

Environmental Impact Assessment Report

Beinneun 2 Wind Farm

Volume 3

Technical Appendix A11.1: Abnormal Loads Assessment

Document prepared by SYSTRA Ltd for Beinneun 2 Ltd

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ABNORMAL LOADS ASSESSMENT



SYSTRA

BEINNEUN 2 WIND FARM

ABNORMAL LOADS ASSESSMENT

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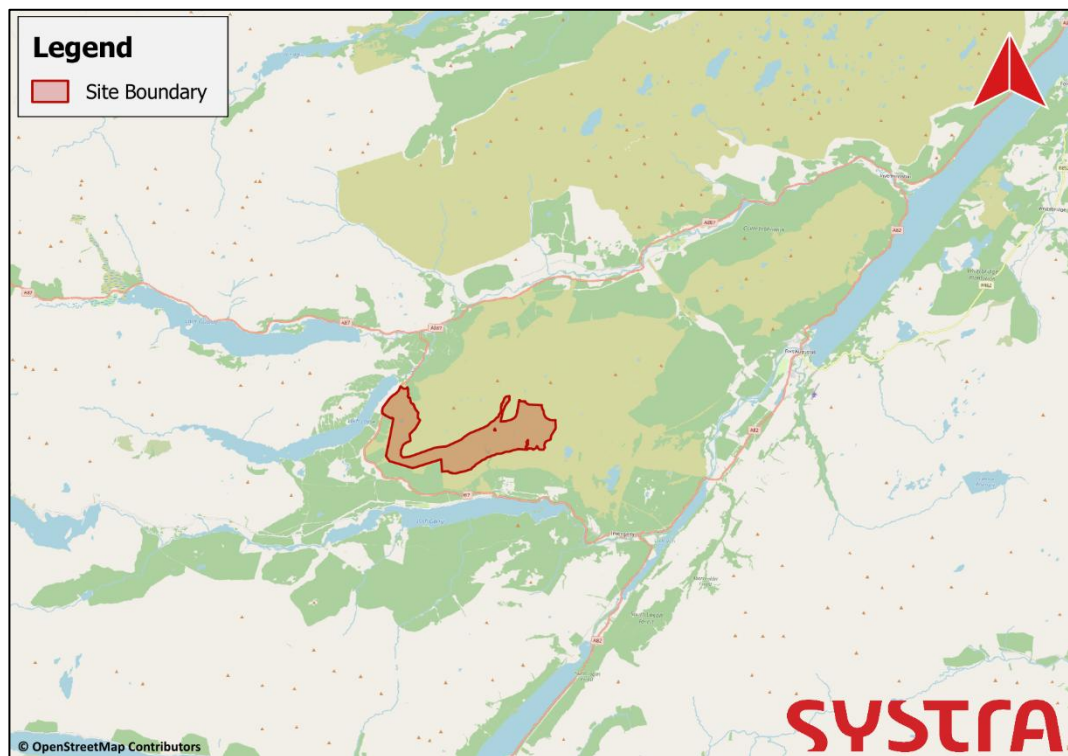
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1. INTRODUCTION

1.1 General

1.1.1 SYSTRA Ltd (SYSTRA) has been commissioned by Beinneun 2 Wind Farm Ltd (The Developer) to undertake an assessment of an identified abnormal load route to the proposed Beinneun 2 Wind Farm site. The site is located within The Highland Council administrative area and lies to the west of the village of Invergarry. The approximate site location is indicated by **Figure 1**.

Figure 1. Site Location



- 1.1.2 The site access is approximately 4.1km south of the Moriston Bridge and 11.9km west of Invergarry.
- 1.1.3 It is anticipated that the turbine blade components would be landed at the Kyle Harbour facility, which currently supports the development of energy projects including onshore wind farms with regular handling of turbine components. Due to constraints at the Kyle Prospect Road / A87 junction a blade lifter is initially required to exit the harbour facility.
- 1.1.4 The tower components would be landed at either the Corpach Harbour facility, which has also previously supported the development of onshore wind farms, or the Kyle Harbour facility.

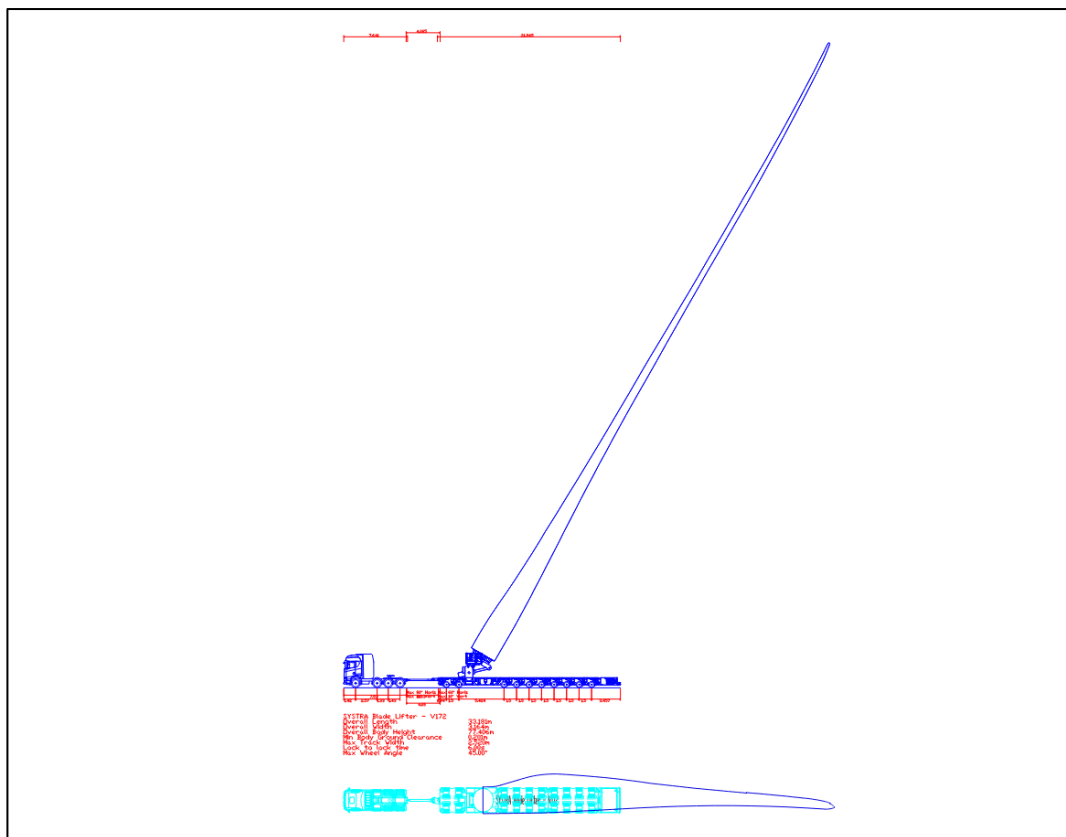
1.2 Turbine Transport Requirements

- 1.2.1 The candidate turbine for the Beinneun 2 Wind Farm is anticipated to be the Vestas V172 machine with a tip height of up to 200m. The V172 has a blade length of 84.35m (when transported). SYSTRA has not been supplied with the dimensions of the worst-case tower component and has therefore utilised the dimensions of the similar Vestas V162. The top section of the V162 is typically 32m in length and up to 4.2m in diameter.
- 1.2.2 For the purposes of this assessment the turbine blade and the top tower section has been assessed as the “worst-case” design components.

Blade Lifting Trailer

- 1.2.3 In order to leave the Kyle Harbour with a blade of this length a blade lifting trailer is required. SYSTRA has assumed that the V172 blade component will be loaded onto a Goldhofer FTV550 blade lifting trailer which is capable of raising the blade to an angle of 60 degrees. The trailer incorporates 10 sets of pendle axles which allows for a maximum steering angle of up to 60 degrees. These axles can be manually controlled to give a greater degree of manoeuvrability.
- 1.2.4 The Blade Lifting Vehicle is ~33.2m long with the blade overhanging the rear of the trailer by 25.1m at a height of 77.4m above ground. A drawing of the vehicle is provided in **Appendix A** as drawing *GB01T22186/XB16/I/VEH001* and **Figure 2**.

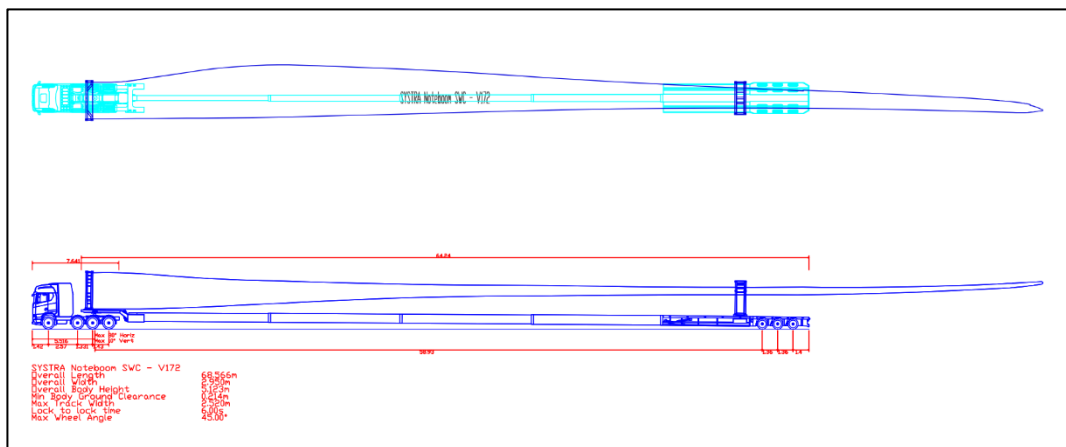
Figure 2. Blade Lifting Trailer



Standard Blade Transporter

- 1.2.5 At a suitable blade transfer station (assumed in this assessment to be located at the Broadford Aerodrome) the blades would be transferred onto a standard blade carrying trailer. For the purposes of assessment, it has been assumed that the Turbine Delivery Vehicle (TDV) would compose of a tractor unit and a Noteboom Super Wing Carrier Trailer.
- 1.2.6 The Super Wing Trailer incorporates pendle axles which allow for a secondary rear wheel steering angle of up to 60 degrees. These axles can be manually controlled to give a greater degree of manoeuvrability. The Super Wing trailer can be extended to 64.3m in length. For this assessment it has been assumed that the trailer would be extended to its full length. This assumption is based on the loading configuration of other wind turbine blade components and specifications from Vestas. In total the TDV is ~68.6m in length. The turbine blade would overhang the end of the trailer by ~20.6m for a total length of 89.2m.
- 1.2.7 A drawing of the TDV is provided in **Appendix A** as drawing *GB01T22I86/XB16/I/VEH002* and at **Figure 3** below.

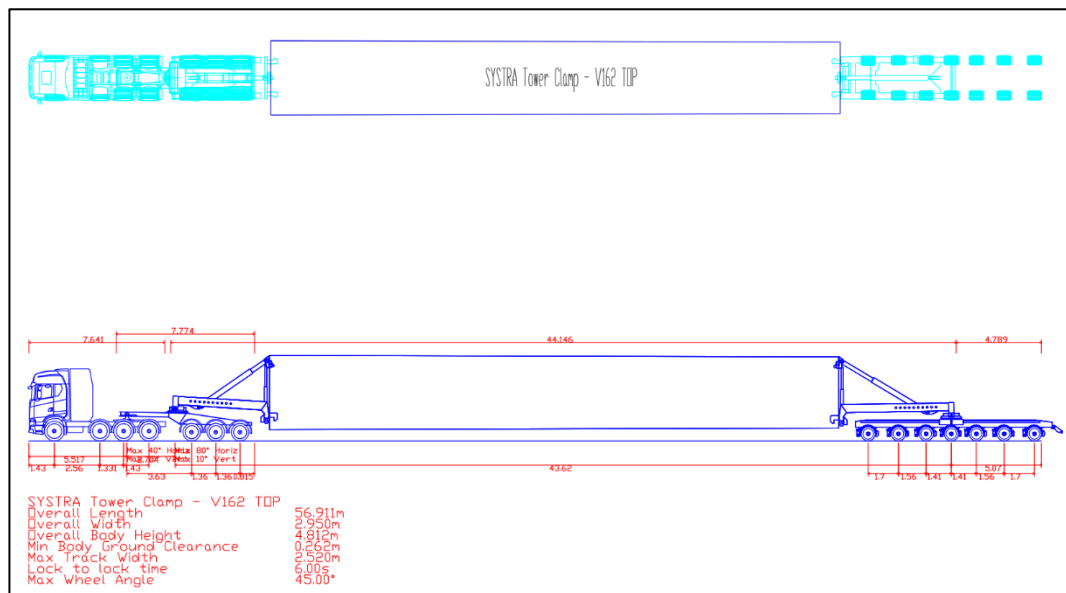
Figure 3. Turbine Delivery Vehicle



Tower Transporter

- 1.2.8 The “worst-case” tower component of the V162 with a hub height of 119m is 32m in length and has a tapering diameter from 4.01m at the top to 4.17m at the base. For the purpose of this assessment, it is assumed that the dimensions of most onerous tower component for the Beinneun 2 Wind Farm would be broadly similar to that of the V162. The tower sections would be loaded onto a specialised tower delivery trailer. The Tower Delivery Vehicle clamps the tower section at each end and features a tractor unit at the front and a pivotable dolly at the rear. The axles of the dolly can be manually controlled to enable a greater degree of manoeuvrability.
- 1.2.9 The Tower Delivery Vehicle is ~58.0m long in total. A drawing of the vehicle is provided in **Appendix A** as drawing *GB01T22186/XB16/I/VEH003* and **Figure 4** overleaf.

Figure 4. Tower Delivery Vehicle



- 1.2.10 At this stage in the design process, the haulier of the wind turbine components is not yet known, nor the exact specifics of the vehicles that they will use. However, from experience of previous developments, and from the details of the components to be moved, it is possible to estimate (with some degree of accuracy) the specifics of the design vehicles that will be used to allow a detailed and accurate route assessment to be undertaken.
- 1.2.11 SYSTRA has used the Autodesk (CAD) extension package AutoTrack to undertake swept path analysis (SPA) for the identified Pinch Points (PP) on the delivery route. The trailer units associated with the design vehicle for the transportation of the blades and towers are extendable so on delivery of the abnormal load, the trailer can be reduced in length. In these circumstances, the AutoTracking and route assessment has only been undertaken for the delivery route to the site.

1.3 Assessed Abnormal Loads Route

Blade Component - Kyle Harbour

1.3.1 The Port of Entry (PoE) for the blade turbine components is anticipated to be Kyle Harbour. The facilities have been used for the transportation of renewable components in the past. Blade components would exit the port via Kyle Prospect Road, as shown in **Figure 5** below.

Figure 5. Alignment of Blade Component Exiting Kyle Harbour



1.3.2 SYSTRA has examined the use of Fishery Pier for exiting the site directly on a standard trailer, as was done for Beinneun 1 Wind Farm, however we have deemed this infeasible due to the increased blade length. The assessed route to site is indicated by **Figure 6** overleaf.

Figure 6. Assessed Abnormal Loads Route - Blade



1.3.3 The identified abnormal load route sections for the blade components are set out in **Table 1**.

Table 1. Blade Component - Route Sections

SECTION	CUMULATIVE DISTANCE (MILES)
Exit Kyle Harbour via Kyle Prospect Road (on a Blade Lifting Trailer)	0.0
Turn left onto the A87	0.1
At the Kyleakin Roundabout turn right to stay on A87	1.6
Turn right into the Broadford Aerodrome (transfer onto Super Wing-style trailer)	4.9
Exit the Broadford Aerodrome turning left onto the A87 continuing generally south east	4.9
At Bun Loyne turn right over the Moriston Bridge to remain on A87	45.9
Turn left into the site access	48.5

Tower Section – Kyle Harbour

1.3.7 The first potential Port of Entry (PoE) for the tower components is Kyle Harbour. The facilities have been used for the transportation of renewable components in the past. Tower components would be loaded at the eastern quayside and reversed into position before exiting via Fishery Pier, as illustrated in **Figure 8**.

Figure 8. Alignment of Tower Component Exiting Kyle Harbour



1.3.8 The assessed route to site is indicated by **Figure 9** overleaf.

Figure 9. Assessed Abnormal Loads Route – Tower from Kyle Harbour



1.3.9 The identified abnormal load route sections for the tower components are set out in **Table 2.**

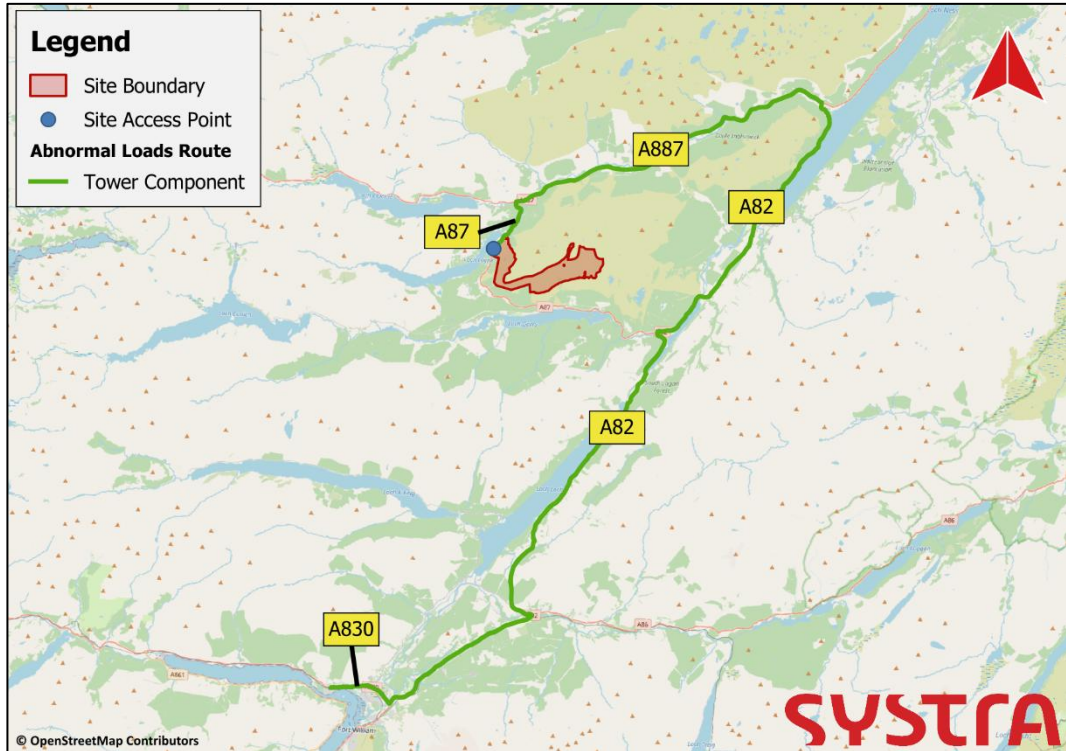
Table 2. Tower Component from Kyle Harbour - Route Sections

SECTION	CUMULATIVE DISTANCE (MILES)
Exit Kyle Harbour via Fishery Pier	0.0
Turn right onto the A87	0.2
At Bun Loyne turn right over the Moriston Bridge to remain on A87	36.1
Turn left into the site access	38.7

Tower Section - Corpach Harbour

1.3.10 The other potential Port of Entry (PoE) for the tower components is Corpach Harbour. The facilities have been used for the transportation of renewable components in the past. The assessed route to site is indicated by **Figure 10** below.

Figure 10. Assessed Abnormal Loads Route – Tower from Corpach



1.3.11 The identified abnormal load route sections for the tower components are set out in **Table 3**.

Table 3. Tower Component - Route Sections

SECTION	CUMULATIVE DISTANCE (MILES)
Exit Corpach Harbour turning right onto the A830	0.0
At the Blar Mhor Roundabout continue straight to stay on the A830	2.3
At the Ben Nevis Distillery Roundabout turn left onto the A82	2.8
At Invergarry continue right to stay on the A82	25.4
At Invermoriston turn left onto the A887	38.9
At Invergarry turn right onto the A87	25.4
At Bun Loyne turn left over the Moriston Bridge onto the A87	53.9
Turn left into the site access	56.5

1.3.12 The route passes over the Torgyle Bridge on the A887. There is no signposted weight restriction, but SYSTRA would recommend that a structural survey is undertaken, and a topographical survey is conducted to examine the vertical profile of the bridge.

2. SWEPT PATH ASSESSMENT

2.1 Pinch Points

2.1.1 There are 30 Pinch Points between Kyle Harbour and the site access point, which the blade turbine transporters will have to navigate. With the exception of Kyle Harbour itself, no Pinch Points on the route from Kyle Harbour to the site have been assessed for the tower transporter as the blade transporter will require the more onerous mitigation.

2.1.2 In total, 11 Pinch Points have been identified on the route between Corpach Harbour and the site. The location of the Pinch Points that have been identified and assessed are indicated by **Figures 11 to 20** below.

Figure 11. PPs at Kyle of Lochalsh and Ashaig



Figure 12. PPs between Auchtertyre and Eilean Donan



Figure 13. PPs at Shiel Bridge



Figure 14. PPs adjacent to River Shiel



Figure 15. PPs at Loch Cluanie



Figure 16. PPs at Bun Loyne



Figure 17. PPs at Fort William



Figure 18. PP at Spean Bridge



Figure 19. PPs between Laggan and Invergarry



Figure 20. PPs between Fort Augustus and Torgyle



- 2.1.3 The swept path plans are contained within **Appendix A**. The plans indicate areas of overrun and over-sail, as well as highlighting potential clashes with street furniture and requirements for third-party land.
- 2.1.4 **Table 4** summarises the findings at each location for the transportation of the blade component. **Table 5** summarises the findings at each location for the transportation of the tower component.

Table 4. Pinch Point Summary – Blade Delivery Vehicle

PP	LOCATION	LAT	LONG	STREET FURNITURE REMOVAL	TEMPORARY PAVING / GRADING WORKS	3RD PARTY LAND REQUIREMENTS
01	Kyle Harbour and left-hand turn onto the A87	57.280935	-5.716417	<ul style="list-style-type: none"> 1no. lighting column 	<ul style="list-style-type: none"> None 	<ul style="list-style-type: none"> Yes – Oversail of several areas of third-party land. Land ownership checks required
02	Right-hand turn at Kyleakin Roundabout	57.272565	-5.744737	<ul style="list-style-type: none"> None 	<ul style="list-style-type: none"> None 	<ul style="list-style-type: none"> None anticipated
03	Right-hand turn into the Broadford Aerodrome	57.251479	-5.820459	<ul style="list-style-type: none"> None 	<ul style="list-style-type: none"> None 	<ul style="list-style-type: none"> Yes – Oversail of potential third-party land. Land ownership checks required
03	Right-hand turn into the Broadford Aerodrome	57.251479	-5.820459	<ul style="list-style-type: none"> Vegetation to be trimmed 	<ul style="list-style-type: none"> None 	<ul style="list-style-type: none"> Yes – Oversail of likely third-party land. Land ownership checks required
02	Right-hand turn at Kyleakin Roundabout	57.272565	-5.744737	<ul style="list-style-type: none"> 4no. lighting columns 4no. bollards 2no. roundabout chevron signs 2no. advertising boards 1no. clearway round 	<ul style="list-style-type: none"> Temporary hardstanding to be laid in roundabout island and verge Transition ramps may be required to enable vehicle to mount kerb 	<ul style="list-style-type: none"> None anticipated
01	Left-hand turn onto the A87 at Kyle Harbour	57.280935	-5.716417	<ul style="list-style-type: none"> 1no. signal head 1no. lighting column 1no. road sign Short section of metal railing 	<ul style="list-style-type: none"> Temporary hardstanding to be laid in verge 	<ul style="list-style-type: none"> None anticipated
04	S-bend in A87 east of Kyle of Lochalsh	57.280902	-5.702362	<ul style="list-style-type: none"> None 	<ul style="list-style-type: none"> None 	<ul style="list-style-type: none"> Yes – Oversail of potential third-party land. Land ownership checks required
05	Left-hand bend in A87 at Loch Alsh Viewpoint	57.281515	-5.695540	<ul style="list-style-type: none"> None 	<ul style="list-style-type: none"> None 	<ul style="list-style-type: none"> None anticipated
06	Right-hand bend in A87 east of Loch Alsh Viewpoint	57.283235	-5.691907	<ul style="list-style-type: none"> 4no. chevron signs 1no. parking sign 	<ul style="list-style-type: none"> None 	<ul style="list-style-type: none"> None anticipated
07	Right-hand bend in A87 at Auchtertyre	57.286196	-5.589601	<ul style="list-style-type: none"> None 	<ul style="list-style-type: none"> None 	<ul style="list-style-type: none"> None anticipated
08	S-bend in A87 south of Eilean Donan Castle	57.271899	-5.510833	<ul style="list-style-type: none"> 4no. chevron signs Vehicle restraint system (VRS) may require removal Trees may be affected 	<ul style="list-style-type: none"> None 	<ul style="list-style-type: none"> Yes – Oversail of potential third-party land. Land ownership checks required
09	S-bend in A87 south of Eilean Donan Castle	57.269640	-5.507883	<ul style="list-style-type: none"> 2no. chevron signs 	<ul style="list-style-type: none"> None 	<ul style="list-style-type: none"> None anticipated
10	S-bend in A87 south of Eilean Donan Castle	57.267530	-5.505565	<ul style="list-style-type: none"> 4no. chevron signs VRS may require removal 	<ul style="list-style-type: none"> None 	<ul style="list-style-type: none"> Yes – Oversail of potential third-party land. Land ownership checks required
11	S-bend in A87 south of Eilean Donan Castle	57.264714	-5.502872	<ul style="list-style-type: none"> 4no. chevron signs 	<ul style="list-style-type: none"> None 	<ul style="list-style-type: none"> Yes – Oversail of potential third-party land. Land ownership checks required
12	Continuous left-hand bend in A87 north of Shiel Bridge	57.215386	-5.423449	<ul style="list-style-type: none"> 6no. chevron signs 	<ul style="list-style-type: none"> None 	<ul style="list-style-type: none"> Yes – Oversail of several areas of third-party land. Land ownership checks required

PP	LOCATION	LAT	LONG	STREET FURNITURE REMOVAL	TEMPORARY PAVING / GRADING WORKS	3RD PARTY LAND REQUIREMENTS
13	Left-hand bend in A87 south of Loch Shiel	57.206407	-5.403067	<ul style="list-style-type: none"> None 	<ul style="list-style-type: none"> None 	<ul style="list-style-type: none"> None anticipated
14	Right-hand bend in A87 south of Loch Shiel	57.205856	-5.396059	<ul style="list-style-type: none"> 8no. chevron signs 	<ul style="list-style-type: none"> None 	<ul style="list-style-type: none"> Yes – Oversail of potential third-party land. Land ownership checks required
15	Bend in A87 at Achnagart Farm	57.179537	-5.371664	<ul style="list-style-type: none"> 1no. road sign 6no. chevron signs Vegetation to be trimmed 	<ul style="list-style-type: none"> None 	<ul style="list-style-type: none"> None anticipated
16	S-bend in A87 west of Eas-Nan-Arm Bridge	57.165442	-5.337151	<ul style="list-style-type: none"> 6no. chevron signs 	<ul style="list-style-type: none"> None 	<ul style="list-style-type: none"> None anticipated
17	Right-hand bend in A87 at 5 Sisters of Kintail Trailhead	57.169677	-5.296317	<ul style="list-style-type: none"> 6no. chevron signs VRS may be affected 	<ul style="list-style-type: none"> None 	<ul style="list-style-type: none"> None anticipated
18	Right-hand bend in A87 south of 5 Sisters of Kintail Trailhead	57.167980	-5.287237	<ul style="list-style-type: none"> 8no. chevron signs 	<ul style="list-style-type: none"> None 	<ul style="list-style-type: none"> None anticipated
19	Bend in A87 adjacent to River Shiel at Lay-by	57.159396	-5.262795	<ul style="list-style-type: none"> 5no. chevron signs 	<ul style="list-style-type: none"> None 	<ul style="list-style-type: none"> None anticipated
20	Bend in A87 adjacent to River Shiel	57.156510	-5.255220	<ul style="list-style-type: none"> 4no. chevron signs 	<ul style="list-style-type: none"> None 	<ul style="list-style-type: none"> Yes – Oversail of potential third-party land. Land ownership checks required
21	S-bend in A87	57.154871	-5.245183	<ul style="list-style-type: none"> 2no. chevron signs 1no. parking sign 	<ul style="list-style-type: none"> None 	<ul style="list-style-type: none"> None anticipated
22	Bend in A87 at Cluanie Inn	57.156519	-5.181435	<ul style="list-style-type: none"> 10no. chevron signs 3no. bollards 1no. snow plough marker Short section of fencing Trees to be trimmed 	<ul style="list-style-type: none"> None 	<ul style="list-style-type: none"> Yes – Oversail of third-party land. Land ownership checks required
23	Lond S-bend in A87 at Lundie Car Park	57.144976	-5.069069	<ul style="list-style-type: none"> 6no. chevron signs 	<ul style="list-style-type: none"> None 	<ul style="list-style-type: none"> None anticipated
24	Right-hand turn at Moriston Bridge	57.146005	-4.958490	<ul style="list-style-type: none"> 2no. road signs 	<ul style="list-style-type: none"> Hardstanding area required with regrading of banked area 	<ul style="list-style-type: none"> Yes – Overrun of third-party land. Land ownership checks required
25	Right-hand bend in A87 south of Moriston Bridge	57.141516	-4.952034	<ul style="list-style-type: none"> 4no. chevron signs 1no. parking sign 	<ul style="list-style-type: none"> None 	<ul style="list-style-type: none"> None anticipated
26	Right-hand bend in A87 north of River Loyne Bridge	57.134737	-4.955411	<ul style="list-style-type: none"> None 	<ul style="list-style-type: none"> None 	<ul style="list-style-type: none"> Yes – Oversail of potential third-party land. Land ownership checks required
27	Left-hand bend in A87 south of River Loyne Bridge	57.132417	-4.958060	<ul style="list-style-type: none"> 4no. chevron signs 	<ul style="list-style-type: none"> None 	<ul style="list-style-type: none"> None anticipated
28	Bend in A87 at Forestry Access	57.128246	-4.963347	<ul style="list-style-type: none"> None 	<ul style="list-style-type: none"> None 	<ul style="list-style-type: none"> None anticipated
29	Right-hand bend in A87 north of Loyne Dam Access	57.125997	-4.965850	<ul style="list-style-type: none"> 2no. chevron signs 	<ul style="list-style-type: none"> None 	<ul style="list-style-type: none"> None anticipated
30	Left-hand bend in A87 south of Loyne Dam Access	57.124874	-4.969988	<ul style="list-style-type: none"> 2no. chevron signs 	<ul style="list-style-type: none"> None 	<ul style="list-style-type: none"> None anticipated

Table 5. Pinch Point Summary – Tower Delivery Vehicle

PP	LOCATION	LAT	LONG	STREET FURNITURE REMOVAL	TEMPORARY PAVING / GRADING WORKS	3RD PARTY LAND REQUIREMENTS
Assessed Route from Kyle Harbour						
01	Kyle Harbour and right-hand turn onto A87	57.281200	-5.709244	<ul style="list-style-type: none"> Several portable buildings 1no. shipping container Vegetation to be trimmed 	<ul style="list-style-type: none"> Use of existing overrun area at Fishery Pier / A87 junction 	<ul style="list-style-type: none"> None anticipated
Assessed Route from Corpach Harbour						
31	Right-hand turn onto A830 from Corpach Harbour	56.84312	-5.142458	<ul style="list-style-type: none"> 1no. lighting column Overhead transmission lines to be grounded and associated columns Several trees to be felled 	<ul style="list-style-type: none"> Temporary hardstanding required 	<ul style="list-style-type: none"> Yes – third party land required. Land ownership checks required.
32	Straight-ahead at Blar Mhor Roundabout	56.840375	-5.084436	<ul style="list-style-type: none"> 1no. roundabout chevron sign 	<ul style="list-style-type: none"> None 	<ul style="list-style-type: none"> None anticipated
33	Left-hand turn at Ben Nevis Distillery Roundabout	56.834697	-5.075632	<ul style="list-style-type: none"> 1no. lighting column 2no. roundabout chevron signs 2no. advertising boards 2no. road signs 4no. bollards 	<ul style="list-style-type: none"> Temporary hardstanding on roundabout island required Transition ramps may be required to enable vehicle to mount kerb 	<ul style="list-style-type: none"> Yes – Oversail of potential third-party land. Land ownership checks required
34	Tight right-hand bend in A82 at Spean Bridge	56.892841	-4.920326	<ul style="list-style-type: none"> 2no. road signs 1no. chevron sign Temporary removal of stone bridge parapets and fencing 	<ul style="list-style-type: none"> Transition ramps may be required to enable vehicle to mount kerb 	<ul style="list-style-type: none"> Yes – Oversail of third-party land. Land ownership checks required
35	Right-hand bend in A82 at Laggan Locks	57.025374	-4.822804	<ul style="list-style-type: none"> None 	<ul style="list-style-type: none"> None 	<ul style="list-style-type: none"> None anticipated
36	Right-hand bend in A82 north of Laggan Locks	57.036867	-4.812140	<ul style="list-style-type: none"> None 	<ul style="list-style-type: none"> None 	<ul style="list-style-type: none"> None anticipated
37	Right-hand bend in A82 at Invergarry	57.069861	-4.792566	<ul style="list-style-type: none"> None 	<ul style="list-style-type: none"> None 	<ul style="list-style-type: none"> None anticipated
38	Left-hand bend in A82 at Fort Augustus	57.143908	-4.679952	<ul style="list-style-type: none"> None 	<ul style="list-style-type: none"> None 	<ul style="list-style-type: none"> None anticipated
39	Left-hand turn onto A887 at Invermoriston	57.214555	-4.617416	<ul style="list-style-type: none"> 1no. road sign 	<ul style="list-style-type: none"> Temporary hardstanding required 	<ul style="list-style-type: none"> Yes – Overrun of third-party land. Land ownership checks required.
40	Torgyle Bridge on A887	57.175900	-4.798735	<ul style="list-style-type: none"> None 	<ul style="list-style-type: none"> None 	<ul style="list-style-type: none"> None
24	Left-hand turn onto A87 at Moriston Bridge	57.146005	-4.958490	<ul style="list-style-type: none"> 1no. road sign 	<ul style="list-style-type: none"> Hardstanding area required with regrading of banked area 	<ul style="list-style-type: none"> Yes – Overrun of third-party land. Land ownership checks required

3. ASSESSMENT OUTCOMES AND CONCLUSIONS

3.1 Horizontal Feasibility

3.1.1 The abnormal load assessment has identified that the route from Kyle Harbour and Corpach Harbour to the site is technically feasible in terms of horizontal geometry, which is dependent upon third-party land agreements at many locations.

3.1.2 It is noted that this report has focussed on the horizontal alignment of the route. No vertical checks have been undertaken at this point, but no major impediments have been identified at this stage although further checks - particularly at the Torgyle Bridge - and a trial run will be required to check the vertical geometry at a later stage.

3.2 Blade Transport with Lifting System

3.2.1 In total upwards of 100 road signs will need to be temporarily removed as a result of the oversail of the blade component. One solution to mitigate this would be the use of a specialised blade carrying trailer with a lifting system, such as the Broshuis Holland 4-Axle Quatro. This trailer is shown in **Figure 21**, below.

Figure 21. Broshuis 4-Axle Quatro with Lifting and Sliding System



3.2.2 The lifting system enables the blade to be raised to over-sail obstacles and reduce the quantity of street furniture requiring removal. It also reduces the component's plan area. The tip of the blade can be raised to a height of 10m. As with Noteboom's Super Wing Carrier the trailer incorporates pendle axles which allow for a rear wheel steering angle of up to 60 degrees, which can be manually controlled for greater manoeuvrability.

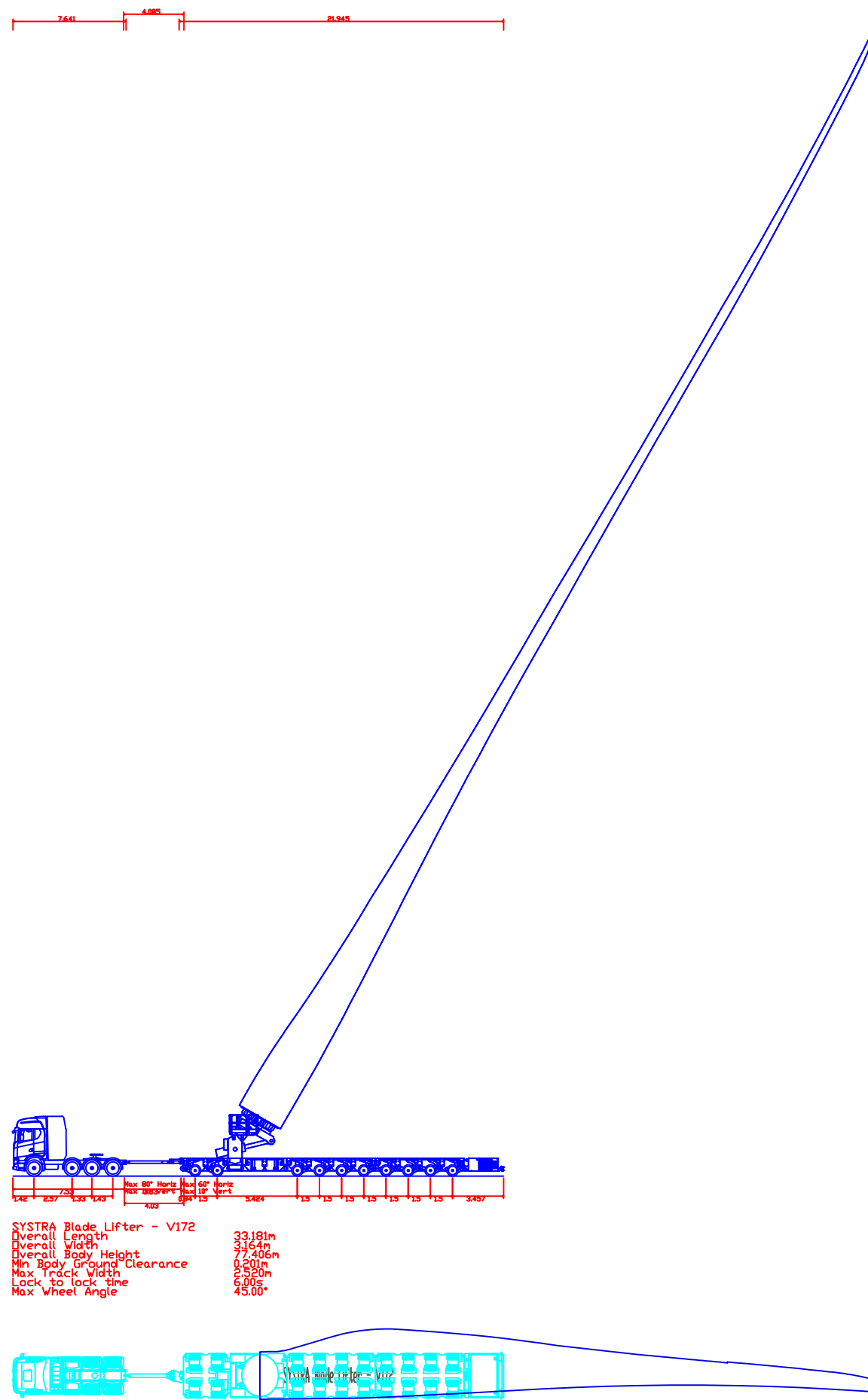
3.3 Summary

3.3.1 In the first instance, it is recommended that third-party land enquiries are made at the identified location. It is also recommended that further engagement is undertaken with Kyle Harbour and Corpach Harbour (BSW Timber), The Highland Council and Transport Scotland.

3.3.2 Additionally, the following points should also be considered:

- If the necessary mitigation measures are achievable then the route can be navigated by vehicles carrying wind turbine components to the proposed site subject to confirmation of structural checks;
- Police escort or Pilot car will be required to accompany abnormal loads in order to assist with traffic control and the control of oncoming traffic;
- It is recommended to have adequate warning signs implemented to warn other road users at critical points along the route;
- All hedges, shrubs, bushes, trees and overhanging branches along the nominated routes must be trimmed from within carriageway verges;
- Specific street furniture has been nominated in this report for removal to facilitate over-sailed and 'swept' areas;
- Full carriageway widths must be available along the entirety of the route. Measures to remove parked vehicles must therefore be in place;
- It is recommended that contact is made with The Highland Council structures team to identify any structures of concern along the delivery routes that would necessitate structural survey work;
- Measures to assist the vehicle negotiating the kerbed changes in level at footways, roundabouts, pedestrian refuges etc. will be required; and
- Steel road plates may be required at locations where the vehicle overruns utility boxes or footways.

**Appendix A – TDV Drawing and Swept Path
Assessment**



SYSTRA Blade Lifter - V172
 Overall Length 33.181m
 Overall Width 3.164m
 Overall Body Height 7.406m
 Min Body Ground Clearance 0.201m
 Max Track Width 6.520m
 Lock to lock time 6.00s
 Max Wheel Angle 45.00°

- Notes:**
1. Do not scale from drawing.
 2. All dimensions in metres unless otherwise stated.
 3. Please note that marked service locations are indicative only and should be confirmed by topographical survey.



- Key:**
- Blade Transporter Vehicle
 - Blade Outline

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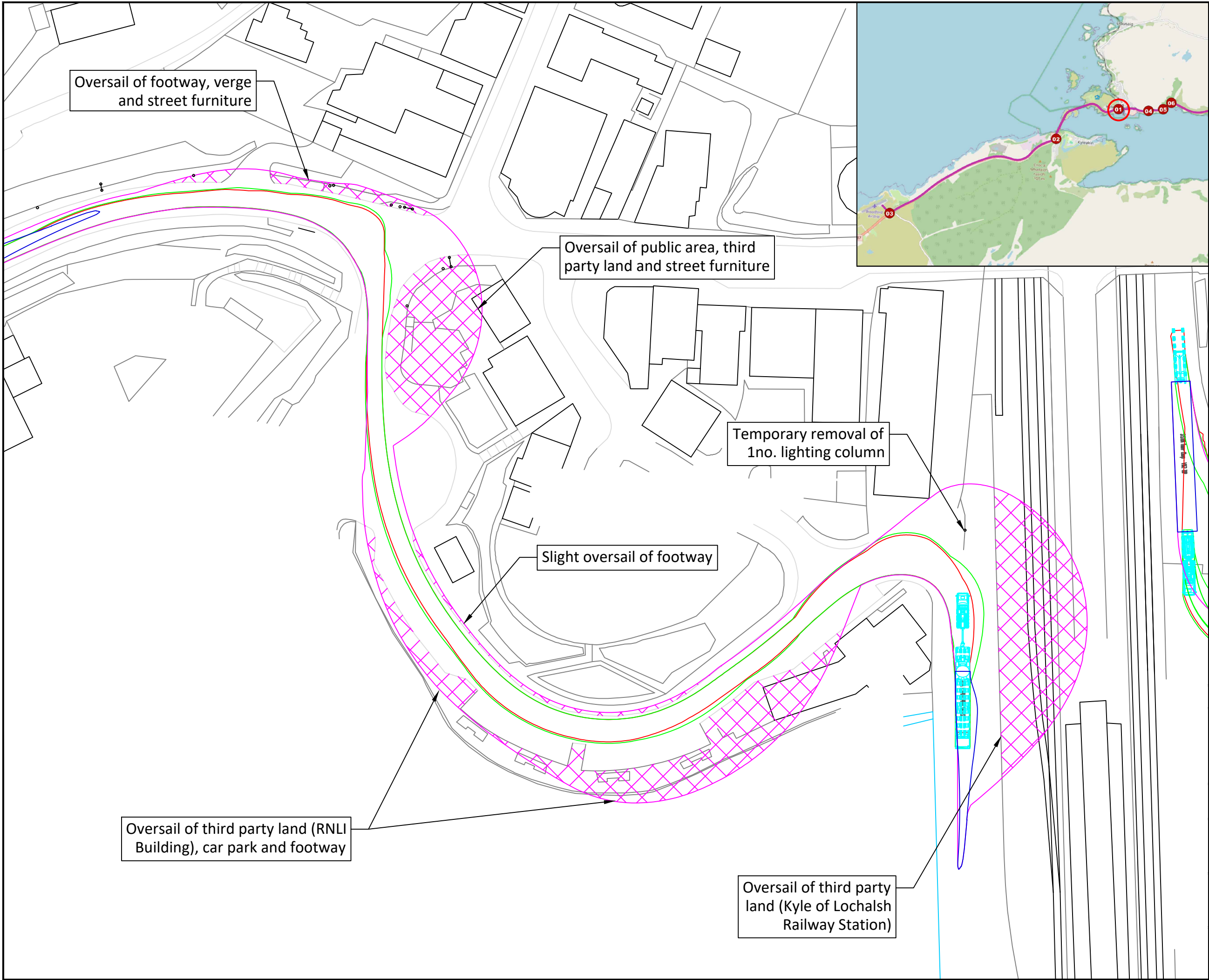
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 T 0131 460 1847
 E scotland@systra.co.uk

Client
 Beinneun 2 Ltd

Project
 Beinneun 2 Wind Farm
 Swept Path Assessment

Title
 Vestas V172 - 84.35m Blade - Blade Lifting Trailer
 Indicative Loading Configuration

Drawn	Checked	Approved
TF	ADV	ADV
Original dwg. size	Date	Scale
A3	01/08/2025	NTS
Drawing Status	Drawing Number	Rev.
Information	GB01T22186/XB16/VEH001	-



- Notes:
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 2. All dimensions in metres unless otherwise stated.
 3. Please note that marked service locations are indicative only and should be confirmed by topographical survey.



