Pell Frischmann

Torfichen Wind Farm

Transport Assessment

October 2023

107827

Report Ref.		**Torfichen Wind Farm Transport Assessment**				
File Path		**https://pellf.sharepoint.com/sites/EdinburghOfficeTeam/Shared Documents/General/Projects/107827 RES Torfichen/01 - WIP/Reports/Transport Assessment/Torfichen Wind Farm Transport Assessment.docx**				
Rev	**Suit**	**Description**	**Date**	**Originator**	**Checker**	**Approver**
V1		Draft for Client Comment	28/09/2023	E Moran	S Cochrane	G Buchan
V2		Draft for Client Comment	18/10/2023	E Moran	S Cochrane	G Buchan
V3		Final	24/10/2023	E Moran	S Cochrane	G Buchan

Ref. reference. Rev revision. Suit suitability.

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1 Introduction

1.1 Purpose of the Report

Pell Frischmann Ltd. (PF) has been commissioned by Renewable Energy Systems Ltd. (RES) (the Applicant) to undertake a Transport Assessment (TA) for the proposed Torfichen Wind Farm (hereafter referred to as the Proposed Development), which is located within the Midlothian Council boundary area.

The report identifies the key transport and access issues associated with the Proposed Development, including the route for abnormal loads. The TA identifies where the Proposed Development may require mitigation works to accommodate the predicted traffic; however, the detailed design of these remedial works is beyond the agreed scope of this report.

1.2 Report Structure

Following this introduction, the TA report is structured as follows:

- Chapter Two describes the Proposed Development;
- Chapter Three reviews the relevant transport and planning policies;
- Chapter Four sets out the methodology used in this assessment;
- Chapter Five describes the baseline transport conditions;
- Chapter Six describes the trip generation and distribution of traffic in the study area;
- Chapter Seven summarises the traffic impact assessment;
- Chapter Eight considers mitigation proposals for development related traffic within the study network; and
- Chapter Nine summarises the findings of the TA and outlines the key conclusions.

2 Site Background

2.1 Site Location

The Proposed Development site is located approximately 9.5 kilometres (km) to the south-east of Penicuik within the Midlothian Council boundary area. The site is located approximately 4 km to the south of Gorebridge.

The general location of the site is shown in **Figure 1**.

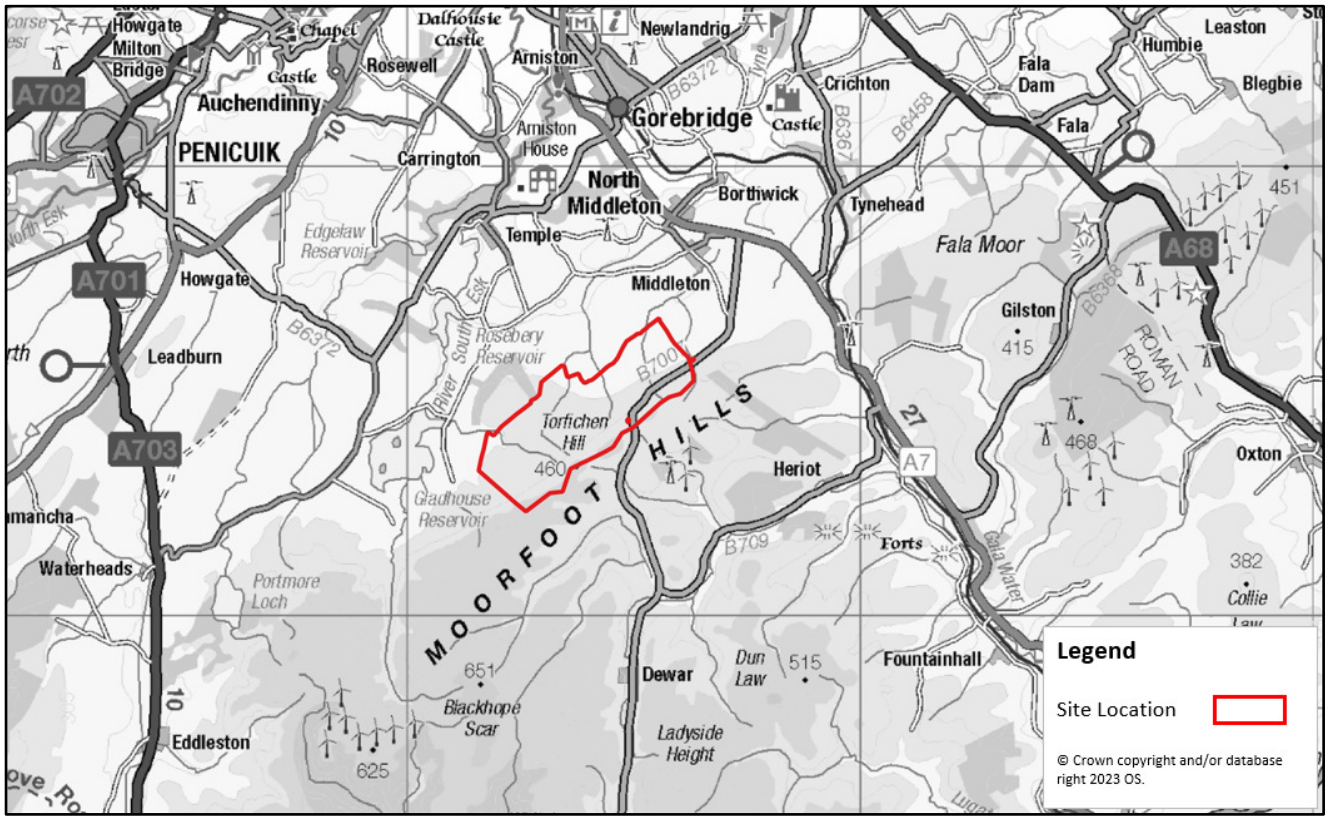

Figure 1 Site Location

The site currently comprises a combination of agricultural land and forestry / small woodlands within an area of approximately 853 hectares (ha).

2.2 Proposed Development

The Proposed Development will comprise up to 18 wind turbines with a maximum tip height of 180 metres (m). The proposed layout is shown in Figure 2.

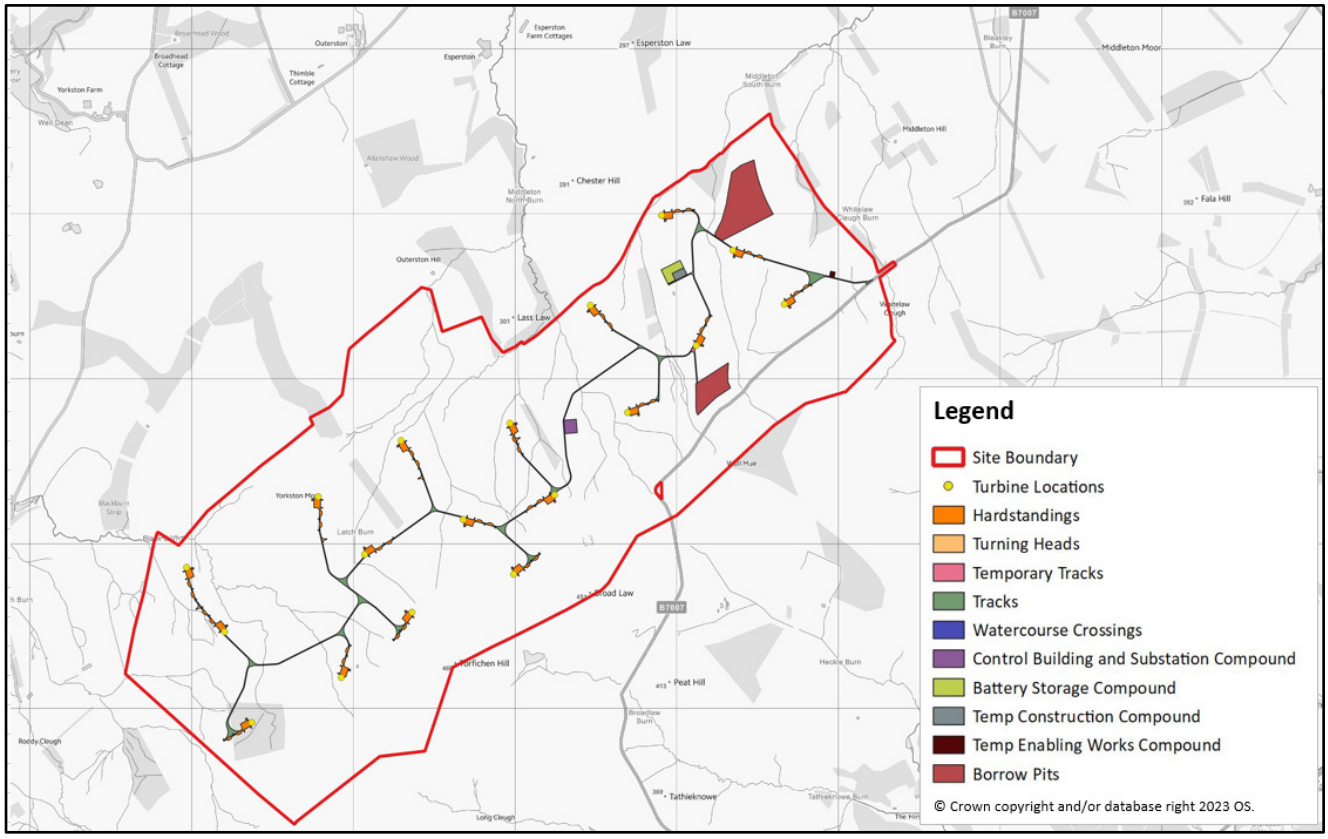

Figure 2 Site Layout

The associated infrastructure would include the following, but not restricted to:

- Temporary construction compound and temporary enabling works compound;
- Crane hardstands;
- Temporary laydown areas adjacent to the turbines;
- Access tracks;
- Underground cables between turbines;

- On-site substation and control building;
- Battery storage infrastructure;
- Drainage and drainage attenuation measures (as required);
- Potential concrete batching plant; and
- Potential excavations / borrow workings.

2.3 Candidate Turbines

The Vestas V150 turbine with a proposed tip height of 180 m was selected by the Applicant as the candidate turbine for the purposes of this TA. Details of the V150 turbine blade and tower sections have been obtained directly from Vestas and are shown in Table 1.

Table 1 Turbine Components Summary

Component	Length (m)	Width (m)	Height / Min Diameter (m)	Weight (t)
Blade	73.650	4.238	4.068	18.600
Base Tower	17.500	4.150	4.450	55.000
Mid Tower 1	25.000	4.150	4.150	65.000
Mid Tower 2	30.000	4.150	4.150	75.000

Component	Length (m)	Width (m)	Height / Min Diameter (m)	Weight (t)
Top Tower	30.000	4.000	4.150	80.000

A detailed Route Survey Report (RSR) outlining the turbine components in detail and the proposed access route is attached as Annex A.

The selection of the final turbine model and specification will be subject to a commercial procurement process following consent of the application. The assumed dimensions may therefore vary slightly from those assumed as part of this assessment.

The proposed Port of Entry (POE) is Rosyth, Fife. The port is the closest port to site and as such is in line with the Government's "Water Preferred" policy towards AIL movements. The port has sufficient quay and storage space and is well located for the strategic trunk road network.

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 trailer (shown in Figure 3) to reduce the need for mitigation in constrained sections of the route.

Towers would be carried in a 4+7 clamp adaptor style trailer (shown in Figure 4), whereas loads such as the hub, nacelle housing, and top towers would be carried on a six axle step frame trailer.

Figure 3 Superwing Carrier Trailer

Figure 4 Tower Trailer

3 Policy Context

3.1 Introduction

An overview of relevant transport planning policies has been undertaken and is summarised below for national and local government policies.

3.2 National Policy & Guidance

3.2.1 National Planning Framework 4 (NPF4)

The National Planning Framework 4 (NPF4) was adopted on 13 February 2023.

Policy 11: Energy within the NPF4 notes that:

"Development proposals for all forms of renewable, low-carbon and zero emissions technologies will be supported. These include:

- *Wind farms including repowering, extending, expanding and extending the life of existing wind farms; and*
- *Energy storage, such as battery storage and pumped storage hydro.*

In addition, project design and mitigation will demonstrate how the following impacts are addressed:

- *Impacts on communities and individual dwellings, including, residential amenity, visual impact, noise and shadow flicker;*
- *Public access, including impact on long distance walking and cycling routes and scenic routes;*
- *Impacts on road traffic and on adjacent trunk roads, including during construction; and*
- *Cumulative impacts."*

3.2.2 Planning Advice Note (PAN) 75

Planning Advice Note (PAN) 75: Planning for Transport provides advice on the requirements for Transport Assessments. The document notes that:

"… transport assessment to be produced for significant travel generating developments. Transport Assessment is a tool that enables delivery of policy aiming to integrate transport and land use planning."

"All planning applications that involve the generation of person trips should provide information which covers the transport implications of the development. The level of detail will be proportionate to the complexity and scale of the impact of the proposal...For smaller developments the information on transport implications will enable local authorities to monitor potential cumulative impact and for larger developments it will form part of a scoping exercise for a full transport assessment. Development applications will therefore be assessed by relevant parties at levels of detail corresponding to their potential impact."

3.2.3 Transport Assessment Guidance (2012)

Transport Scotland's (TS) Transport Assessment Guidance was published in 2012. It aims to assist in the preparation of TAs for development proposals in Scotland such that the likely transport effects can be identified and dealt with as early as possible in the planning process. The document sets out requirements according to the scale of development being proposed.

The document notes that a TA will be required where a development is likely to have significant transport effects but that the specific scope and contents of a TA will vary for developments, depending on location, scale and type of development.

3.2.4 Onshore Wind Turbines, Online Renewables Planning Advice (May 2014)

The most recent Scottish Government advice note regarding onshore wind turbines was published in 2014. The advice note identifies the typical planning considerations in determining applications for onshore wind turbines including landscape impact, impacts on wildlife and ecology, shadow flicker, noise, ice throw, aviation, road traffic impacts, cumulative impacts and decommissioning.

In terms of road traffic impacts, the guidance notes that in siting wind turbines close to major roads, pre-application discussions are advisable as this is important for the movement of abnormal indivisible loads during the construction period, ongoing planned maintenance and for decommissioning (if applicable).

3.3 Local Policy & Guidance

3.3.1 Midlothian Local Development Plan (2017)

The following information is outlined in Policy IMP 1 New Development which is relevant to the Proposed Development:

"Planning conditions will be applied and, where appropriate, developer contributions sought to ensure that, where new development (including windfall development) gives rise to a need, appropriate provision is made for:

- *essential infrastructure, including transport, required to enable the new development to take place;*
- *acceptable alternative access routes or public rights of way where existing routes would be lost as a result of the development;*
- *traffic and environmental management measures."*

3.3.2 Scottish Borders Council Local Development Plan (2016)

The Scottish Borders Council Local Development Plan (LDP) was adopted in 2016 and has been prepared to address Scottish Borders community's future requirements up to 2025.

Policy ED9: Renewable Energy Development:

"The council will support proposals for both large scale and community scale renewable energy development including commercial wind farms, single or limited scale wind turbines, biomass, hydropower, biofuel technology, and solar power where they can be accommodated without unacceptable significant adverse impacts or effects, giving due regard to relevant environmental, community and cumulative impact considerations…"

Policy IS4: Transport Development and Infrastructure:

"… Proposals that generate significant travel demand will be required to provide the following criteria:

a) Transport Assessments and Travel Plans

b) Developer contributions where appropriate"

Policy IS5: Protection of Access Routes:

"Development that would have an adverse impact upon an access route available to the public will not be permitted unless a suitable diversion or appropriate alternative route, as agreed by the Council, can be provided by the developer."

3.3.3 Scottish Borders Council Supplementary Guidance Renewable Energy (2016)

In relation to road and traffic implications associated with wind energy developments, The Scottish Borders Council Supplementary Guidance Renewable Energy states:

"During construction, wind energy developments have the potential to generate significant levels of traffic, including abnormal loads associated with transporting the turbine components. The Council expects all proposals to fully consider potential impacts of the development on the Scottish Borders road network in terms

of the structural and physical ability of both roads and bridges to accommodate the additional traffic generated and the need to minimise any disturbance to local communities. Should turbine transportation routes require to cross third party land, the applicant should ensure that appropriate agreements are in place to allow access to be achieved. Early contact should be made with the Council's roads planning section in terms of the scope and extent of a Transport Assessment and Construction Traffic Management Plan which would be required to address issues such as routeing, timing of deliveries, community liaison and road infrastructure improvements."

3.4 The Policy Summary

The Proposed Development can align with the stated transport policy objectives and the design of the site and proposed mitigation measures will ensure compliance with national and local objectives.

4 Study Methodology

4.1 Introduction

There are three phases of the life of the Proposed Development. All three phases have been considered in this assessment and are as follows:

- The Construction Phase;
- The Operational Phase; and
- The Decommissioning Phase.

4.2 Project Phases – Transport Overview

Of all of the three phases, the construction phase is considered to have the greatest impact in terms of transport. Construction plant, bulk materials and turbine sections will be transported to site, which could potentially have a significant increase in traffic on the study area.

The operational phase is restricted to occasional maintenance operations which generate significantly lower volumes of traffic that are not considered to be in excess of daily traffic variation levels on the road network.

The decommissioning phase involves fewer trips on the network than the construction phase, as access tracks are likely to be left in place, adding to local infrastructure that can potentially be used for further agricultural or leisure uses in the future.

It should be noted however the construction effects are short lived and transitory in nature, whilst the operational phase assessment has been assumed to be based typical operating conditions with occasional operational and maintenance traffic.

4.3 Scoping Discussions

The Applicant submitted a Scoping Report to Scottish Ministers in respect of the Environmental Impact Assessment Report (EIAR) which included a section considering traffic and transport. The following stakeholders provided scoping advice in relation to access, traffic and transport:

- Midlothian Council;
- Transport Scotland; and
- ScotWays.

5 Baseline Conditions

5.1 Access Arrangements

The Proposed Development will be accessed directly from the B7007 via a newly provided access junction. The junction will be designed to accommodate deliveries for the larger turbine components, as well as being suitable for general construction traffic.

The access junction would have the first 6 m surfaced in a bituminous macadam and appropriate junction markings and reflective junction markers would be provided at the access bell-mouth. The throat of the junction would be widened to a minimum of 6 m to ensure that opposing vehicles can pass safely.

Visibility splays of 215 m in both directions with a set-back distance of 4.5 m from the centre of the junction would be provided.

The layout of the junction is illustrated in Annex B.

5.2 Study Area Determination

The study area centred around data collection count sites, likely points of origin for materials to assist in developing a suitable study area.

Strategic access to the B7007 is available from the A68 trunk road (T) via the A7, B6367 and B6458.

Access for construction materials would be predominantly from the north via the A7.

Abnormal loads associated with the wind turbines will be delivered to site from the proposed POE at Rosyth. The proposed route will include Keith Road, B981, M90, M9, M8, A720, A68 (T), B6450, B6367, A7 and B7007.

The study area for this assessment is therefore as follows:

- B7007, between the B7007 / A7 priority junction and the B7007 / B709 priority junction;
- B6367, between A7 / B6367 priority junction and B6367 / B6458 priority junction;
- B6458, between B6367 / B6458 priority junction and B6458 / A68 (T) priority junction;
- A68 (T), between Pathhead and A68 (T) / B6458 priority junction;
- A68 (T), between A68 (T) / B6458 priority junction and A68 (T) / B6457 priority junction which leads to Fala Village;
- A7 between the A7 / B7007 priority junction and Gorebridge; and
- A7 between the A7 / B7007 priority junction and Halltree.

The study area network is illustrated in Figure 5.

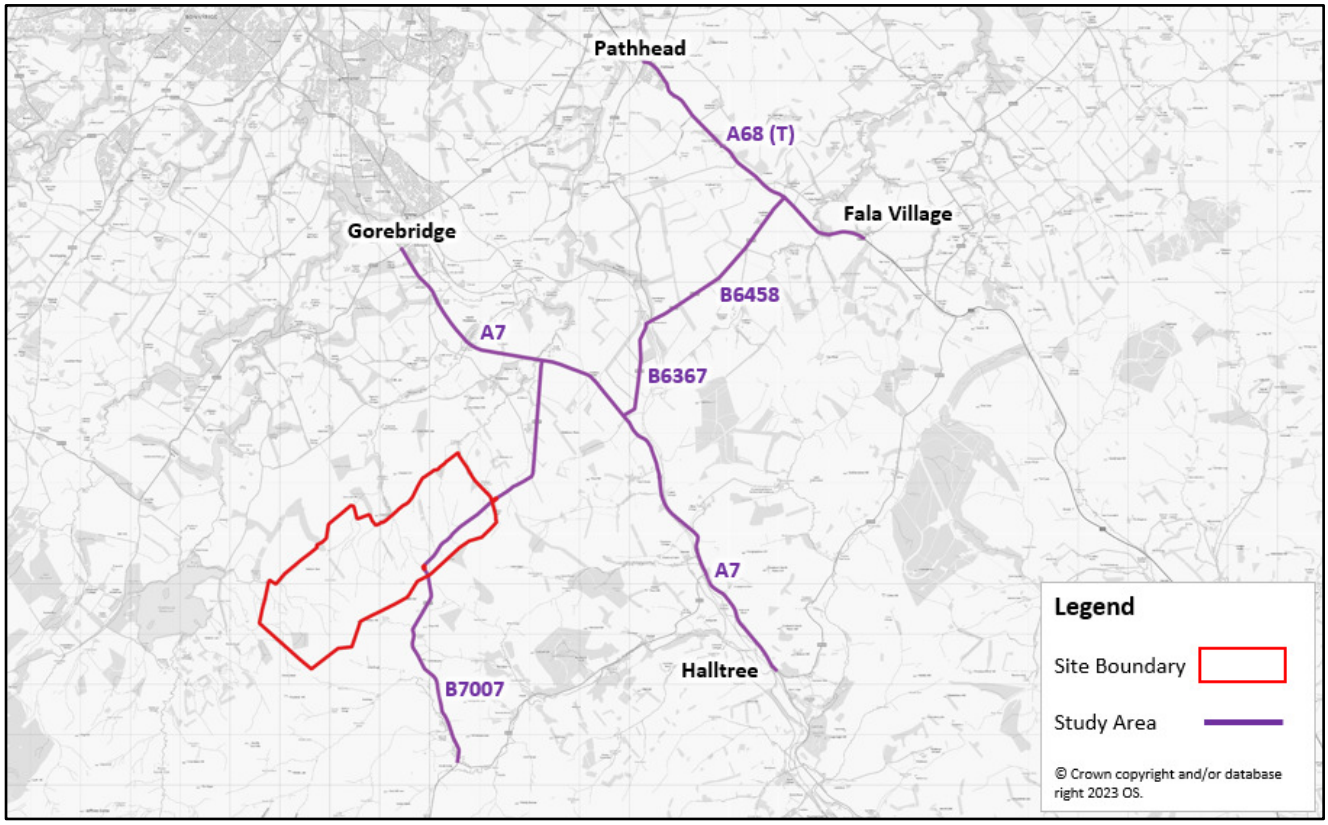

Figure 5 Study Area

5.3 Pedestrian and Cyclist Networks

A review of the Midlothian Core Paths plans available on the Midlothian Council website[1] indicates that there are no Core Paths within the site boundary. The nearest Core Path is Core Path 8-59 which is located to the east of the site and links to the unclassified road which leads to Middleton, to the north.

Information provided by ScotWays during scoping indicates that Public Right of Way (PRoW) LM/LM173/1 and Scottish Hill Track LM/HT43/5 are located within the south-western section of the site.

There is a combination of paths / footways located along the eastern side of the A7 between Gorebridge and approximately 600 m to the south-east of the A7 / B7007 junction.

A combination of paths / footways are located along the northern / eastern side of the A68 (T) between the access to Whitburgh Mains Farmhouse and the access to Fala Village while between the access to Whitburgh Mains Farmhouse and Pathhead village, the footway is located on the western side of the A68 (T). The condition of the paths / footways vary in width and condition along the route. Within Pathhead footways are located on both sides of the carriageway.

The level of pedestrian infrastructure is commensurate with the scale of the local settlements and their rural setting.

A review of Sustrans cycle network plan[2] of the United Kingdom revealed that the National Cycle Route 1 (NCR1) is located to the north-east of the site. A section of the cycle route is located within the site boundary along the B7007, which is designated as “On-road route not on the National Cycle Network”.

[1] https://www.midlothian.gov.uk/downloads/download/274/core_paths_in_midlothian
[2] https://www.sustrans.org.uk/national-cycle-network

5.4 Road Access

B7007

The B7007 comprises a single carriageway road, approximately 5.8 m in width, which is subject to the national speed limit (60 miles per hour (mph)). The B7007 is maintained by Midlothian Council and Scottish Borders Council. There is evidence of deterioration on the road within the study area. Within the vicinity of the site, the B7007 mainly provides access to fields.

B6367

The B6367 comprises a single carriageway road, approximately 5.8 m in width, which is subject to the national speed limit. The B6367 is maintained by Midlothian Council. There appears to be some areas of deterioration along the road, within the study area. The B6367 mainly provides access to fields along the road.

B6458

The B6458 comprises a single carriageway road, approximately 5.8 m in width, which is subject to the national speed limit. The B6458 is maintained by Midlothian Council. There appears to be some areas of deterioration along the road. The B6458 mainly provides access to fields along the road.

A7

Within the study area, the A7 is a single carriageway road which varies in width and is mainly subject to the national speed limit. The speed limit is reduced and signposted when travelling through more built-up areas such as Gorebridge.

The A7 runs between Edinburgh, Scotland and Carlisle, England. In Scotland, to the south of Melrose, the A7 forms part of the trunk road network and is maintained by Transport Scotland while within the study area the A7 forms part of the local road network and is maintained by Midlothian Council and Scottish Borders Council. The A7 appears in mainly good condition, however, there are some locations where there are signs of deterioration.

A68 (T)

Within the study area, the A68 (T) is a single carriageway road which is mainly subject to the national speed limit. The speed limit is reduced and signposted when travelling through more built-up areas such as Pathhead.

The A68 (T) runs between Edinburgh, Scotland and Darlington, England. Within Scotland, the A68 (T) is managed by BEAR on behalf of Transport Scotland. Within the study area the A68 (T) appears in mainly good condition, however there are some locations where there are signs of deterioration.

General Road Suitability for HGV Traffic

A number of the roads within the Study Area form part of the agreed route network used for the extraction of timber and are therefore regularly used by Heavy Goods Vehicles (HGV) traffic. This includes sections of the B7007, the A7 and the A68 (T).

The Agreed Timber Route Map[3] has been developed by The Timber Transport Forum who are a partnership of the forestry and timber industries, local government, national government agencies, timber hauliers and road and freight associations. One of the key aims of the forum is to minimise the impact of timber transport on the public road network, on local communities and the environment and a way of achieving this is to categorise the roads leading to forest areas in terms of their capacity to sustain the likely level of timber haulage vehicles i.e., HGVs. The routes are categorised into four groups, namely; ‘Agreed Routes’, ‘Consultation Routes’, ‘Severely Restricted Routes’ and ‘Excluded Routes’.

[3] https://timbertf.maps.arcgis.com/apps/webappviewer/index.html?id=4a23d4910e604b71872956441113c83c

'Agreed Routes' are categorised as routes used for timber haulage without restriction as regulated by the Road Traffic Act 1988. A-roads are classified as 'Agreed Routes' by default unless covered by one of the other road classifications. Those links classed as 'Consultation Routes' are categorised as a route which is key to timber extraction, but which are not up to 'Agreed Route' standard. Consultation with the local authority is required, and it may be necessary to agree limits of timing, allowable tonnage etc. before the route can be used. B-roads are classified as 'Consultation Routes' by default unless covered by one of the other classifications. 'Severely Restricted Routes' are not normally to be used for timber transport in their present condition. These routes are close to being Excluded Routes. Consultation with the local authority is required prior to use. Finally, 'Excluded Routes' should not be used for timber transport in their present condition. These routes are either formally restricted, or are close to being formally restricted, to protect the network from damaging loads.

5.5 Existing Traffic Conditions

In order to assess the impact of development traffic on the study area, an Automatic Traffic Count (ATC) site was established along the B7007, near the site access, and along the B6458, Tynehead, over a seven-day period in August 2023. To complement the ATC surveys, existing traffic count data was obtained from the Department for Transport (DfT)[4] and Transport Scotland[5] databases.

Available traffic data from 2019 was used to estimate existing traffic flows from the DfT database, as this data was not affected by Covid 19 travel restrictions. National Road Traffic Forecasts (NRTF) low growth factors were applied to the 2019 data to estimate 2023 flows. The low growth factor for 2019 to 2023 is 1.027.

Traffic data for from the Transport Scotland database was obtained for existing 2023 data up to mid-September 2023.

The counts sites used were as follows:

1. B7007, near site access (ATC Survey);
2. B6458, Tynehead (ATC Survey);
3. A7, south of Gorebridge (DfT Count site reference: 80139);
4. A7, at A7 / B7007 junction6 (DfT Count site reference: 20714);
5. A7, southeast of Falahill (DfT Count site reference: 50713);
6. A68 (T), south of Pathhead (DfT Count site reference: 30734); and
7. A68 (T), west of Fala Village (Transport Scotland Count site reference: ATCSE013).

With the exception of Count Point 6. A68 (T), south of Pathhead which was based on a manual count, the above counts from the DfT database were all estimated counts, using previous years count information.

The locations of the count sites are illustrated in Figure 6.

[4] https://roadtraffic.dft.gov.uk/#6/55.254/-11.096/basemap-regions-countpoints
[5] https://ts.drakewell.com/multinodemap.asp
[6] The location of Count Point 4 (DfT Count site reference: 20714) is located approximately 800 m to the east of the A7 / B7007 junction, however, for the purpose of this assessment it is assumed that the Count Point is located at the A7 / B7007 junction in order to capture all construction traffic along the A7.

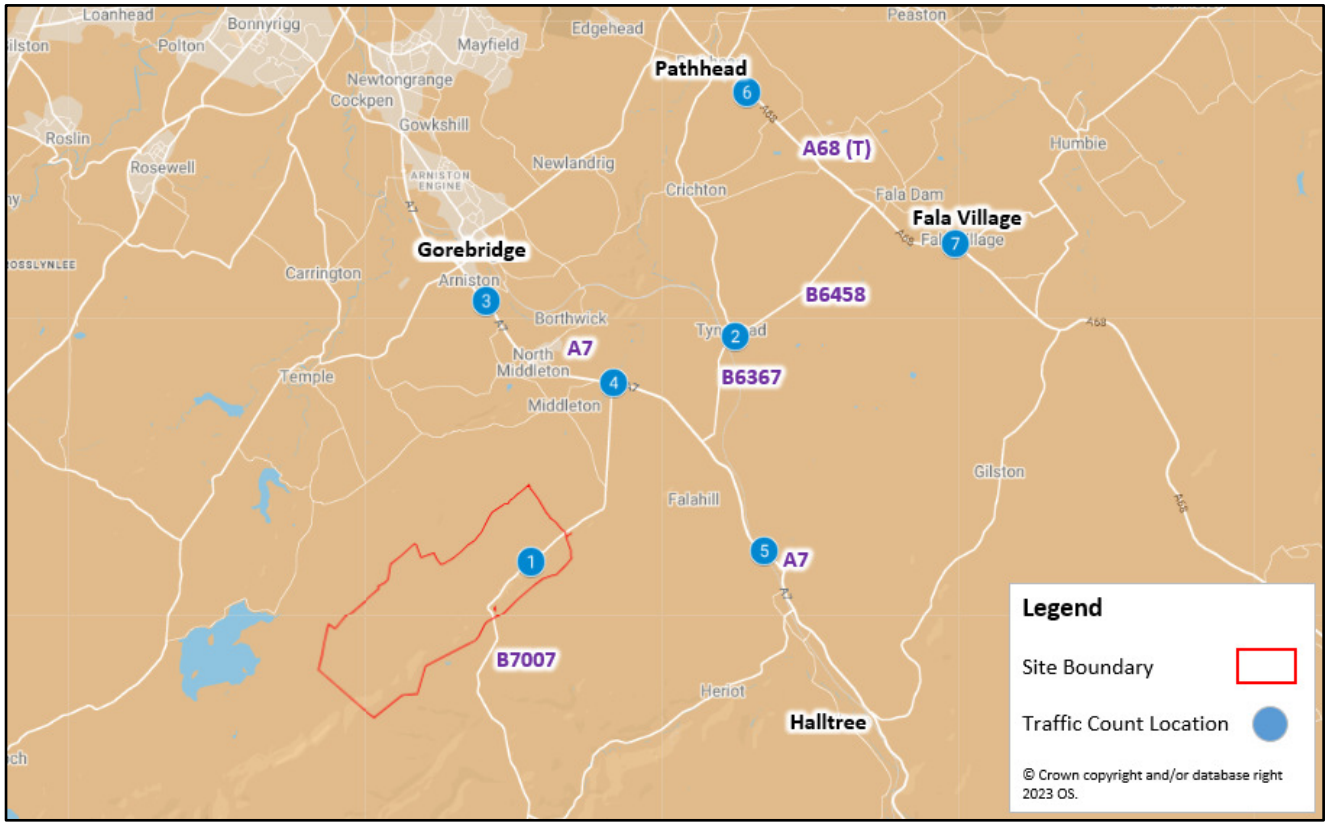

Figure 6 Traffic Count Locations

These sites were identified as being areas where sensitive receptors on the access routes would likely be located. A full receptor sensitivity and effect review is prepared in the Traffic & Transport Chapter of the EIA Report (EIA Report Volume 1: Chapter 11).

The traffic counters allowed the traffic flows to be split into vehicle classes and the data has been summarised into cars/ light goods vehicles (Lights) and HGVs (buses and all goods vehicles >3.5 tonnes gross maximum weight).

Table 2 summarises the 24-hour average daily traffic data collected at the count sites.

Table 2 24-hour Two-way Average Traffic Data (2023)

Ref. No.	Survey Location	Data Source	Cars & Lights	HGV	Total
1	B7007, near site access	ATC	433	86	518
2	B6458, Tynehead	ATC	637	217	854
3	A7, south of Gorebridge	DfT Counter	6,394	553	6,947
4	A7, at the A7 / B7007 junction	DfT Counter	4,911	315	5,226
5	A7, southeast of Falahill	DfT Counter	5,374	325	5,699
6	A68 (T), south of Pathhead	DfT Counter	9,194	937	10,130
7	A68 (T), west of Fala Village	DfT Counter	7,068	1,602	8,670

Please note minor variances due to rounding may occur.

The ATC and Transport Scotland count sites which provided traffic volume data were also used to obtain speed statistics. The two-way seven-day average and 85th percentile speeds observed at the ATC count sites is summarised in Table 3.

Table 3 Speed Summary (2023)

Ref. No.	Survey Location	Mean Speed (mph)	85%ile Speed (mph)	Speed Limit (mph)
1	B7007, near site access	49.5	59.6	60.0
2	B6458, Tynehead	43.9	53.2	60.0
3	A7, south of Gorebridge	No data available		60.0
4	A7, at the A7 / B7007 junction			60.0
5	A7, southeast of Falahill			60.0
6	A68 (T), south of Pathhead			60.0
7	A68 (T), west of Fala Village	47.6	55.3	60.0

* No speed data available from DfT database

Speed information from the ATC surveys undertaken along the B7007 and B6458 and the existing speed data available for the A68 (T) suggests that there are no speeding issues at these locations.

