Pell Frischmann

Ben Aketil Wind Farm Extension

Abnormal Indivisible Load Route Review

May 2022

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01		Draft	15-12-2021	G Buchan	T Lockett	G Buchan
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Prepared for

Falck Renewables Wind Ltd

7-10 Beaumont Mews
London
W1G 6EB

Prepared by

Pell Frischmann

93 George Street
Edinburgh
EH2 3ES

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1 Introduction

1.1 Purpose of the Report

Pell Frischmann (PF) has been commissioned by Falck Renewables Wind Ltd. (Falck) to undertake a study of the delivery routes for wind turbine Abnormal Indivisible Loads (AIL) associated with the construction and development of Ben Aketil Wind Farm, located near to Dunvegan, Skye.

This Route Survey Report (RSR) has been prepared to help inform Falck on the likely issues associated with the development of the site with regards to off-site transport and access for AIL traffic. This report is based upon a site visit review and identifies the key issues associated with AIL deliveries and notes that remedial works, either in the form of physical works or as traffic management interventions will be required to accommodate the predicted loads.

The detailed assessment and subsequent designs of any remedial works are beyond the agreed scope of works between PF and Falck at this point in time.

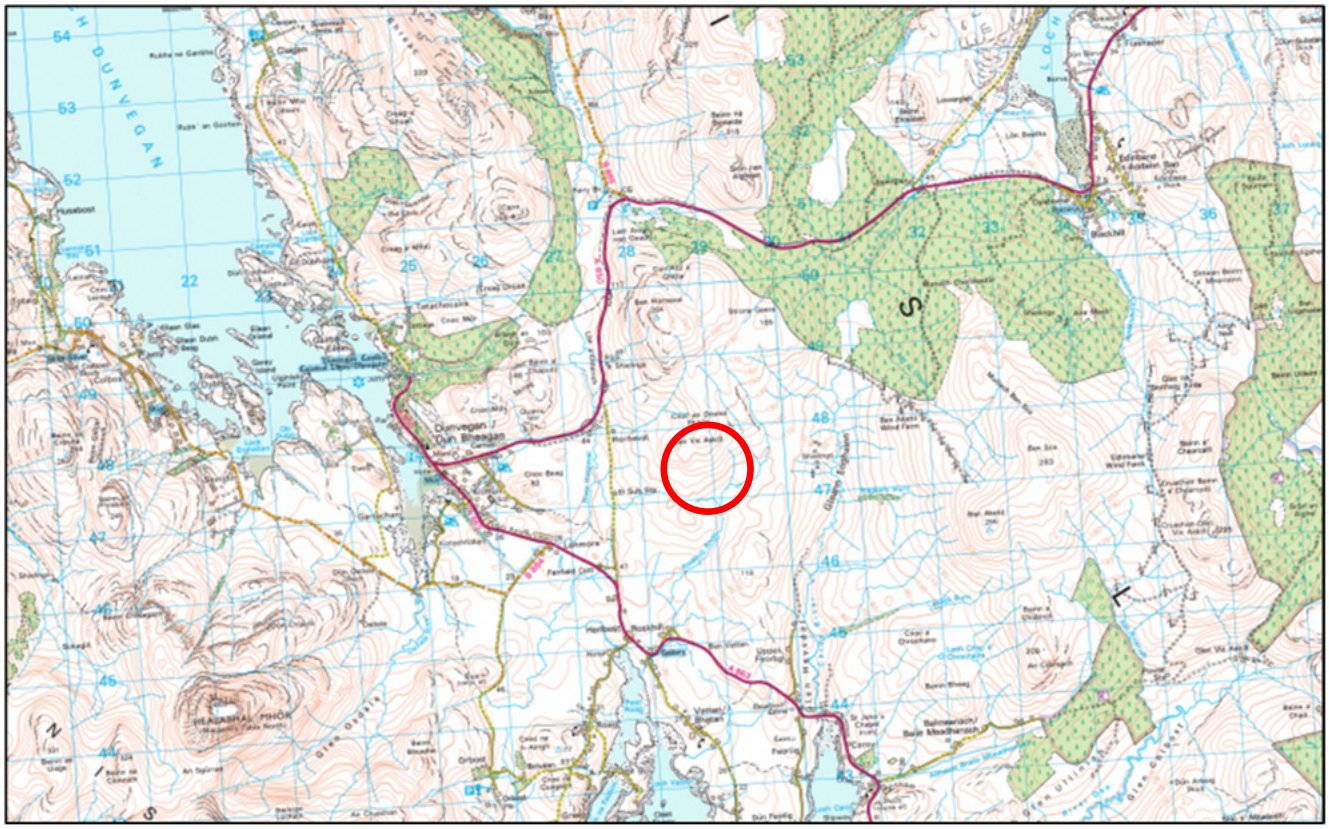
It is the responsibility of the wind turbine supplier to ensure that the entirety of the proposed access route is suitable and meets with their satisfaction. The turbine supplier will be responsible for ensuring that the finalised proposals meet with the appropriate levels of health and safety consideration for all road users and in accordance with the relevant legislation at the time of delivery.

2 Site Background

2.1 Site Location

The development site is located to the east of Dunvegan, situated in the northwest of Skye. Figure 2-1 illustrates the general site location.

Figure 2-1: Site Location Plan



2.2 Candidate Turbine

Falck have indicated that they wish to consider the worst case components from a Siemens Gamesa SGRE155 turbine for use at the site. The assessment has considered turbines options up to 200m tip heights.

The details of the components are detailed in Table 2-1.

Table 2-1: Turbine Size Summary

Component	Length (m)	Width (m)	Height / Min Diameter (m)	Weight (t)
Blade	76.000	4.500	3.400	23.100
Base	14.034	4.800	4.800	84.400
Mid Tower 1	19.880	4.800	4.800	84.300
Mid Tower 2	22.400	4.800	4.794	73.900
Mid Tower 3	28.560	4.794	4.102	72.000
Top Tower	35.040	4.102	3.574	70.300

The assessment has been based on the blade and tower Mid-Section.

2.3 Proposed Delivery Equipment

To provide a robust assessment scenario based upon the known issues along the access route, it has been assumed that all blades would be carried on a Superwing Carrier trailer to reduce the need for mitigation in constrained sections of the route. The Superwing carrier will be fitted with a scissor lift adaptor at the rear of the trailer to elevate the blade tip and help improve vertical clearances for the blade tip.

The access from the port of Kyle of Lochalsh is highly constrained and a blade lifting trailer would be required to exit the port. This trailer would only be used between the port and the airfield at Broadford. Loads would be swapped onto a Superwing carrier for the remainder of the journey.

The base and mid towers would be carried on a 4+7 clamp trailer for the majority of the route. Due to access constraints at Kyle of Lochalsh harbour, it will be necessary to transport the base and mid section towers on a seven axle step frame trailer through to Broadford Airport, where loads would be transferred to the 4+7 clamp trailers.

Figure 2-2: Superwing Carrier Trailer

Figure 2-3: Blade Lifting Trailer

Figure 2-4: Tower Clamp Adaptor Trailer

3 Access Route Review

3.1 Ports of Entry

The nearest Port of Entry for the site is Kyle of Lochalsh Harbour. Loads can be offloaded by geared vessels or onshore mobile cranes. The harbour has been used for delivery of components for a number of windfarms including Stronelairg – the largest turbine being a Vestas V117 - and Millennium 1 and 2, the largest turbine being a Senvion MM92.

3.2 Proposed Access Routes

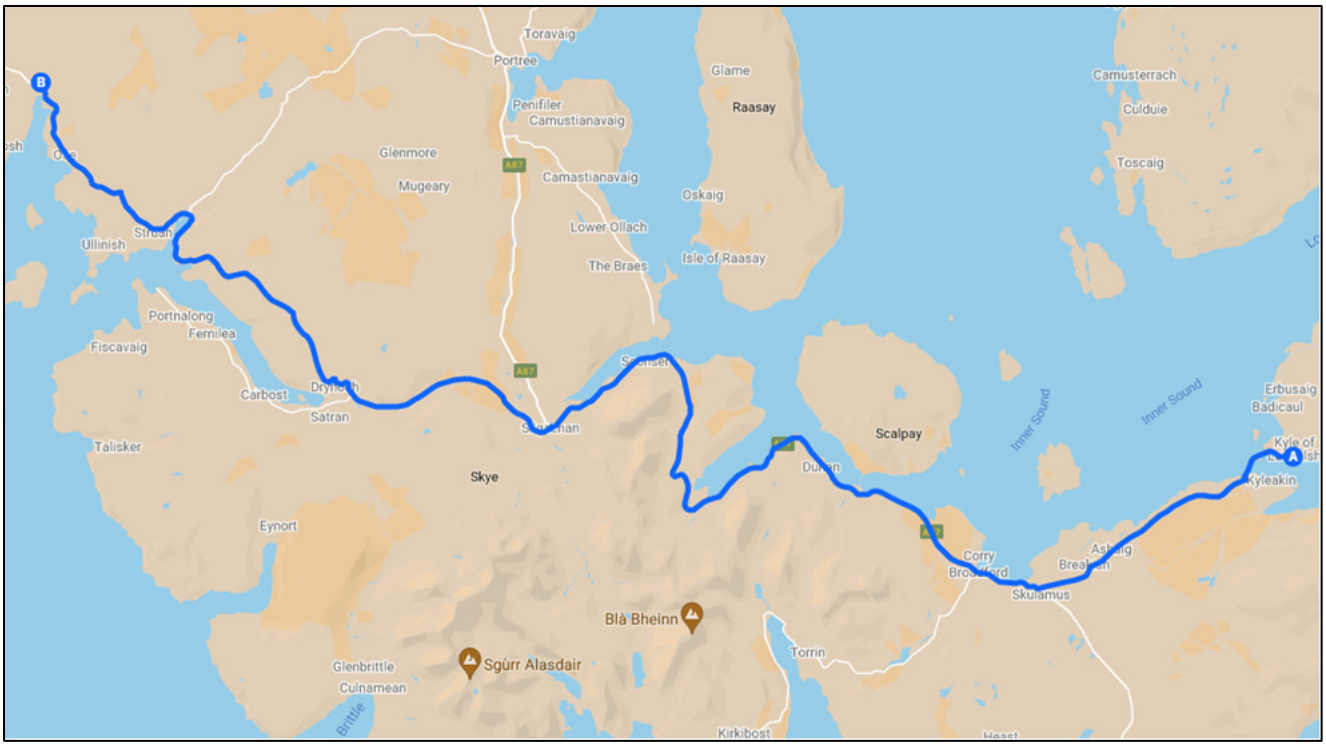
This study has been undertaken following a detailed site visit. Two access options have been considered:

- Option 1: Access from Kyle of Lochalsh to the western boundary of the site; and
- Option 2: Access from Kyle of Lochalsh to the northern boundary of the site.

The proposed access route to site via Option 1 is detailed below and illustrated in Figure 3-1:

- Loads would depart the port and turn left onto the A87 before crossing onto the Isle of Skye via the Skye Bridge;
- Loads would continue north on the A87 before turning left onto the A863; and
- Loads would continue north on the A863 until Feolaig where they would turn right into a new site access junction.

Figure 3-1: Proposed Access Route - Option 1



The proposed access route to site via Option 2 is detailed below and illustrated in Figure 3-2:

- Loads would depart the port and turn left onto the A87 before crossing onto the Isle of Skye via the Skye Bridge;
- Loads would continue north on the A87 before turning left onto the A850 at Borve; and
- Loads would continue west on the A850 and proceed to the site access west of Edinbane.

Figure 3-2: Proposed Access Route - Option 2

3.3 Route Constraints

The constraints noted on both routes are detailed in Tables 3-1 and 3-2. These cover all constraints from the port access gate through to the proposed site access junction. No consideration of the transport issues within the development site have been undertaken.

Plans illustrating the location of the constraints are provided in Appendix A.

Table 3-1: Constraint Points and Details – Option 1

POI	Key Constraint	Details
1 & 2	**Kyle of Lochalsh Harbour & A87 Junction**    	Loads will turn left exiting the west pier onto the adjacent access road. To exit the port, loads will need to be placed in a blade lifting trailer. This will need to be raised to 60 degrees to exit the port and should remain in in the upright position through to Broadford Airfield (the blade can be lowered on straight sections if required). Towers will need to be in a step frame trailer which will result in the load being above 5.5m in height. This will result in all overhead lines needing to be checked along the route. The blade will over-sail the railway line where all obstructions should be removed. A token system is run by Network Rail for temporary occupations and will need to be agreed prior to deliveries. **Third party land** is required. Two lighting columns need to be removed. Loads will over-run the footway to the north and south opposite the RNLI station and car park. A load bearing surface should be laid on the north, whilst parking shod be suspended to the south. Loads will over-sail the inside of the left-hand bend, though no physical mitigation measures will be required. Loads will over-run and over-sail the eastern footway at the A87 junction where a load bearing surface should be laid and the pedestrian railing and two traffic signals should be removed. The blade tip will over-sail the public square areas to the east of the junction where third party land will be required. The blade will continue in the raised position onto Skye Bridge, where it should be lowered to reduce wind effects on the bridge. The blade should then be raised on Skye. Where the blade is in the raised position, all overhead utility lines will need to be relocated or placed underground. Swept path assessment SK01 is included in Appendix B.

POI	Key Constraint	Details
3	**A87 Kyleakin Roundabout** 	Loads will take the third exit at the roundabout to remain on the A87, undertaking a **contraflow** manoeuvre. A swept path assessment has been undertaken and indicates that loads will over-sail the entry splitter island where two bollards should be removed. The blade will over-sail one set of chevron signs on the north-western verge of the central island. Loads will over-sail the right-hand verge on exit where one lighting column should be removed. The blade tip will over-sail the bollards on the exit splitter island where one lighting column should be removed. Swept path assessment SK02 is included in Appendix B.
4	**A87 Old Kyle Farm** 	Loads will continue on the A87 westbound. The blades should be lowered under the overhead cables at this location. Alternatively, to help reduce transit times, the cables could be placed under the road.
5	**A87 Broadford Airport**  	Blade and tower loads will turn right into the Skye Aerodrome and following storage will turn right onto the A87 in the direction of the site access. A swept path assessment has been undertaken and indicates that a load bearing surface should be laid on the inside verges of both the inbound and outbound turns. On the inside of the inbound turn the bollards and one road sign should be removed, and vegetation should be cleared. **Third party land** will be required. On the inside of the outbound turn one utility pole, three road signs, and a series of bollards should be removed. Vegetation should be cleared. **Third party land** will be required. The blade will over-sail the safety barrier and bollards on the left-hand verge of the A87 prior to the junction where the trees should be trimmed. **Third party land** will be required. Loads will over-run the left-hand verge of the A87 following the junction where a load bearing surface should be laid. Swept path assessment SK03 is included in Appendix B.
6	**A87 Breakish** 	Loads will continue on the A87 westbound. Loads will require both lanes of the road at this location and the escorts should hold oncoming traffic at least 60m ahead of the bend.

POI	Key Constraint	Details
7	**A87 northeast of Ostaig** 	Loads will continue on the A87 westbound. A topographical survey is required to allow for a vertical assessment at this location. Loads should be set on their higher suspension settings to help reduce the need for physical works on the trunk road.
8	**A87 Ostaig** 	Loads will continue on the A87 westbound. A topographical survey is required to allow for a vertical assessment at this location. Loads should be set on their higher suspension settings to help reduce the need for physical works on the trunk road.
9 & 10	**A87 Skulamus**  	Loads will continue on the A87 westbound. A swept path assessment has been undertaken and indicates that the blade will over-sail the outside verge of the first right-hand bend where one road sign should be removed. Loads will over-sail the inside verge where four road signs should be removed. The blade will over-sail the outside verge of the following left-hand bend where one road sign should be removed, and the trees should be trimmed. Loads will over-sail the inside verge where the vegetation should be trimmed. Swept path assessment SK04 is included in Appendix B.

POI	Key Constraint	Details
11	**A87 Moorlands** 	Loads will continue on the A87 westbound. A swept path assessment has been undertaken and indicates that loads will over-run and over-sail the outside verge of the first right-hand bend where load bearing plates should be put in place to protect the footway. Two lighting columns, two road signs and one private sign should be removed. Vegetation should be trimmed. Loads will over-sail the inside verge where the trees should be trimmed. Loads will over-sail the inside verge of the following left-hand verge where one lighting column, one lit road sign, one marker post, one private sign, and a section of pedestrian guardrail should be removed. The blade will over-sail the outside verge where five lighting columns and one lit road sign should be removed. Vegetation should be trimmed or cleared. Swept path assessment SK05 is included in Appendix B.
12	**A87 Harrapool** 	Loads will continue on the A87 westbound. A swept path assessment has been undertaken and indicates that loads will over-sail the inside verge of the bend where the trees should be trimmed. Loads will over-run and over-sail the outside verge where a load bearing plate should be put in place to protect the footway. Trees should be trimmed. Swept path assessment SK06 is included in Appendix B.
13	**A87 Blackpark** 	Loads will continue on the A87 westbound. Loads will require both lanes of the road at this location and the escorts should hold oncoming traffic at least 60m ahead of the bend.
14	**A87 Corran House** 	Loads will continue on the A87 westbound. A swept path assessment has been undertaken and indicates that loads will over-sail both verges through the section. Trees and vegetation should be trimmed in multiple locations. The blade tip will over-sail several series of bollards. Swept path assessment SK07 is included in Appendix B.

POI	Key Constraint	Details
15	**A87 Strollamus** 	Loads will continue on the A87 westbound. A swept path assessment has been undertaken and indicates that loads will over-sail the inside verge of the first left-hand bend where one road sign should be removed, and vegetation should be trimmed. The blade will over-sail bollards on the outside verge. Loads will over-sail the inside verge of the following right-hand bend, though no physical mitigation measures will be required. The blade will over-sail the bollards on the outside verge. Swept path assessment SK08 is included in Appendix B.
16	**A87 Ard Dorch** 	Loads will continue on the A87 westbound. Loads will over-sail the verge on the southern side of the road, the chevron and road signage should be removed.
17	**A87 Eas a Bhradain** 	Loads will continue on the A87 westbound. A swept path assessment has been undertaken and indicates that the blade will over-sail the bollards on the outside verge of the bend where several sets of chevron signs and one road sign should be removed. Swept path assessment SK09 is included in Appendix B.
18 & 19	**A87 Kinloch Ainort**  	Loads will continue on the A87 westbound. A swept path assessment has been undertaken and indicates that the loads will over-sail the northern verge of the first left-hand bend where the proximity to the chevron signs should be confirmed during the test run. The blade tip will over-sail bollards in this area. Loads will over-sail the southern verge where the clearance to the rock face should be confirmed through a topographical survey. Loads will over-sail the northern verge of the following right-hand bend where the safety barrier should be removed or load heights increased using the suspension settings to improve clearances. Loads will over-sail and over-run the southern verge where the safety barrier, five sets of chevron signs, two road signs, and several bollards should be removed. The blade should be raised on the scissor lift to reduce the need for regrading of the rock face. Third party land will be potentially required. Blade clearance to the rock face should be confirmed though a topographical survey. Swept path assessment SK10 is included in Appendix B.

POI	Key Constraint	Details
20	**A87 / A836 Sligachan Junction** 	Loads will turn left at the junction to join the A836 westbound. A swept path assessment has been undertaken and indicates that the blade will over-sail the safety barrier and bridge railing on the northern verge of the A87. **Third party land** will be required. Loads will over-run and over-sail the inside verge of the turn where a load bearing surface should be laid, and the safety barrier, two sets of chevron signs, a series of bollards, and the bridge railing should be removed. **Third party land** will be required. Loads will over-run and over-sail the right-hand verge of the A836 where a load bearing surface should be laid and one road sign should be removed. The trees should be trimmed. The blade will over-sail bollards on the left-hand verge of the A836 following the junction and through the right-hand bend. **Third party land** will be required. Loads will over-sail the inside verge of the bend where the proximity to the rock face should be confirmed on a topographical base survey. A land search is recommended to confirm the extent of the adopted land boundary. The surface of the A836 was noted to be in a poor condition at this location and at several points between POI 20 and POI 23. Swept path assessment SK11 is included in Appendix B.
21	**A836 Drynoch**  	Loads will continue on the A863 westbound. A swept path assessment has been undertaken and indicates that loads will over-sail the inside verge of the first right-hand bend where the proximity to the rock face should be confirmed on a topographical base survey. The blade will over-sail the fence on the outside verge where one road sign should be removed. **Third party land** will be required. Loads will over-run and over-sail the inside verge of the following left-hand bend where a load bearing surface should be laid, and a section of safety barrier and two sets of chevron signs should be removed. A land search is recommended to confirm the extent of the adopted land boundary. Loads will over-run and over-sail the outside verge where a load bearing surface should be laid and a section of safety barrier and vegetation should be removed. The blade should be raised on the scissor lift to reduce the need for regrading of the rock face. The clearance to the rock face should be confirmed on a topographical base survey. **Third party land** will be required. Loads will over-sail both verges through the final right-hand bend, though no physical mitigation measures will be required. Where clearance to rock face is minimal, rock blasting may be required. Swept path assessment SK12 is included in Appendix B.

POI	Key Constraint	Details
22	**A836 Braigh Aluinn**   	Loads will continue on the A863 westbound. A swept path assessment has been undertaken and indicates that the blade will over-sail the safety barrier and fence on the outside verge of the first right-hand bend where one road sign should be removed, and vegetation should be trimmed. **Third party land** will be required. Loads will over-sail the inside verge where the proximity to the rock face should be confirmed on a topographical base survey. Loads will over-sail the inside verge of the following left-hand bend where the fence and safety barrier should be removed. Vegetation should be cleared. **Third party land** will be required. The blade will over-sail the safety barrier on the outside verge where it should be raised on the scissor lift to reduce need for regrading of the rock face. The clearance to the rock face should be confirmed on a topographical base survey. **Third party land** will be required. The blade will over-sail the safety barrier and fence on the outside verge of the final right-hand bend where the vegetation should be trimmed. **Third party land** will be required. Swept path assessment SK13 is included in Appendix B.
23	**A836 Inver Meadale** 	Loads will continue on the A863 northbound. Loads will require both lanes of the road at this location and the escorts should hold oncoming traffic at least 60m ahead of the bend. A swept path assessment has been undertaken and indicates that loads will over-sail the safety barrier on the inside verge of the bend where the vegetation should be cleared. The blade will over-sail the safety barrier on the outside verge where the vegetation should be trimmed. **Third party land** will be required. Swept path assessment SK14 is included in Appendix B.
24	**A863 Sumardale** 	Loads will continue on the A863 northbound. Loads will require both lanes of the road at this location and the escorts should hold oncoming traffic at least 60m ahead of the bend. A swept path assessment has been undertaken and indicates that loads will over-sail the safety barrier on the inside verge of the bend. The blade will over-sail the safety barrier on the outside verge Swept path assessment SK15 is included in Appendix B.

POI	Key Constraint	Details
25	**A863 Crossbreck** 	Loads will continue on the A863 northbound. Loads will require both lanes of the road at this location and the escorts should hold oncoming traffic at least 60m ahead of the bend. A swept path assessment has been undertaken and indicates that no physical mitigation measures will be required. Swept path assessment SK16 is included in Appendix B.
26	**A863 Gesto House** 	Loads will continue on the A863 northbound. A swept path assessment has been undertaken and indicates that loads will over-sail both verges through the section, though no physical mitigation measures will be required. Loads will over-sail the safety barrier on the inside verge of the final left-hand bend. Swept path assessment SK17 is included in Appendix B.
27	**A863 Cocaire** 	Loads will continue on the A863 northbound. A swept path assessment has been undertaken and indicates that loads will over-sail both verges through the section, though no physical mitigation measures will be required. Swept path assessment SK18 is included in Appendix B.
28	**A863 Coillore** 	Loads will continue on the A863 northbound. A swept path assessment has been undertaken and indicates that loads will over-sail both verges through the section, though no physical mitigation measures will be required. Swept path assessment SK19 is included in Appendix B.
29	**A863 Amar River Causeway** 	Loads will continue on the A863 northbound. A swept path assessment has been undertaken and indicates that loads will over-sail both verges through the section, though no physical mitigation measures will be required. The blade will over-sail the safety barrier on the outside verge of the bend prior to and following the bridge. Swept path assessment SK20 is included in Appendix B.

POI	Key Constraint	Details
30	**A863 An Sruthan** 	Loads will continue on the A863 northbound. A swept path assessment has been undertaken and indicates that loads will over-sail both verges through the section, though no physical mitigation measures will be required. A vertical assessment should be undertaken on a topographical base to review the vertical clearances and to confirm if any mitigation works are required. Any parked vehicles on the road edge should be relocated to allow access to both lanes. Swept path assessment SK21 is included in Appendix B.
31	**A863 Cnoc nam Braonan** 	Loads will continue on the A863 northbound. A swept path assessment has been undertaken and indicates that loads will over-sail the inside verge of the first left-hand bend, though no physical mitigation measures will be required. The blade will over-sail the safety barrier on the outside verge where the vegetation should be trimmed. Loads will over-sail the inside verge of the following right-hand bend where one road sign should be removed. Loads will over-sail the outside verge where the vegetation should be trimmed. Swept path assessment SK22 is included in Appendix B.
32	**A863 southeast of Lag Buidhe** 	Loads will continue on the A863 northbound. Loads will require both lanes of the road at this location and the escorts should hold oncoming traffic at least 60m ahead of the bend.
33	**Access Junction Option 1** 	Loads will turn right into a new site access junction. The junction should be designed in accordance with Siemens Gamesa and local authority design standards and should feature visibility splays of at least 4.5m x 160m in either direction.

Table 3-2: Constraint Points and Details – Option 2

POI	Key Constraint	Details
20	**A87 / A836 Junction** 	Instead of turning right at Sligachan junction, loads will continue north on the A87. A swept path assessment has been undertaken and indicates that loads will over-sail the inside verge of the bend, though no physical mitigation measures will be required. Swept path assessment SK23 is included in Appendix B.
34	**A87 north of Sligachan** 	Loads will continue on the A87 northbound. A swept path assessment has been undertaken and indicates that the blade tip will over-sail the bollards on the outside verge of the first left-hand bend. Loads will over-sail the inside verge where the vegetation should be trimmed. A land search is recommended to confirm the extent of the adopted land boundary. The blade tip will over-sail the bollards on the outside verge of the following right-hand bend. Loads will over-sail the inside verge where the vegetation should be trimmed. Land searches are recommended to confirm the extent of the adopted land boundary on both verges. Loads will over-sail both verges through the final left-hand bend, though no physical mitigation measures will be required. Swept path assessment SK24 is included in Appendix B.
35	**A87 Caiplach** 	Loads will continue on the A87 northbound. The vertical profile of the road at this location is pronounced and should be reviewed during the test run stage to ascertain if tar wedges will be required to prevent grounding.
36	**A87 west of Meall Odhar Mor** 	Loads will continue on the A87 northbound. A swept path assessment has been undertaken and indicates that the blade tip will over-sail the bollards on the outside verge of the left-hand bend where four chevron signs should be removed and the vegetation trimmed. Loads will over-sail the inside verge where the bollards and fence should be removed and vegetation trimmed. Loads will over-sail the inside verge of the following right-hand bend where the vegetation should be trimmed. The blade tip will over-sail the bollards on the outside verge where two chevron signs should be removed. A land search is recommended to confirm the extent of the adopted land boundary. Loads will over-sail the south-western verge following the bend, though no physical mitigation measures will be required. Swept path assessment SK25 is included in Appendix B.