- Key:
- Blade Transporter Vehicle
 - Blade Outline
 - Over-run envelope of tractor and trailer wheels
 - Over-sail envelope being swept by tractor and trailer bed
 - Over-sail envelope being swept by blade path
 - Over-run area of tractor and trailer wheels out with carriageway
 - Over-sail area of tractor and trailer bed out with carriageway
 - Over-sail area of blade out with carriageway

Rev.	Date	Revision details	Drawn	Checked	Approved

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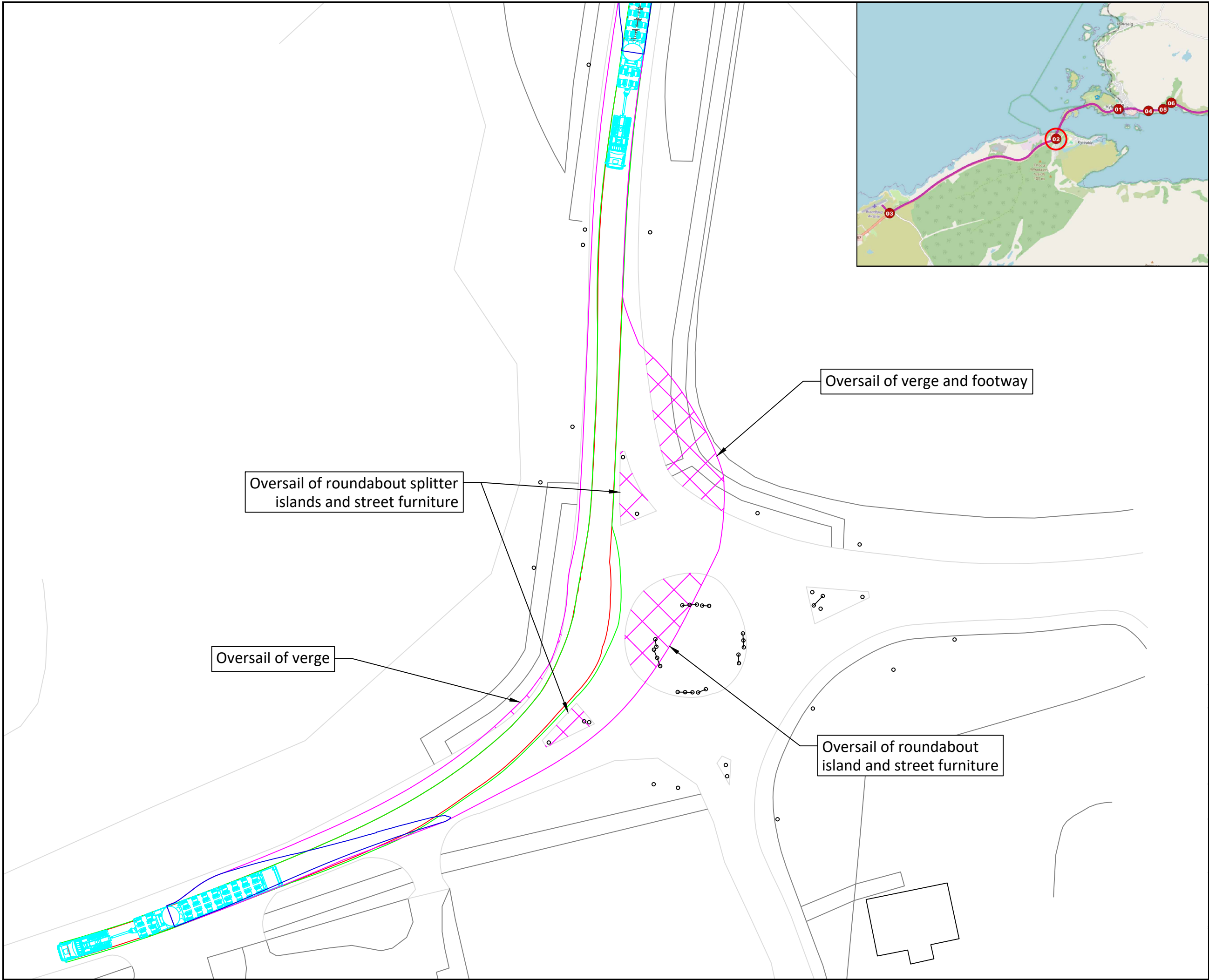
T 0131 469 1847
E scotland@systra.co.uk

Client
Beinneun 2 Ltd

Project
Beinneun 2 Wind Farm
Swept Path Assessment


Title
Vestas V172 - 84.35m Blade - Blade Lifting Trailer
Pinch Point 01
Manual Rear Steering Utilised

Drawn	Checked	Approved
TF	ADV	ADV
Original dwg. size A3	Date 01/08/2025	Scale 1:750
Drawing Status Information	Drawing Number GB01T22I86/XB16/SPA001	Rev. -



Notes:

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3. Please note that marked service locations are indicative only and should be confirmed by topographical survey.




Key:

- Blade Transporter Vehicle
- Blade Outline
- Over-run envelope of tractor and trailer wheels
- Over-sail envelope being swept by tractor and trailer bed
- Over-sail envelope being swept by blade path
- Over-run area of tractor and trailer wheels out with carriageway
- Over-sail area of tractor and trailer bed out with carriageway
- Over-sail area of blade out with carriageway

Rev.	Date	Revision details	Drawn	Checked	Approved

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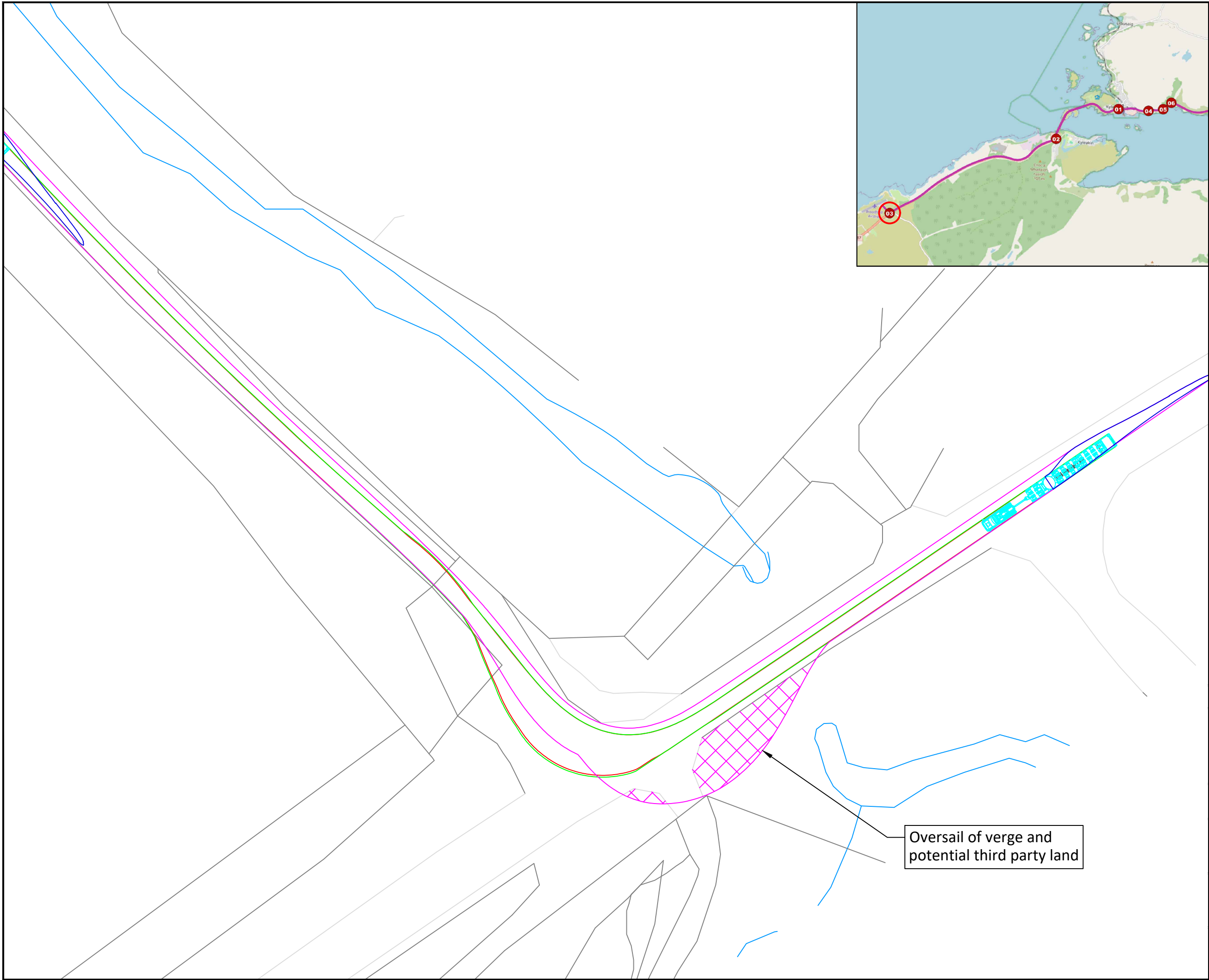
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Client: Beinneun 2 Ltd

Project: Beinneun 2 Wind Farm Swept Path Assessment

Title: Vestas V172 - 84.35m Blade - Blade Lifting Trailer Pinch Point 02 Manual Rear Steering Utilised

Drawn	Checked	Approved
TF	ADV	ADV
Original dwg. size	Date	Scale
A3	01/08/2025	1:500
Drawing Status	Drawing Number	Rev.
Information	GB01T22I86/XB16//SPA002	-



Notes:

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- All dimensions in metres unless otherwise stated.
- Please note that marked service locations are indicative only and should be confirmed by topographical survey.

Key:

- Blade Transporter Vehicle
- Blade Outline
- Over-run envelope of tractor and trailer wheels
- Over-sail envelope being swept by tractor and trailer bed
- Over-sail envelope being swept by blade path
- Over-run area of tractor and trailer wheels out with carriageway
- Over-sail area of tractor and trailer bed out with carriageway
- Over-sail area of blade out with carriageway

Rev.	Date	Revision details	Drawn	Checked	Approved

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Client
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Project
Beinneun 2 Wind Farm
Swept Path Assessment

Title
Vestas V172 - 84.35m Blade - Blade Lifting Trailer
Pinch Point 03

Drawn	Checked	Approved
TF	ADV	ADV

Original dwg. size	Date	Scale
A3	01/08/2025	1:750

Drawing Status	Drawing Number	Rev.
Information	GB01T22I86/XB16//SPA003	-

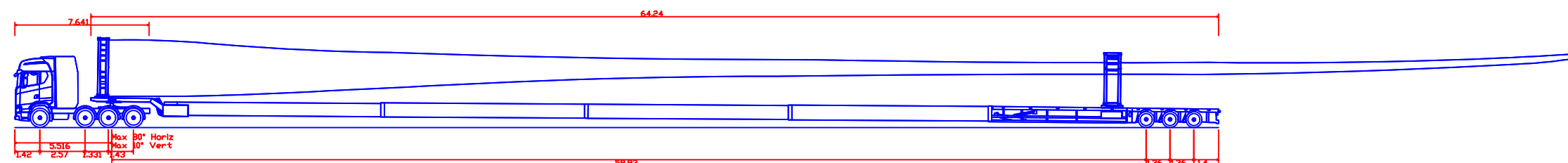
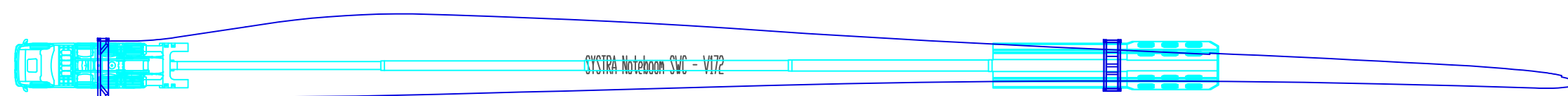
Notes:

1. Do not scale from drawing.
2. All dimensions in metres unless otherwise stated.
3. Please note that marked service locations are indicative only and should be confirmed by topographical survey.



Key:

- Blade Transporter Vehicle
- Blade Outline



SYSTRA Noteboom SWC - V172

Overall Length	68.566m
Overall Width	5.950m
Overall Body Height	5.123m
Min Body Ground Clearance	0.214m
Max Track Width	5.520m
Lock to lock time	6.00s
Max Wheel Angle	45.00°

Rev.	Date	Revision details	Drawn	Checked	Approved

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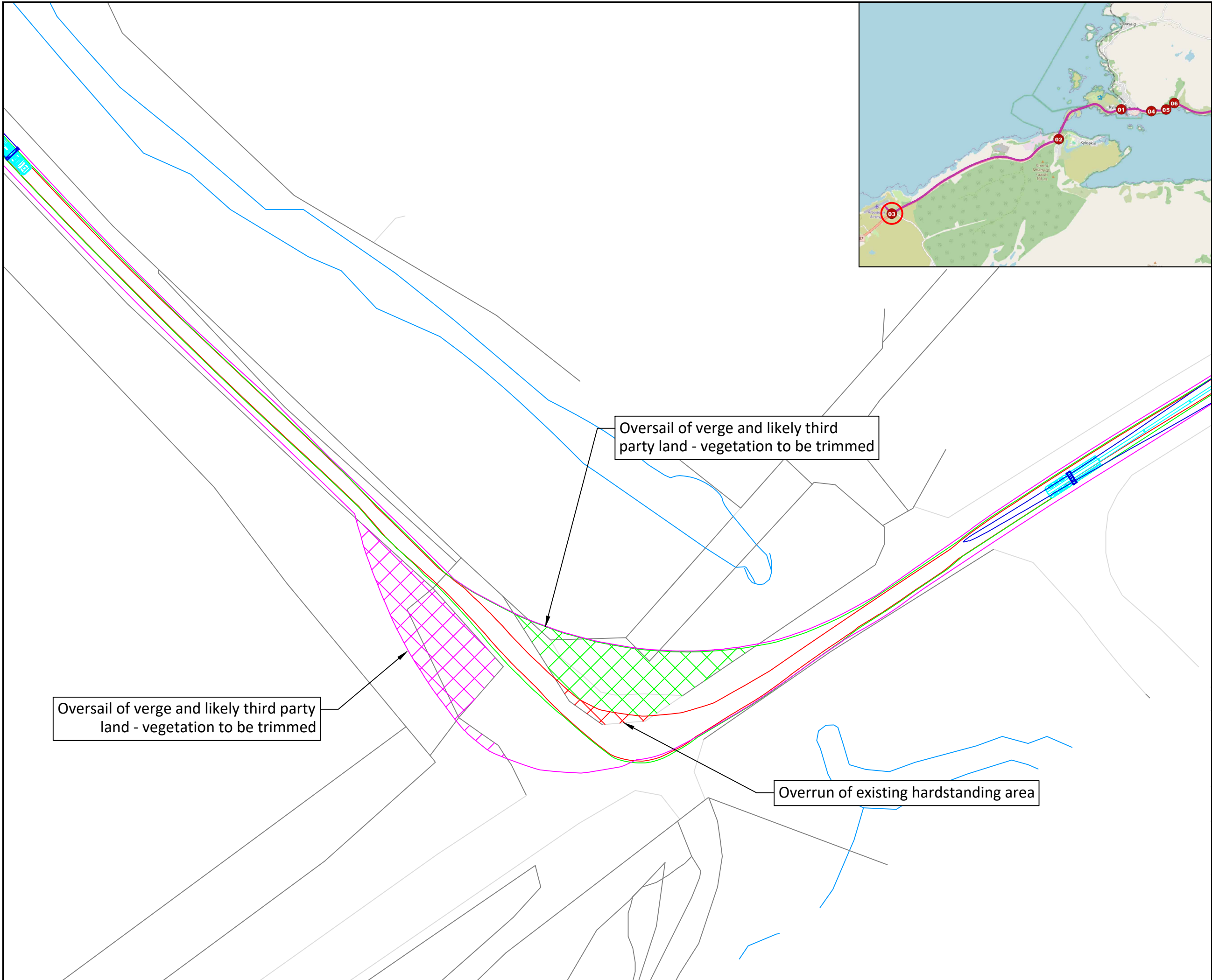
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Client
Beinneun 2 Ltd

Project
Beinneun 2 Wind Farm
Swept Path Assessment

Title
Vestas V172 - 84.35m Blade - Super Wing Carrier
Indicative Loading Configuration

Drawn TF	Checked ADV	Approved ADV
Original dwg. size A3	Date 01/08/2025	Scale NTS
Drawing Status Information	Drawing Number GB01T22I86/XB16/VEH002	Rev. -



Notes:

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3. Please note that marked service locations are indicative only and should be confirmed by topographical survey.

Key:

- Blade Transporter Vehicle
- Blade Outline
- Over-run envelope of tractor and trailer wheels
- Over-sail envelope being swept by tractor and trailer bed
- Over-sail envelope being swept by blade path
- Over-run area of tractor and trailer wheels out with carriageway
- Over-sail area of tractor and trailer bed out with carriageway
- Over-sail area of blade out with carriageway

Rev.	Date	Revision details	Drawn	Checked	Approved

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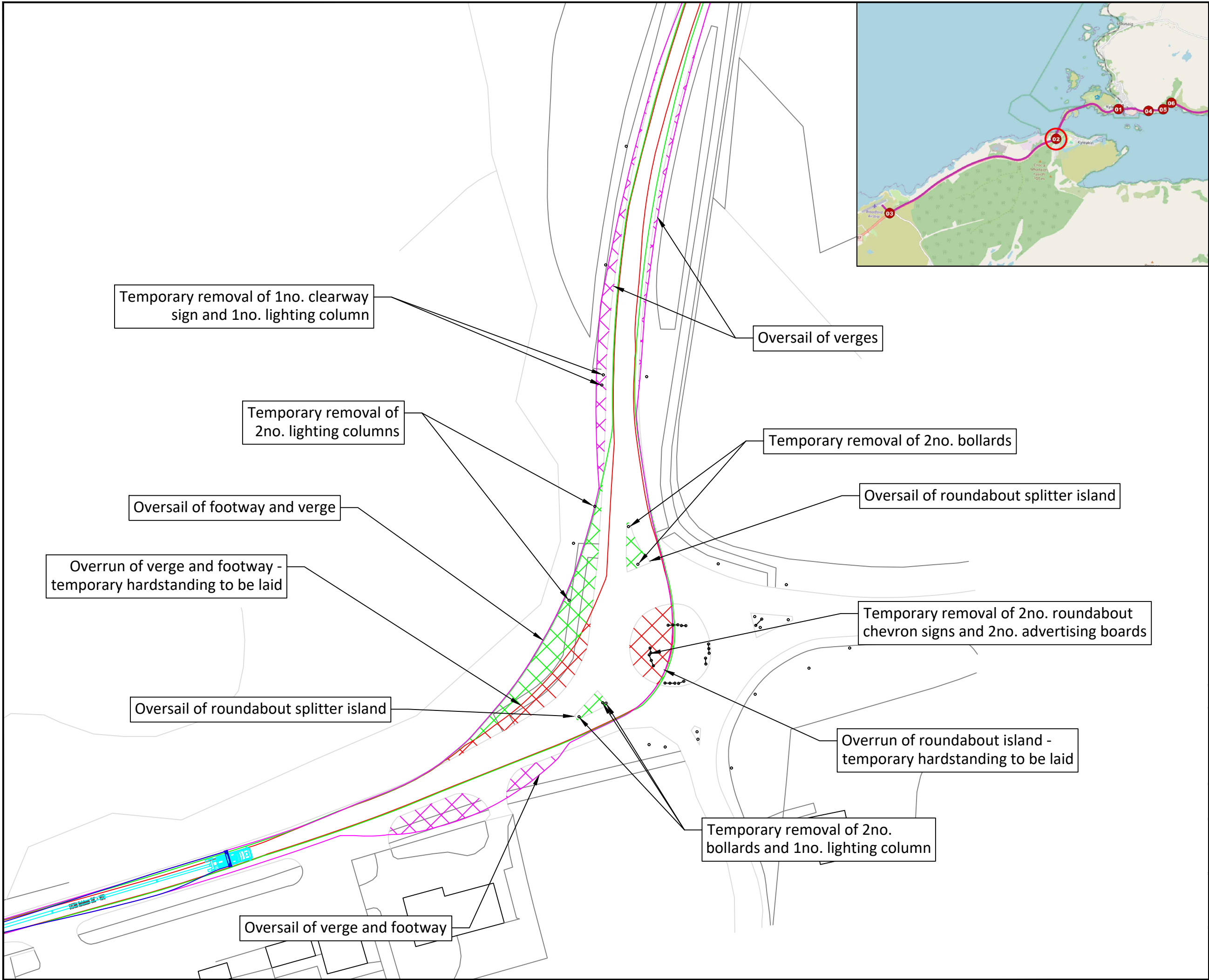
Project
Beinneun 2 Wind Farm
Swept Path Assessment

Title
Vestas V172 - 84.35m Blade - Super Wing Carrier
Pinch Point 03
Manual Rear Steering Utilised

Drawn	Checked	Approved
TF	ADV	ADV

Original dwg. size	Date	Scale
A3	01/08/2025	1:750

Drawing Status	Drawing Number	Rev.
Information	GB01T22I86/XB16//SPA004	-



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- Key:**
- Blade Transporter Vehicle
 - Blade Outline
 - Over-run envelope of tractor and trailer wheels
 - Over-sail envelope being swept by tractor and trailer bed
 - Over-sail envelope being swept by blade path
 - Over-run area of tractor and trailer wheels out with carriageway
 - Over-sail area of tractor and trailer bed out with carriageway
 - Over-sail area of blade out with carriageway

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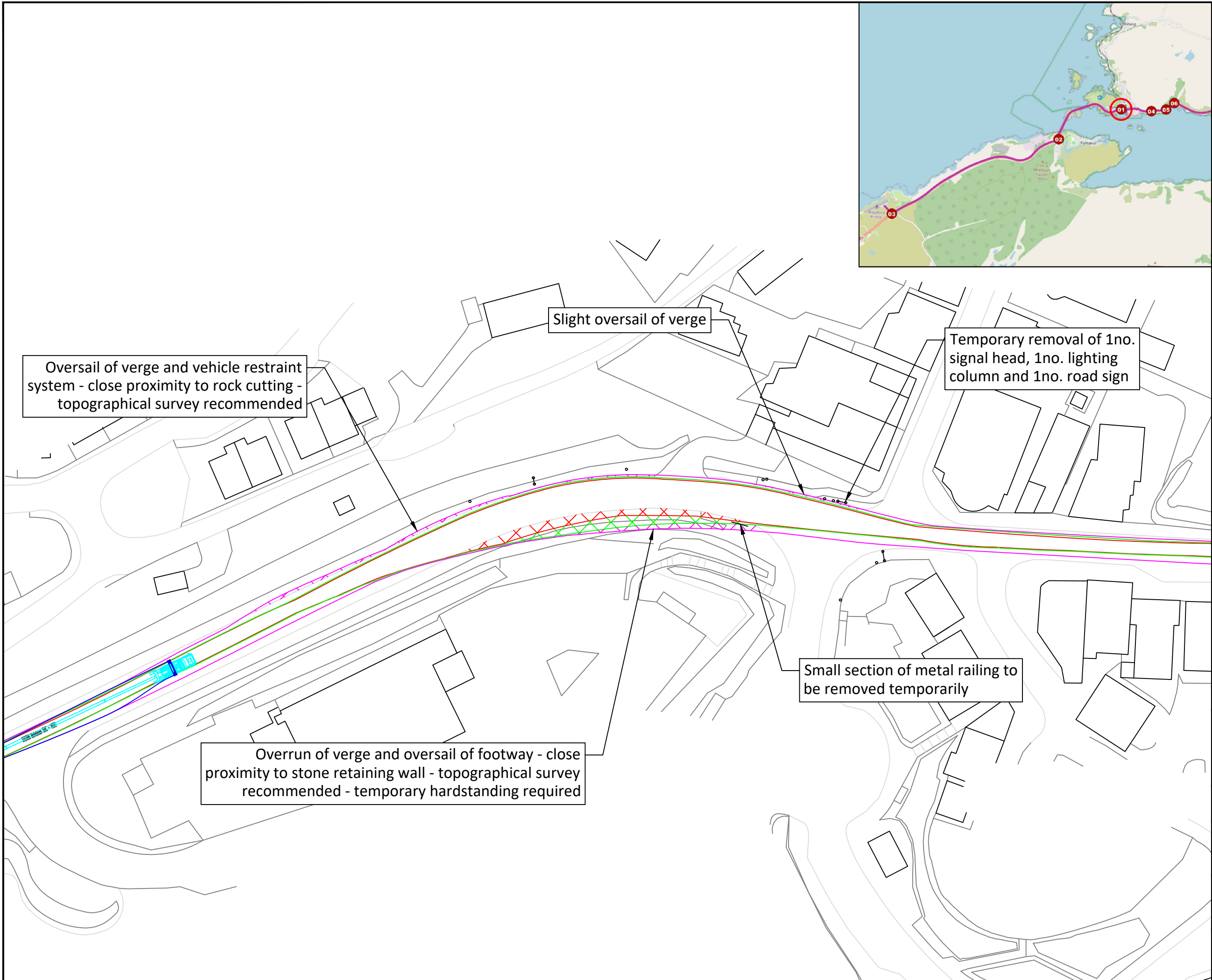
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E scotland@systra.co.uk

Client
Beinneun 2 Ltd

Project
Beinneun 2 Wind Farm
Swept Path Assessment

Title
Vestas V172 - 84.35m Blade - Super Wing Carrier
Pinch Point 02
Manual Rear Steering Utilised

Drawn	Checked	Approved
TF	ADV	ADV
Original dwg. size A3	Date 01/08/2025	Scale 1:750
Drawing Status Information	Drawing Number GB01T22I86/XB16//SPA005	Rev. -



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- Key:**
- Blade Transporter Vehicle
 - Blade Outline
 - Over-run envelope of tractor and trailer wheels
 - Over-sail envelope being swept by tractor and trailer bed
 - Over-sail envelope being swept by blade path
 - Over-run area of tractor and trailer wheels out with carriageway
 - Over-sail area of tractor and trailer bed out with carriageway
 - Over-sail area of blade out with carriageway

Oversail of verge and vehicle restraint system - close proximity to rock cutting - topographical survey recommended

Slight oversail of verge

Temporary removal of 1no. signal head, 1no. lighting column and 1no. road sign

Small section of metal railing to be removed temporarily

Overrun of verge and oversail of footway - close proximity to stone retaining wall - topographical survey recommended - temporary hardstanding required

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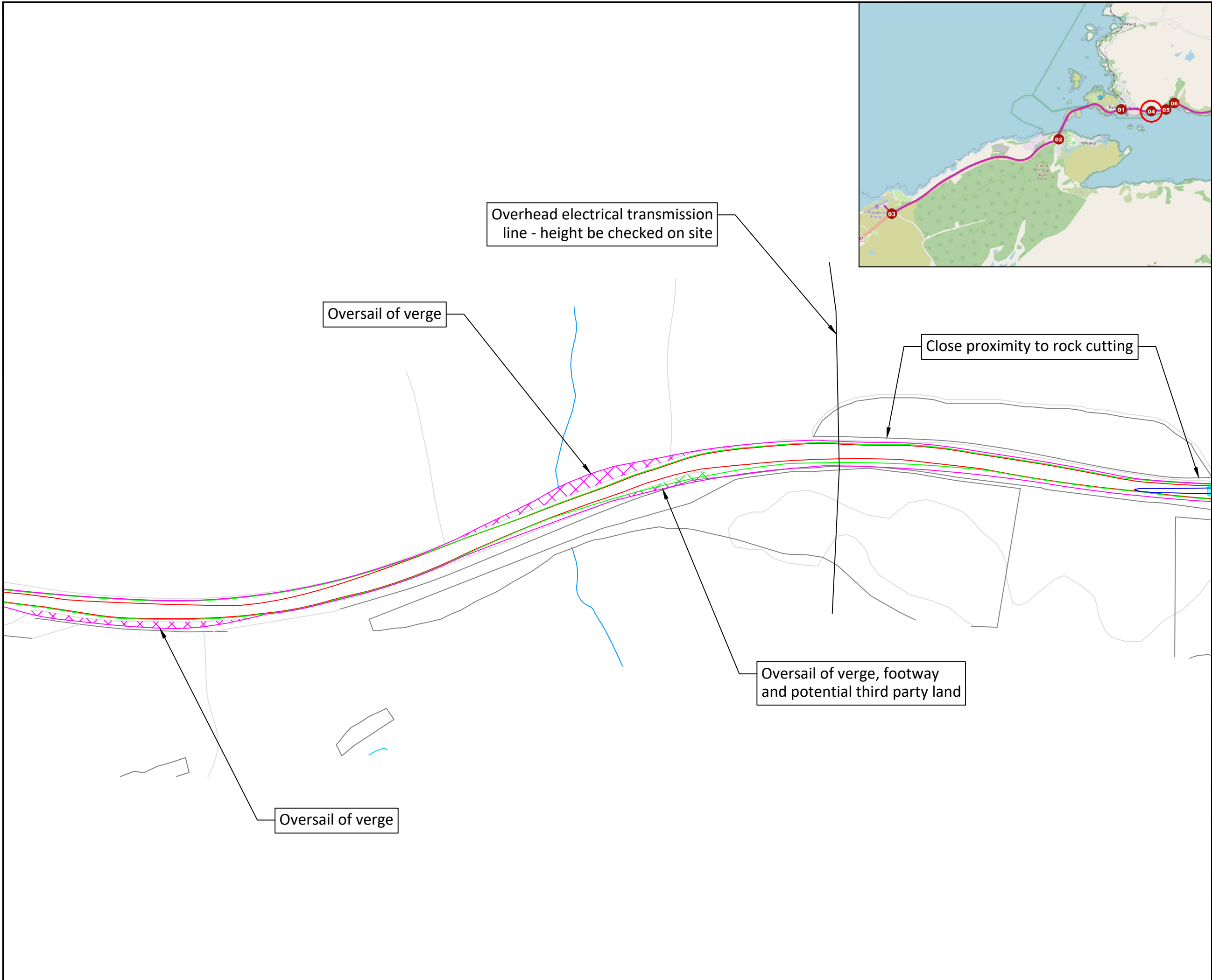
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Beinneun 2 Ltd

Project
Beinneun 2 Wind Farm
Swept Path Assessment

Title
Vestas V172 - 84.35m Blade - Super Wing Carrier
Pinch Point 01
Manual Rear Steering Utilised

Drawn	Checked	Approved
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Original dwg. size A3	Date 01/08/2025	Scale 1:750
Drawing Status Information	Drawing Number GB01T22186/XB16/SPA006	Rev. -



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- Key:**
- Blade Transporter Vehicle
 - Blade Outline
 - Over-run envelope of tractor and trailer wheels
 - Over-sail envelope being swept by tractor and trailer bed
 - Over-sail envelope being swept by blade path
 - Over-run area of tractor and trailer wheels out with carriageway
 - Over-sail area of tractor and trailer bed out with carriageway
 - Over-sail area of blade out with carriageway

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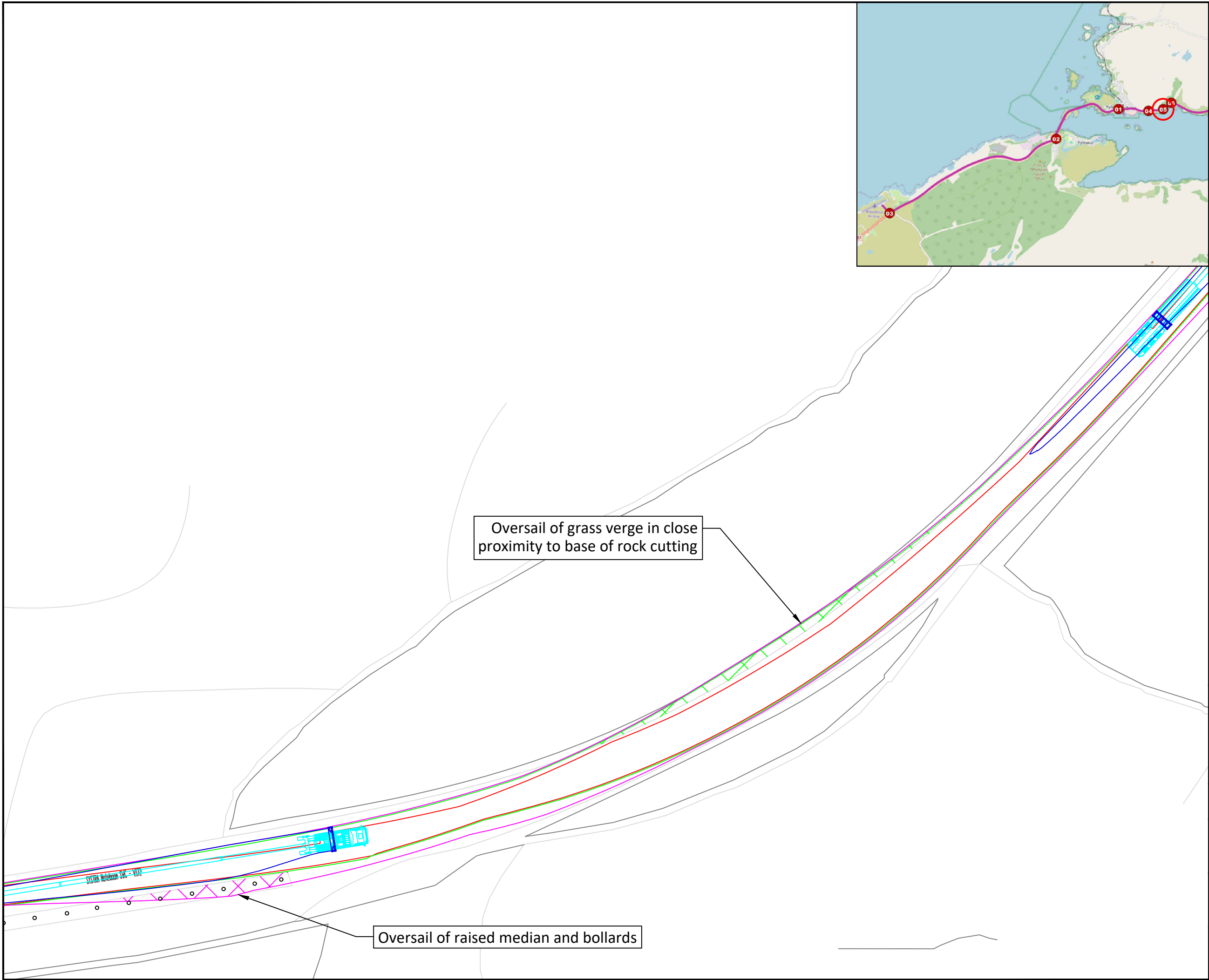
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Project
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Swept Path Assessment

Title
Vestas V172 - 84.35m Blade - Super Wing Carrier
Pinch Point 04
Manual Rear Steering Utilised

Drawn	Checked	Approved
TF	ADV	ADV
Original dwg. size A3	Date 01/08/2025	Scale 1:1000
Drawing Status Information	Drawing Number GB01T22I86/XB16//SPA007	Rev. -



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- Key:**
- Blade Transporter Vehicle
 - Blade Outline
 - Over-run envelope of tractor and trailer wheels
 - Over-sail envelope being swept by tractor and trailer bed
 - Over-sail envelope being swept by blade path
 - Over-run area of tractor and trailer wheels out with carriageway
 - Over-sail area of tractor and trailer bed out with carriageway
 - Over-sail area of blade out with carriageway

Oversail of grass verge in close proximity to base of rock cutting

Oversail of raised median and bollards

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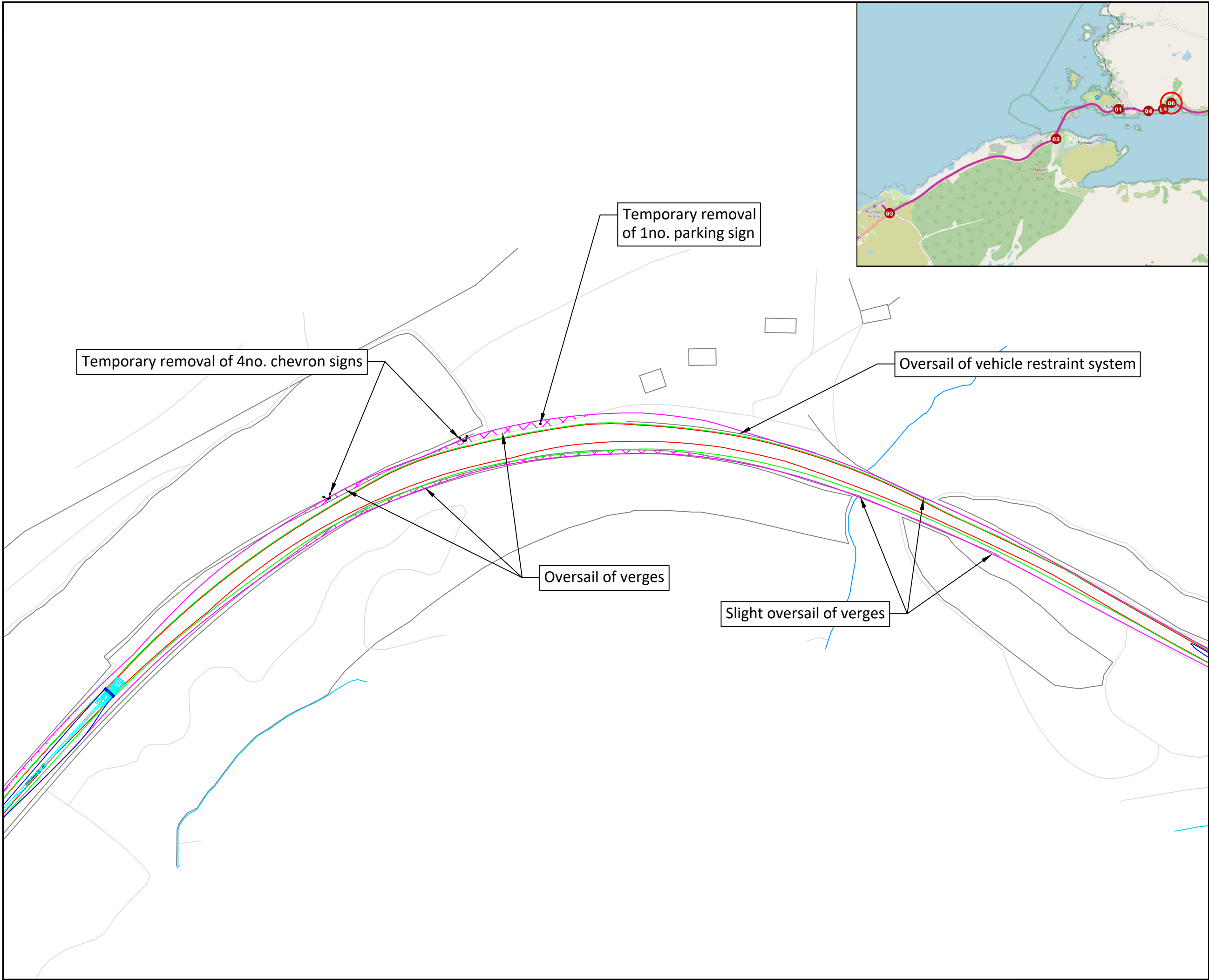
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Client
Beinneun 2 Ltd

Project
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Swept Path Assessment

Title
Vestas V172 - 84.35m Blade - Super Wing Carrier
Pinch Point 05
Manual Rear Steering Utilised

Drawn	Checked	Approved
TF	ADV	ADV
Original dwg. size A3	Date 01/08/2025	Scale 1:500
Drawing Status Information	Drawing Number GB01T22I86/XB16//SPA008	Rev. -



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- Blade Transporter Vehicle
 - Blade Outline
 - Over-run envelope of tractor and trailer wheels
 - Over-sail envelope being swept by tractor and trailer bed
 - Over-sail envelope being swept by blade path
 - Over-run area of tractor and trailer wheels out with carriageway
 - Over-sail area of tractor and trailer bed out with carriageway
 - Over-sail area of blade out with carriageway

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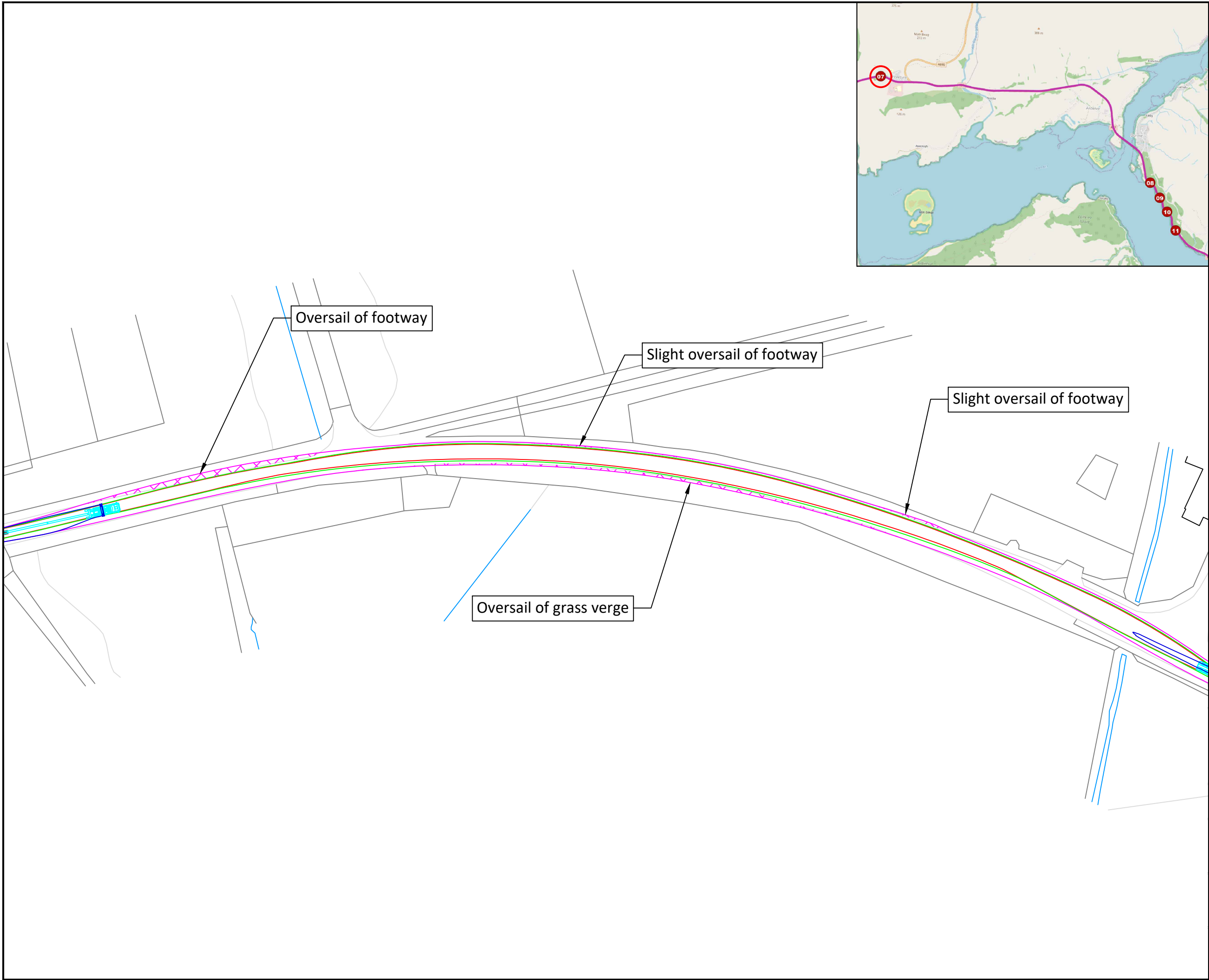
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Project
**Beinneun 2 Wind Farm
Swept Path Assessment**