5.6 Accident Review

Personal Injury Accident (PIA) data for the five-year period commencing 01 January 2017 through to the 31 December 2021 was obtained from the online resource CrashMap[7] which uses data collected by the police about road traffic crashes occurring on British roads, where someone is injured.

TA Guidance[8] requires an analysis of the PIA on the road network in the vicinity of any development to be undertaken for at least the most recent 3-year period, or preferably a 5-year period, particularly if the Site has been identified as being within a high accident area.

The statistics are categorised into three categories, namely “Slight” for damage only incidents, “Serious” for injury accidents and “Fatal” for accidents that result in a death.

The locations of the accidents recorded along the roads within the study area are shown in Figure 7.

[7] https://www.crashmap.co.uk/
[8] https://www.transport.gov.scot/media/4589/planning_reform_-_dpmtag_-_development_management__dpmtag_ref__17__-_transport_assessment_guidance_final_-_june_2012.pdf

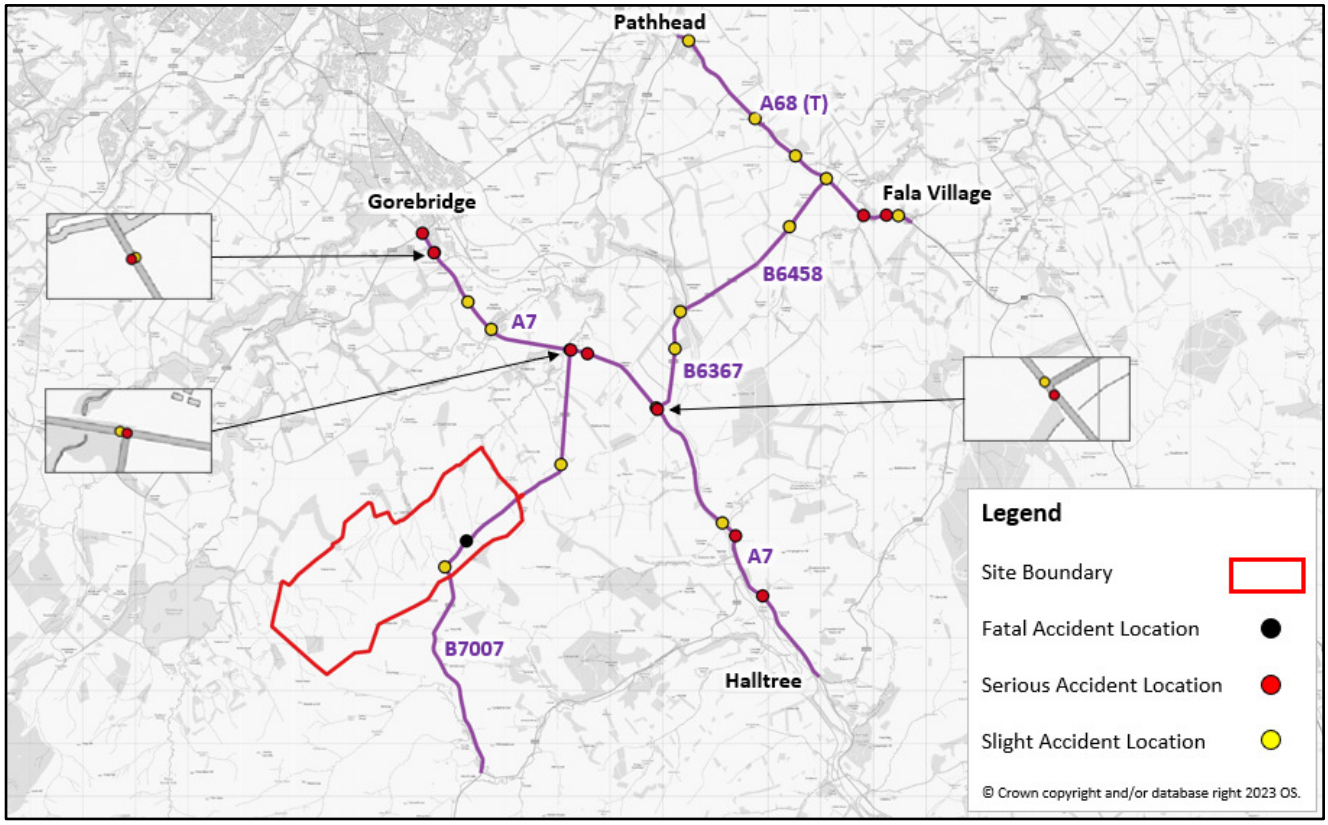

Figure 7 Accident Locations

A summary analysis of the incidents indicates that:

- A total of 26 accidents were recorded within the study area roads within the five-year period;
- Of those 26 accidents, 16 were classified as slight, nine were classified as serious and one fatality was recorded;
- The accident which was recorded as fatal occurred on a slight bend on the B7007, within the site boundary, and involved a car and an HGV;
- One accident involved a cyclist and a car. This incident was recorded at the B6372 / A7 junction and was classified as serious;
- Two accidents involving pedestrians were recorded:
    - One was recorded on the B6367, to the west of the railway bridge and involved a car. The incident was classified as slight; and
    - One was recorded on Main Street (A68 (T)), near St Mary's Pathhead and involved an HGV. The incident was classified as slight.
- A total of four separate accidents involved motorcycles, all of which were classified as serious:
    - An incident was recorded as B7007 / A7 junction and also involved a car;
    - An incident was recorded A7 approximately 300 m east of B7007 / A7 junction which appears to have involved two motorcycles;
    - An incident was recorded at the A7 / B6367 junction and also involved a car and an HGV; and
    - An incident was recorded at a bend, along the A68 (T) approximately 550 m west of the A68 (T) / B6457 and was a single vehicle collision.
- A total of eight separate accidents involved HGVs, one of which is outlined in the above point. One was recorded on the B7007, three occurred on the A7 and four occurred along the A68 (T).

In general, there are no specific locations within the study area where there are high numbers of accidents involving HGVs that have been recorded. Of the eight that were recorded however, the majority occurred on the

A7 and A68 (T). These roads have a higher proportion of HGV traffic using them, with 8% and 9% respectively, while the national average based on DfT data[9] is 6%.

A single fatality was recorded along the B7007, within the site boundary which involved a car and an HGV. Appropriate Traffic Signs Manual Chapter 8[10] compliant temporary road signage will be provided along the B7007 to alert traffic of the site entrance and the presence of construction vehicles along the road.

Based on the information available, it has been established that there are no specific road safety issues within the immediate vicinity of the Proposed Development that currently require to be addressed or would be exacerbated by the construction of the Proposed Development.

5.7 Future Baseline Traffic Conditions

Construction of the Proposed Development could commence during 2027 if consent is granted and is anticipated to take up to 24 months depending on weather conditions and ecological considerations.

To assess the likely effects during the construction phase, base year traffic flows were determined by applying a NRTF low growth factor to 2023. The NRTF low growth factor for 2023 to 2027 is 1.021. This factor was applied to the 2023 traffic data previously presented in Table 2 to estimate the 2027 Baseline traffic flows. The 2027 Baseline traffic flows are shown in Table 4.

Table 4 24-hour Two-way Average Traffic Data (2027)

Ref. No.	Survey Location	Cars & Lights	HGV	Total
1	B7007, near site access	442	88	529
2	B6458, Tynehead	650	222	872
3	A7, south of Gorebridge	6,528	564	7,093
4	A7, at the A7 / B7007 junction	5,014	322	5,336
5	A7, southeast of Falahill	5,487	331	5,818
6	A68 (T), south of Pathhead	9,387	956	10,343
7	A68 (T), west of Fala Village	7,216	1,636	8,852

Please note minor variances due to rounding may occur.

5.8 Committed Developments

A review of surrounding developments on the Energy Consents Unit database[11], Midlothian Council Planning Portal[12] and Scottish Borders Planning Portal[13] has been undertaken in order to identify a number of consented (i.e. committed developments) proposals in the surrounding area which are anticipated to impact on the study area.

Transport Assessment guidance[14] advises that only those projects with extant planning permission or local development plan allocations within an adopted or approved plan require to be included in any assessment. Those projects in scoping or not yet determined should not be included in cumulative assessments as they have yet to be determined. When considering traffic impacts specifically in relation to the construction phase of a project, the potential traffic impact is highly speculative and as such, cannot be included in the assessment.

[9] ttps://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1107056/road-traffic-estimates-in-great-britain-2021.pdf
[10] Department for Transport/Highways Agency, Department for Regional Development (Northern Ireland), Transport Scotland & Welsh Assembly Government (2009): Traffic Signs Manual, Chapter 8 – Traffic Safety Measures and Signs for Road Works and Temporary Situations
[11] https://www.energyconsents.scot/ApplicationSearch.aspx?T=1
[12] https://www.midlothian.gov.uk/info/200167/planning_applications/34/search_and_comment_on_planning_applications
[13] https://eplanning.scotborders.gov.uk/online-applications/search.do?action=simple&searchType=Application
[14] https://www.gov.uk/guidance/travel-plans-transport-assessments-and-statements

Local Committed Developments

Based on the above, the local consented schemes which are considered as committed developments are detailed in Table 5.

Table 5 Committed Developments

Planning Reference	Location	Description	Comments
22/00588/S42 Midlothian Council	Land South West of Newtonloan Toll Gorebridge	Application under S42 for a new planning permission in principle with different conditions than those attached to 17/00559/S42. Section 42 application for planning permission in principle for development the subject of planning permission 07/00556/OUT (Class 4 and 5 office and industrial use) without compliance with Condition 8 (zero and/or low carbon equipment).	A Transport Technical Note was provided as part of the planning submission. Trip information provided in the Note suggests that total AM vehicle trips will equate to 343 trips and total PM vehicle trips will equate to 294 trips, however, the information provided in relation to the development indicate that the majority of these trips will arrive and depart to the north of the site. The inclusion of additional traffic trips to the baseline will dilute the potential impact that Torfichen Wind Farm proposals will have on the local road network and as such has not been included in the future baseline flows to allow for a robust assessment.
15/00045/PPP Midlothian Council	Redheugh East Gorebridge	Application for planning permission in principle for residential development; community facilities; primary school; playing field; office units (Class 4); farm shop (Class 1); cafe (Class 3) and rail halt with associated car parking; public open space; roads and drainage infrastructure.	A TA was provided as part of the planning submission. Information provided in the TA suggests that total AM vehicle trips will equate to 751 trips and total PM vehicle trips will equate to 707 trips, however, it is proposed that the majority of these trips will arrive to the site and exit from the site to the A7 (north). The inclusion of additional traffic trips to the baseline will dilute the potential impact that Torfichen Wind Farm proposals will have on the local road network and as such has not been included in the future baseline flows to allow for a robust assessment.
21/00132/DPP Midlothian Council	Former Quarry Broad Law Gorebridge	Erection of stationary rocket propulsion and ancillary specialist equipment testing facility, and associated office and storage facilities; formation of hardstanding, access tracks, car parking, SUDS ponds and bunds; erection of fencing; and associated works.	A Transport Statement was provided as part of the planning submission. Information provided in the TS notes that: *"… it is likely that the maximum number of HGV delivering materials to site would be 2 to 3 per day."* And there would be: *"… 10 proposed additional vehicles per day"* It should be noted that these trips are not considered significant and are not considered to be above the daily levels of traffic fluctuation.
22/00454/DPP	Land South East of Tynewater Primary School Crichton Road Pathhead	Erection of 34 dwellinghouses and 4 flatted dwellings (amendment to layout and house types approved by planning permission 20/00538/DPP)	A Transport Statement was provided as part of the 20/00538/DPP planning permission. Trip information provided as part of the Transport Statement noted that total AM vehicle trips would equate to 31 trips and total PM vehicle trips would equate to 34 trips which are not considered significant increases on the A68(T).

The use of low NRTF growth factors for background traffic is considered robust for addressing smaller, non-significant traffic generation caused by smaller developments within the study area.

It should be noted that the inclusion of additional traffic trips to the baseline, such as committed development trips, will dilute the potential impact that Torfichen Wind Farm proposals will have on the local road network. As such, the approach taken is considered to be an overly robust assessment. It is also unlikely that all of the developments outlined in Table 5 will be fully built and occupied / operational before the construction of the Proposed Development.

Should the construction of committed developments take place at the same time as the Proposed Development, it would be mitigated through the use of an overarching Traffic Management and Monitoring Plan (TMMP) for all of the sites and by introducing a phased delivery plan which would be agreed with the local roads departments and Police Scotland.

Local Wind Farm Proposals

There are a number of proposed wind farm developments which are currently at the application stage of the planning process which are outlined in Table 6.

Table 6 Local Wind Farm Proposals

Planning Reference	Location	Description	Comments
22/01960/FUL Scottish Borders Council	Land North Of Carcant Lodge, Wull Muir Wind Farm, Heriot, Scottish Borders	An application for the erection of eight wind turbines with a maximum tip height of 150 m at the proposed Wull Muir Wind Farm	Application has been submitted to planning. It is proposed that access to Wull Muir Wind Farm will be accessed from the B7007 and construction traffic will impact on the proposed study area.
21/01808/ S36 Scottish Borders Council	Greystone Knowe Wind Farm Land South West Of Brockhouse Farmhouse Fountainhall Galashiels Scottish Borders	Application for an onshore wind farm of 14 turbines with a maximum tip height of 180 metres, and ancillary infrastructure	Application has been submitted to planning. It is proposed that access to Greystone Knowe Wind Farm will be accessed from the B7007 and construction traffic will impact on the proposed study area.
23/00013/S36 Scottish Borders Council	Land North And East Of Holylee (Scawd Law Wind Farm) Walkerburn Scottish Borders	Application for the erection of up to 8 wind turbines with a blade tip of up to 180 m, and ancillary infrastructure	Application has been submitted to planning. It is proposed that construction traffic related to Scawd Law Wind Farm will impact on the proposed study area.
19/00756/S36 Scottish Borders Council	Land West Of Castleweary (Faw Side Community Wind Farm) Fawside Hawick Scottish Borders	Erection of 45 wind turbines and associated access tracks, infrastructure including substation/control room buildings and compound, temporary construction compound, meteorological mast and temporary borrow pits	Application has been referred to the Directorate for Planning and Environmental Appeals (DPEA). It is proposed that construction traffic related to Faw Side Community Wind Farm will impact on the proposed study area.

As the proposed wind farm developments outlined in Table 6 are not consented, they cannot be considered as committed developments and therefore cannot be included in the development assessment as they may be refused.

However, it should be noted that any effects of all the sites being constructed at the same time would be mitigated through the use of an overarching TMMP for all of the sites and by introducing a phased delivery plan which would be agreed with the local roads departments and Police Scotland.

Furthermore, it is not predicted that the potential traffic flow increases could ever occur on the study area for the following reasons:

- It is extremely unlikely that the peak traffic conditions will occur at the same time due to differences in construction programmes, material supplies and developer resources; and

- All abnormal load deliveries cannot occur at four separate sites on the same day due to restrictions on the number of loads moving on the network at the same time set by Police Scotland.

6 Trip Generation and Distribution

6.1 Construction Phase

6.1.1 Trip Derivation

During the construction period, the following traffic will require access to the site:

- Staff transport, in either cars or minibuses;
- Construction equipment and materials, deliveries of machinery and supplies such as concrete and crushed rock; and
- Abnormal loads comprising wind turbine sections and also heavy lift crane(s).

Average monthly traffic flow data were used to establish the construction trips associated with the Proposed Development based on the assumptions detailed in the following sections.

It should be noted that there may be variations in the following calculations due to rounding, which are not considered significant.

6.1.2 Construction Staff

Staff would arrive in non-HGV vehicles and where possible will be encouraged to car share. The workforce on-site will depend on the activities undertaken, but, based on previous wind farm construction site experience for a project of this scale which suggests three staff per turbine during the short peak period of construction is likely, the maximum number of staff expected on-site could be around 54 per day.

For the purposes of estimating traffic movements, it was assumed that 40% of staff would be transported by minibus and 60% would arrive by car (single car occupancy was assumed as the worst case at this stage with potentially fewer movements through car sharing).

Based on these assumptions, staff transport cars and light vehicles would account for a maximum of 70 vehicle trips (35 inbound trips and 35 outbound trips) per day during the peak period of construction.

6.1.3 Abnormal Indivisible Load Deliveries

The wind turbines are broken down into components for transport to the site. The nacelle, blade and tower sections are classified as AIL due to their weight, length, width and height when loaded. For the purposes of the report, the 'worst case' numbers of components requiring transport are illustrated in Table 7.

In addition to the turbine deliveries, two high capacity erection crane would be needed to offload a number of components and erect the turbines. The crane is likely to be a mobile crane with a capacity up to 1,000 tonnes that is escorted by boom and ballast trucks to allow full mobilisation on-site. Smaller erector cranes would also be present to allow the assembly of the main crane and to ease the overall erection of the turbines.

Escort vehicles would accompany the AIL convoys to support the traffic management measures. Up to three vehicles would be deployed and it is assumed that three turbine components would be delivered per convoy.

Table 7 Turbine Components

Component	Number of Components per Turbine
Rotor Blades	3
Tower Sections	4
Nacelle	1
Hub	1
Drive Train	1
Nose Cone	1
Transformer	1
Ancillary	1
Site Parts	0.2

Based on the above, a total of 480 AIL movements are predicted, including cranes and it is expected that up to three AIL turbine components would be delivered per convoy. Turbine components that do not classify as AILs, would be delivered in addition to these, resulting in a further 116 journeys (58 inbound trips and 58 outbound trips). All of these deliveries are expected to occur over a period of approximately seven months.

The escort vehicles have been assumed to be police cars and light goods vehicles. Motorcycles may be deployed, depending upon Police resources.

6.1.4 General Deliveries

Throughout the construction phase, general deliveries will be made to the site by means of HGV. These would include fuel, site office and staff welfare. At the height of construction, it is assumed that up to 40 journeys to site are made (20 inbound trips and 20 outbound trips) per month.

6.1.5 Material Deliveries

Various materials will need to be delivered to site to form the site-based infrastructure. At the outset, HGV deliveries will deliver plant and initial material deliveries to the site to enable the formation of the site compound and to delivery construction machinery.

The site is large enough to warrant on-site batching of concrete. All turbine and substation foundation concrete will be mixed on-site. As such this assessment assumes deliveries of cement powder and water by HGV tankers from suppliers located to the north of the site via the A7. Sand and aggregate will be delivered by tipper HGV and is expected to originate at a quarry at North Middleton.

The total volume of concrete required on-site is estimated to be 9,848 m³. The individual deliveries associated with the raw materials have been estimated and result in inbound trips of 22 cement tankers, 312 sand and aggregate tippers and 125 water tankers.

Reinforcement required in the foundations across the site are detailed in Table 8 below.

Table 8 Steel Reinforcement Deliveries

Element	Weight / Installation (t)	Total Weight (t)	Lorry Capacity (t)	Inbound Trips	Total Journeys
Turbine Foundation	70	1,260	30	42	84
Substation Foundation	20	20	30	1	2

The proposed access tracks would generally be 5.0 m in width and would be designed to accommodate 13 tonne axle loads. In addition to the roads, crane pads will be constructed to enable the turbine erection process. It is estimated that 50% of the aggregate material requirements will be imported to the site. It is assumed that the aggregate material will arrive to site from quarries to the north of the site, near North Middleton via the A7.

The tracks, crane pads and compounds will require geotextile in the foundations. Geotextile will be delivered to site in rolls. A total of 206 large rolls may be required at site and would be delivered by HGV, which will result in approximately 22 journeys (11 inbound trips and 11 outbound trips).

Cables will connect each turbine to the internal substation and control building. Trip estimates for the cable materials are provided below in Tables 9 and 10.

Five cables are to be provided within each cable trench and would be backfilled with cable sand.

The cable materials would be likely be delivered from the north of the site via the A7.

Table 9 Cable Trip Estimate

Element	Total Cable Length (m)	Length per Drum (m)	Number of Drums	Inbound Trips	Total Journeys
Cables	89,900	500	180	20	40

Table 10 Cable Sand Trip Estimate

Element	Volume (m3)	Lorry Capacity (t)	Inbound Trips	Total Journeys
Cable Sand	6,068	20	486	972

In addition, it is estimated that ten journeys (five inbound trips and five outbound trips) will be required to deliver cable ducting to the site.

A substation building will be constructed on the site. This will require deliveries of building materials and structural elements and would result in 240 journeys. The delivery of batteries to the site is estimated to result in 64 HGV trips (32 inbound trips and 32 outbound trips).

Approximately 50 tonnes of timber will be exported from the site during felling operations which will result in approximately four HGV trips (two inbound trips and two outbound trips).

The resulting traffic generation estimates have been plotted onto the indicative construction programme to illustrate the peak journeys on the network. Table 11 illustrates the trip generation throughout the construction programme.

Table 11 Construction Traffic Profile

Activity	Class	Month																						
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Site Establishment	HGV	50	50	50																			50	50	50
General Site Deliveries	HGV	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40
Plant Delivery	HGV	10	20																					20	10
Forestry Removal	HGV				4																				
Imported Stone	HGV	1,001	1,001	1,001	1,001	1,001	1,001	1,001	1,001	1,001	1,001	1,001	1,001												
Reinforcement	HGV					22		22		22		22													
Concrete Cement & Water	HGV					37	37	37	37	37	37	37	37												
Concrete Aggregate & Sand	HGV					78	78	78	78	78	78	78	78												
Cable & Ducting Deliveries	HGV													8	8	8	8	8	8						
Cabling Sand	HGV													162	162	162	162	162	162						
Geotextile Deliveries	HGV				6				6				6			6									
Substation Building	HGV					48	48	48	48	48															
Batteries	HGV								32	32															
Cranage	HGV													10						10					
AIL Deliveries	HGV													68	68	68	68	68	68	68					
AIL Escorts	Car/LGV													52	52	52	52	52	52	52					
Commissioning	Car/LGV																							44	44
Staff	Car/LGV	772	1,544	1,544	1,544	1,544	1,544	1,544	1,544	1,544	1,544	1,544	1,544	1,544	1,544	1,544	1,544	1,544	1,544	1,544	1,544	1,544	1,544	1,544	772
Total HGV		1,101	1,111	1,091	1,051	1,225	1,204	1,225	1,241	1,257	1,156	1,177	1,161	288	278	284	278	278	278	118	40	40	90	110	100
Total Cars / LGV		772	1,544	1,544	1,544	1,544	1,544	1,544	1,544	1,544	1,544	1,544	1,544	1,596	1,596	1,596	1,596	1,596	1,596	1,596	1,544	1,544	1,544	1,588	816
Total Movements		1,874	2,656	2,636	2,595	2,770	2,748	2,770	2,786	2,802	2,700	2,722	2,706	1,885	1,875	1,880	1,875	1,875	1,875	1,714	1,584	1,584	1,634	1,698	916
Total HGV per Day		50	51	50	48	56	55	56	56	57	53	54	53	13	13	13	13	13	13	5	2	2	4	5	5
Total Cars / LGV per Day		35	70	70	70	70	70	70	70	70	70	70	70	73	73	73	73	73	73	73	70	70	70	72	37
Total per Day		85	121	120	118	126	125	126	127	127	123	124	123	86	85	85	85	85	85	78	72	72	74	77	42

Please note minor variances due to rounding may occur. Calculations assume that there are 22 working days per month

From Table 11, it can be seen that the peak of construction occurs in Month 9 with 127 journeys (70 Car & LGV and 57 HGV journeys).

6.1.6 Distribution of Construction Trips

The distribution of construction traffic on the network would vary depending on the types of loads being transported. The assumptions for the distribution of construction traffic during the peak months would be as follows and is based upon a desk based review of likely sources:

- All construction traffic enters the site via the upgraded access junction from the B7007;
- Deliveries associated with cement and water will arrive via from a concrete plant located to the north of the site, via the A7. Sand and aggregate to be used in concrete batching will arrive from a quarry to the north of the site via the A7;
- It is assumed that 50% of aggregate material requirements will be imported to the site and will be delivered from the quarries to the north of the site, near North Middleton via the A7. The Balance of Plant (BoP) contractor will confirm final quarry and material sourcing with the Council in the Construction Traffic Management Plan (CTMP);
- HGV deliveries associated with the High Voltage (HV) electrical installation, control buildings, batteries, etc will arrive via the A7 to the north;
- Staff working at the site are likely to be based locally. It is assumed that 80% will be based to the north of the site and 20% to the south, and will access the site via the A7; and
- General site deliveries are assumed to arrive from the north via the A7 to the site. These are generally smaller rigid HGV vehicles.

The proposed construction traffic delivery routes within the study area are shown in Figure 8.

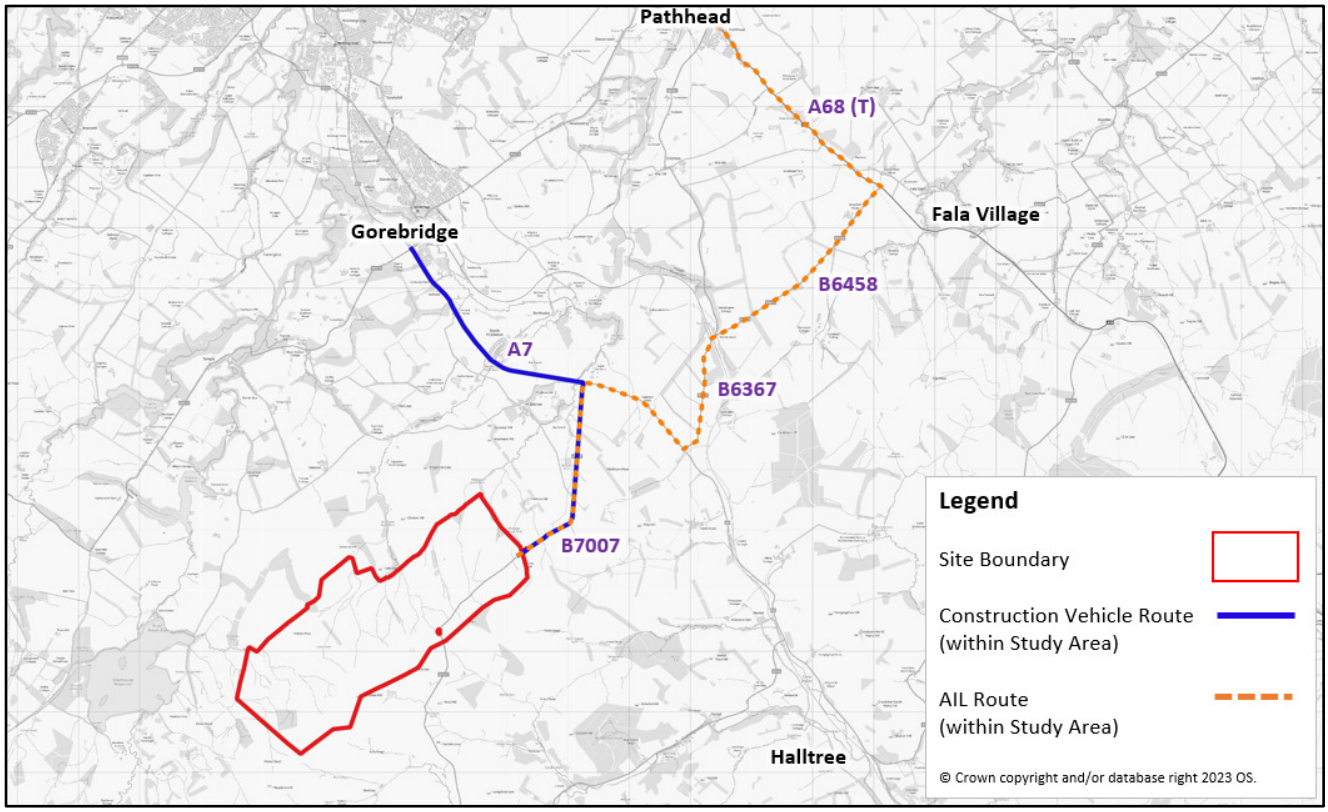

Figure 8 Construction Traffic and AIL Delivery Routes (within the study area)

Loads relating to the turbine components would be delivered from Rosyth Port. The access route within the study area is shown in Figure 8, while the whole route would be as follows:

- Loads would exit the port onto Keith Road and would then proceed eastbound;
- Loads would then merge onto the B981 before turning right onto the M90 southbound;
- Loads would continue southbound on the M90 until the Interchange with the M9 and M9 Junction 1a;

- Loads would merge onto the M8 at Newbridge and would proceed towards Edinburgh until Hermiston Gait, where they would turn right and would join the A720 Edinburgh City Bypass;
- Loads would continue eastbound on the length of the A720 before exiting at the Millerhill Interchange;
- Loads would proceed southbound on the A68 (T) through Pathhead;
- Past Pathhead loads would turn left onto the B6450 heading southwest towards Tynehead;
- Upon reaching Tynehead loads would continue southwest on the B6367;
- At the end of the B6367 loads would turn right joining the A7 towards North Middleton; and
- Loads will exit the A7 turning left onto the B7007 and follow the road until reaching the proposed site access junction.

Figure 9 AIL Delivery Route

6.1.7 Peak Construction Traffic

Following the distribution and assignment of traffic flows to the study area network, the resultant daily traffic during the peak of construction are summarised in Table 12.

Table 12 Peak Construction Traffic

Ref. No.	Survey Location	Cars & LGV	HGV	Total
1	B7007, near site access	70	57	127
2	B6458, Tynehead	0	0	0
3	A7, south of Gorebridge	56	8	64
4	A7, at the A7 / B7007 junction	70	57	127
5	A7, southeast of Falahill	14	0	14
6	A68 (T), south of Pathhead	0	0	0
7	A68 (T), west of Fala Village	0	0	0

Please note minor variances due to rounding may occur.

6.2 Decommissioning Phase

Prior to decommissioning of the site, a traffic assessment would be undertaken, and appropriate traffic management procedures followed.

The decommissioning phase would result in fewer trips on the road network than the construction or operational phases as it is considered likely that elements of infrastructure such as access tracks would be left in place and structures may be broken up on-site to allow transport by a reduced number of HGV.

7 Traffic Impact Assessment

7.1 Construction Impact

The peak month traffic data was combined with the future year (2027) traffic data to allow a comparison between the baseline results to be made. The increase in traffic volumes is illustrated in percentage increases for each class of vehicle. This is illustrated in Table 13.

Table 13 2027 Peak Monthly Daily Traffic Data

Ref. No.	Survey Location	Cars & LGV	HGV	Total Traffic	Cars & LGV % Increase	HGV % Increase	Total Traffic % Increase
1	B7007, near site access	512	145	656	15.88%	65.10%	24.08%
2	B6458, Tynehead	650	222	872	0.00%	0.00%	0.00%
3	A7, south of Gorebridge	6,585	572	7,157	0.86%	1.44%	0.91%
4	A7, at the A7 / B7007 junction	5,084	379	5,464	1.40%	17.76%	2.39%
5	A7, southeast of Falahill	5,501	331	5,833	0.26%	0.00%	0.24%
6	A68 (T), south of Pathhead	9,387	956	10,343	0.00%	0.00%	0.00%
7	A68 (T), west of Fala Village	7,216	1,636	8,852	0.00%	0.00%	0.00%

Please note minor variances due to rounding may occur.

The total traffic movements are not predicted to increase by more than 24.1% on all of the study area.

Table 11 shows that HGV traffic movements will increase by 65.1% on the B7007, near the site access. Whilst this increase could be considered high, it is generally caused by relatively low HGV flows on this link which will see an increase of 57 daily HGV movements. This represents approximately five HGV movements per hour on the B7007 during construction activities (on a typical weekday (Mon-Fri 07:00-19:00 and Sat 07:00-13:00)), which is not considered significant in terms of overall traffic flows.

It should be noted the construction phase is transitory in nature and the peak of construction activities is short lived, occurring over a relatively short timeframe when taking account of the whole construction programme.

A review of the existing road capacity has been undertaken using the Design Manual for Roads and Bridges, Volume 15, Part 5 “The NESA Manual”. The theoretical road capacity has been estimated for each of the road links for a 12-hour period that makes up the study area. The results are summarised in Table 14.

Table 14 2027 Peak Traffic Flow Capacity Review

Ref. No.	Survey Location	2027 Baseline Flow	2027 Base + Development Flows	Theoretical Road Capacity (12hr)	Spare Road Capacity %
1	B7007, near site access	529	656	19,200	97%
2	B6458, Tynehead	872	872	19,200	95%
3	A7, south of Gorebridge	7,093	7,157	21600	67%
4	A7, at the A7 / B7007 junction	5,336	5,464	21,600	75%
5	A7, southeast of Falahill	5,818	5,833	28,800	80%
6	A68 (T), south of Pathhead	10,343	10,343	28,800	64%
7	A68 (T), west of Fala Village	8,852	8,852	21,600	59%

Please note minor variances due to rounding may occur.

The results indicate there are no road capacity issues with the addition of the construction traffic associated with the construction of the Proposed Development and ample spare capacity exists within the trunk and local road network to accommodate construction phase traffic.

8 Proposed Traffic Mitigation Measures

8.1 Construction Phase

The following measures would be implemented through a CTMP during the construction phase. The CTMP would be agreed with the relevant road authorities prior to construction works commencing:

- Where possible the detailed design process would minimise the volume of material to be imported to site to help reduce HGV numbers;
- Deliveries will be co-ordinated so that vehicles will not be idle on-site. In instances where vehicles are required to wait to carry out the deliveries, the engines of stationary vehicles will be turned off in order to reduce emissions;
- A site worker transport and travel arrangement plan, including transport modes to and from the worksite (including pick up and drop off times);
- All materials delivery lorries (dry materials) should be sheeted to reduce dust and stop spillage on public roads;
- Specific training and disciplinary measures should be established to ensure the highest standards are maintained to prevent construction vehicles from carrying mud and debris onto the carriageway;
- Wheel cleaning facilities may be established at the site entrance, depending on the views of the local road authorities;
- Normal site working hours would be limited to between 07:00 and 19:00 (Monday to Friday) and 07:00 and 13:00 (Saturday) though component delivery and turbine erection may take place outside these hours;
- Appropriate traffic management measures would be put in place on the B7007 in the vicinity of the site access junction providing access to the site to avoid conflict with general traffic, subject to the agreement of the roads authority. Typical measures would include HGV turning and crossing signs and/ or banksmen at the site access and warning signs;
- Provide construction updates on the project website and or a newsletter to be distributed to residents within an agreed distance of the site;
- Adoption of a voluntary speed limit of 20 mph for all construction vehicles along the B7007;
- All drivers would be required to attend an induction to include:
    - A tool box talk safety briefing;
    - The need for appropriate care and speed control;
    - A briefing on driver speed reduction agreements (to slow site traffic at sensitive locations through the villages); and
    - Identification of the required access routes and the controls to ensure no departure from these routes.

The local road authorities may require an agreement to cover the cost of abnormal wear and tear on B7007 between the A7 and the site access junction.