POI	Key Constraint	Details
37	**A87 east of Doir a Bhuilg** 	Loads will continue on the A87 northbound. A swept path assessment has been undertaken and indicates that loads will over-sail both verges prior to the bend, though no physical mitigation measures will be required. The blade tip will over-sail the bollards on the outside verge of the bend where two chevron signs should be removed. A land search is recommended to confirm the extent of the adopted land boundary. Loads will over-sail the inside verge where the trees and vegetation should be trimmed. Swept path assessment SK26 is included in Appendix B.
38	**A87 Glen Varragill Forest** 	Loads will continue on the A87 northbound. A swept path assessment has been undertaken and indicates that the blade tip will over-sail the bollards on the outside verge of the left-hand bend. Loads will over-sail the inside verge where one road sign should be removed. A land search is recommended to confirm the extent of the adopted land boundary. The blade tip will over-sail the bollards on the outside verge of the following right-hand bend. Loads will over-sail the inside verge, though no physical mitigation measures will be required. Swept path assessment SK27 is included in Appendix B.
39	**A87 south of Varragill** 	Loads will continue on the A87 northbound. A swept path assessment has been undertaken and indicates that the blade tip will over-sail the bollards on the outside verge of the right-hand bend where one chevron sign should be removed. Loads will over-sail the inside verge, though no physical mitigation measures will be required. The blade tip will over-sail the bollards on the outside verge of the following left-hand bend where two chevron signs should be removed. Loads will over-sail the safety barrier on the inside verge where the bollards should be removed and vegetation trimmed. A land search is recommended to confirm the extent of the adopted land boundary. Swept path assessment SK28 is included in Appendix B.
40	**A87 Varragill** 	Loads will continue on the A87 northbound. A swept path assessment has been undertaken and indicates that loads will over-sail the eastern verge prior to the bends, though no physical mitigation measures will be required. The blade tip will over-sail the safety barrier on the outside verge of the right-hand bend where four chevron signs should be removed. A land search is recommended to confirm the extent of the adopted land boundary. Loads will over-sail the inside verge, though no physical mitigation measures will be required. Loads will over-sail the inside verge of the following left-hand bend where the vegetation should be trimmed. The blade tip will over-sail the bollards on the outside verge. The blade tip will over-sail the bollards on the outside verge of the second right-hand bend. Loads will over-sail the inside verge where the bollards should be removed. Swept path assessment SK29 is included in Appendix B.

POI	Key Constraint	Details
41	**A87 east of Ben Gaskin** 	Loads will continue on the A87 northbound. A swept path assessment has been undertaken and indicates that the blade tip will over-sail the bollards on the outside verge of the left-hand bend where four chevron signs should be removed and vegetation trimmed. Loads will over-sail the safety barrier on the inside verge where three road signs should be removed. Swept path assessment SK30 is included in Appendix B.
42	**A87 Glenvarragill House** 	Loads will continue on the A87 northbound. A swept path assessment has been undertaken and indicates that loads will over-sail both verges prior to the bends, though no physical mitigation measures will be required. The blade tip will over-sail the bollards on the outside verge of the left-hand bend where the vegetation should be trimmed. Loads will over-sail the inside verge where the trees should be trimmed. The blade tip will over-sail the bollards on the outside verge of the following right-hand bend where two chevron signs should be removed and trees trimmed. Loads will over-sail the inside verge slightly, though no physical mitigation measures will be required. Swept path assessment SK31 is included in Appendix B.
43	**A87 Eilean Chaluim-chille** 	Loads will continue on the A87 northbound. A swept path assessment has been undertaken and indicates that loads will over-sail both verges prior to the bends, though no physical mitigation measures will be required. The blade tip will over-sail the bollards on the outside verge of the left-hand bend. Loads will over-sail the inside verge where two road signs should be removed. The blade tip will over-sail the bollards on the outside verge of the following right-hand bend where one road sign should be removed and trees / vegetation trimmed. Swept path assessment SK32 is included in Appendix B.
44	**A87 Shullishadder** 	Loads will continue on the A87 northbound. A swept path assessment has been undertaken and indicates that the blade tip will over-sail the outside verge of the bend, though no physical mitigation measures will be required. The tree canopy should be trimmed to ensure that there is a 5m clear head height. Trimming works can be subject to ecological time constraints and early engagement with the relevant authority is recommended. Swept path assessment SK33 is included in Appendix B.

POI	Key Constraint	Details
45 & 46	**A87 / A855 Junction**  	Loads will continue on the A87 northbound. A swept path assessment has been undertaken and indicates that the blade tip will over-sail the eastern verge prior to the junction, though no physical mitigation measures will be required. Loads will over-run and over-sail the splitter island where a load bearing surface should be laid and one lighting column, one road sign, one lit road sign and one bollard removed. Loads will over-run and over-sail the western verge where a load bearing surface should be laid and the pedestrian guardrail and one lit road sign removed. The vegetation should be cleared, and the trees should be trimmed. Loads should be raised on their suspension settings to over-sail the wall and embankment. A land ownership search is recommended here. Loads will over-run and over-sail the north-eastern verge following the junction where a load bearing surface should be laid and trees trimmed. Loads will over-sail the inside verge of the left-hand bend where the pedestrian guardrail should be removed. The tree canopy should be trimmed to ensure that there is a 5m clear head height. Trimming works can be subject to ecological time constraints and early engagement with the relevant authority is recommended. Swept path assessment SK34 is included in Appendix B.
47	**A87 northeast of Sulaisiadar Mor** 	Loads will continue on the A87 northbound. A swept path assessment has been undertaken and indicates that loads will over-sail both verges through the bend, though no physical mitigation measures will be required. Swept path assessment SK35 is included in Appendix B.
48	**A87 / Woodpark Road Roundabout** 	Loads will take the second exit at the roundabout to continue on the A87 northbound. A swept path assessment has been undertaken and indicates that loads will over-sail the bollards on the south-western verge on entry to the roundabout. Loads will over-sail the exit splitter island where one bollard should be removed. Swept path assessment SK36 is included in Appendix B.

POI	Key Constraint	Details
49	**A87 Achtalean**   	Loads will continue on the A87 northbound. A swept path assessment has been undertaken and indicates that the blade tip will over-sail the bollards on the outside verge of the first left-hand bend where two chevron signs should be removed and the vegetation trimmed. Loads will over-sail the inside verge where the vegetation should be trimmed. The blade tip will over-sail the bollards on the outside verge of the following left-hand bend. Loads will over-sail the inside verge where the vegetation should be trimmed. The vertical profile of the road at this location is pronounced and should be reviewed during the test run stage to ascertain if tar wedges will be required to prevent grounding. Swept path assessment SK37 is included in Appendix B.
50	**A87 northeast of Drumuie** 	Loads will continue on the A87 northbound. A swept path assessment has been undertaken and indicates that loads will over-sail both verges, though no physical mitigation measures will be required. The vertical profile of the road at this location is pronounced and should be reviewed during the test run stage to ascertain if tar wedges will be required to prevent grounding. Swept path assessment SK38 is included in Appendix B.

POI	Key Constraint	Details
51 & 52	**A87 Drumuie**  	Loads will continue on the A87 northbound. A swept path assessment has been undertaken and indicates that the blade tip will over-sail the bollards and safety barrier on the outside verge of the bend where two sets of chevron signs should be removed. Loads will over-sail the inside verge where the vegetation should be cleared. The oversail areas appear to be within the limits of road adoption, however this should be confirmed through a review. The vertical profile of the road at this location is pronounced and should be reviewed during the test run stage to ascertain if tar wedges will be required to prevent grounding. Swept path assessment SK39 is included in Appendix B.
53	**A87 / A850 Junction** 	Loads will turn left at the junction to exit the A87 and join the A850 westbound. A swept path assessment has been undertaken and indicates that loads will over-sail both verges through the bend. One road sign should be removed from each verge. Swept path assessment SK40 is included in Appendix B.
54	**A850 Peinmore** 	Loads will continue on the A850 westbound. A swept path assessment has been undertaken and indicates that loads will over-sail both verges through the bends, though no physical mitigation measures will be required. The tree canopy should be trimmed to ensure that there is a 5m clear head height. Trimming works can be subject to ecological time constraints and early engagement with the relevant authority is recommended. Swept path assessment SK41 is included in Appendix B.

POI	Key Constraint	Details
55 & 56	**A850 Suledale**  	Loads will continue on the A850 westbound. A swept path assessment has been undertaken and indicates that the blade tip will over-sail the outside verge of the left-hand bend where the vegetation should be trimmed. Loads will over-sail the inside verge where one road sign should be removed. Swept path assessment SK42 is included in Appendix B.
57	**A850 Flashader** 	Loads will continue on the A850 westbound. A swept path assessment has been undertaken and indicates that loads will over-sail the inside verge of the second left-hand bend, though no physical mitigation measures will be required. Swept path assessment SK43 is included in Appendix B.
58	**A850 Edinbane** 	Loads will continue on the A850 westbound. A swept path assessment has been undertaken and indicates that loads will over-sail both verges through the bend, though no physical mitigation measures will be required. Swept path assessment SK44 is included in Appendix B.
59	**Access Junction Option 2** 	Loads would turn left into the upgraded access junction. The junction would need to be widened in accordance with Siemens Gamesa guidelines and the requirements of The Highland Council. Loads would then proceed to the turbine locations using an upgraded track. The track would need to be upgraded to meet the SG155 track specifications along its whole length.

3.4 Swept Path Assessment Results and Summary

The detailed swept path drawings for the locations assessed are provided in Appendix B for review. The drawings in Appendix B illustrate tracking undertaken for the worst case loads at each location.

The colours illustrated on the swept paths are:

- Grey / Black – OS / Topographical Base Mapping;
- Green – Vehicle body outline (body swept path);
- Red – Tracked pathway of the wheels (wheel swept path); and
- Purple – The over-sail tracked path of the load where it encroaches outwith the trailer (load swept path).

Where mitigation works are required, the extents of over-run and over-sail areas are illustrated on the swept path drawings.

Please note that where assessments have been undertaken using Ordnance Survey (OS) base mapping, there can be errors in this data source.

Where provided by the client, topographical data has been utilised. Please note that PF cannot accept liability for errors on the data source, be that OS base mapping or client supplied data.

3.5 Weight Review

It is recommended that a weight review is undertaken via the ESDAL (Electronic Service Delivery for Abnormal Loads) contacts database using the Highways Agency website www.esdal.com.

All of the relevant ESDAL contacts are noted in Table 3-2 and all will need to be contacted to ascertain if there are any relevant constraints that should be noted. This should be undertaken a later stage, should the site pass the initial due diligence review.

Table 3-3: ESDAL Contacts

Organisation	Email Address
Police Scotland	OSDAbnormalLoadsScotland@scotland.pnn.police.uk
Network Rail	abnormalloadscontact@networkrail.co.uk
Historic Rail Estate	rsgbrb@jacobs.com
Scottish Canals	SCAbnormal.Loads@scottishcanals.co.uk
Highland Council	abnormal.loads@highland.gov.uk
Transport Scotland	Paul.winn@transport.gov.scot
Bear North West	NWAbnormalload@bearscotland.co.uk

3.6 Land Ownership

The limits of road adoption can vary depending upon the location of the site and the history of the road agencies involved. The adopted area is generally defined as land contained within a defined boundary where the road agency holds the maintenance rights for the land. In urban areas, this usually defined as the area from the edge of the footway across the road to the opposing footway back edge.

In rural areas the area of adoption can be open to greater interpretation as defined boundaries may not be readily visible. The Highland Council has previously stated that their general rule is that the area of adoption is between established fence / hedges lines or a maximum 3m from the road edge. This can vary between areas and location.

3.7 Summary Issues

It is strongly suggested that following a review of the RSR, Falck should undertake the following prior to the delivery of the first abnormal loads, to ensure load and road user safety:

- That any necessary topographical surveys are undertaken and the swept path results completed;
- A review of axle loading on structures along the entire access route with the various road agencies is undertaken immediately prior to the loads being transported in case of last minute changes to structures;
- A review of clear heights with utility providers and the transport agencies along the route to ensure that there is sufficient space to allow for loads plus sufficient flashover protection (to electrical installations);
- That any verge vegetation and tree canopies which may foul loads is trimmed prior to loads moving;
- That a review of potential roadworks and or closures is undertaken once the delivery schedule is established in draft form;
- That a test run is completed to confirm the route and review any vertical clearance issues; and
- That a condition survey is undertaken to ascertain the extents of road defects prior to loads commencing to protect the developer from spurious damage claims.

4 Summary

4.1 Summary of Access Review

PF has been commissioned by Falck to prepare a Route Survey Report to examine the issues associated with the transport of AIL turbine components to Ben Aketil Wind Farm.

This report has been based upon SGRE 155 components and identifies the key points and constraints associated with two proposed routes and outlines the issues that will need to be considered for successful delivery of components.

The report is presented for consideration to Falck. Various assessment reviews, road modifications, structural reviews and interventions are required to successfully access the site. If these are undertaken, access to the consented wind farm site is considered feasible.

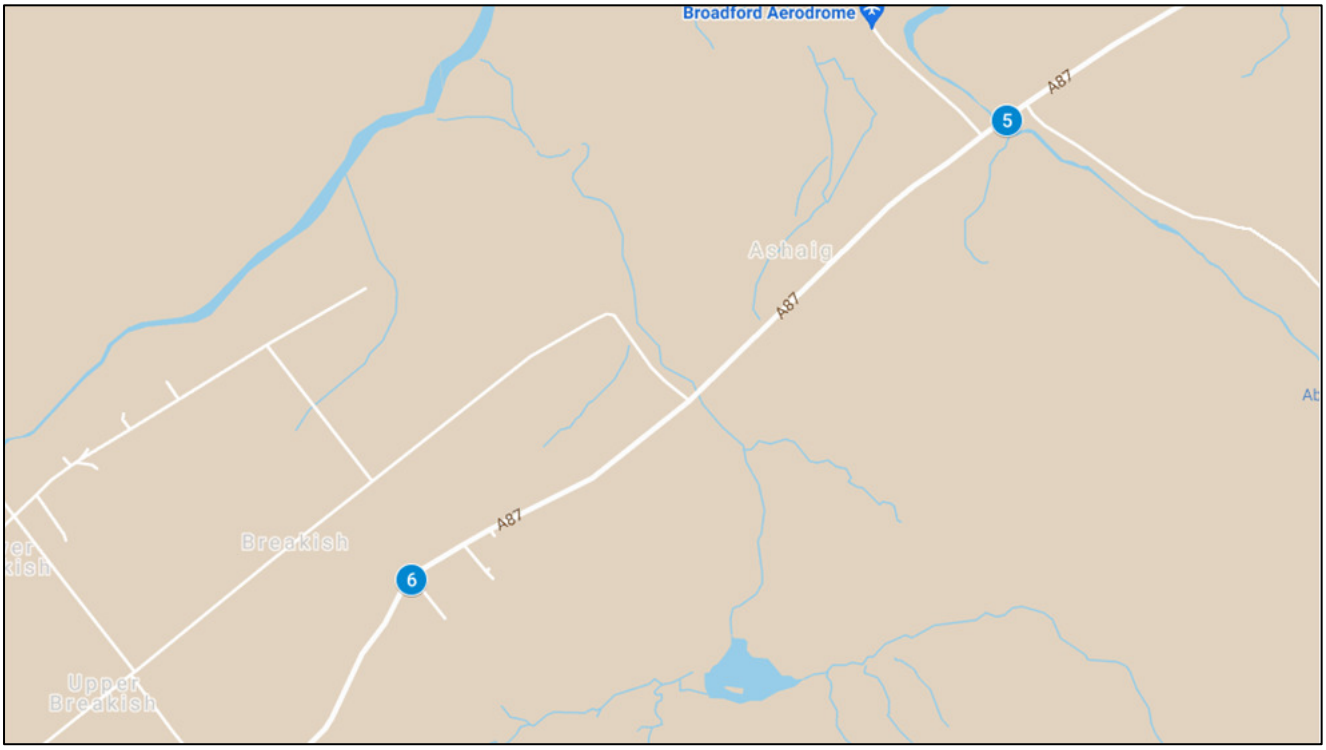
4.2 Further Actions

The following actions are recommended to pursue the transport and access issues further:

- Prepare detailed mitigation design proposals to help inform the land option / consultee discussions;
- Obtain the necessary land options;
- Undertake discussion with the affected utility providers and roads agencies;
- Obtain the necessary statutory licences to enable the mitigation measures; and
- Develop a detailed operational Transport Management Plan to assist in transporting the proposed loads.

Appendix A Points of Interest

An electronic version of the POI plans can be found here:
https://www.google.com/maps/d/u/0/edit?mid=1Z4Zm5MHIjx9Xw9IvDwUnKdr0WebV8c9T&usp=sharing

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Waterloo
A87
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A851
A87
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Skulamus
A851


16
A87
A87
Loch na Cairidh
Dunan
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BLACKHILL
Eas a' Bhràdain
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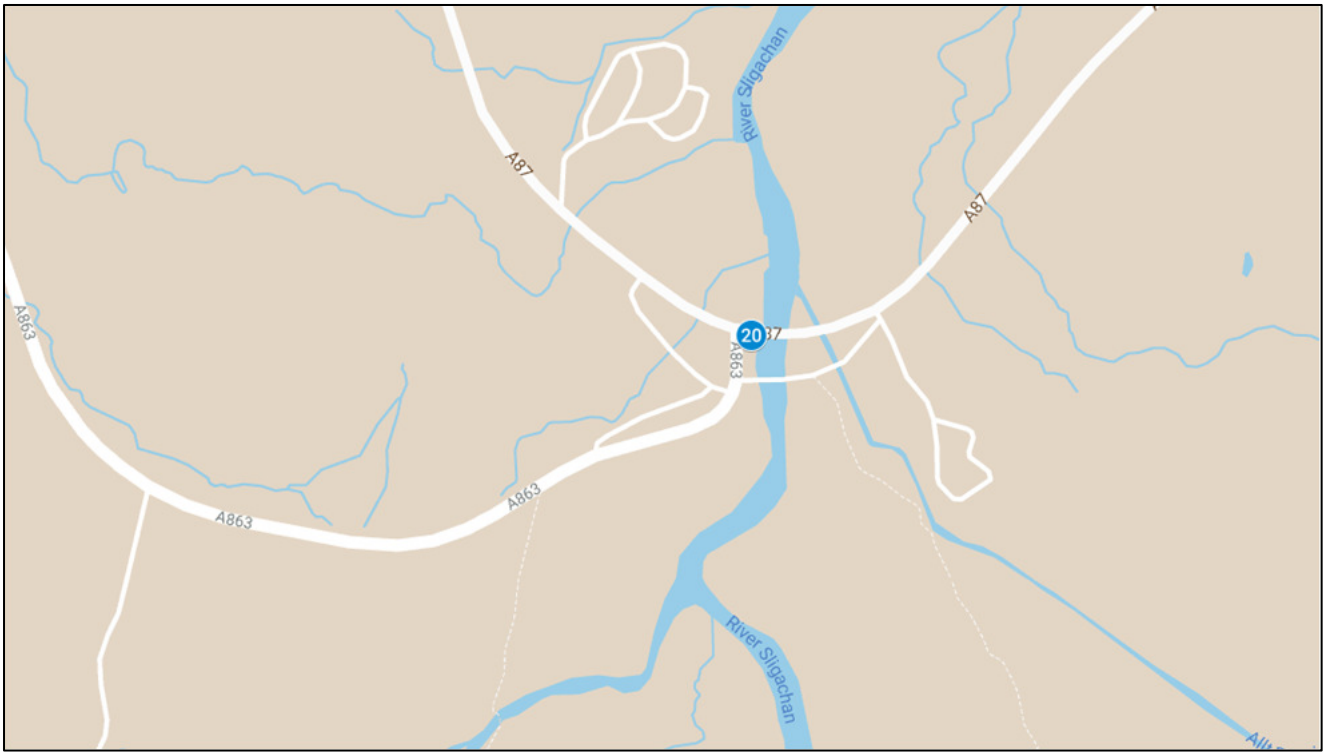
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River Sligachan


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Drynoch Burn
Allt na Guile
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A863
Drynoch
21
A863
River Drynoch
B8009
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B8009