Title
**Vestas V172 - 84.35m Blade - Super Wing Carrier
Pinch Point 06
Manual Rear Steering Utilised**

Drawn	Checked	Approved
TF	ADV	ADV
Original dwg. size A3	Date 01/08/2025	Scale 1:1000
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- Key:**
- Blade Transporter Vehicle
 - Blade Outline
 - Over-run envelope of tractor and trailer wheels
 - Over-sail envelope being swept by tractor and trailer bed
 - Over-sail envelope being swept by blade path
 - Over-run area of tractor and trailer wheels out with carriageway
 - Over-sail area of tractor and trailer bed out with carriageway
 - Over-sail area of blade out with carriageway

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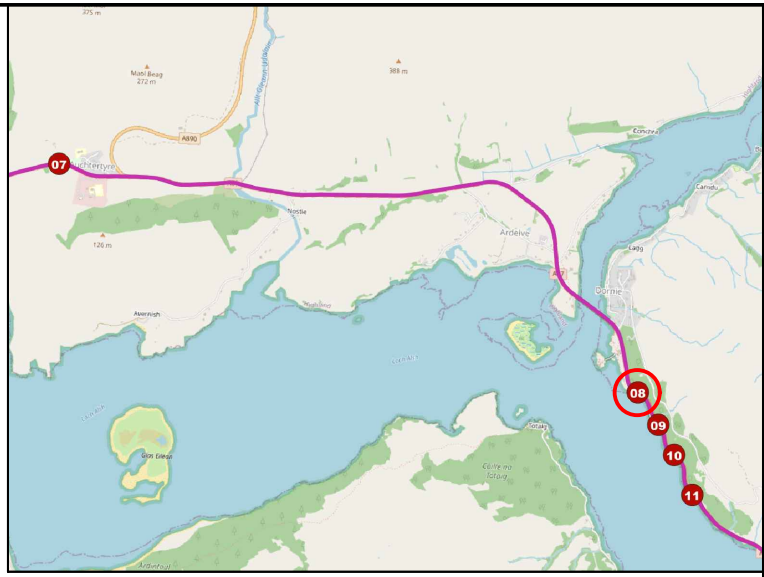
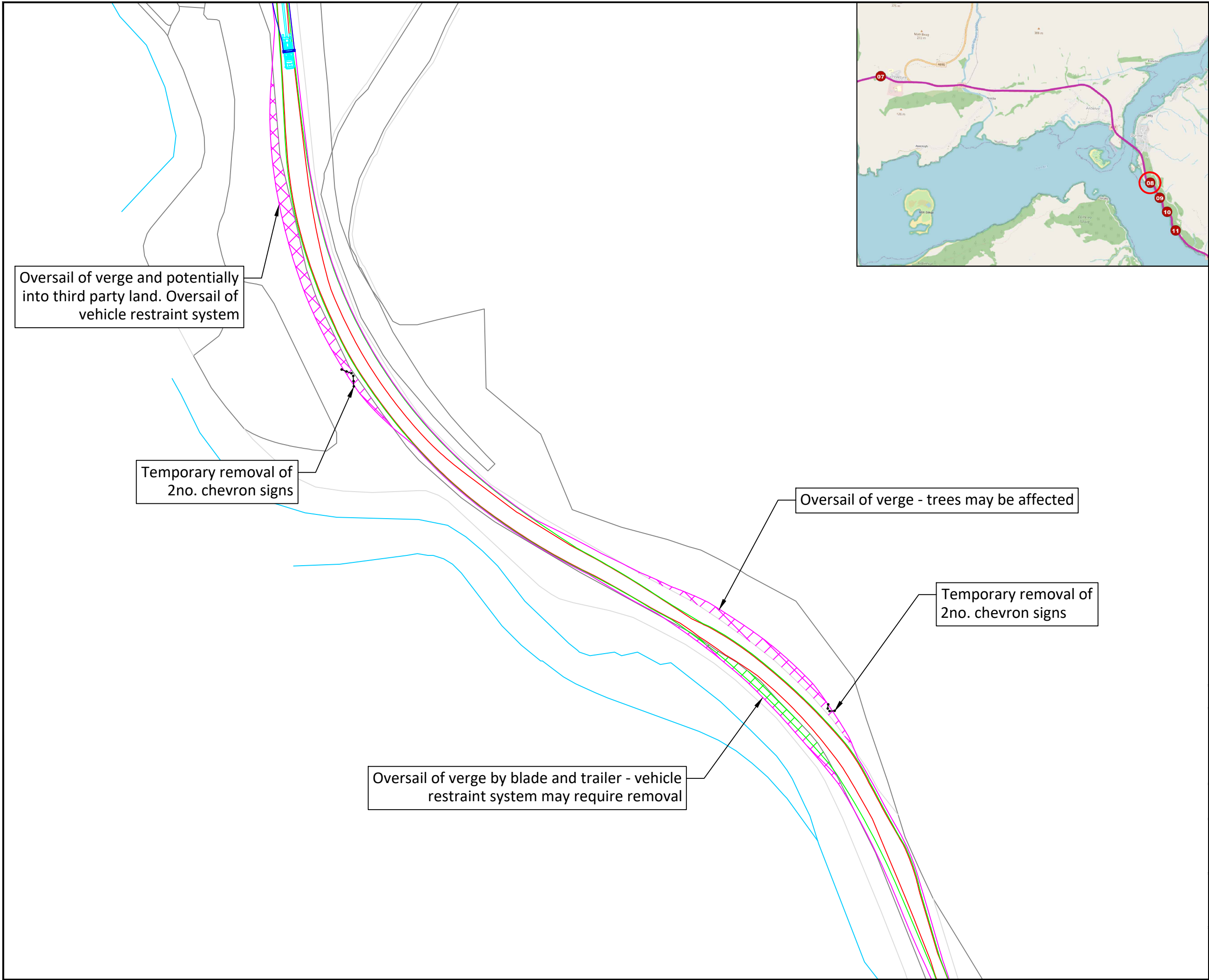
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Client
Beinneun 2 Ltd

Project
**Beinneun 2 Wind Farm
Swept Path Assessment**

Title
**Vestas V172 - 84.35m Blade - Super Wing Carrier
Pinch Point 07
Manual Rear Steering Utilised**

Drawn TF	Checked ADV	Approved ADV
Original dwg. size A3	Date 01/08/2025	Scale 1:1000
Drawing Status Information	Drawing Number GB01T22I86/XB16//SPA010	Rev. -



Notes:

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2. All dimensions in metres unless otherwise stated.
3. Please note that marked service locations are indicative only and should be confirmed by topographical survey.

Key:

- Blade Transporter Vehicle
- Blade Outline
- Over-run envelope of tractor and trailer wheels
- Over-sail envelope being swept by tractor and trailer bed
- Over-sail envelope being swept by blade path
- Over-run area of tractor and trailer wheels out with carriageway
- Over-sail area of tractor and trailer bed out with carriageway
- Over-sail area of blade out with carriageway

Rev.	Date	Revision details	Drawn	Checked	Approved

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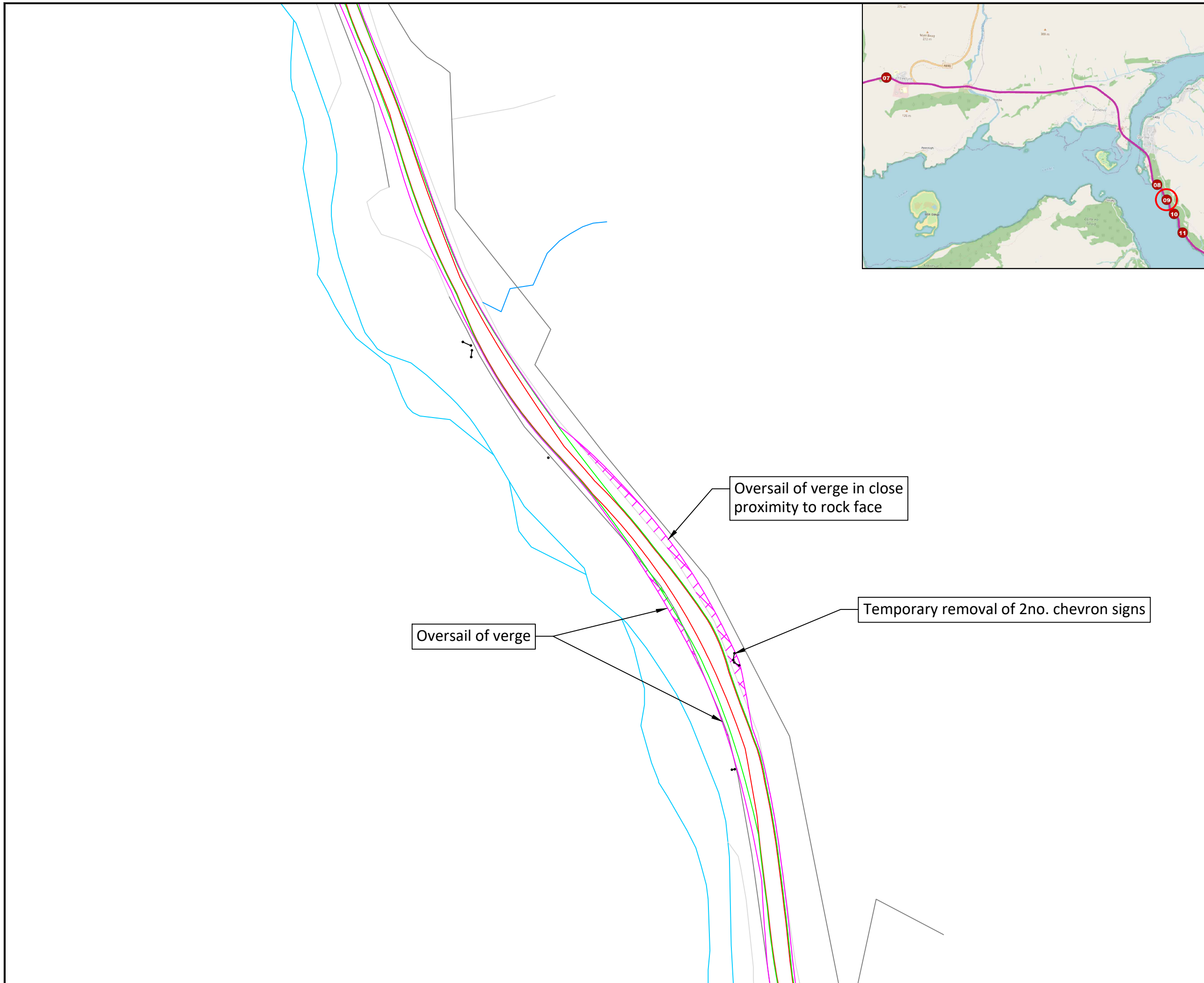
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Client: Beinneun 2 Ltd

Project: Beinneun 2 Wind Farm Swept Path Assessment

Title: Vestas V172 - 84.35m Blade - Super Wing Carrier Pinch Point 08 Manual Rear Steering Utilised

Drawn: TF	Checked: ADV	Approved: ADV
Original dwg. size: A3	Date: 01/08/2025	Scale: 1:1000
Drawing Status: Information	Drawing Number: GB01T22I86/XB16//SPA011	Rev.: -



Notes:

1. Do not scale from drawing.
2. All dimensions in metres unless otherwise stated.
3. Please note that marked service locations are indicative only and should be confirmed by topographical survey.

Key:

- Blade Transporter Vehicle
- Blade Outline
- Over-run envelope of tractor and trailer wheels
- Over-sail envelope being swept by tractor and trailer bed
- Over-sail envelope being swept by blade path
- Over-run area of tractor and trailer wheels out with carriageway
- Over-sail area of tractor and trailer bed out with carriageway
- Over-sail area of blade out with carriageway

Rev.	Date	Revision details	Drawn	Checked	Approved

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Client: Beinneun 2 Ltd

Project: Beinneun 2 Wind Farm Swept Path Assessment

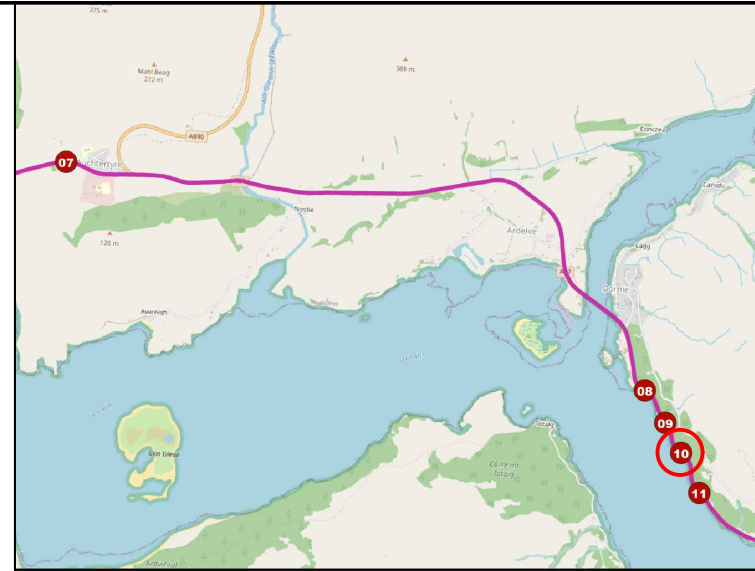
Title: Vestas V172 - 84.35m Blade - Super Wing Carrier Pinch Point 09 Manual Rear Steering Utilised

Drawn	Checked	Approved
TF	ADV	ADV

Original dwg. size	Date	Scale
A3	01/08/2025	1:1000

Drawing Status	Drawing Number	Rev.
Information	GB01T22I86/XB16//SPA012	-

Oversail of verge











Notes:

1. Do not scale from drawing.
2. All dimensions in metres unless otherwise stated.
3. Please note that marked service locations are indicative only and should be confirmed by topographical survey.



Key:

-  Blade Transporter Vehicle
-  Blade Outline
-  Over-run envelope of tractor and trailer wheels
-  Over-sail envelope being swept by tractor and trailer bed
-  Over-sail envelope being swept by blade path
-  Over-run area of tractor and trailer wheels out with carriageway
-  Over-sail area of tractor and trailer bed out with carriageway
-  Over-sail area of blade out with carriageway

Oversail of verge

Temporary removal of 4no. chevron signs

Oversail of verge and potential third party land - vehicle restraint system may require temporary removal

Rev.	Date	Revision details	Drawn	Checked	Approved

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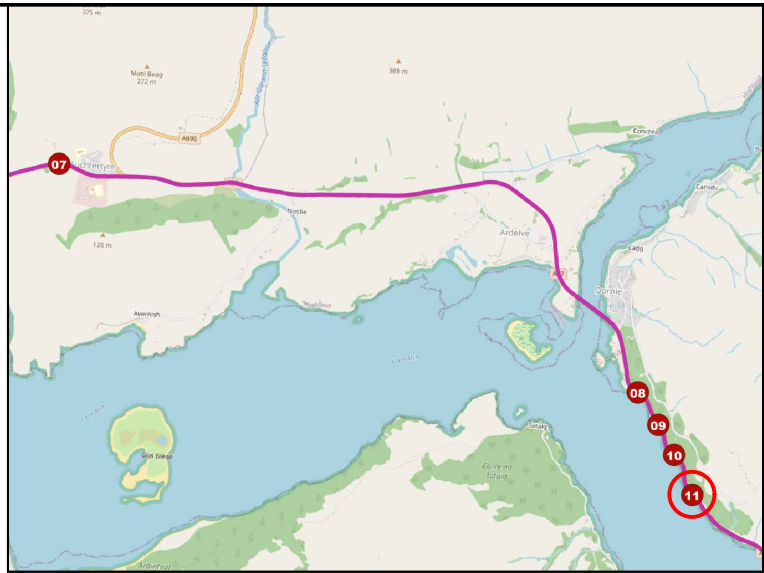
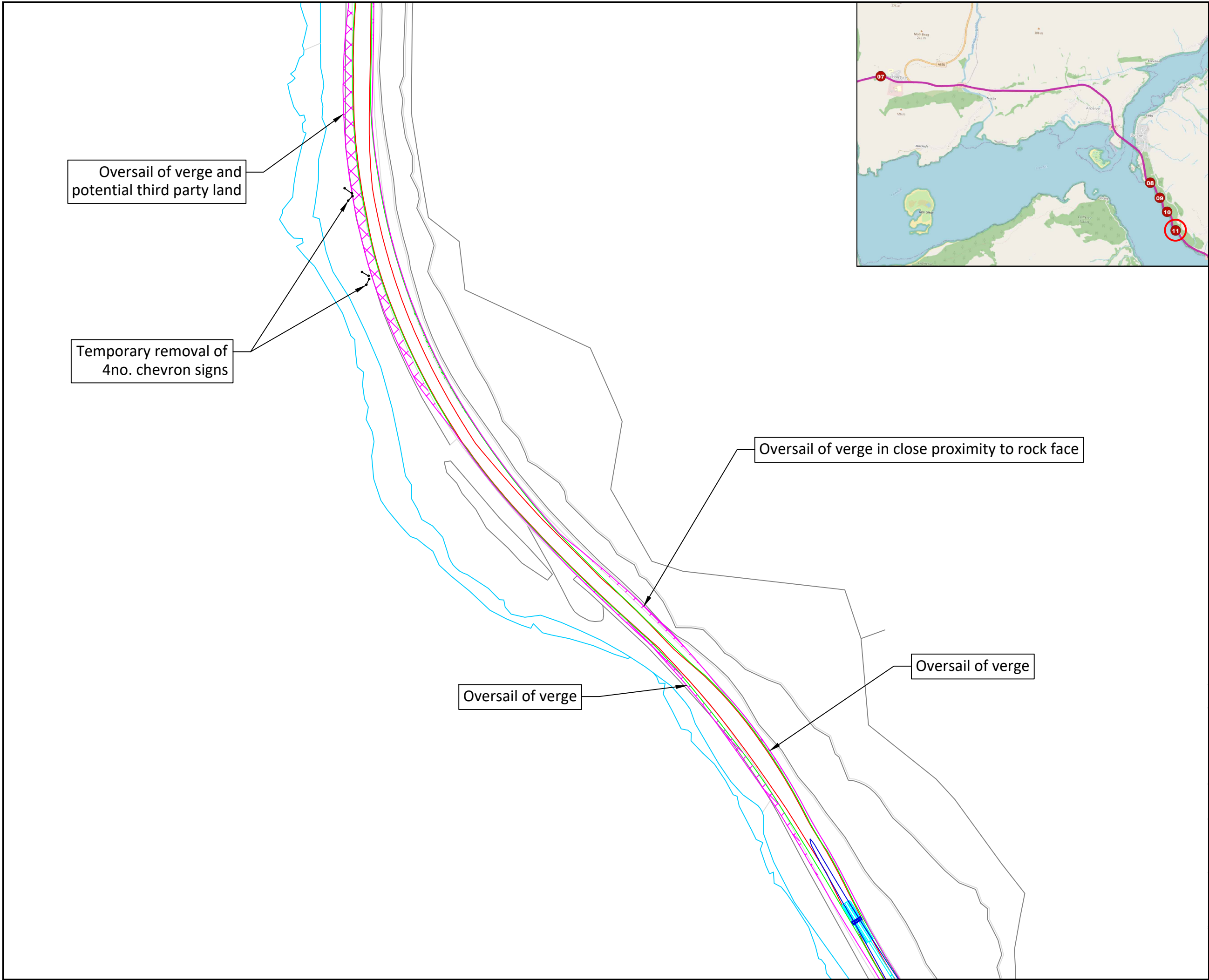
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E scotland@systra.co.uk

Client
Beinneun 2 Ltd

Project
Beinneun 2 Wind Farm
Swept Path Assessment

Title
Vestas V172 - 84.35m Blade - Super Wing Carrier
Pinch Point 10
Manual Rear Steering Utilised

Drawn	Checked	Approved
TF	ADV	ADV
Original dwg. size A3	Date 01/08/2025	Scale 1:1000
Drawing Status Information	Drawing Number GB01T22I86/XB16//SPA013	Rev. -



Notes:

- Do not scale from drawing.
- All dimensions in metres unless otherwise stated.
- Please note that marked service locations are indicative only and should be confirmed by topographical survey.

Key:

- Blade Transporter Vehicle
- Blade Outline
- Over-run envelope of tractor and trailer wheels
- Over-sail envelope being swept by tractor and trailer bed
- Over-sail envelope being swept by blade path
- Over-run area of tractor and trailer wheels out with carriageway
- Over-sail area of tractor and trailer bed out with carriageway
- Over-sail area of blade out with carriageway

Rev.	Date	Revision details	Drawn	Checked	Approved

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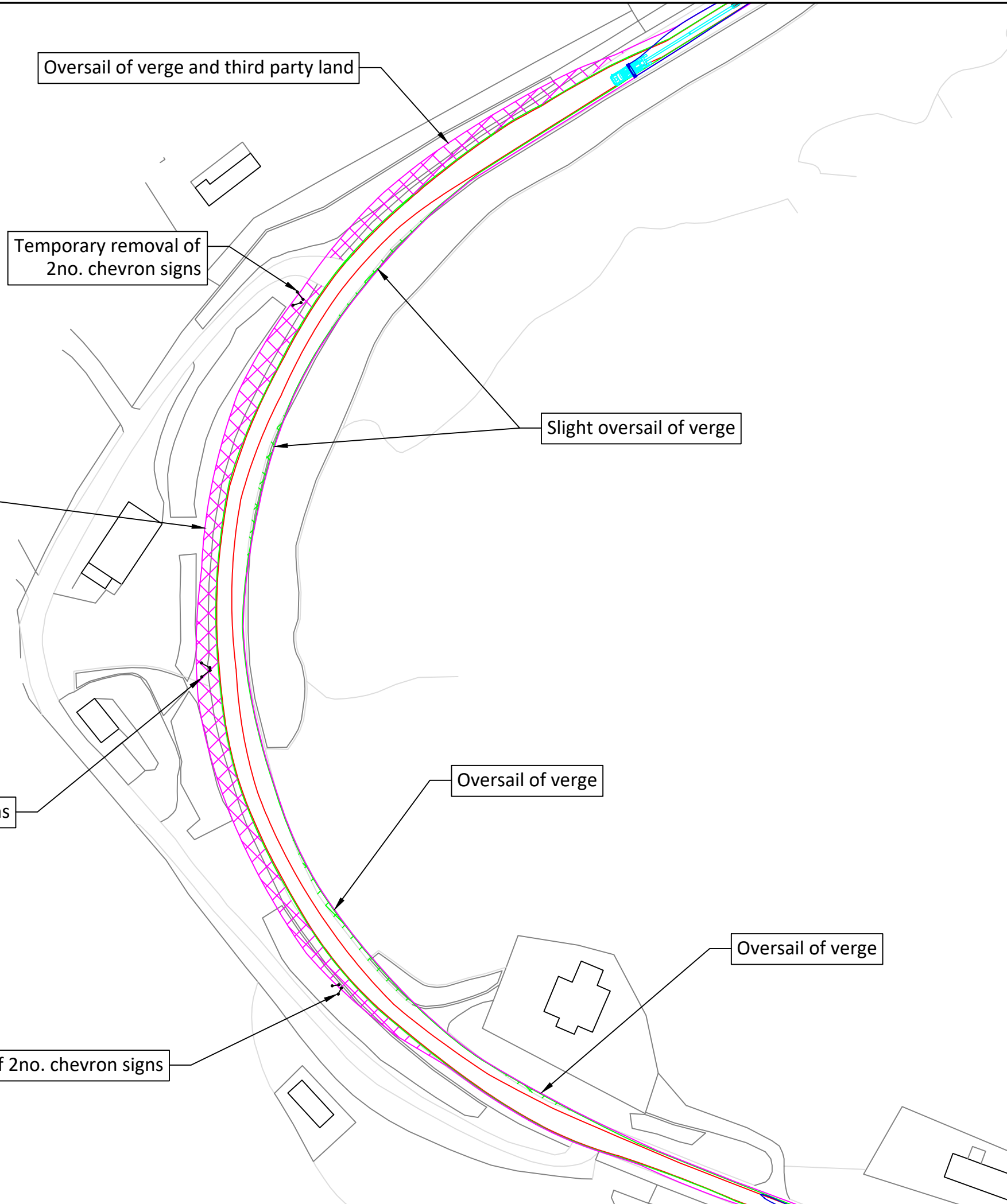
Project
Beinneun 2 Wind Farm
Swept Path Assessment

Title
Vestas V172 - 84.35m Blade - Super Wing Carrier
Pinch Point 11
Manual Rear Steering Utilised

Drawn	Checked	Approved
TF	ADV	ADV

Original dwg. size	Date	Scale
A3	01/08/2025	1:1000

Drawing Status	Drawing Number	Rev.
Information	GB01T22I86/XB16//SPA014	-



Notes:

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- Please note that marked service locations are indicative only and should be confirmed by topographical survey.

Key:

- Blade Transporter Vehicle
- Blade Outline
- Over-run envelope of tractor and trailer wheels
- Over-sail envelope being swept by tractor and trailer bed
- Over-sail envelope being swept by blade path
- Over-run area of tractor and trailer wheels out with carriageway
- Over-sail area of tractor and trailer bed out with carriageway
- Over-sail area of blade out with carriageway

Rev.	Date	Revision details	Drawn	Checked	Approved

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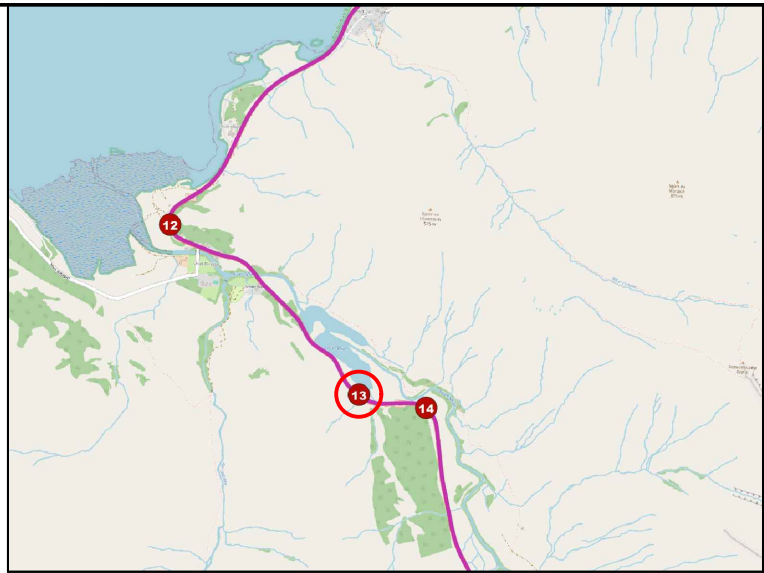
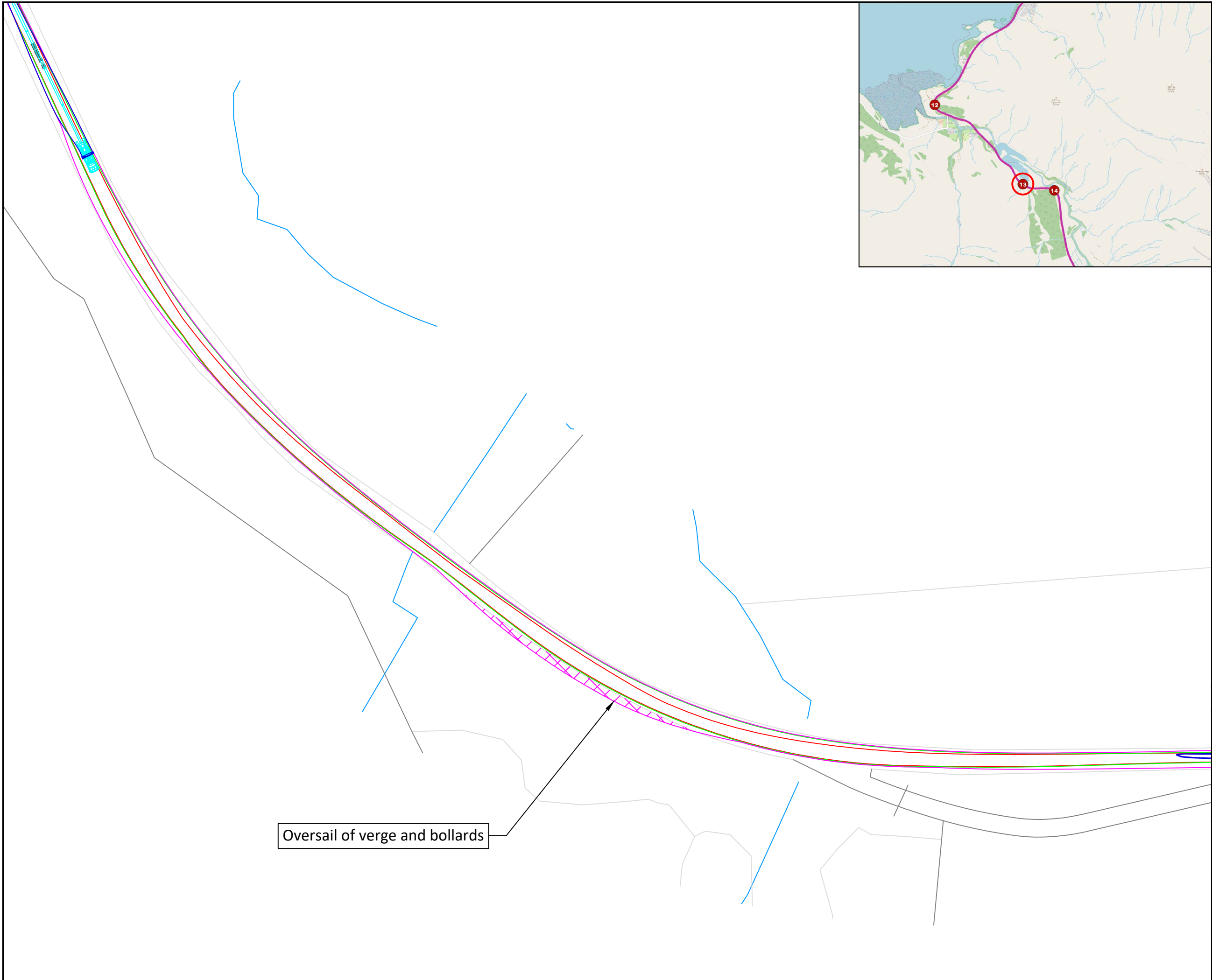
Project: Beinneun 2 Wind Farm Swept Path Assessment

Title: Vestas V172 - 84.35m Blade - Super Wing Carrier Pinch Point 12 Manual Rear Steering Utilised

Drawn	Checked	Approved
TF	ADV	ADV

Original dwg. size	Date	Scale
A3	01/08/2025	1:1000

Drawing Status	Drawing Number	Rev.
Information	GB01T22I86/XB16//SPA015	-



Notes:

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2. All dimensions in metres unless otherwise stated.
3. Please note that marked service locations are indicative only and should be confirmed by topographical survey.



Key:

- Blade Transporter Vehicle
- Blade Outline
- Over-run envelope of tractor and trailer wheels
- Over-sail envelope being swept by tractor and trailer bed
- Over-sail envelope being swept by blade path
- Over-run area of tractor and trailer wheels out with carriageway
- Over-sail area of tractor and trailer bed out with carriageway
- Over-sail area of blade out with carriageway

Rev.	Date	Revision details	Drawn	Checked	Approved

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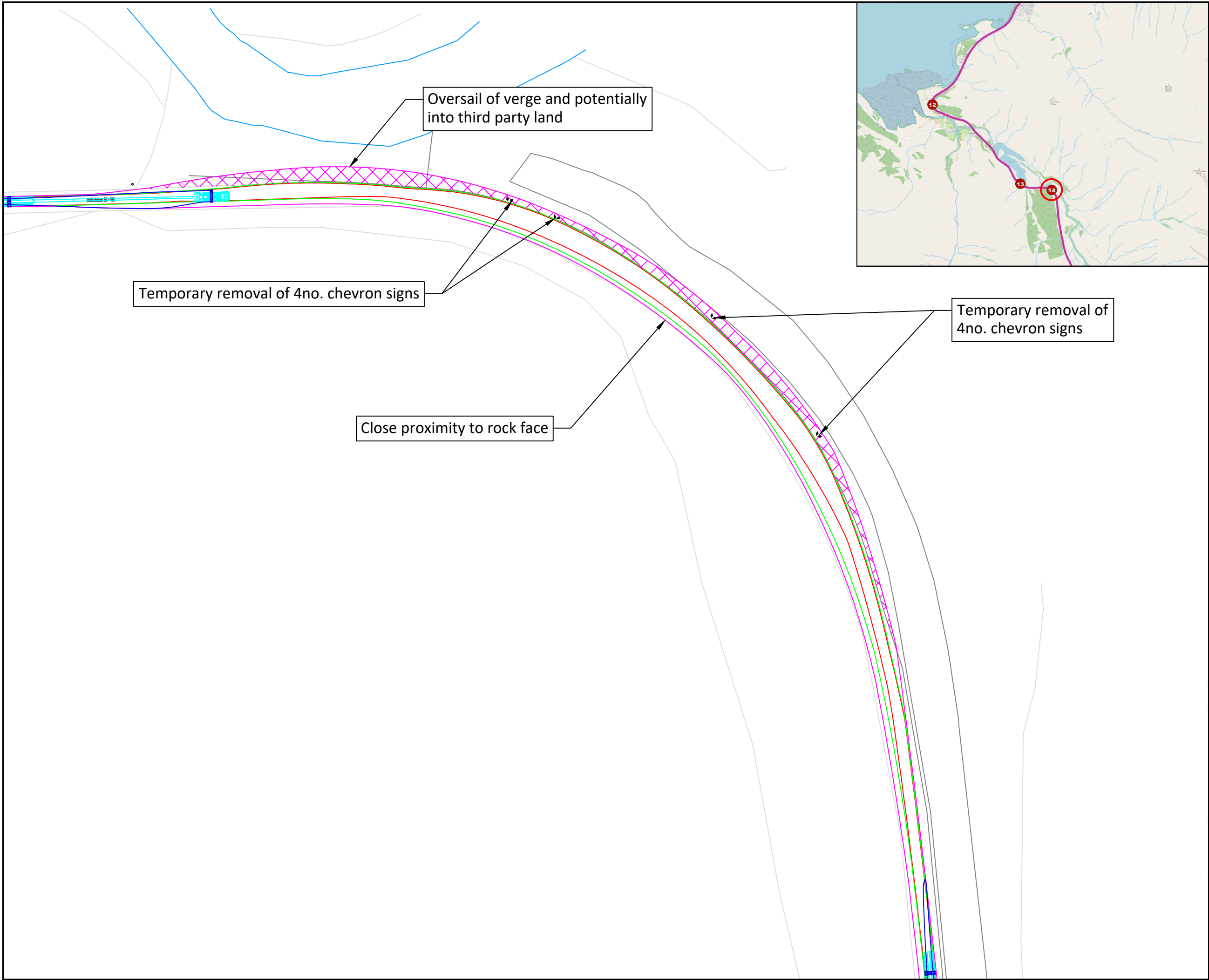
Client
Beinneun 2 Ltd

Project
Beinneun 2 Wind Farm
Swept Path Assessment

Title
Vestas V172 - 84.35m Blade - Super Wing Carrier
Pinch Point 13
Manual Rear Steering Utilised

Drawn	Checked	Approved
TF	ADV	ADV
Original dwg. size A3	Date 01/08/2025	Scale 1:1000
Drawing Status Information	Drawing Number GB01T22I86/XB16//SPA016	Rev. -

Oversail of verge and bollards



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 3. Please note that marked service locations are indicative only and should be confirmed by topographical survey.



- Key:**
- Blade Transporter Vehicle
 - Blade Outline
 - Over-run envelope of tractor and trailer wheels
 - Over-sail envelope being swept by tractor and trailer bed
 - Over-sail envelope being swept by blade path
 - ▨ Over-run area of tractor and trailer wheels out with carriageway
 - ▨ Over-sail area of tractor and trailer bed out with carriageway
 - ▨ Over-sail area of blade out with carriageway

Rev.	Date	Revision details	Drawn	Checked	Approved

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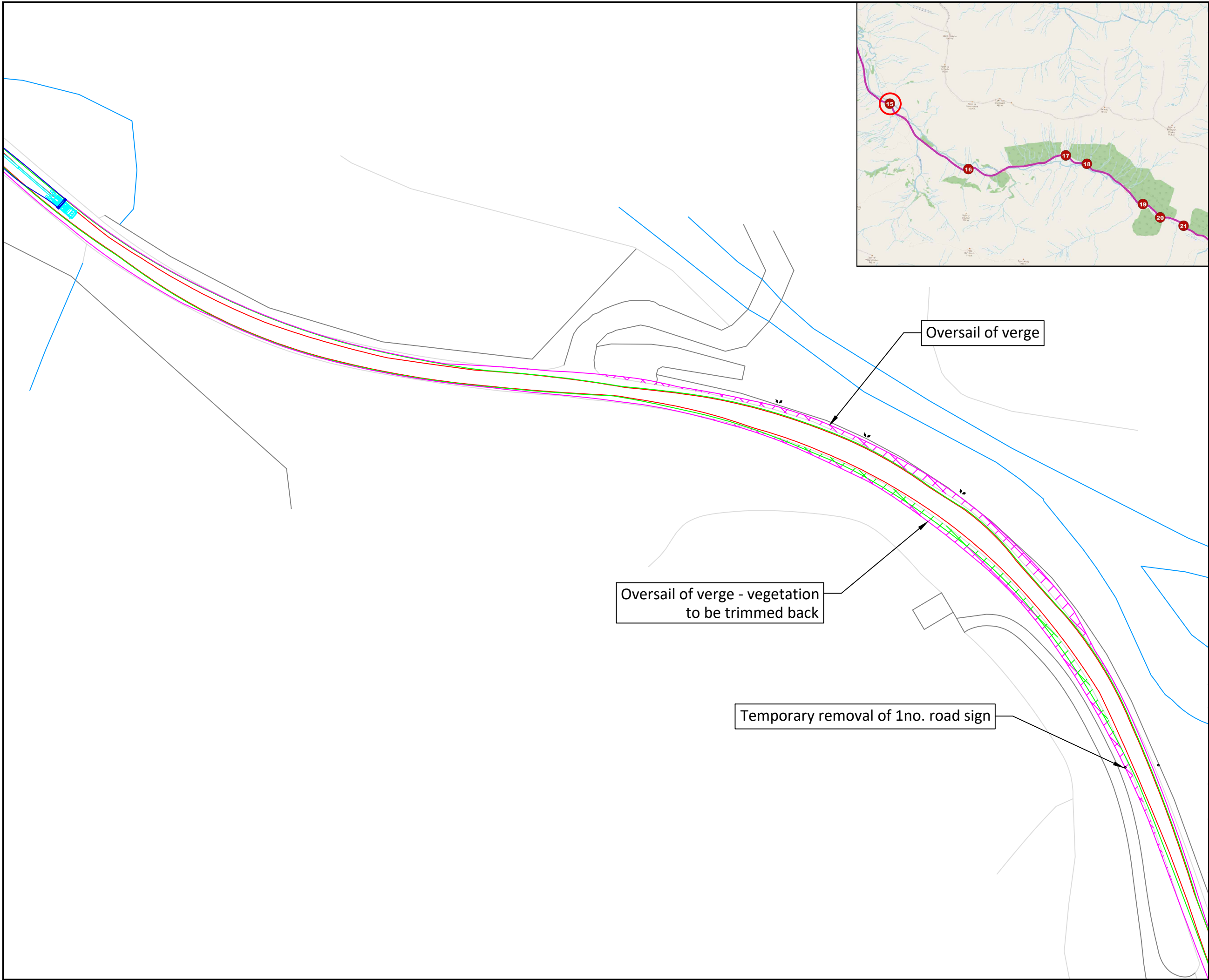
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E scotland@systra.co.uk

Client
Beinneun 2 Ltd

Project
Beinneun 2 Wind Farm
Swept Path Assessment

Title
Vestas V172 - 84.35m Blade - Super Wing Carrier
Pinch Point 14
Manual Rear Steering Utilised

Drawn	Checked	Approved
TF	ADV	ADV
Original dwg. size A3	Date 01/08/2025	Scale 1:1000
Drawing Status Information	Drawing Number GB01T22I86/XB16//SPA017	Rev. -



Notes:

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3. Please note that marked service locations are indicative only and should be confirmed by topographical survey.