Video footage of the pre-construction phase condition of the abnormal loads access route and the construction vehicles route would be recorded to provide a baseline of the state of the road prior to any construction work commencing. This baseline would inform any change in the road condition during the construction stage of the Proposed development. Any necessary repairs would be coordinated with the Roads Authority. Any damage caused by traffic associated with the Proposed Development, during the construction period that would be hazardous to public traffic, would be repaired immediately.

Any damage to road infrastructure caused directly by construction traffic would be made good, and street furniture that is removed on a temporary basis would be fully reinstated.

There would be a regular road edge review and any debris and mud would be removed from the public carriageway to keep the road clean and safe during the initial months of construction activity, until the construction junction and immediate access track works are complete.

8.2 Abnormal Load Transport Management Measures

There are a number of traffic management measures that could help reduce the effect of abnormal load convoys. Full details of the proposals are set out in the Transport Management Plan with summary measures proposed below.

All abnormal load deliveries would be undertaken at appropriate times (to be discussed and agreed with the relevant roads authorities and police) with the aim to minimise the effect on the local road network. It is likely that the abnormal load convoys would travel in the early morning periods, before peak times while general construction traffic would generally avoid the morning and evening peak periods.

The majority of potential conflicts between construction traffic and other road users will occur with abnormal load traffic. General construction traffic is not likely to come into conflict with other road users as the vehicles are smaller and road users are generally more accustomed to them.

Potential conflicts between the AILs and other road users can occur at a variety of locations and circumstances. The main potential conflicts are likely to occur:

- on sections of the local road network, for example on the B6458, B6367 and B7007;
- at locations where there are significant changes in the horizontal alignment of the carriageway, requiring the loads to use the full carriageway width;
- where traffic turns at a road junctions, requiring other traffic to be restrained on other approach arms; and
- in locations where high speeds of general traffic are predicted.

Advance warning signs would be installed on the approaches to the affected road network. Information signage could be installed to help assist drivers and an example is illustrated in Figure 10. Flip up panels (shown in grey) would be used to mask over days where convoys would not be operating. When no convoys are moving, the sign would be bagged over by the Traffic Management contractor.

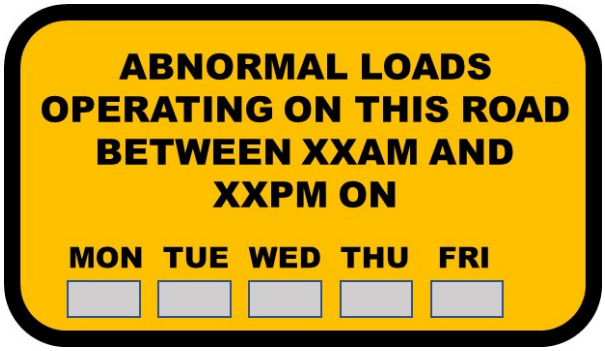

Figure 10 Example Sign Plate

This signage will assist in helping improve driver information and allow other road users to consider alternative routes or times for their journey (where such options exist).

The location and numbers of signs would be agreed post consent and would form part of the wider Traffic Management Proposal for the project.

The Abnormal Load Transport Management Plan would also include:

- Procedures for liaising with the emergency services to ensure that police, fire and ambulance vehicles are not impeded by the loads. This is normally undertaken by informing the emergency services of delivery times and dates and agreeing communication protocols and lay over areas to allow overtaking;
- A diary of proposed delivery movements to liaise with the communities to avoid key dates;
- A protocol for working with local businesses to ensure the construction traffic does not interfere with deliveries or normal business traffic; and
- Proposals to establish a construction liaison committee to ensure the smooth management of the project / public interface with the applicant, the construction contractors, the local community, and if appropriate, the

police forming the committee. This committee would form a means of communicating and updating on forthcoming activities and dealing with any potential issues arising.

8.3 Public Information

Information on the turbine convoys would be provided to local media outlets such as local papers and local radio to help assist the public.

Information would relate to expected vehicle movements from the port of entry through to the site access junction. This will assist residents becoming aware of the convoy movements and may help reduce any potential conflicts.

The applicant would also ensure information was distributed through its communication team via the project website, local newsletters and social media.

8.4 Convoy System

A police escort would be required to facilitate the delivery of the predicted AILs. The police escort would be further supplemented by a civilian pilot car to assist with the escort duty. It is proposed that an advance escort would warn oncoming vehicles ahead of the convoy, with one escort staying with the convoy at all times. The escorts and convoy would remain in radio contact at all times where possible.

The abnormal loads convoys would be no more than three AILs long, or as advised by the police, to permit safe transit along the delivery route and to allow limited overtaking opportunities for following traffic where it is safe to do so.

The times in which the convoys would travel will need to be agreed with Police Scotland who have sole discretion on when loads can be moved.

8.5 Onsite Measures delivered using a Path Management Plan (PMP)

Within the site, consideration has been given to pedestrians and cyclists alike due to potential interactions between construction traffic and users of the paths and public roads. If required, a Path Planning Study will be conducted post consent and will be secured through a planning condition. Findings from the study will be used to formulate a set of measures into a Path Management Plan (PMP).

Users of the Rights of Way will be separated from construction traffic through the use of barriers. Crossing points will be provided where required, with path users having right of way. Appropriate Traffic Signs Manual Chapter 8[15] compliant temporary road signage would be provided to assist at these crossing for the benefit of all users.

The principal contractor will ensure that speed limits are always adhered to by their drivers and associated subcontractors. This is particularly important within close proximity to the Core Paths, Rights of Way and at crossing points. Advisory speed limit signage will also be installed on approaches to areas where path users may interact with construction traffic.

Signage will be installed on the site exits that makes drivers aware of local speed limits and reminding drivers of the potential presence of pedestrians and cyclists in the area. This will also be emphasised in the weekly toolbox talks.

With regards to the possible interaction with horses on and in the vicinity of the Proposed Development, a scoping response has been received from The British Horse Society. Consideration will therefore be given to the implementation of measures to mitigate any potential issues between construction traffic and horse riders. Horses are normally nervous of large vehicles, particularly when they do not often meet them. Horses are flight animals and will run away in panic if really frightened. Riders will do all they can to prevent this but, should it happen, it could cause a serious accident for other road users, as well as for the horse and rider.

[15] Department for Transport/Highways Agency, Department for Regional Development (Northern Ireland), Transport Scotland & Welsh Assembly Government (2009): Traffic Signs Manual, Chapter 8 – Traffic Safety Measures and Signs for Road Works and Temporary Situations

The main factors causing fear in horses in this situation are:

- Something approaching them, which is unfamiliar and intimidating;
- A large moving object, especially if it is noisy;
- Lack of space between the horse and the vehicle;
- The sound of air brakes; and
- Anxiety on the part of the rider.

The British Horse Society has previously recommended the following actions that will be included in the site training for all HGV staff:

- On seeing riders approaching, drivers must slow down and stop, minimising the sound of air brakes, if possible;
- If the horse still shows signs of nervousness while approaching the vehicle, the engine should be shut down (if it is safe to do so);
- The vehicle should not move off until the riders are well clear of the back of the HGV;
- If drivers are wishing to overtake riders, please approach slowly or even stop in order to give riders time to find a gateway or lay by where they can take refuge and create sufficient space between the horse and the vehicle. Because of the position of their eyes, horses are very aware of things coming up behind them; and
- All drivers delivering to the site must be patient. Riders will be doing their best to reassure their horses while often feeling a high degree of anxiety themselves.

8.6 A Staff Travel Plan

A Staff Travel Plan will be deployed where necessary, to manage the arrival and departure profile of staff and to encourage sustainable modes of transport, especially car-sharing. A package of measures could include:

- Appointment of a Travel Plan Coordinator (TPC);
- Provision of public transport information;
- Mini-bus service for transport of site staff;
- Promotion of a car sharing scheme; and
- Car parking management.

8.7 Operational Phase Mitigation

Site entrance roads will be well maintained and monitored during the operational life of the development. Regular maintenance will be undertaken to keep the site access track drainage systems fully operation and to ensure there are no run-off issues onto the public road network.

9 Summary and Conclusions

Pell Frischmann Ltd. has been commissioned by Renewable Energy Systems Ltd. to undertake a Transport Assessment for the proposed Torfichen Wind Farm, which is located within the Midlothian Council administrative area.

Existing traffic data established a base point for determining the impact during the construction phase and was factored to future levels to help determine the effect of construction traffic on the local road network.

The construction traffic would result in a temporary increase in traffic flows on the road network surrounding the Proposed Development. The maximum traffic effect associated with construction of the Proposed Development is predicted to occur in Month 9 of the construction programme. During this month, an average of 57 HGV movements is predicted per day and it is estimated that there would be a further 70 car and light van movements per day to transport construction workers to and from the site.

A series of mitigation measures and management plans have been proposed to help mitigate and offset the impacts of both the construction and operational phase traffic flows. It is considered that these can be secured by condition with Midlothian Council.

No link capacity issues are expected on any of the roads assessed due to the additional movements associated with the Proposed Development. The effects of construction traffic are temporary in nature and are transitory.

Annex A Abnormal Indivisible Load Route Survey Report

Pell Frischmann

Torfichen Wind Farm

Abnormal Indivisible Load Route Survey

September 2023

107827

Report Ref.		**230904 Torfichen RSR V150.Docx**				
File Path		**https://pellf.sharepoint.com/sites/EdinburghOfficeTeam/Shared Documents/General/Projects/107827 RES Torfichen/01 - WIP/Reports/230904 Torfichen RSR V150.docx**				
Rev	**Suit**	**Description**	**Date**	**Originator**	**Checker**	**Approver**
01		Draft	04-09-2023	A Dimitrov	T Lockett	G Buchan

Ref. reference. Rev revision. Suit suitability.

Prepared for

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Contents

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Appendices

1 Introduction

1.1 Purpose of the Report

Pell Frischmann (PF) has been commissioned by RES to undertake a route access review of potential delivery routes for wind turbine Abnormal Indivisible Loads (AIL) associated with a potential development site at Torfichen, located to the southwest of North Middleton, Midlothian.

This Route Survey Report (RSR) has been prepared to help inform RES on the likely issues associated with the development of the site with regards to off-site transport and access for AIL traffic. The report 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 RES at this point in time.

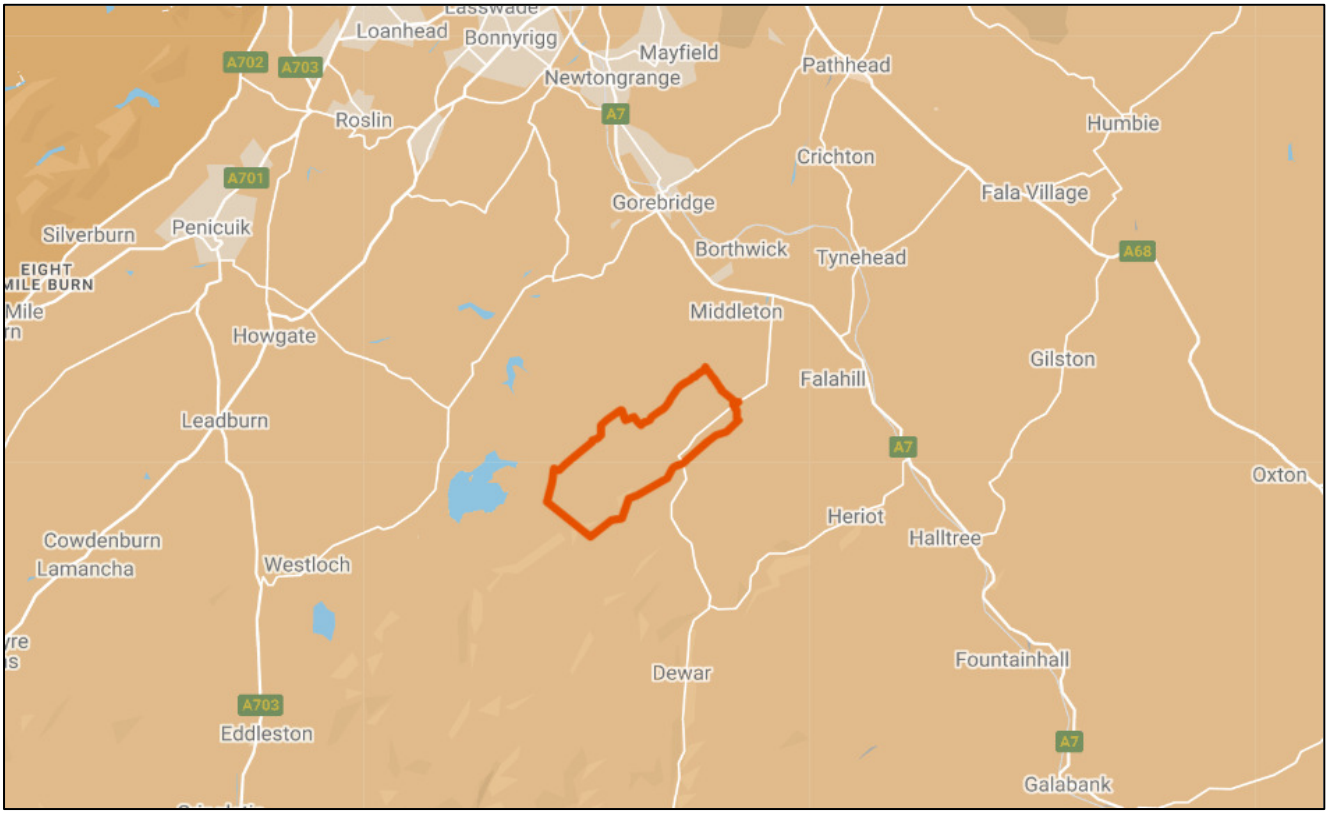
It is the responsibility of the wind turbine supplier to ensure that the entirety of the proposed access route is suitable and meets with their satisfaction. The turbine supplier will be responsible for ensuring that the finalised proposals meet with the appropriate levels of health and safety consideration for all road users has been made 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 southwest of North Middleton, Midlothian. Figure 2-1 illustrates the general site location.

Figure 2-1: Site Location Plan



2.2 Candidate Turbine

RES have indicated that they wish to consider the worst-case components from a Vestas V150 turbine with the proposed tip height of 180m.

The details of the components have been provided by Vestas and are detailed in Table 2-1.

Table 2-1: Turbine Components Summary

Component	Length (m)	Width (m)	Height / Min Diameter (m)	Weight (t)
Blade	73.650	4.238	4.068	18.600
Base Tower	17.500	4.150	4.450	55.000
Mid Tower 1	25.000	4.150	4.150	65.000
Mid Tower 2	30.000	4.150	4.150	75.000
Top Tower	30.000	4.000	4.150	80.000

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 trailer to reduce the need for mitigation in constrained sections of the route.

Towers would be carried in a 4+7 clamp adaptor style trailer, whereas loads such as the hub, nacelle housing, and top towers would be carried on a six axle step frame trailer.

Figure 2: Superwing Carrier Trailer

Figure 3: Tower Trailer

3 Access Route Review

3.1 Port of Entry

The proposed Port of Entry (POE) is Rosyth, Fife. The port is the closest port to site and as such is in line with the Government's "Water Preferred" policy towards AIL movements. The port has sufficient quay and storage space and is well located for the strategic trunk road network.

3.2 Proposed Access Route

The proposed access route from Rosyth Port to site is as follows:

- Loads would exit the port onto Keith Road and would then proceed eastbound;
- Loads would then merge onto the B981 before turning right onto the M90 southbound;
- Loads would continue southbound on the M90 until the Interchange with the M9 and M9 Junction 1a;
- Loads would merge onto the M8 at Newbridge and would proceed towards Edinburgh until Hermiston Gait, where they would turn right and would join the A720 Edinburgh City Bypass;
- Loads would continue eastbound on the length of the A720 before exiting at the Millerhill Interchange;
- Loads would proceed southbound on the A68 through Pathhead;
- Past Pathhead loads would turn right onto the B6458 heading southwest towards Tynehead;
- Upon reaching Tynehead loads would continue southwest on the B6367;
- At the end of the B6367 loads would turn right joining the A7 towards North Middleton;
- Loads will exit the A7 turning left onto the B7007 and follow the road until reaching the proposed site access junction.

The proposed access route is illustrated in Figure 3-1.

Figure 3-1: Proposed Access Route

3.3 Route Constraints

The constraints noted on the route are provided in the table below. These cover all constraints from port exit through to the proposed site access junction. No consideration of the transport issues within the port or within the development site have been undertaken and this includes the design of the site access junction.

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

Table 3-1: Constraint Points and Details

POI	Key Constraint	Details
1	**Port of Rosyth Gate**  	Loads will exit the port and proceed eastbound on St Margaret Way. A swept path assessment has been undertaken and indicates that loads will overrun and oversail the left-hand verge on entry. During the site visit an existing overrun surface was identified which should be utilised and extended if necessary. All street furniture and obstacles should be removed. Loads will overrun and oversail the central island where a load bearing surface should be laid. One lit set of chevron signs should be removed. Loads will oversail the central reservation of the exit arm, where two bollards should be removed. They will then oversail the northern verge on exit. Swept path assessment SK01 is included in Appendix B.
2	**St Margaret Way Roundabout** 	Loads will take the first exit at the roundabout to continue on St Margaret Way. Loads will overrun and oversail the central island where the existing load bearing surface should be utilised. Loads will oversail the exit splitter island where one road sign should be removed. Loads will oversail both verges of the exit arm. One lighting column should be removed from the northern verge. Swept path assessment SK02 is included in Appendix B.

POI	Key Constraint	Details
3	**Dunsyre House Roundabout**  	Loads will take the second exit at the roundabout to continue on St Margaret Way before joining the B981. When approaching the roundabout loads will oversail the southern verge of the bend where trees and vegetation should be cleared. Loads will oversail the barrier. **Third party land** is required. Loads will oversail the entry arm splitter island where one road sign and one bollard should be removed. Vehicles will overrun and oversail the roundabout island where the existing load bearing surface should be extended and utilised. One set of chevron signs should be removed and vegetation should be trimmed. The blade will oversail the exit splitter island where one road sign should be removed and one bollard will be oversailed. Loads will oversail the northern verge where one road sign should be removed and one junction box will be oversailed. Swept path assessment SK03 is included in Appendix B.
4	**B981 Ferrytoll Gyratory**  	Loads will take the third exit at the roundabout to join the M90 southbound. The blade tip will oversail the northern verge of the entry arm where one lighting column should be removed. The blade tip will oversail the central reservation of the entry arm where one traffic signal should be removed and one bollard will be oversailed. Loads will oversail the northern western verge of the roundabout island. The blade tip will oversail the northern verge of the roundabout where one traffic signal, one road sign, one pedestrian crossing signal and a section of guardrail should be removed. Additionally, loads will oversail the central reservation of the southbound off-slip where one traffic signal should be removed. Loads will also oversail the north eastern edge of the roundabout island. Swept path assessment SK04 is included in Appendix B.
5	**M90 Queensferry Crossing Bridge** 	Loads will join the M90 and travel south on the Queensferry Crossing. The loads will require to be escorted across the crossing.

POI	Key Constraint	Details
6	**M90/M9 Slip Road** 	Loads will exit the M90 at Kirkliston. Loads will straddle both lanes at this location. Vehicle escorts must ensure that trailing traffic does not attempt to merge into the convoy.
7	**M9 Merge** 	Loads will join the M9 southbound. Loads will straddle both lanes at this location. Vehicle escorts must ensure that loads can merge safely, and that trailing traffic does not attempt to merge into the convoy.
8	**M9 Junction 2** 	Loads will exit the M9 at Junction 2. Vehicle escorts must ensure that trailing traffic does not attempt to merge into the convoy.
9	**M8 Merge** 	Loads will join the M8 eastbound. Vehicle escorts must ensure that loads can merge safely and that trailing traffic does not attempt to merge into the convoy.

POI	Key Constraint	Details
10	**M8 Hermiston Gait Roundabout**  	Loads will take the third exit at the roundabout and join the A720 eastbound. Vehicle escorts must ensure that loads can merge safely and that trailing traffic does not attempt to merge into the convoy. A swept path assessment has been undertaken and indicates that loads are able to negotiate the roundabout within the road edge. Loads will require the full road width when negotiating the roundabout. Swept path assessment SK05 is included in Appendix B.
11	**A720 Sheriffhall Roundabout** 	Loads will take the third exit at the roundabout to continue on the A720. Vehicle escorts must ensure that loads can merge safely, and that trailing traffic does not attempt to merge into the convoy. A swept path assessment has been undertaken and indicates that loads will oversail the northern verge of the roundabout island, where three traffic signals and one set of chevron signs should be removed. Loads will oversail the northern verge of the exit arm where one road sign should be removed. Swept path assessment SK06 is included in Appendix B.
12, 13	**A720 Millerhill Junction**  	It is proposed that loads will cross the dual carriageway's central reservation before exiting the A720 at Millerhill through the westbound on-slip, undertaking a contraflow manoeuvre. Discussions will be required with the road authority to develop a management plan for the movements. Traffic movements on the A720 and onslip will need to be held during movements. A swept path assessment has been undertaken and indicates that loads will overrun and oversail the central reservation of the carriageway where a load bearing surface should be laid and a section of safety barrier should be removed. Loads will oversail the right-hand verge of the entry arm where one road sign and one lighting column should be removed. The blade tip will oversail the roundabout island and the right-hand verge of the exit arm where two road signs and one lighting column should be removed. Loads should be raised to oversail the embankment. Swept path assessment SK07 is included in Appendix B.

POI	Key Constraint	Details
14	**A68 Bridge to Pathhead** 	Loads will continue southeast on the A68 into Pathhead. Trees should be trimmed at this location and throughout the route to ensure that there is a 5m clear head height. Trimming works can be subject to ecological and time constraints and early engagement with the local road authority is recommended.
15	**A68 Pathhead Main Street** 	Loads will travel southeast through Pathhead. Loads will oversail the northern verge at various locations. Parking should be suspended along the full length of the road going through Pathhead to accommodate the oversail. The vehicles will oversail two bollards on a central island through a right bend. Swept path assessment SK08 is included in Appendix B.
16	**A68 Pathhead** 	Loads will continue southeast through Pathhead. The blade tip will oversail the eastern verge on approach to the left bend. Loads will overrun a central island where a load bearing surface should be laid and one lighting column and two bollards should be removed. Loads will oversail the eastern verge through the bend where trees and vegetation should be trimmed. Swept path assessment SK09 is included in Appendix B.
17	**A68/B6458 Junction**  	Loads will turn right at the junction heading southwest. Loads will overrun and oversail the right-hand verge where a load bearing surface should be constructed. Two utility poles, two road signs and a section of fence should be removed. Trees and vegetation should be cleared. **Third party land** is required. The blade tip will oversail the northern verge of the A68 during the manoeuvre. Swept path assessment SK10 is included in Appendix B.

POI	Key Constraint	Details
18	**B6458 North of Tynehead** 	Loads will continue southwest on the B6458 towards Tynehead through a bend. Loads will oversail both verges through the bend. Trees and vegetation on the northern verge should be trimmed. Swept path assessment SK11 is included in Appendix B.
19	**B6458 Tynehead**  	Loads will proceed southwest through two bends. On approach to the first bend loads will oversail the southern verge. It is recommended that the swept path analysis is repeated on a topographical base survey to confirm the clearances to nearby structures. Loads will oversail both verges through the right bend when crossing the rail bridge. On the northern verge, one utility pole, one sign post and one fence post should be removed. The blade tip will oversail the northern bridge parapet. Trees and vegetation should be cleared and **third party land** is required. On the southern verge, a section of wall / parapet, fence and gate should be removed. Trees and vegetation should be cleared and **third party land** is required. Loads will oversail both verges through the right bend. On the western verge, one utility pole should be removed. Loads should be raised to oversail a section of wall and fence. Vegetation should be cleared. **Third party land** is required. Swept path assessment SK12 is included in Appendix B.
20	**B6367 South of Tynehead** 	Loads will exit Tynehead onto the B6367 and continue south through a bend. Loads will oversail both verges through the bend where vegetation should be trimmed. Swept path assessment SK13 is included in Appendix B.
21	**B6367 West of Cowbraehill** 	Loads will continue southwest through the right bend. The blade tip will oversail one bollard on the eastern verge on approach to the bend. Loads will overrun and oversail the western verge through the right bend. A load bearing surface should be laid. Two utility poles and a section of fence should be removed. Vegetation should be cleared. Third party land is required. Swept path assessment SK14 is included in Appendix B.

POI	Key Constraint	Details
22	**B6367/A7 Junction** 	Loads will turn right at the junction utilising a new track. Loads will overrun and oversail the northern verge where a load bearing surface should be laid. Two utility poles, two junction boxes, a section of fence and wall should be removed. Vegetation should be cleared. Third party land is required. Swept path assessment SK15 is included in Appendix B.
23	**A7/B7007 Junction**  	Loads will turn left at the junction utilising a new track. Loads will overrun and oversail the southern verge at the junction. A load bearing surface should be laid. The land will need to be reprofiled. One utility pole should be removed. Trees and vegetation should be cleared. Third party land is required. The blade tip will oversail the northern verge of the A7 where trees and vegetation should be trimmed. Swept path assessment SK16 is included in Appendix B.
24	**B7007 South of Middleton** 	Loads will proceed southwest through the bend. Loads will oversail both verges into **third party land**. On the eastern verge, one utility pole and a section of fence should be removed and vegetation should be cleared. On the western verge a section of fence should be removed. Swept path assessment SK17 is included in Appendix B.
25	**B7007 North of Ruther Law** 	Loads will continue southwest on the B7007. Loads will oversail both verges. On the southern verge one bollard will be oversailed and trees and vegetation should be trimmed. Swept path assessment SK18 is included in Appendix B.

POI	Key Constraint	Details
26	**Proposed Site Access Junction** 	Loads would exit the B7007 arriving to site via a new track and junction. The junction should be constructed to meet turbine manufacturer and road authority standards. Detailed design is required. **Third party land** is required. Loads will oversail the southern verge of the B7007 when turning into the junction. A section of fence should be removed and vegetation should be cleared. **Third party land** is required. Swept path assessment SK19 is included in Appendix B.

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 oversail tracked path of the load where it encroaches outwith the trailer (load swept path).

Where mitigation works are required, the extents of overrun and oversail areas are illustrated on the swept path drawings.

Please note that where assessments have been undertaken using Ordnance Survey (OS) base mapping or available CAD based aerial mapping, there can be errors in the 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, available aerial mapping or client supplied data.

3.5 Access Junction Considerations

The access junction into the site would need to be built to accommodate the proposed physical size of loads and the number of trips predicted during the construction phase.

The design and form of the junction would need to be discussed with the local road authority. The design of the junctions should take into account the requirement for provision of visibility splays which should be confirmed with the road authority.

The junctions would need to be built in accordance with the turbine supplier design criteria.

3.6 Summary Issues

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

- 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

Pell Frischmann has been commissioned by RES to prepare a Route Survey Report to examine the issues associated with the transport of AIL turbine components to the Torfichen Wind Farm development area.

This report identifies the key points and issues associated with the proposed route and outlines the issues that will need to be considered for successful delivery of components.

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

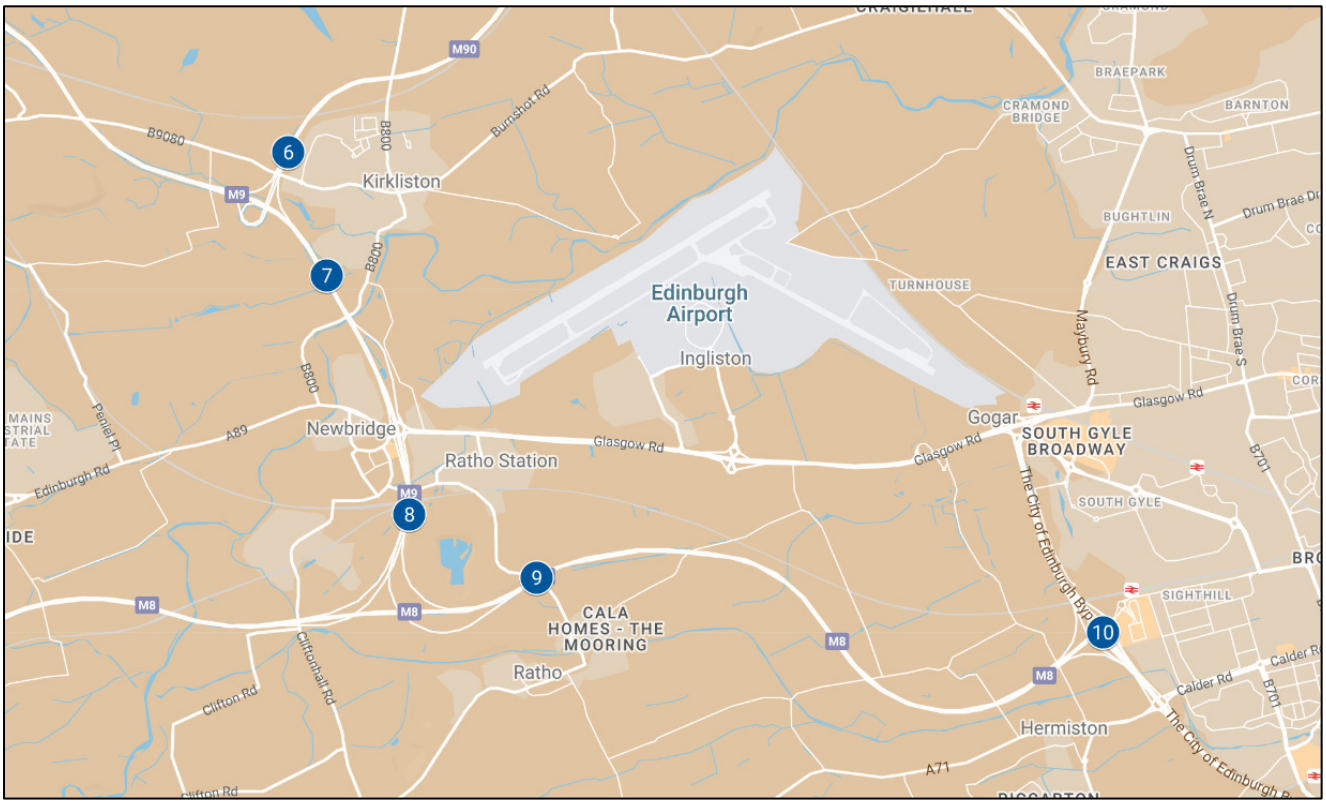
4.2 Further Actions

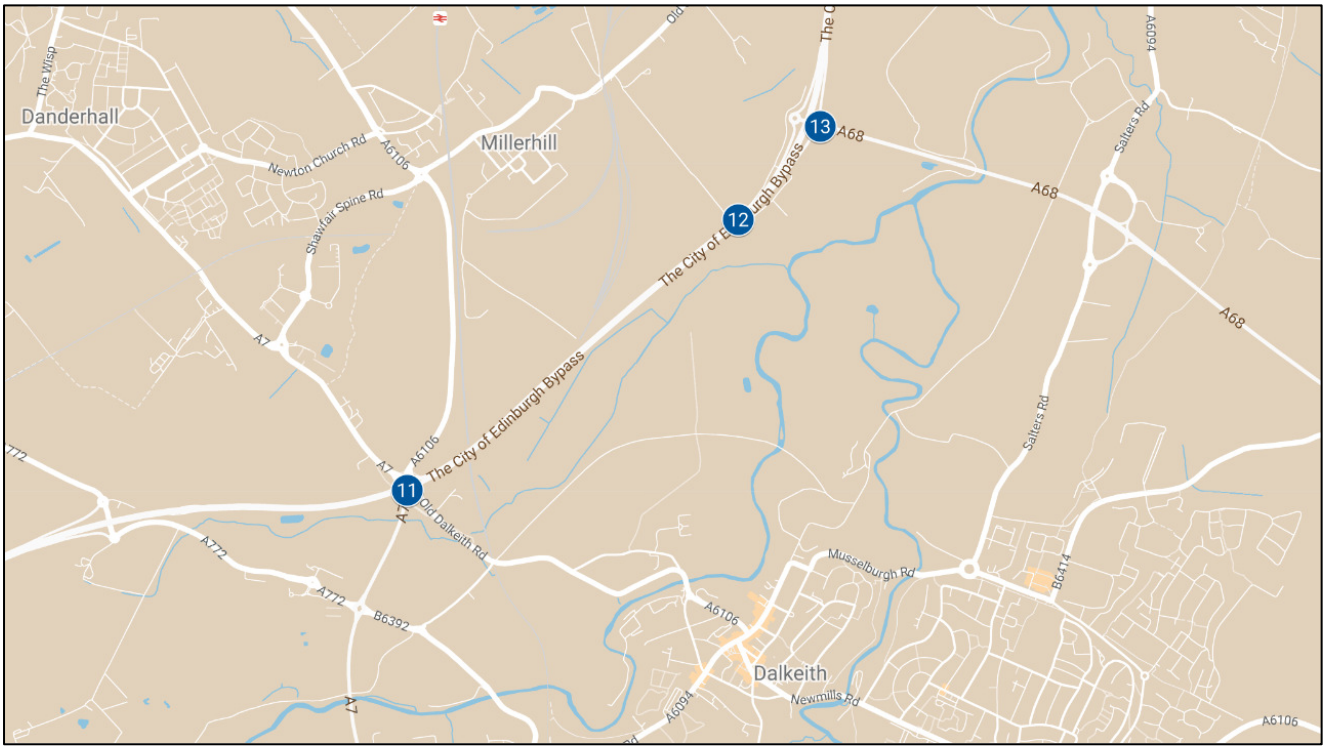
The following actions are recommended to pursue the transport and access issues further:

- 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/edit?mid=1bblpnXOJfnDFJ5Hxua1plOmGBGH2fmc&usp=sharing