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Portnalong
Loch Harport
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A863
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Ullinish
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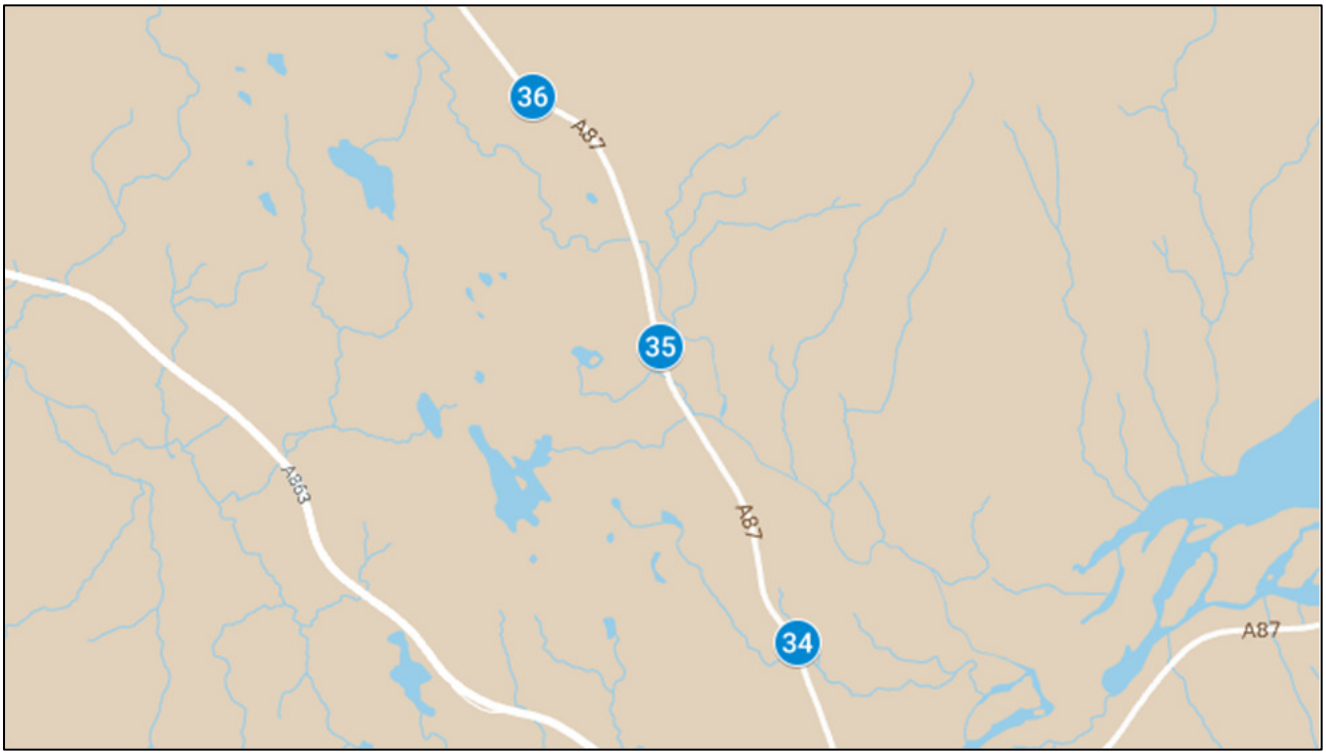
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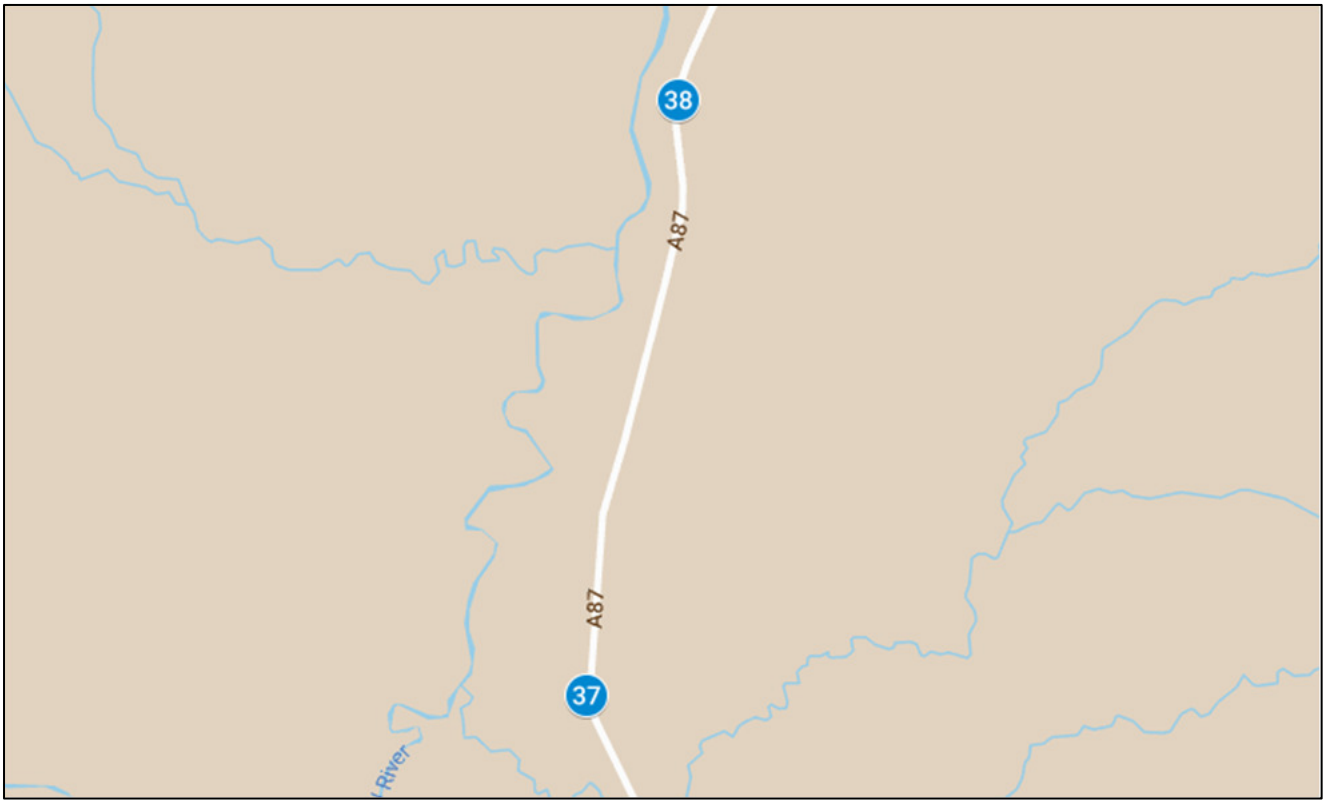
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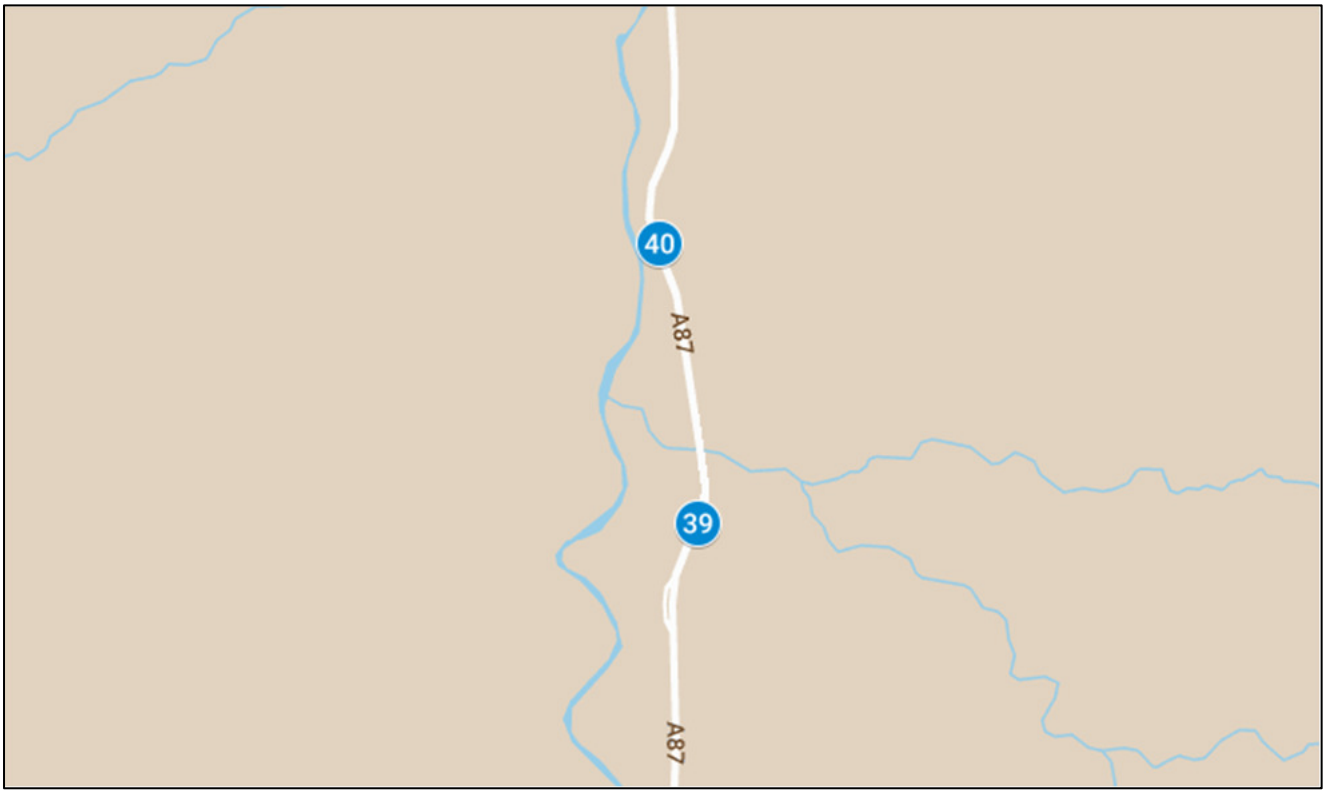
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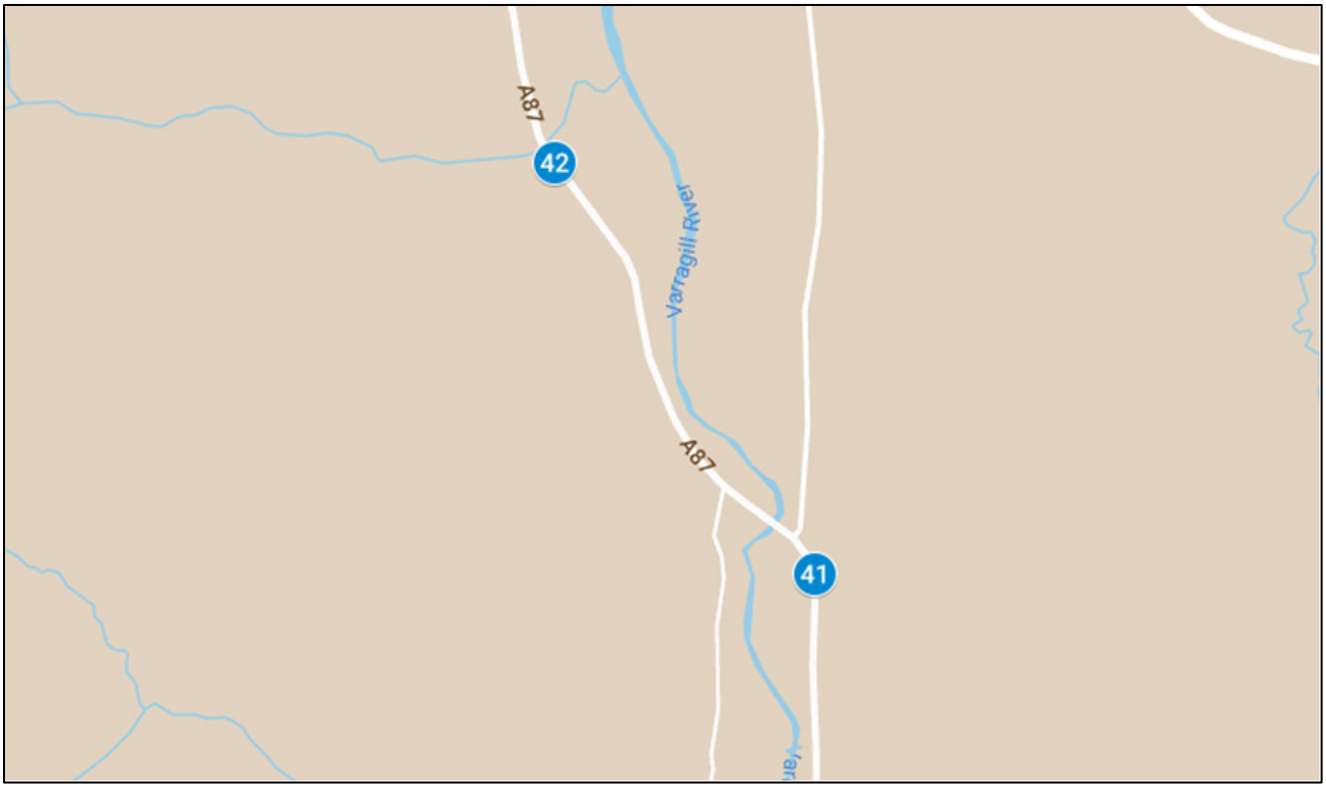
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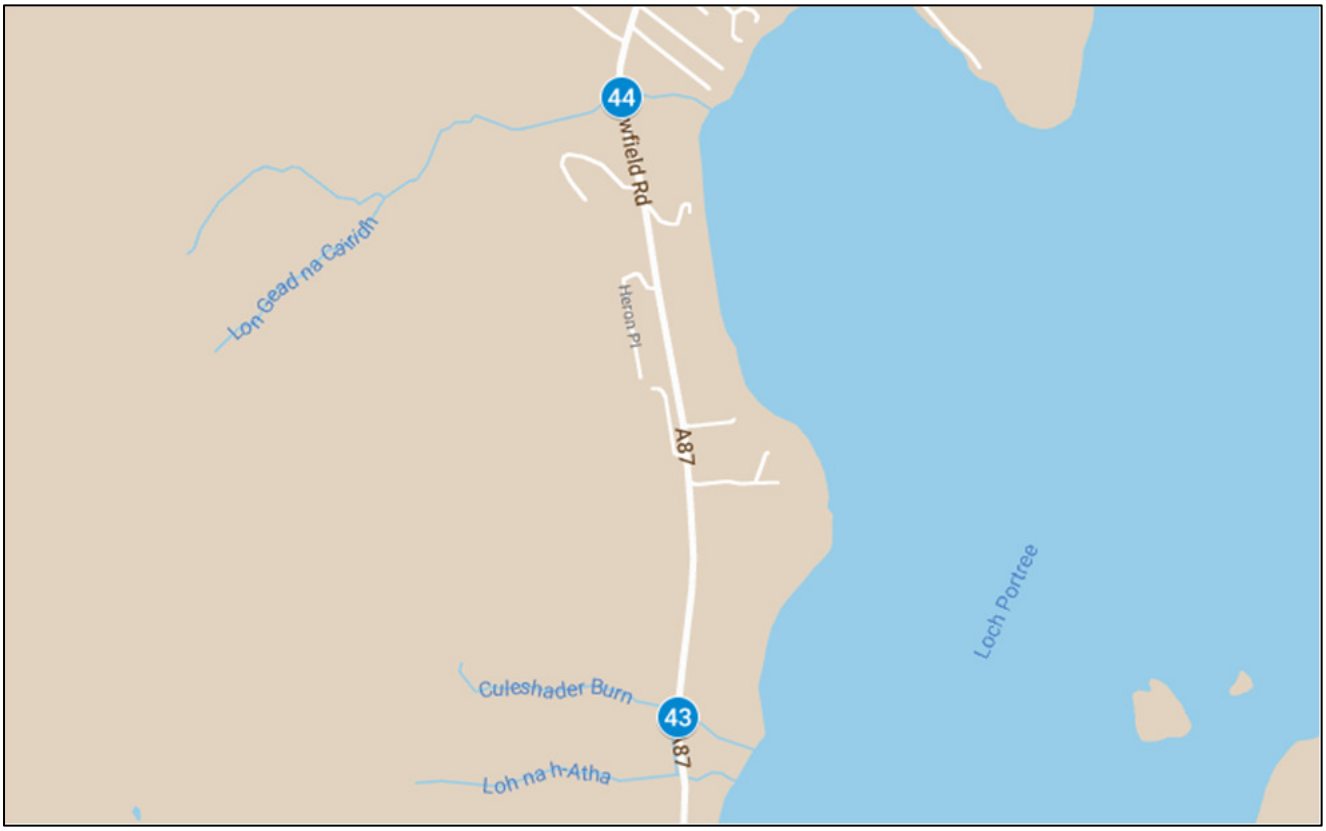
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Culeshader Burn
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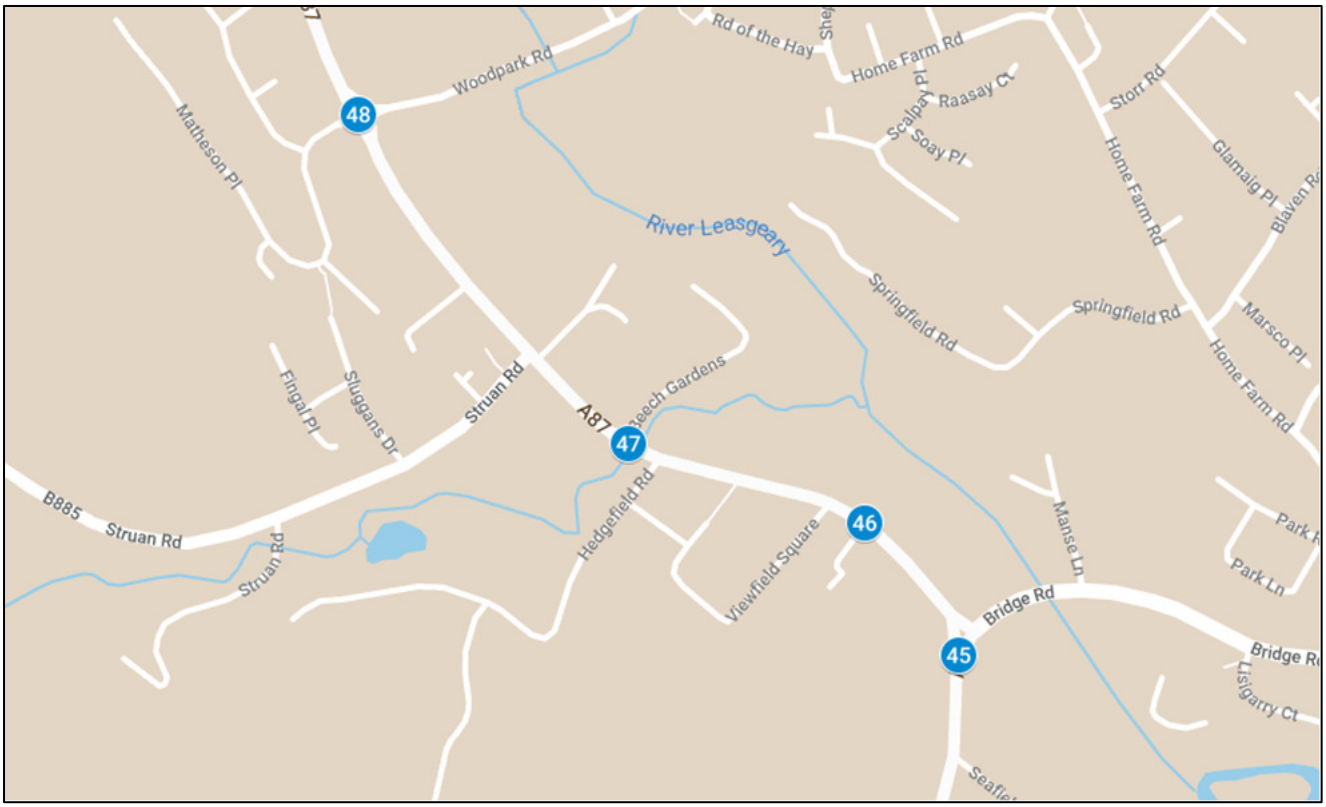
Loh na h-Atha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Woodpark Rd
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Matheson Pl
Scalpay Pl
Raasay Ct
Soay Pl
Storr Rd
Glamaig Pl
Home Farm Rd
River Leasgeary
Springfield Rd
Springfield Rd
Marsco Pl
Home Farm Rd
Fingal Pl
Sluggans Dr
Struan Rd
A87
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B885
Struan Rd
Struan Rd
Hedgefield Rd
Viewfield Square
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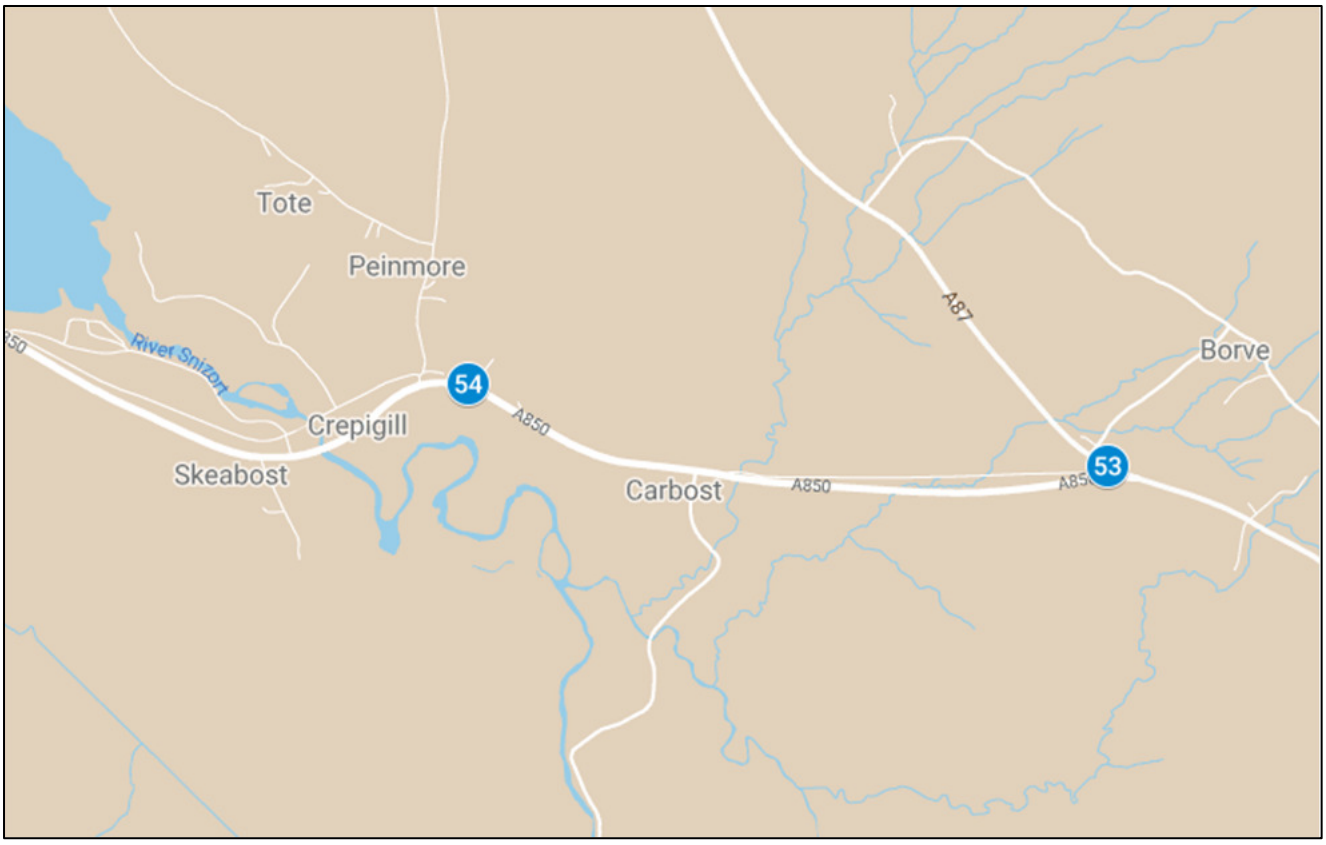
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Borve
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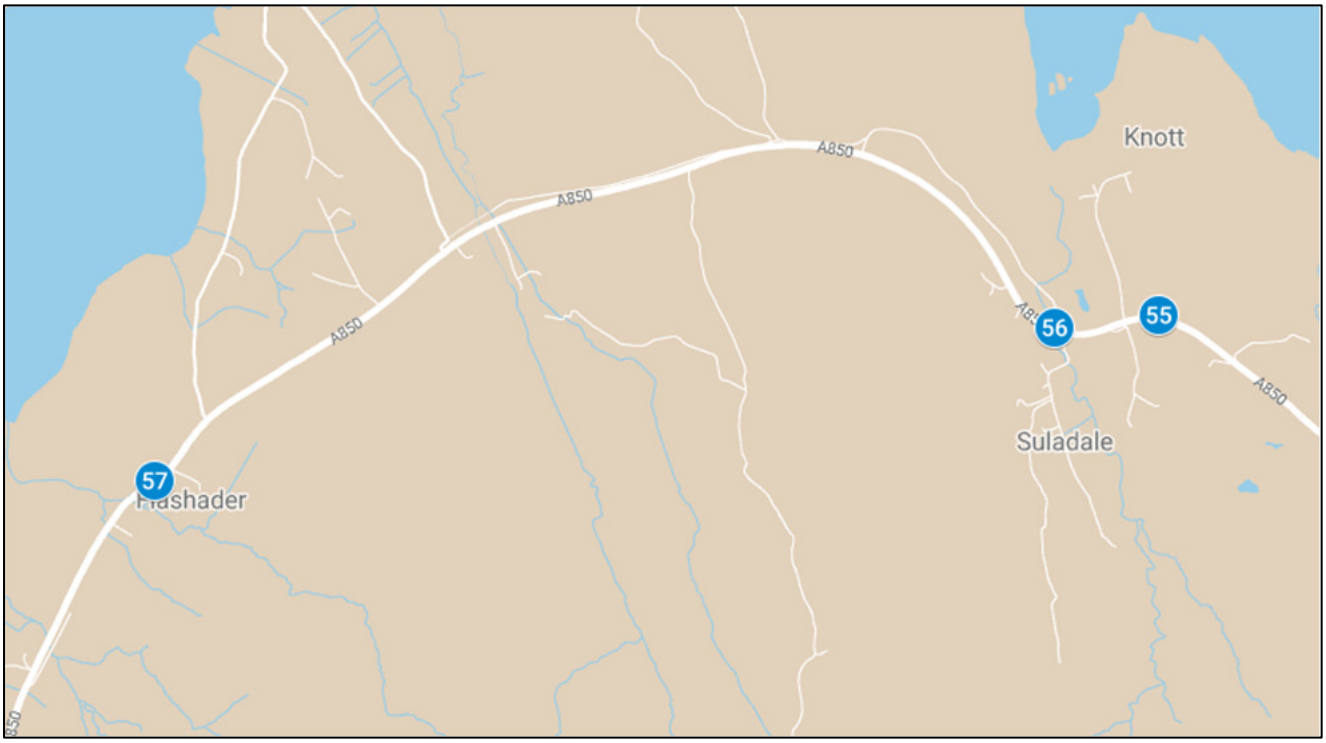
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A850
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Knott
56
55
Suladale
57
Plashader


A850
A850
A850
A850
59
58
Edinbane

Appendix B Swept Path Assessment Drawings

Blade Lifter
@ 60°

Pell Frischmann
93 GEORGE STREET, EDINBURGH, EH2 3ES
Tel: +44 (0)131 240 1270
Email: pfedinburgh@pellfrischmann.com
www.pellfrischmann.com

Client: Falck Renewables UK Ltd.

Key: Wheel SPA | Body SPA | Load SPA | Indicative | Over-run | Over-sail

Project: Ben Aketil Wind Farm

Drawing Title: Siemens SG155 Blade & Tower

SPA Location: Kyle of Lochalsh Harbour & A87 Junction

	Name	Date
Drawn	GLJ	05/05/2022
Designed	GLJ	05/05/2022
Checked	GB	05/05/2022
Point of Interest		1 & 2

Scale: 1:1000 @ A3

File No.: 220504 Ben Aketil Tracking.dwg

Drawing Status: Draft

Drawing No.: SK01

Notes:
1. All mitigation is subject to confirmation through a test run.
2. This is not a construction drawing and is intended for illustration purposes only.

Revision: 1

Tower

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93 GEORGE STREET, EDINBURGH. EH2 3ES
Tel: +44 (0)131 240 1270
Email: pfedinburgh@pellfrischmann.com
www.pellfrischmann.com

Client: Falck Renewables UK Ltd.

Key: Wheel SPA | Body SPA | Load SPA | Indicative | Over-run | Over-sail

Project: Ben Aketil Wind Farm

Drawing Title: Siemens SG155 Blade & Tower

SPA Location: Kyle of Lochalsh Harbour & A87 Junction

	Name	Date
Drawn	GLJ	05/05/2022
Designed	GLJ	05/05/2022
Checked	GB	05/05/2022
Point of Interest		1 & 2

Scale: 1:1000 @ A3

File No.: 220504 Ben Aketil Tracking.dwg

Drawing Status: Draft

Drawing No.: SK01A

Notes:
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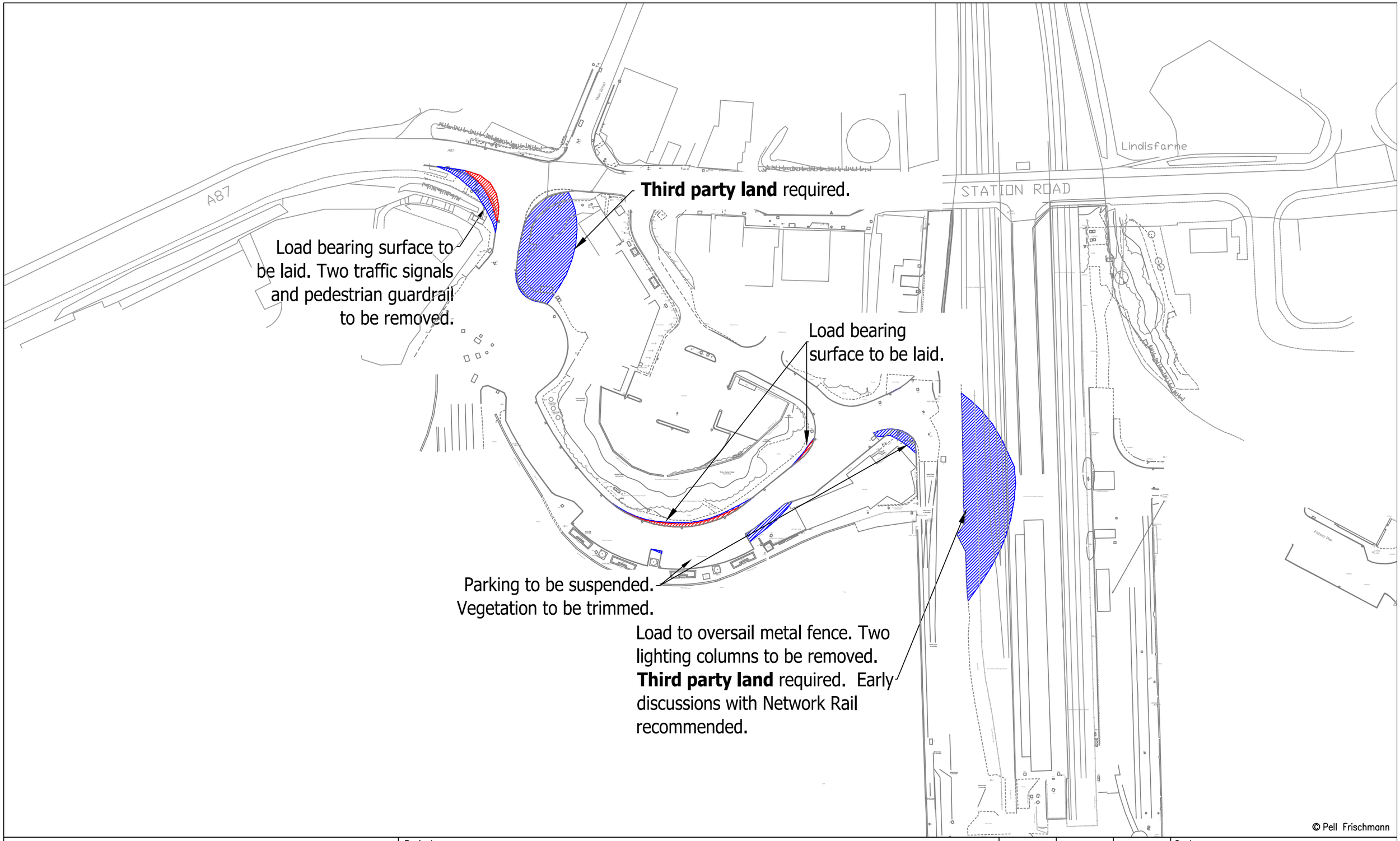
2. This is not a construction drawing and is intended for illustration purposes only.

Revision: 1



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93 GEORGE STREET, EDINBURGH, EH2 3ES
Tel: +44 (0)131 240 1270
Email: pfedinburgh@pellfrischmann.com
www.pellfrischmann.com

Client: Falck Renewables UK Ltd.

Key: Wheel SPA | Body SPA | Load SPA | Indicative | Over-run | Over-sail

Project: Ben Aketil Wind Farm

Drawing Title: Siemens SG155 Blade & Tower

SPA Location: Kyle of Lochalsh Harbour & A87 Junction

	Name	Date
Drawn	GLJ	05/05/2022
Designed	GLJ	05/05/2022
Checked	GB	05/05/2022
Point of Interest		1 & 2

Scale: 1:1000 @ A3

File No.: 220504 Ben Aketil Tracking.dwg

Drawing Status: Draft

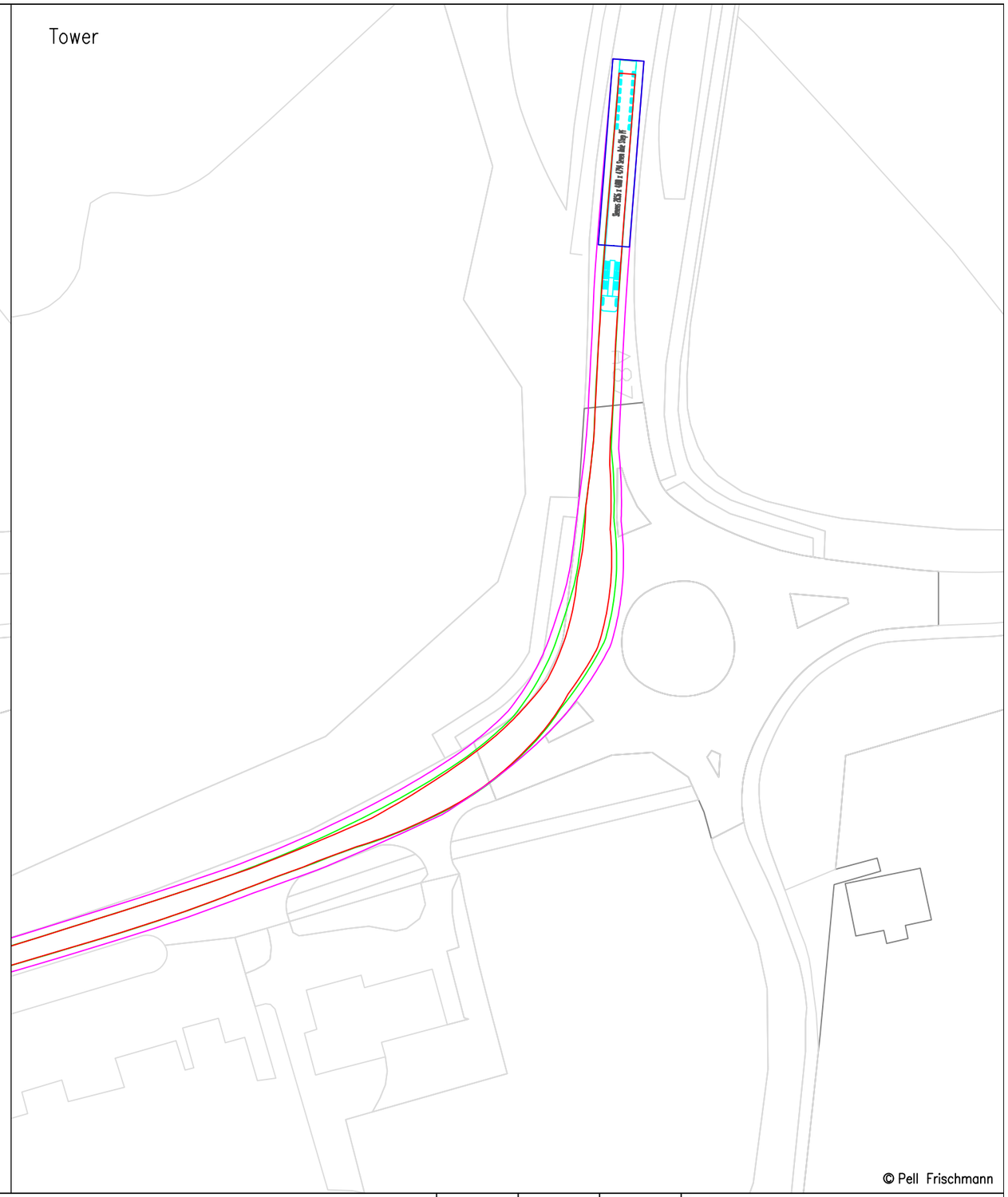
Drawing No.: SK01B

Notes:
1. All mitigation is subject to confirmation through a test run.
2. This is not a construction drawing and is intended for illustration purposes only.