Key:

- Blade Transporter Vehicle
- Blade Outline
- Over-run envelope of tractor and trailer wheels
- Over-sail envelope being swept by tractor and trailer bed
- Over-sail envelope being swept by blade path
- Over-run area of tractor and trailer wheels out with carriageway
- Over-sail area of tractor and trailer bed out with carriageway
- Over-sail area of blade out with carriageway

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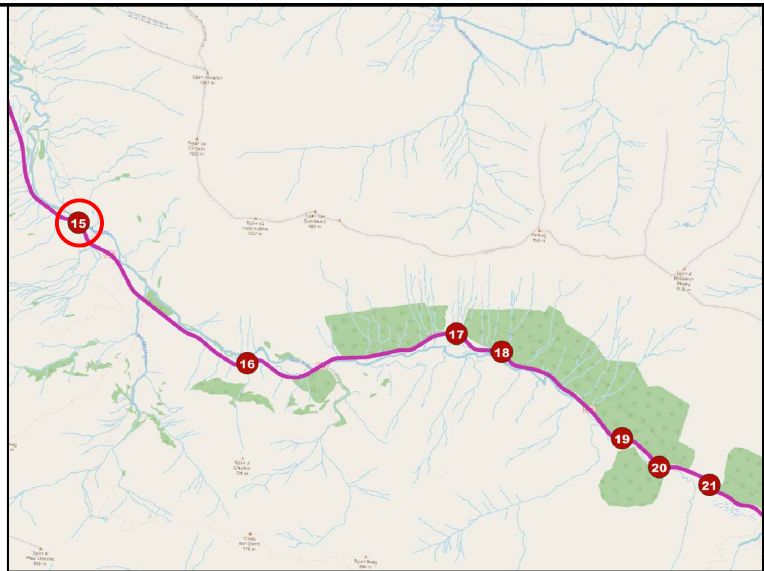
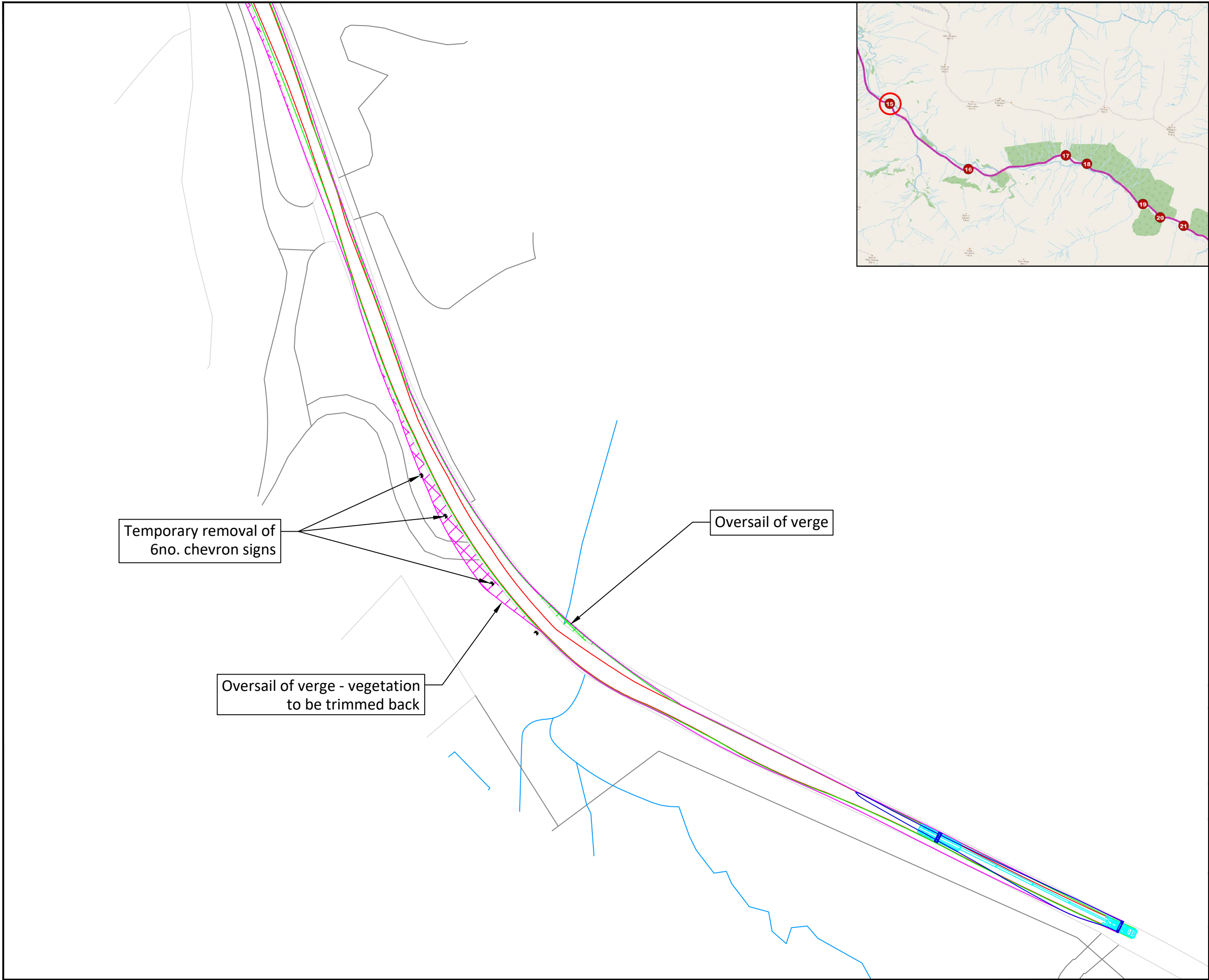
Project
Beinneun 2 Wind Farm
Swept Path Assessment

Title
Vestas V172 - 84.35m Blade - Super Wing Carrier
Pinch Point 15 (Sheet 1 of 2)
Manual Rear Steering Utilised

Drawn	Checked	Approved
TF	ADV	ADV

Original dwg. size	Date	Scale
A3	01/08/2025	1:1000

Drawing Status	Drawing Number	Rev.
Information	GB01T22I86/XB16//SPA018	-



Notes:

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Key:

- Blade Transporter Vehicle
- Blade Outline
- Over-run envelope of tractor and trailer wheels
- Over-sail envelope being swept by tractor and trailer bed
- Over-sail envelope being swept by blade path
- Over-run area of tractor and trailer wheels out with carriageway
- Over-sail area of tractor and trailer bed out with carriageway
- Over-sail area of blade out with carriageway

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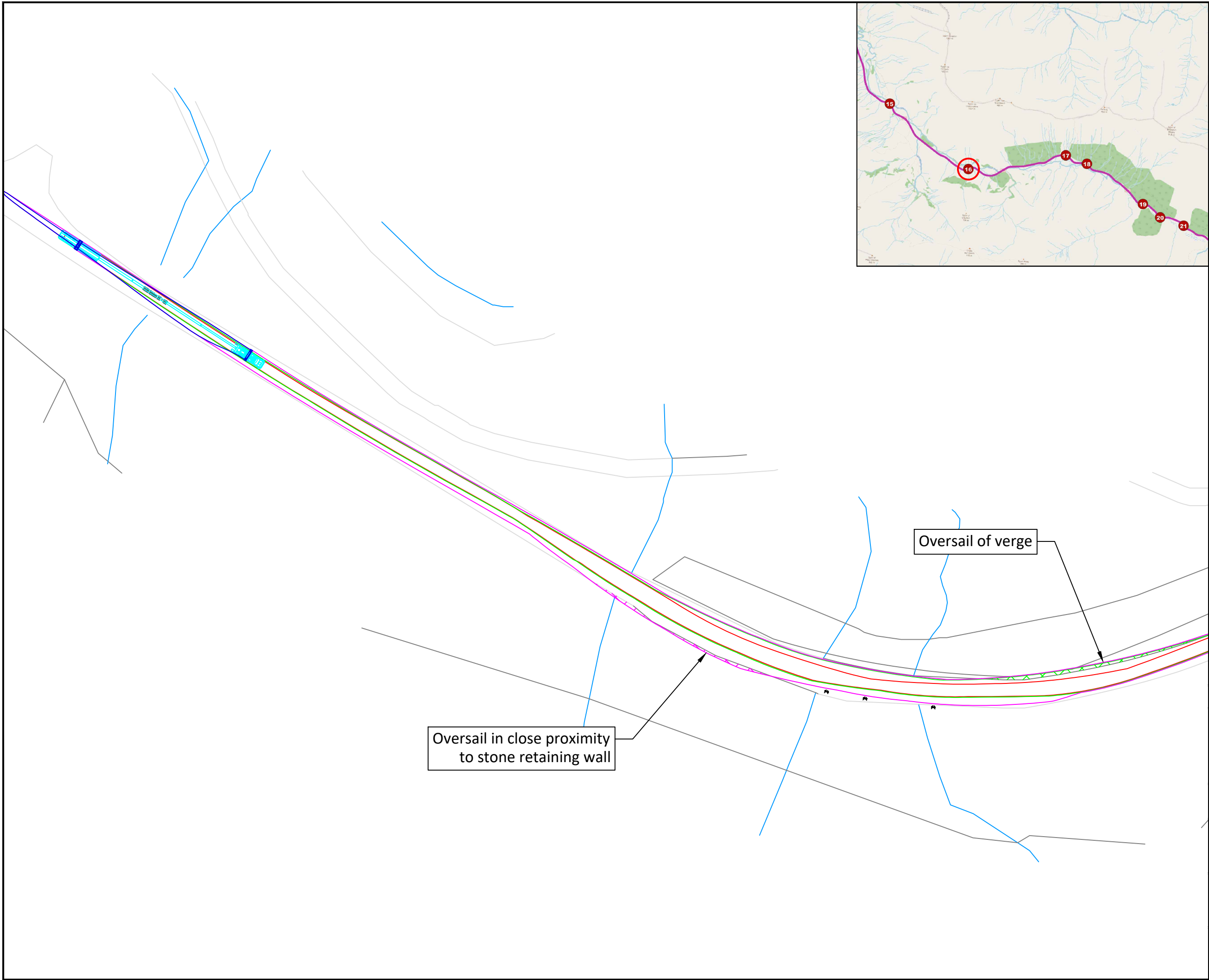
Client: Beinneun 2 Ltd

Project: Beinneun 2 Wind Farm Swept Path Assessment

Title: Vestas V172 - 84.35m Blade - Super Wing Carrier Pinch Point 15 (Sheet 2 of 2) Manual Rear Steering Utilised

Drawn	Checked	Approved
TF	ADV	ADV
Original dwg. size	Date	Scale
A3	01/08/2025	1:1000

Drawing Status	Drawing Number	Rev.
Information	GB01T22I86/XB16//SPA019	-



Notes:

1. Do not scale from drawing.
2. All dimensions in metres unless otherwise stated.
3. Please note that marked service locations are marked service locations are indicative only and should be confirmed by topographical survey.

Key:

- Blade Transporter Vehicle
- Blade Outline
- Over-run envelope of tractor and trailer wheels
- Over-sail envelope being swept by tractor and trailer bed
- Over-sail envelope being swept by blade path
- Over-run area of tractor and trailer wheels out with carriageway
- Over-sail area of tractor and trailer bed out with carriageway
- Over-sail area of blade out with carriageway

Rev.	Date	Revision details	Drawn	Checked	Approved

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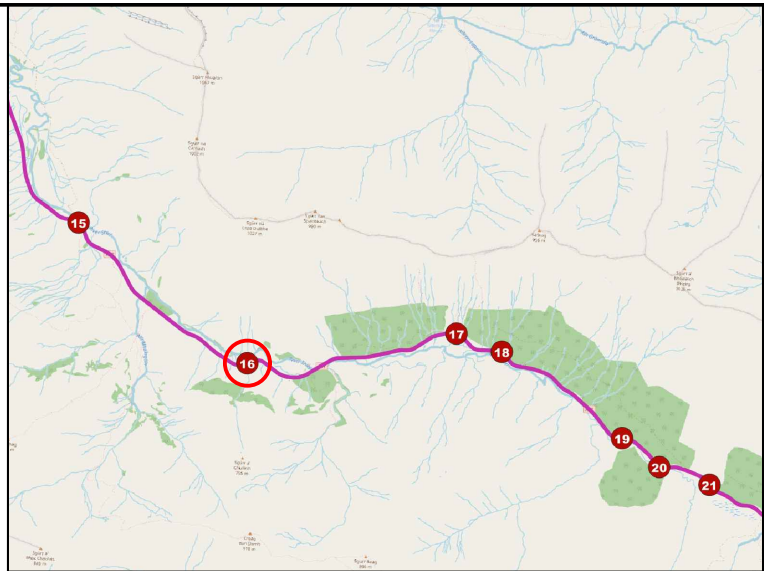
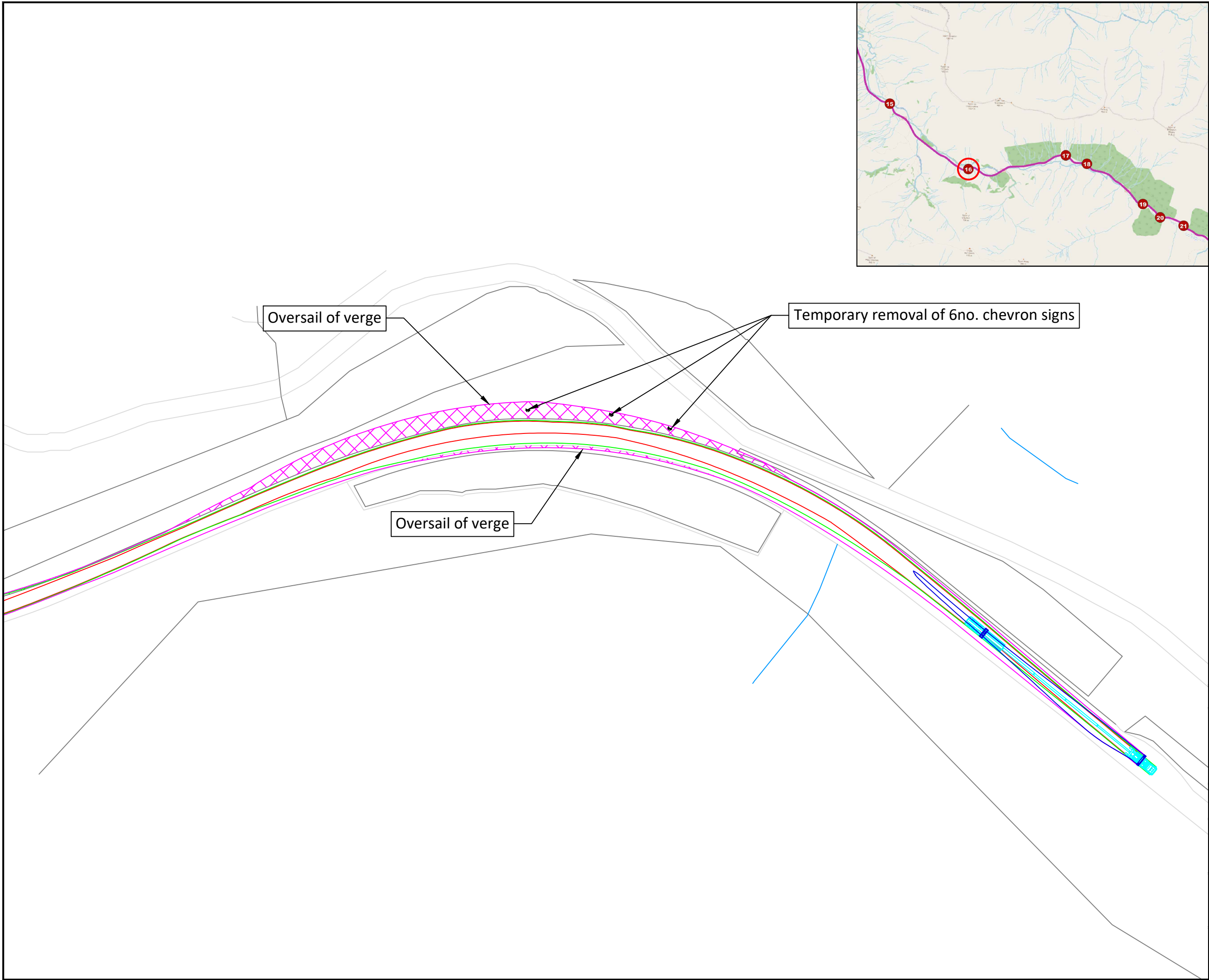
Project
Beinneun 2 Wind Farm
Swept Path Assessment

Title
Vestas V172 - 84.35m Blade - Super Wing Carrier
Pinch Point 16 (Sheet 1 of 2)
Manual Rear Steering Utilised

Drawn	Checked	Approved
TF	ADV	ADV

Original dwg. size	Date	Scale
A3	01/08/2025	1:1000

Drawing Status	Drawing Number	Rev.
Information	GB01T22I86/XB16//SPA020	-



Notes:

1. Do not scale from drawing.
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3. Please note that marked service locations are indicative only and should be confirmed by topographical survey.

Key:

- Blade Transporter Vehicle
- Blade Outline
- Over-run envelope of tractor and trailer wheels
- Over-sail envelope being swept by tractor and trailer bed
- Over-sail envelope being swept by blade path
- Over-run area of tractor and trailer wheels out with carriageway
- Over-sail area of tractor and trailer bed out with carriageway
- Over-sail area of blade out with carriageway

Rev.	Date	Revision details	Drawn	Checked	Approved

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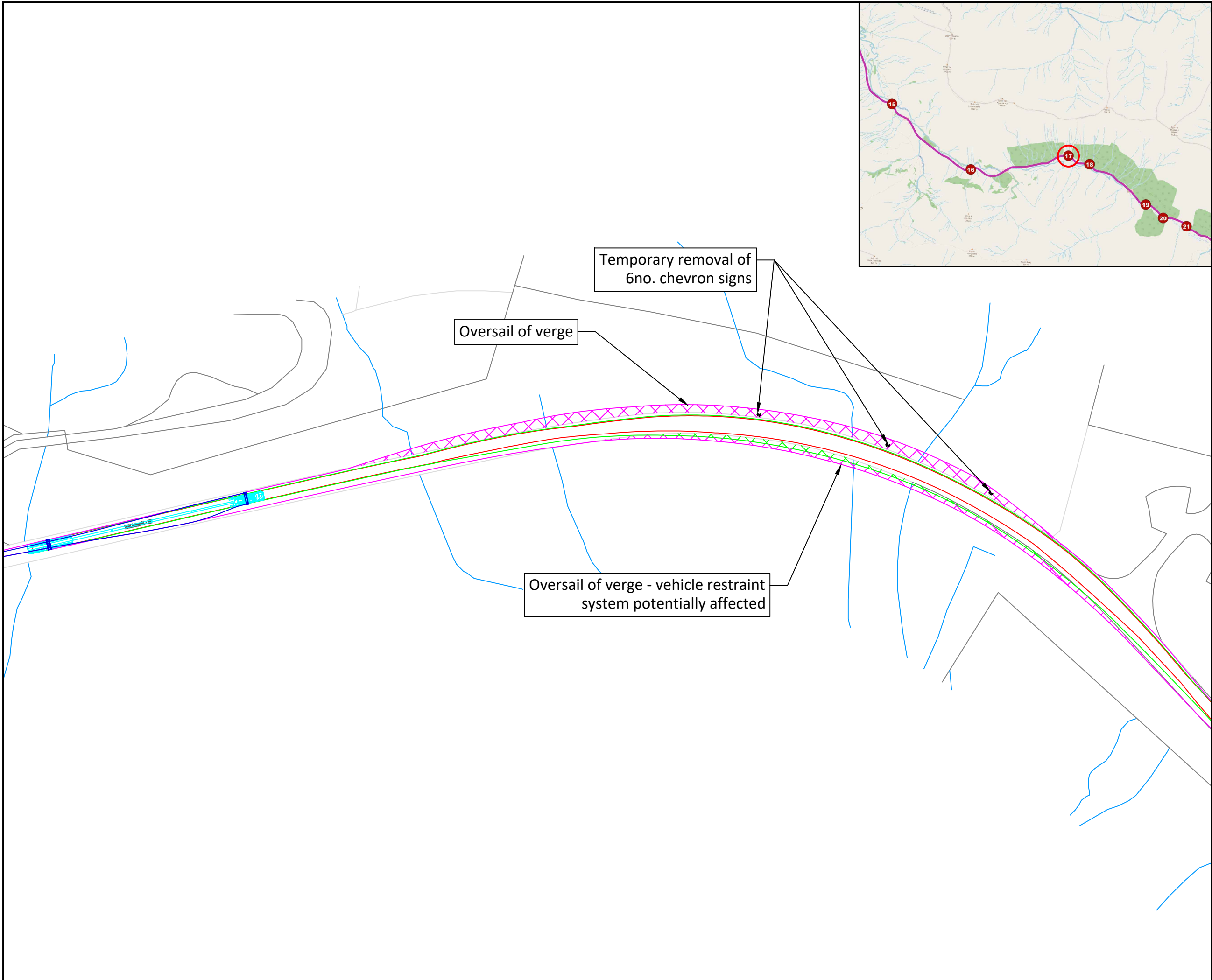
Project
Beinneun 2 Wind Farm
Swept Path Assessment

Title
Vestas V172 - 84.35m Blade - Super Wing Carrier
Pinch Point 16 (Sheet 2 of 2)
Manual Rear Steering Utilised

Drawn	Checked	Approved
TF	ADV	ADV

Original dwg. size	Date	Scale
A3	01/08/2025	1:1000

Drawing Status	Drawing Number	Rev.
Information	GB01T22I86/XB16//SPA021	-



- Notes:
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 2. All dimensions in metres unless otherwise stated.
 3. Please note that marked service locations are indicative only and should be confirmed by topographical survey.



- Key:
- Blade Transporter Vehicle
 - Blade Outline
 - Over-run envelope of tractor and trailer wheels
 - Over-sail envelope being swept by tractor and trailer bed
 - Over-sail envelope being swept by blade path
 - Over-run area of tractor and trailer wheels out with carriageway
 - Over-sail area of tractor and trailer bed out with carriageway
 - Over-sail area of blade out with carriageway

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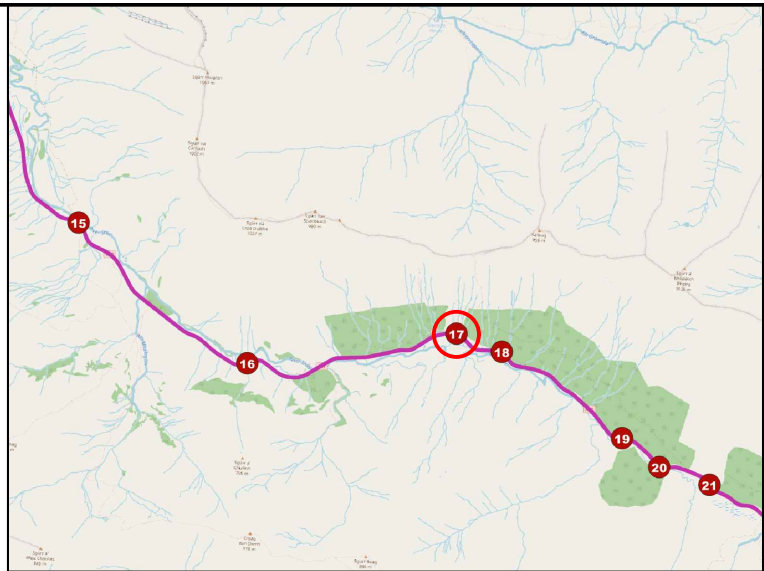
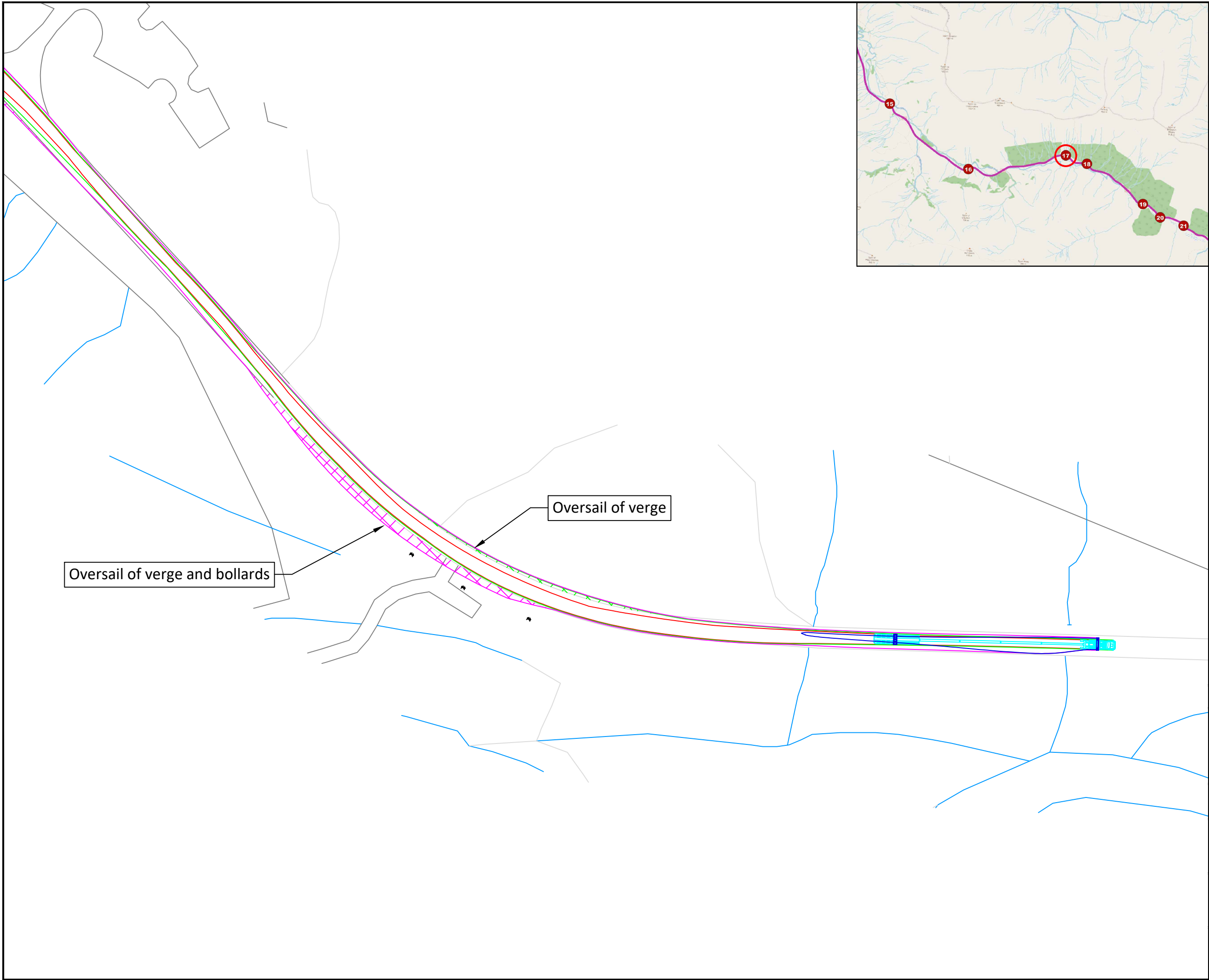
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Client
Beinneun 2 Ltd

Project
Beinneun 2 Wind Farm
Swept Path Assessment

Title
Vestas V172 - 84.35m Blade - Super Wing Carrier
Pinch Point 17 (Sheet 1 of 2)
Manual Rear Steering Utilised

Drawn	Checked	Approved
TF	ADV	ADV
Original dwg. size A3	Date 01/08/2025	Scale 1:1000
Drawing Status Information	Drawing Number GB01T22I86/XB16//SPA022	Rev. -



Notes:

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Key:

- Blade Transporter Vehicle
- Blade Outline
- Over-run envelope of tractor and trailer wheels
- Over-sail envelope being swept by tractor and trailer bed
- Over-sail envelope being swept by blade path
- Over-run area of tractor and trailer wheels out with carriageway
- Over-sail area of tractor and trailer bed out with carriageway
- Over-sail area of blade out with carriageway

Rev.	Date	Revision details	Drawn	Checked	Approved

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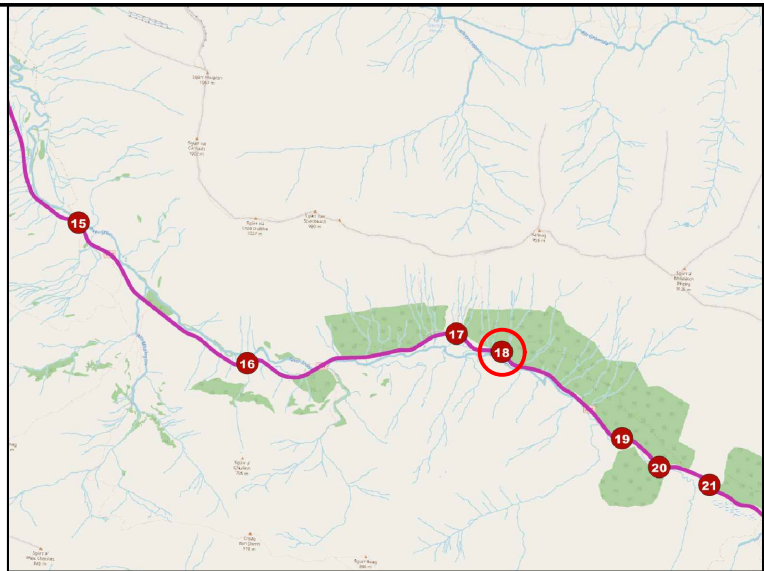
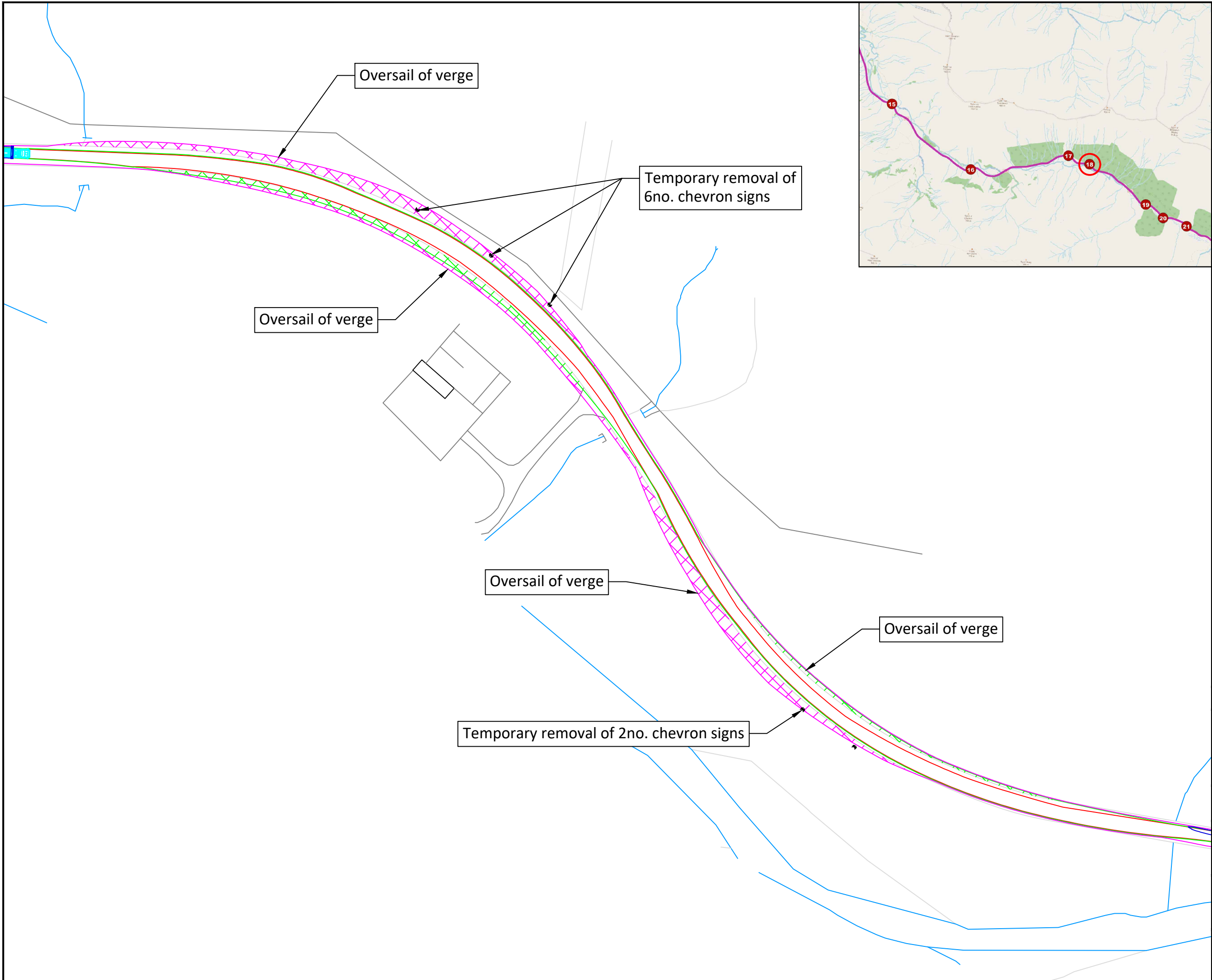
Project
Beinneun 2 Wind Farm
Swept Path Assessment

Title
Vestas V172 - 84.35m Blade - Super Wing Carrier
Pinch Point 17 (Sheet 2 of 2)
Manual Rear Steering Utilised

Drawn	Checked	Approved
TF	ADV	ADV

Original dwg. size	Date	Scale
A3	01/08/2025	1:1000

Drawing Status	Drawing Number	Rev.
Information	GB01T22I86/XB16//SPA023	-



Notes:

1. Do not scale from drawing.
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Key:

- Blade Transporter Vehicle
- Blade Outline
- Over-run envelope of tractor and trailer wheels
- Over-sail envelope being swept by tractor and trailer bed
- Over-sail envelope being swept by blade path
- Over-run area of tractor and trailer wheels out with carriageway
- Over-sail area of tractor and trailer bed out with carriageway
- Over-sail area of blade out with carriageway

Rev.	Date	Revision details	Drawn	Checked	Approved

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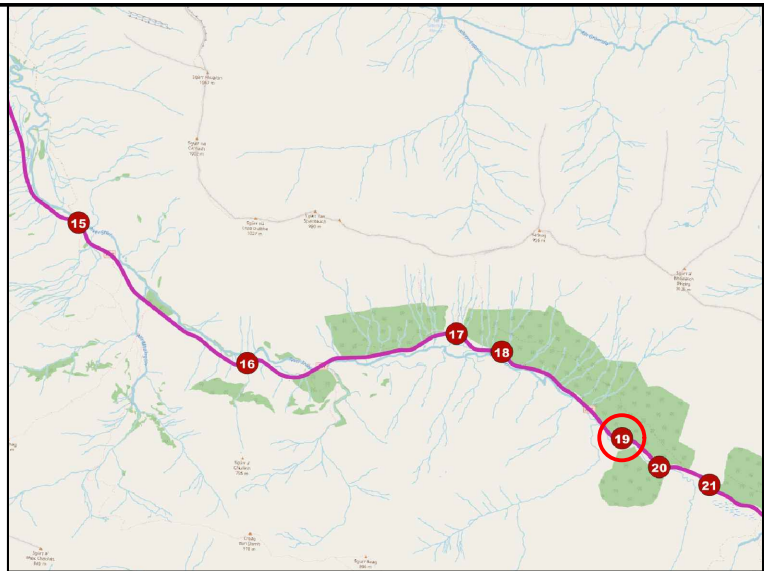
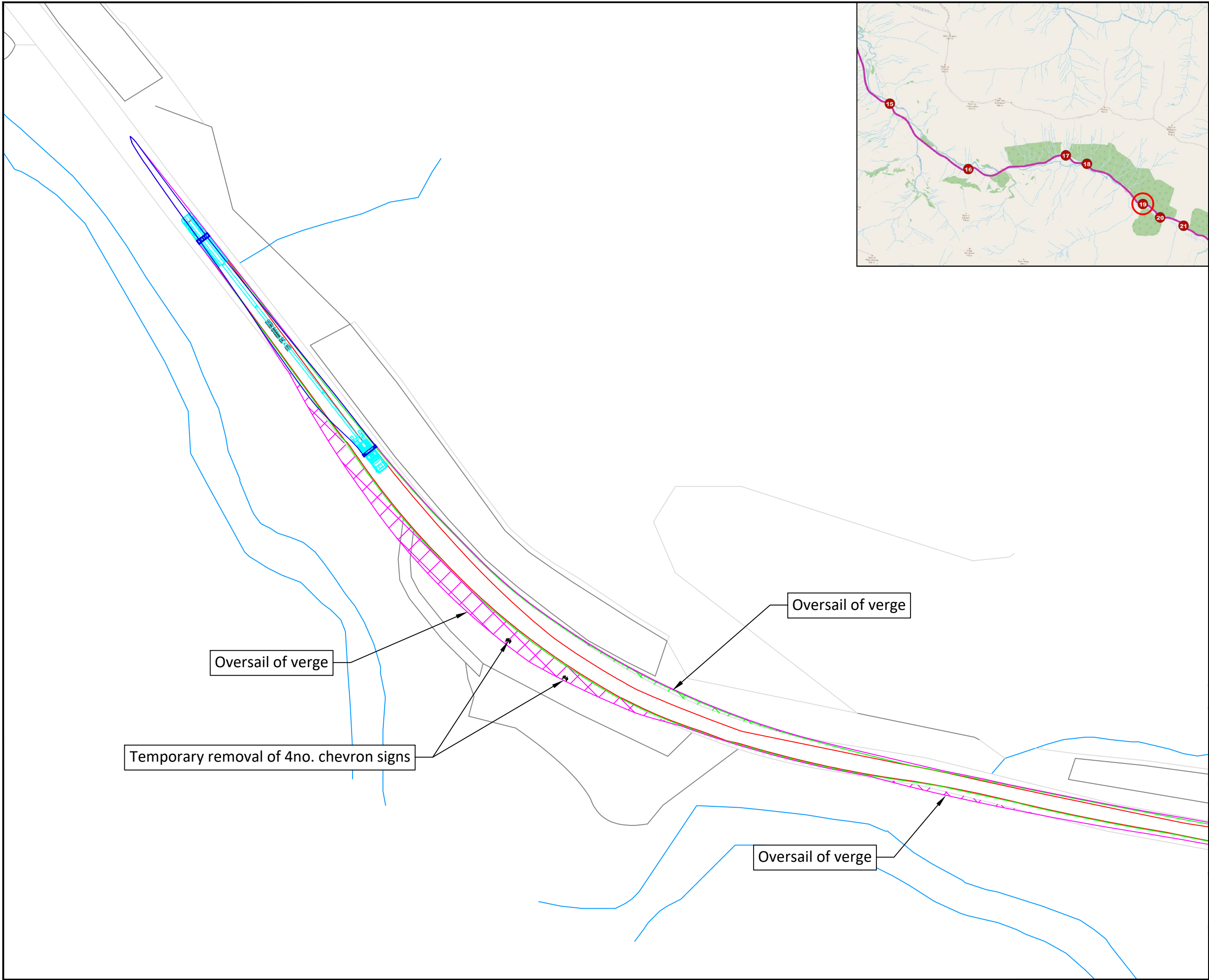
Project
Beinneun 2 Wind Farm
Swept Path Assessment

Title
Vestas V172 - 84.35m Blade - Super Wing Carrier
Pinch Point 18
Manual Rear Steering Utilised

Drawn	Checked	Approved
TF	ADV	ADV

Original dwg. size	Date	Scale
A3	01/08/2025	1:1000

Drawing Status	Drawing Number	Rev.
Information	GB01T22I86/XB16//SPA024	-



Notes:

1. Do not scale from drawing.
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3. Please note that marked service locations are indicative only and should be confirmed by topographical survey.

Key:

- Blade Transporter Vehicle
- Blade Outline
- Over-run envelope of tractor and trailer wheels
- Over-sail envelope being swept by tractor and trailer bed
- Over-sail envelope being swept by blade path
- Over-run area of tractor and trailer wheels out with carriageway
- Over-sail area of tractor and trailer bed out with carriageway
- Over-sail area of blade out with carriageway

Rev.	Date	Revision details	Drawn	Checked	Approved

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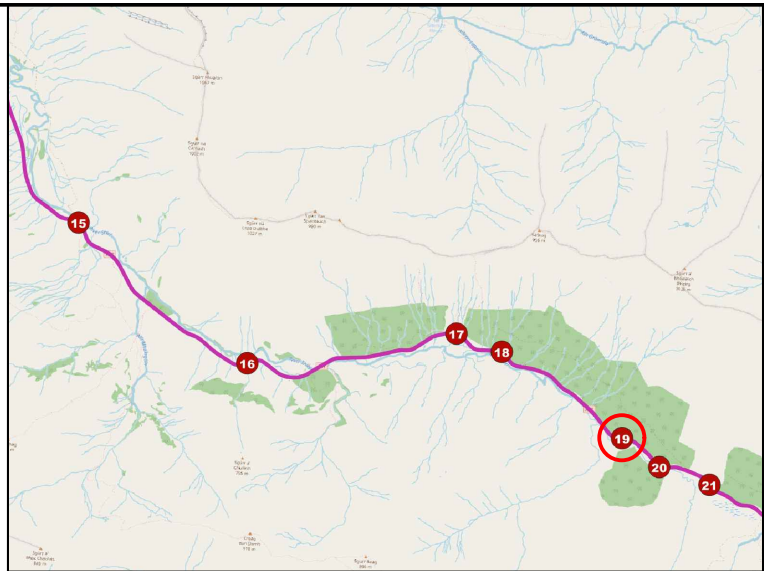
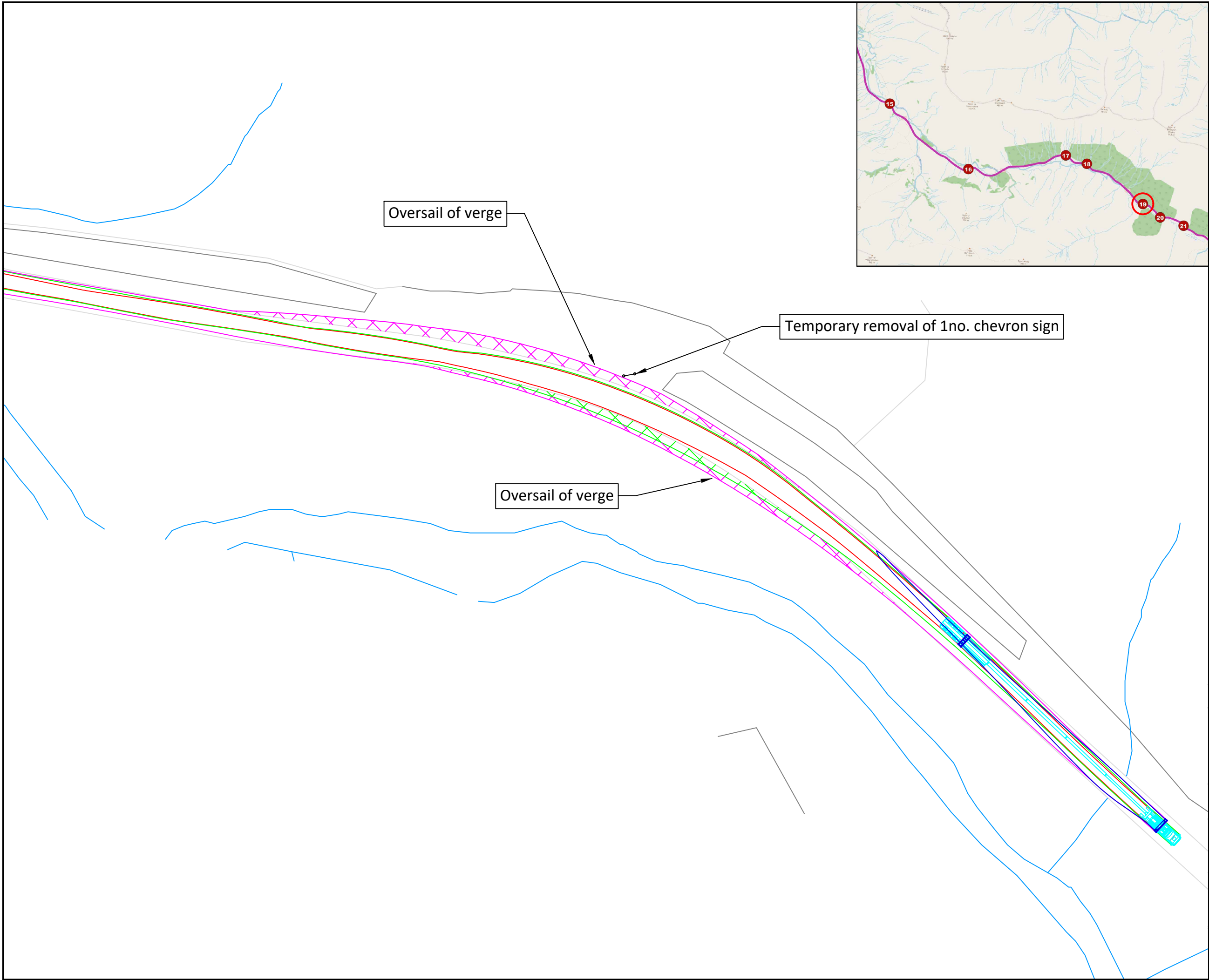
Project
Beinneun 2 Wind Farm
Swept Path Assessment

Title
Vestas V172 - 84.35m Blade - Super Wing Carrier
Pinch Point 19 (Sheet 1 of 2)
Manual Rear Steering Utilised

Drawn	Checked	Approved
TF	ADV	ADV

Original dwg. size	Date	Scale
A3	01/08/2025	1:750

Drawing Status	Drawing Number	Rev.
Information	GB01T22I86/XB16//SPA025	-



Notes:

- Do not scale from drawing.
- All dimensions in metres unless otherwise stated.
- Please note that marked service locations are indicative only and should be confirmed by topographical survey.

