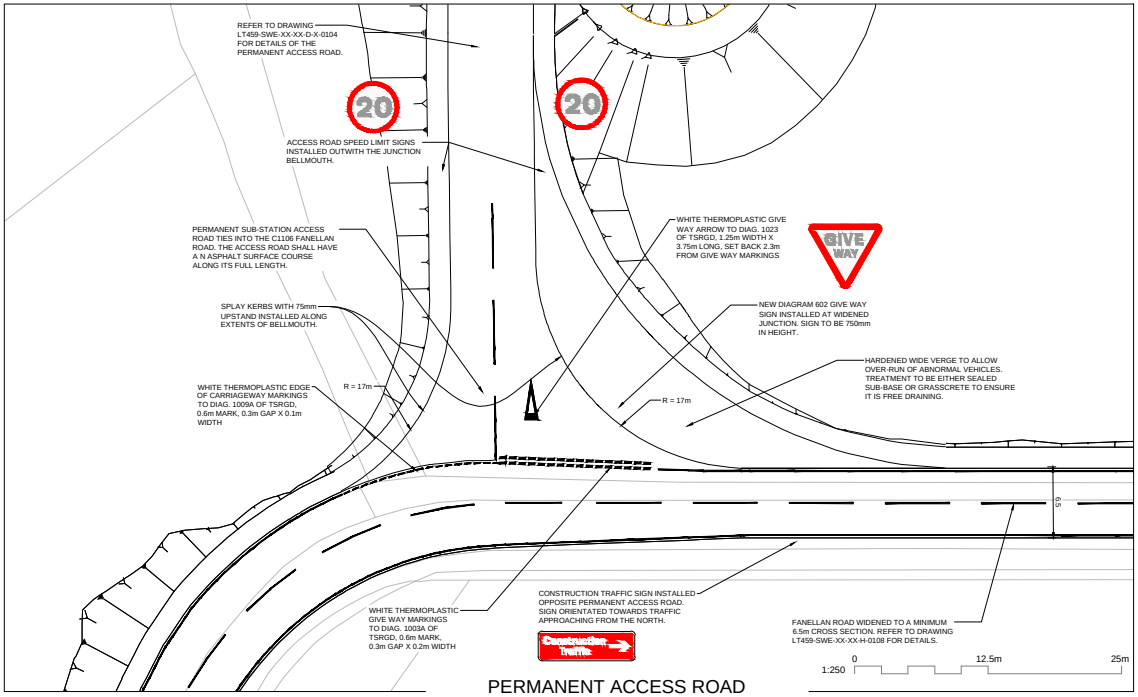
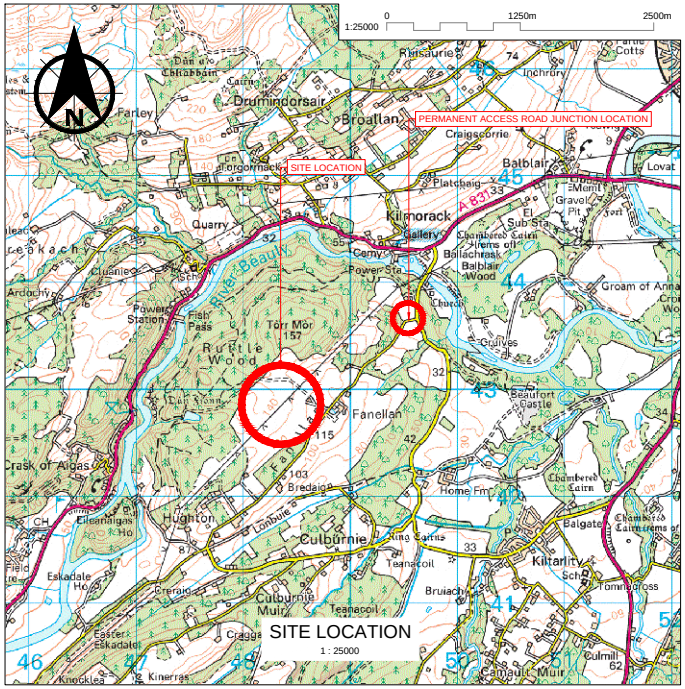