Revision: 1

Blade Lifter
@ 60°

Tower



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93 GEORGE STREET, EDINBURGH, EH2 3ES
Tel: +44 (0)131 240 1270
Email: pfedinburgh@pellfrischmann.com
www.pellfrischmann.com

Client: Falck Renewables UK Ltd.

Key: Wheel SPA | Body SPA | Load SPA | Indicative | Over-run | Over-sail

Project: Ben Aketil Wind Farm

Drawing Title: Siemens SG155 Blade & Tower

SPA Location: A87 Kyleakin Roundabout

	Name	Date
Drawn	GLJ	05/05/2022
Designed	GLJ	05/05/2022
Checked	GB	05/05/2022
Point of Interest		3

Scale: 1:750 @ A3

File No.: 220504 Ben Aketil Tracking.dwg

Drawing Status: Draft

Drawing No.: SK02

Notes:
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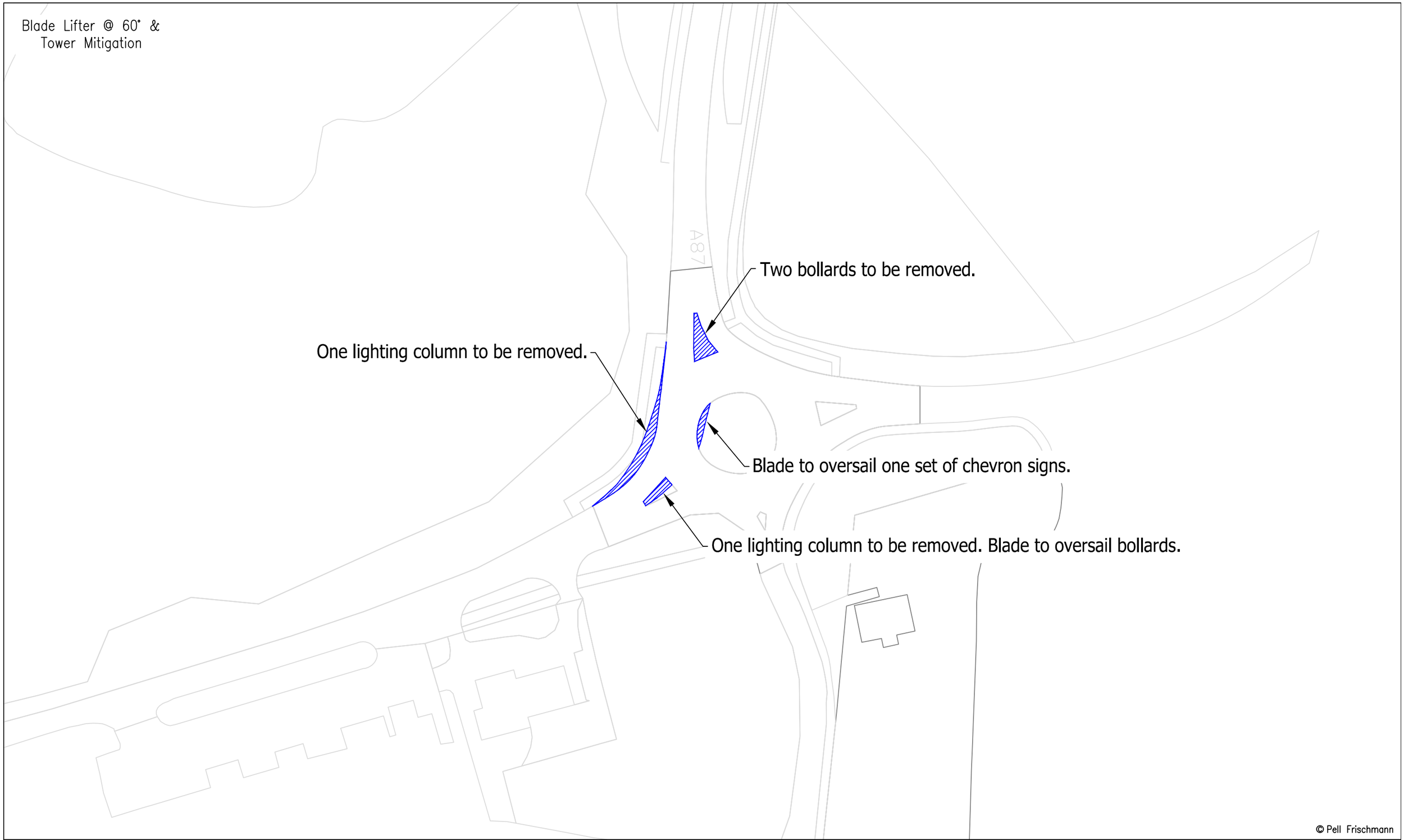
2. This is not a construction drawing and is intended for illustration purposes only.

Revision: 1

Blade Lifter @ 60° &
Tower Mitigation



Pell Frischmann
93 GEORGE STREET, EDINBURGH, EH2 3ES
Tel: +44 (0)131 240 1270
Email: pfedinburgh@pellfrischmann.com
www.pellfrischmann.com

Client: Falck Renewables UK Ltd.

Key: Wheel SPA | Body SPA | Load SPA | Indicative | Over-run | Over-sail

Project: Ben Aketil Wind Farm

Drawing Title: Siemens SG155 Blade & Tower

SPA Location: A87 Kyleakin Roundabout

	Name	Date
Drawn	GLJ	05/05/2022
Designed	GLJ	05/05/2022
Checked	GB	05/05/2022
Point of Interest		3

Scale: 1:750 @ A3

File No.: 220504 Ben Aketil Tracking.dwg

Drawing Status: Draft

Drawing No.: SK02A

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2. This is not a construction drawing and is intended for illustration purposes only.

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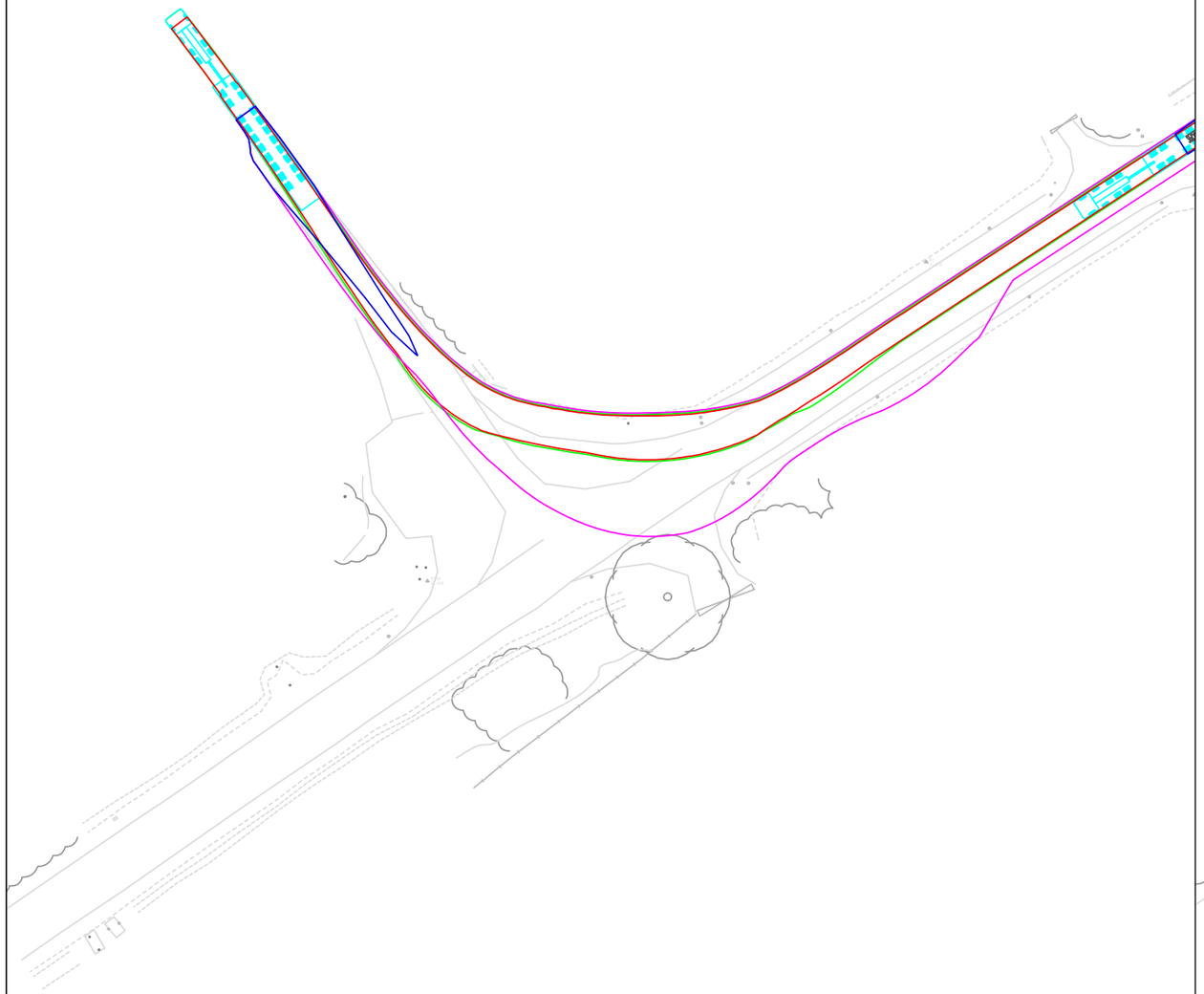
Blade Lifter
@ 60°



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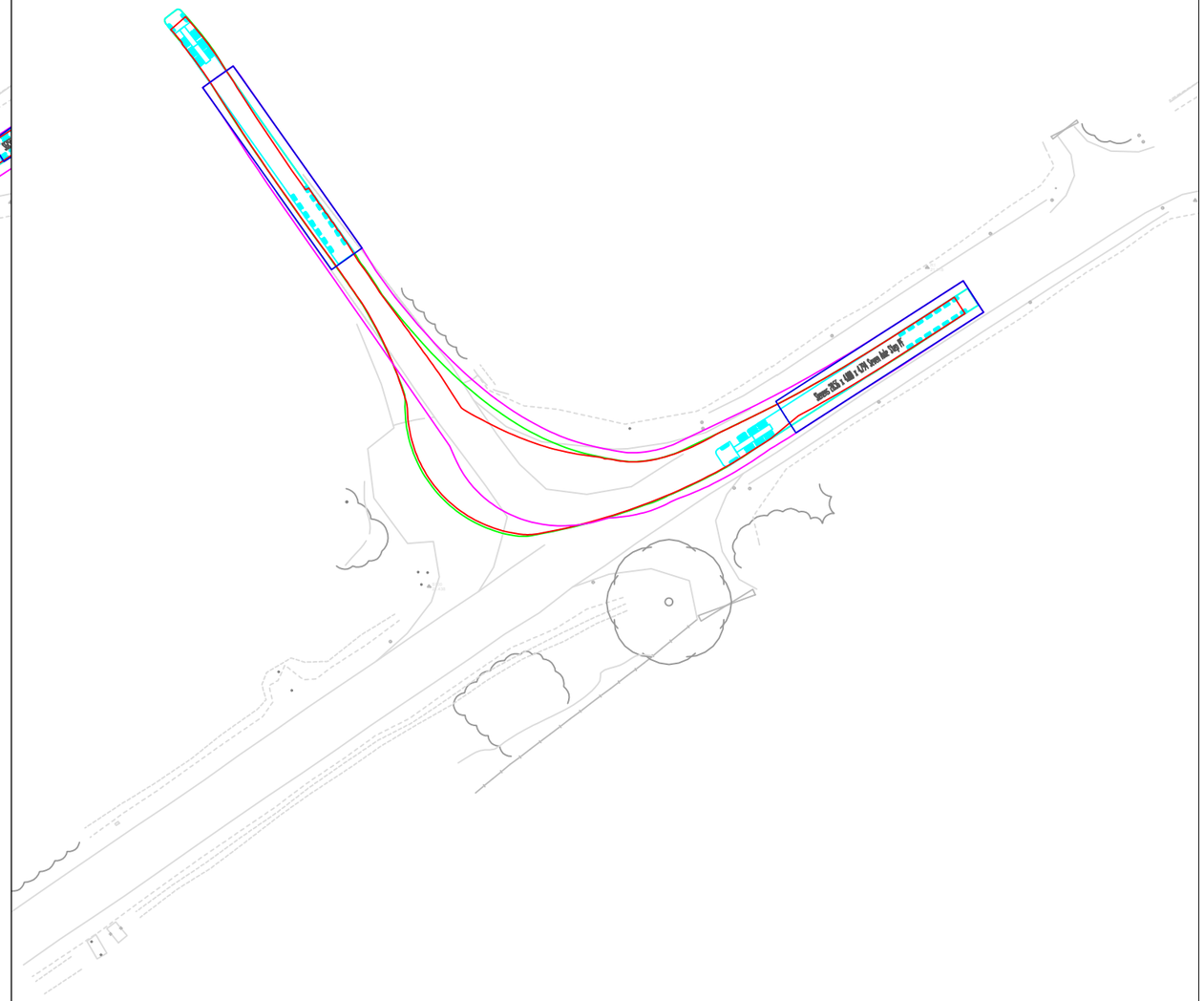

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93 GEORGE STREET, EDINBURGH, EH2 3ES
Tel: +44 (0)131 240 1270
Email: pfedinburgh@pellfrischmann.com
www.pellfrischmann.com

Client: Falck Renewables UK Ltd.

Key: Wheel SPA | Body SPA | Load SPA | Indicative | Over-run | Over-sail

Project: Ben Aketil Wind Farm

Drawing Title: Siemens SG155 Blade & Tower

SPA Location: A87 Broadford Airport

	Name	Date
Drawn	GLJ	05/05/2022
Designed	GLJ	05/05/2022
Checked	GB	05/05/2022
Point of Interest		5

Scale: 1:750 @ A3

File No.: 220504 Ben Aketil Tracking.dwg

Drawing Status: Draft

Drawing No.: SK03

Notes:
1. All mitigation is subject to confirmation through a test run.
2. This is not a construction drawing and is intended for illustration purposes only.

Revision: 1

Blade

Tower

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93 GEORGE STREET, EDINBURGH, EH2 3ES
Tel: +44 (0)131 240 1270
Email: pfedinburgh@pellfrischmann.com
www.pellfrischmann.com

Client: Falck Renewables UK Ltd.

Key: Wheel SPA | Body SPA | Load SPA | Indicative | Over-run | Over-sail

Project: Ben Aketil Wind Farm

Drawing Title: Siemens SG155 Blade & Tower

SPA Location: A87 Broadford Airport

	Name	Date
Drawn	GLJ	05/05/2022
Designed	GLJ	05/05/2022
Checked	GB	05/05/2022
Point of Interest		5

Scale: 1:750 @ A3

File No.: 220504 Ben Aketil Tracking.dwg

Drawing Status: Draft

Drawing No.: SK03A

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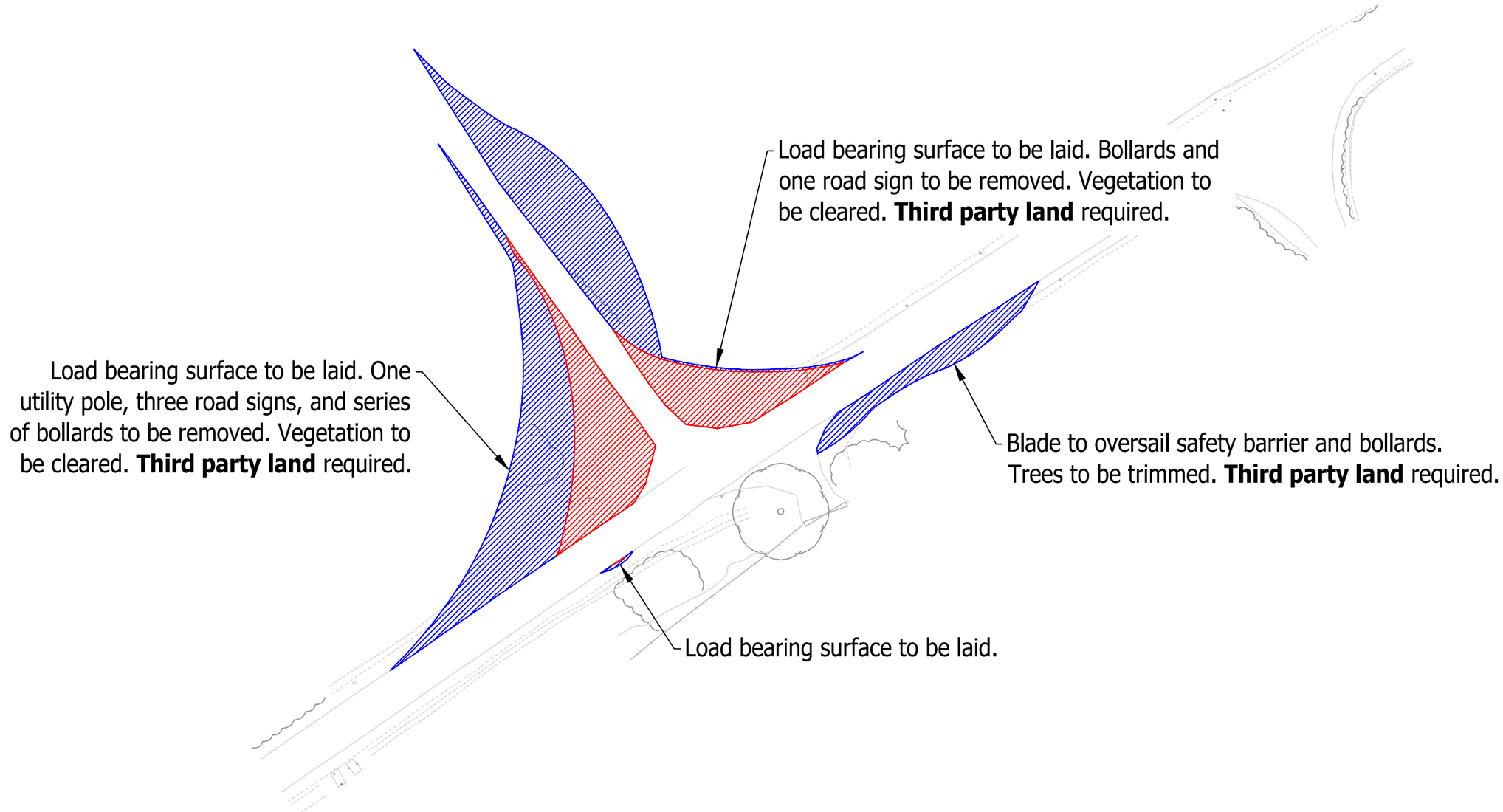

Pell Frischmann
93 GEORGE STREET, EDINBURGH, EH2 3ES
Tel: +44 (0)131 240 1270
Email: pfedinburgh@pellfrischmann.com
www.pellfrischmann.com

Client: Falck Renewables UK Ltd.

Key: Wheel SPA | Body SPA | Load SPA | Indicative | Over-run | Over-sail

Project: Ben Aketil Wind Farm

Drawing Title: Siemens SG155 Blade & Tower

SPA Location: A87 Broadford Airport

	Name	Date
Drawn	GLJ	05/05/2022
Designed	GLJ	05/05/2022
Checked	GB	05/05/2022
Point of Interest		5

Scale: 1:750 @ A3

File No.: 220504 Ben Aketil Tracking.dwg

Drawing Status: Draft

Drawing No.: SK03B

Notes:
1. All mitigation is subject to confirmation through a test run.
2. This is not a construction drawing and is intended for illustration purposes only.

Revision: 1

Blade

Tower

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93 GEORGE STREET, EDINBURGH, EH2 3ES
Tel: +44 (0)131 240 1270
Email: pfedinburgh@pellfrischmann.com
www.pellfrischmann.com

Client: Falck Renewables UK Ltd.

Key: Wheel SPA | Body SPA | Load SPA | Indicative | Over-run | Over-sail

Project: Ben Aketil Wind Farm

Drawing Title: Siemens SG155 Blade & Tower

SPA Location: A87 Skulamus

	Name	Date
Drawn	GLJ	05/05/2022
Designed	GLJ	05/05/2022
Checked	GB	05/05/2022
Point of Interest		9 & 10

Scale: 1:1250 @ A3

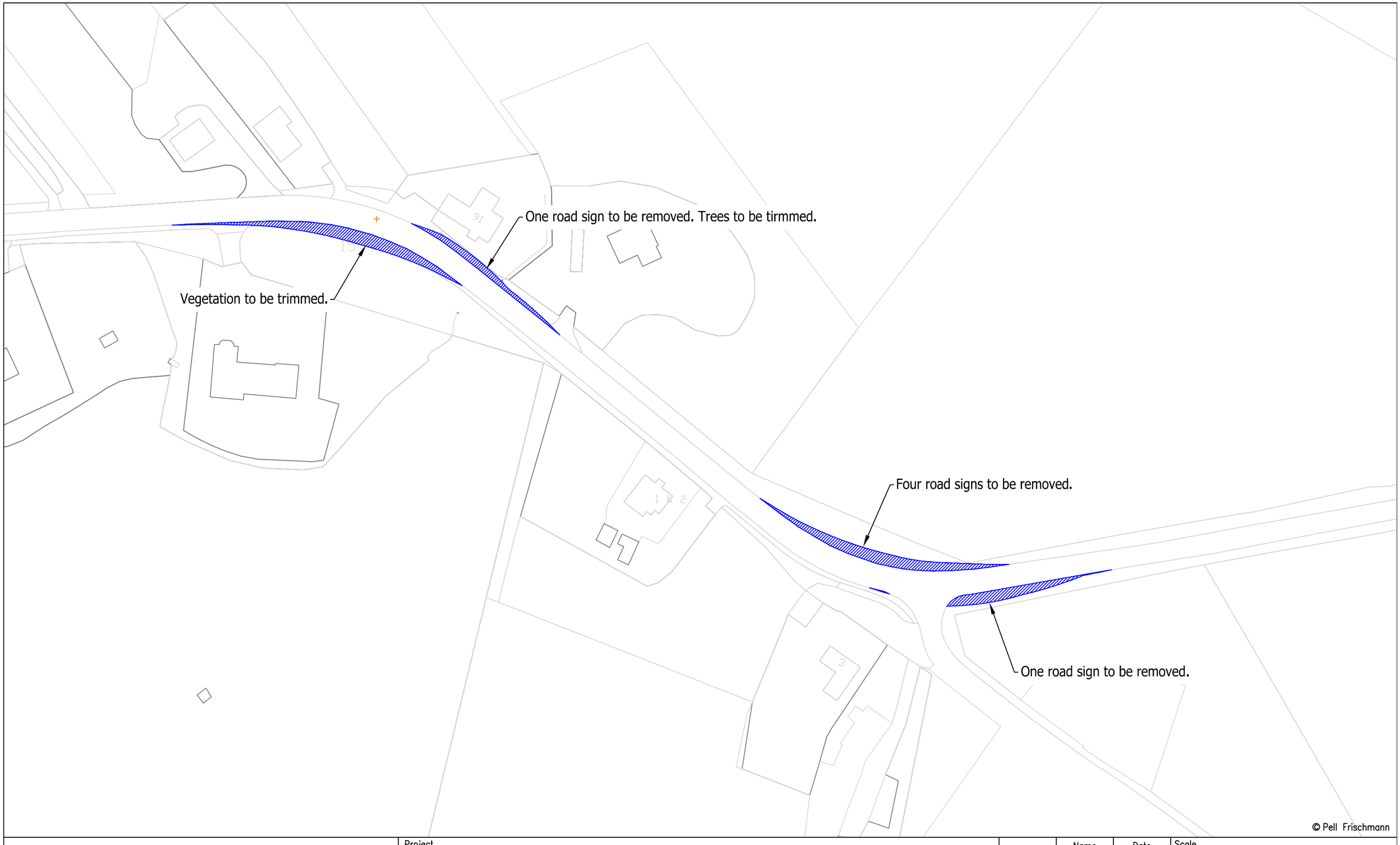
File No.: 220504 Ben Aketil Tracking.dwg

Drawing Status: Draft

Drawing No.: SK04

Notes:
1. All mitigation is subject to confirmation through a test run.
2. This is not a construction drawing and is intended for illustration purposes only.

Revision: 1



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93 GEORGE STREET, EDINBURGH, EH2 3ES
Tel: +44 (0)131 240 1270
Email: pfedinburgh@pellfrischmann.com
www.pellfrischmann.com

Client: Falck Renewables UK Ltd.