Key:

- Blade Transporter Vehicle
- Blade Outline
- Over-run envelope of tractor and trailer wheels
- Over-sail envelope being swept by tractor and trailer bed
- Over-sail envelope being swept by blade path
- Over-run area of tractor and trailer wheels out with carriageway
- Over-sail area of tractor and trailer bed out with carriageway
- Over-sail area of blade out with carriageway

Rev.	Date	Revision details	Drawn	Checked	Approved

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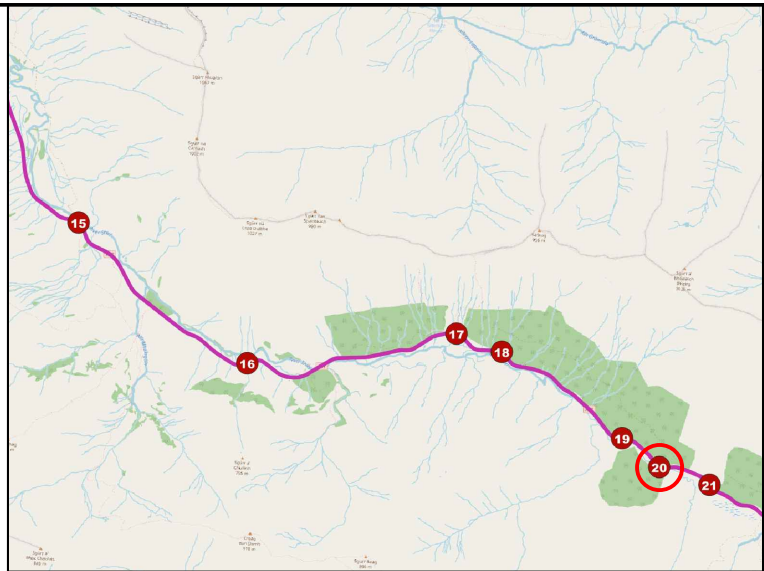
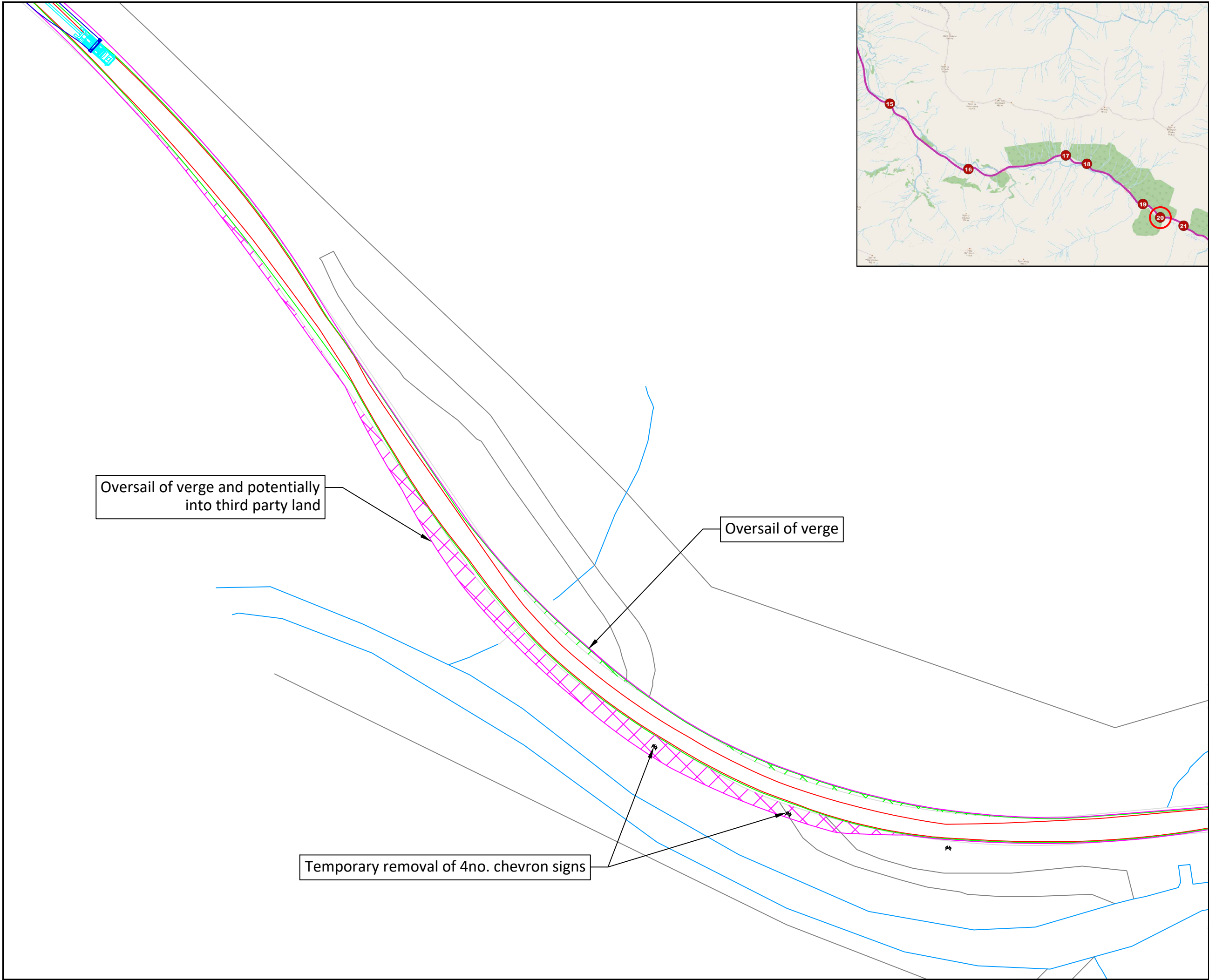
Project
Beinneun 2 Wind Farm
Swept Path Assessment

Title
Vestas V172 - 84.35m Blade - Super Wing Carrier
Pinch Point 19 (Sheet 2 of 2)
Manual Rear Steering Utilised

Drawn	Checked	Approved
TF	ADV	ADV

Original dwg. size	Date	Scale
A3	01/08/2025	1:750

Drawing Status	Drawing Number	Rev.
Information	GB01T22I86/XB16//SPA026	-



Notes:

1. Do not scale from drawing.
2. All dimensions in metres unless otherwise stated.
3. Please note that marked service locations are indicative only and should be confirmed by topographical survey.

Key:

- Blade Transporter Vehicle
- Blade Outline
- Over-run envelope of tractor and trailer wheels
- Over-sail envelope being swept by tractor and trailer bed
- Over-sail envelope being swept by blade path
- Over-run area of tractor and trailer wheels out with carriageway
- Over-sail area of tractor and trailer bed out with carriageway
- Over-sail area of blade out with carriageway

Rev.	Date	Revision details	Drawn	Checked	Approved

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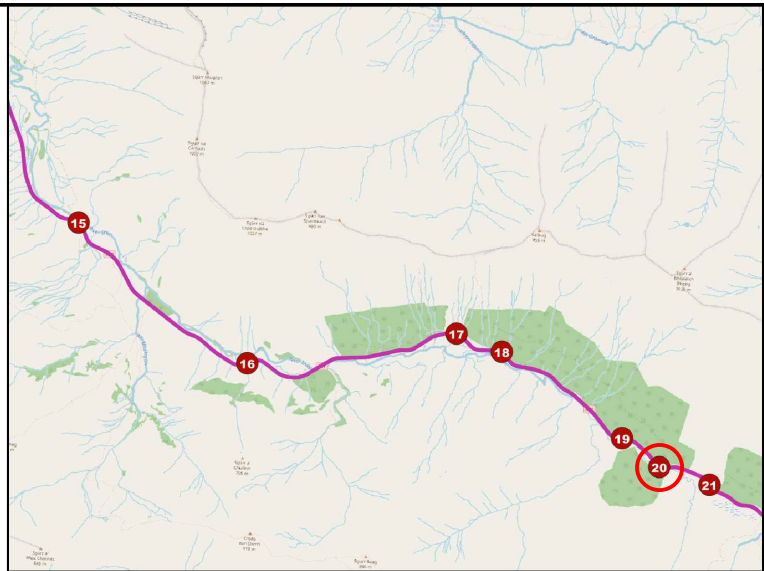
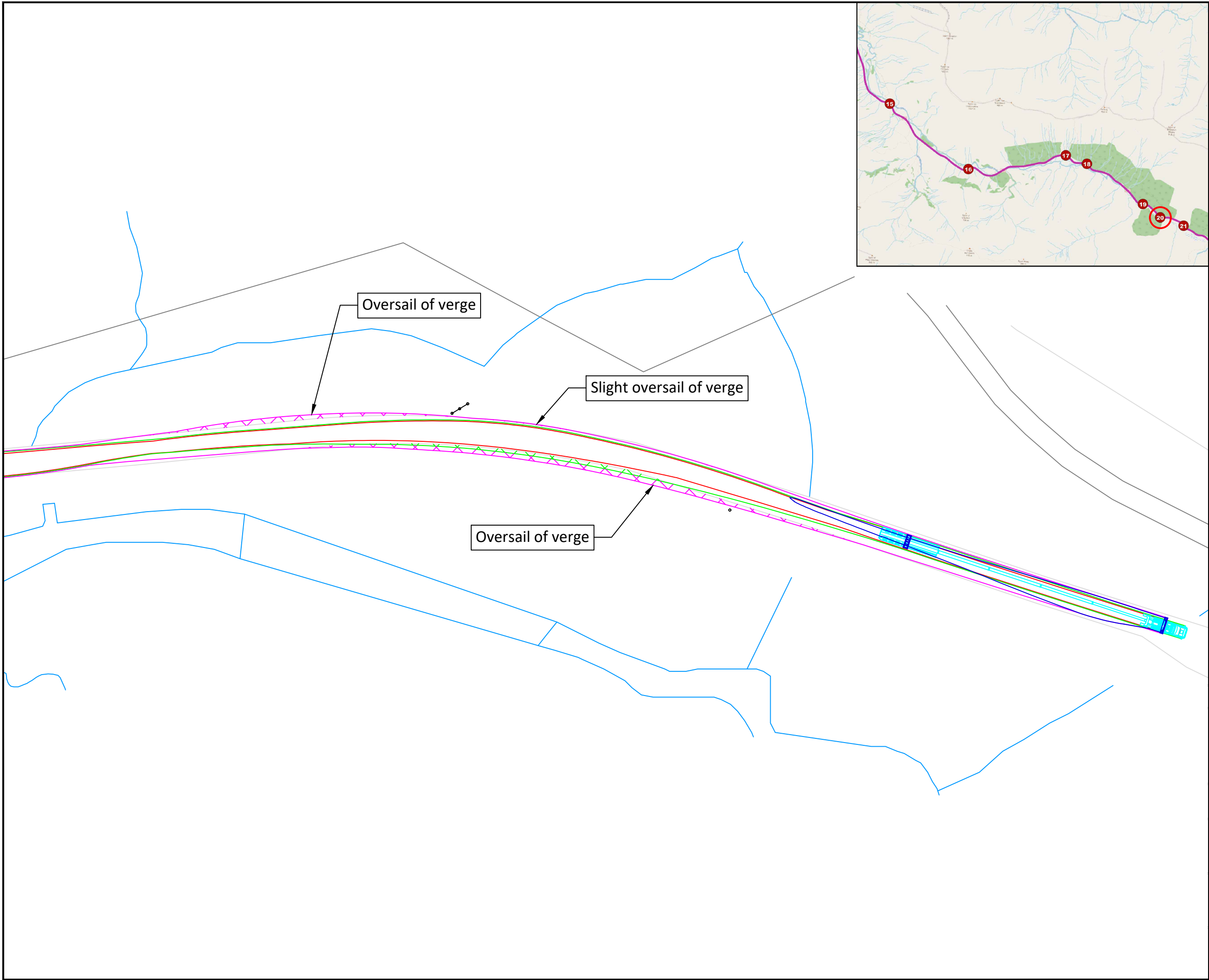
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Client: Beinneun 2 Ltd

Project: Beinneun 2 Wind Farm Swept Path Assessment

Title: Vestas V172 - 84.35m Blade - Super Wing Carrier Pinch Point 20 (Sheet 1 of 2) Manual Rear Steering Utilised

Drawn	Checked	Approved
TF	ADV	ADV
Original dwg. size	Date	Scale
A3	01/08/2025	1:750
Drawing Status	Drawing Number	Rev.
Information	GB01T22I86/XB16//SPA027	-



Notes:

- Do not scale from drawing.
- All dimensions in metres unless otherwise stated.
- Please note that marked service locations are indicative only and should be confirmed by topographical survey.

Key:

- Blade Transporter Vehicle
- Blade Outline
- Over-run envelope of tractor and trailer wheels
- Over-sail envelope being swept by tractor and trailer bed
- Over-sail envelope being swept by blade path
- Over-run area of tractor and trailer wheels out with carriageway
- Over-sail area of tractor and trailer bed out with carriageway
- Over-sail area of blade out with carriageway

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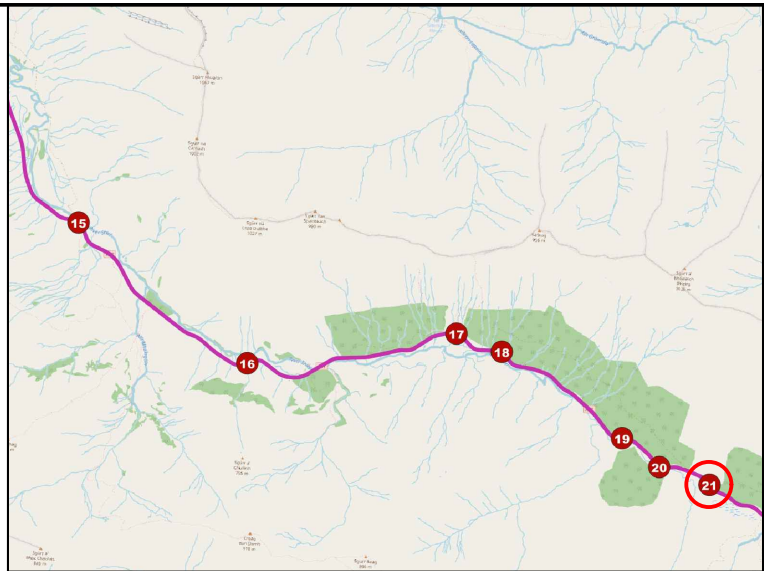
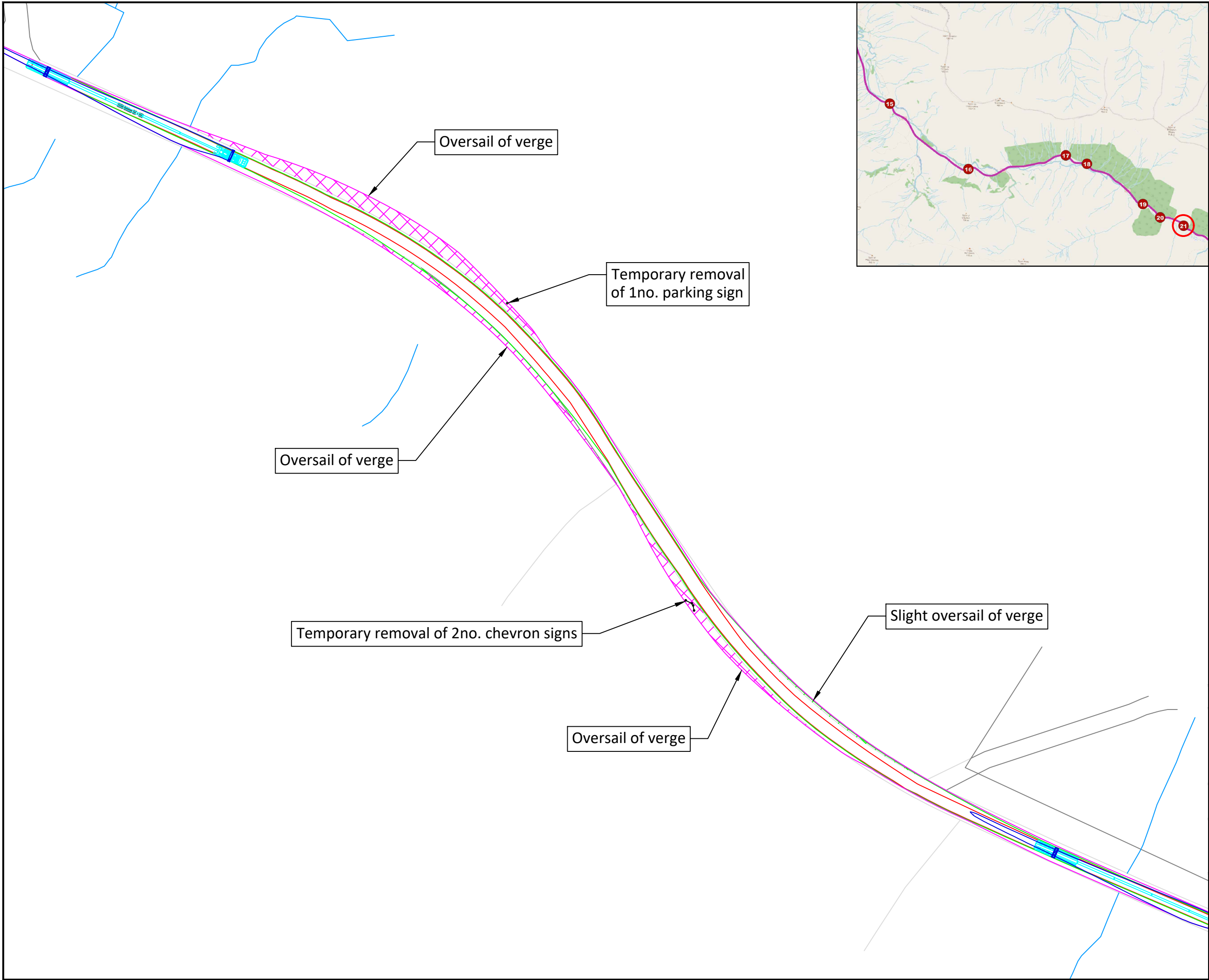
Project
Beinneun 2 Wind Farm
Swept Path Assessment

Title
Vestas V172 - 84.35m Blade - Super Wing Carrier
Pinch Point 20 (Sheet 2 of 2)
Manual Rear Steering Utilised

Drawn	Checked	Approved
TF	ADV	ADV

Original dwg. size	Date	Scale
A3	01/08/2025	1:750

Drawing Status	Drawing Number	Rev.
Information	GB01T22I86/XB16//SPA028	-



Notes:

1. Do not scale from drawing.
2. All dimensions in metres unless otherwise stated.
3. Please note that marked service locations are indicative only and should be confirmed by topographical survey.

Key:

- Blade Transporter Vehicle
- Blade Outline
- Over-run envelope of tractor and trailer wheels
- Over-sail envelope being swept by tractor and trailer bed
- Over-sail envelope being swept by blade path
- Over-run area of tractor and trailer wheels out with carriageway
- Over-sail area of tractor and trailer bed out with carriageway
- Over-sail area of blade out with carriageway

Rev.	Date	Revision details	Drawn	Checked	Approved

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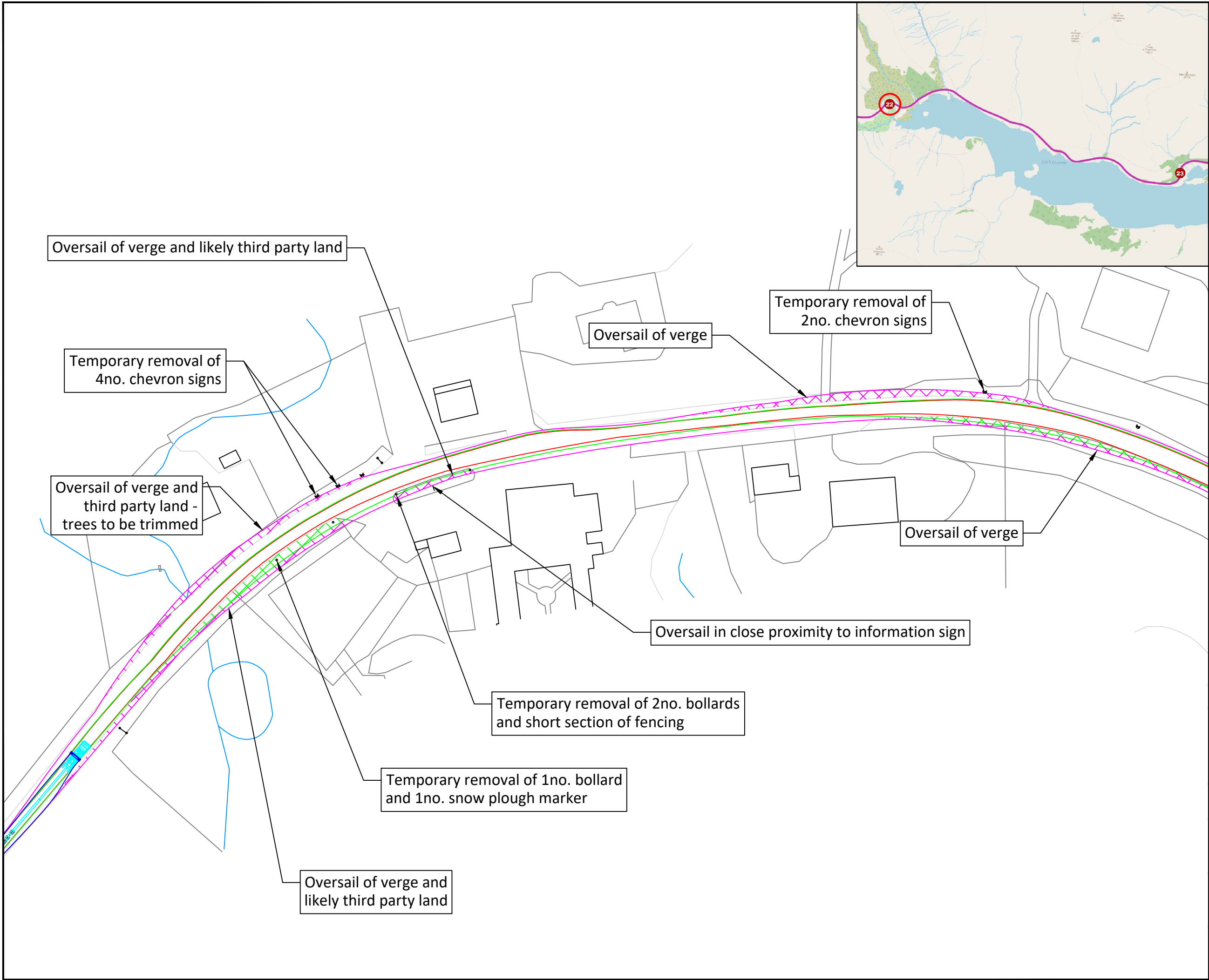
Project
Beinneun 2 Wind Farm
Swept Path Assessment

Title
Vestas V172 - 84.35m Blade - Super Wing Carrier
Pinch Point 21
Manual Rear Steering Utilised

Drawn	Checked	Approved
TF	ADV	ADV

Original dwg. size	Date	Scale
A3	01/08/2025	1:1000

Drawing Status	Drawing Number	Rev.
Information	GB01T22I86/XB16//SPA029	-



- Notes:**
1. Do not scale from drawing.
 2. All dimensions in metres unless otherwise stated.
 3. Please note that marked service locations are indicative only and should be confirmed by topographical survey.



- Key:**
- Blade Transporter Vehicle
 - Blade Outline
 - Over-run envelope of tractor and trailer wheels
 - Over-sail envelope being swept by tractor and trailer bed
 - Over-sail envelope being swept by blade path
 - Over-run area of tractor and trailer wheels out with carriageway
 - Over-sail area of tractor and trailer bed out with carriageway
 - Over-sail area of blade out with carriageway

Rev.	Date	Revision details	Drawn	Checked	Approved

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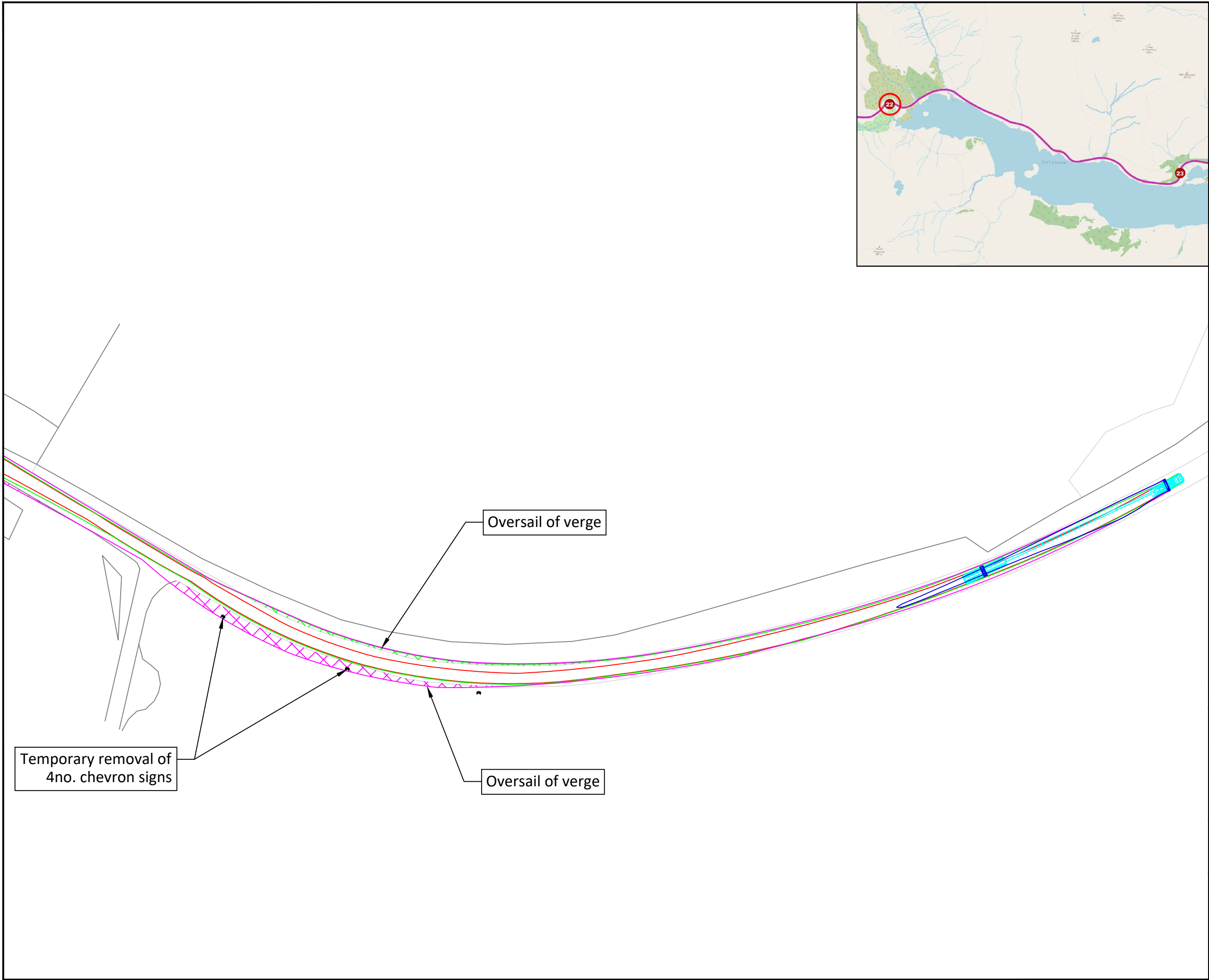
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E scotland@systra.co.uk

Client
Beinneun 2 Ltd

Project
Beinneun 2 Wind Farm
Swept Path Assessment

Title
Vestas V172 - 84.35m Blade - Super Wing Carrier
Pinch Point 22 (Sheet 1 of 2)
Manual Rear Steering Utilised

Drawn	Checked	Approved
TF	ADV	ADV
Original dwg. size A3	Date 01/08/2025	Scale 1:1000
Drawing Status Information	Drawing Number GB01T22I86/XB16//SPA030	Rev. -



Notes:

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- Please note that marked service locations are indicative only and should be confirmed by topographical survey.

Key:

- Blade Transporter Vehicle
- Blade Outline
- Over-run envelope of tractor and trailer wheels
- Over-sail envelope being swept by tractor and trailer bed
- Over-sail envelope being swept by blade path
- Over-run area of tractor and trailer wheels out with carriageway
- Over-sail area of tractor and trailer bed out with carriageway
- Over-sail area of blade out with carriageway

Rev.	Date	Revision details	Drawn	Checked	Approved

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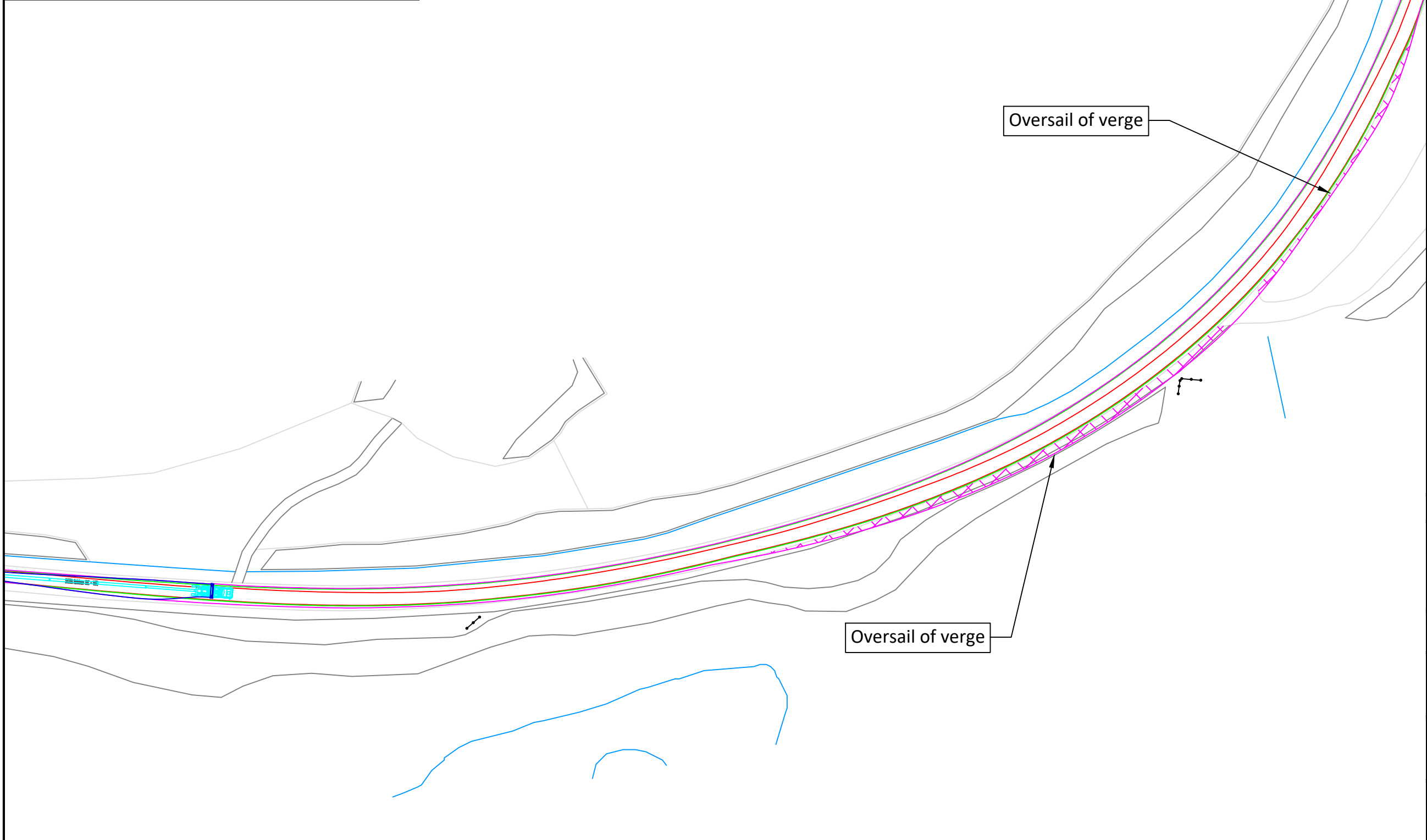
Project
Beinneun 2 Wind Farm
Swept Path Assessment

Title
Vestas V172 - 84.35m Blade - Super Wing Carrier
Pinch Point 22 (Sheet 2 of 2)
Manual Rear Steering Utilised

Drawn	Checked	Approved
TF	ADV	ADV

Original dwg. size	Date	Scale
A3	01/08/2025	1:1000

Drawing Status	Drawing Number	Rev.
Information	GB01T22I86/XB16//SPA031	-



Notes:

1. Do not scale from drawing.
2. All dimensions in metres unless otherwise stated.
3. Please note that marked service locations are indicative only and should be confirmed by topographical survey.



Key:

- Blade Transporter Vehicle
- Blade Outline
- Over-run envelope of tractor and trailer wheels
- Over-sail envelope being swept by tractor and trailer bed
- Over-sail envelope being swept by blade path
- Over-run area of tractor and trailer wheels out with carriageway
- Over-sail area of tractor and trailer bed out with carriageway
- Over-sail area of blade out with carriageway

Rev.	Date	Revision details	Drawn	Checked	Approved

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Client
 Beinneun 2 Ltd

Project
 Beinneun 2 Wind Farm
 Swept Path Assessment

Title
 Vestas V172 - 84.35m Blade - Super Wing Carrier
 Pinch Point 23 (Sheet 1 of 3)
 Manual Rear Steering Utilised

Drawn	Checked	Approved
TF	ADV	ADV
Original dwg. size A3	Date 01/08/2025	Scale 1:1000
Drawing Status Information	Drawing Number GB01T22I86/XB16//SPA032	Rev. -



Temporary removal of 6no. chevron signs

Oversail of verge

Oversail of verge

Oversail of verge

- Notes:**
1. Do not scale from drawing.
 2. All dimensions in metres unless otherwise stated.
 3. Please note that marked service locations are indicative only and should be confirmed by topographical survey.



- Key:**
- Blade Transporter Vehicle
 - Blade Outline
 - Over-run envelope of tractor and trailer wheels
 - Over-sail envelope being swept by tractor and trailer bed
 - Over-sail envelope being swept by blade path
 - Over-run area of tractor and trailer wheels out with carriageway
 - Over-sail area of tractor and trailer bed out with carriageway
 - Over-sail area of blade out with carriageway

Rev.	Date	Revision details	Drawn	Checked	Approved

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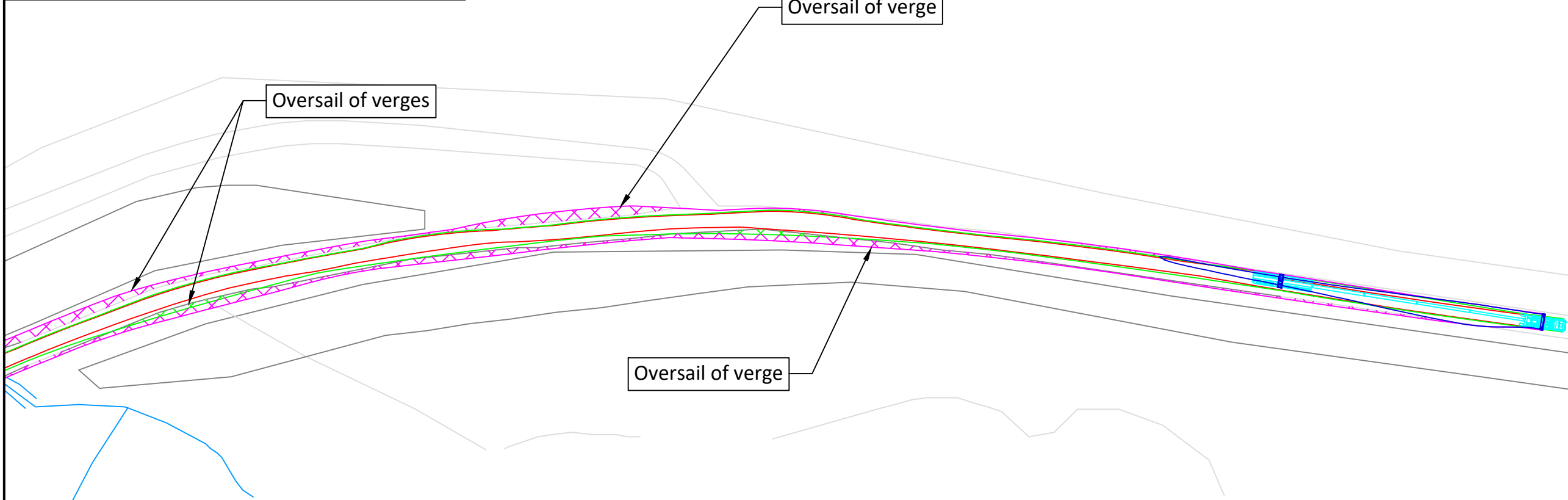
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Client
Beinneun 2 Ltd

Project
Beinneun 2 Wind Farm
Swept Path Assessment

Title
Vestas V172 - 84.35m Blade - Super Wing Carrier
Pinch Point 23 (Sheet 2 of 3)
Manual Rear Steering Utilised

Drawn	Checked	Approved
TF	ADV	ADV
Original dwg. size A3	Date 01/08/2025	Scale 1:1000
Drawing Status Information	Drawing Number GB01T22I86/XB16//SPA033	Rev. -



Notes:

- Do not scale from drawing.
- All dimensions in metres unless otherwise stated.
- Please note that marked service locations are indicative only and should be confirmed by topographical survey.

Key:

- Blade Transporter Vehicle
- Blade Outline
- Over-run envelope of tractor and trailer wheels
- Over-sail envelope being swept by tractor and trailer bed
- Over-sail envelope being swept by blade path
- Over-run area of tractor and trailer wheels out with carriageway
- Over-sail area of tractor and trailer bed out with carriageway
- Over-sail area of blade out with carriageway

Rev.	Date	Revision details	Drawn	Checked	Approved

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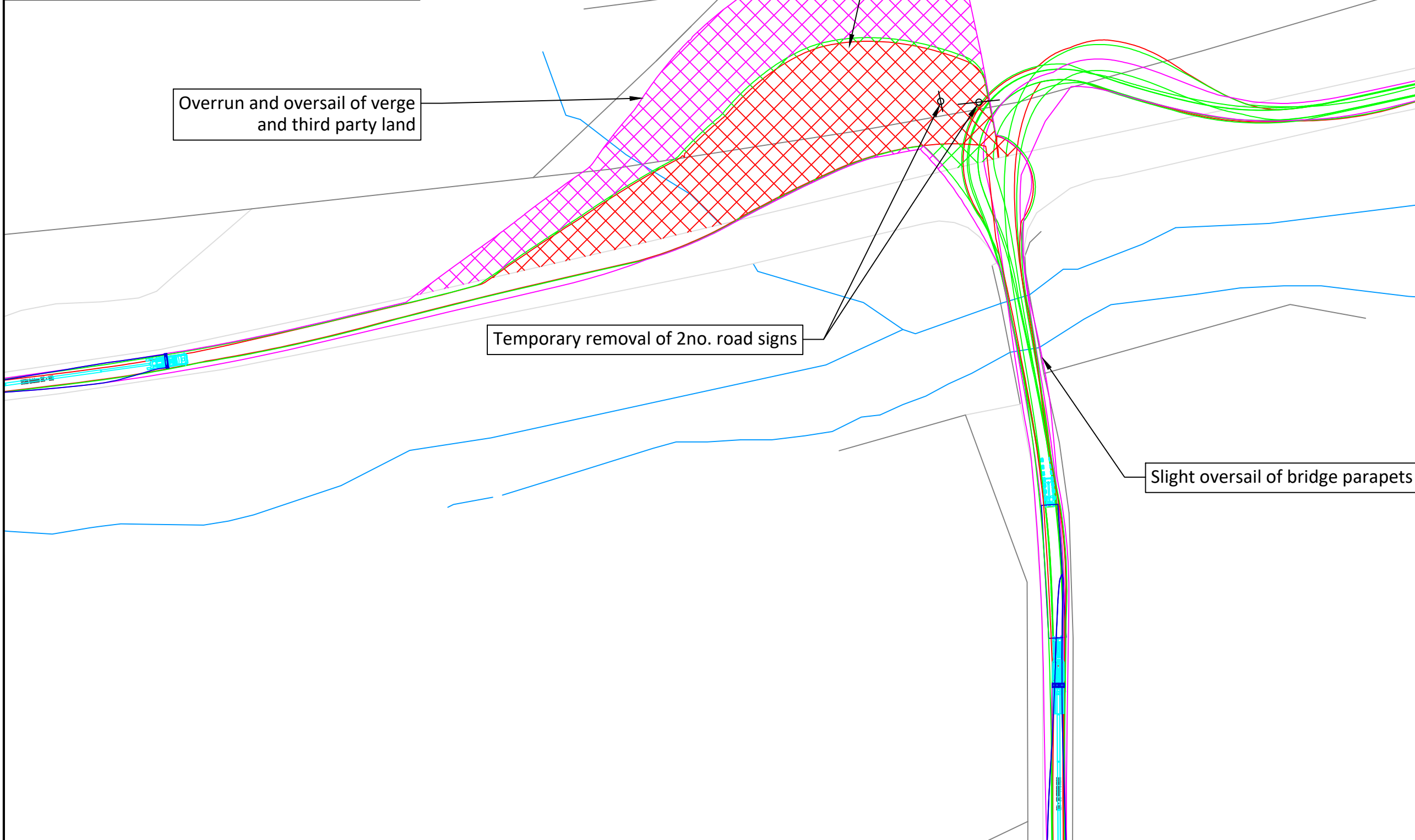
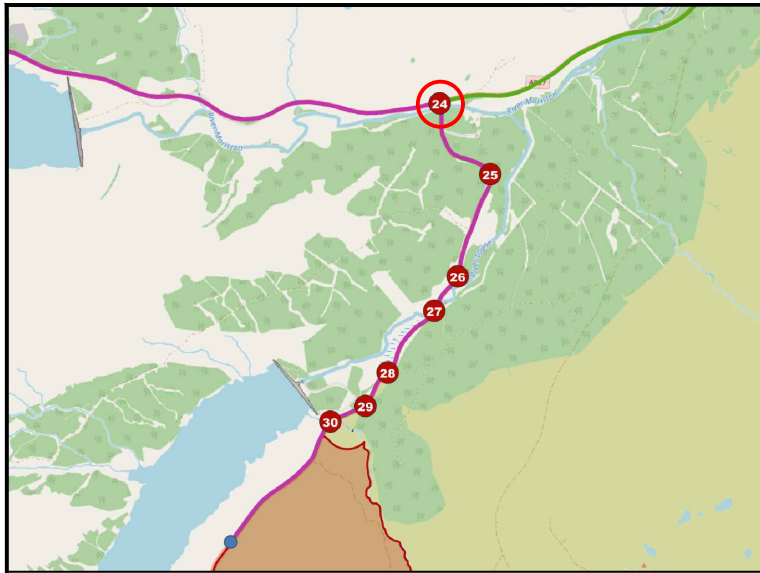
T 0131 469 1847
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Client
Beinneun 2 Ltd

Project
Beinneun 2 Wind Farm
Swept Path Assessment

Title
Vestas V172 - 84.35m Blade - Super Wing Carrier
Pinch Point 23 (Sheet 3 of 3)
Manual Rear Steering Utilised

Drawn TF	Checked ADV	Approved ADV
Original dwg. size A3	Date 01/08/2025	Scale 1:1000
Drawing Status Information		Drawing Number GB01T22I86/XB16//SPA034
		Rev. -



Notes:

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2. All dimensions in metres unless otherwise stated.
3. Please note that marked service locations are indicative only and should be confirmed by topographical survey.