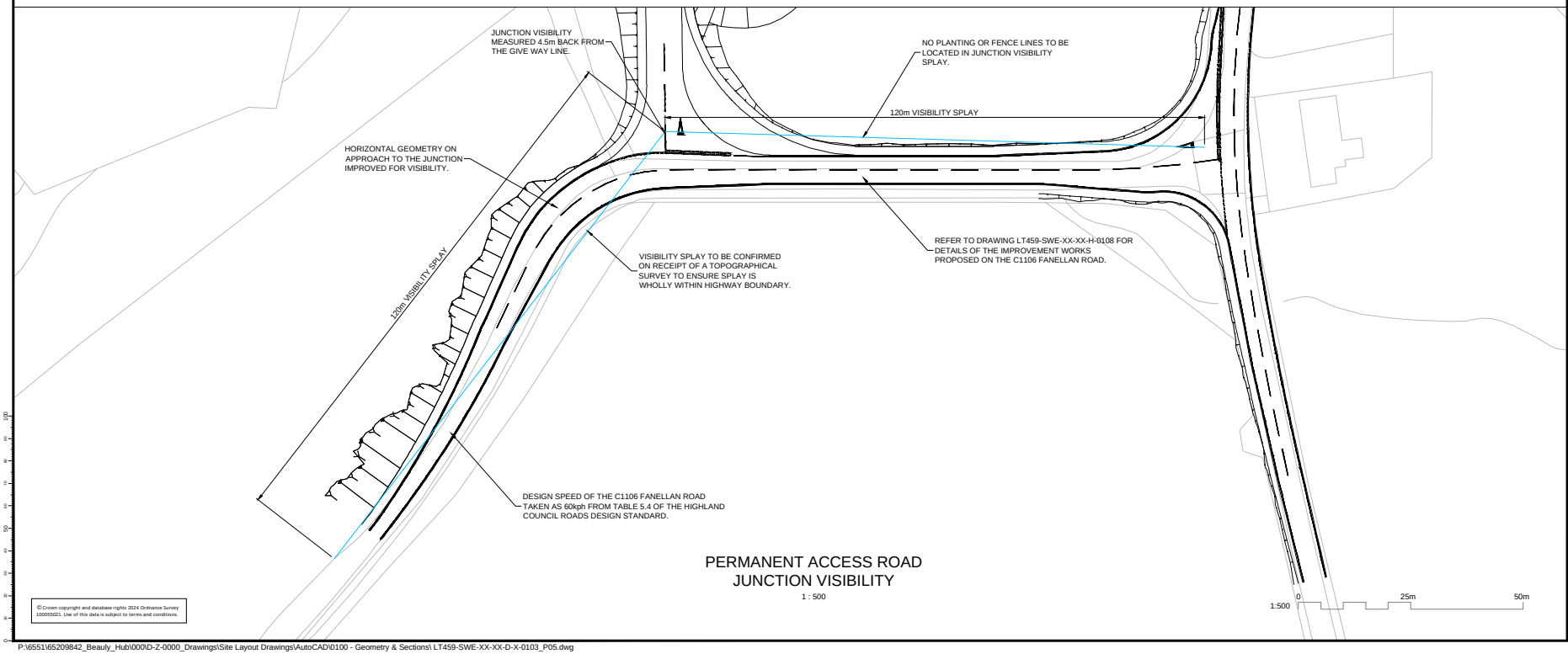
PERMANENT ACCESS ROAD
JUNCTION WITH FANELLAN ROAD

1 : 200



SITE LOCATION

1 : 25000



PERMANENT ACCESS ROAD
JUNCTION VISIBILITY

1 : 500

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KEY TO DRAWING

Rev	Date	Amendment Details	Dr'n	Chk'	App'
P05	20/08/2024	FINAL LAYOUT	NG	RL	CB
P04	12/06/2024	LAYOUT UPDATED	NG	RL	CB
P03	18/04/2024	DESIGN FIX 2C	NG	RL	CB
P02	08/03/2024	DESIGN FIX 2B	NG	RL	CB
P01	15/12/2023	DESIGN FIX A	MA	RL	CB

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SWECO

Client

Scottish & Southern Electricity Networks
TRANSMISSION

Project Title

FANELLAN
400kV SWITCHING STATION AND
HVDC CONVERTOR STATION

Drawing Title

PERMANENT ACCESS ROAD
JUNCTION WITH C1106
GENERAL LAYOUT

Purpose Of Issue: PRELIMINARY

Status	Status Description
S5	FOR REVIEW AND ACCEPTANCE

Drawn	Designed	Checked	Approved
NG	NG	RL	CB

Sheet Size	Scale	Sweco Ref	Revision
A1	AS SHOWN	65209842	P05

Drawing Number: LT459-SWE-XX-XX-D-X-0103

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