Key: Wheel SPA | Body SPA | Load SPA | Indicative | Over-run | Over-sail

Project: Ben Aketil Wind Farm

Drawing Title: Siemens SG155 Blade & Tower

SPA Location: A87 Skulamus

	Name	Date
Drawn	GLJ	05/05/2022
Designed	GLJ	05/05/2022
Checked	GB	05/05/2022
Point of Interest		9 & 10

Scale: 1:1000 @ A3

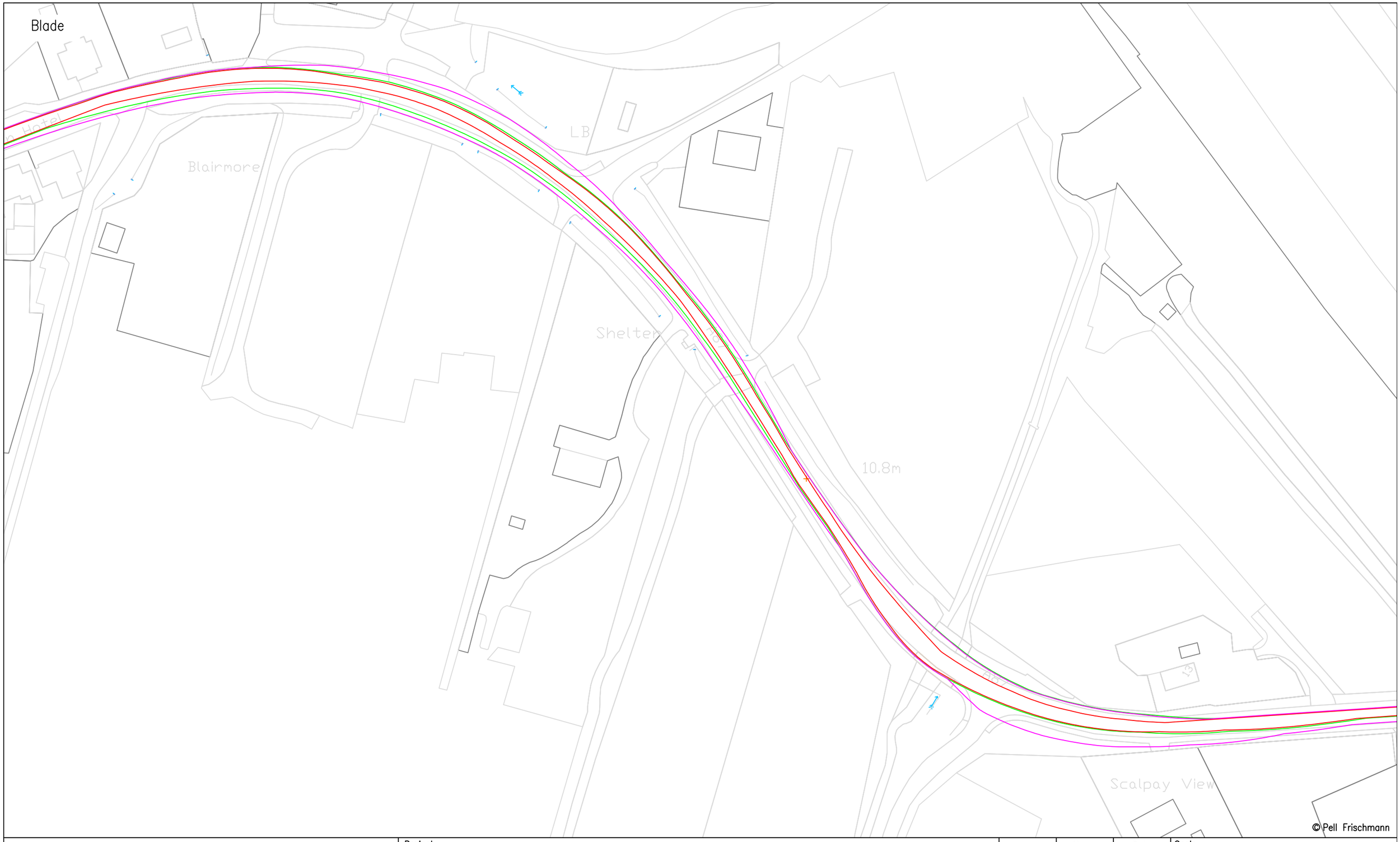
File No.: 220504 Ben Aketil Tracking.dwg

Drawing Status: Draft

Drawing No.: SK04A

Notes:
1. All mitigation is subject to confirmation through a test run.
2. This is not a construction drawing and is intended for illustration purposes only.

Revision: 1



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93 GEORGE STREET, EDINBURGH, EH2 3ES
Tel: +44 (0)131 240 1270
Email: pfedinburgh@pellfrischmann.com
www.pellfrischmann.com

Client: Falck Renewables UK Ltd.

Key: Wheel SPA | Body SPA | Load SPA | Indicative | Over-run | Over-sail

Project: Ben Aketil Wind Farm

Drawing Title: Siemens SG155 Blade & Tower

SPA Location: A87 Moorlands

	Name	Date
Drawn	GLJ	05/05/2022
Designed	GLJ	05/05/2022
Checked	GB	05/05/2022
Point of Interest		11

Scale: 1:1000 @ A3

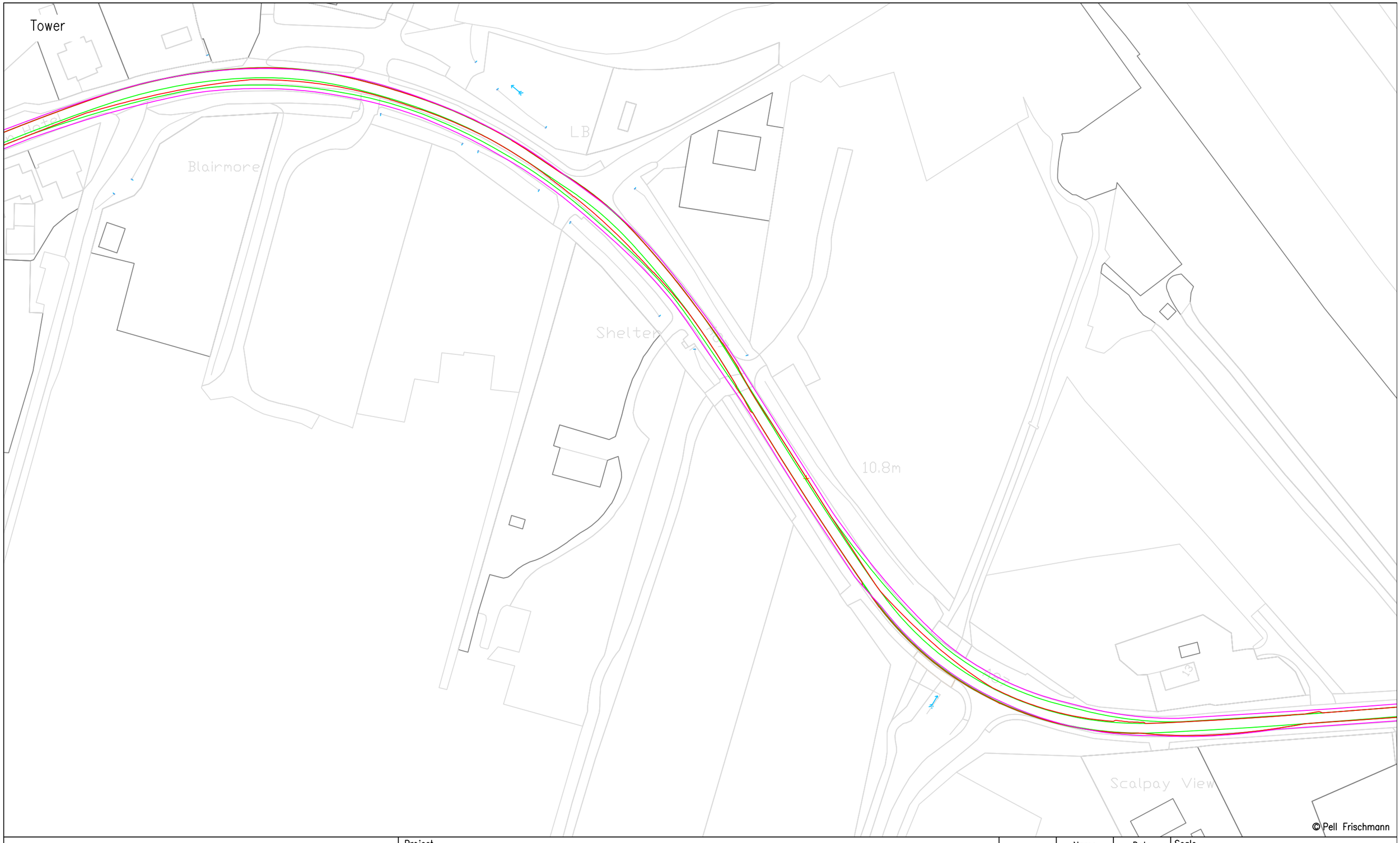
File No.: 220504 Ben Aketil Tracking.dwg

Drawing Status: Draft

Drawing No.: SK05

Notes:
1. All mitigation is subject to confirmation through a test run.
2. This is not a construction drawing and is intended for illustration purposes only.

Revision: 1



Pell Frischmann
93 GEORGE STREET, EDINBURGH, EH2 3ES
Tel: +44 (0)131 240 1270
Email: pfedinburgh@pellfrischmann.com
www.pellfrischmann.com

Client: Falck Renewables UK Ltd.

Key: Wheel SPA | Body SPA | Load SPA | Indicative | Over-run | Over-sail

Project: Ben Aketil Wind Farm

Drawing Title: Siemens SG155 Blade & Tower

SPA Location: A87 Moorlands

	Name	Date
Drawn	GLJ	05/05/2022
Designed	GLJ	05/05/2022
Checked	GB	05/05/2022
Point of Interest		11

Scale: 1:1000 @ A3

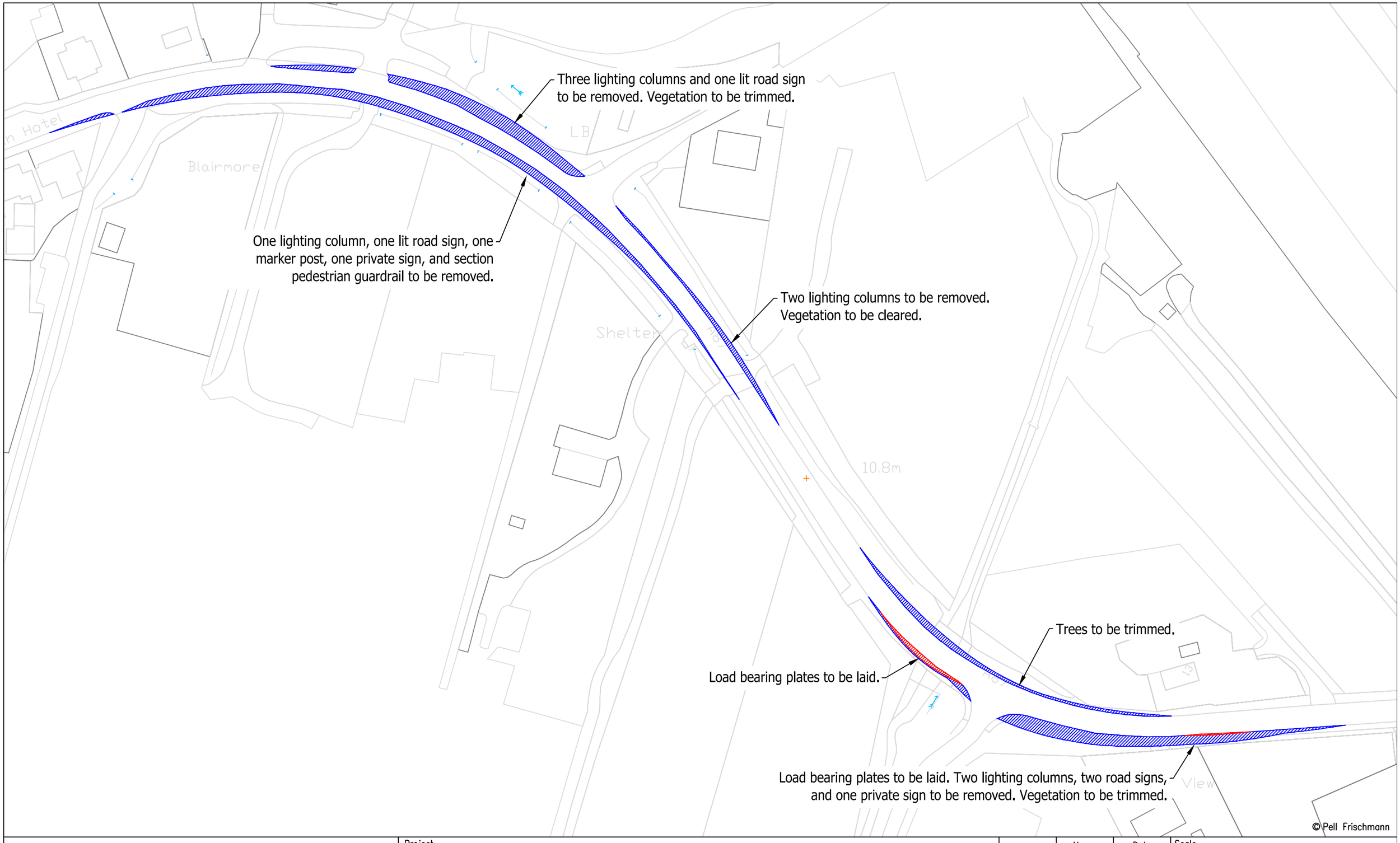
File No.: 220504 Ben Aketil Tracking.dwg

Drawing Status: Draft

Drawing No.: SK05A

Notes:
1. All mitigation is subject to confirmation through a test run.
2. This is not a construction drawing and is intended for illustration purposes only.

Revision: 1



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93 GEORGE STREET, EDINBURGH, EH2 3ES
Tel: +44 (0)131 240 1270
Email: pfedinburgh@pellfrischmann.com
www.pellfrischmann.com

Client: Falck Renewables UK Ltd.

Key: Wheel SPA | Body SPA | Load SPA | Indicative | Over-run | Over-sail

Project: Ben Aketil Wind Farm

Drawing Title: Siemens SG155 Blade & Tower

SPA Location: A87 Moorlands

	Name	Date
Drawn	GLJ	05/05/2022
Designed	GLJ	05/05/2022
Checked	GB	05/05/2022
Point of Interest		11

Scale: 1:1000 @ A3

File No.: 220504 Ben Aketil Tracking.dwg

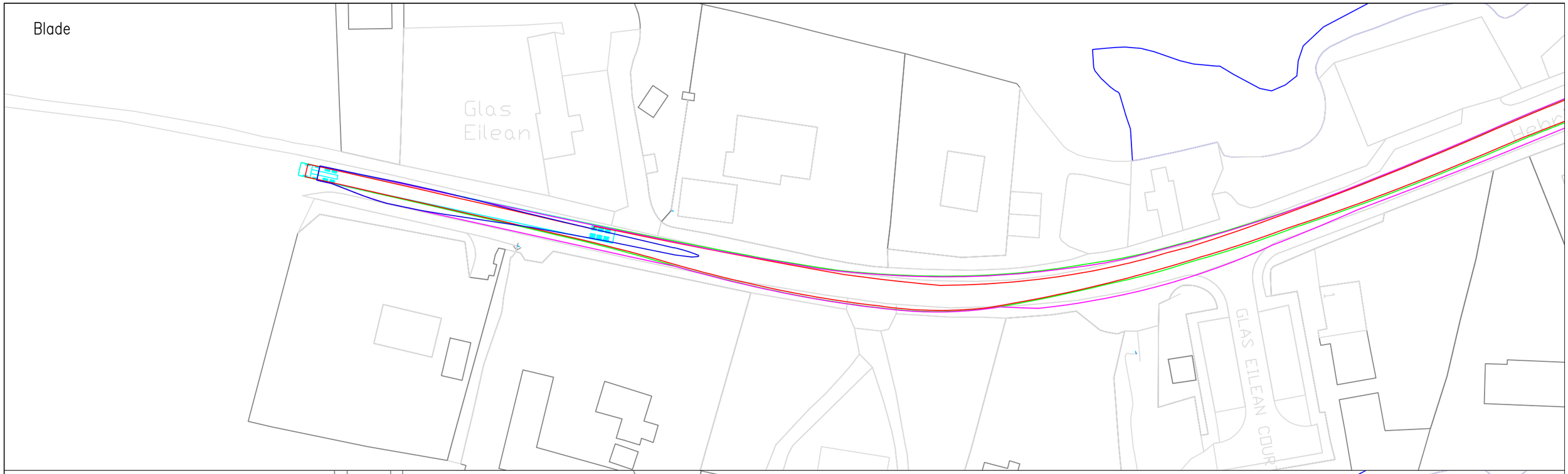
Drawing Status: Draft

Drawing No.: SK05B

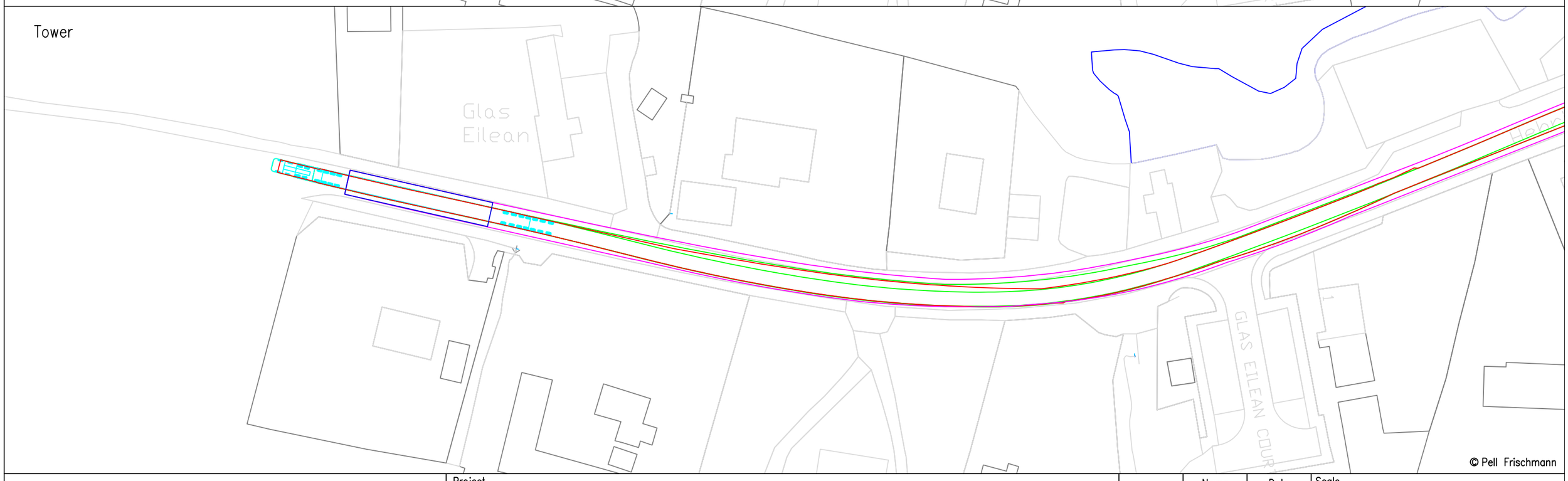
Notes:
1. All mitigation is subject to confirmation through a test run.
2. This is not a construction drawing and is intended for illustration purposes only.

Revision: 1

Blade



Tower



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93 GEORGE STREET, EDINBURGH, EH2 3ES
Tel: +44 (0)131 240 1270
Email: pfedinburgh@pellfrischmann.com
www.pellfrischmann.com

Client: Falck Renewables UK Ltd.

Key: Wheel SPA | Body SPA | Load SPA | Indicative | Over-run | Over-sail

Project: Ben Aketil Wind Farm

Drawing Title: Siemens SG155 Blade & Tower

SPA Location: A87 Harrapool

	Name	Date
Drawn	GLJ	05/05/2022
Designed	GLJ	05/05/2022
Checked	GB	05/05/2022
Point of Interest		12

Scale: 1:750 @ A3

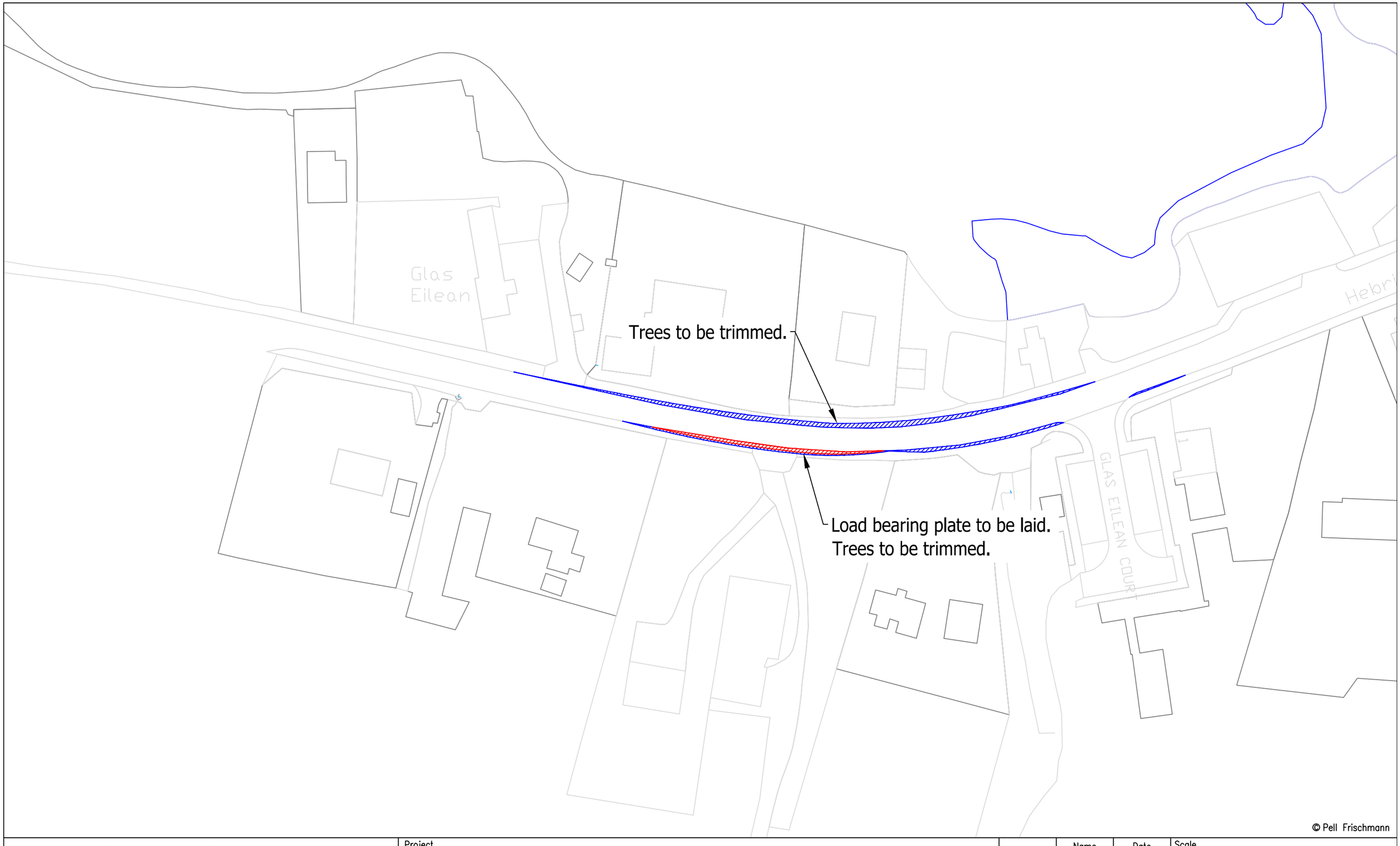
File No.: 220504 Ben Aketil Tracking.dwg

Drawing Status: Draft

Drawing No.: SK06

Notes:
1. All mitigation is subject to confirmation through a test run.
2. This is not a construction drawing and is intended for illustration purposes only.

Revision: 1



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93 GEORGE STREET, EDINBURGH, EH2 3ES
Tel: +44 (0)131 240 1270
Email: pfedinburgh@pellfrischmann.com
www.pellfrischmann.com

Client: Falck Renewables UK Ltd.

Key: Wheel SPA | Body SPA | Load SPA | Indicative | Over-run | Over-sail

Project: Ben Aketil Wind Farm

Drawing Title: Siemens SG155 Blade & Tower

SPA Location: A87 Harrapool

	Name	Date
Drawn	GLJ	05/05/2022
Designed	GLJ	05/05/2022
Checked	GB	05/05/2022
Point of Interest		12

Scale: 1:750 @ A3

File No.: 220504 Ben Aketil Tracking.dwg

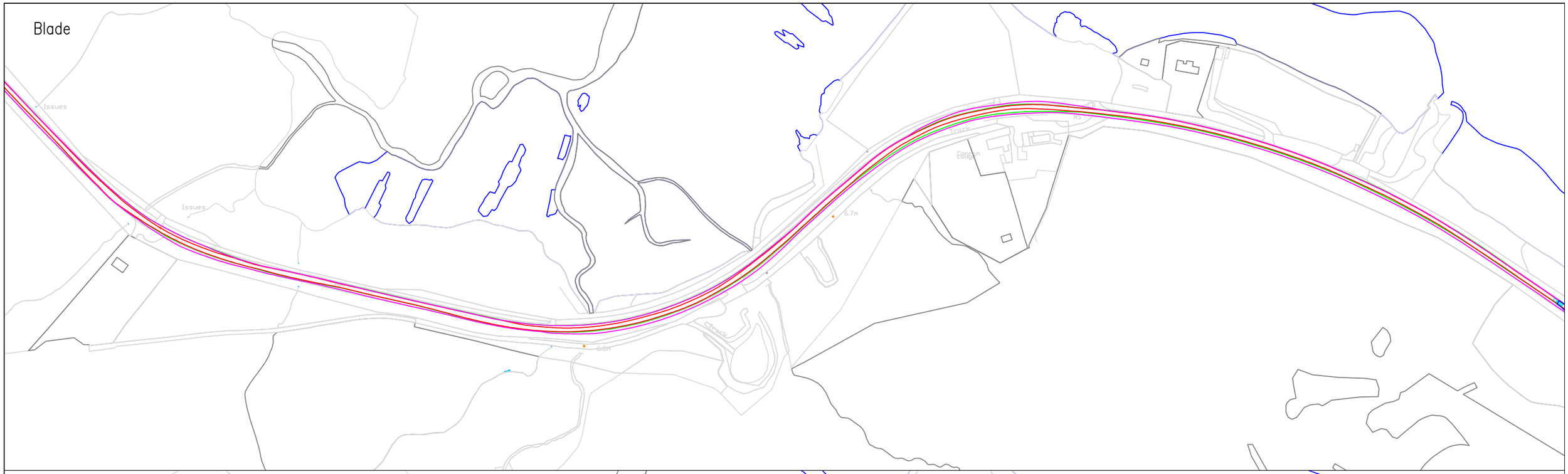
Drawing Status: Draft

Drawing No.: SK06A

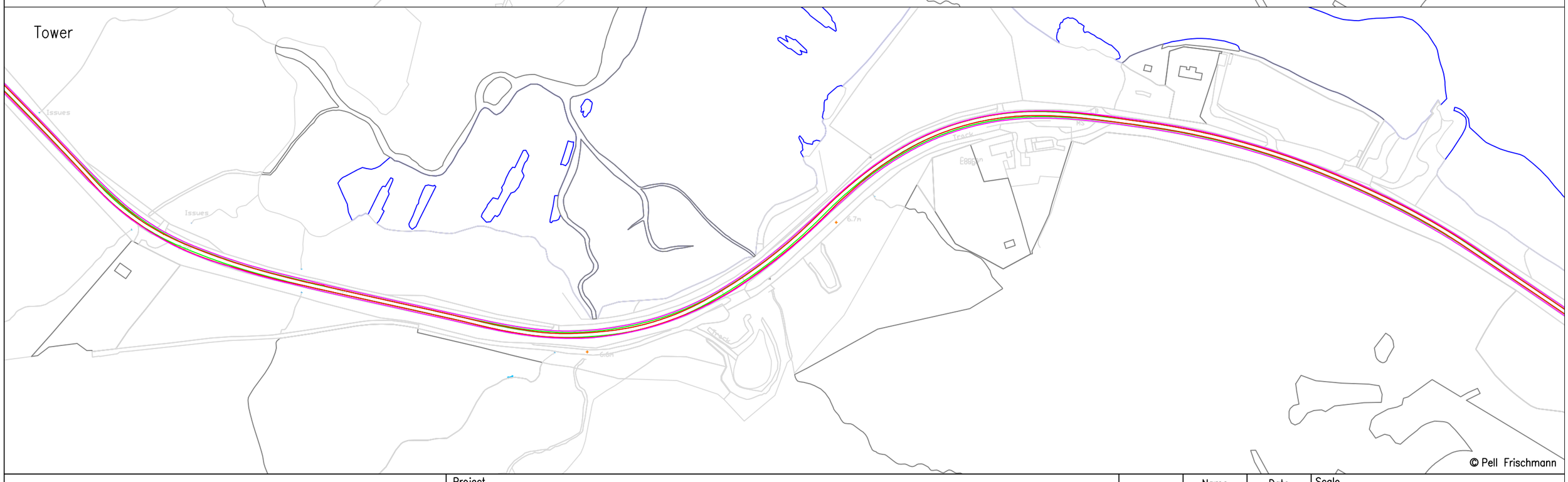
Notes:
1. All mitigation is subject to confirmation through a test run.
2. This is not a construction drawing and is intended for illustration purposes only.