Key:

- Blade Transporter Vehicle
- Blade Outline
- Over-run envelope of tractor and trailer wheels
- Over-sail envelope being swept by tractor and trailer bed
- Over-sail envelope being swept by blade path
- Over-run area of tractor and trailer wheels out with carriageway
- Over-sail area of tractor and trailer bed out with carriageway
- Over-sail area of blade out with carriageway

Rev.	Date	Revision details	Drawn	Checked	Approved

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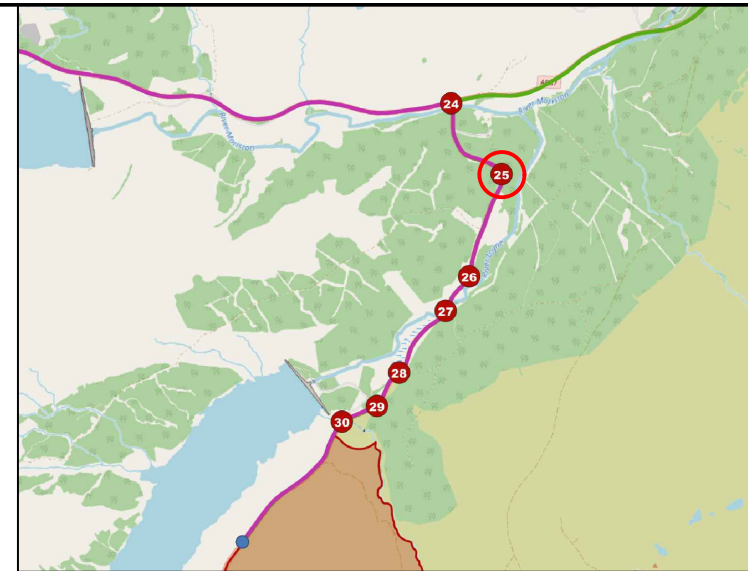
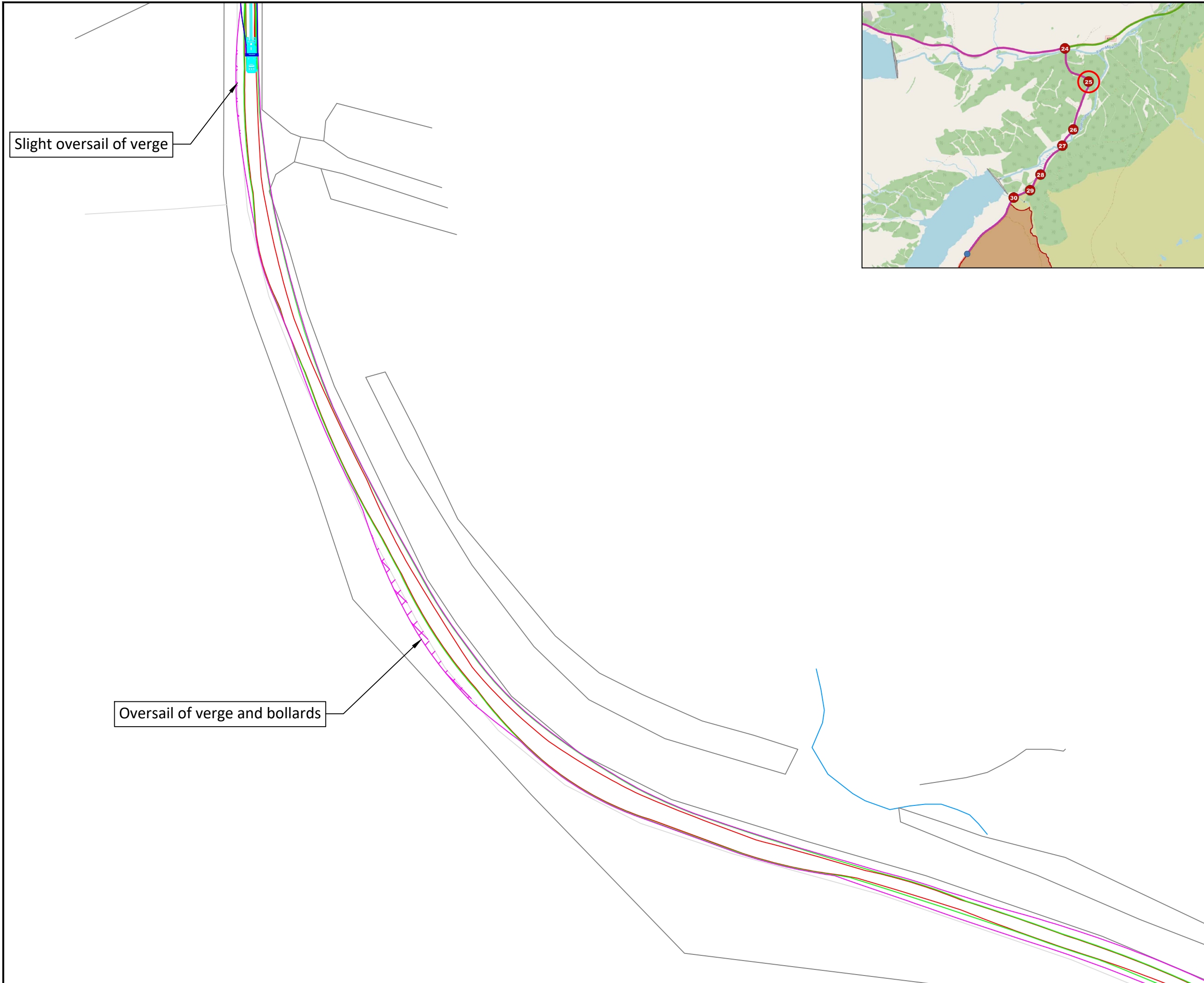
Project
Beinneun 2 Wind Farm
Swept Path Assessment

Title
Vestas V172 - 84.35m Blade - Super Wing Carrier
Pinch Point 24
Manual Rear Steering Utilised

Drawn	Checked	Approved
TF	ADV	ADV

Original dwg. size	Date	Scale
A3	01/08/2025	1:1000

Drawing Status	Drawing Number	Rev.
Information	GB01T22I86/XB16//SPA035	-



Notes:

- Do not scale from drawing.
- All dimensions in metres unless otherwise stated.
- Please note that marked service locations are indicative only and should be confirmed by topographical survey.

Key:

- Blade Transporter Vehicle
- Blade Outline
- Over-run envelope of tractor and trailer wheels
- Over-sail envelope being swept by tractor and trailer bed
- Over-sail envelope being swept by blade path
- Over-run area of tractor and trailer wheels out with carriageway
- Over-sail area of tractor and trailer bed out with carriageway
- Over-sail area of blade out with carriageway

Rev.	Date	Revision details	Drawn	Checked	Approved

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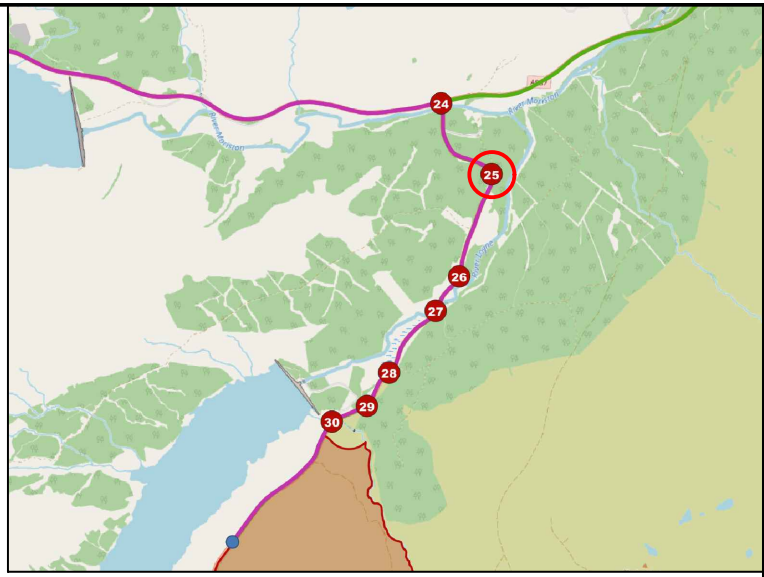
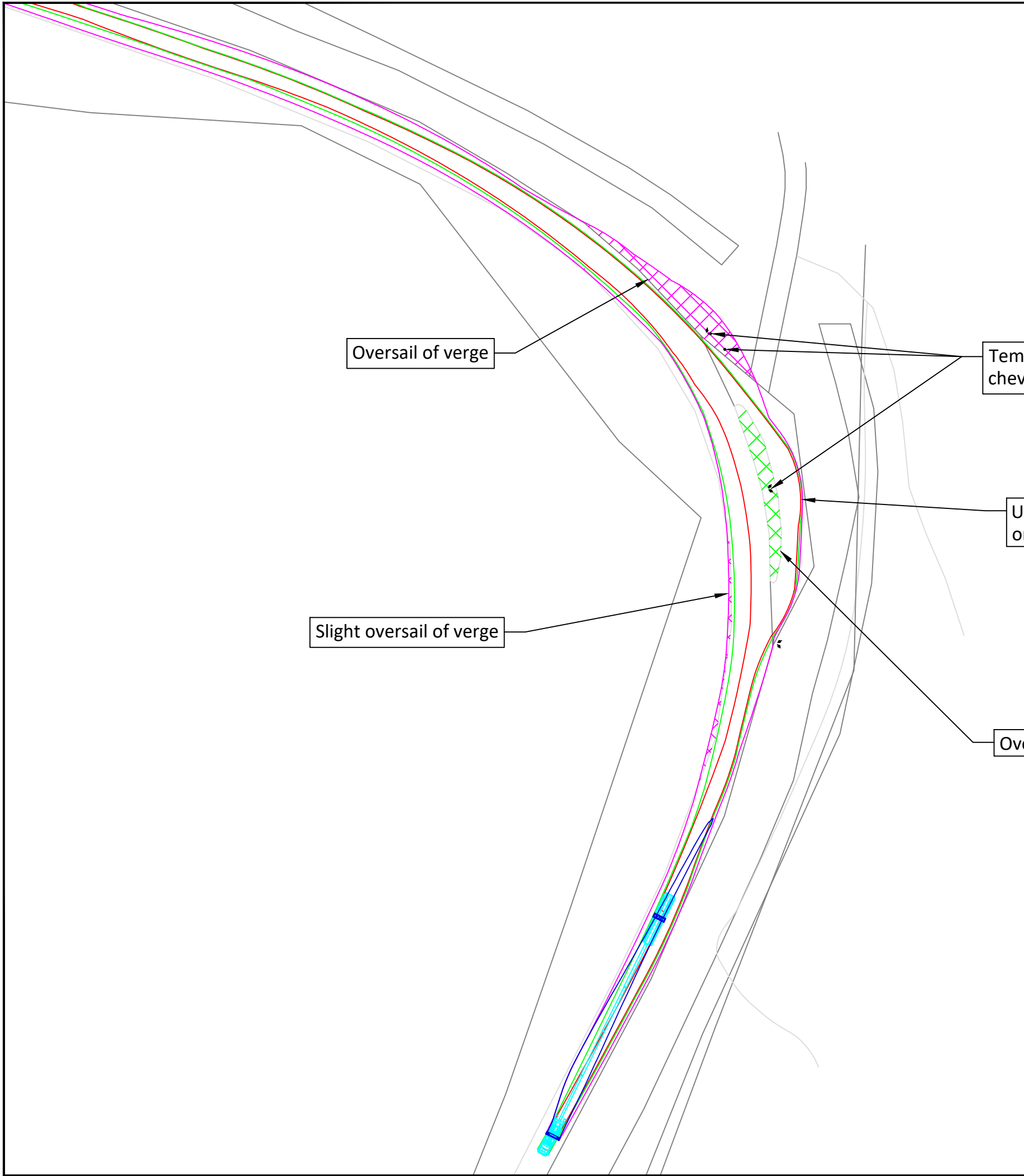
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E scotland@systra.co.uk

Client: Beinneun 2 Ltd

Project: Beinneun 2 Wind Farm Swept Path Assessment

Title: Vestas V172 - 84.35m Blade - Super Wing Carrier Pinch Point 25 (Sheet 1 of 2) Manual Rear Steering Utilised

Drawn	Checked	Approved
TF	ADV	ADV
Original dwg. size	Date	Scale
A3	01/08/2025	1:1000
Drawing Status	Drawing Number	Rev.
Information	GB01T22I86/XB16//SPA036	-



Notes:

1. Do not scale from drawing.
2. All dimensions in metres unless otherwise stated.
3. Please note that marked service locations are indicative only and should be confirmed by topographical survey.

Key:

- Blade Transporter Vehicle
- Blade Outline
- Over-run envelope of tractor and trailer wheels
- Over-sail envelope being swept by tractor and trailer bed
- Over-sail envelope being swept by blade path
- Over-run area of tractor and trailer wheels out with carriageway
- Over-sail area of tractor and trailer bed out with carriageway
- Over-sail area of blade out with carriageway

Rev.	Date	Revision details	Drawn	Checked	Approved

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Client
Beinneun 2 Ltd

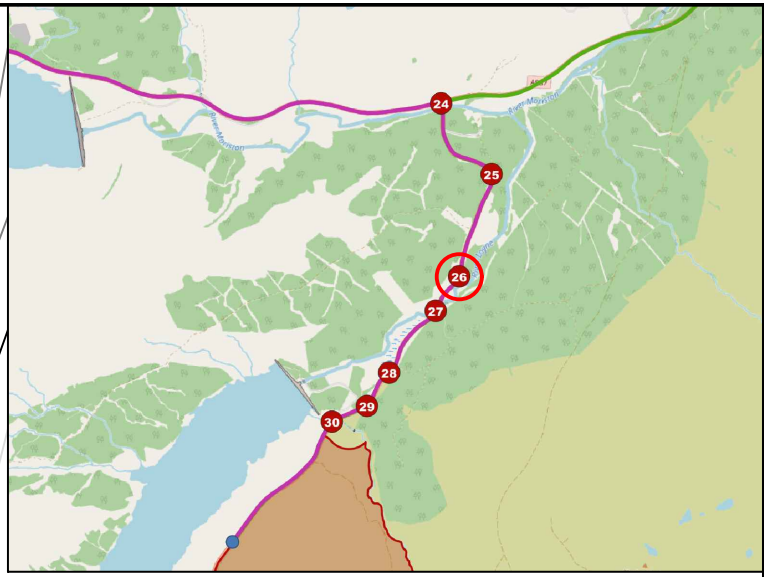
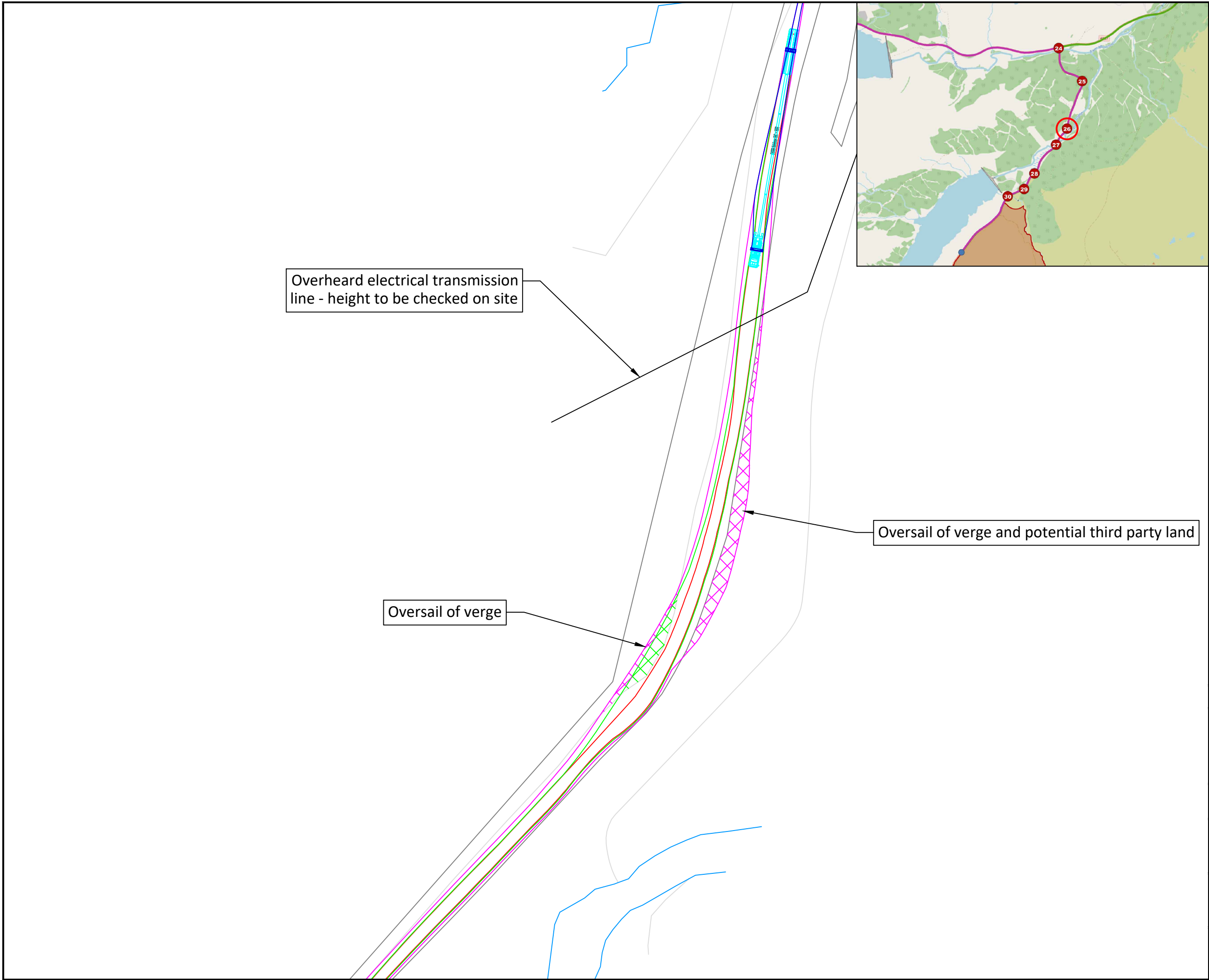
Project
Beinneun 2 Wind Farm
Swept Path Assessment

Title
Vestas V172 - 84.35m Blade - Super Wing Carrier
Pinch Point 25 (Sheet 2 of 2)
Manual Rear Steering Utilised

Drawn	Checked	Approved
TF	ADV	ADV

Original dwg. size	Date	Scale
A3	01/08/2025	1:1000

Drawing Status	Drawing Number	Rev.
Information	GB01T22I86/XB16//SPA037	-



- Notes:**
1. Do not scale from drawing.
 2. All dimensions in metres unless otherwise stated.
 3. Please note that marked service locations are indicative only and should be confirmed by topographical survey.



- Key:**
- Blade Transporter Vehicle
 - Blade Outline
 - Over-run envelope of tractor and trailer wheels
 - Over-sail envelope being swept by tractor and trailer bed
 - Over-sail envelope being swept by blade path
 - Over-run area of tractor and trailer wheels out with carriageway
 - Over-sail area of tractor and trailer bed out with carriageway
 - Over-sail area of blade out with carriageway

Overhead electrical transmission line - height to be checked on site

Oversail of verge and potential third party land

Oversail of verge

Rev.	Date	Revision details	Drawn	Checked	Approved

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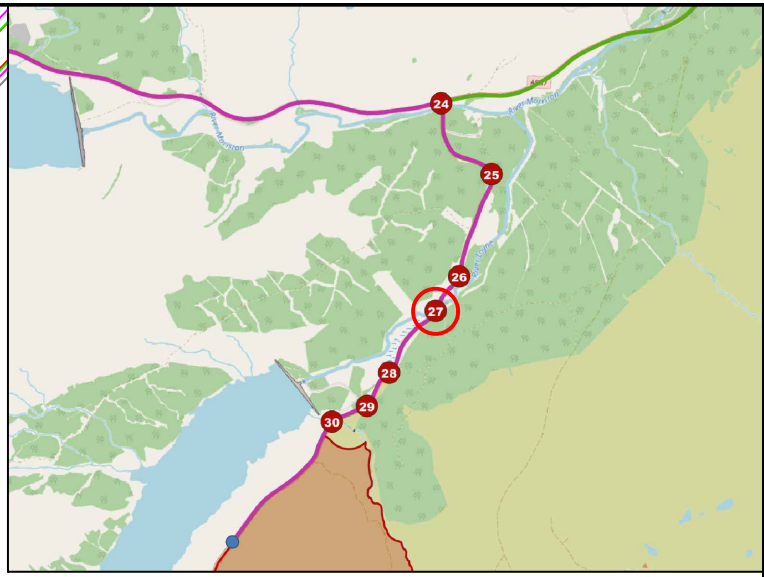
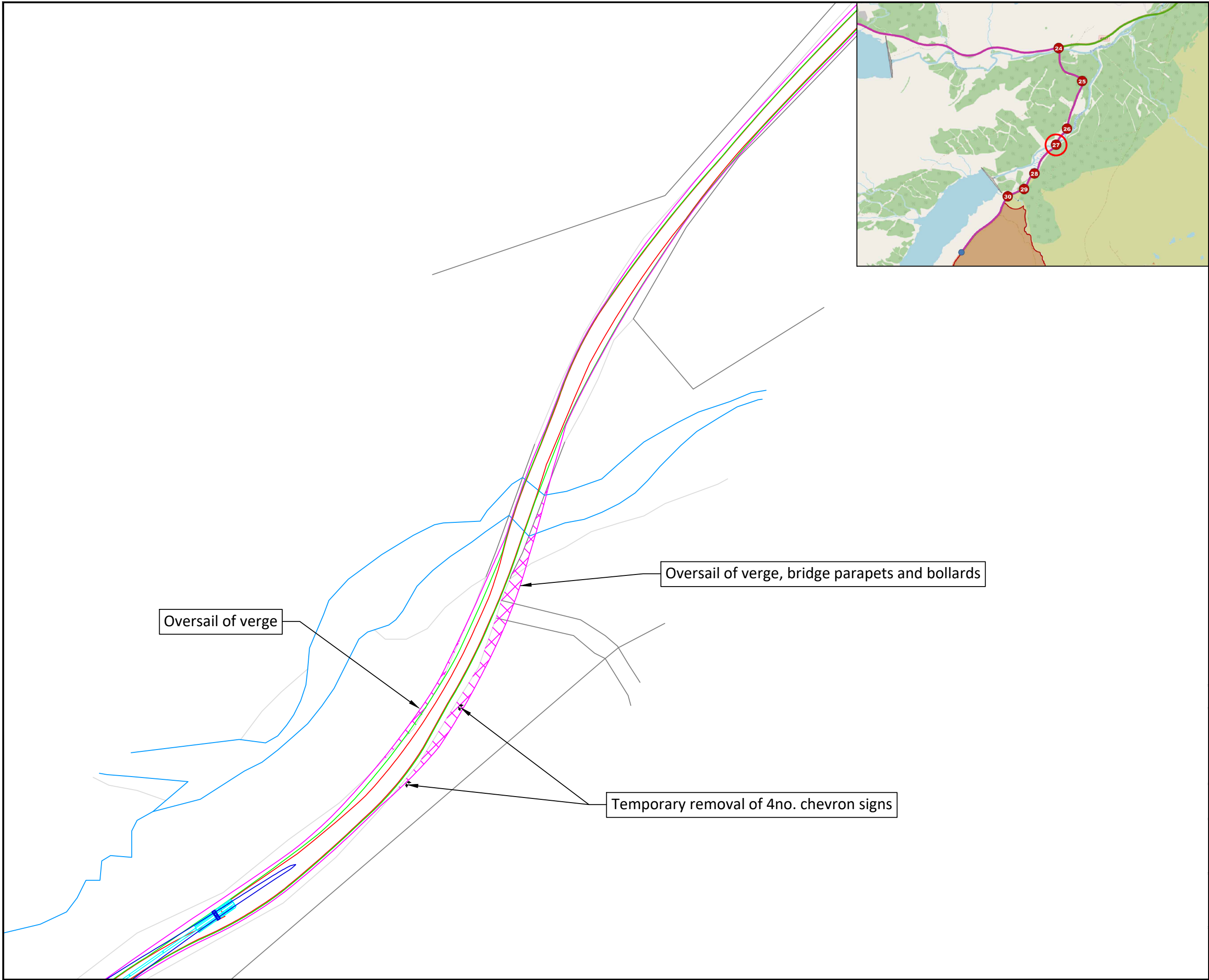
T 0131 469 1847
E scotland@systra.co.uk

Client
Beinneun 2 Ltd

Project
Beinneun 2 Wind Farm
Swept Path Assessment

Title
Vestas V172 - 84.35m Blade - Super Wing Carrier
Pinch Point 26
Manual Rear Steering Utilised

Drawn	Checked	Approved
TF	ADV	ADV
Original dwg. size A3	Date 01/08/2025	Scale 1:1000
Drawing Status Information	Drawing Number GB01T22I86/XB16//SPA038	Rev. -



Notes:

1. Do not scale from drawing.
2. All dimensions in metres unless otherwise stated.
3. Please note that marked service locations are indicative only and should be confirmed by topographical survey.

Key:

- Blade Transporter Vehicle
- Blade Outline
- Over-run envelope of tractor and trailer wheels
- Over-sail envelope being swept by tractor and trailer bed
- Over-sail envelope being swept by blade path
- Over-run area of tractor and trailer wheels out with carriageway
- Over-sail area of tractor and trailer bed out with carriageway
- Over-sail area of blade out with carriageway

Rev.	Date	Revision details	Drawn	Checked	Approved

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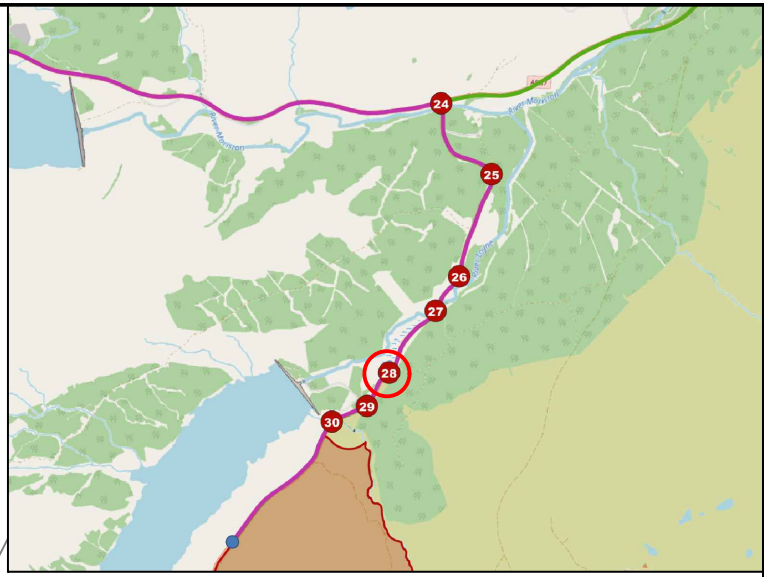
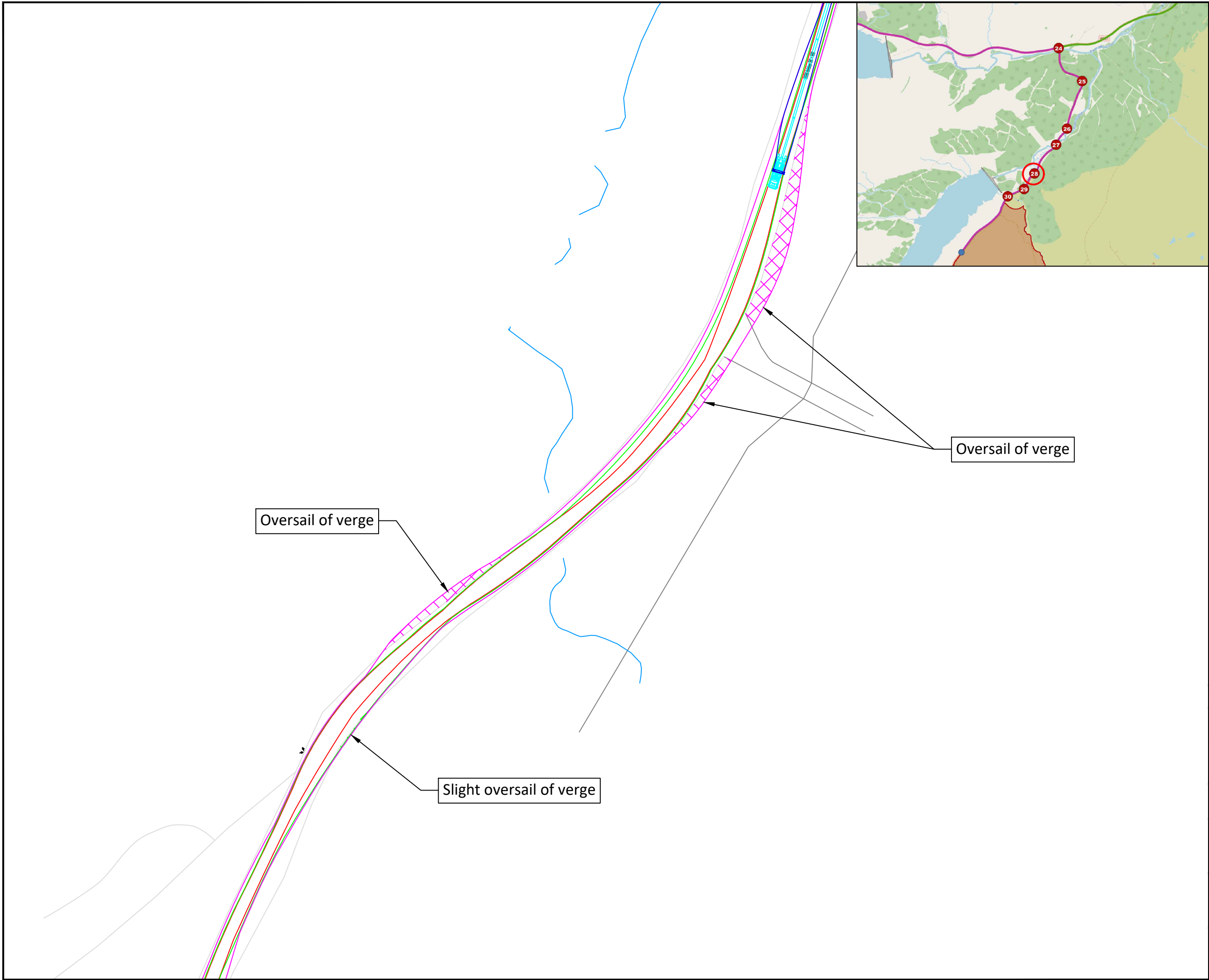
Project: Beinneun 2 Wind Farm Swept Path Assessment

Title: Vestas V172 - 84.35m Blade - Super Wing Carrier Pinch Point 27 Manual Rear Steering Utilised

Drawn	Checked	Approved
TF	ADV	ADV

Original dwg. size	Date	Scale
A3	01/08/2025	1:1000

Drawing Status	Drawing Number	Rev.
Information	GB01T22I86/XB16//SPA039	-



Notes:

1. Do not scale from drawing.
2. All dimensions in metres unless otherwise stated.
3. Please note that marked service locations are indicative only and should be confirmed by topographical survey.

Key:

- Blade Transporter Vehicle
- Blade Outline
- Over-run envelope of tractor and trailer wheels
- Over-sail envelope being swept by tractor and trailer bed
- Over-sail envelope being swept by blade path
- Over-run area of tractor and trailer wheels out with carriageway
- Over-sail area of tractor and trailer bed out with carriageway
- Over-sail area of blade out with carriageway

Rev.	Date	Revision details	Drawn	Checked	Approved

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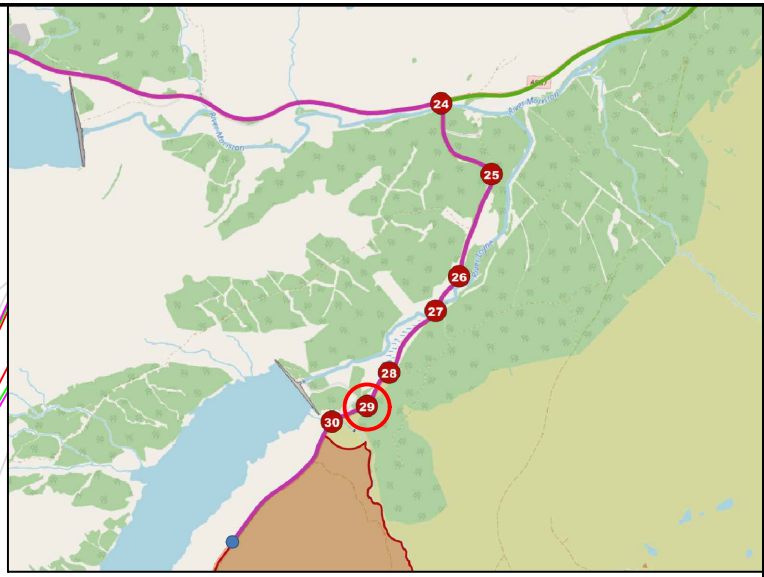
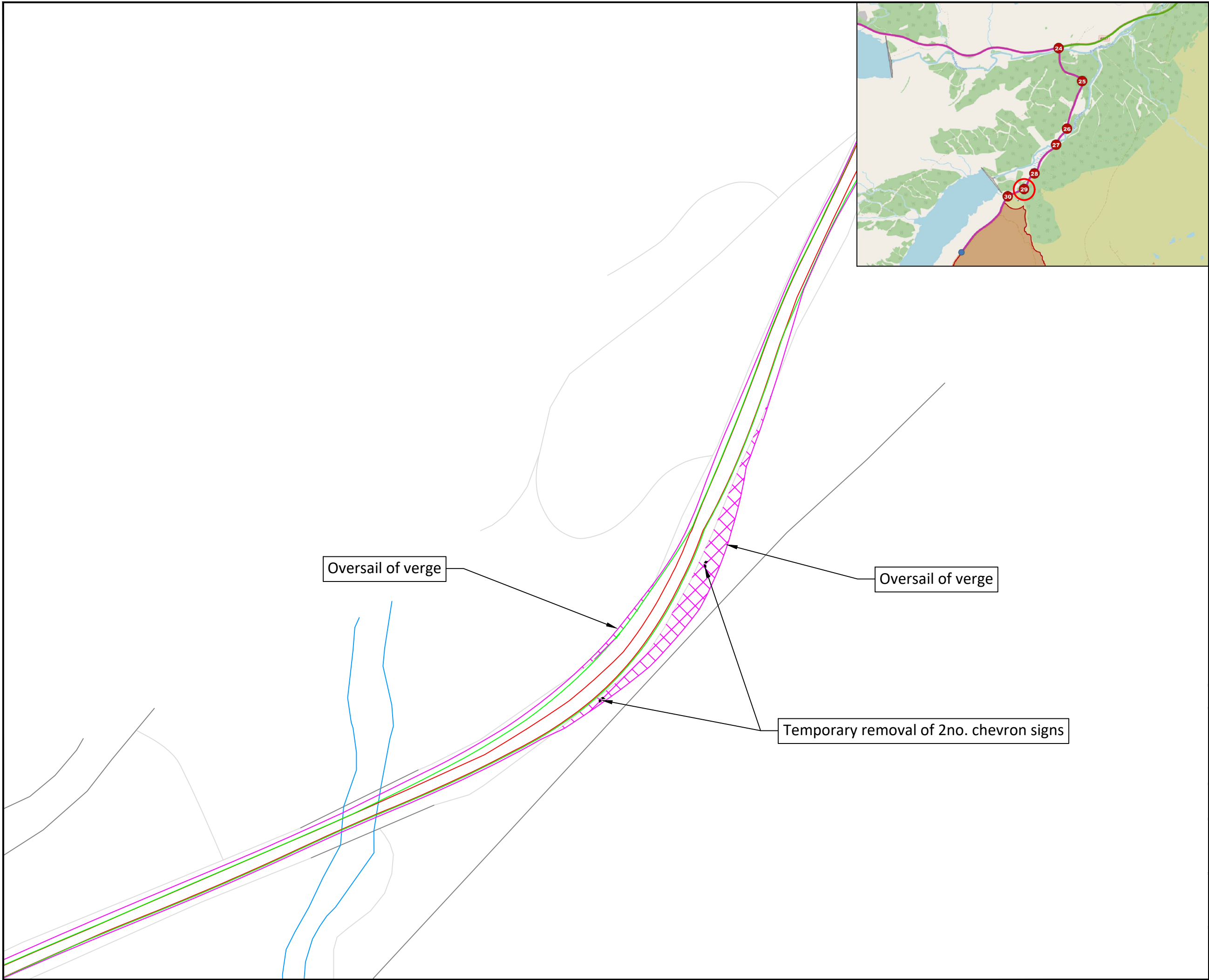
Project: Beinneun 2 Wind Farm Swept Path Assessment

Title: Vestas V172 - 84.35m Blade - Super Wing Carrier Pinch Point 28 Manual Rear Steering Utilised

Drawn	Checked	Approved
TF	ADV	ADV

Original dwg. size	Date	Scale
A3	01/08/2025	1:1000

Drawing Status	Drawing Number	Rev.
Information	GB01T22I86/XB16//SPA040	-



Notes:

1. Do not scale from drawing.
2. All dimensions in metres unless otherwise stated.
3. Please note that marked service locations are indicative only and should be confirmed by topographical survey.

Key:

- Blade Transporter Vehicle
- Blade Outline
- Over-run envelope of tractor and trailer wheels
- Over-sail envelope being swept by tractor and trailer bed
- Over-sail envelope being swept by blade path
- Over-run area of tractor and trailer wheels out with carriageway
- Over-sail area of tractor and trailer bed out with carriageway
- Over-sail area of blade out with carriageway

Rev.	Date	Revision details	Drawn	Checked	Approved

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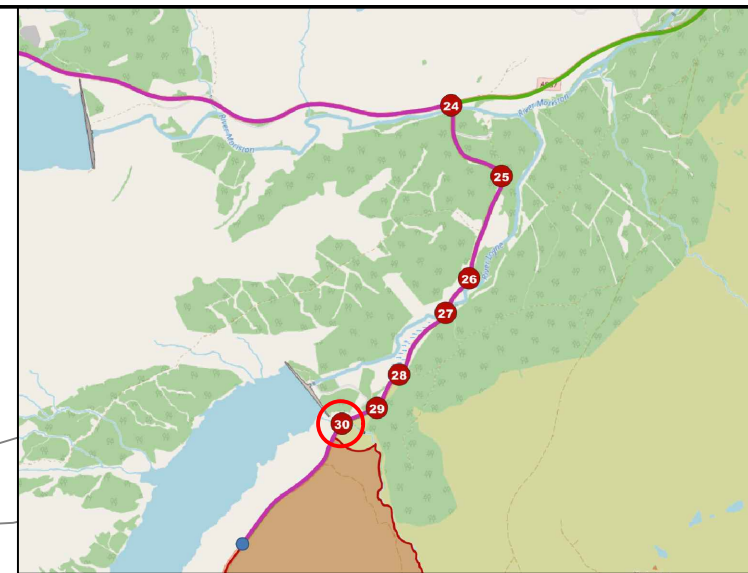
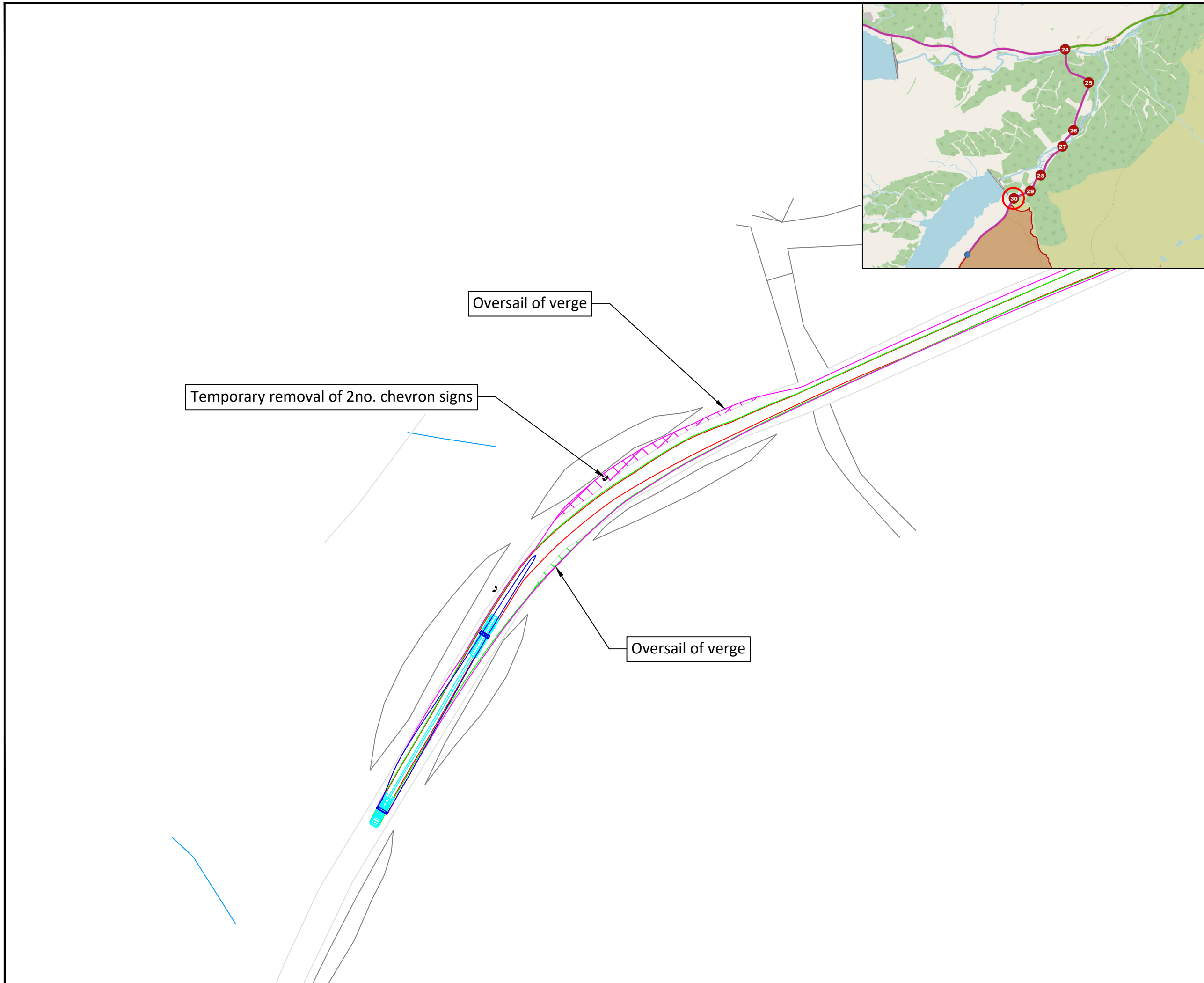
Project
Beinneun 2 Wind Farm
Swept Path Assessment

Title
Vestas V172 - 84.35m Blade - Super Wing Carrier
Pinch Point 29
Manual Rear Steering Utilised

Drawn	Checked	Approved
TF	ADV	ADV

Original dwg. size	Date	Scale
A3	01/08/2025	1:1000

Drawing Status	Drawing Number	Rev.
Information	GB01T22I86/XB16//SPA041	-



- Notes:**
1. Do not scale from drawing.
 2. All dimensions in metres unless otherwise stated.
 3. Please note that marked service locations are indicative only and should be confirmed by topographical survey.