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The City of Edinburgh Bypass
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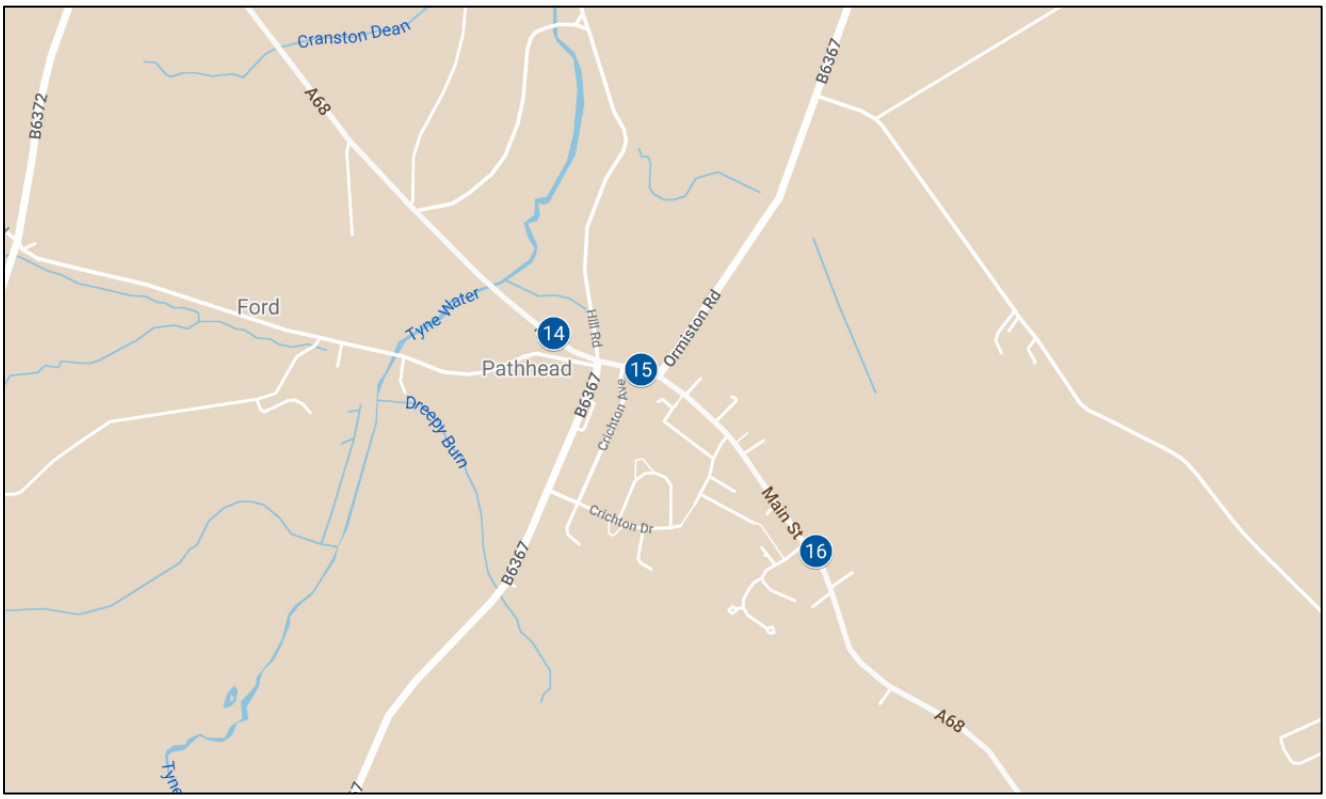
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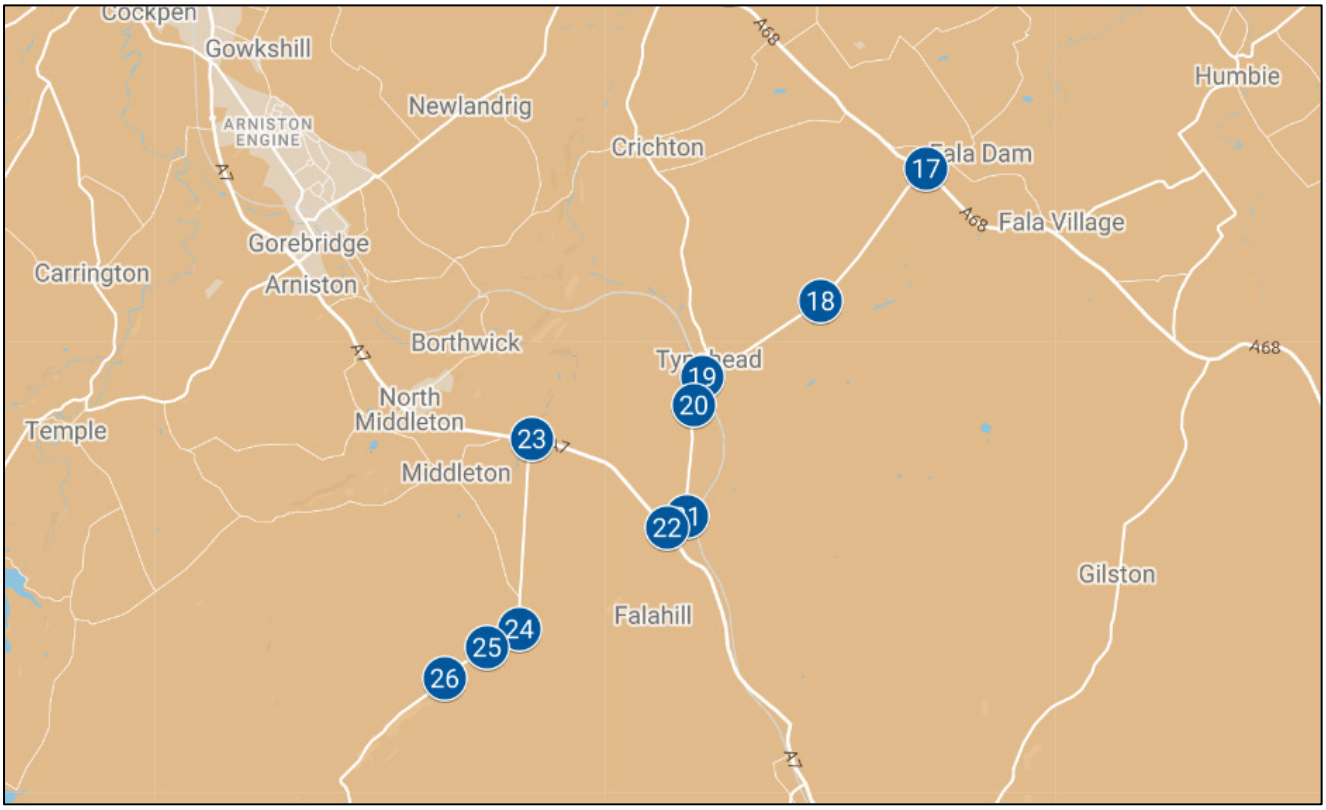
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North Middleton
Middleton
Temple
Gilston
Falahill
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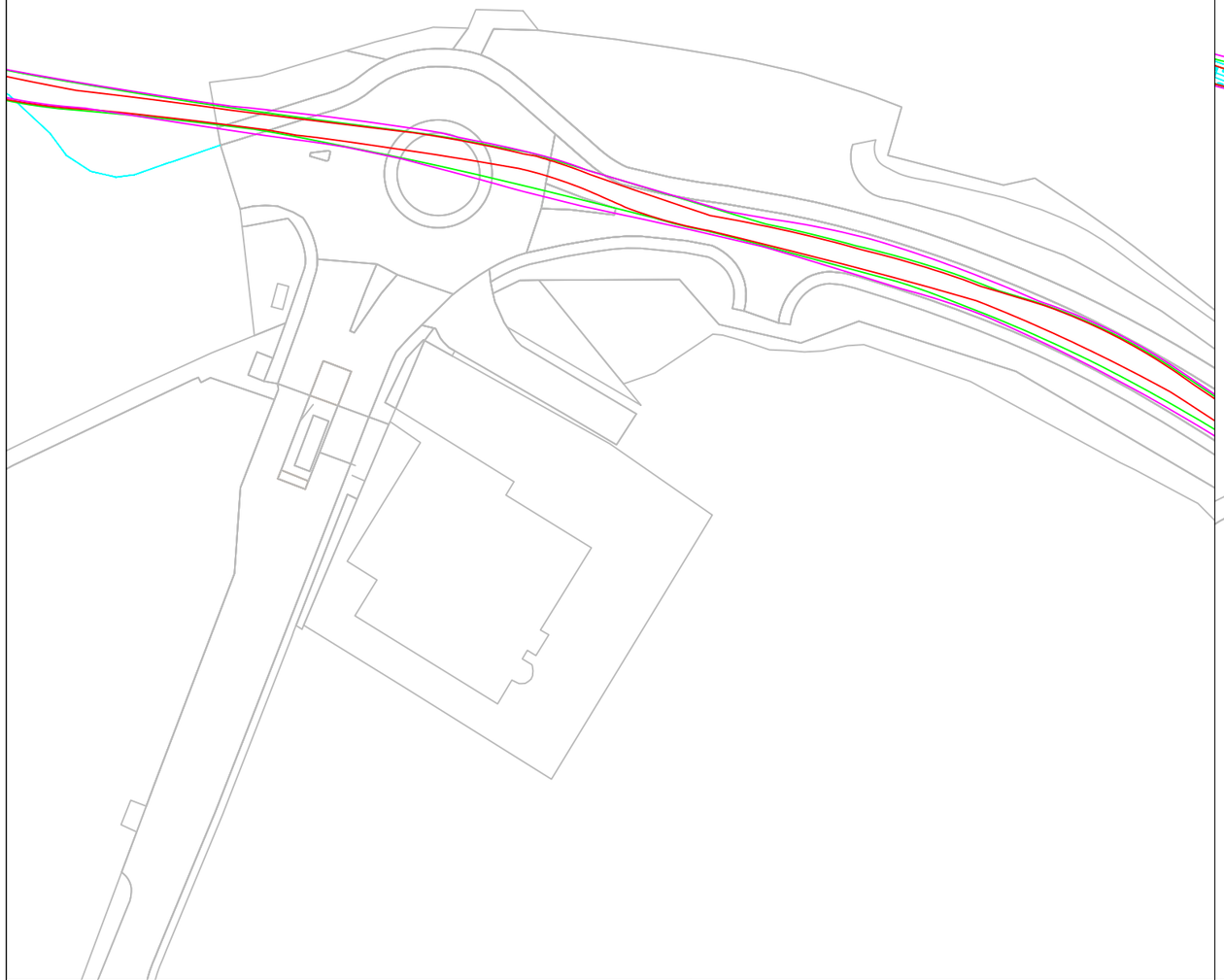
Appendix B Swept Path Assessments

Blade



Tower

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Client: RES Limited

Project: Torfichen Wind Farm

Drawing Title: Vestas V150 Blade and Tower

SPA Location: Port of Rosyth Gate

Key	Wheel SPA	Body SPA	Load SPA	Indicative	Overrun	Over-sail

	Name	Date
Drawn	AD	07/09/2023
Designed	TL	07/09/2023
Checked	TL	07/09/2023
Point of Interest		1

Scale: 1:1000 @ A3

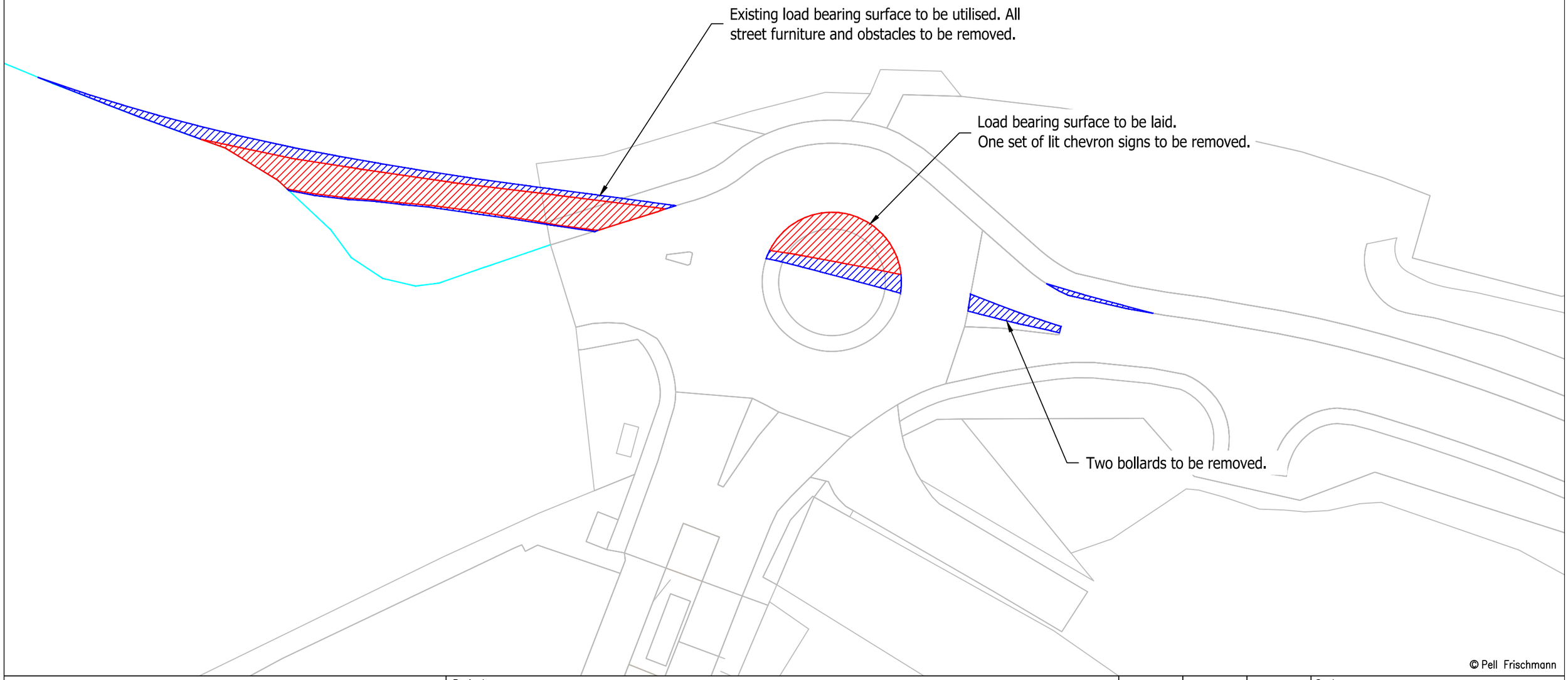
File No.: 230829 Torfichen SPA V150.dwg

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.
3. Indicative road edges have been provided for illustration only and should be confirmed through a test run or topographical survey.

Revision: 1



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Client: RES Limited

Key

Wheel SPA	Body SPA	Load SPA	Indicative	Overrun	Over–sail

Project: Torfichen Wind Farm

Drawing Title: Vestas V150 Blade and Tower

SPA Location: Port of Rosyth Gate

	Name	Date
Drawn	AD	07/09/2023
Designed	TL	07/09/2023
Checked	TL	07/09/2023
Point of Interest		1

Scale: 1:500 @ A3

File No.: 230829 Torfichen SPA V150.dwg

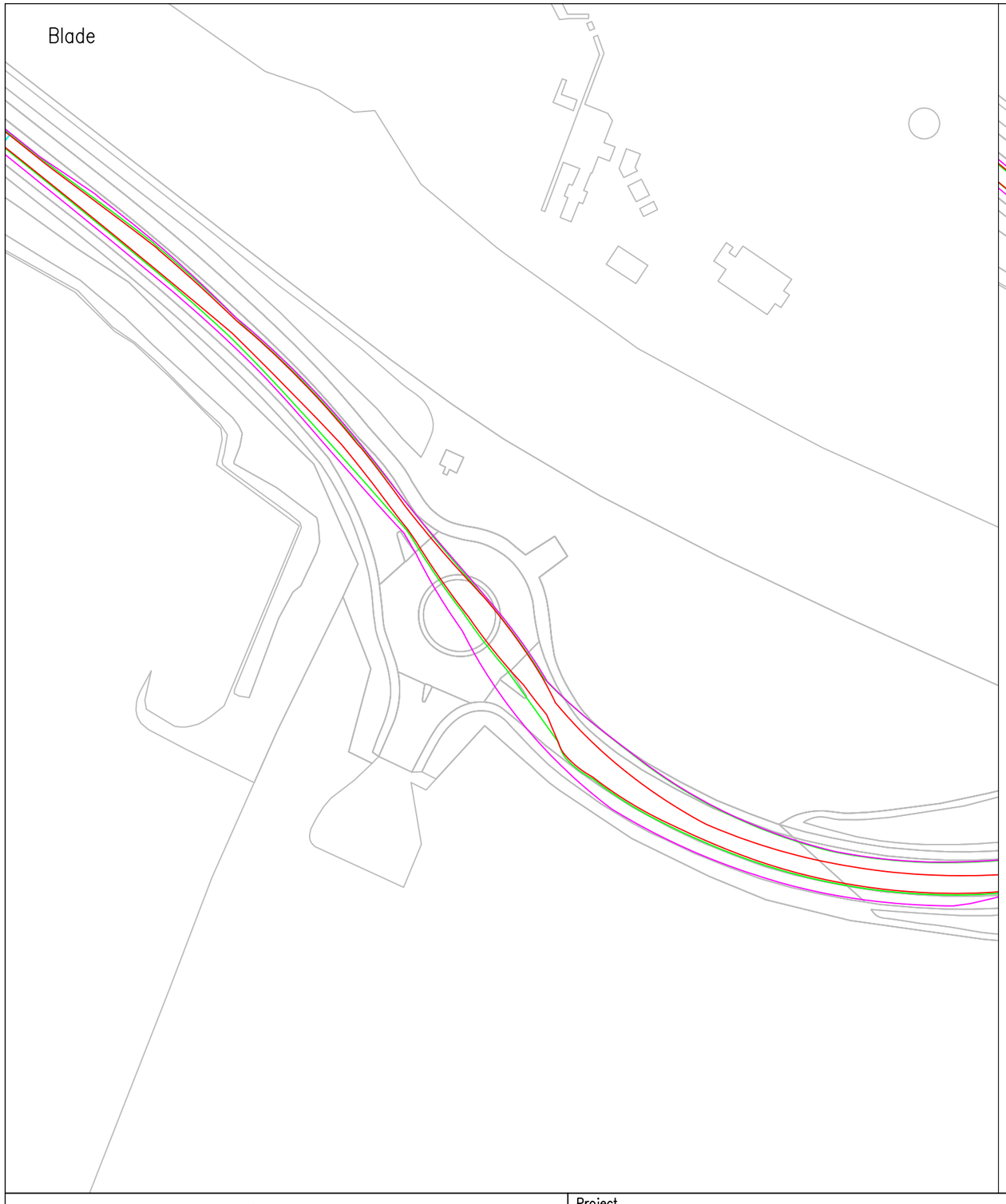
Drawing Status: Draft

Drawing No.: SK01A

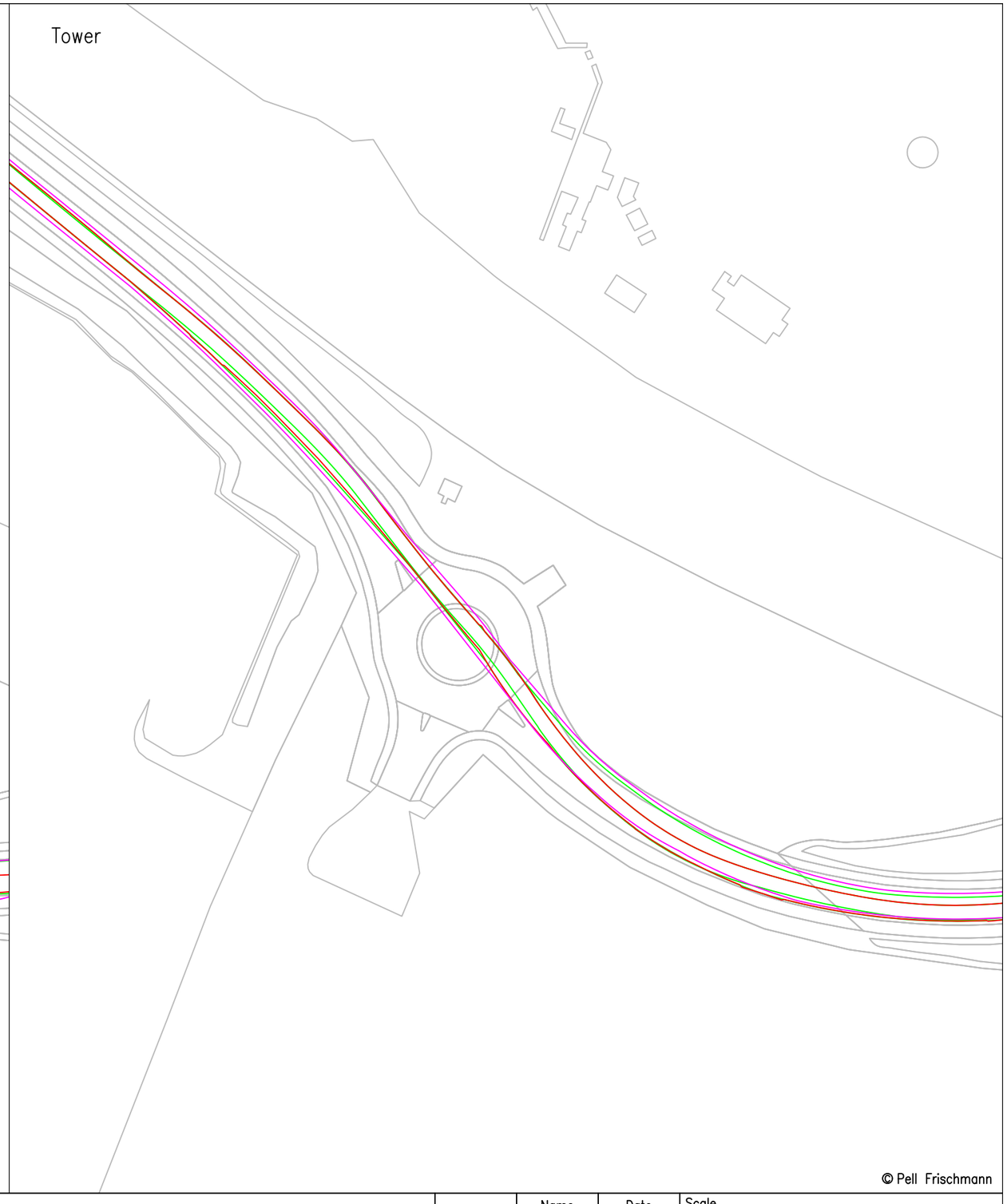
Notes:
1. All mitigation is subject to confirmation through a test run.
2. This is not a construction drawing and is intended for illustration purposes only.
3. Indicative road edges have been provided for illustration only and should be confirmed through a test run or topographical survey.

Revision: 1

Blade



Tower



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Client: RES Limited

Project: Torfichen Wind Farm

Drawing Title: Vestas V150 Blade and Tower

SPA Location: St Margaret Way Roundabout

Key	Wheel SPA	Body SPA	Load SPA	Indicative	Overrun	Over-sail

	Name	Date
Drawn	AD	07/09/2023
Designed	TL	07/09/2023
Checked	TL	07/09/2023
Point of Interest		2

Scale: 1:1000 @ A3

File No.: 230829 Torfichen SPA V150.dwg

Drawing Status: Draft

Drawing No.: SK02

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

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Client: RES Limited

Key

Wheel SPA	Body SPA	Load SPA	Indicative	Overrun	Over-sail

Project: Torfichen Wind Farm

Drawing Title: Vestas V150 Blade and Tower

SPA Location: St Margaret Way Roundabout

	Name	Date
Drawn	AD	07/09/2023
Designed	TL	07/09/2023
Checked	TL	07/09/2023
Point of Interest		2

Scale: 1:500 @ A3

File No.: 230829 Torfichen SPA V150.dwg

Drawing Status: Draft

Drawing No.: SK02A

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.
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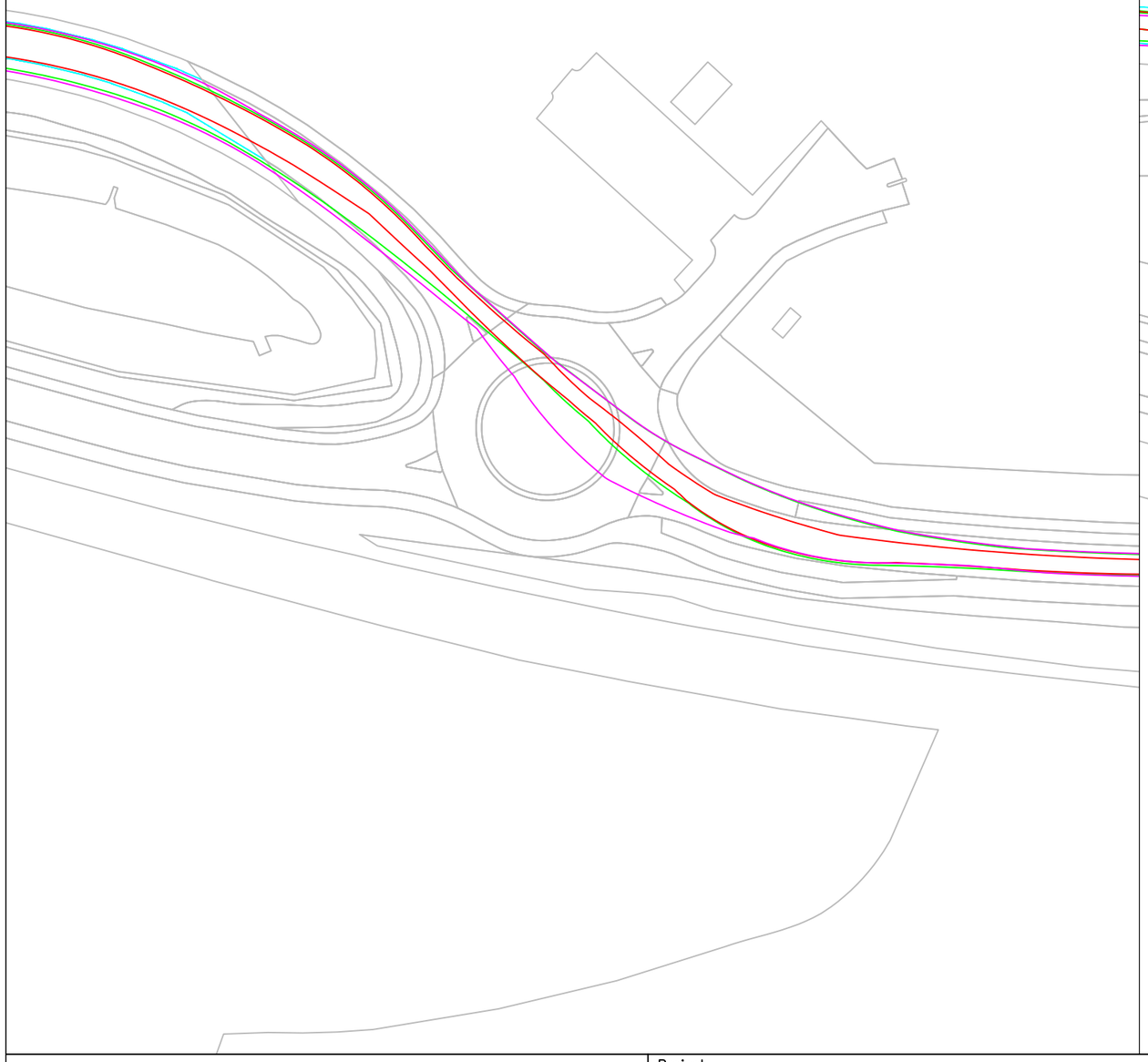
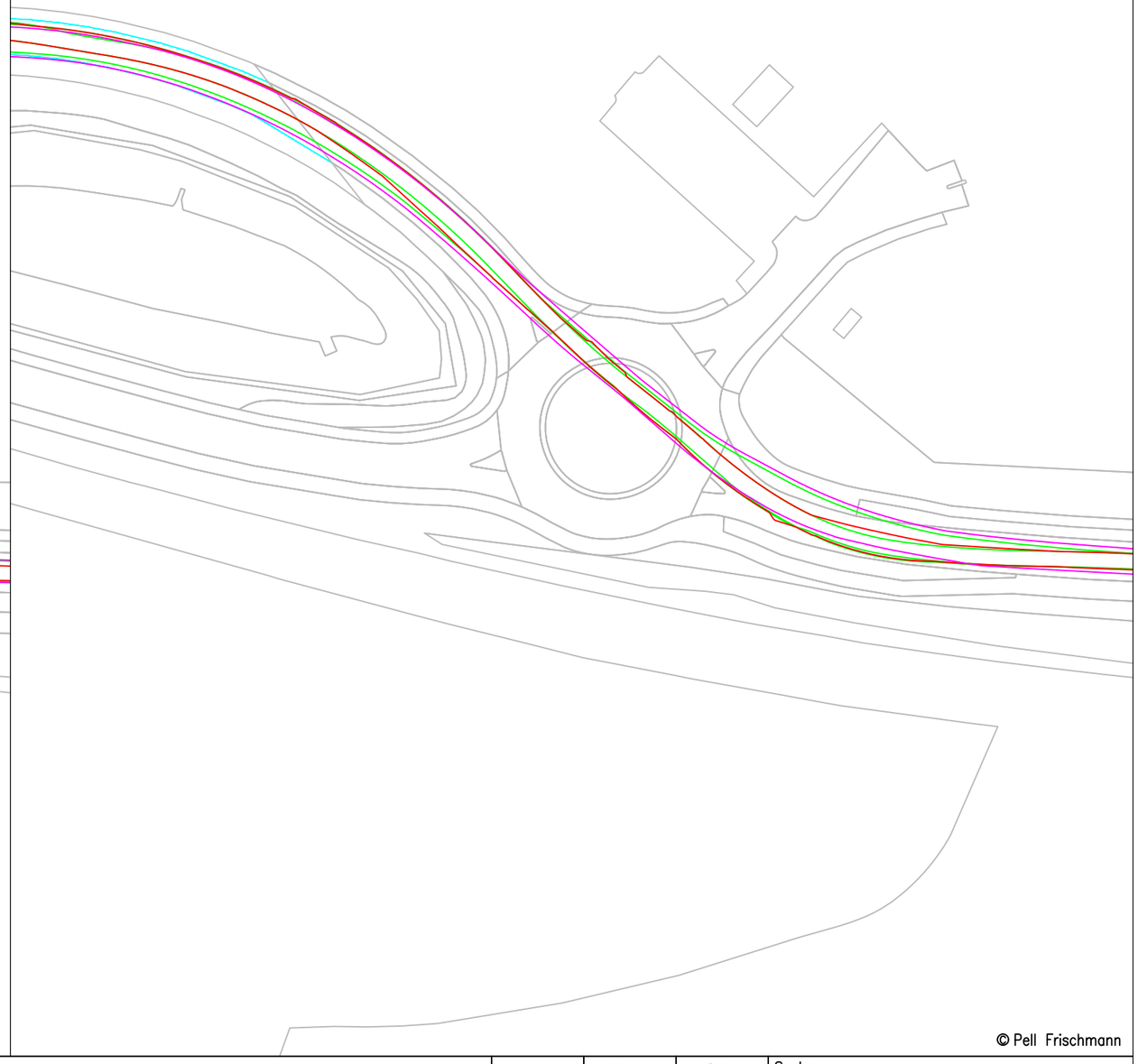
Revision: 1

Blade



Tower



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Client: RES Limited

Key	Wheel SPA	Body SPA	Load SPA	Indicative	Overrun	Over-sail

Project: Torfichen Wind Farm

Drawing Title: Vestas V150 Blade and Tower

SPA Location: Dunsyre House Roundabout

	Name	Date
Drawn	AD	07/09/2023
Designed	TL	07/09/2023
Checked	TL	07/09/2023
Point of Interest		3

Scale: 1:1000 @ A3

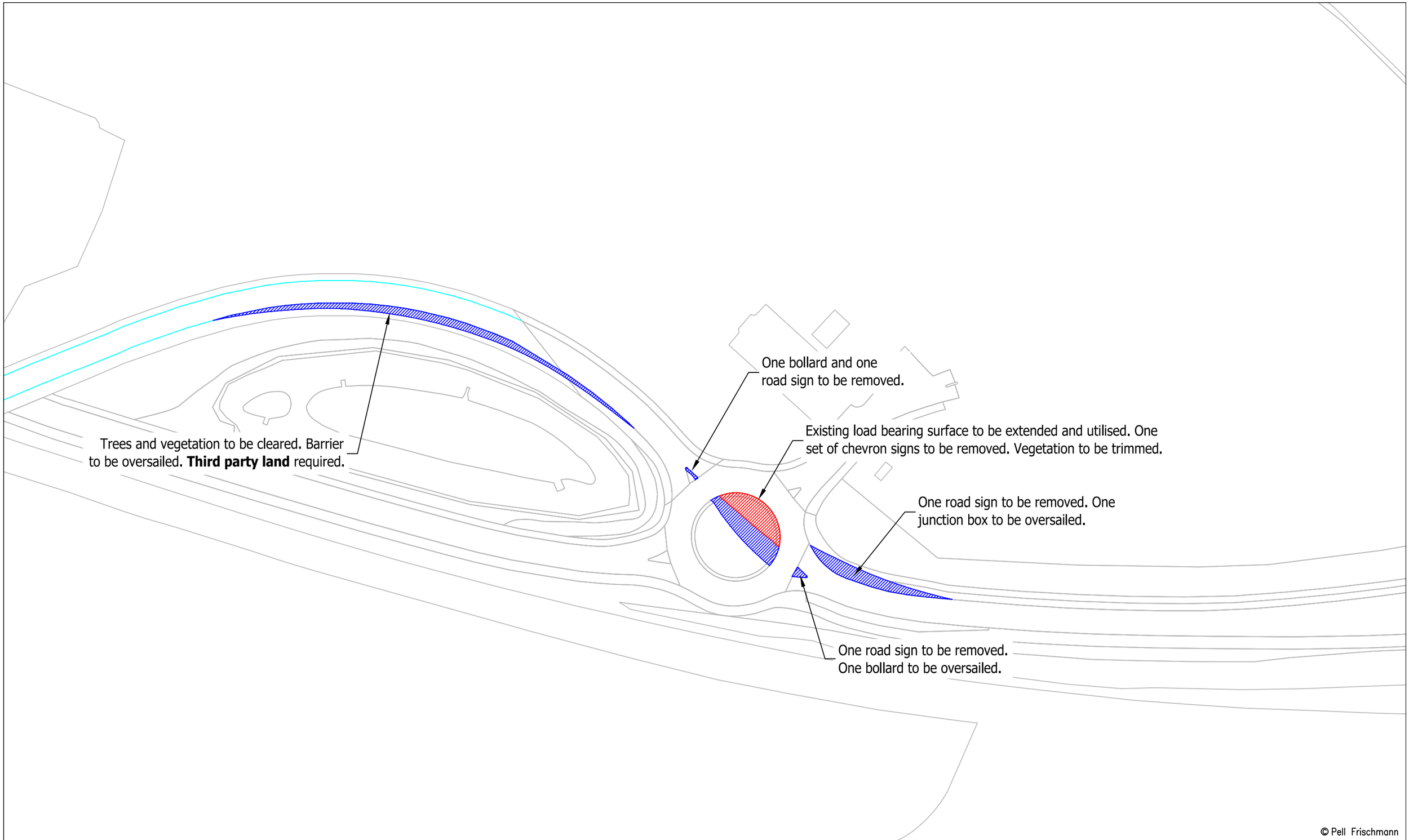
File No. 230829 Torfichen SPA V150.dwg

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.
3. Indicative road edges have been provided for illustration only and should be confirmed through a test run or topographical survey.