Revision: 1

Blade



Tower



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93 GEORGE STREET, EDINBURGH, EH2 3ES
Tel: +44 (0)131 240 1270
Email: pfedinburgh@pellfrischmann.com
www.pellfrischmann.com

Client: Falck Renewables UK Ltd.

Key: Wheel SPA | Body SPA | Load SPA | Indicative | Over-run | Over-sail

Project: Ben Aketil Wind Farm

Drawing Title: Siemens SG155 Blade & Tower

SPA Location: A87 Corran House

	Name	Date
Drawn	GLJ	05/05/2022
Designed	GLJ	05/05/2022
Checked	GB	05/05/2022
Point of Interest		14

Scale: 1:2750 @ A3

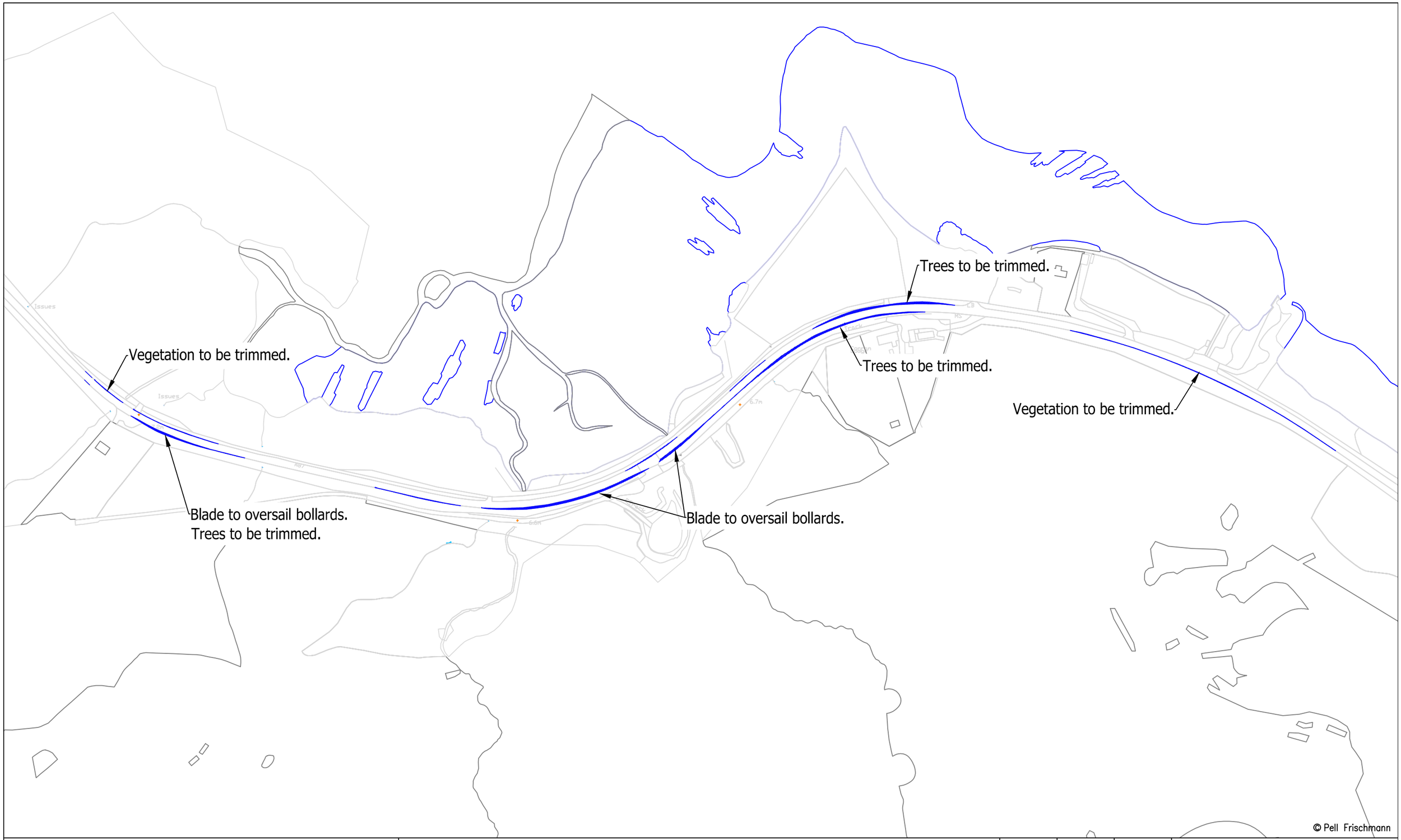
File No.: 220504 Ben Aketil Tracking.dwg

Drawing Status: Draft

Drawing No.: SK07

Notes:
1. All mitigation is subject to confirmation through a test run.
2. This is not a construction drawing and is intended for illustration purposes only.

Revision: 1



Pell Frischmann
93 GEORGE STREET, EDINBURGH, EH2 3ES
Tel: +44 (0)131 240 1270
Email: pfedinburgh@pellfrischmann.com
www.pellfrischmann.com

Client: Falck Renewables UK Ltd.

Key: Wheel SPA | Body SPA | Load SPA | Indicative | Over-run | Over-sail

Project: Ben Aketil Wind Farm

Drawing Title: Siemens SG155 Blade & Tower

SPA Location: A87 Corran House

	Name	Date
Drawn	GLJ	05/05/2022
Designed	GLJ	05/05/2022
Checked	GB	05/05/2022
Point of Interest		14

Scale: 1:2750 @ A3

File No.: 220504 Ben Aketil Tracking.dwg

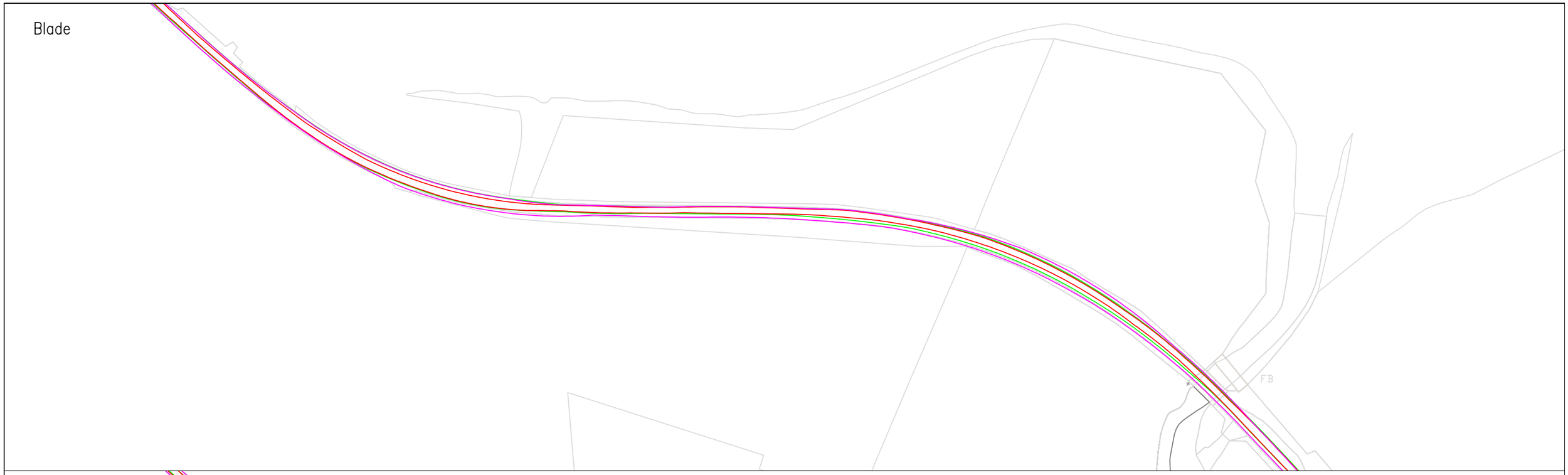
Drawing Status: Draft

Drawing No.: SK07A

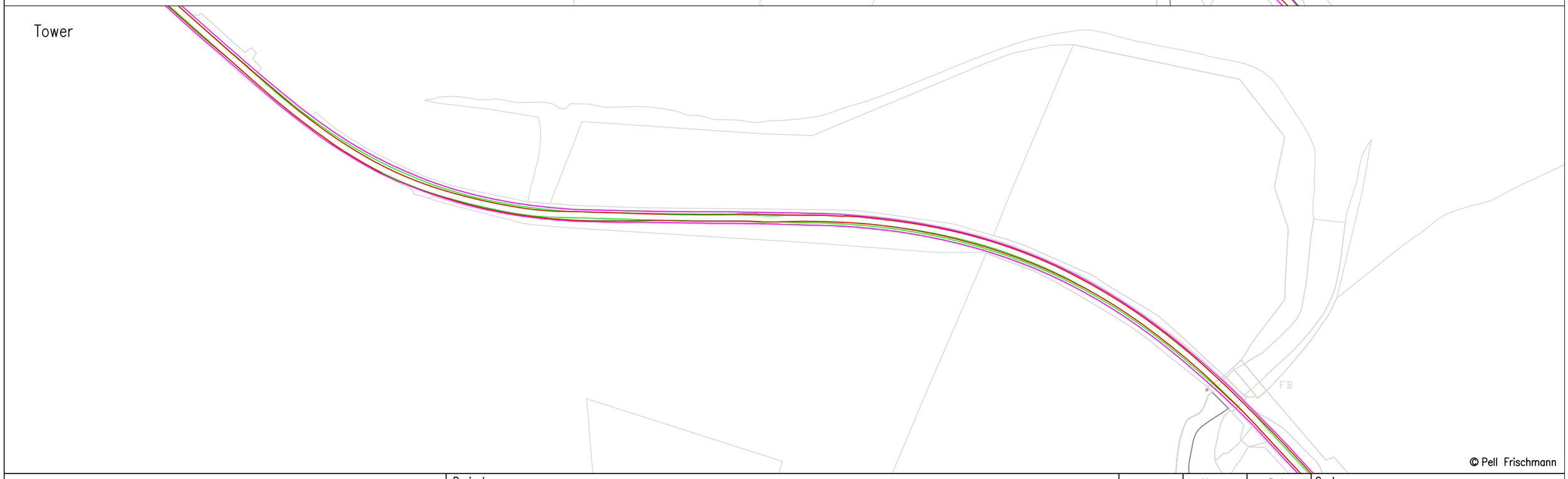
Notes:
1. All mitigation is subject to confirmation through a test run.
2. This is not a construction drawing and is intended for illustration purposes only.

Revision: 1

Blade



Tower



Pell Frischmann
93 GEORGE STREET, EDINBURGH, EH2 3ES
Tel: +44 (0)131 240 1270
Email: pfedinburgh@pellfrischmann.com
www.pellfrischmann.com

Client: Falck Renewables UK Ltd.

Key: Wheel SPA | Body SPA | Load SPA | Indicative | Over-run | Over-sail

Project: Ben Aketil Wind Farm

Drawing Title: Siemens SG155 Blade & Tower

SPA Location: A87 Strollamus

	Name	Date
Drawn	GLJ	05/05/2022
Designed	GLJ	05/05/2022
Checked	GB	05/05/2022
Point of Interest		15

Scale: 1:1750 @ A3

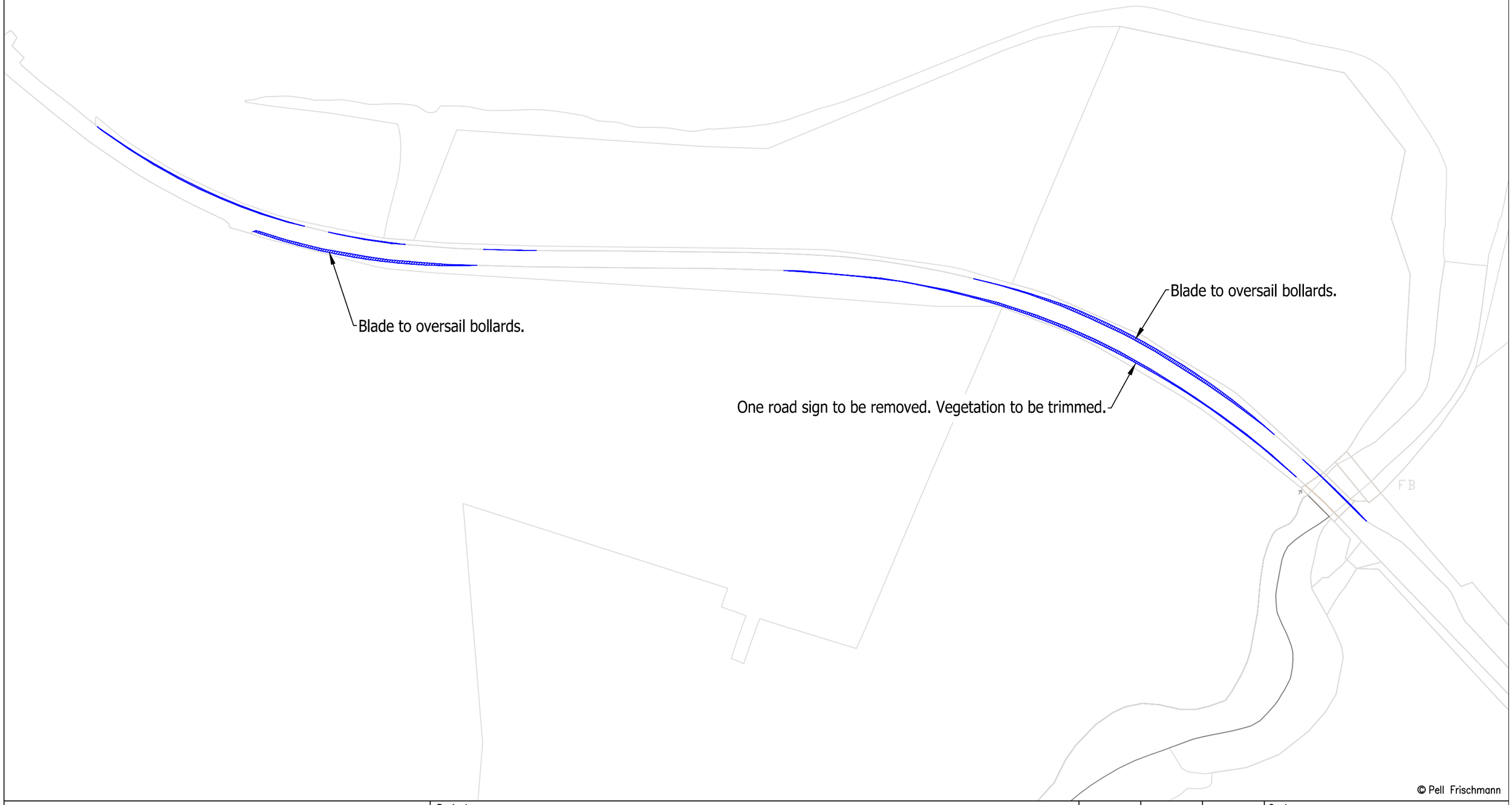
File No.: 220504 Ben Aketil Tracking.dwg

Drawing Status: Draft

Drawing No.: SK08

Notes:
1. All mitigation is subject to confirmation through a test run.
2. This is not a construction drawing and is intended for illustration purposes only.

Revision: 1



Pell Frischmann
93 GEORGE STREET, EDINBURGH, EH2 3ES
Tel: +44 (0)131 240 1270
Email: pfedinburgh@pellfrischmann.com
www.pellfrischmann.com

Client: Falck Renewables UK Ltd.

Key: Wheel SPA | Body SPA | Load SPA | Indicative | Over-run | Over-sail

Project: Ben Aketil Wind Farm

Drawing Title: Siemens SG155 Blade & Tower

SPA Location: A87 Strollamus

	Name	Date
Drawn	GLJ	05/05/2022
Designed	GLJ	05/05/2022
Checked	GB	05/05/2022
Point of Interest		15

Scale: 1:1250 @ A3

File No.: 220504 Ben Aketil Tracking.dwg

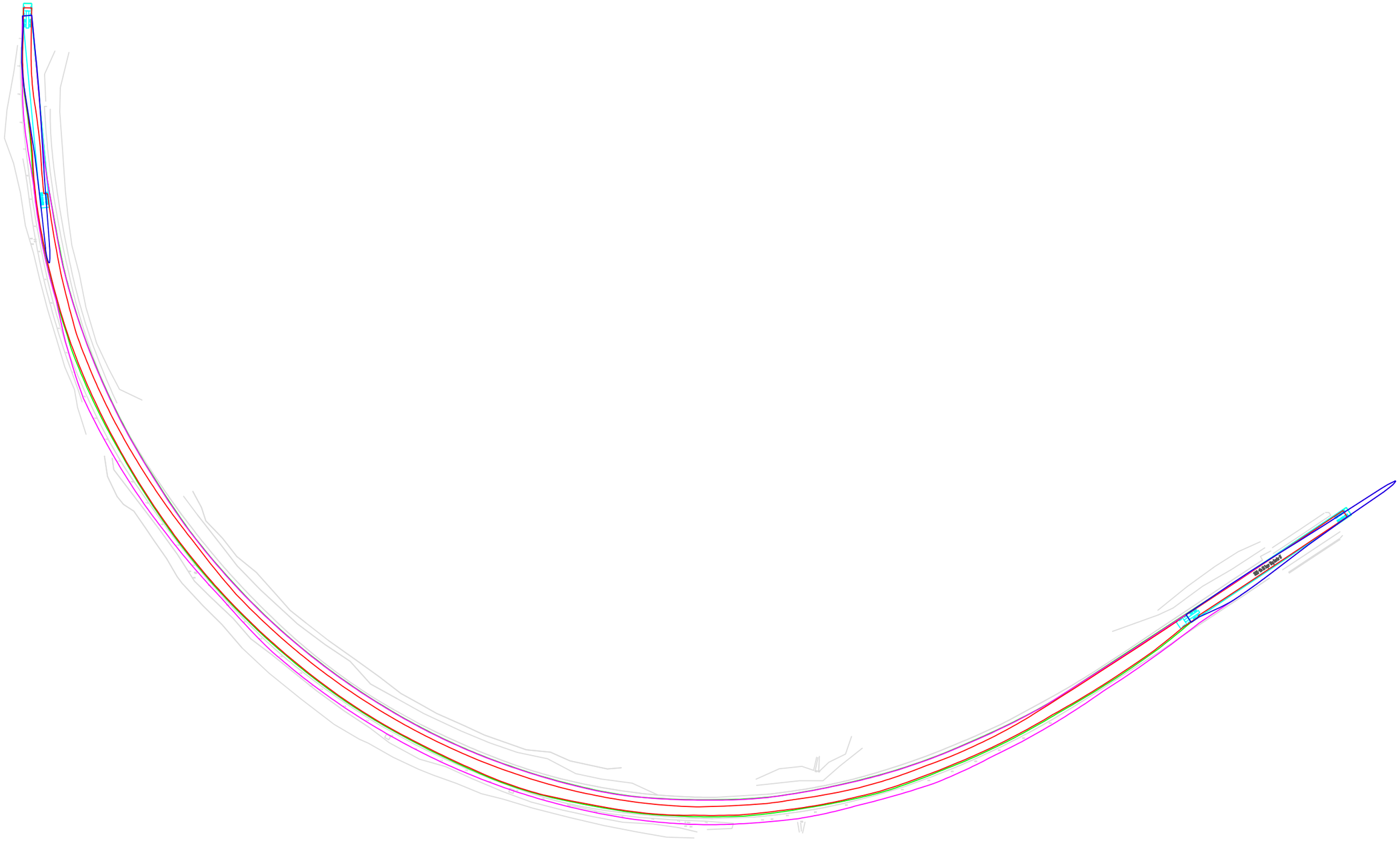
Drawing Status: Draft

Drawing No.: SK08A

Notes:
1. All mitigation is subject to confirmation through a test run.
2. This is not a construction drawing and is intended for illustration purposes only.

Revision: 1

Blade



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93 GEORGE STREET, EDINBURGH, EH2 3ES
Tel: +44 (0)131 240 1270
Email: pfedinburgh@pellfrischmann.com
www.pellfrischmann.com

Client: Falck Renewables UK Ltd.

Key: Wheel SPA; Body SPA; Load SPA; Indicative; Over-run; Over-sail

Project: Ben Aketil Wind Farm

Drawing Title: Siemens SG155 Blade & Tower

SPA Location: A87 Eas a Bhradain

	Name	Date
Drawn	GLJ	05/05/2022
Designed	GLJ	05/05/2022
Checked	GB	05/05/2022
Point of Interest		17

Scale: 1:1250 @ A3

File No.: 220504 Ben Aketil Tracking.dwg

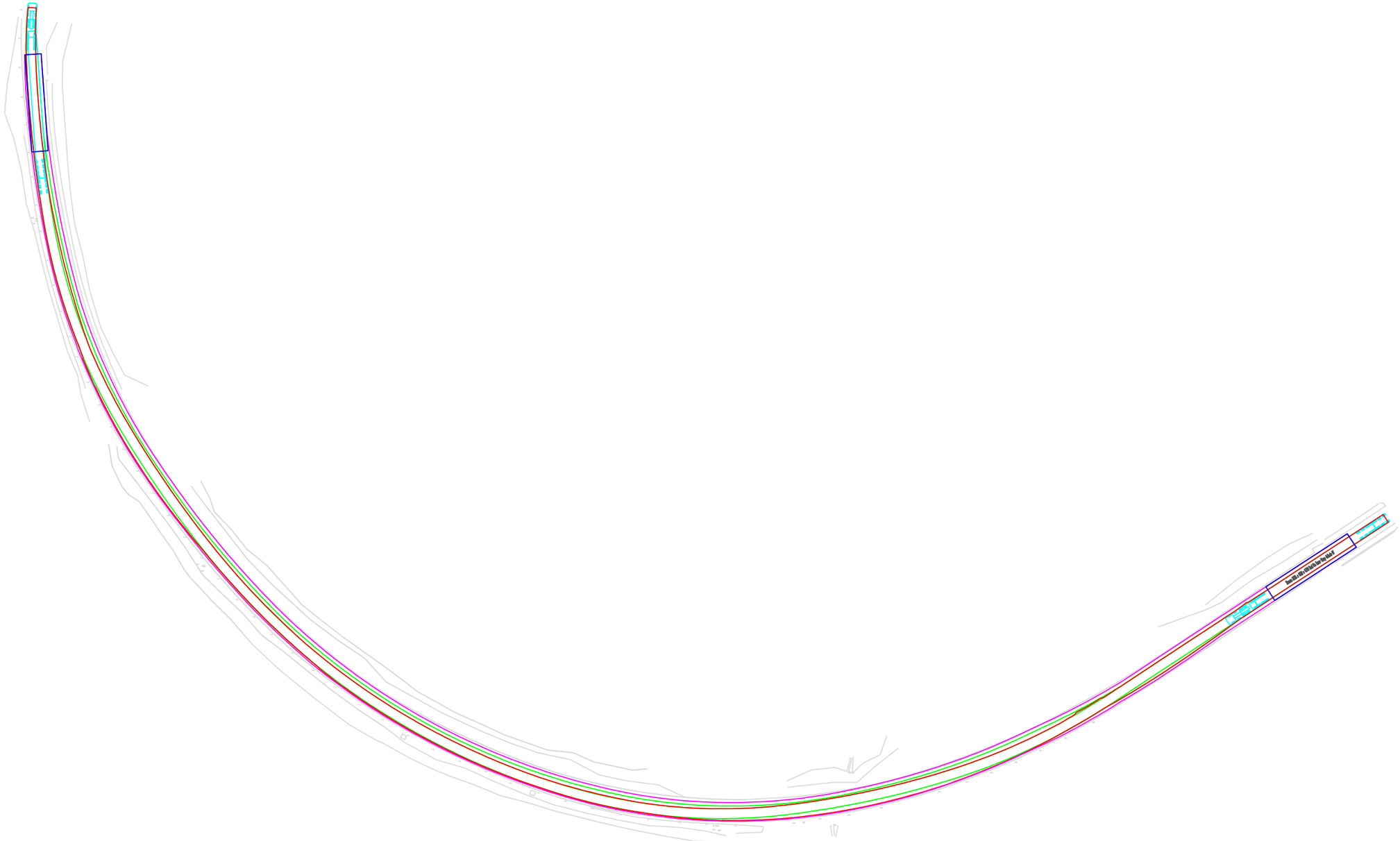
Drawing Status: Draft

Drawing No.: SK09

Notes:
1. All mitigation is subject to confirmation through a test run.
2. This is not a construction drawing and is intended for illustration purposes only.

Revision: 1

Tower



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93 GEORGE STREET. EDINBURGH. EH2 3ES
Tel: +44 (0)131 240 1270
Email: pfedinburgh@pellfrischmann.com
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Client: Falck Renewables UK Ltd.

Key: Wheel SPA | Body SPA | Load SPA | Indicative | Over-run | Over-sail

Project: Ben Aketil Wind Farm

Drawing Title: Siemens SG155 Blade & Tower

SPA Location: A87 Eas a Bhradain

	Name	Date
Drawn	GLJ	05/05/2022
Designed	GLJ	05/05/2022
Checked	GB	05/05/2022
Point of Interest		17

Scale: 1:1250 @ A3

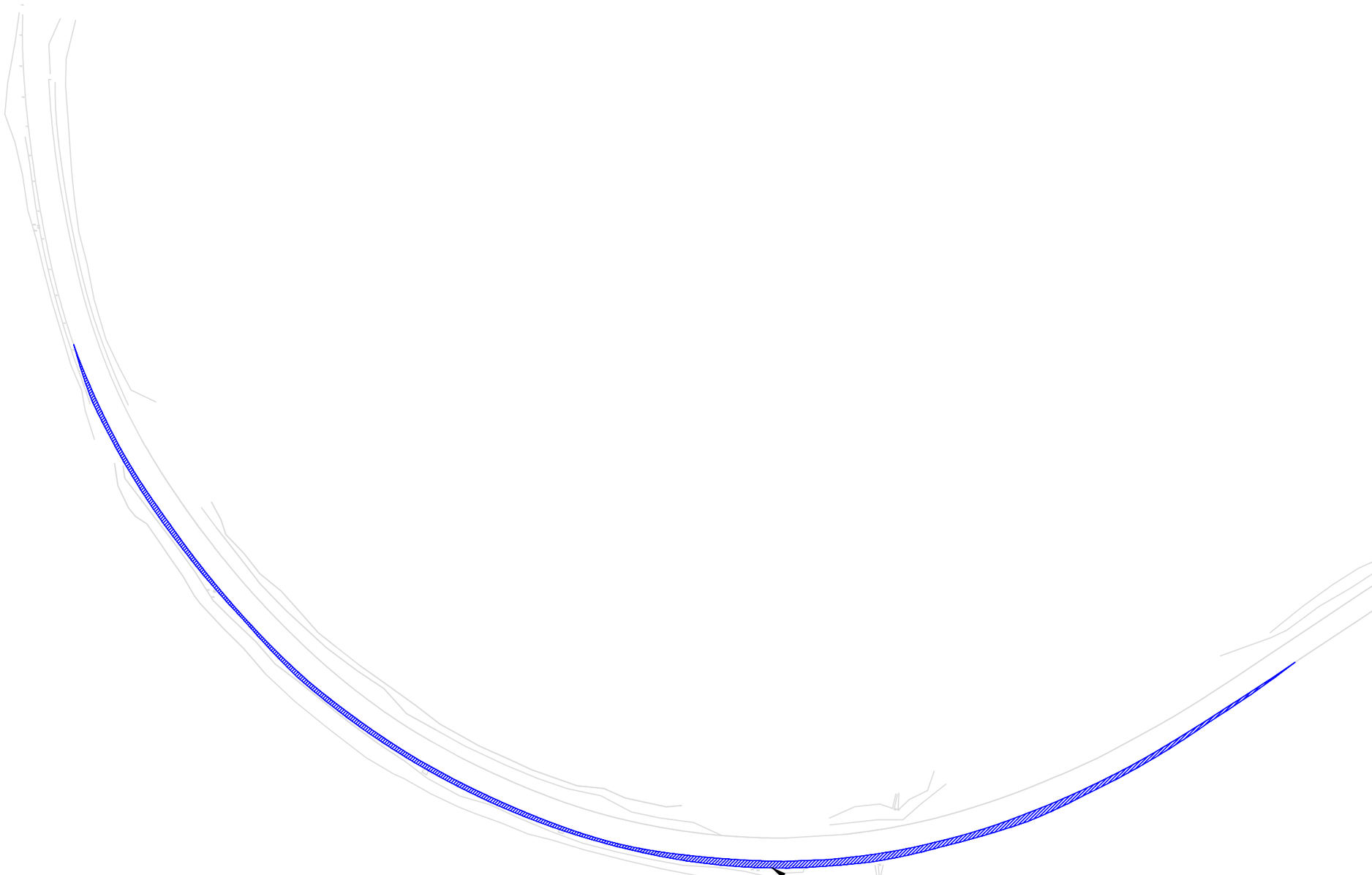
File No.: 220504 Ben Aketil Tracking.dwg

Drawing Status: Draft

Drawing No.: SK09A

Notes:
1. All mitigation is subject to confirmation through a test run.
2. This is not a construction drawing and is intended for illustration purposes only.