- Key:**
- Blade Transporter Vehicle
 - Blade Outline
 - Over-run envelope of tractor and trailer wheels
 - Over-sail envelope being swept by tractor and trailer bed
 - Over-sail envelope being swept by blade path
 - Over-run area of tractor and trailer wheels out with carriageway
 - Over-sail area of tractor and trailer bed out with carriageway
 - Over-sail area of blade out with carriageway

Oversail of verge

Temporary removal of 2no. chevron signs

Oversail of verge

Rev.	Date	Revision details	Drawn	Checked	Approved

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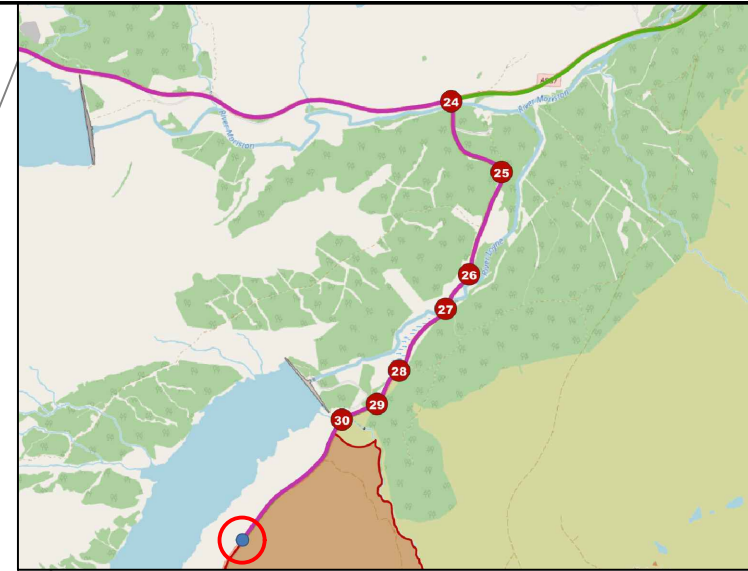
Project
Beinneun 2 Wind Farm
Swept Path Assessment

Title
Vestas V172 - 84.35m Blade - Super Wing Carrier
Pinch Point 30
Manual Rear Steering Utilised

Drawn TF	Checked ADV	Approved ADV
Original dwg. size A3	Date 01/08/2025	Scale 1:1000
Drawing Status Information	Drawing Number GB01T22I86/XB16//SPA042	Rev. -

Vehicle remains within carriageway and access design extents - no further mitigation required

Site access design by Fairhurst. Refer to Fairhurst drawing *Figure 4.12* for more details



Notes:

1. Do not scale from drawing.
2. All dimensions in metres unless otherwise stated.
3. Please note that marked service locations are indicative only and should be confirmed by topographical survey.



Key:

- Blade Transporter Vehicle
- Blade Outline
- Over-run envelope of tractor and trailer wheels
- Over-sail envelope being swept by tractor and trailer bed
- Over-sail envelope being swept by blade path
- Over-run area of tractor and trailer wheels out with carriageway
- Over-sail area of tractor and trailer bed out with carriageway
- Over-sail area of blade out with carriageway

Rev.	Date	Revision details	Drawn	Checked	Approved

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Project
Beinneun 2 Wind Farm
Swept Path Assessment

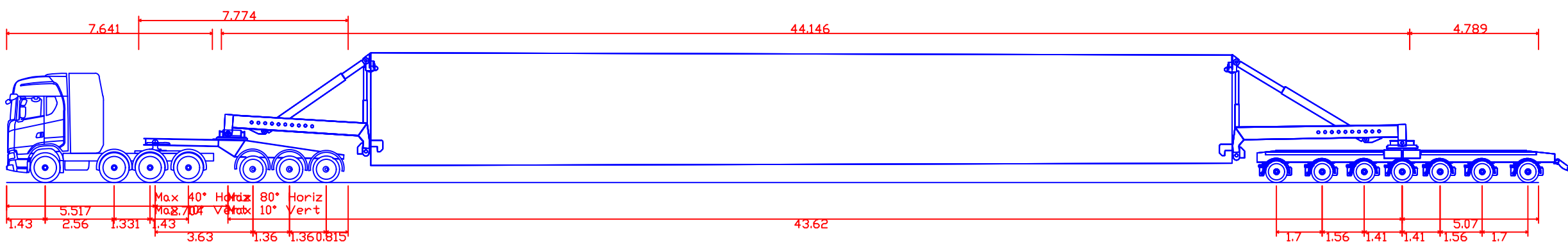
Title
Vestas V172 - 84.35m Blade - Super Wing Carrier
Site Access Point

Drawn TF	Checked ADV	Approved ADV
Original dwg. size A3	Date 01/08/2025	Scale 1:750
Drawing Status Information	Drawing Number GB01T22I86/XB16//SPA043	Rev. -

- Notes:
1. Do not scale from drawing.
 2. All dimensions in metres unless otherwise stated.
 3. Please note that marked service locations are indicative only and should be confirmed by topographical survey.



- Key:
- Blade Transporter Vehicle
 - Blade Outline



SYSTRA Tower Clamp - V162 TOP

Overall Length	56.911m
Overall Width	2.950m
Overall Body Height	4.812m
Min Body Ground Clearance	0.262m
Max Track Width	2.520m
Lock to lock time	6.00s
Max Wheel Angle	45.00°

Rev.	Date	Revision details	Drawn	Checked	Approved

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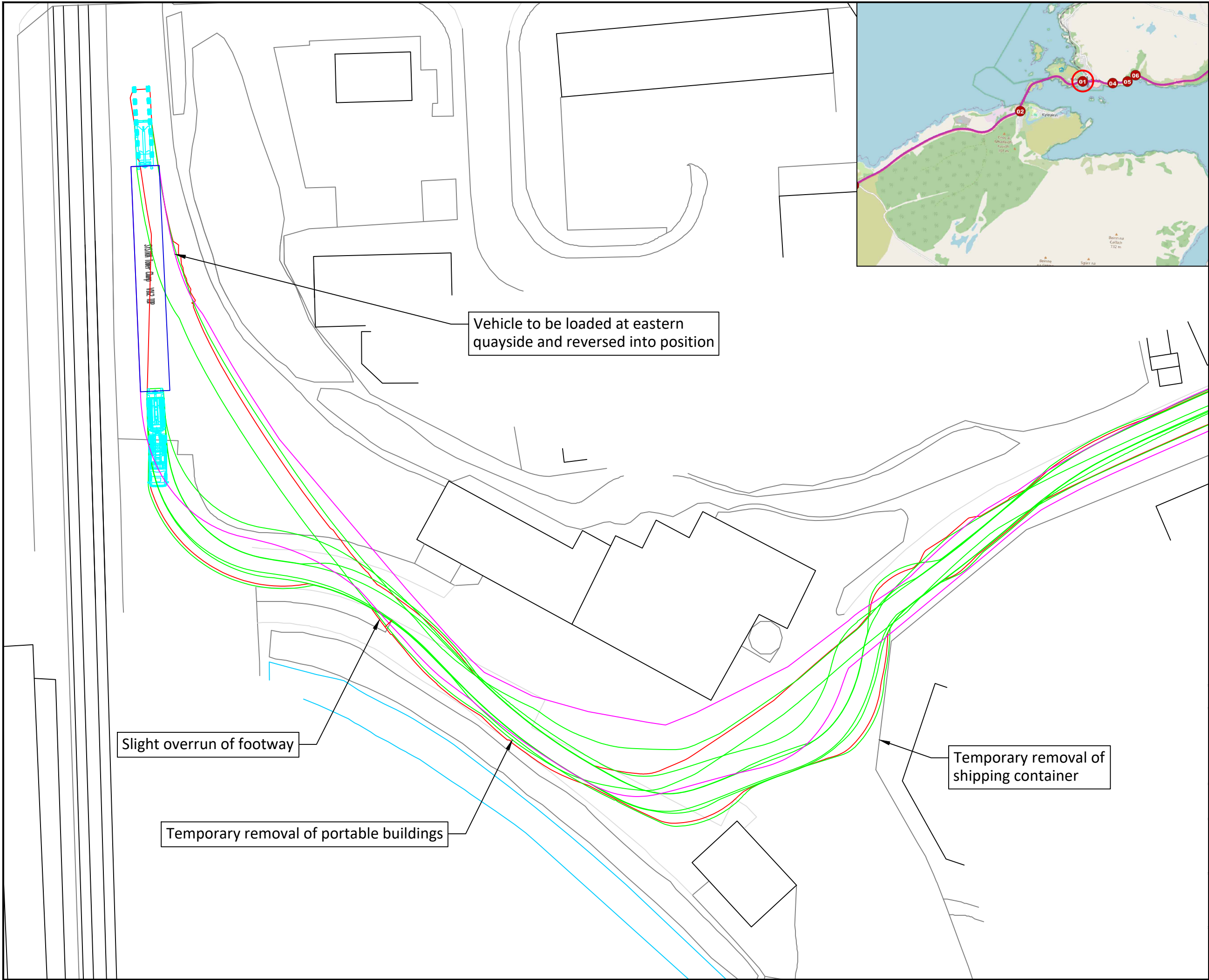
T 0131 466 1847
E scotland@systra.co.uk

Client
Beinneun 2 Ltd

Project
Beinneun 2 Wind Farm
Swept Path Assessment

Title
Vestas V172 - 32m x 4.2m Tower - Tower Transporter
Indicative Loading Configuration

Drawn	Checked	Approved
TF	ADV	ADV
Original dwg. size	Date	Scale
A3	01/08/2025	NTS
Drawing Status	Drawing Number	Rev.
Information	GB01T22186/XB16/VEH003	-



Notes:

1. Do not scale from drawing.
2. All dimensions in metres unless otherwise stated.
3. Please note that marked service locations are indicative only and should be confirmed by topographical survey.

Key:

- Tower Transporter Vehicle
- Tower Outline
- Over-run envelope of tractor and trailer wheels
- Over-sail envelope being swept by tractor and trailer bed
- Over-sail envelope being swept by load path
- Over-run area of tractor and trailer wheels out with carriageway
- Over-sail area of tractor and trailer bed out with carriageway
- Over-sail area of load out with carriageway

Rev.	Date	Revision details	Drawn	Checked	Approved

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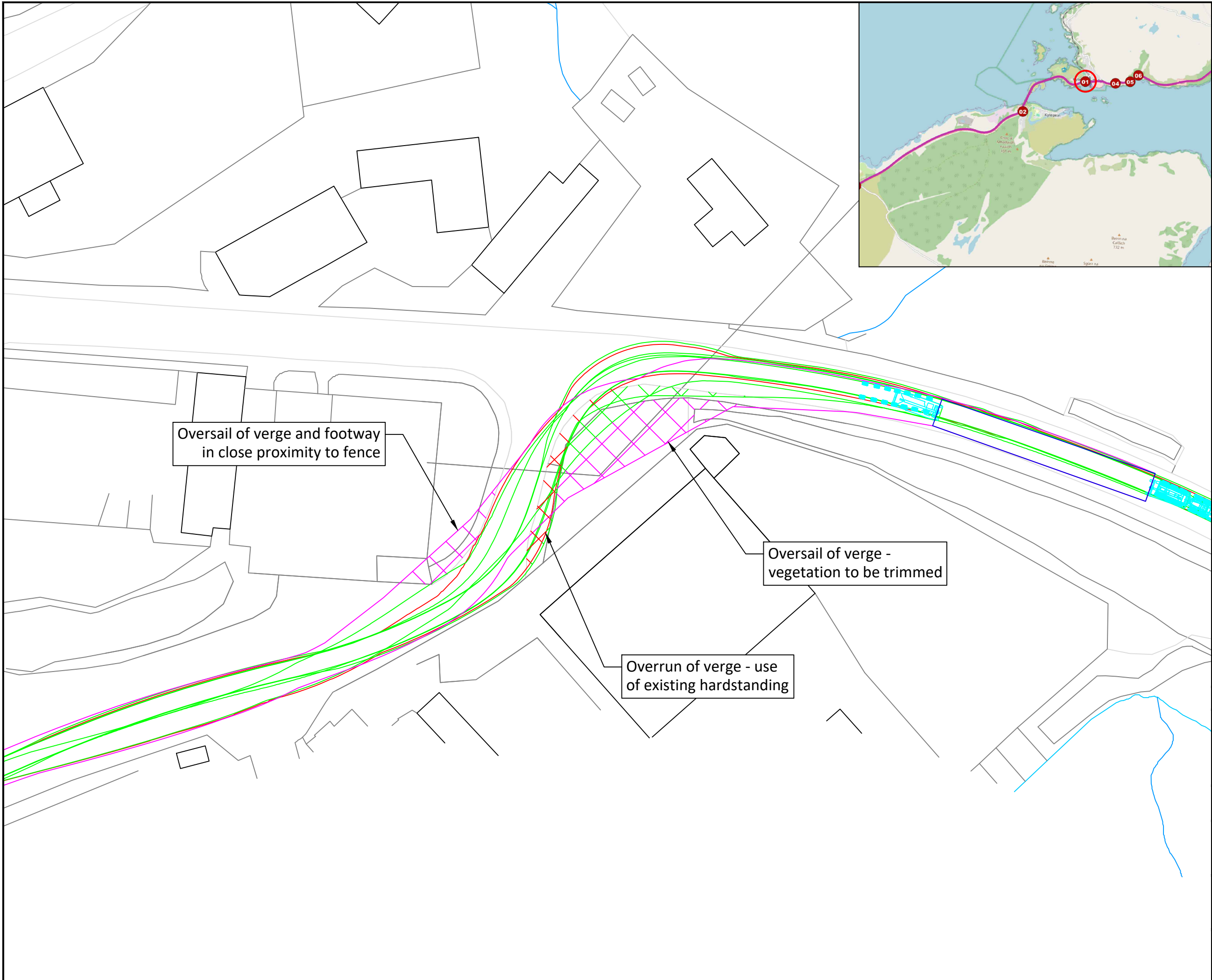
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T 0131 469 1847
E scotland@systra.co.uk

Client: Beinneun 2 Ltd

Project: Beinneun 2 Wind Farm Swept Path Assessment

Title: Vestas V172 - 32m x 4.2m Tower - Tower Transporter Pinch Point 01 (Fishery Pier - Sheet 1 of 2) Manual Rear Steering Utilised

Drawn	Checked	Approved
TF	ADV	ADV
Original dwg. size	Date	Scale
A3	01/08/2025	1:500
Drawing Status	Drawing Number	Rev.
Information	GB01T22I86/XB16//SPA044	-



Notes:

1. Do not scale from drawing.
2. All dimensions in metres unless otherwise stated.
3. Please note that marked service locations are indicative only and should be confirmed by topographical survey.

Key:

- Tower Transporter Vehicle
- Tower Outline
- Over-run envelope of tractor and trailer wheels
- Over-sail envelope being swept by tractor and trailer bed
- Over-sail envelope being swept by load path
- Over-run area of tractor and trailer wheels out with carriageway
- Over-sail area of tractor and trailer bed out with carriageway
- Over-sail area of load out with carriageway

Rev.	Date	Revision details	Drawn	Checked	Approved

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Client
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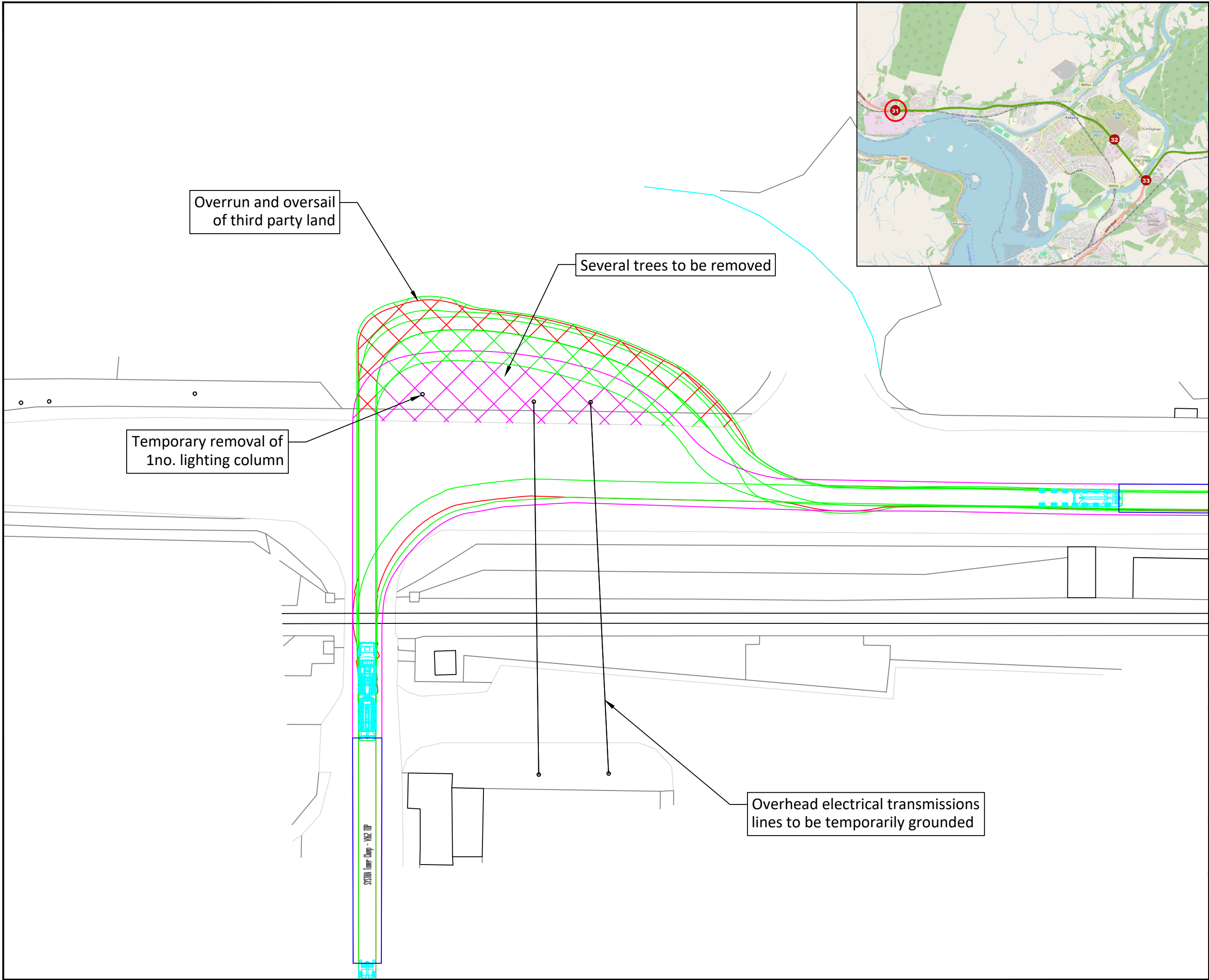
Project
Beinneun 2 Wind Farm
Swept Path Assessment

Title
Vestas V172 - 32m x 4.2m Tower - Tower Transporter
Pinch Point 01 (Fishery Pier - Sheet 2 of 2)

Drawn	Checked	Approved
TF	ADV	ADV

Original dwg. size	Date	Scale
A3	01/08/2025	1:500

Drawing Status	Drawing Number	Rev.
Information	GB01T22I86/XB16//SPA045	-



Notes:

1. Do not scale from drawing.
2. All dimensions in metres unless otherwise stated.
3. Please note that marked service locations are indicative only and should be confirmed by topographical survey.

Key:

- Tower Transporter Vehicle
- Tower Outline
- Over-run envelope of tractor and trailer wheels
- Over-sail envelope being swept by tractor and trailer bed
- Over-sail envelope being swept by load path
- Over-run area of tractor and trailer wheels out with carriageway
- Over-sail area of tractor and trailer bed out with carriageway
- Over-sail area of load out with carriageway

Rev.	Date	Revision details	Drawn	Checked	Approved

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Client: Beinneun 2 Ltd

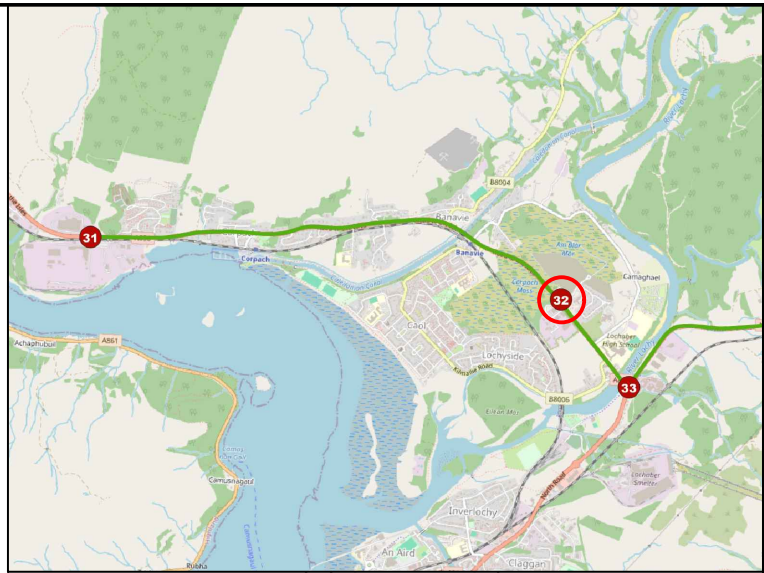
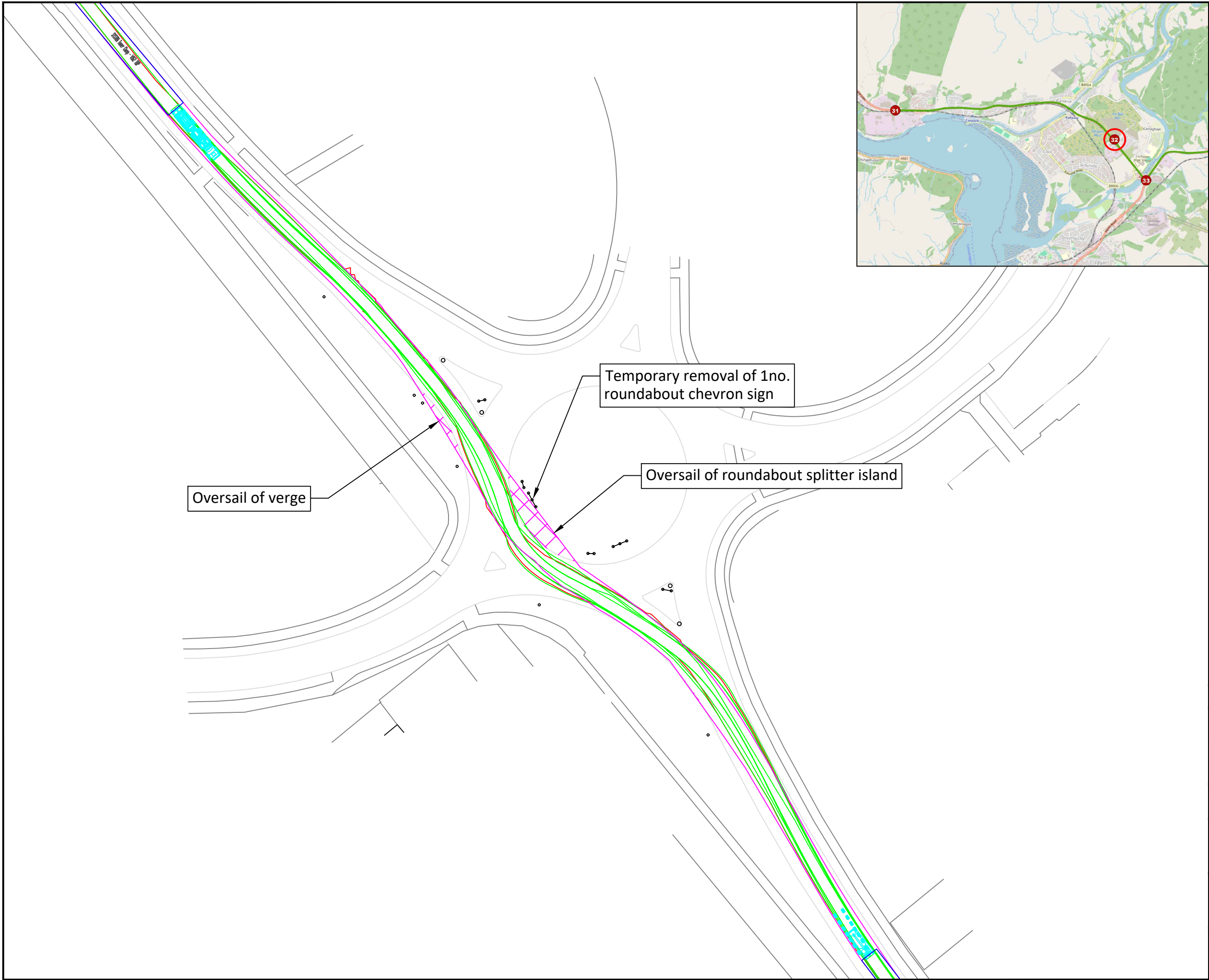
Project: Beinneun 2 Wind Farm Swept Path Assessment

Title: Vestas V172 - 84.35m Blade - Super Wing Carrier Pinch Point 31 Manual Rear Steering Utilised

Drawn	Checked	Approved
TF	ADV	ADV

Original dwg. size	Date	Scale
A3	01/08/2025	1:500

Drawing Status	Drawing Number	Rev.
Information	GB01T22I86/XB16//SPA046	-



- Notes:**
1. Do not scale from drawing.
 2. All dimensions in metres unless otherwise stated.
 3. Please note that marked service locations are indicative only and should be confirmed by topographical survey.



- Key:**
- Tower Transporter Vehicle
 - Tower Outline
 - Over-run envelope of tractor and trailer wheels
 - Over-sail envelope being swept by tractor and trailer bed
 - Over-sail envelope being swept by load path
 - Over-run area of tractor and trailer wheels out with carriageway
 - Over-sail area of tractor and trailer bed out with carriageway
 - Over-sail area of load out with carriageway

Oversail of verge

Temporary removal of 1no. roundabout chevron sign

Oversail of roundabout splitter island

Rev.	Date	Revision details	Drawn	Checked	Approved

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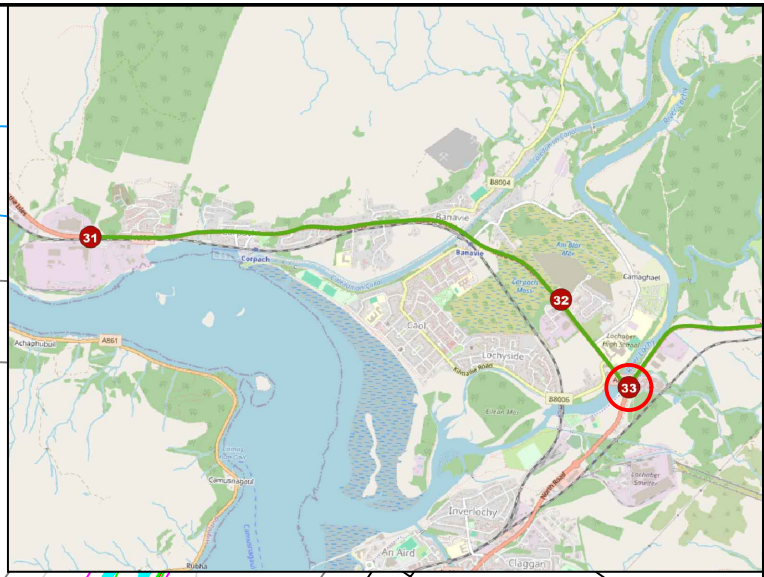
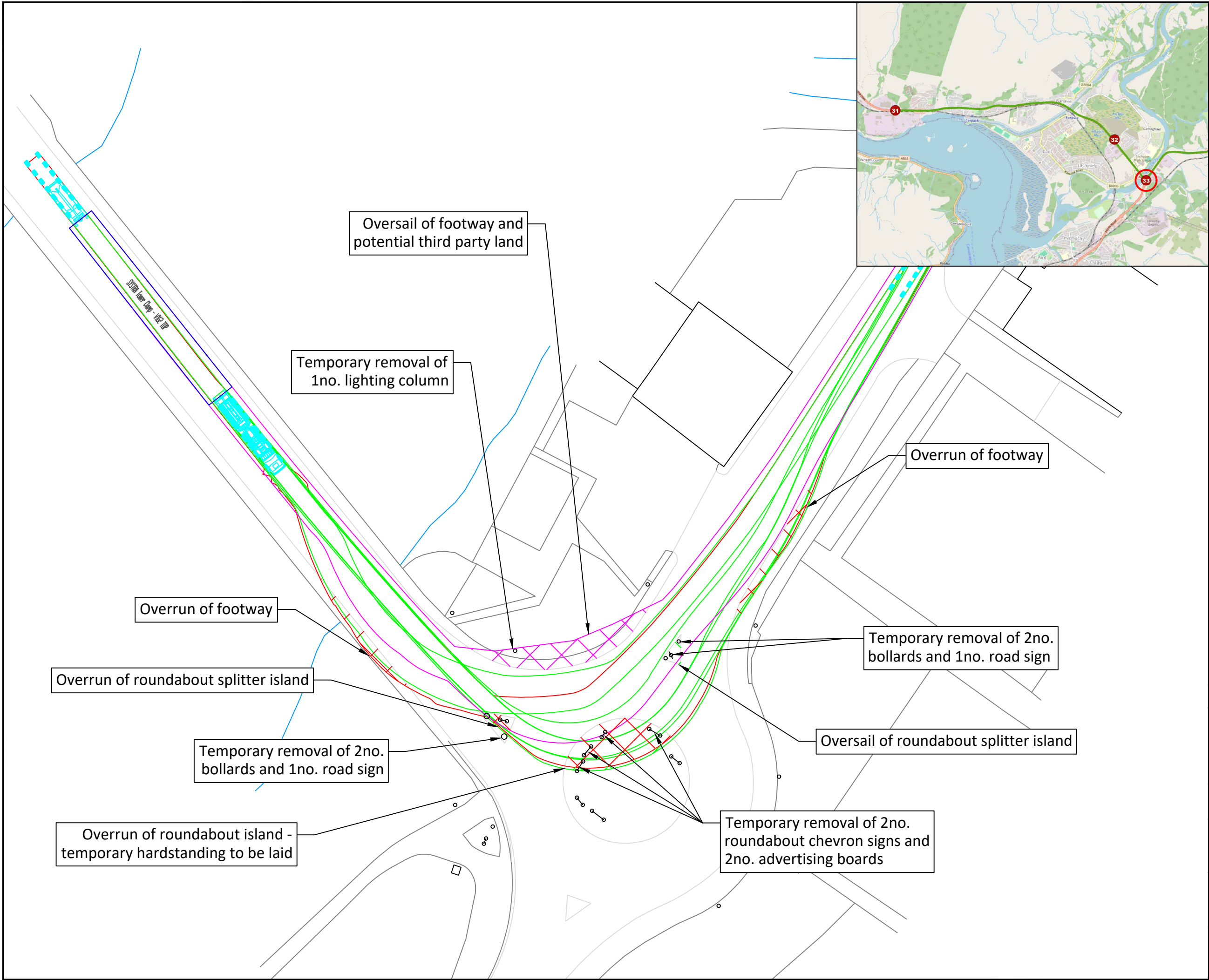
T 0131 466 1847
E scotland@systra.co.uk

Client
Beinneun 2 Ltd

Project
Beinneun 2 Wind Farm
Swept Path Assessment

Title
Vestas V172 - 32m x 4.2m Tower - Tower Transporter
Pinch Point 32
Manual Rear Steering Utilised

Drawn	Checked	Approved
TF	ADV	ADV
Original dwg. size A3	Date 01/08/2025	Scale 1:750
Drawing Status Information	Drawing Number GB01T22I86/XB16//SPA047	Rev. -



- Notes:**
1. Do not scale from drawing.
 2. All dimensions in metres unless otherwise stated.
 3. Please note that marked service locations are indicative only and should be confirmed by topographical survey.



- Key:**
- Tower Transporter Vehicle
 - Tower Outline
 - Over-run envelope of tractor and trailer wheels
 - Over-sail envelope being swept by tractor and trailer bed
 - Over-sail envelope being swept by load path
 - Over-run area of tractor and trailer wheels out with carriageway
 - Over-sail area of tractor and trailer bed out with carriageway
 - Over-sail area of load out with carriageway

Rev.	Date	Revision details	Drawn	Checked	Approved

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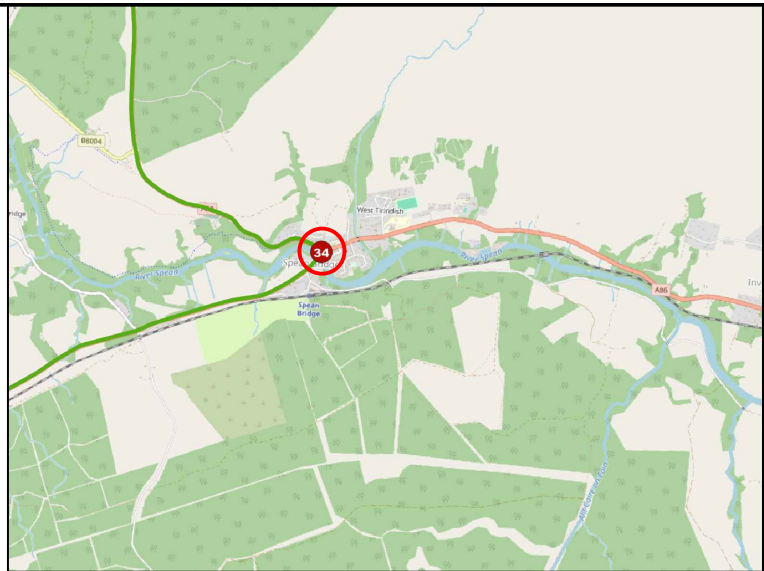
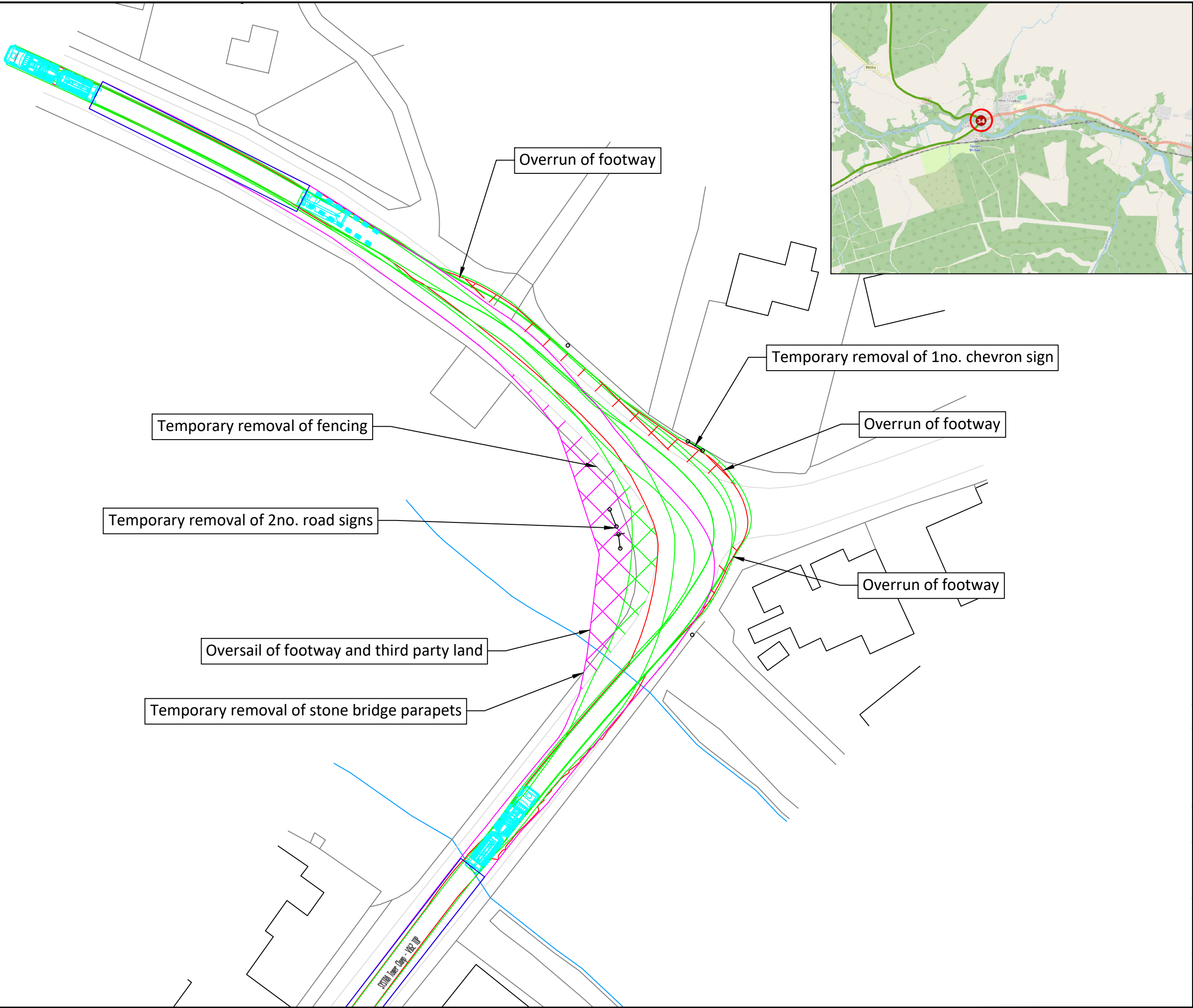
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Client
Beinneun 2 Ltd

Project
Beinneun 2 Wind Farm
Swept Path Assessment

Title
Vestas V172 - 32m x 4.2m Tower - Tower Transporter
Pinch Point 33
Manual Rear Steering Utilised

Drawn	Checked	Approved
TF	ADV	ADV
Original dwg. size A3	Date 01/08/2025	Scale 1:500
Drawing Status Information	Drawing Number GB01T22I86/XB16//SPA048	Rev. -



- Notes:**
1. Do not scale from drawing.
 2. All dimensions in metres unless otherwise stated.
 3. Please note that marked service locations are indicative only and should be confirmed by topographical survey.



- Key:**
- Tower Transporter Vehicle
 - Tower Outline
 - Over-run envelope of tractor and trailer wheels
 - Over-sail envelope being swept by tractor and trailer bed
 - Over-sail envelope being swept by load path
 - Over-run area of tractor and trailer wheels out with carriageway
 - Over-sail area of tractor and trailer bed out with carriageway
 - Over-sail area of load out with carriageway

Rev.	Date	Revision details	Drawn	Checked	Approved

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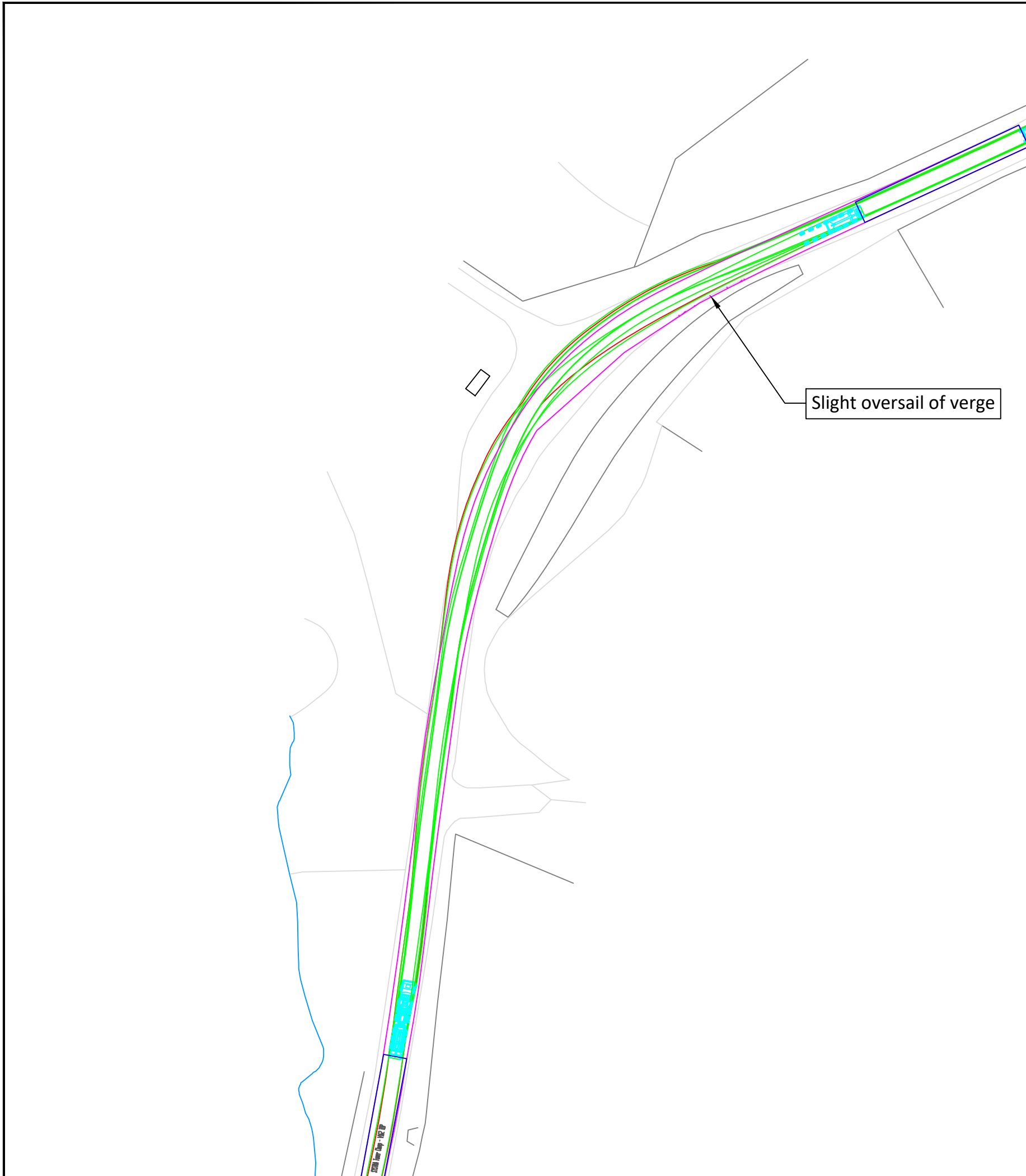
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Client
Beinneun 2 Ltd

Project
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Swept Path Assessment

Title
Vestas V172 - 32m x 4.2m Tower - Tower Transporter
Pinch Point 34
Manual Rear Steering Utilised

Drawn	Checked	Approved
TF	ADV	ADV
Original dwg. size A3	Date 01/08/2025	Scale 1:500
Drawing Status Information	Drawing Number GB01T22I86/XB16//SPA049	Rev. -



- Notes:**
1. Do not scale from drawing.
 2. All dimensions in metres unless otherwise stated.
 3. Please note that marked service locations are indicative only and should be confirmed by topographical survey.