Revision: 1



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Client: RES Limited

Key

Wheel SPA	Body SPA	Load SPA	Indicative	Overrun	Over-sail

Project: Torfichen Wind Farm

Drawing Title: Vestas V150 Blade and Tower

SPA Location: Dunsyre House Roundabout

	Name	Date
Drawn	AD	07/09/2023
Designed	TL	07/09/2023
Checked	TL	07/09/2023
Point of Interest		3

Scale: 1:1000 @ A3

File No.: 230829 Torfichen SPA V150.dwg

Drawing Status: Draft

Drawing No.: SK03A

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.
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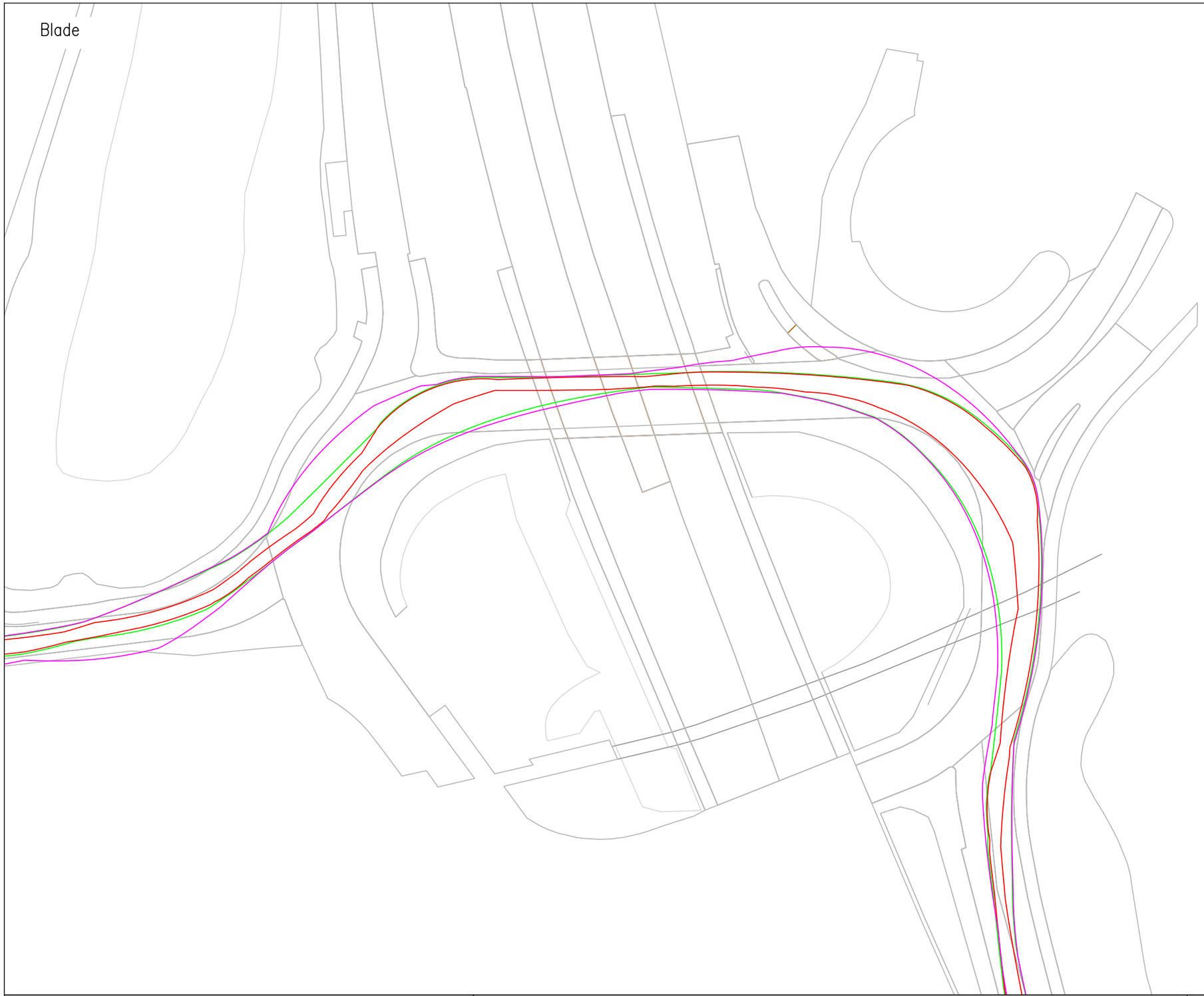
Revision: 1

Blade



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Client: RES Limited

Key

Wheel SPA	Body SPA	Load SPA	Indicative	Overrun	Over-sail

Project: Torfichen Wind Farm

Drawing Title: Vestas V150 Blade and Tower

SPA Location: B981 Ferrytoll Gyratory

	Name	Date
Drawn	AD	07/09/2023
Designed	TL	07/09/2023
Checked	TL	07/09/2023
Point of Interest		4

Scale: 1:1000 @ A3

File No.: 230829 Torfichen SPA V150.dwg

Drawing Status: Draft

Drawing No.: SK04

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

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Client: RES Limited

Project: Torfichen Wind Farm

Drawing Title: Vestas V150 Blade and Tower

SPA Location: B981 Ferrytoll Gyratory

Key

Wheel SPA	Body SPA	Load SPA	Indicative	Overrun	Over-sail

	Name	Date
Drawn	AD	07/09/2023
Designed	TL	07/09/2023
Checked	TL	07/09/2023
Point of Interest		4

Scale: 1:1000 @ A3

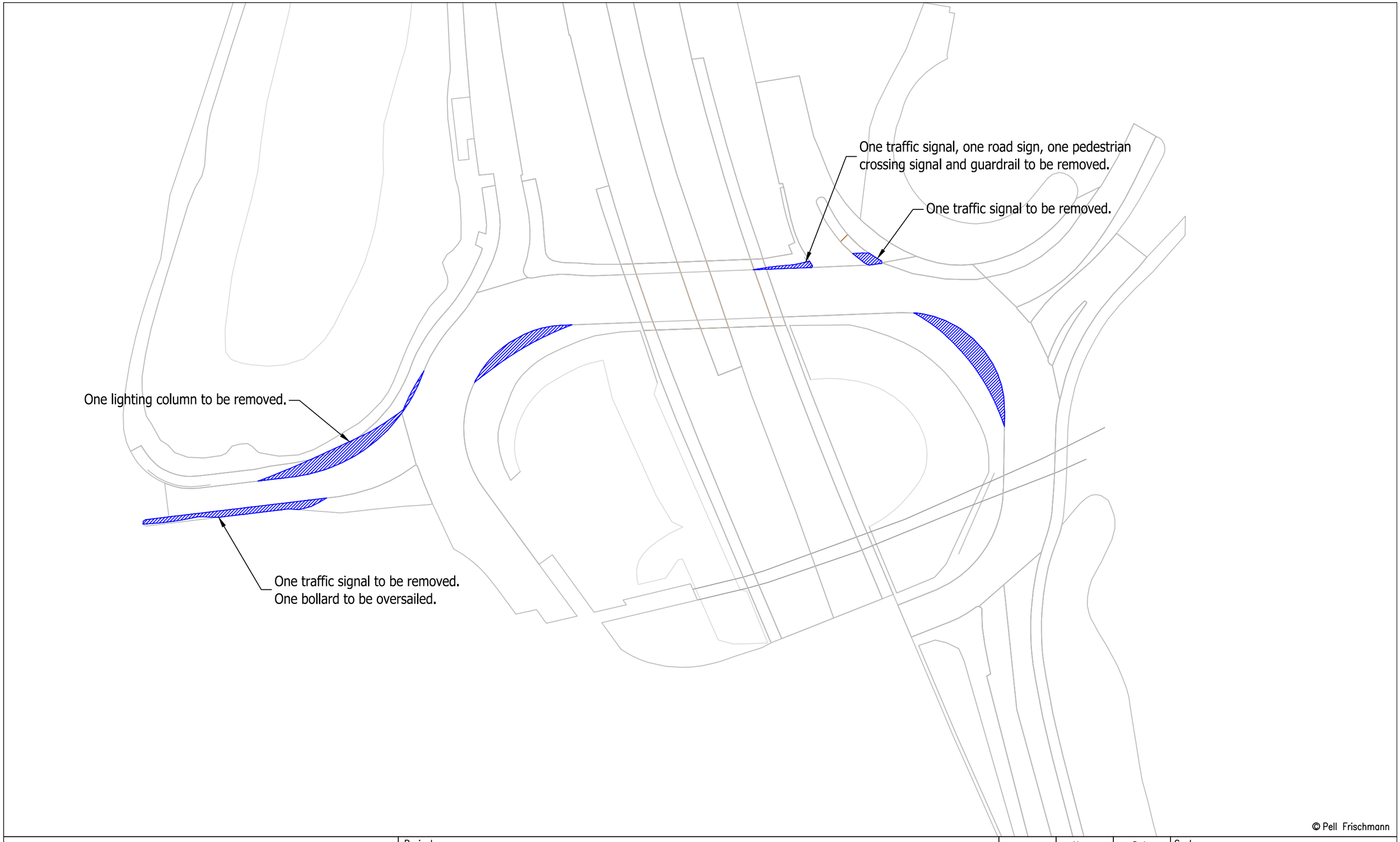
File No.: 230829 Torfichen SPA V150.dwg

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.
3. Indicative road edges have been provided for illustration only and should be confirmed through a test run or topographical survey.

Revision: 1



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Client: RES Limited

Key

Wheel SPA	Body SPA	Load SPA	Indicative	Overrun	Over-sail

Project: Torfichen Wind Farm

Drawing Title: Vestas V150 Blade and Tower

SPA Location: B981 Ferrytoll Gyratory

	Name	Date
Drawn	AD	07/09/2023
Designed	TL	07/09/2023
Checked	TL	07/09/2023
Point of Interest		4

Scale: 1:1000 @ A3

File No.: 230829 Torfichen SPA V150.dwg

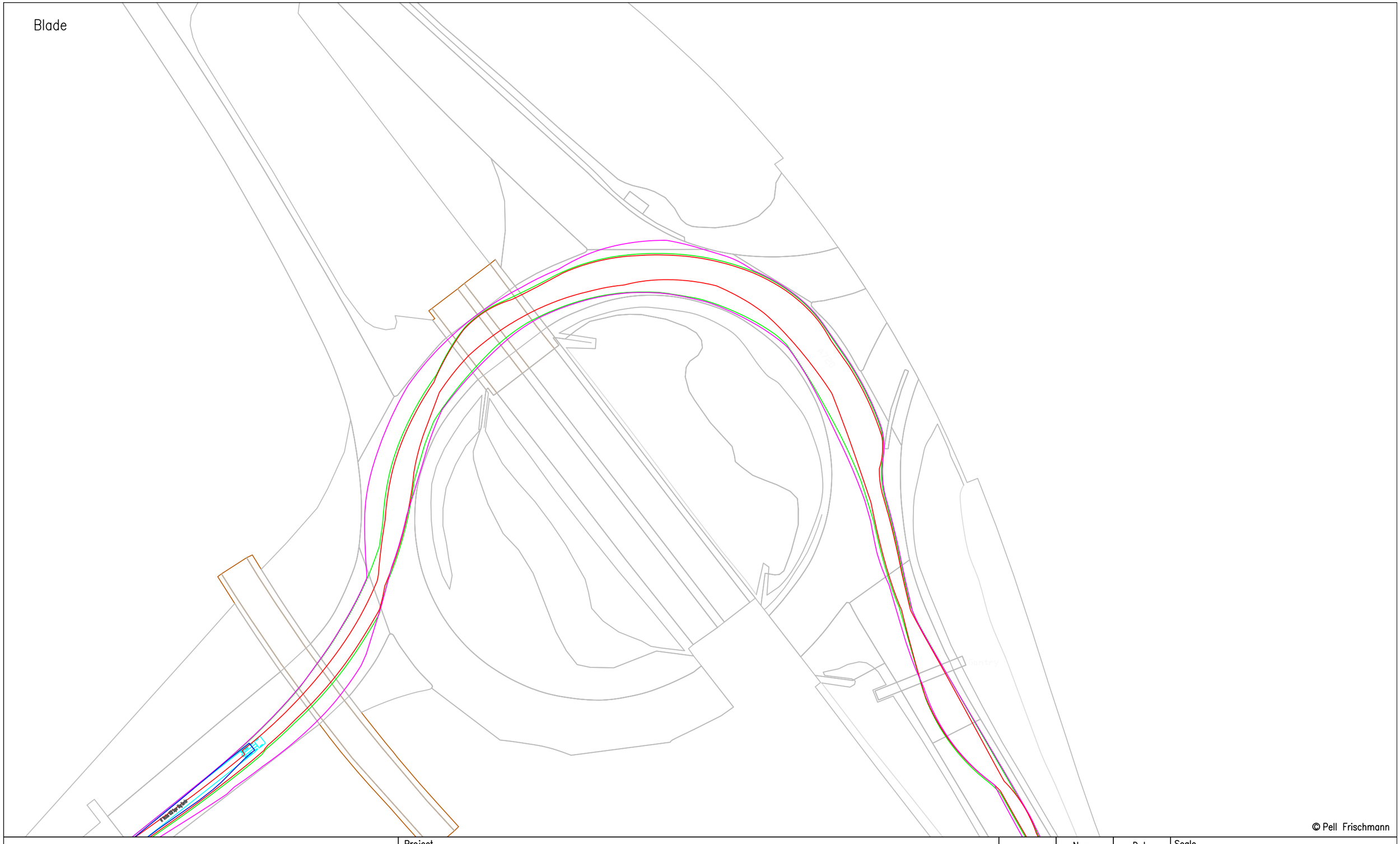
Drawing Status: Draft

Drawing No.: SK04B

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.
3. Indicative road edges have been provided for illustration only and should be confirmed through a test run or topographical survey.

Revision: 1

Blade



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Client: RES Limited

Project: Torfichen Wind Farm

Drawing Title: Vestas V150 Blade and Tower

SPA Location: M8 Hermiston Gait Roundabout

NO MITIGATION REQUIRED

Key	Wheel SPA	Body SPA	Load SPA	Indicative	Overrun	Over-sail

	Name	Date
Drawn	AD	07/09/2023
Designed	TL	07/09/2023
Checked	TL	07/09/2023
Point of Interest		10

Scale: 1:1000 @ A3

File No.: 230829 Torfichen SPA V150.dwg

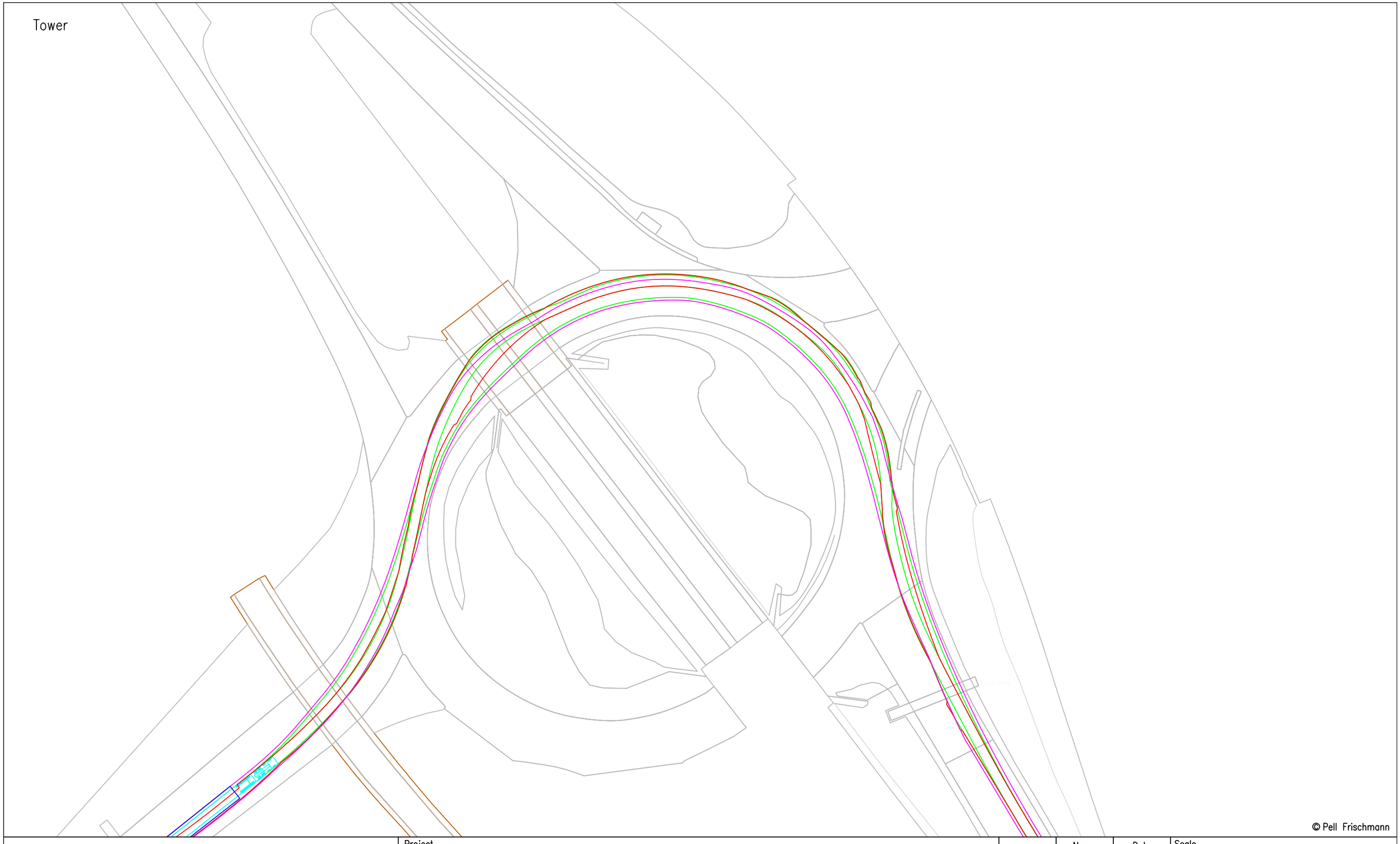
Drawing Status: Draft

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.
3. Indicative road edges have been provided for illustration only and should be confirmed through a test run or topographical survey.

Revision: 1

Tower



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Client: RES Limited

Project: Torfichen Wind Farm

Drawing Title: Vestas V150 Blade and Tower

SPA Location: M8 Hermiston Gait Roundabout

NO MITIGATION REQUIRED

Key	Wheel SPA	Body SPA	Load SPA	Indicative	Overrun	Over-sail

	Name	Date
Drawn	AD	07/09/2023
Designed	TL	07/09/2023
Checked	TL	07/09/2023
Point of Interest		10

Scale: 1:1000 @ A3

File No.: 230829 Torfichen SPA V150.dwg

Drawing Status: Draft

Drawing No.: SK05A

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

Blade

Tower

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Client: RES Limited

Key

Wheel SPA	Body SPA	Load SPA	Indicative	Overrun	Over-sail

Project: Torfichen Wind Farm

Drawing Title: Vestas V150 Blade and Tower

SPA Location: A720 Sheriffhall Roundabout

	Name	Date
Drawn	AD	07/09/2023
Designed	TL	07/09/2023
Checked	TL	07/09/2023
Point of Interest		11

Scale: 1:1000 @ A3

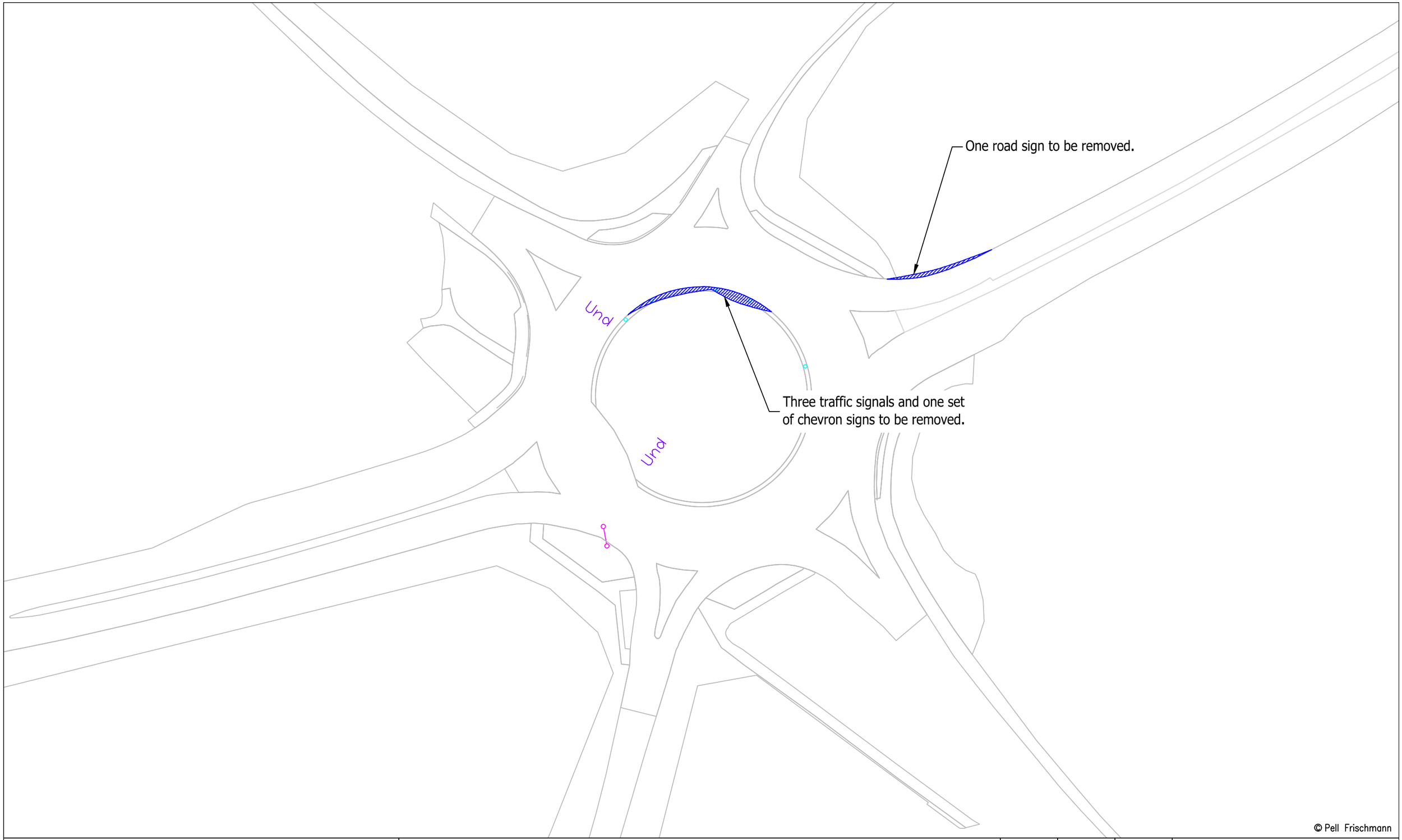
File No.: 230829 Torfichen SPA V150.dwg

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.
3. Indicative road edges have been provided for illustration only and should be confirmed through a test run or topographical survey.

Revision: XXX



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Client: RES Limited

Key

Wheel SPA	Body SPA	Load SPA	Indicative	Overrun	Over-sail

Project: Torfichen Wind Farm

Drawing Title: Vestas V150 Blade and Tower

SPA Location: A720 Sheriffhall Roundabout

	Name	Date
Drawn	AD	07/09/2023
Designed	TL	07/09/2023
Checked	TL	07/09/2023
Point of Interest		11

Scale: 1:1000 @ A3

File No.: 230829 Torfichen SPA V150.dwg

Drawing Status: Draft

Drawing No.: SK06A

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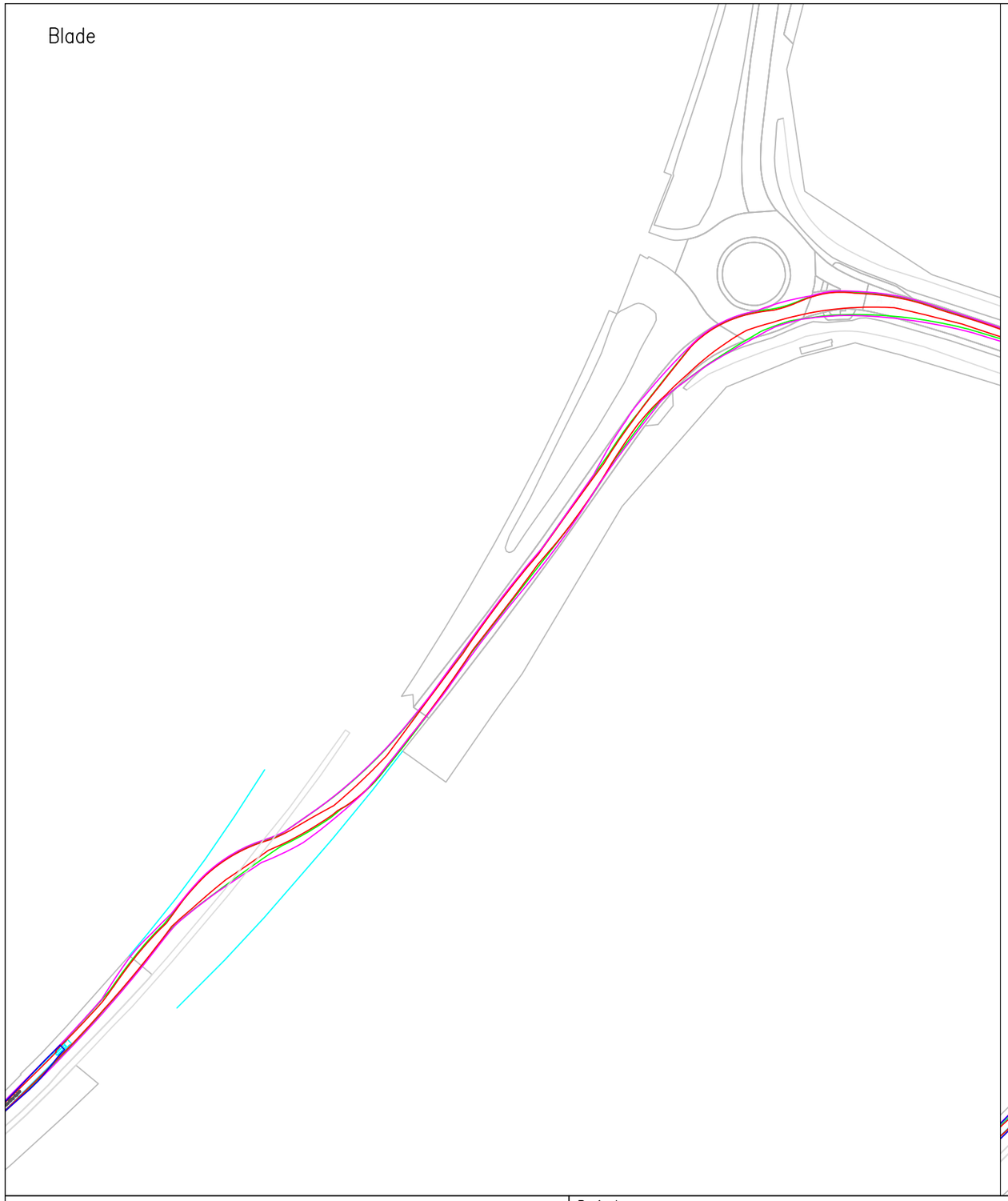
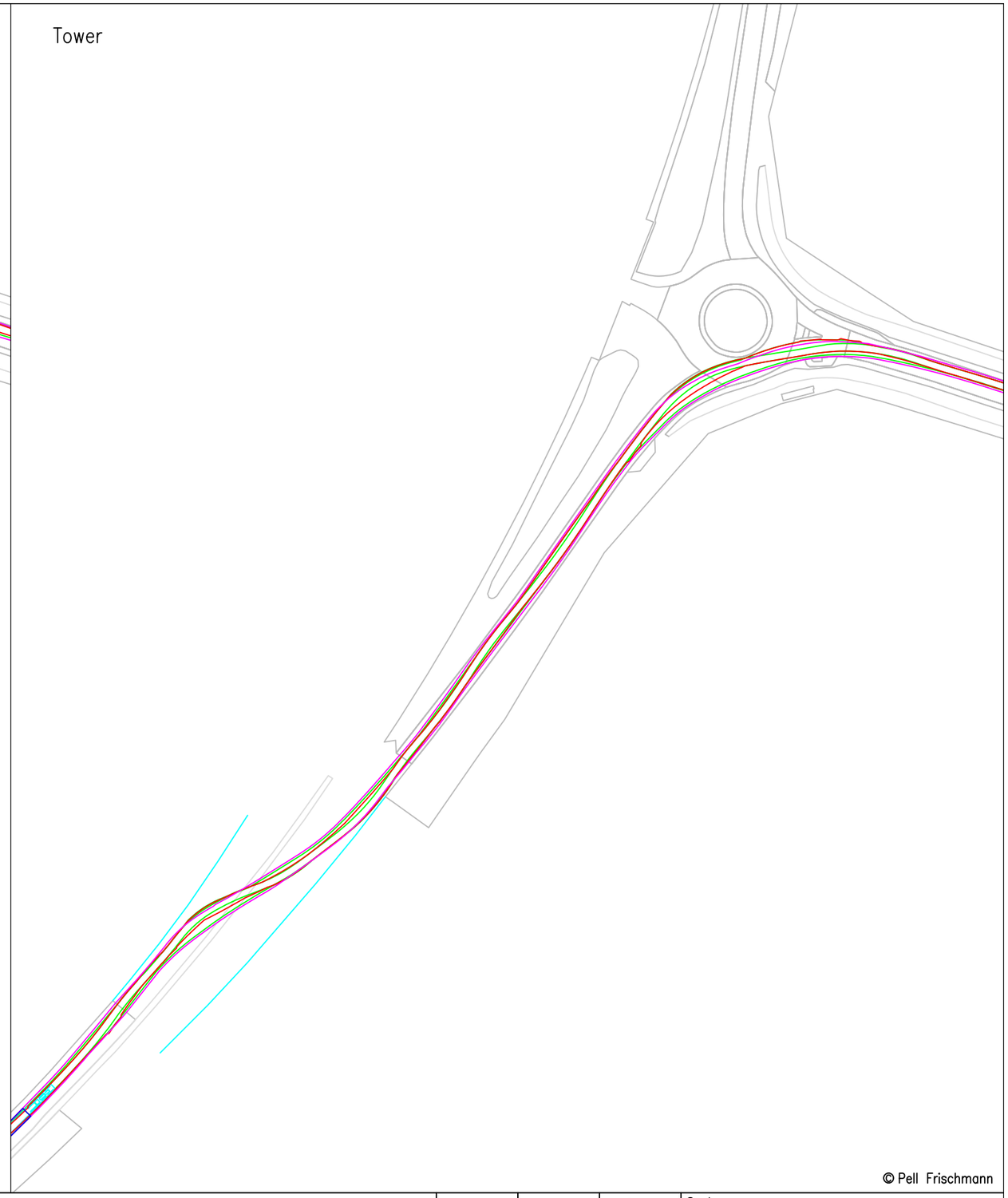
Revision: XXX

Blade



Tower



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Client: RES Limited

Project: Torfichen Wind Farm

Drawing Title: Vestas V150 Blade and Tower

SPA Location: A720 Millerhill Junction

Key	Wheel SPA	Body SPA	Load SPA	Indicative	Overrun	Over-sail

	Name	Date
Drawn	AD	07/09/2023
Designed	TL	07/09/2023
Checked	TL	07/09/2023
Point of Interest		12 & 13

Scale: 1:2000 @ A3

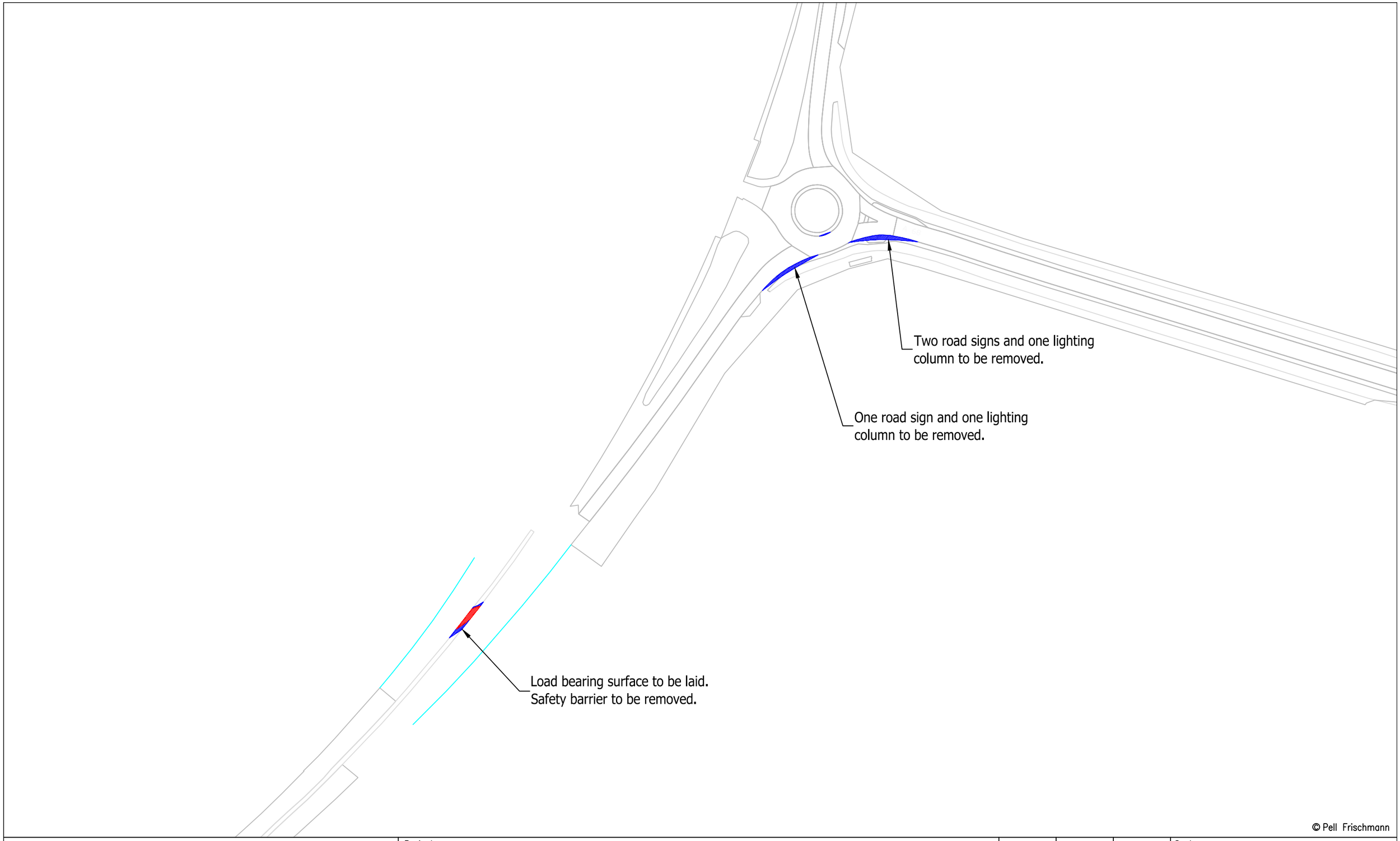
File No.: 230829 Torfichen SPA V150.dwg

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.
3. Indicative road edges have been provided for illustration only and should be confirmed through a test run or topographical survey.

Revision: XXX



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Client: RES Limited

Key

Wheel SPA	Body SPA	Load SPA	Indicative	Overrun	Over-sail

Project: Torfichen Wind Farm

Drawing Title: Vestas V150 Blade and Tower

SPA Location: A720 Millerhill Junction

	Name	Date
Drawn	AD	07/09/2023
Designed	TL	07/09/2023
Checked	TL	07/09/2023
Point of Interest		12, 13

Scale: 1:2000 @ A3

File No.: 230829 Torfichen SPA V150.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.
3. Indicative road edges have been provided for illustration only and should be confirmed through a test run or topographical survey.