Revision: 1



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93 GEORGE STREET, EDINBURGH, EH2 3ES
Tel: +44 (0)131 240 1270
Email: pfedinburgh@pellfrischmann.com
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Client: Falck Renewables UK Ltd.

Key: Wheel SPA | Body SPA | Load SPA | Indicative | Over-run | Over-sail

Project: Ben Aketil Wind Farm

Drawing Title: Siemens SG155 Blade & Tower

SPA Location: A87 Eas a Bhradain

	Name	Date
Drawn	GLJ	05/05/2022
Designed	GLJ	05/05/2022
Checked	GB	05/05/2022
Point of Interest		17

Scale: 1:1250 @ A3

File No.: 220504 Ben Aketil Tracking.dwg

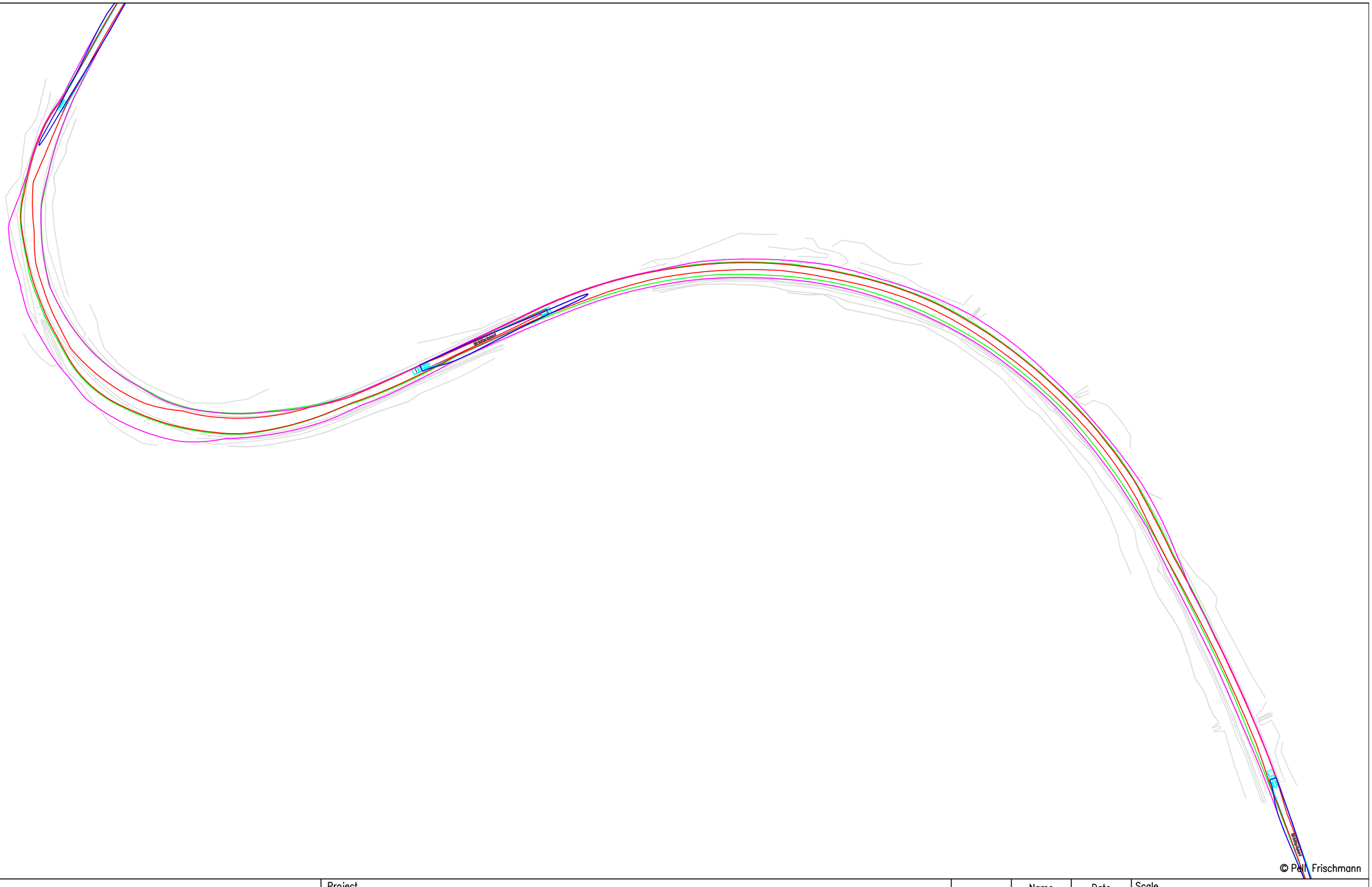
Drawing Status: Draft

Drawing No.: SK09B

Notes:
1. All mitigation is subject to confirmation through a test run.
2. This is not a construction drawing and is intended for illustration purposes only.

Revision: 1

Blade



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93 GEORGE STREET, EDINBURGH, EH2 3ES
Tel: +44 (0)131 240 1270
Email: pfedinburgh@pellfrischmann.com
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Client: Falck Renewables UK Ltd.

Key: Wheel SPA | Body SPA | Load SPA | Indicative | Over-run | Over-sail

Project: Ben Aketil Wind Farm

Drawing Title: Siemens SG155 Blade & Tower

SPA Location: A87 Kinloch Ainort

	Name	Date
Drawn	GLJ	05/05/2022
Designed	GLJ	05/05/2022
Checked	GB	05/05/2022
Point of Interest		18 & 19

Scale: 1:1500 @ A3

File No.: 220504 Ben Aketil Tracking.dwg

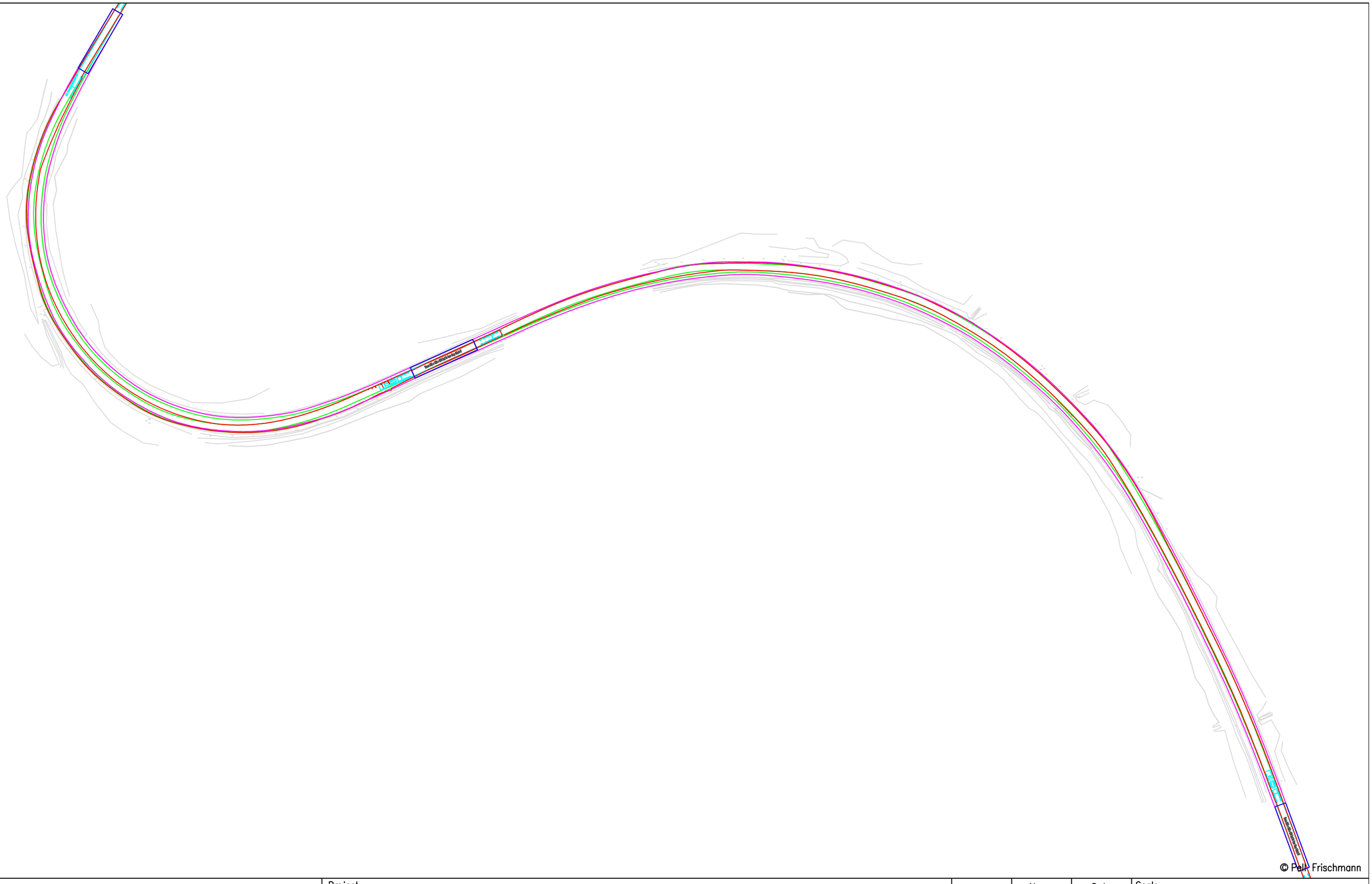
Drawing Status: Draft

Drawing No.: SK10

Notes:
1. All mitigation is subject to confirmation through a test run.
2. This is not a construction drawing and is intended for illustration purposes only.

Revision: 1

Tower



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93 GEORGE STREET, EDINBURGH, EH2 3ES
Tel: +44 (0)131 240 1270
Email: pfedinburgh@pellfrischmann.com
www.pellfrischmann.com

Client: Falck Renewables UK Ltd.

Key: Wheel SPA | Body SPA | Load SPA | Indicative | Over-run | Over-sail

Project: Ben Aketil Wind Farm

Drawing Title: Siemens SG155 Blade & Tower

SPA Location: A87 Kinloch Ainort

	Name	Date
Drawn	GLJ	05/05/2022
Designed	GLJ	05/05/2022
Checked	GB	05/05/2022
Point of Interest		18 & 19

Scale: 1:1500 @ A3

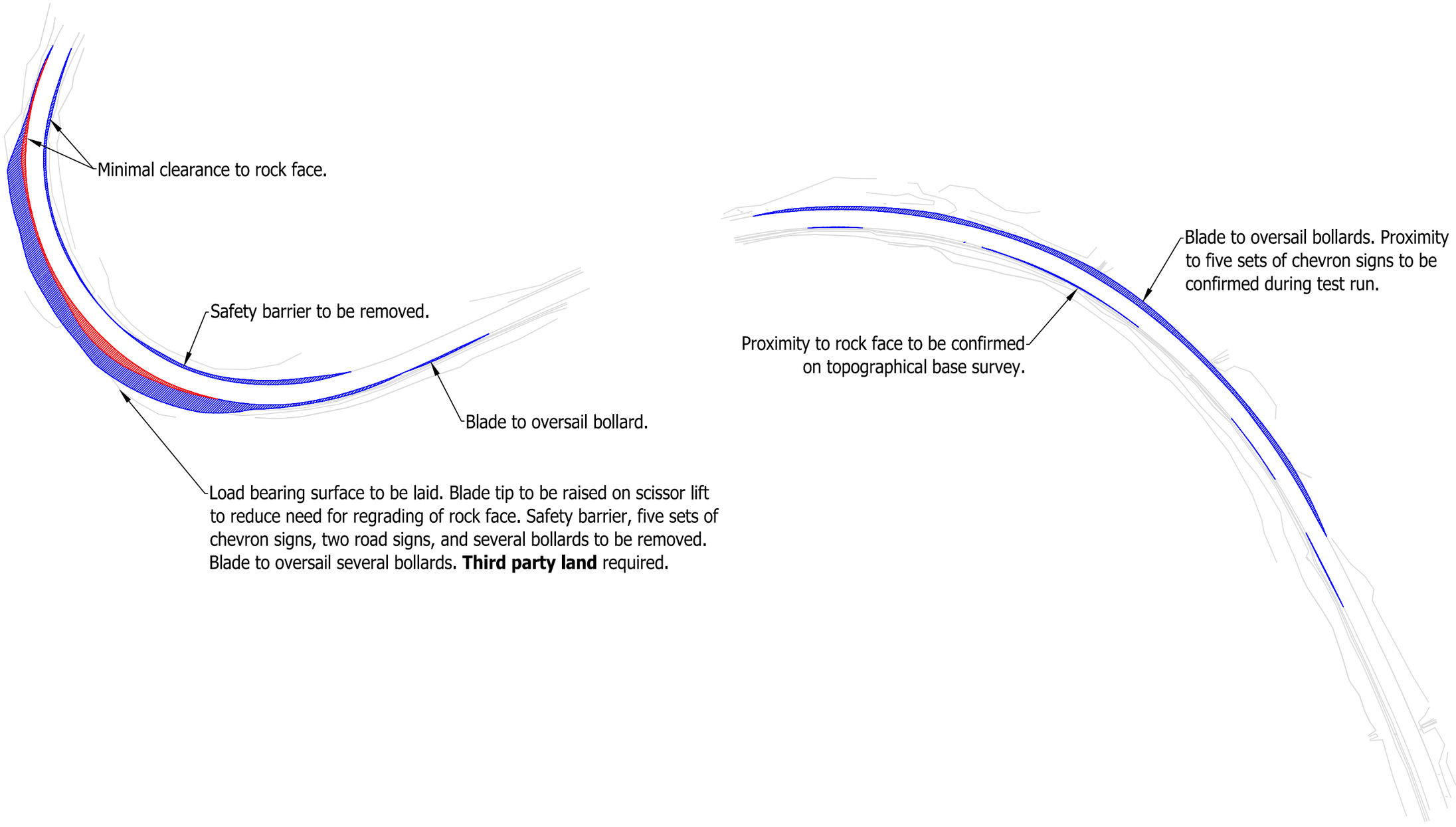
File No.: 220504 Ben Aketil Tracking.dwg

Drawing Status: Draft

Drawing No.: SK10A

Notes:
1. All mitigation is subject to confirmation through a test run.
2. This is not a construction drawing and is intended for illustration purposes only.

Revision: 1



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93 GEORGE STREET, EDINBURGH, EH2 3ES
Tel: +44 (0)131 240 1270
Email: pfedinburgh@pellfrischmann.com
www.pellfrischmann.com

Client: Falck Renewables UK Ltd.

Key: Wheel SPA; Body SPA; Load SPA; Indicative; Over-run; Over-sail

Project: Ben Aketil Wind Farm

Drawing Title: Siemens SG155 Blade & Tower

SPA Location: A87 Kinloch Ainort

	Name	Date
Drawn	GLJ	05/05/2022
Designed	GLJ	05/05/2022
Checked	GB	05/05/2022
Point of Interest		18 & 19

Scale: 1:1500 @ A3

File No.: 220504 Ben Aketil Tracking.dwg

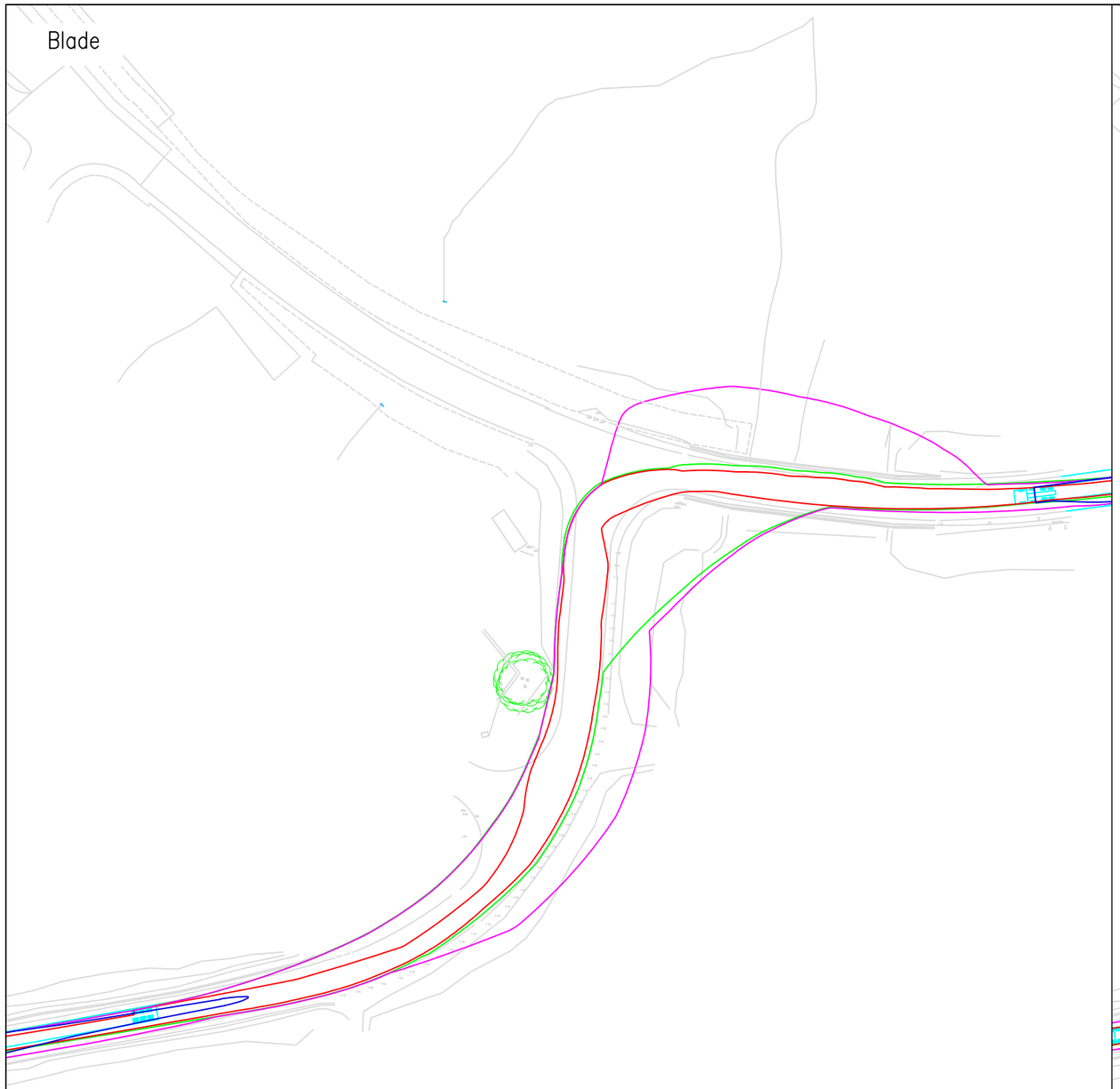
Drawing Status: Draft

Drawing No.: SK10B

Notes:
1. All mitigation is subject to confirmation through a test run.
2. This is not a construction drawing and is intended for illustration purposes only.

Revision: 1

Blade



Tower

Pell Frischmann
93 GEORGE STREET, EDINBURGH, EH2 3ES
Tel: +44 (0)131 240 1270
Email: pfedinburgh@pellfrischmann.com
www.pellfrischmann.com

Client: Falck Renewables UK Ltd.

Key: Wheel SPA | Body SPA | Load SPA | Indicative | Over-run | Over-sail

Project: Ben Aketil Wind Farm

Drawing Title: Siemens SG155 Blade & Tower

SPA Location: A87 / A836 Sligachan Junction

	Name	Date
Drawn	GLJ	05/05/2022
Designed	GLJ	05/05/2022
Checked	GB	05/05/2022
Point of Interest		20

Scale: 1:1000 @ A3

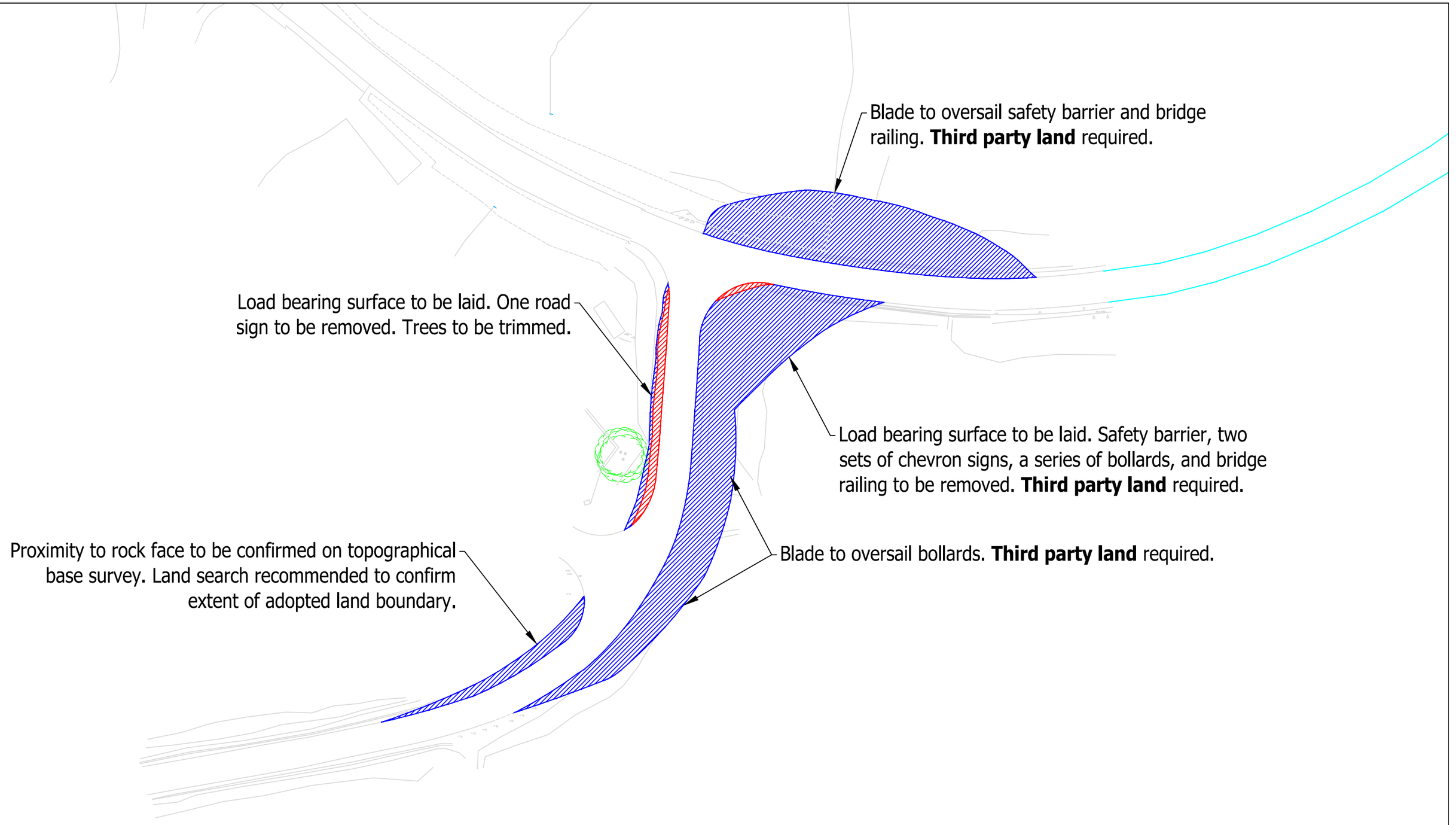
File No.: 220504 Ben Aketil Tracking.dwg

Drawing Status: Draft

Drawing No.: SK11

Notes:
1. All mitigation is subject to confirmation through a test run.
2. This is not a construction drawing and is intended for illustration purposes only.

Revision: 1



Pell Frischmann
93 GEORGE STREET, EDINBURGH, EH2 3ES
Tel: +44 (0)131 240 1270
Email: pfedinburgh@pellfrischmann.com
www.pellfrischmann.com

Client: Falck Renewables UK Ltd.

Key: Wheel SPA | Body SPA | Load SPA | Indicative | Over-run | Over-sail

Project: Ben Aketil Wind Farm

Drawing Title: Siemens SG155 Blade & Tower

SPA Location: A87 / A836 Sligachan Junction

	Name	Date
Drawn	GLJ	05/05/2022
Designed	GLJ	05/05/2022
Checked	GB	05/05/2022
Point of Interest		20

Scale: 1:750 @ A3

File No.: 220504 Ben Aketil Tracking.dwg

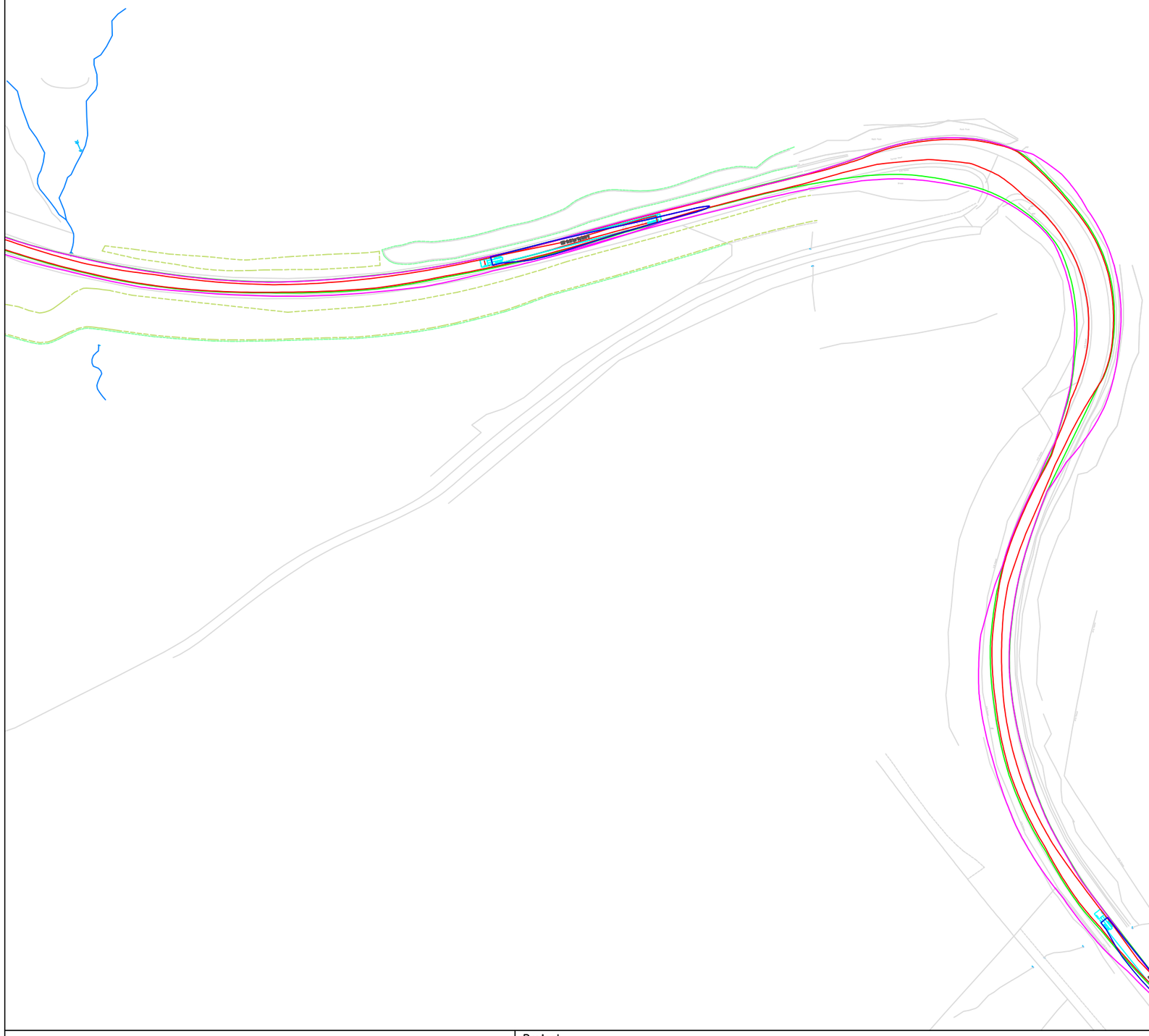
Drawing Status: Draft

Drawing No.: SK11A

Notes:
1. All mitigation is subject to confirmation through a test run.
2. This is not a construction drawing and is intended for illustration purposes only.