- Key:**
- Tower Transporter Vehicle
 - Tower Outline
 - Over-run envelope of tractor and trailer wheels
 - Over-sail envelope being swept by tractor and trailer bed
 - Over-sail envelope being swept by load path
 - Over-run area of tractor and trailer wheels out with carriageway
 - Over-sail area of tractor and trailer bed out with carriageway
 - Over-sail area of load out with carriageway

Rev.	Date	Revision details	Drawn	Checked	Approved

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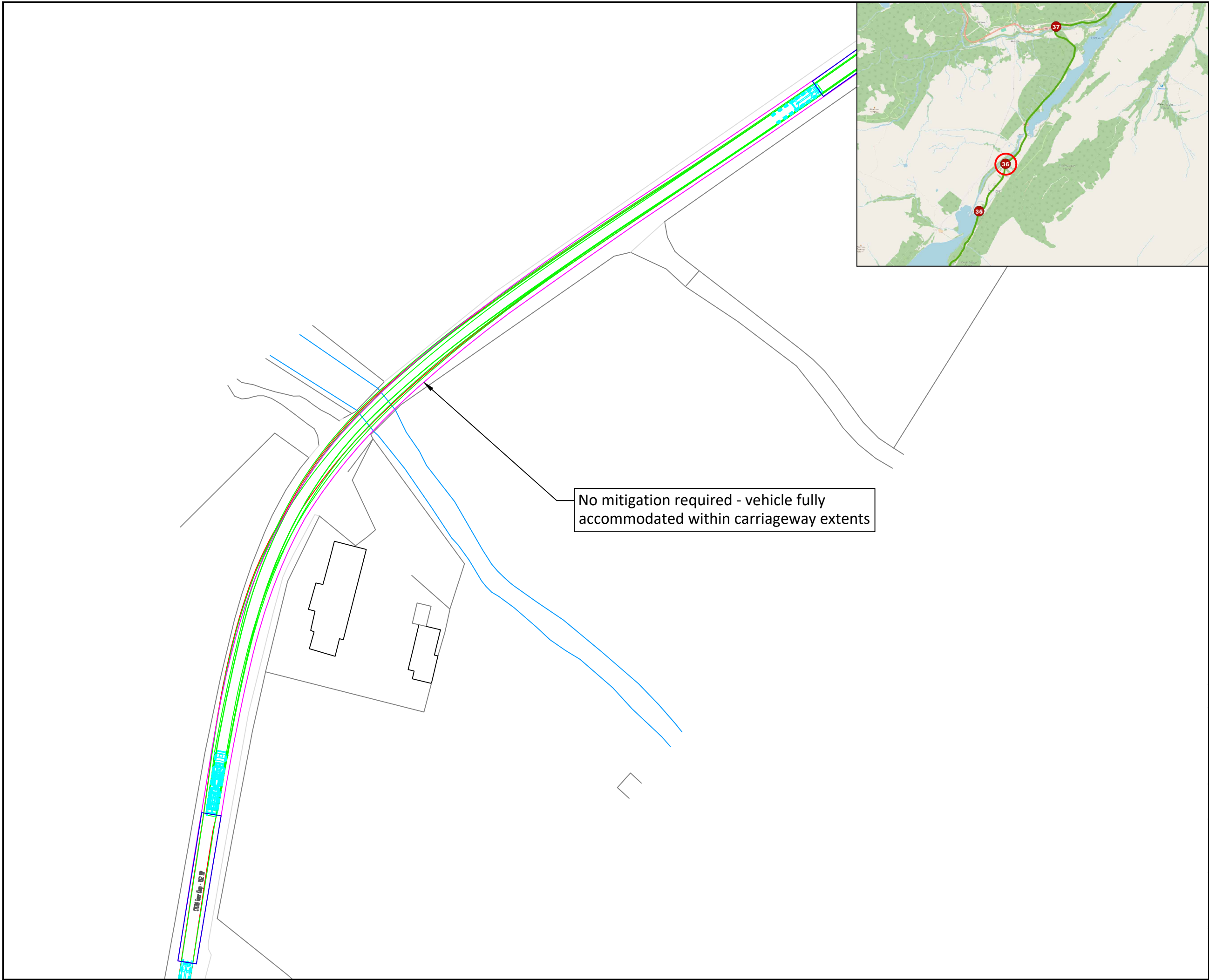
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Client
Beinneun 2 Ltd

Project
Beinneun 2 Wind Farm
Swept Path Assessment

Title
Vestas V172 - 32m x 4.2m Tower - Tower Transporter
Pinch Point 35

Drawn TF	Checked ADV	Approved ADV
Original dwg. size A3	Date 01/08/2025	Scale 1:750
Drawing Status Information	Drawing Number GB01T22I86/XB16//SPA050	Rev. -



Notes:

1. Do not scale from drawing.
2. All dimensions in metres unless otherwise stated.
3. Please note that marked service locations are indicative only and should be confirmed by topographical survey.

Key:

- Tower Transporter Vehicle
- Tower Outline
- Over-run envelope of tractor and trailer wheels
- Over-sail envelope being swept by tractor and trailer bed
- Over-sail envelope being swept by load path
- Over-run area of tractor and trailer wheels out with carriageway
- Over-sail area of tractor and trailer bed out with carriageway
- Over-sail area of load out with carriageway

Rev.	Date	Revision details	Drawn	Checked	Approved

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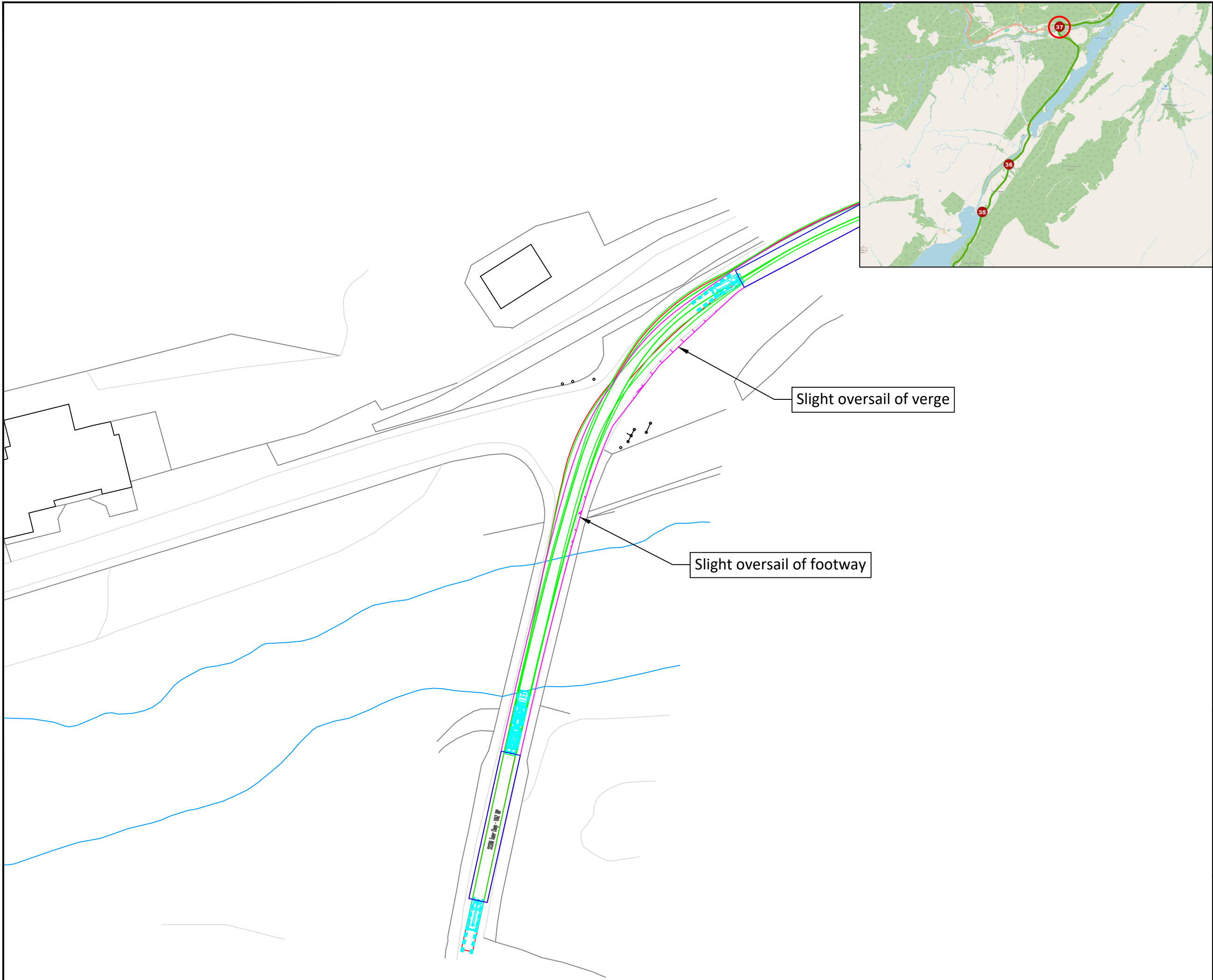
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E scotland@systra.co.uk

Client: Beinneun 2 Ltd

Project: Beinneun 2 Wind Farm Swept Path Assessment

Title: Vestas V172 - 32m x 4.2m Tower - Tower Transporter Pinch Point 36

Drawn: TF	Checked: ADV	Approved: ADV
Original dwg. size: A3	Date: 01/08/2025	Scale: 1:750
Drawing Status: Information		Drawing Number: GB01T22I86/XB16//SPA051



Notes:

1. Do not scale from drawing.
2. All dimensions in metres unless otherwise stated.
3. Please note that marked service locations are indicative only and should be confirmed by topographical survey.



Key:

- Tower Transporter Vehicle
- Tower Outline
- Over-run envelope of tractor and trailer wheels
- Over-sail envelope being swept by tractor and trailer bed
- Over-sail envelope being swept by load path
- Over-run area of tractor and trailer wheels out with carriageway
- Over-sail area of tractor and trailer bed out with carriageway
- Over-sail area of load out with carriageway

Rev.	Date	Revision details	Drawn	Checked	Approved

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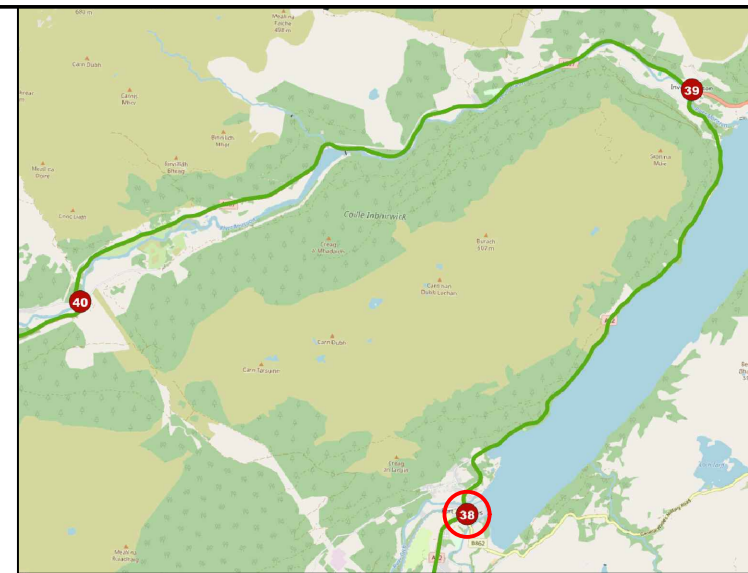
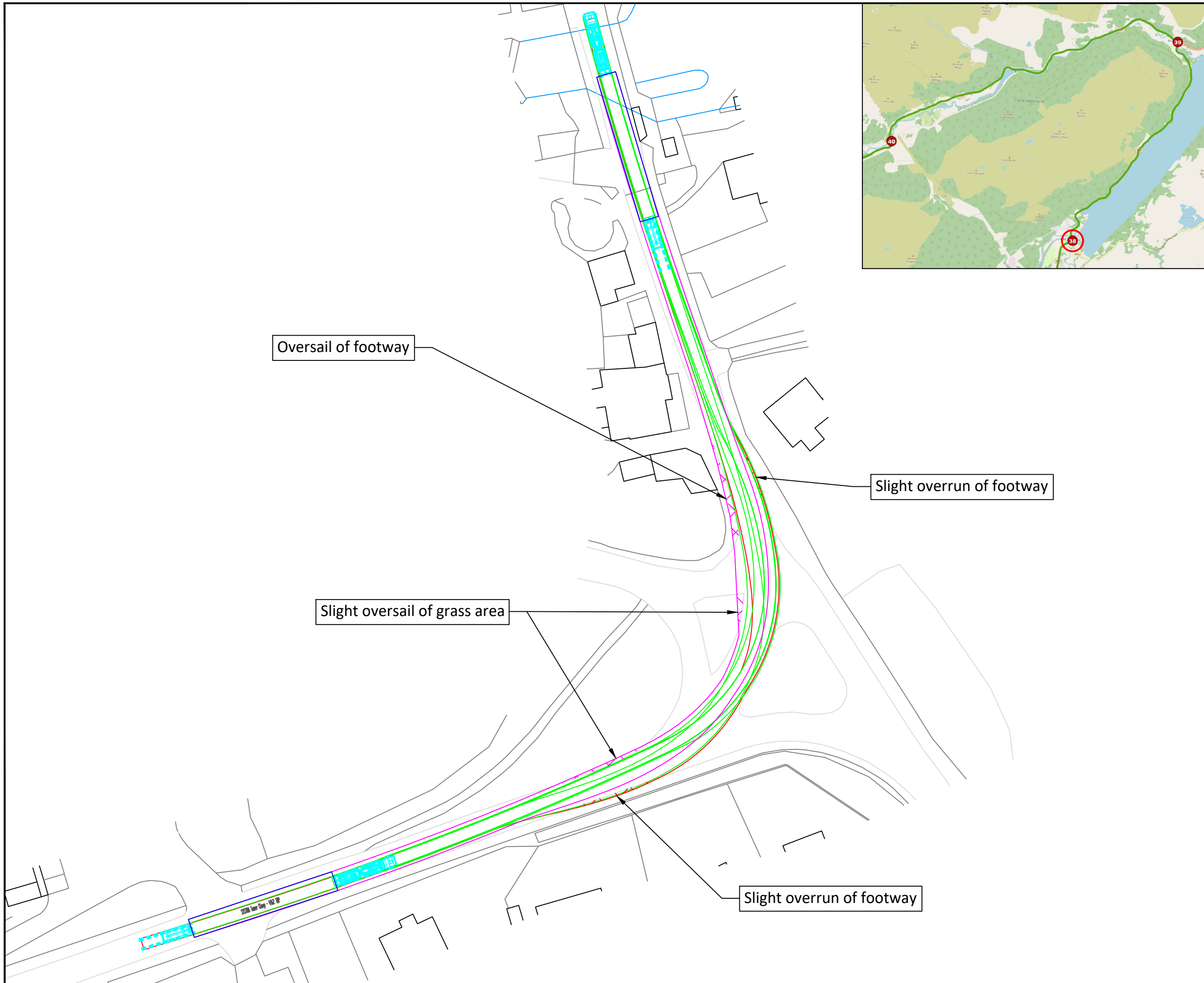
T 0131 469 1847
E scotland@systra.co.uk

Client
Beinneun 2 Ltd

Project
**Beinneun 2 Wind Farm
Swept Path Assessment**

Title
**Vestas V172 - 32m x 4.2m Tower - Tower Transporter
Pinch Point 37**

Drawn TF	Checked ADV	Approved ADV
Original dwg. size A3	Date 01/08/2025	Scale 1:750
Drawing Status Information		Rev. -



- Notes:**
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 2. All dimensions in metres unless otherwise stated.
 3. Please note that marked service locations are indicative only and should be confirmed by topographical survey.



- Key:**
- ▬ Tower Transporter Vehicle
 - ▬ Tower Outline
 - ▬ Over-run envelope of tractor and trailer wheels
 - ▬ Over-sail envelope being swept by tractor and trailer bed
 - ▬ Over-sail envelope being swept by load path
 - ▨ Over-run area of tractor and trailer wheels out with carriageway
 - ▨ Over-sail area of tractor and trailer bed out with carriageway
 - ▨ Over-sail area of load out with carriageway

Rev.	Date	Revision details	Drawn	Checked	Approved

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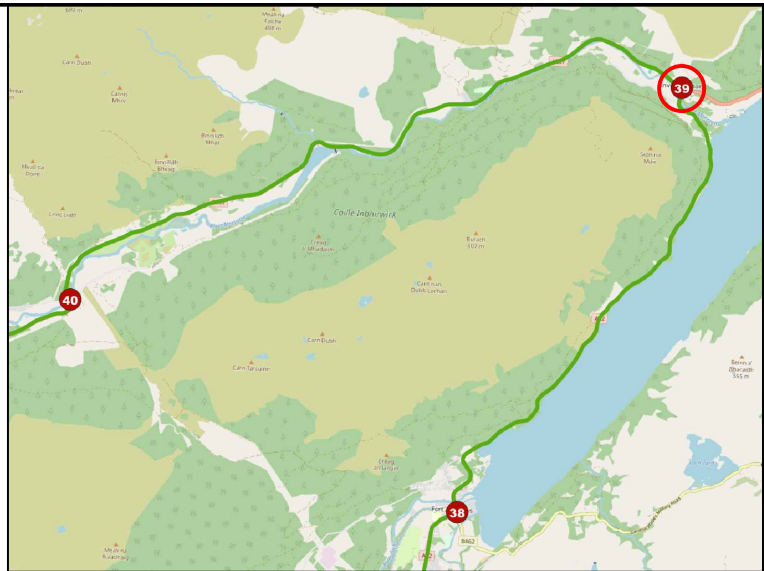
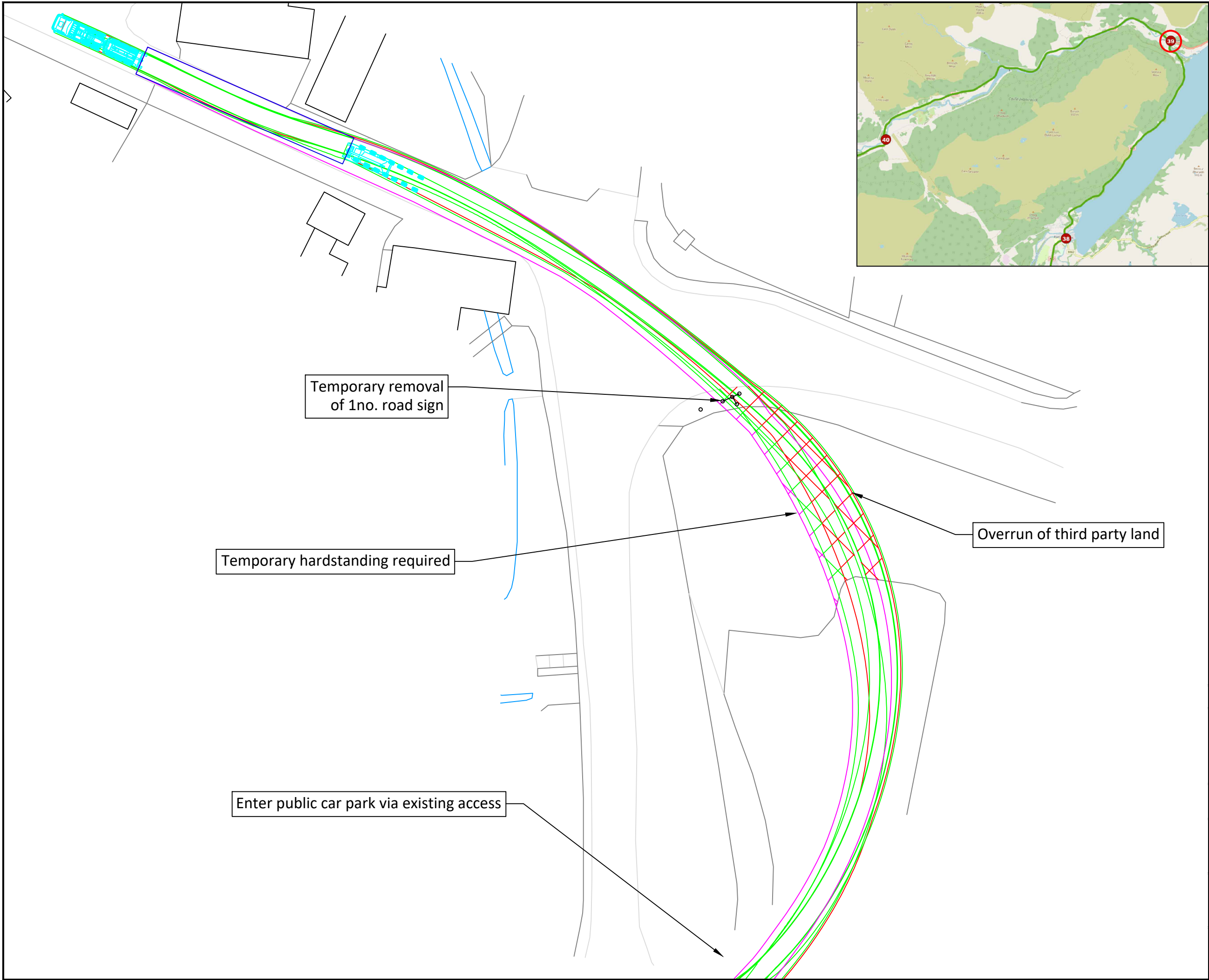
T 0131 469 1847
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Client
Beinneun 2 Ltd

Project
Beinneun 2 Wind Farm
Swept Path Assessment

Title
Vestas V172 - 32m x 4.2m Tower - Tower Transporter
Pinch Point 38

Drawn	Checked	Approved
TF	ADV	ADV
Original dwg. size A3	Date 01/08/2025	Scale 1:750
Drawing Status Information	Drawing Number GB01T22I86/XB16//SPA053	Rev. -



- Notes:**
1. Do not scale from drawing.
 2. All dimensions in metres unless otherwise stated.
 3. Please note that marked service locations are indicative only and should be confirmed by topographical survey.



- Key:**
- Tower Transporter Vehicle
 - Tower Outline
 - Over-run envelope of tractor and trailer wheels
 - Over-sail envelope being swept by tractor and trailer bed
 - Over-sail envelope being swept by load path
 - Over-run area of tractor and trailer wheels out with carriageway
 - Over-sail area of tractor and trailer bed out with carriageway
 - Over-sail area of load out with carriageway

Temporary removal of 1no. road sign

Temporary hardstanding required

Overrun of third party land

Enter public car park via existing access

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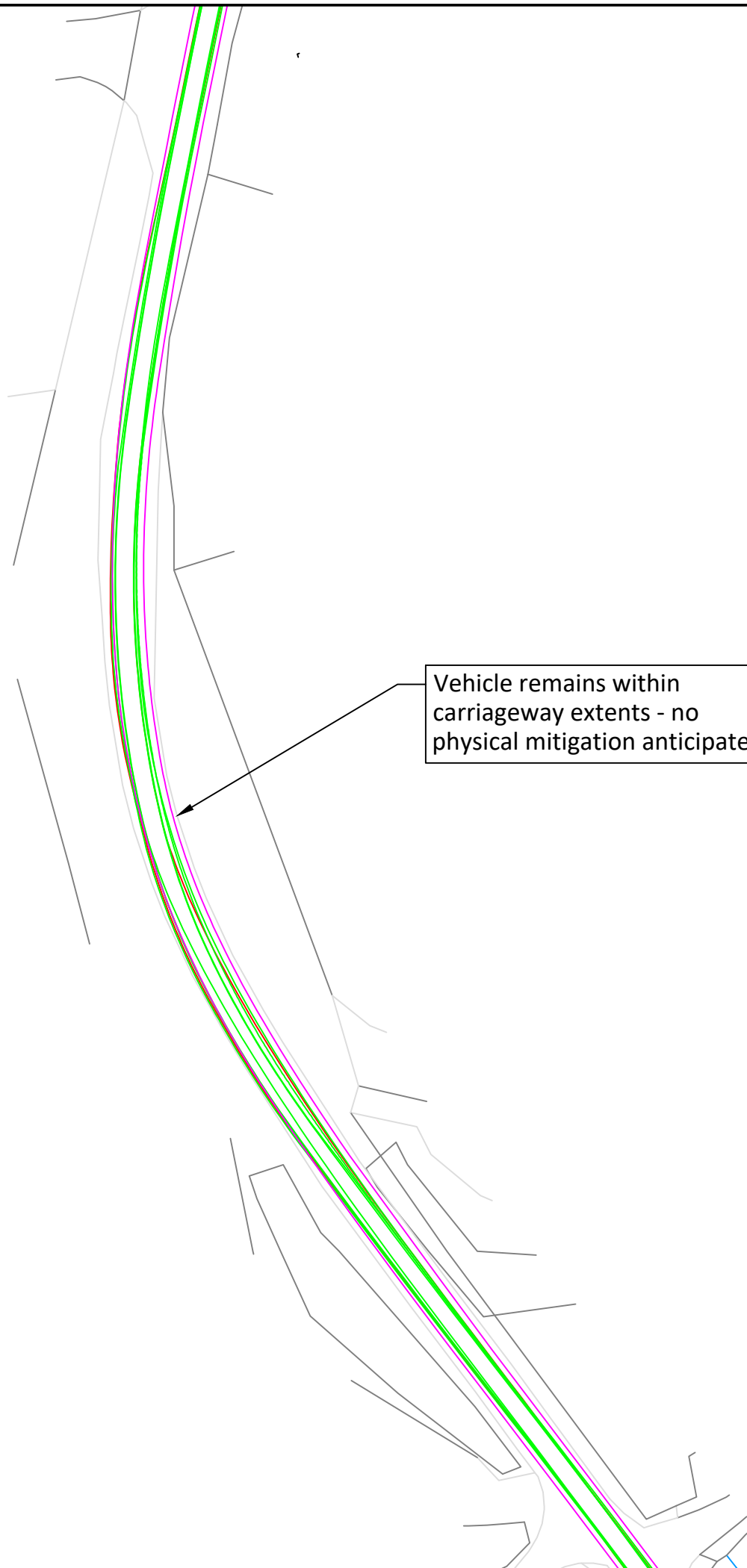
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Client
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Project
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Swept Path Assessment

Title
Vestas V172 - 32m x 4.2m Tower - Tower Transporter
Pinch Point 39
Manual Rear Steering Utilised

Drawn	Checked	Approved
TF	ADV	ADV
Original dwg. size A3	Date 01/08/2025	Scale 1:500
Drawing Status Information	Drawing Number GB01T22I86/XB16//SPA054	Rev. -



Vehicle remains within carriageway extents - no physical mitigation anticipated



- Notes:**
1. Do not scale from drawing.
 2. All dimensions in metres unless otherwise stated.
 3. Please note that marked service locations are indicative only and should be confirmed by topographical survey.



- Key:**
- Tower Transporter Vehicle
 - Tower Outline
 - Over-run envelope of tractor and trailer wheels
 - Over-sail envelope being swept by tractor and trailer bed
 - Over-sail envelope being swept by load path
 - Over-run area of tractor and trailer wheels out with carriageway
 - Over-sail area of tractor and trailer bed out with carriageway
 - Over-sail area of load out with carriageway

Rev.	Date	Revision details	Drawn	Checked	Approved

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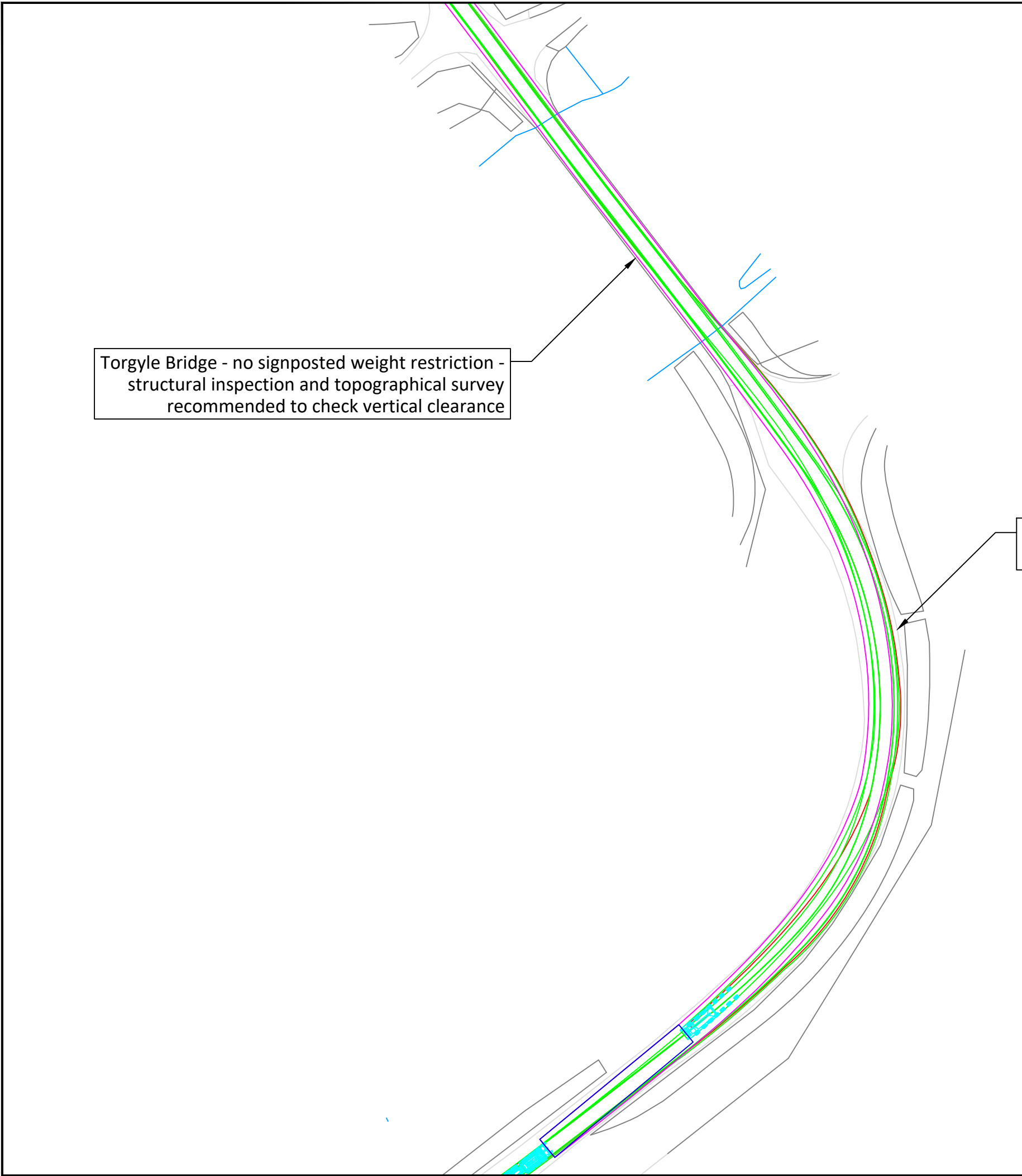
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Client
Beinneun 2 Ltd

Project
Beinneun 2 Wind Farm
Swept Path Assessment

Title
Vestas V172 - 32m x 4.2m Tower - Tower Transporter
Pinch Point 40 (Sheet 1 of 2)

Drawn	Checked	Approved
TF	ADV	ADV
Original dwg. size A3	Date 01/08/2025	Scale 1:750
Drawing Status Information	Drawing Number GB01T22I86/XB16//SPA055	Rev. -



Torgyle Bridge - no signposted weight restriction - structural inspection and topographical survey recommended to check vertical clearance

Vehicle remains within carriageway extents - no physical mitigation anticipated



- Notes:**
1. Do not scale from drawing.
 2. All dimensions in metres unless otherwise stated.
 3. Please note that marked service locations are indicative only and should be confirmed by topographical survey.



- Key:**
- Tower Transporter Vehicle
 - Tower Outline
 - Over-run envelope of tractor and trailer wheels
 - Over-sail envelope being swept by tractor and trailer bed
 - Over-sail envelope being swept by load path
 - Over-run area of tractor and trailer wheels out with carriageway
 - Over-sail area of tractor and trailer bed out with carriageway
 - Over-sail area of load out with carriageway

Rev.	Date	Revision details	Drawn	Checked	Approved

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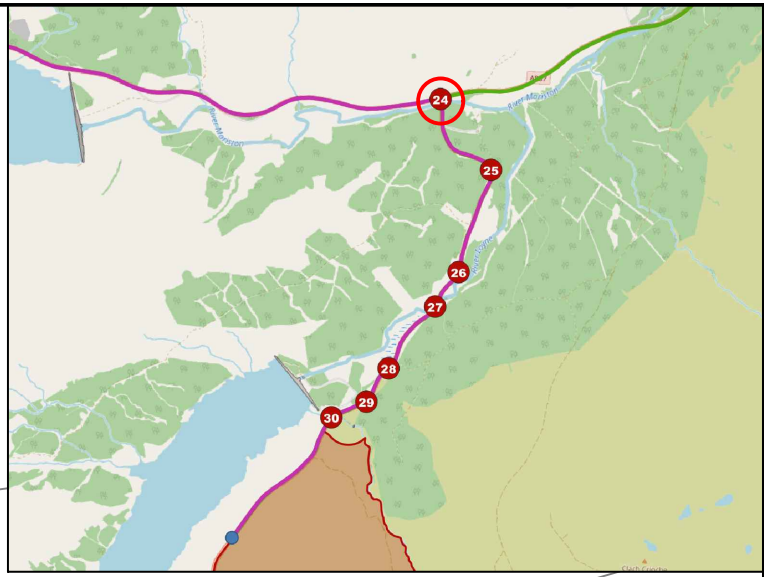
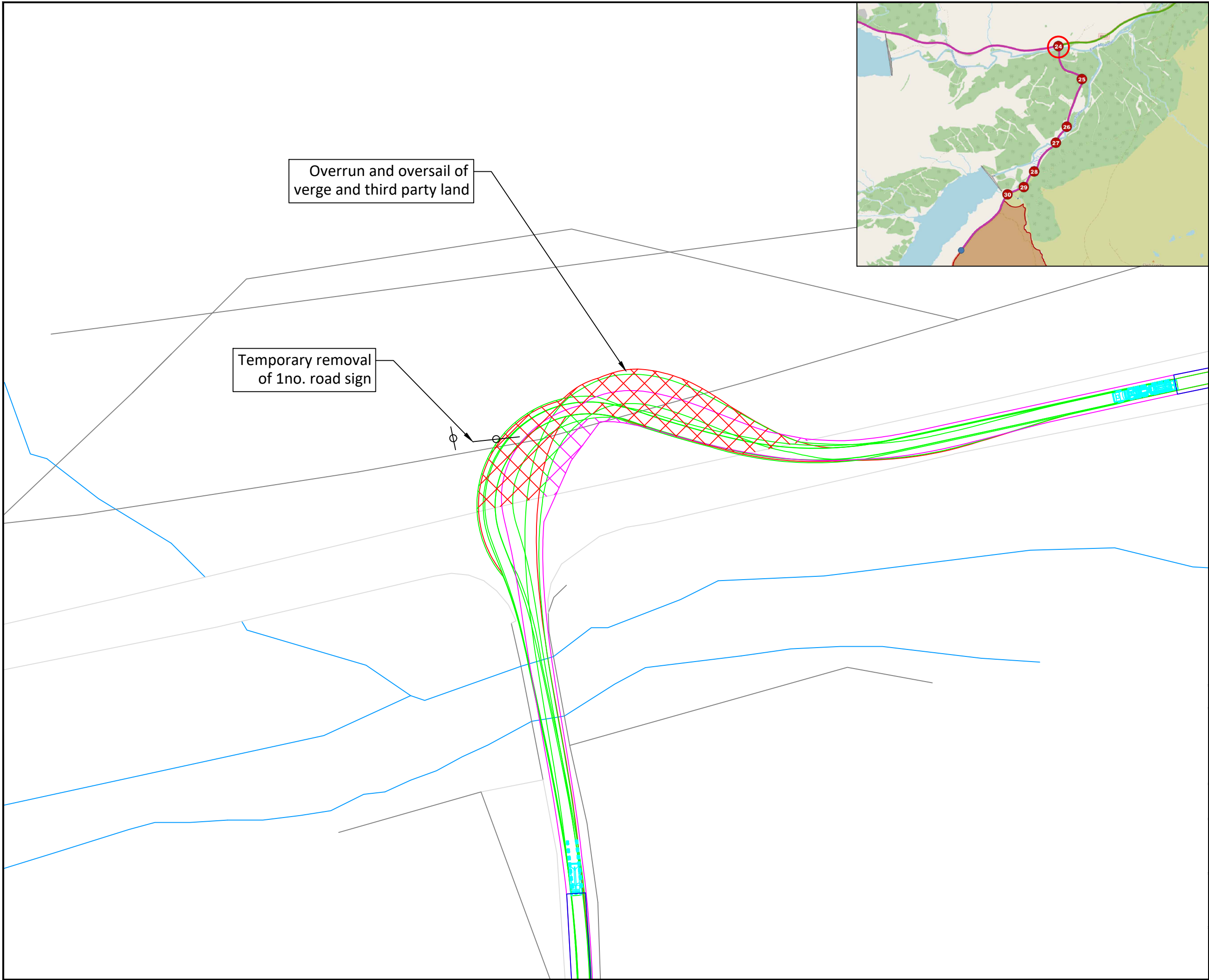
T 0131 469 1847
E scotland@systra.co.uk

Client
Beinneun 2 Ltd

Project
Beinneun 2 Wind Farm
Swept Path Assessment

Title
Vestas V172 - 32m x 4.2m Tower - Tower Transporter
Pinch Point 40 (Sheet 2 of 2)

Drawn	Checked	Approved
TF	ADV	ADV
Original dwg. size A3	Date 01/08/2025	Scale 1:750
Drawing Status Information	Drawing Number GB01T22I86/XB16//SPA056	Rev. -



Notes:

1. Do not scale from drawing.
2. All dimensions in metres unless otherwise stated.
3. Please note that marked service locations are indicative only and should be confirmed by topographical survey.

Key:

- Tower Transporter Vehicle
- Tower Outline
- Over-run envelope of tractor and trailer wheels
- Over-sail envelope being swept by tractor and trailer bed
- Over-sail envelope being swept by load path
- Over-run area of tractor and trailer wheels out with carriageway
- Over-sail area of tractor and trailer bed out with carriageway
- Over-sail area of load out with carriageway

Rev.	Date	Revision details	Drawn	Checked	Approved

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Client
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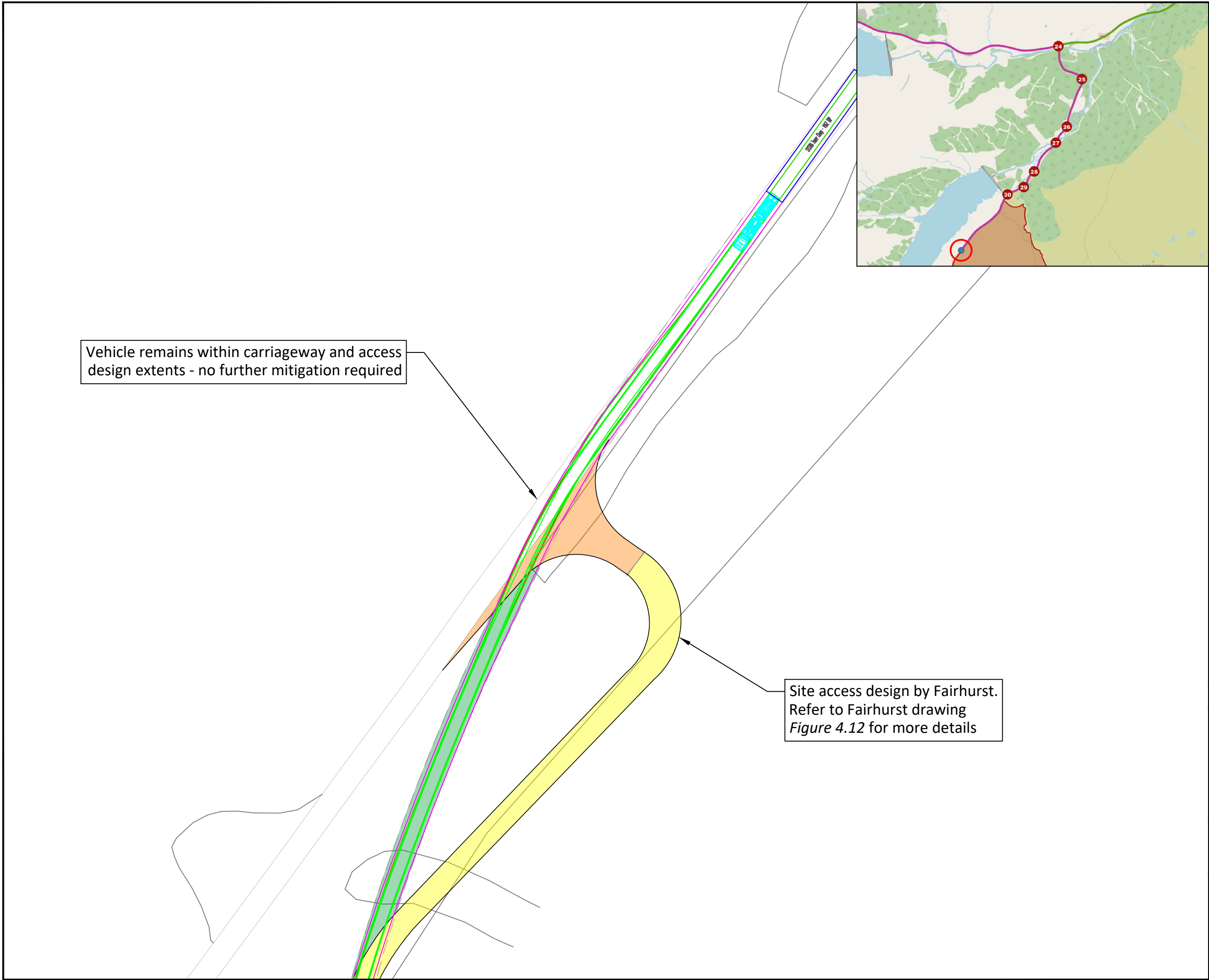
Project
Beinneun 2 Wind Farm
Swept Path Assessment

Title
Vestas V172 - 32m x 4.2m Tower - Tower Transporter
Pinch Point 24 (From A887)

Drawn	Checked	Approved
TF	ADV	ADV

Original dwg. size	Date	Scale
A3	01/08/2025	1:750

Drawing Status	Drawing Number	Rev.
Information	GB01T22I86/XB16//SPA057	-



Vehicle remains within carriageway and access design extents - no further mitigation required

Site access design by Fairhurst. Refer to Fairhurst drawing Figure 4.12 for more details

- Notes:**
1. Do not scale from drawing.
 2. All dimensions in metres unless otherwise stated.
 3. Please note that marked service locations are indicative only and should be confirmed by topographical survey.



- Key:**
- Tower Transporter Vehicle
 - Tower Outline
 - Over-run envelope of tractor and trailer wheels
 - Over-sail envelope being swept by tractor and trailer bed
 - Over-sail envelope being swept by load path
 - Over-run area of tractor and trailer wheels out with carriageway
 - Over-sail area of tractor and trailer bed out with carriageway
 - Over-sail area of load out with carriageway

Rev.	Date	Revision details	Drawn	Checked	Approved

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Client
Beinneun 2 Ltd

Project
Beinneun 2 Wind Farm
Swept Path Assessment

Title
Vestas V172 - 32m x 4.2m Tower - Tower Transporter
Site Access Point

Drawn TF	Checked ADV	Approved ADV
Original dwg. size A3	Date 01/08/2025	Scale 1:750
Drawing Status Information		Drawing Number GB01T22I86/XB16//SPA058
Rev.		-

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Other locations:

France:

Bordeaux, Lille, Lyon, Marseille, Paris

Northern Europe:

Astana, Copenhagen, Kiev, London, Moscow, Riga, Wroclaw

Southern Europe & Mediterranean: Algiers, Baku, Bucharest,

Madrid, Rabat, Rome, Sofia, Tunis

Middle East:

Cairo, Dubai, Riyadh

Asia Pacific:

Bangkok, Beijing, Brisbane, Delhi, Hanoi, Hong Kong, Manila,
Seoul, Shanghai, Singapore, Shenzhen, Taipei

Africa:

Abidjan, Douala, Johannesburg, Kinshasa, Libreville, Nairobi

Latin America:

Lima, Mexico, Rio de Janeiro, Santiago, São Paulo

North America:

Little Falls, Los Angeles, Montreal, New-York, Philadelphia,
Washington

The SYSTRA logo is rendered in a bold, red, sans-serif typeface. The letters are thick and closely spaced, with a distinctive design where the 'S' and 'Y' are connected at the top, and the 'T' has a unique, slightly curved top bar. The overall appearance is modern and professional.