Revision: XXX

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Client: RES Limited

Project: Torfichen Wind Farm

Drawing Title: Vestas V150 Blade and Tower

SPA Location: A68 Pathhead Main Street

Key	Wheel SPA	Body SPA	Load SPA	Indicative	Overrun	Over-sail

	Name	Date
Drawn	AD	07/09/2023
Designed	TL	07/09/2023
Checked	TL	07/09/2023
Point of Interest		15

Scale: 1:1000 @ A3

File No.: 230829 Torfichen SPA V150.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.
3. Indicative road edges have been provided for illustration only and should be confirmed through a test run or topographical survey.

Revision: XXX

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Client: RES Limited

Key

Wheel SPA	Body SPA	Load SPA	Indicative	Overrun	Over-sail

Project: Torfichen Wind Farm

Drawing Title: Vestas V150 Blade and Tower

SPA Location: A68 Pathhead Main Street

	Name	Date
Drawn	AD	07/09/2023
Designed	TL	07/09/2023
Checked	TL	07/09/2023
Point of Interest		15

Scale: 1:500 @ A3

File No.: 230829 Torfichen SPA V150.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.
3. Indicative road edges have been provided for illustration only and should be confirmed through a test run or topographical survey.

Revision: XXX

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Client: RES Limited

Project: Torfichen Wind Farm

Drawing Title: Vestas V150 Blade and Tower

SPA Location: A68 Pathhead

Key	Wheel SPA	Body SPA	Load SPA	Indicative	Overrun	Over-sail

	Name	Date
Drawn	AD	07/09/2023
Designed	TL	07/09/2023
Checked	TL	07/09/2023
Point of Interest		16

Scale: 1:1000 @ A3

File No.: 230829 Torfichen SPA V150.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.
3. Indicative road edges have been provided for illustration only and should be confirmed through a test run or topographical survey.

Revision: XXX

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Client: RES Limited

Key

Wheel SPA	Body SPA	Load SPA	Indicative	Overrun	Over-sail

Project: Torfichen Wind Farm

Drawing Title: Vestas V150 Blade and Tower

SPA Location: A68 Pathhead

	Name	Date
Drawn	AD	07/09/2023
Designed	TL	07/09/2023
Checked	TL	07/09/2023
Point of Interest		16

Scale: 1:500 @ A3

File No.: 230829 Torfichen SPA V150.dwg

Drawing Status: Draft

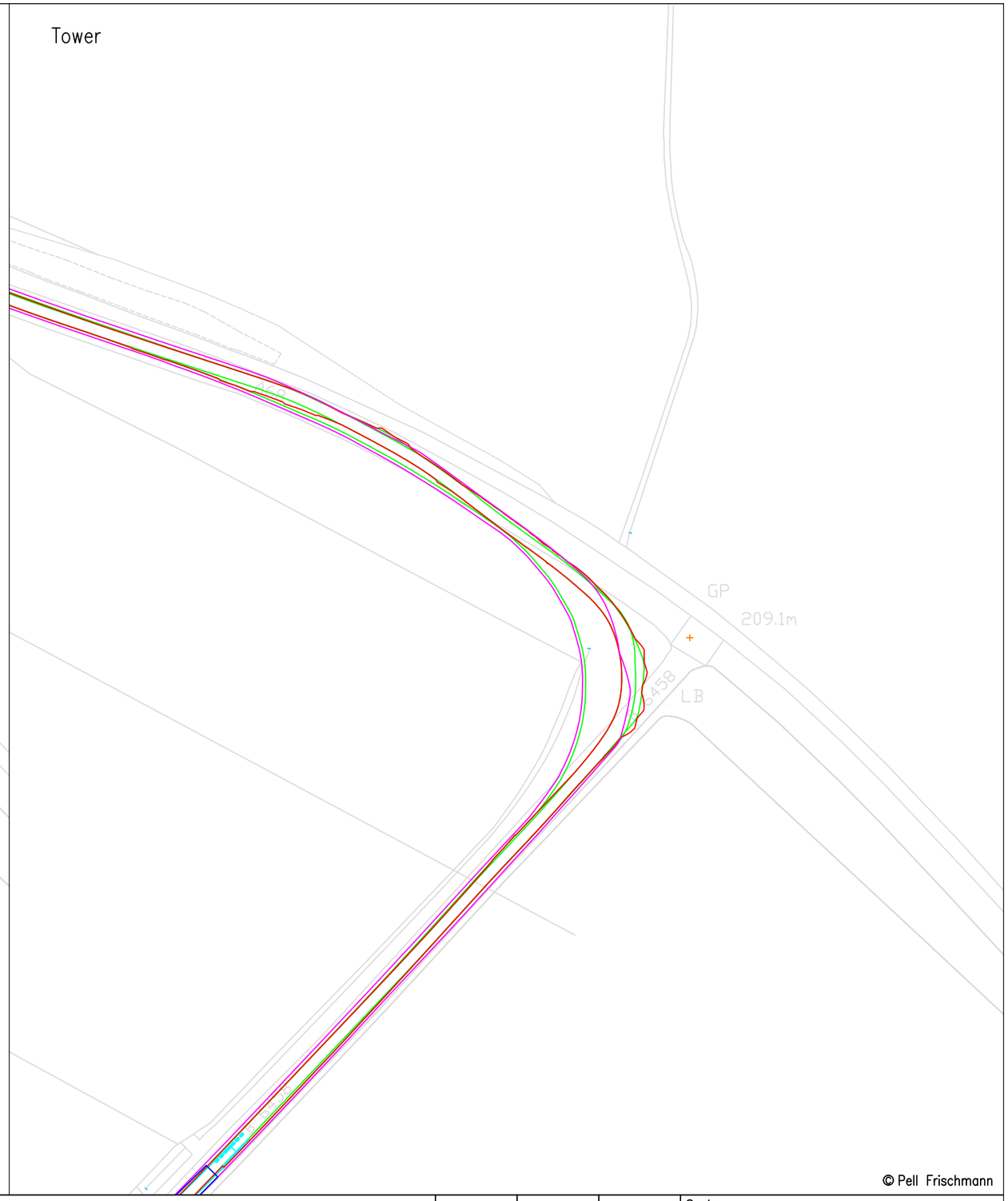
Drawing No.: SK09A

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.
3. Indicative road edges have been provided for illustration only and should be confirmed through a test run or topographical survey.

Revision: XXX

Blade

Tower



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Client: RES Limited

Key	Wheel SPA	Body SPA	Load SPA	Indicative	Overrun	Over-sail

Project: Torfichen Wind Farm

Drawing Title: Vestas V150 Blade and Tower

SPA Location: A68/B6458 Junction

	Name	Date
Drawn	AD	07/09/2023
Designed	TL	07/09/2023
Checked	TL	07/09/2023
Point of Interest		17

Scale: 1:1250 @ A3

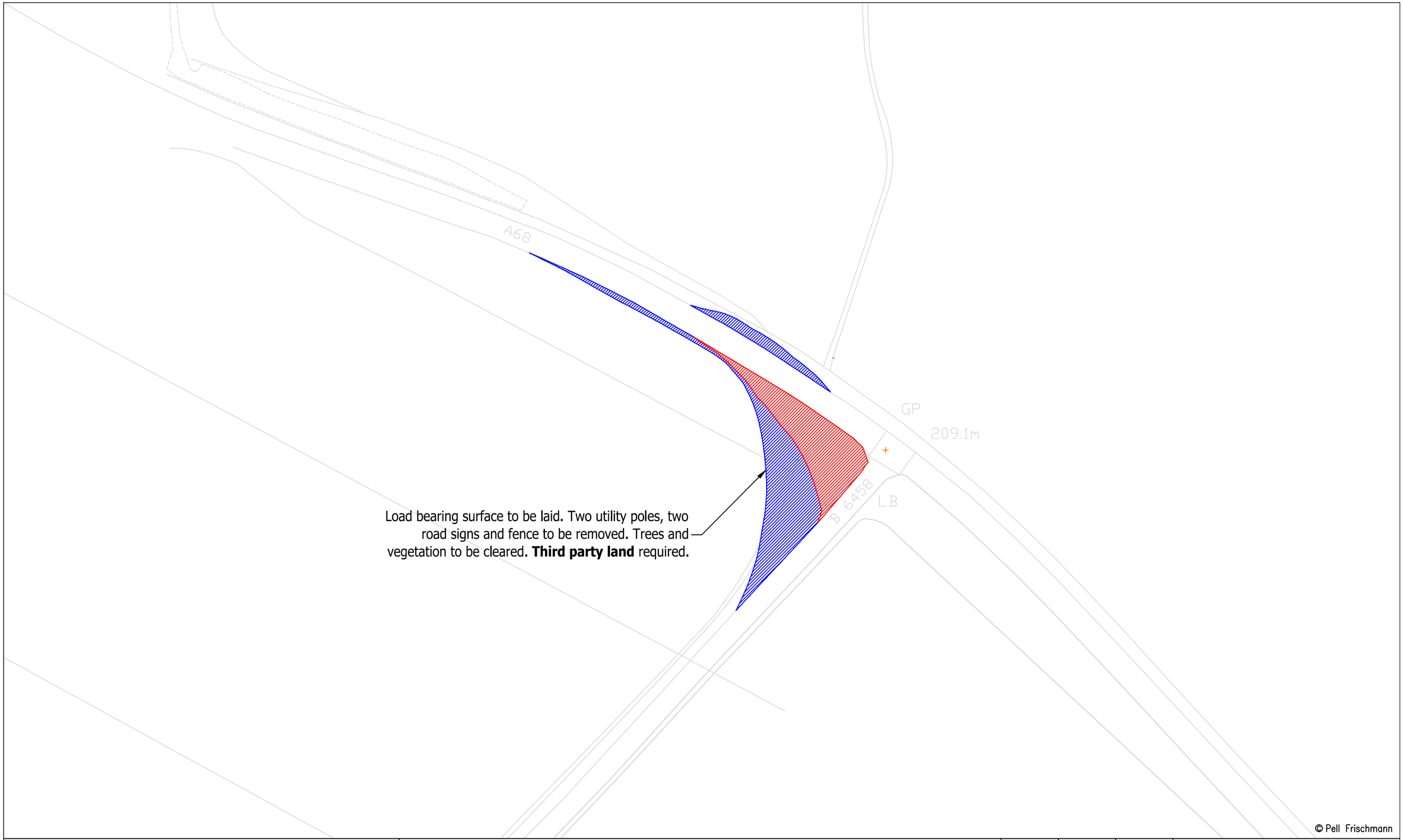
File No.: 230829 Torfichen SPA V150.dwg

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.
3. Indicative road edges have been provided for illustration only and should be confirmed through a test run or topographical survey.

Revision: XXX



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Client: RES Limited

Project: Torfichen Wind Farm

Drawing Title: Vestas V150 Blade and Tower

SPA Location: A68/B6458 Junction

Key	Wheel SPA	Body SPA	Load SPA	Indicative	Overrun	Over-sail

	Name	Date
Drawn	AD	07/09/2023
Designed	TL	07/09/2023
Checked	TL	07/09/2023
Point of Interest		17

Scale: 1:1000 @ A3

File No.: 230829 Torfichen SPA V150.dwg

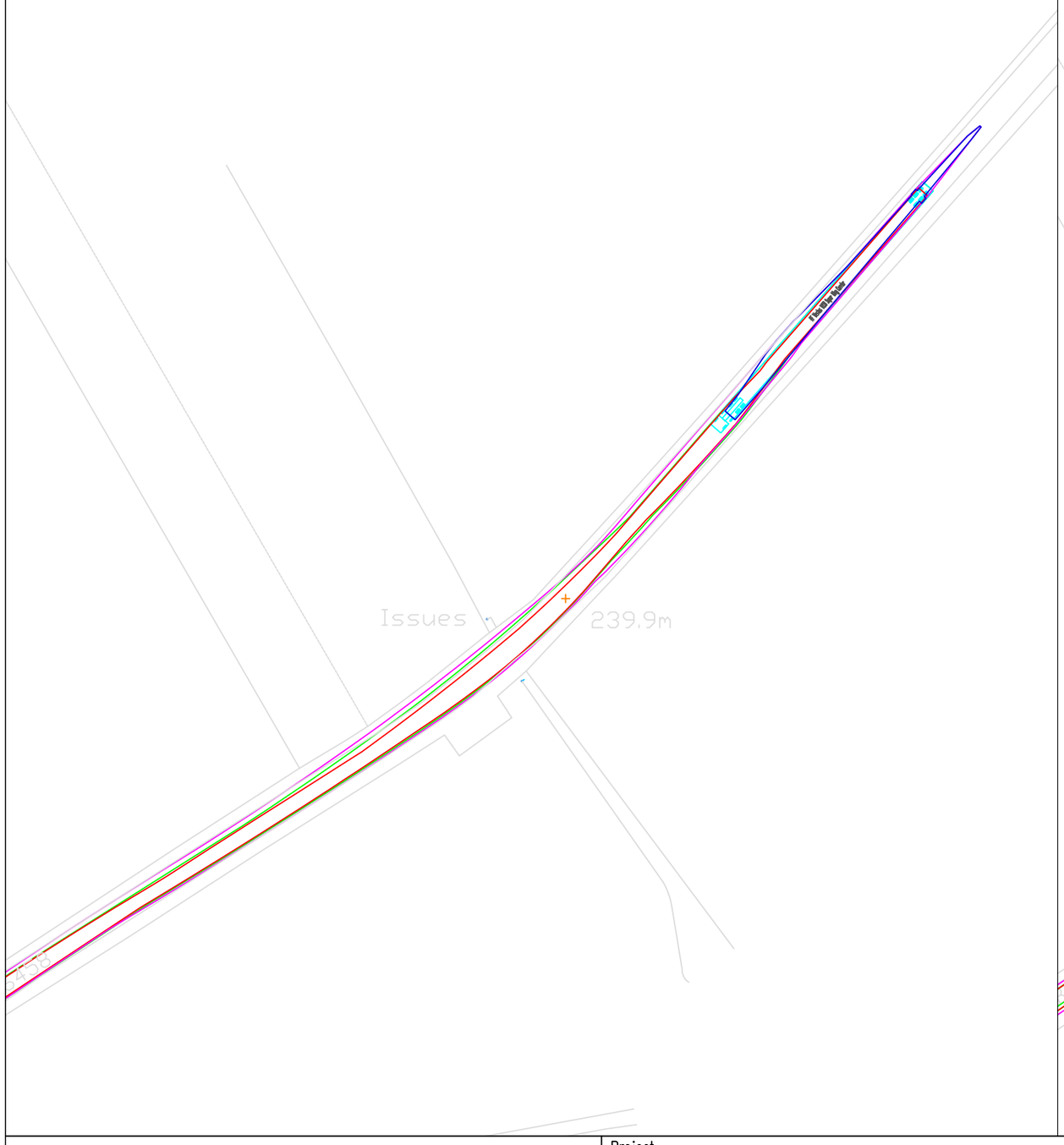
Drawing Status: Draft

Drawing No.: SK10A

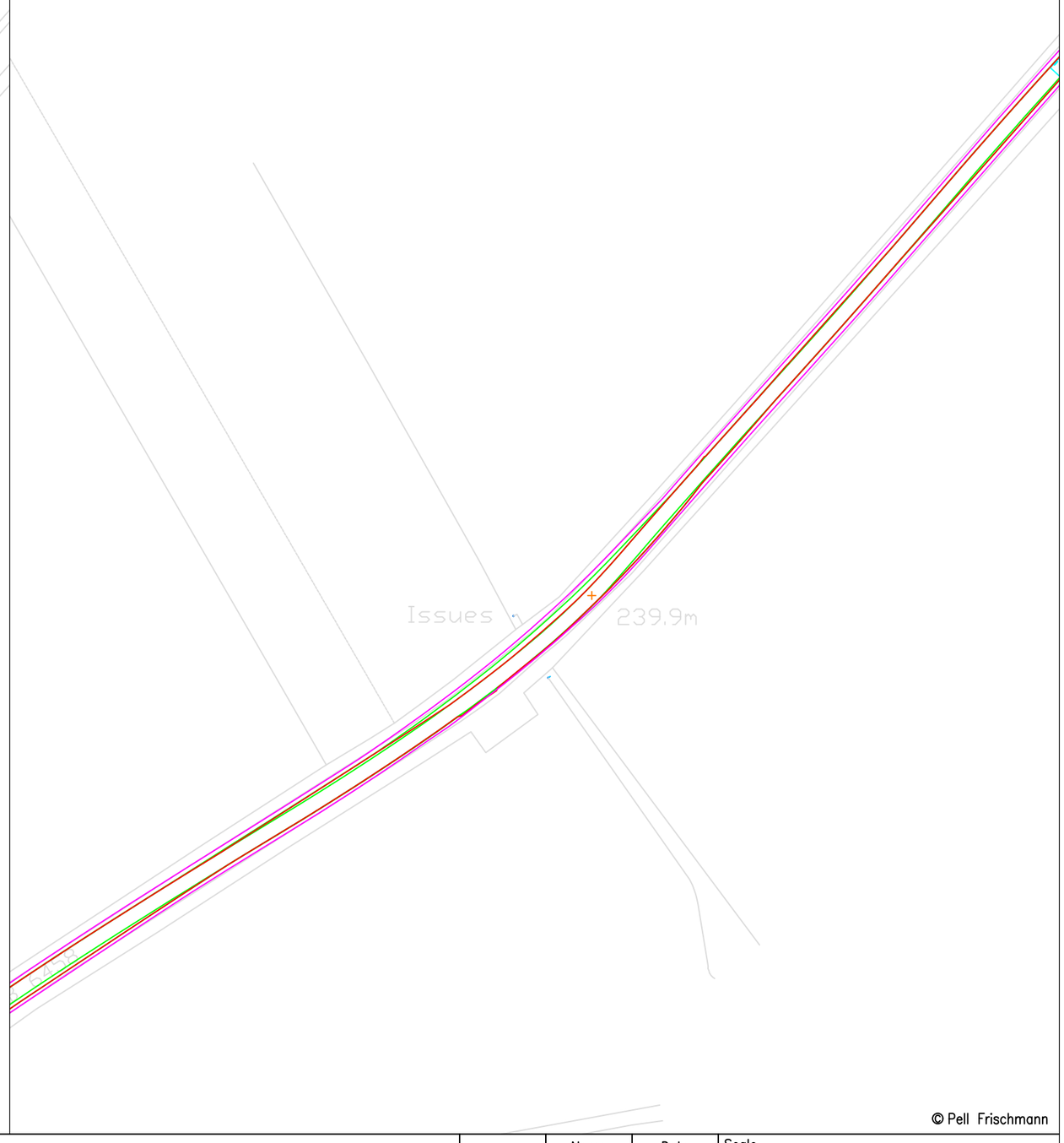
Notes:
1. All mitigation is subject to confirmation through a test run.
2. This is not a construction drawing and is intended for illustration purposes only.
3. Indicative road edges have been provided for illustration only and should be confirmed through a test run or topographical survey.

Revision: XXX

Blade



Tower



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Client: RES Limited

Project: Torfichen Wind Farm

Drawing Title: Vestas V150 Blade and Tower

SPA Location: B6458 North of Tynehead

Key	Wheel SPA	Body SPA	Load SPA	Indicative	Overrun	Over-sail

	Name	Date
Drawn	AD	07/09/2023
Designed	TL	07/09/2023
Checked	TL	07/09/2023
Point of Interest		18

Scale: 1:1000 @ A3

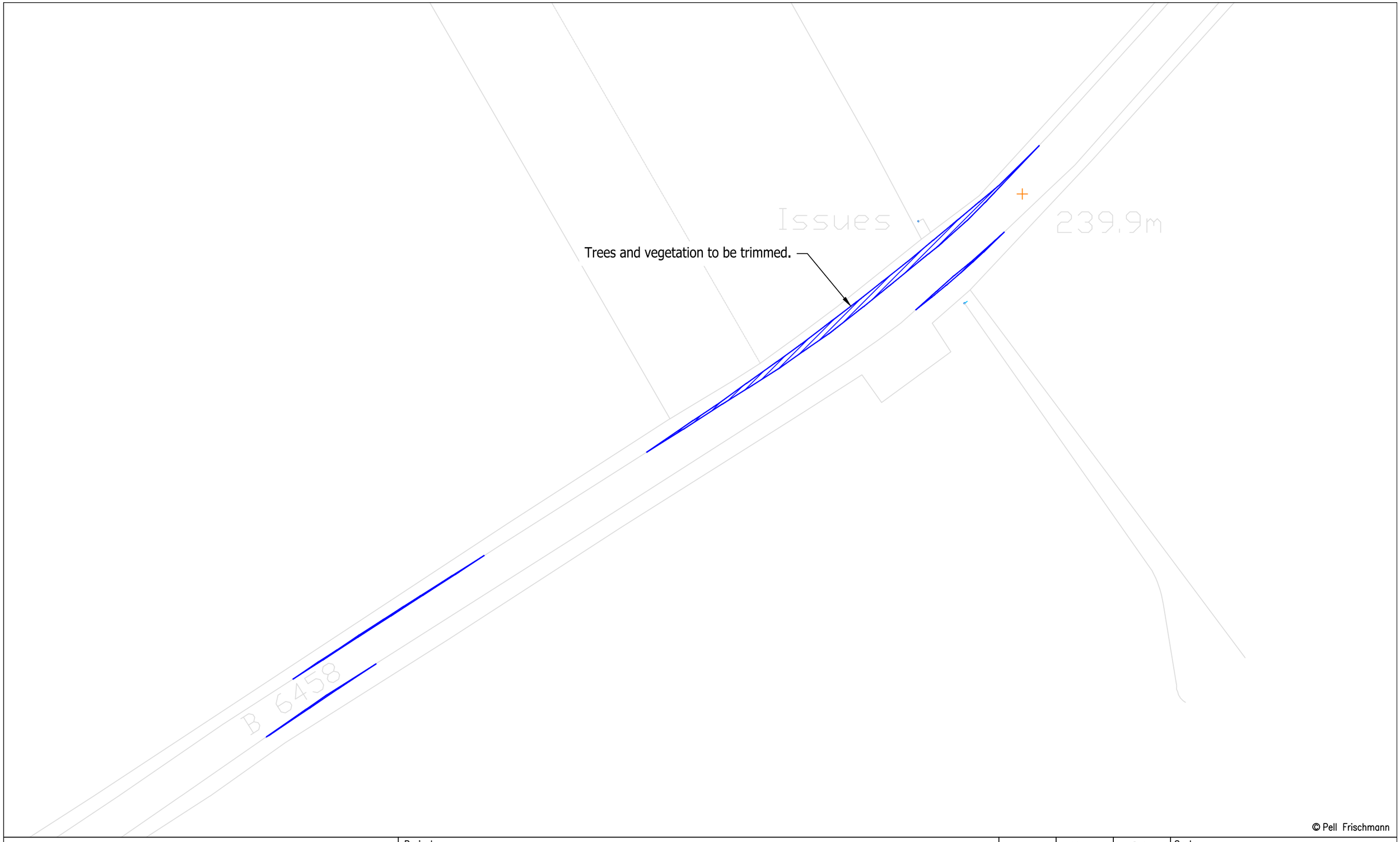
File No.: 230829 Torfichen SPA V150.dwg

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.
3. Indicative road edges have been provided for illustration only and should be confirmed through a test run or topographical survey.

Revision: XXX



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Client: RES Limited

Key	Wheel SPA	Body SPA	Load SPA	Indicative	Overrun	Over-sail

Project: Torfichen Wind Farm

Drawing Title: Vestas V150 Blade and Tower

SPA Location: B6458 North of Tynehead

	Name	Date
Drawn	AD	07/09/2023
Designed	TL	07/09/2023
Checked	TL	07/09/2023
Point of Interest		18

Scale: 1:500 @ A3

File No.: 230829 Torfichen SPA V150.dwg

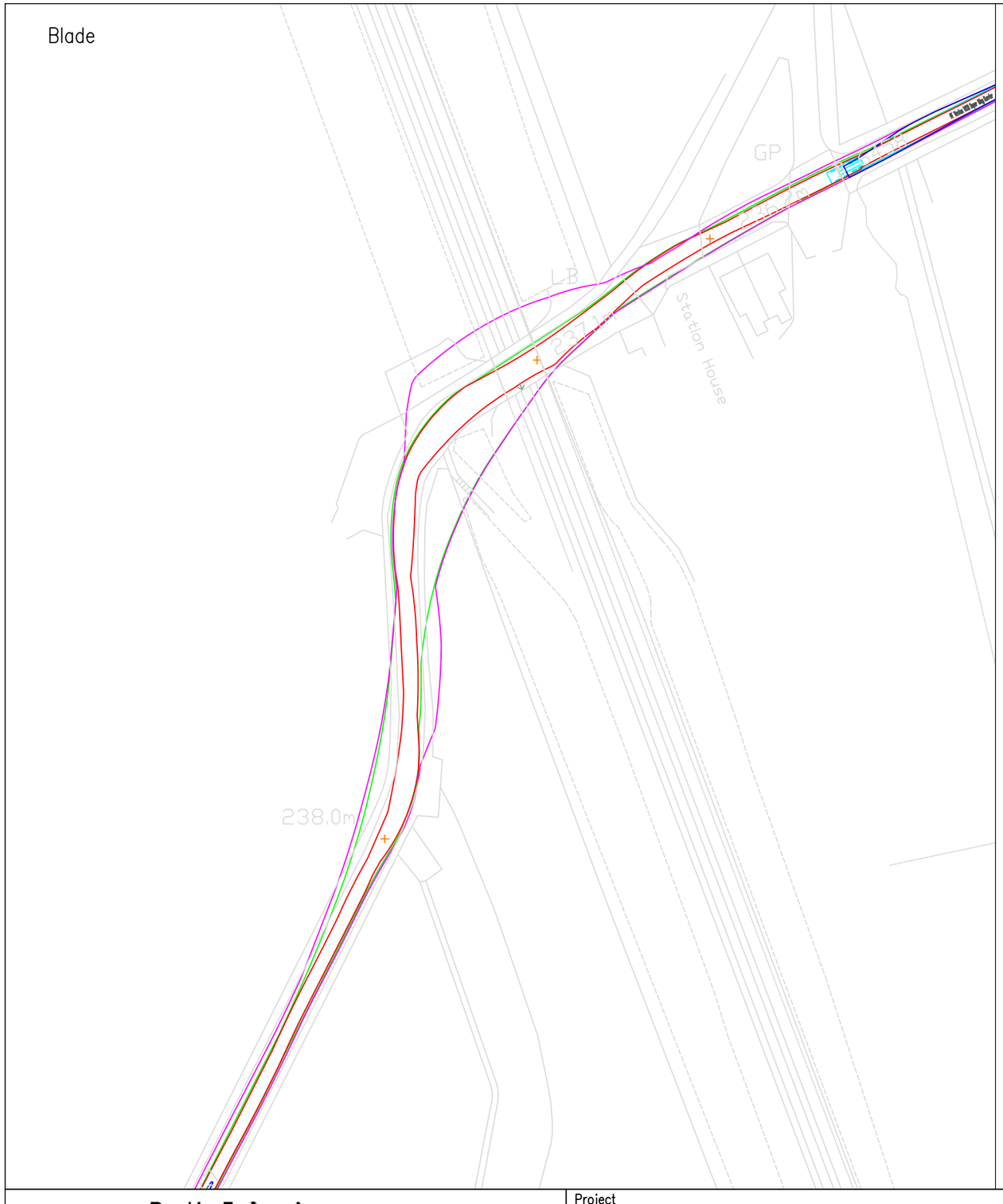
Drawing Status: Draft

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.
3. Indicative road edges have been provided for illustration only and should be confirmed through a test run or topographical survey.

Revision: XXX

Blade



Tower

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Client: RES Limited

Key

Wheel SPA	Body SPA	Load SPA	Indicative	Overrun	Over-sail

Project: Torfichen Wind Farm

Drawing Title: Vestas V150 Blade and Tower

SPA Location: B6458 Tynehead

	Name	Date
Drawn	AD	07/09/2023
Designed	TL	07/09/2023
Checked	TL	07/09/2023
Point of Interest		19

Scale: 1:1000 @ A3

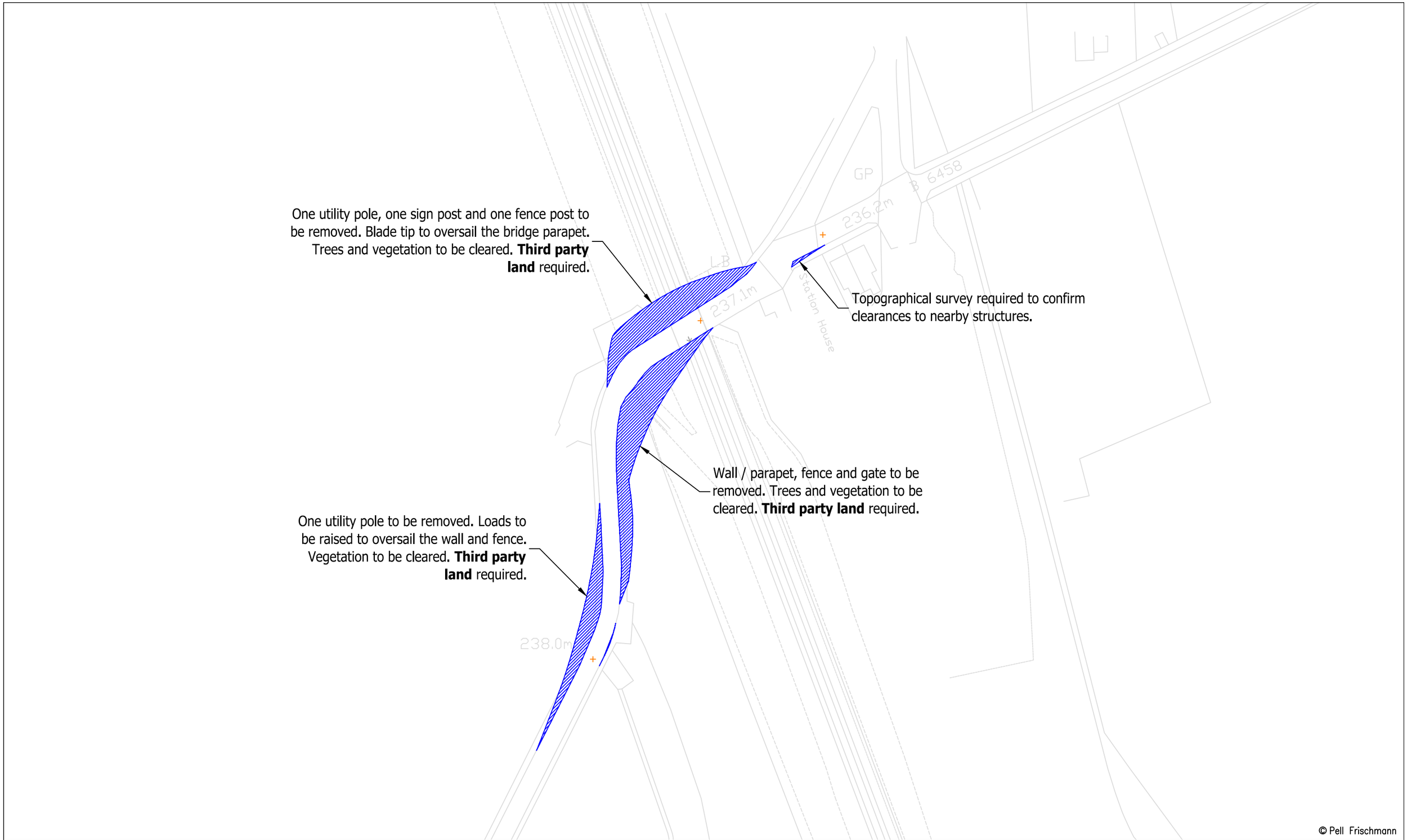
File No.: 230829 Torfichen SPA V150.dwg

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.
3. Indicative road edges have been provided for illustration only and should be confirmed through a test run or topographical survey.

Revision: XXX



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Client: RES Limited

Key

Wheel SPA	Body SPA	Load SPA	Indicative	Overrun	Over-sail

Project: Torfichen Wind Farm

Drawing Title: Vestas V150 Blade and Tower

SPA Location: B6458 Tynehead

	Name	Date
Drawn	AD	07/09/2023
Designed	TL	07/09/2023
Checked	TL	07/09/2023
Point of Interest		19

Scale: 1:1000 @ A3

File No.: 230829 Torfichen SPA V150.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.
3. Indicative road edges have been provided for illustration only and should be confirmed through a test run or topographical survey.

Revision: XXX

Blade

243.8m

Tower

243.8m

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Client: RES Limited

Key

Wheel SPA	Body SPA	Load SPA	Indicative	Overrun	Over-sail

Project: Torfichen Wind Farm

Drawing Title: Vestas V150 Blade and Tower

SPA Location: B6367 South of Tynehead

	Name	Date
Drawn	AD	07/09/2023
Designed	TL	07/09/2023
Checked	TL	07/09/2023
Point of Interest		20

Scale: 1:500 @ A3

File No.: 230829 Torfichen SPA V150.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.
3. Indicative road edges have been provided for illustration only and should be confirmed through a test run or topographical survey.