Revision: 1

Blade



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93 GEORGE STREET, EDINBURGH, EH2 3ES
Tel: +44 (0)131 240 1270
Email: pfedinburgh@pellfrischmann.com
www.pellfrischmann.com

Client: Falck Renewables UK Ltd.

Key: Wheel SPA | Body SPA | Load SPA | Indicative | Over-run | Over-sail

Project: Ben Aketil Wind Farm

Drawing Title: Siemens SG155 Blade & Tower

SPA Location: A836 Drynoch

	Name	Date
Drawn	GLJ	05/05/2022
Designed	GLJ	05/05/2022
Checked	GB	05/05/2022
Point of Interest		21

Scale: 1:1500 @ A3

File No.: 220504 Ben Aketil Tracking.dwg

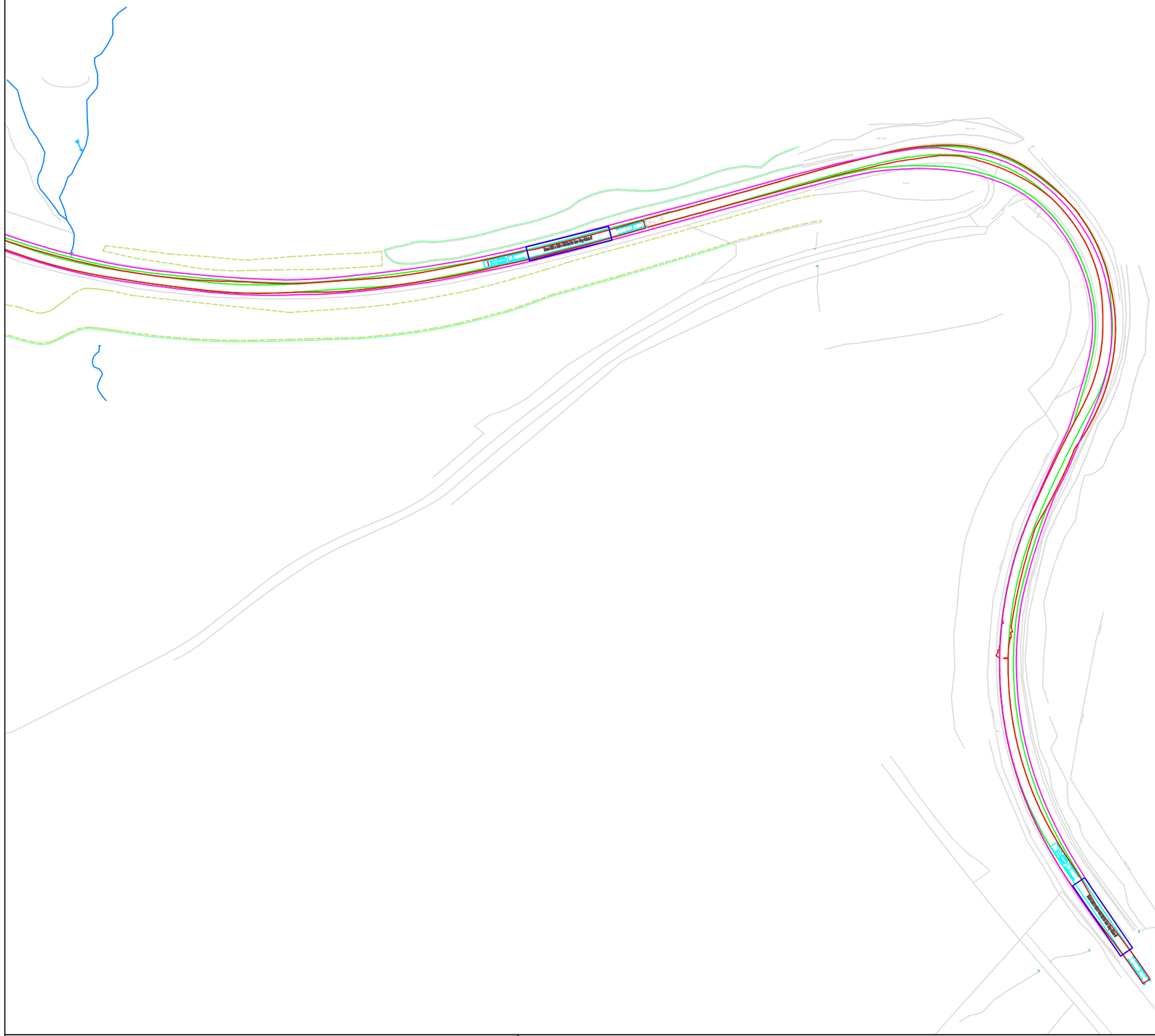
Drawing Status: Draft

Drawing No.: SK12

Notes:
1. All mitigation is subject to confirmation through a test run.
2. This is not a construction drawing and is intended for illustration purposes only.

Revision: 1

Tower



Pell Frischmann
93 GEORGE STREET, EDINBURGH, EH2 3ES
Tel: +44 (0)131 240 1270
Email: pfedinburgh@pellfrischmann.com
www.pellfrischmann.com

Client: Falck Renewables UK Ltd.

Key: Wheel SPA | Body SPA | Load SPA | Indicative | Over-run | Over-sail

Project: Ben Aketil Wind Farm

Drawing Title: Siemens SG155 Blade & Tower

SPA Location: A836 Drynoch

	Name	Date
Drawn	GLJ	05/05/2022
Designed	GLJ	05/05/2022
Checked	GB	05/05/2022
Point of Interest		21

Scale: 1:1500 @ A3

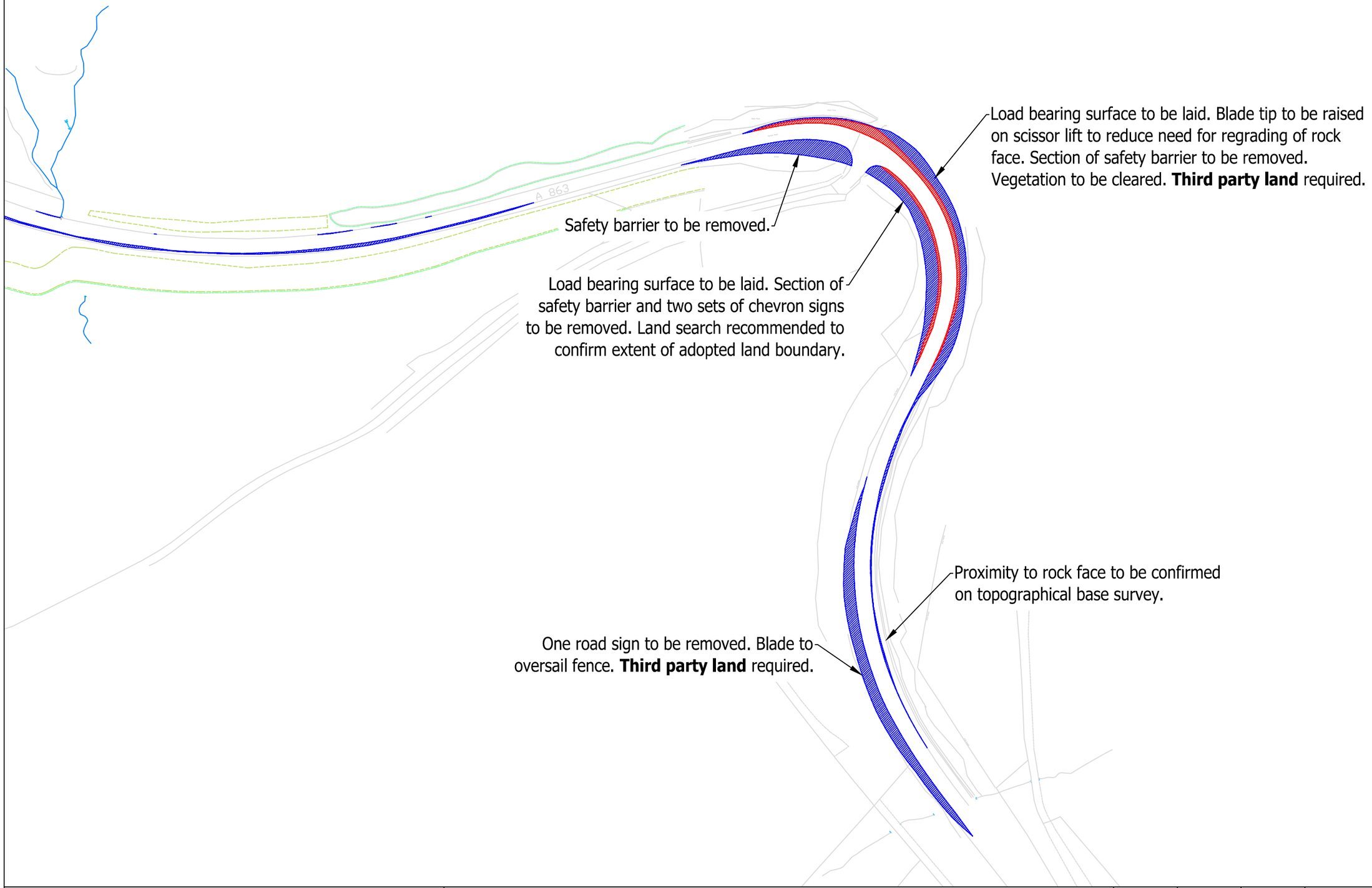
File No.: 220504 Ben Aketil Tracking.dwg

Drawing Status: Draft

Drawing No.: SK12A

Notes:
1. All mitigation is subject to confirmation through a test run.
2. This is not a construction drawing and is intended for illustration purposes only.

Revision: 1



Pell Frischmann
93 GEORGE STREET, EDINBURGH, EH2 3ES
Tel: +44 (0)131 240 1270
Email: pfedinburgh@pellfrischmann.com
www.pellfrischmann.com

Client: Falck Renewables UK Ltd.

Key: Wheel SPA | Body SPA | Load SPA | Indicative | Over–run | Over–sail

Project: Ben Aketil Wind Farm

Drawing Title: Siemens SG155 Blade & Tower

SPA Location: A836 Drynoch

	Name	Date
Drawn	GLJ	05/05/2022
Designed	GLJ	05/05/2022
Checked	GB	05/05/2022
Point of Interest		21

Scale: 1:1500 @ A3

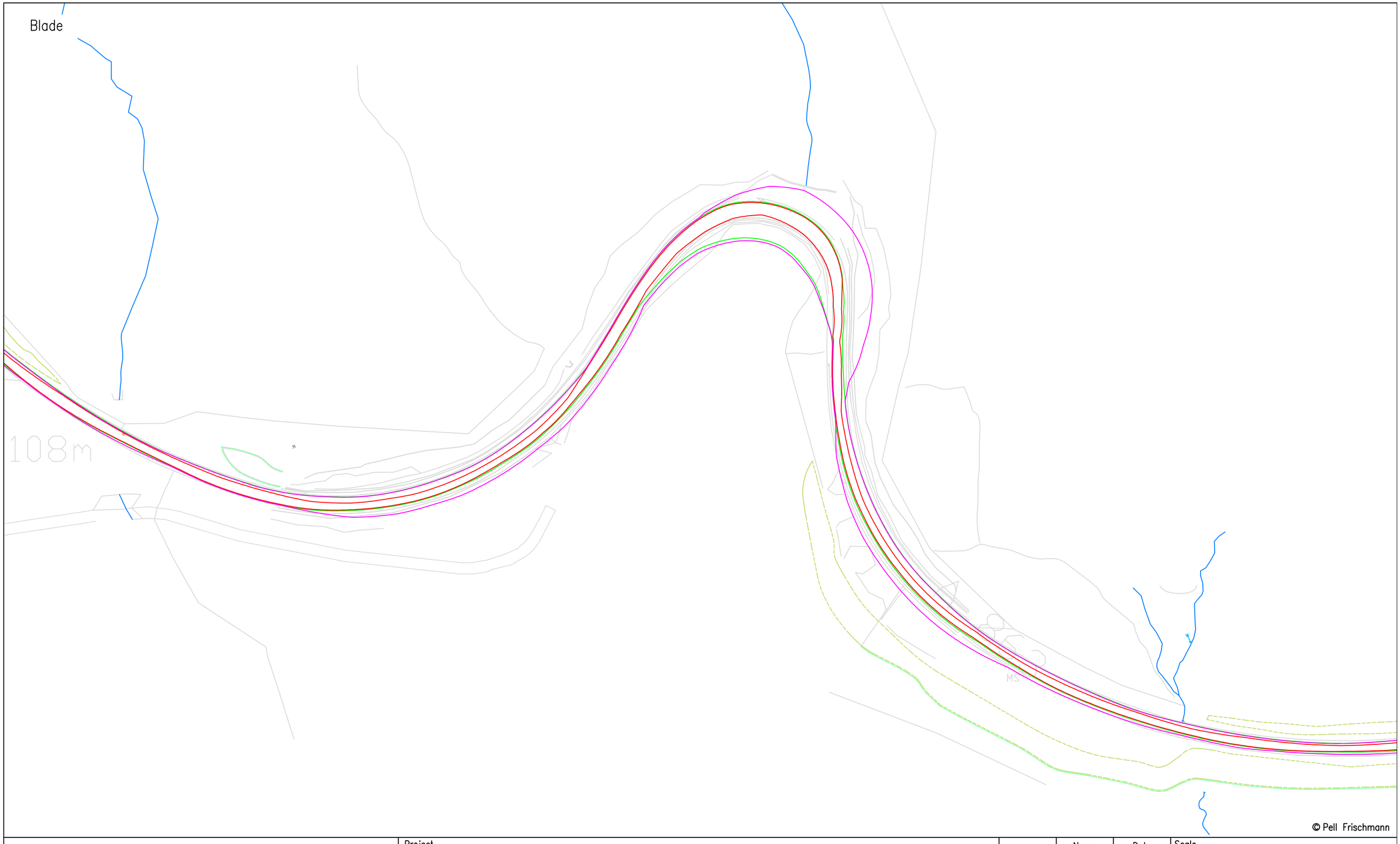
File No.: 220504 Ben Aketil Tracking.dwg

Drawing Status: Draft

Drawing No.: SK12B

Notes:
1. All mitigation is subject to confirmation through a test run.
2. This is not a construction drawing and is intended for illustration purposes only.

Revision: 1



Pell Frischmann
93 GEORGE STREET, EDINBURGH, EH2 3ES
Tel: +44 (0)131 240 1270
Email: pfedinburgh@pellfrischmann.com
www.pellfrischmann.com

Client: Falck Renewables UK Ltd.

Key: Wheel SPA | Body SPA | Load SPA | Indicative | Over-run | Over-sail

Project: Ben Aketil Wind Farm

Drawing Title: Siemens SG155 Blade & Tower

SPA Location: A836 Braigh Aluinn

	Name	Date
Drawn	GLJ	05/05/2022
Designed	GLJ	05/05/2022
Checked	GB	05/05/2022
Point of Interest		22

Scale: 1:1500 @ A3

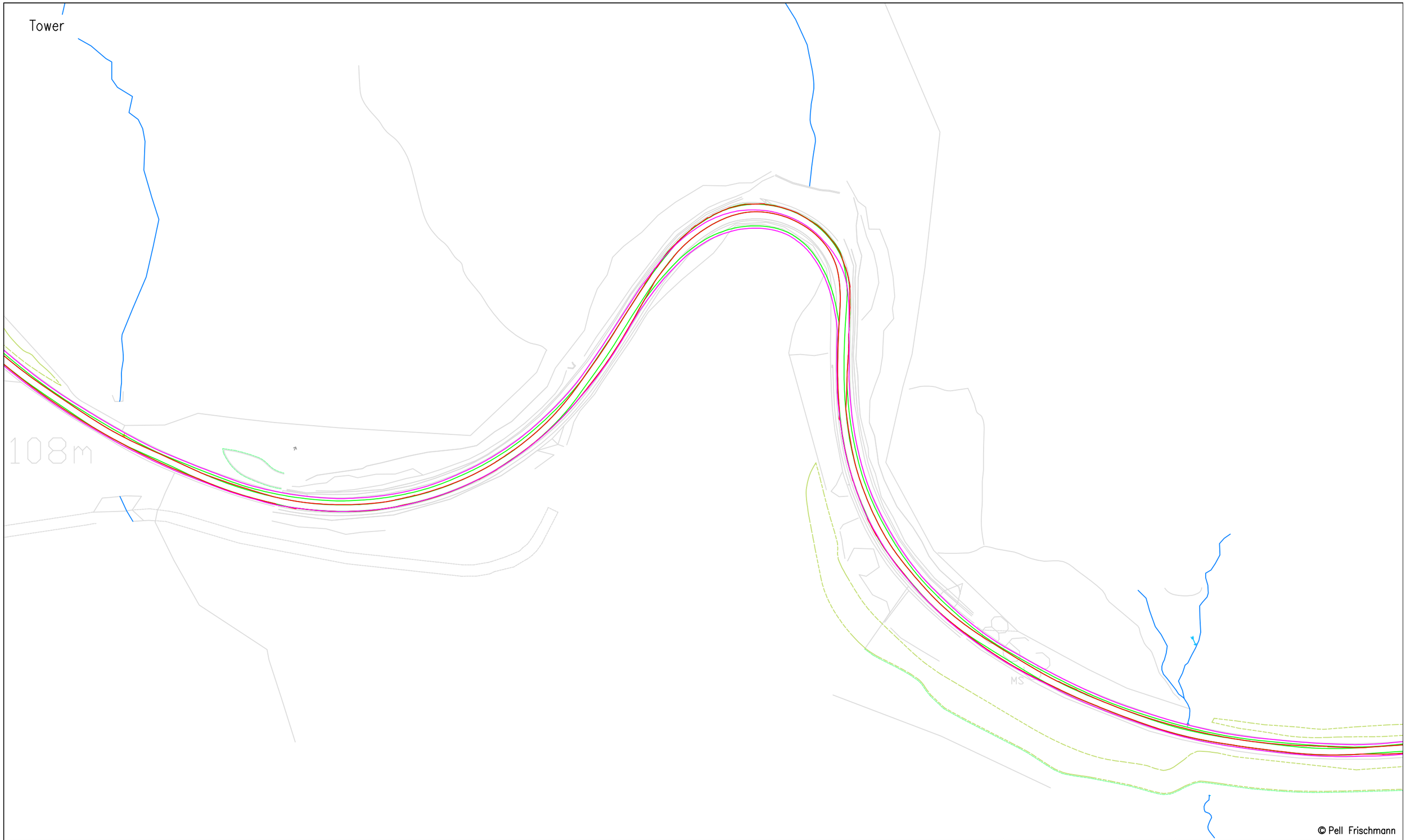
File No.: 220504 Ben Aketil Tracking.dwg

Drawing Status: Draft

Drawing No.: SK13

Notes:
1. All mitigation is subject to confirmation through a test run.
2. This is not a construction drawing and is intended for illustration purposes only.

Revision: 1



Pell Frischmann
93 GEORGE STREET, EDINBURGH, EH2 3ES
Tel: +44 (0)131 240 1270
Email: pfedinburgh@pellfrischmann.com
www.pellfrischmann.com

Client: Falck Renewables UK Ltd.

Key: Wheel SPA | Body SPA | Load SPA | Indicative | Over-run | Over-sail

Project: Ben Aketil Wind Farm

Drawing Title: Siemens SG155 Blade & Tower

SPA Location: A836 Braigh Aluinn

	Name	Date
Drawn	GLJ	05/05/2022
Designed	GLJ	05/05/2022
Checked	GB	05/05/2022
Point of Interest		22

Scale: 1:1500 @ A3

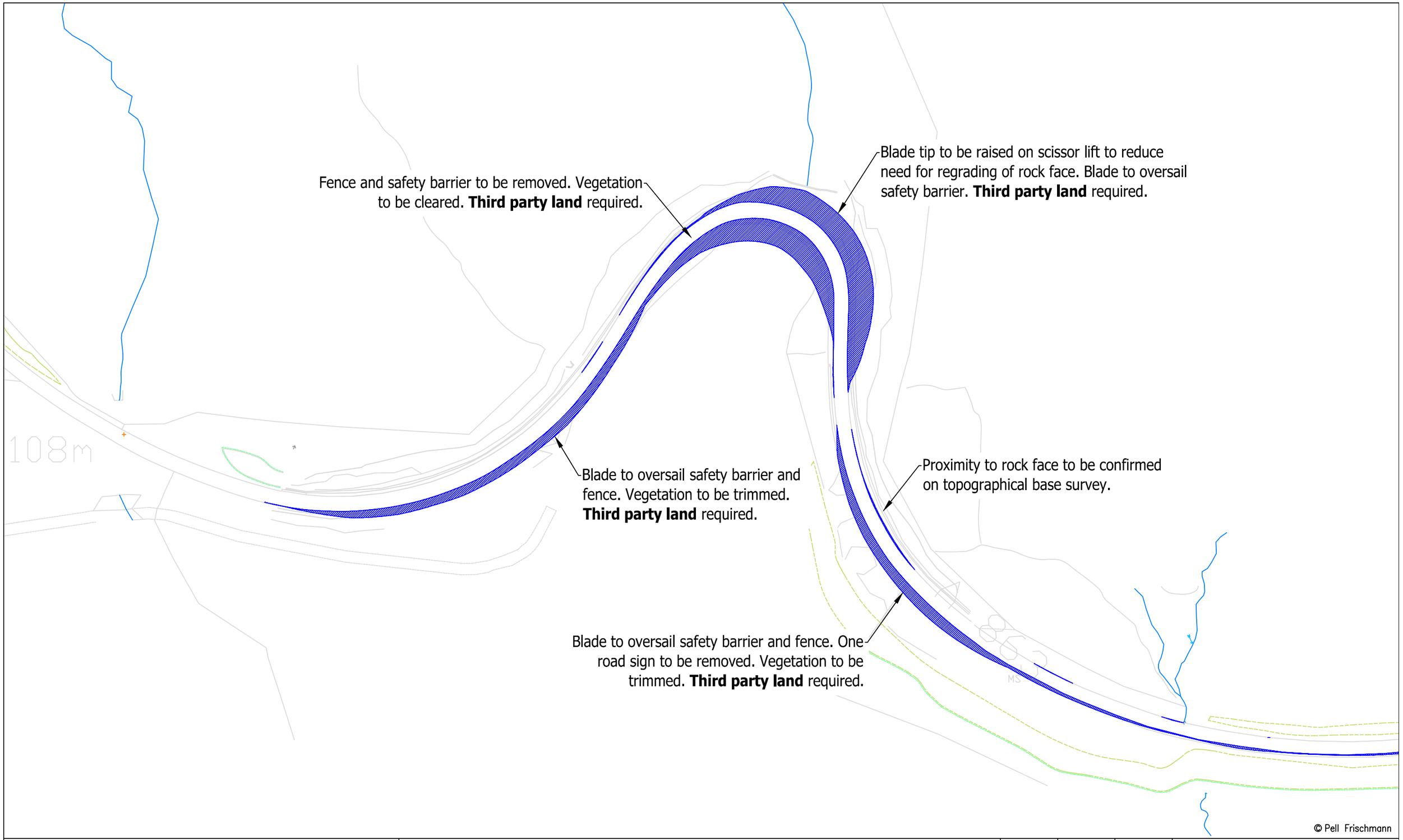
File No.: 220504 Ben Aketil Tracking.dwg

Drawing Status: Draft

Drawing No.: SK13A

Notes:
1. All mitigation is subject to confirmation through a test run.
2. This is not a construction drawing and is intended for illustration purposes only.

Revision: 1



Pell Frischmann
93 GEORGE STREET, EDINBURGH, EH2 3ES
Tel: +44 (0)131 240 1270
Email: pfedinburgh@pellfrischmann.com
www.pellfrischmann.com

Client: Falck Renewables UK Ltd.

Key: Wheel SPA | Body SPA | Load SPA | Indicative | Over-run | Over-sail

Project: Ben Aketil Wind Farm

Drawing Title: Siemens SG155 Blade & Tower

SPA Location: A836 Braigh Aluinn

	Name	Date
Drawn	GLJ	05/05/2022
Designed	GLJ	05/05/2022
Checked	GB	05/05/2022
Point of Interest		22

Scale: 1:1500 @ A3

File No.: 220504 Ben Aketil Tracking.dwg

Drawing Status: Draft

Drawing No.: SK13B

Notes:
1. All mitigation is subject to confirmation through a test run.
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Revision: 1

Blade

Tower

Pell Frischmann
93 GEORGE STREET, EDINBURGH. EH2 3ES
Tel: +44 (0)131 240 1270
Email: pfedinburgh@pellfrischmann.com
www.pellfrischmann.com

Client: Falck Renewables UK Ltd.

Key: Wheel SPA | Body SPA | Load SPA | Indicative | Over-run | Over-sail

Project: Ben Aketil Wind Farm

Drawing Title: Siemens SG155 Blade & Tower

SPA Location: A836 Inver Meadale

	Name	Date
Drawn	GLJ	05/05/2022
Designed	GLJ	05/05/2022
Checked	GB	05/05/2022
Point of Interest		23

Scale: 1:2000 @ A3

File No.: 220504 Ben Aketil Tracking.dwg

Drawing Status: Draft

Drawing No.: SK14

Notes:
1. All mitigation is subject to confirmation through a test run.
2. This is not a construction drawing and is intended for illustration purposes only.

Revision: 1

Pell Frischmann
93 GEORGE STREET, EDINBURGH, EH2 3ES
Tel: +44 (0)131 240 1270
Email: pfedinburgh@pellfrischmann.com
www.pellfrischmann.com

Client: Falck Renewables UK Ltd.

Key: Wheel SPA | Body SPA | Load SPA | Indicative | Over-run | Over-sail

Project: Ben Aketil Wind Farm

Drawing Title: Siemens SG155 Blade & Tower

SPA Location: A836 Inver Meadale

	Name	Date
Drawn	GLJ	05/05/2022
Designed	GLJ	05/05/2022
Checked	GB	05/05/2022
Point of Interest		23

Scale: 1:2000 @ A3

File No.: 220504 Ben Aketil Tracking.dwg

Drawing Status: Draft

Drawing No.: SK14A

Notes:
1. All mitigation is subject to confirmation through a test run.
2. This is not a construction drawing and is intended for illustration purposes only.

Revision: 1