Revision: XXX

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Client: RES Limited

Key

Wheel SPA	Body SPA	Load SPA	Indicative	Overrun	Over-sail

Project: Torfichen Wind Farm

Drawing Title: Vestas V150 Blade and Tower

SPA Location: B6367 South of Tynehead

	Name	Date
Drawn	AD	07/09/2023
Designed	TL	07/09/2023
Checked	TL	07/09/2023
Point of Interest		20

Scale: 1:500 @ A3

File No.: 230829 Torfichen SPA V150.dwg

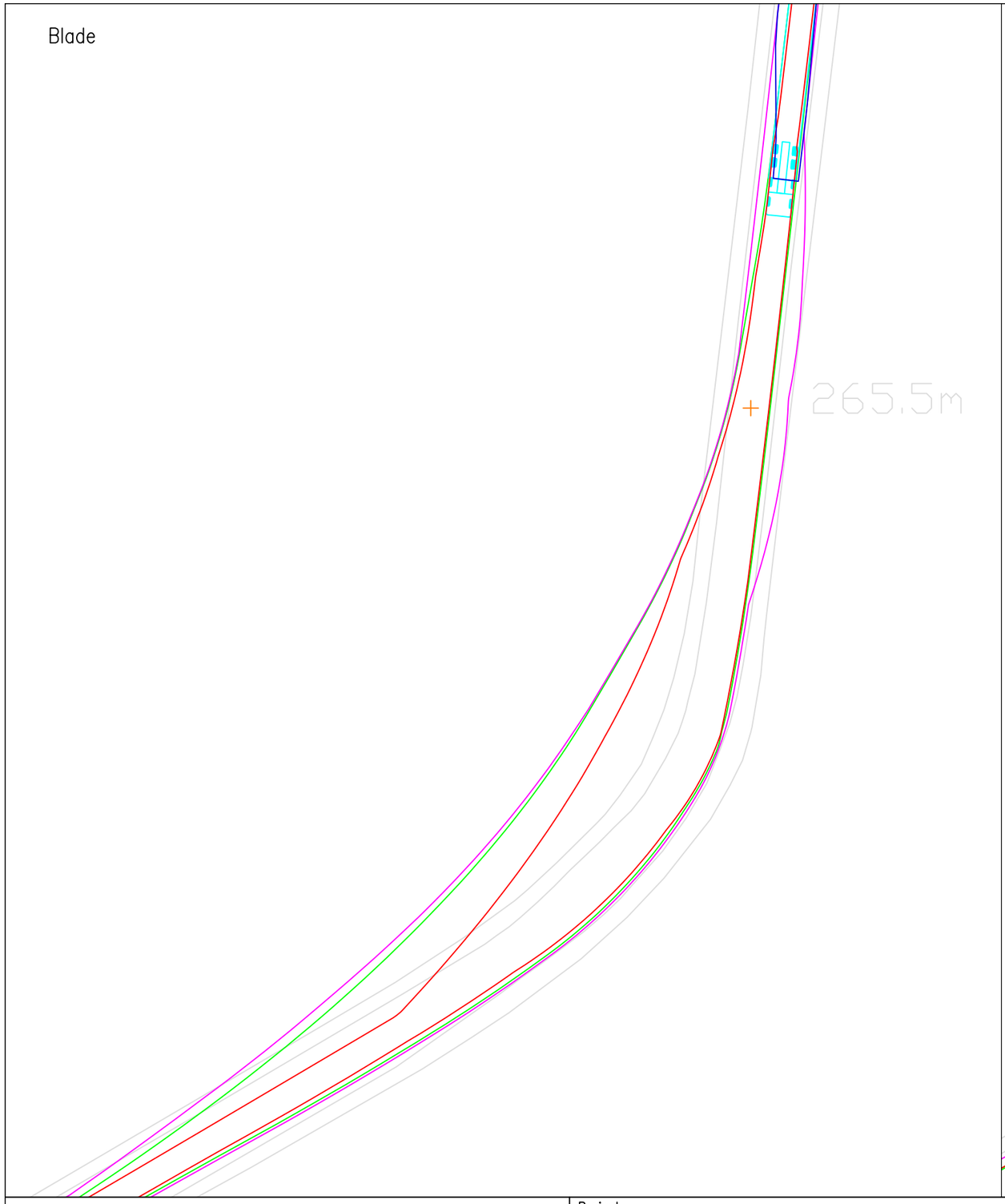
Drawing Status: Draft

Drawing No.: SK13A

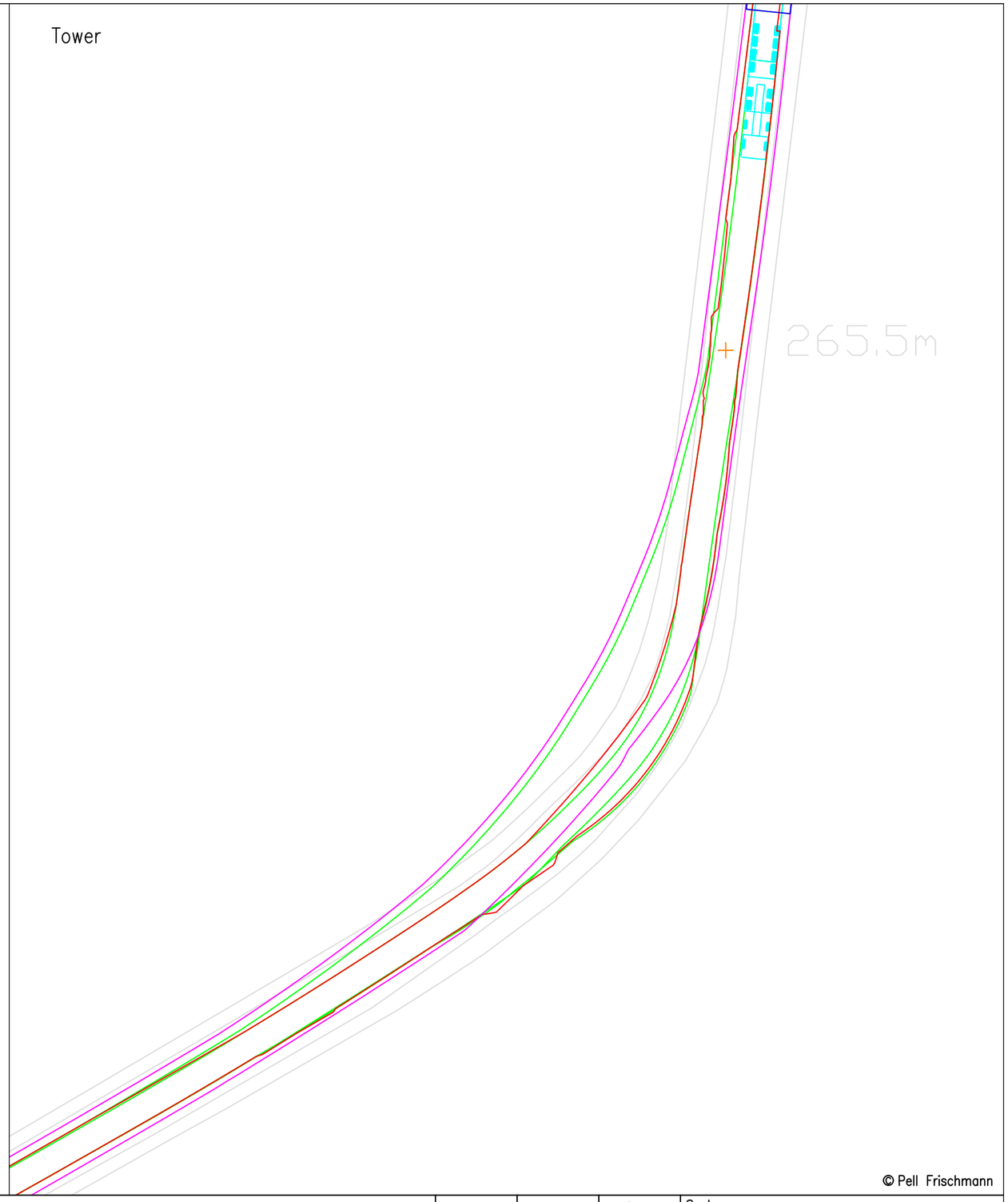
Notes:
1. All mitigation is subject to confirmation through a test run.
2. This is not a construction drawing and is intended for illustration purposes only.
3. Indicative road edges have been provided for illustration only and should be confirmed through a test run or topographical survey.

Revision: XXX

Blade



Tower



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Client: RES Limited

Key

Wheel SPA	Body SPA	Load SPA	Indicative	Overrun	Over-sail

Project: Torfichen Wind Farm

Drawing Title: Vestas V150 Blade and Tower

SPA Location: B6367 West of Cowbraehill

	Name	Date
Drawn	AD	07/09/2023
Designed	TL	07/09/2023
Checked	TL	07/09/2023
Point of Interest		21

Scale: 1:500 @ A3

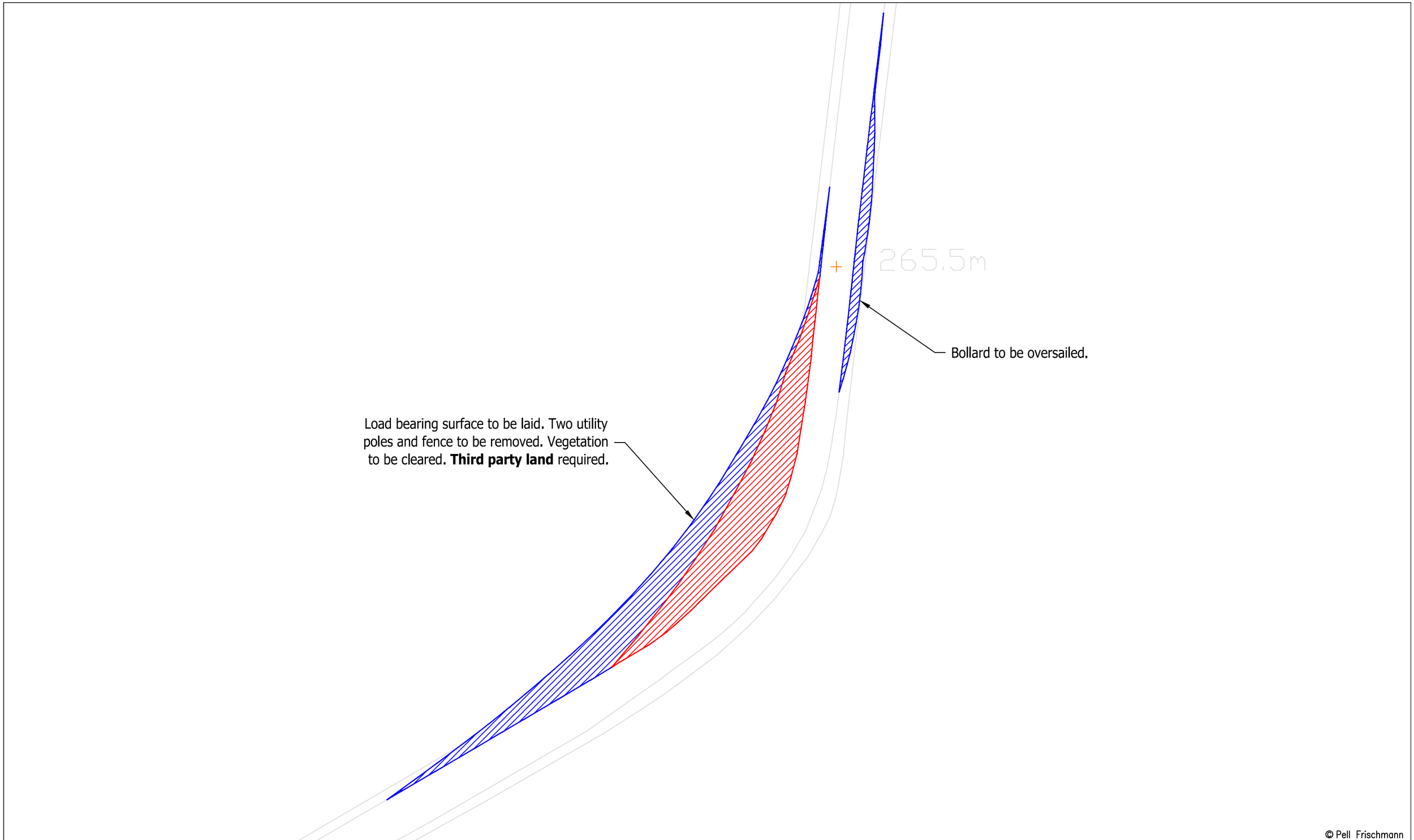
File No.: 230829 Torfichen SPA V150.dwg

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.
3. Indicative road edges have been provided for illustration only and should be confirmed through a test run or topographical survey.

Revision: XXX



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Client: RES Limited

Key

Wheel SPA	Body SPA	Load SPA	Indicative	Overrun	Over–sail

Project: Torfichen Wind Farm

Drawing Title: Vestas V150 Blade and Tower

SPA Location: B6367 West of Cowbraehill

	Name	Date
Drawn	AD	07/09/2023
Designed	TL	07/09/2023
Checked	TL	07/09/2023
Point of Interest		21

Scale: 1:500 @ A3

File No.: 230829 Torfichen SPA V150.dwg

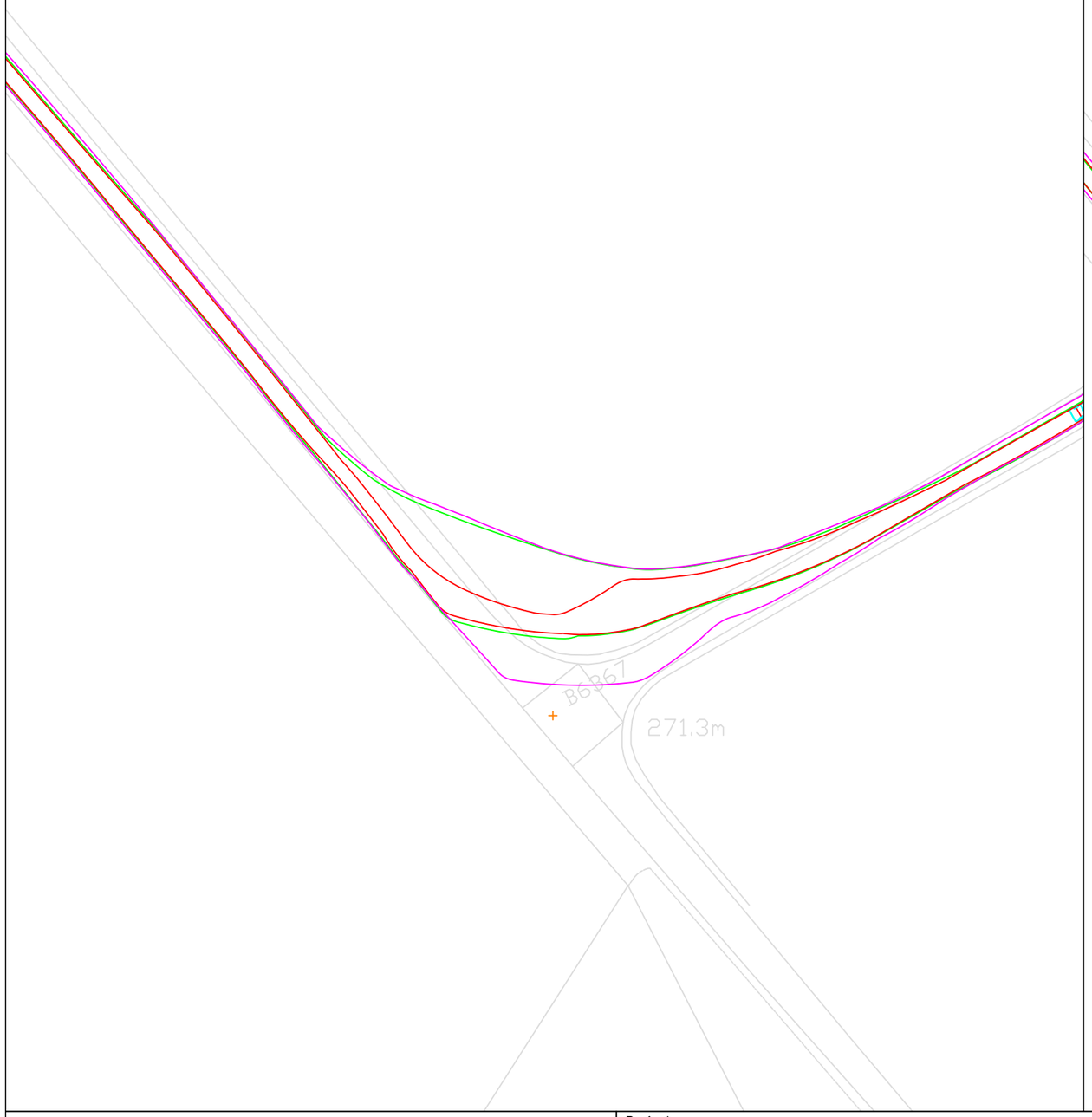
Drawing Status: Draft

Drawing No.: SK14A

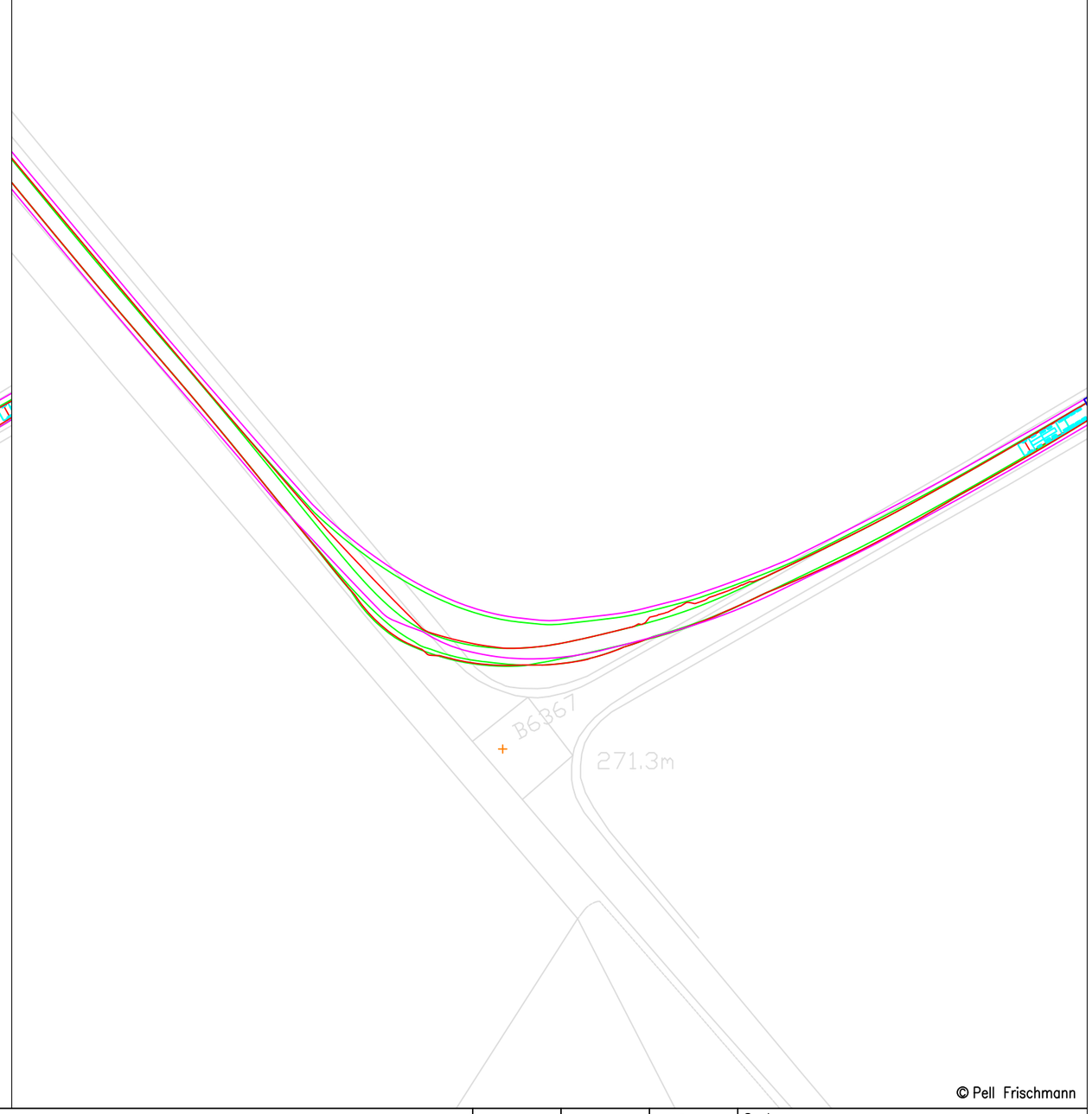
Notes:
1. All mitigation is subject to confirmation through a test run.
2. This is not a construction drawing and is intended for illustration purposes only.
3. Indicative road edges have been provided for illustration only and should be confirmed through a test run or topographical survey.

Revision: XXX

Blade



Tower



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Client: RES Limited

Project: Torfichen Wind Farm

Drawing Title: Vestas V150 Blade and Tower

SPA Location: B6367/A7 Junction

Key	Wheel SPA	Body SPA	Load SPA	Indicative	Overrun	Over-sail

	Name	Date
Drawn	AD	07/09/2023
Designed	TL	07/09/2023
Checked	TL	07/09/2023
Point of Interest		22

Scale: 1:1000 @ A3

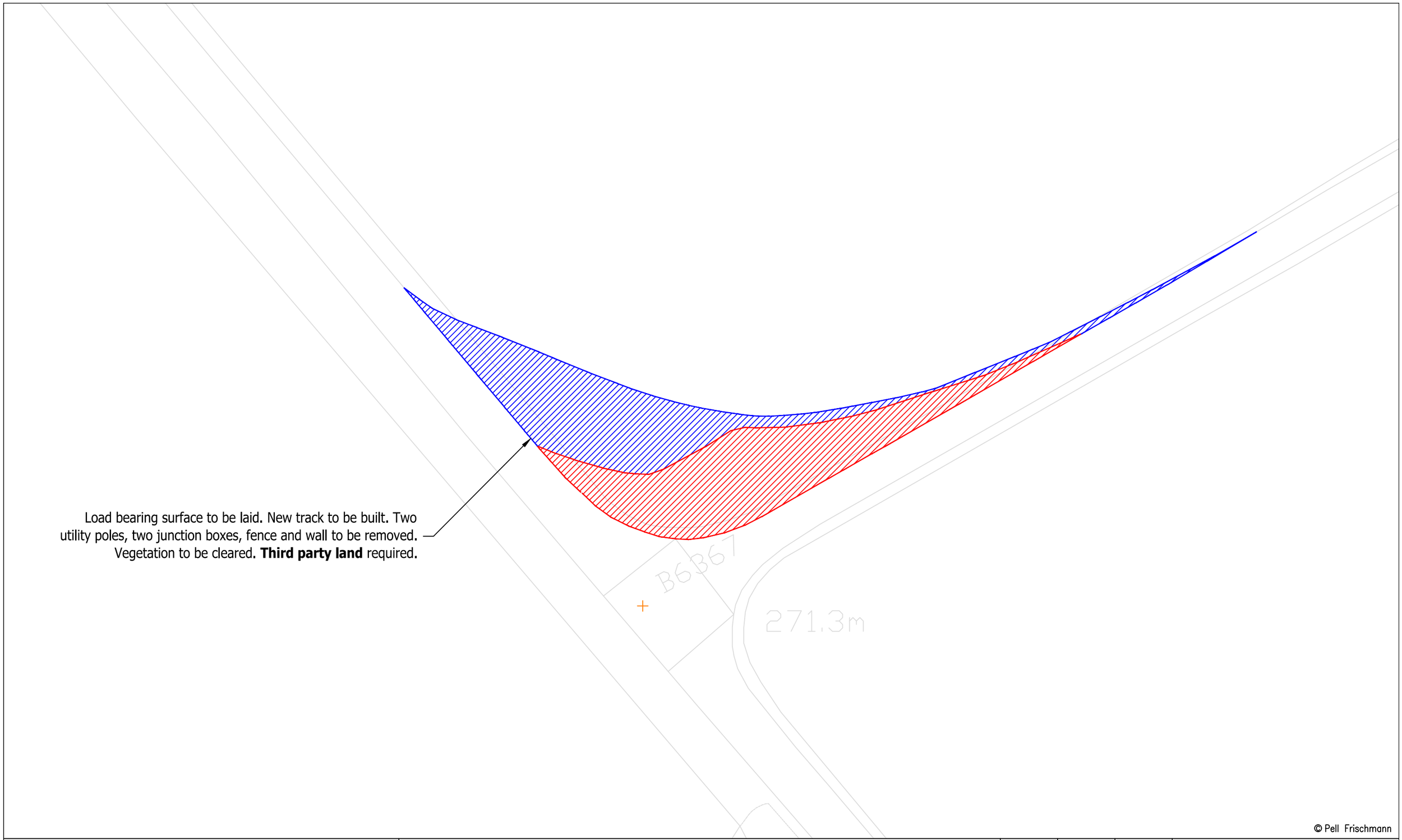
File No.: 230829 Torfichen SPA V150.dwg

Drawing Status: Draft

Drawing No.: SK15

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.
3. Indicative road edges have been provided for illustration only and should be confirmed through a test run or topographical survey.

Revision: XXX



Load bearing surface to be laid. New track to be built. Two utility poles, two junction boxes, fence and wall to be removed. Vegetation to be cleared. **Third party land** required.

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Client: RES Limited

Project: Torfichen Wind Farm

Drawing Title: Vestas V150 Blade and Tower

SPA Location: B6367/A7 Junction

Key	Wheel SPA	Body SPA	Load SPA	Indicative	Overrun	Over-sail

	Name	Date
Drawn	AD	07/09/2023
Designed	TL	07/09/2023
Checked	TL	07/09/2023
Point of Interest		22

Scale: 1:500 @ A3

File No.: 230829 Torfichen SPA V150.dwg

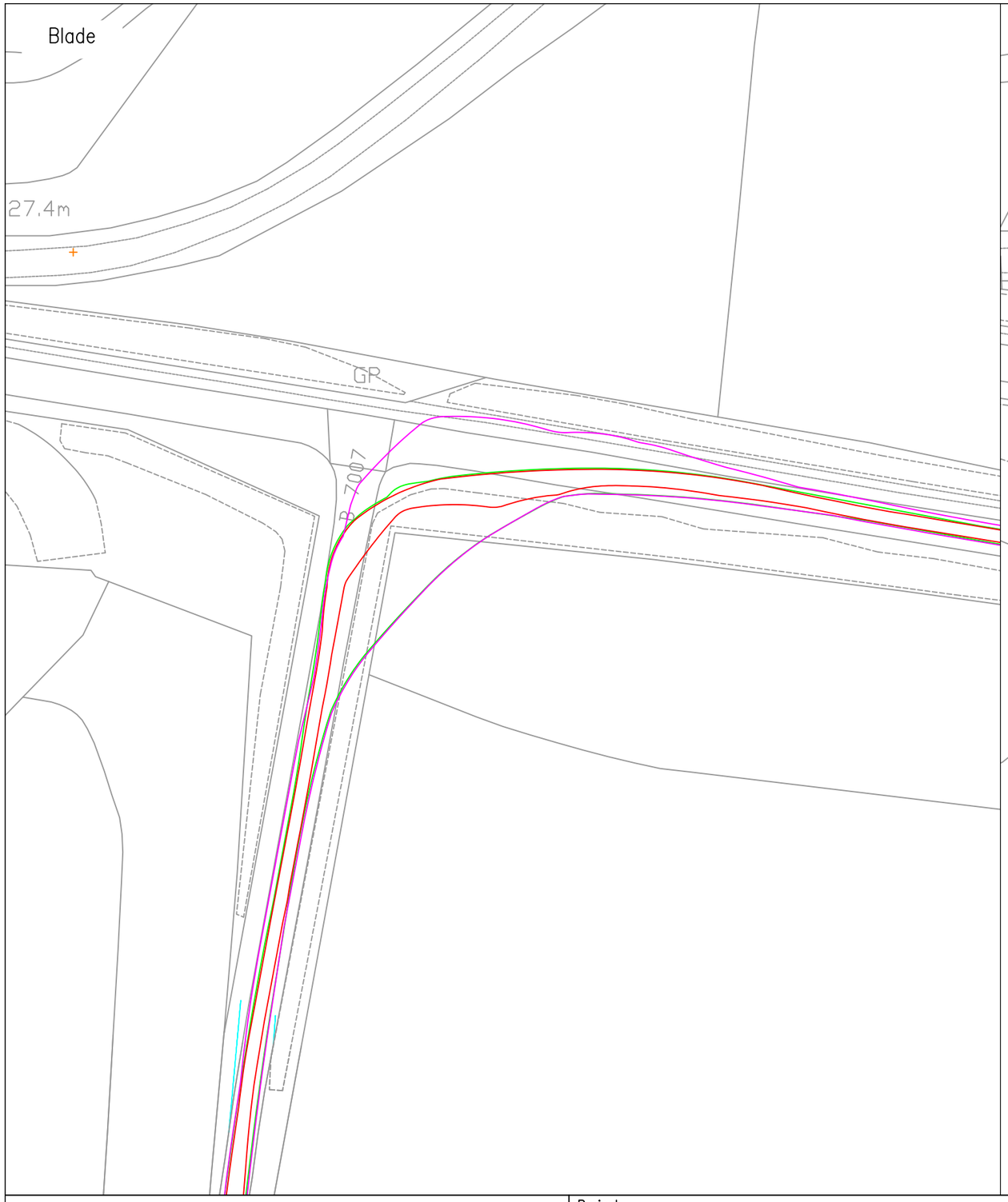
Drawing Status: Draft

Drawing No.: SK15A

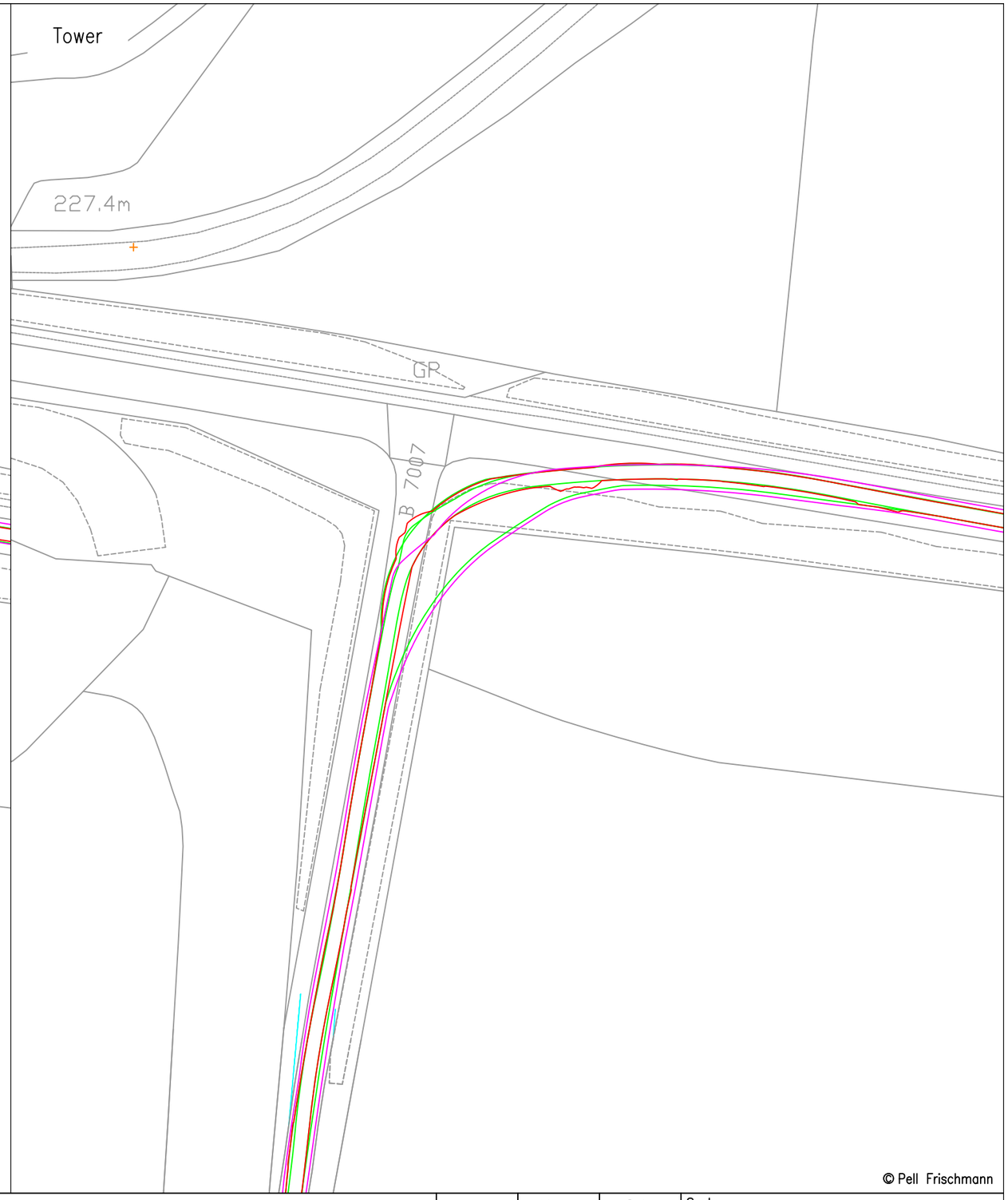
Notes:
1. All mitigation is subject to confirmation through a test run.
2. This is not a construction drawing and is intended for illustration purposes only.
3. Indicative road edges have been provided for illustration only and should be confirmed through a test run or topographical survey.

Revision: XXX

Blade



Tower



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Client: RES Limited

Key

Wheel SPA	Body SPA	Load SPA	Indicative	Overrun	Over-sail

Project: Torfichen Wind Farm

Drawing Title: Vestas V150 Blade and Tower

SPA Location: A7/B7007 Junction

	Name	Date
Drawn	AD	07/09/2023
Designed	TL	07/09/2023
Checked	TL	07/09/2023
Point of Interest		23

Scale: 1:1000 @ A3

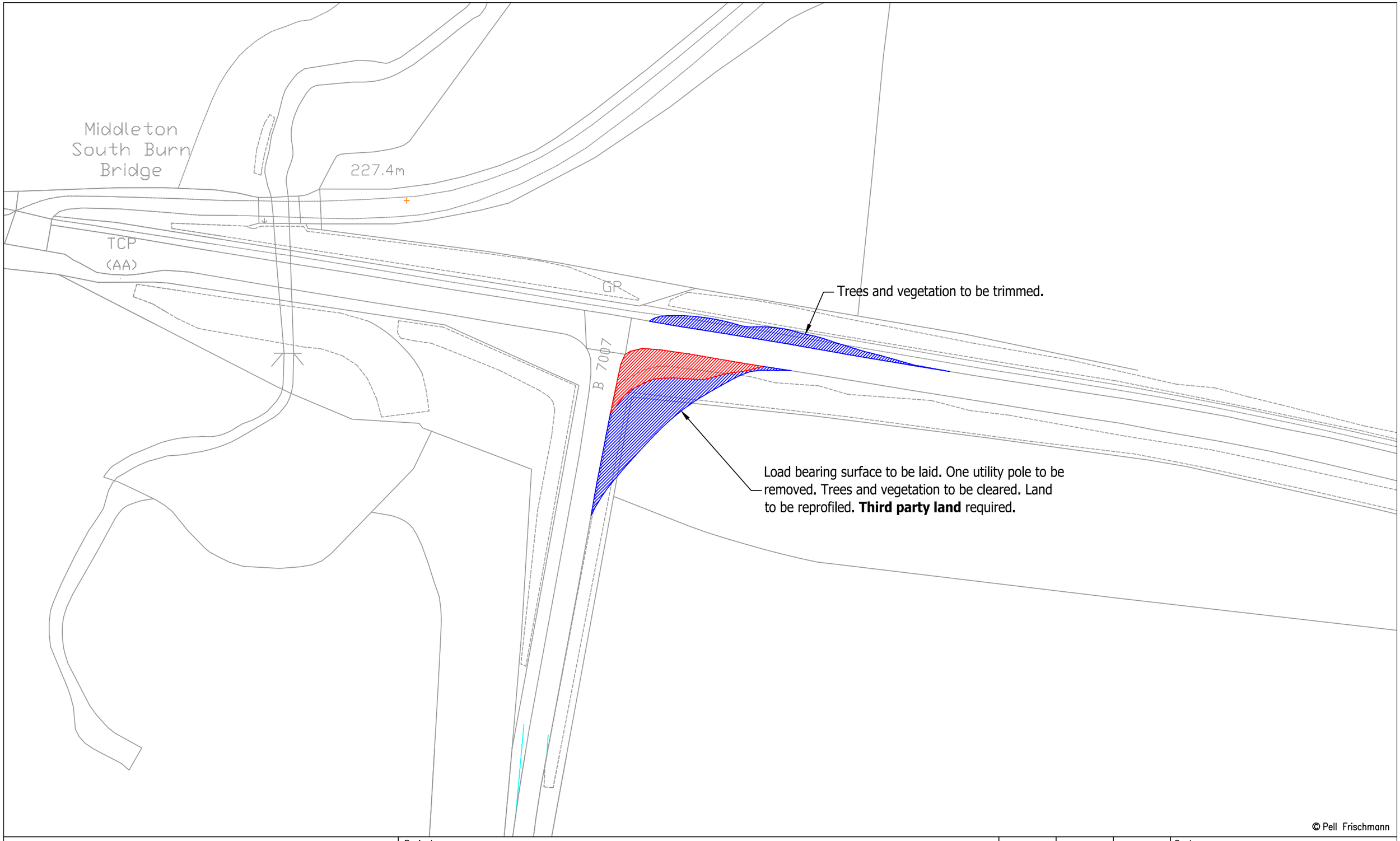
File No.: 230829 Torfichen SPA V150.dwg

Drawing Status: Draft

Drawing No.: SK16

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.
3. Indicative road edges have been provided for illustration only and should be confirmed through a test run or topographical survey.

Revision: XXX



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Client: RES Limited

Key

Wheel SPA	Body SPA	Load SPA	Indicative	Overrun	Over-sail

Project: Torfichen Wind Farm

Drawing Title: Vestas V150 Blade and Tower

SPA Location: A7/B7007 Junction

	Name	Date
Drawn	AD	07/09/2023
Designed	TL	07/09/2023
Checked	TL	07/09/2023
Point of Interest		23

Scale: 1:1000 @ A3

File No.: 230829 Torfichen SPA V150.dwg

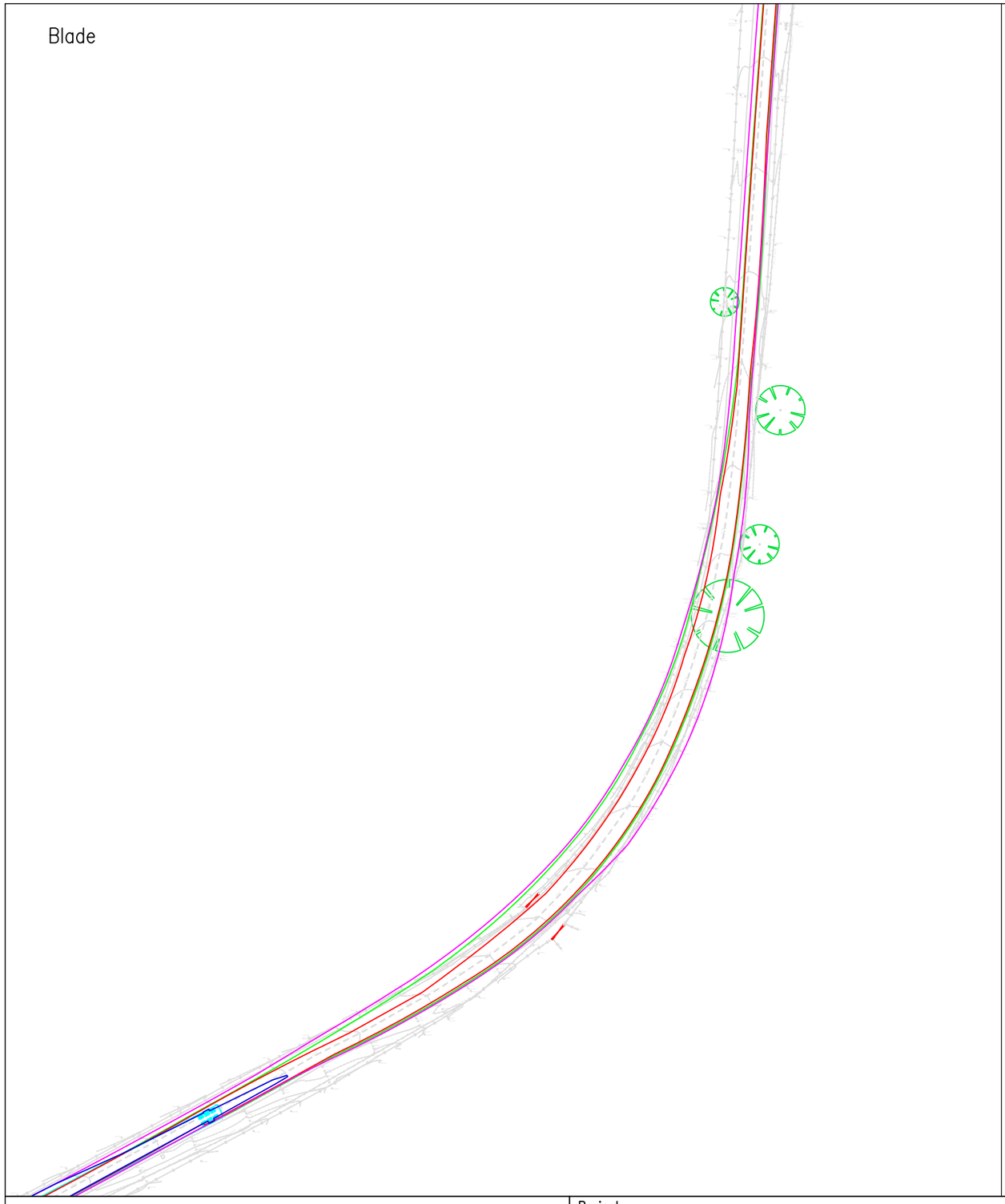
Drawing Status: Draft

Drawing No.: SK16A

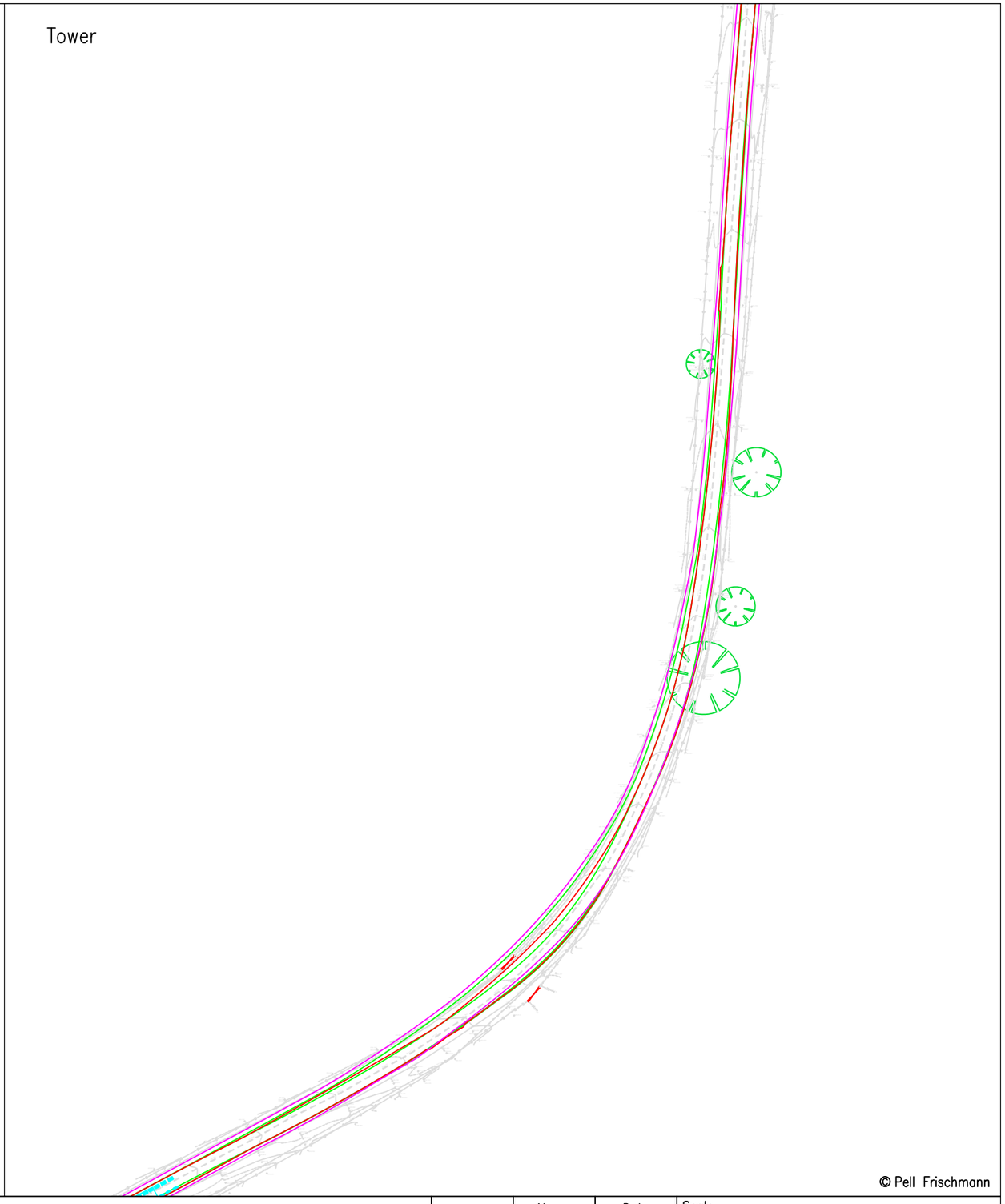
Notes:
1. All mitigation is subject to confirmation through a test run.
2. This is not a construction drawing and is intended for illustration purposes only.
3. Indicative road edges have been provided for illustration only and should be confirmed through a test run or topographical survey.

Revision: XXX

Blade



Tower



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Client: RES Limited

Project: Torfichen Wind Farm

Drawing Title: Vestas V150 Blade and Tower

SPA Location: B7007 South of Middleton

Key	Wheel SPA	Body SPA	Load SPA	Indicative	Overrun	Over-sail

	Name	Date
Drawn	AD	07/09/2023
Designed	TL	07/09/2023
Checked	TL	07/09/2023
Point of Interest		24

Scale: 1:1000 @ A3

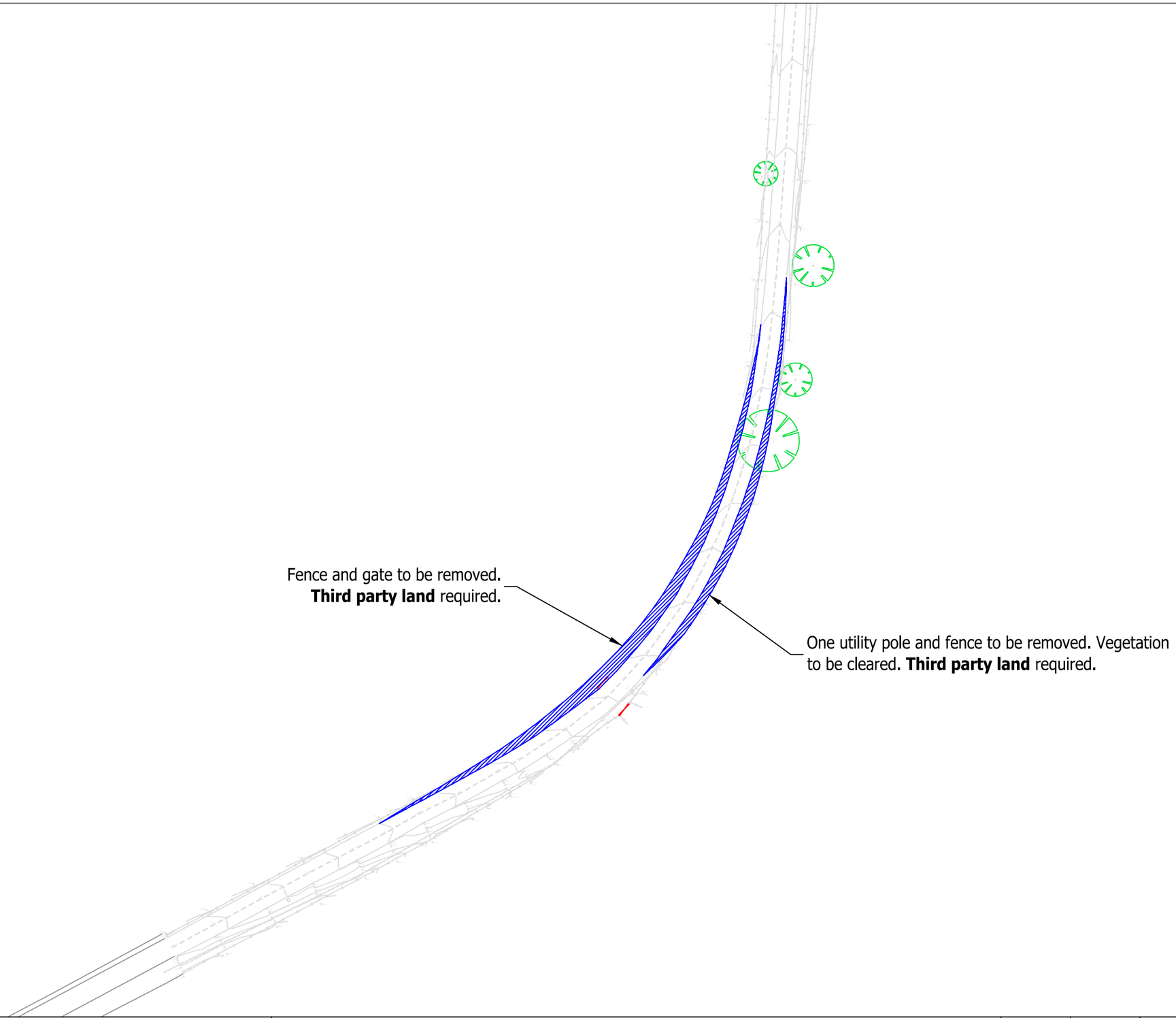
File No.: 230829 Torfichen SPA V150.dwg

Drawing Status: Draft

Drawing No.: SK17

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.
3. Indicative road edges have been provided for illustration only and should be confirmed through a test run or topographical survey.

Revision: XXX



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Client: RES Limited

Key

Wheel SPA	Body SPA	Load SPA	Indicative	Overrun	Over-sail

Project: Torfichen Wind Farm

Drawing Title: Vestas V150 Blade and Tower

SPA Location: B7007 South of Middleton

	Name	Date
Drawn	AD	07/09/2023
Designed	TL	07/09/2023
Checked	TL	07/09/2023
Point of Interest		24

Scale: 1:1000 @ A3

File No.: 230829 Torfichen SPA V150.dwg

Drawing Status: Draft

Drawing No.: SK17A

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.
3. Indicative road edges have been provided for illustration only and should be confirmed through a test run or topographical survey.

Revision: XXX

Blade

Tower

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Client: RES Limited

Key	Wheel SPA	Body SPA	Load SPA	Indicative	Overrun	Over-sail

Project: Torfichen Wind Farm

Drawing Title: Vestas V150 Blade and Tower

SPA Location: B7007 North of Ruther Law

	Name	Date
Drawn	AD	07/09/2023
Designed	TL	07/09/2023
Checked	TL	07/09/2023
Point of Interest		25

Scale: 1:1000 @ A3

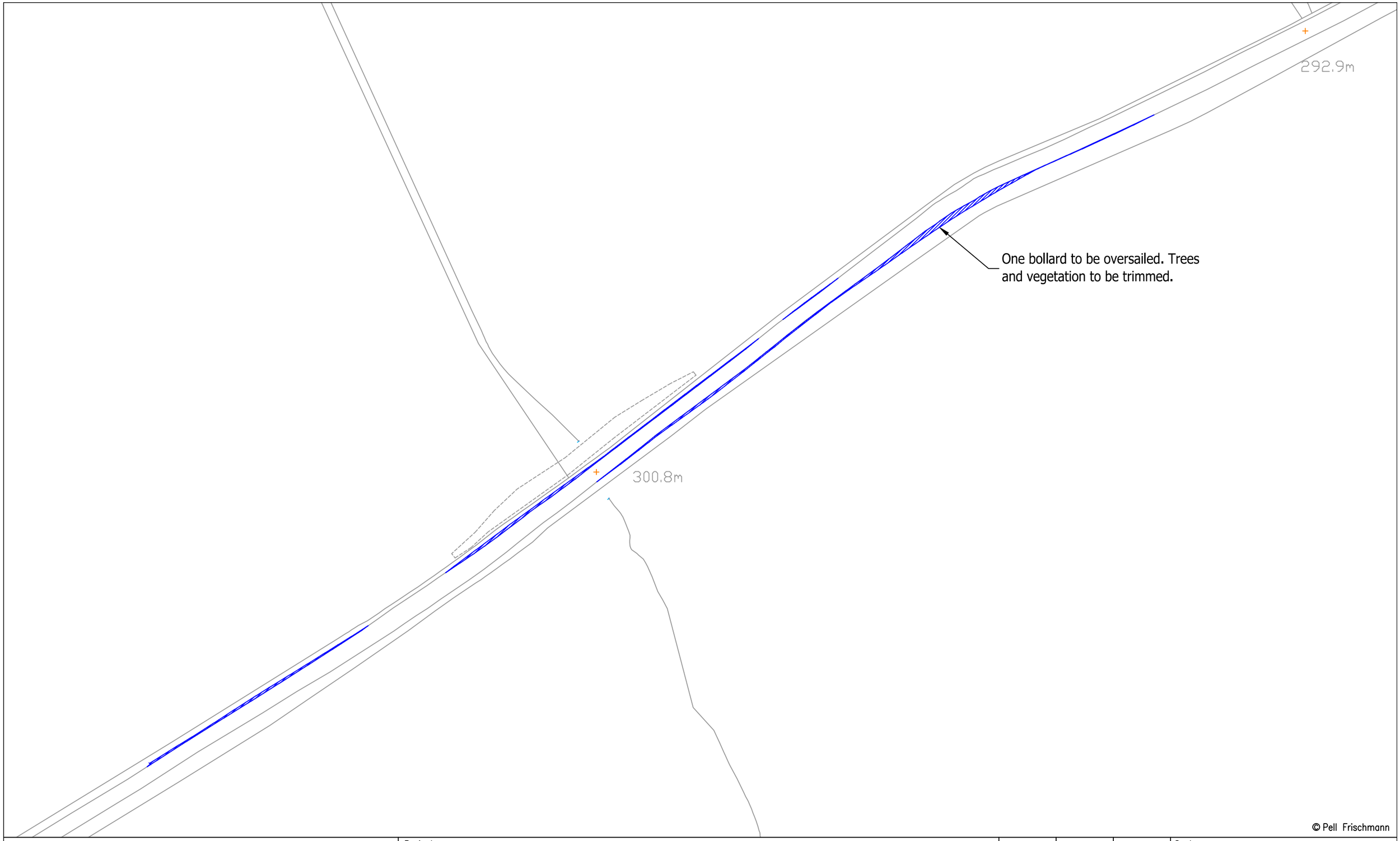
File No.: 230829 Torfichen SPA V150.dwg

Drawing Status: Draft

Drawing No.: SK18

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.
3. Indicative road edges have been provided for illustration only and should be confirmed through a test run or topographical survey.

Revision: XXX



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Client: RES Limited

Project: Torfichen Wind Farm

Drawing Title: Vestas V150 Blade and Tower

SPA Location: B7007 North of Ruther Law

Key	Wheel SPA	Body SPA	Load SPA	Indicative	Overrun	Over-sail

	Name	Date
Drawn	AD	07/09/2023
Designed	TL	07/09/2023
Checked	TL	07/09/2023
Point of Interest		25

Scale: 1:1000 @ A3

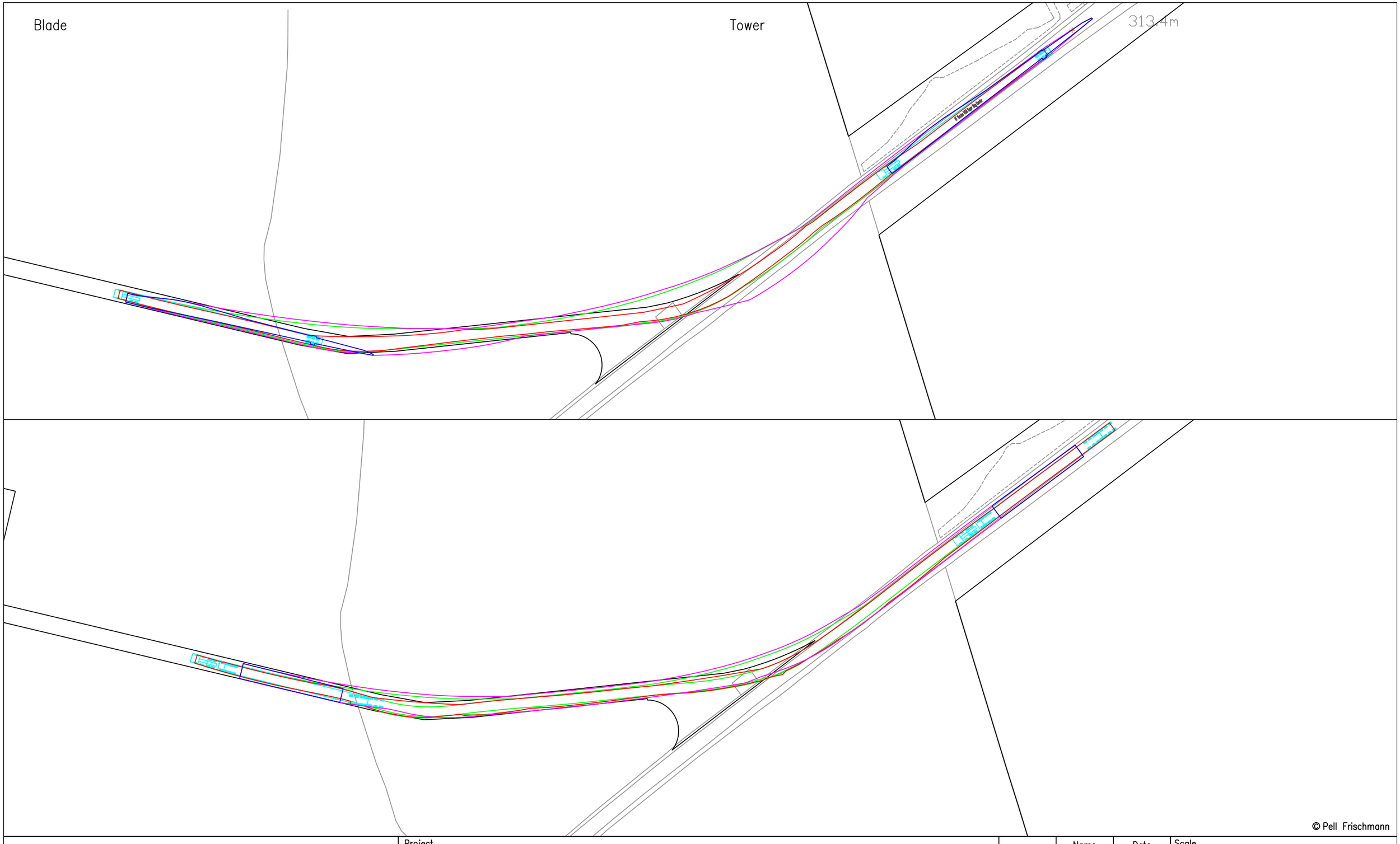
File No.: 230829 Torfichen SPA V150.dwg

Drawing Status: Draft

Drawing No.: SK18A

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.
3. Indicative road edges have been provided for illustration only and should be confirmed through a test run or topographical survey.

Revision: XXX



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Client: RES Limited

Key

Wheel SPA	Body SPA	Load SPA	Indicative	Overrun	Over–sail

Project: Torfichen Wind Farm

Drawing Title: Vestas V150 Blade and Tower

SPA Location: Proposed Site Access Junction

	Name	Date
Drawn	AD	07/09/2023
Designed	TL	07/09/2023
Checked	TL	07/09/2023
Point of Interest		26

Scale: 1:1000 @ A3

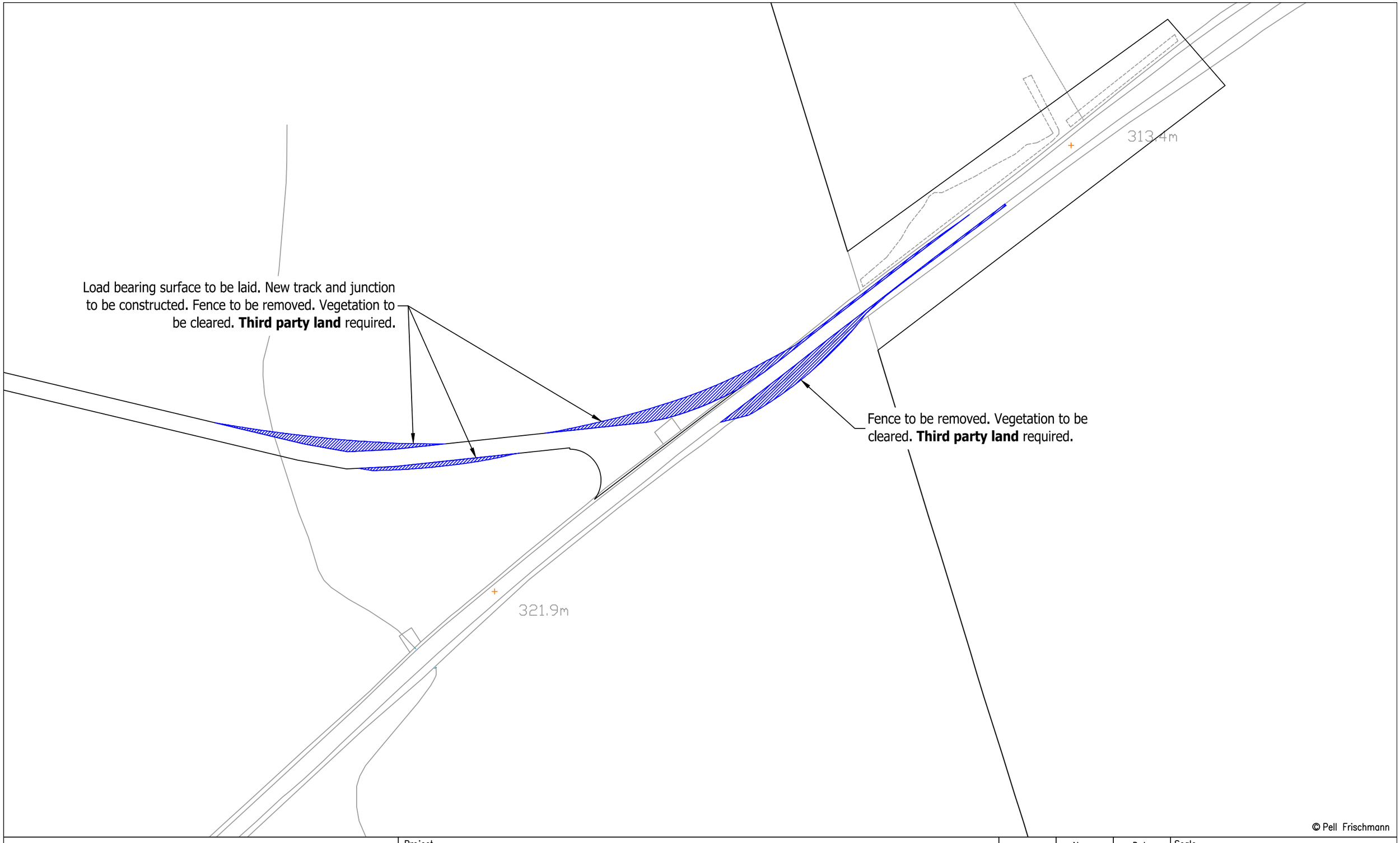
File No.: 230829 Torfichen SPA V150.dwg

Drawing Status: Draft

Drawing No.: SK19

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.
3. Indicative road edges have been provided for illustration only and should be confirmed through a test run or topographical survey.

Revision: XXX



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www.pellfrischmann.com

Client: RES Limited

Key

Wheel SPA	Body SPA	Load SPA	Indicative	Overrun	Over-sail

Project: Torfichen Wind Farm

Drawing Title: Vestas V150 Blade and Tower

SPA Location: Proposed Site Access Junction

	Name	Date
Drawn	AD	07/09/2023
Designed	TL	07/09/2023
Checked	TL	07/09/2023
Point of Interest		26

Scale: 1:1000 @ A3

File No.: 230829 Torfichen SPA V150.dwg

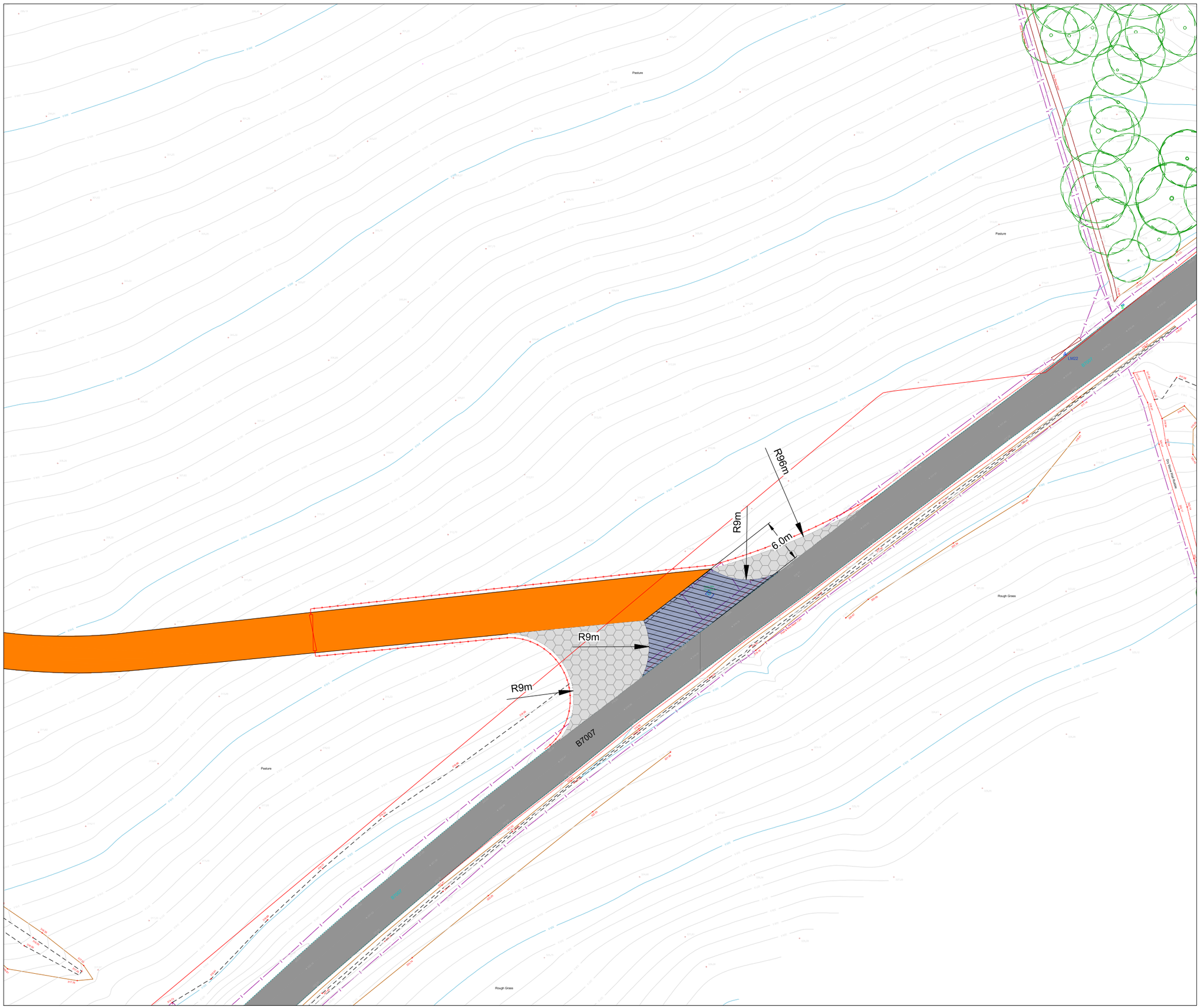
Drawing Status: Draft

Drawing No.: SK19A

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.
3. Indicative road edges have been provided for illustration only and should be confirmed through a test run or topographical survey.

Revision: XXX

Annex B Indicative Access Junction



KEY:

- EXISTING ROAD/TRACK SURFACE
- PROPOSED SITE ACCESS TRACK
- PROPOSED ABNORMAL LOADS: AREA WILL BE REINSTATED ON COMPLETION OF WIND FARM CONSTRUCTION

- 60mm SURFACE COURSE, 75mm BINDER COURSE
- MINIMUM 150mm TYPE 1 SUB-BASE SOFT AREAS AND UNSUITABLE MATERIAL (PEAT, TOPSOIL, SILT) TO BE REMOVED.
- MINIMUM FALL FROM ENTRANCE GATE TO PUBLIC ROAD 1:100.
- EXISTENCE OF SERVICES TO BE CHECKED WITH RELEVANT AUTHORITIES.

- PROPOSED TEMPORARY STOCK PROOF FENCE WITH HEDGING & PLANTING INSIDE BOUNDARY
- PROPOSED GATE
- UNDERGROUND CABLE

NOTES:

1. DO NOT SCALE FROM DRAWING.
2. DETAILS AND DIMENSIONS ARE INDICATIVE ONLY AND SUBJECT TO CHANGES AT DETAILED DESIGN STAGE.
3. APPROPRIATE SUDS DESIGN MEASURES WILL BE EMPLOYED AT DETAIL DESIGN STAGE.

TOPOGRAPHICAL SURVEY KEY:

- EXISTING FENCING
- EXISTING TREES

ISSUE	DRAWN	CHKD	APPD	DATE	REVISION NOTES
0	MC				First Issue

PURPOSE: PRELIMINARY	COORDINATES: OSGB 1936
SCALE: 1:500 @A3	DATUM: N/A
LAYOUT DRAWING: N/A	T-LAYOUT NO: N/A

PROJECT TITLE:
TORFICHEN
WIND FARM

DRAWING TITLE:
SITE ENTRANCE
LAYOUT

RES DRAWING NUMBER	REV
04726-RES-ACC-DR-PE-002	0

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KEY

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- PROPOSED SITE ACCESS TRACK
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- MINIMUM FALL FROM ENTRANCE GATE TO PUBLIC ROAD 1:100.
- EXISTENCE OF SERVICES TO BE CHECKED WITH RELEVANT AUTHORITIES.

- MINIMUM REQUIREMENTS FOR VISIBILITY IN ACCORDANCE WITH THE DESIGN MANUAL FOR ROADS AND BRIDGES.
- VEGETATION TO BE TRIMMED OR REMOVED

- PROPOSED TEMPORARY STOCK PROOF FENCE WITH HEDGING & PLANTING INSIDE BOUNDARY
- PROPOSED GATE
- EXISTING FENCING
- EXISTING TREES
- UNDERGROUND CABLE

NOTES:

1. DO NOT SCALE FROM DRAWING.
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4. ALL VISIBILITY SPLAYS SHOWN ARE WITHIN LANDS UNDER APPLICANTS CONTROL. ANY PHYSICAL HINDRANCES WITHIN THE EXTENTS OF THE VISIBILITY SPLAYS WILL BE REMOVED. VEGETATION WILL BE TRIMMED TO A MAXIMUM OF 250MM ABOVE EGL.

ISSUE	DRAWN	CHKD	APPD	DATE	REVISION NOTES
0	MC				First Issue

PURPOSE: PRELIMINARY	COORDINATES: OSGB 1936
SCALE: 1:1,250 @A3	DATUM: N/A
LAYOUT DRAWING: N/A	T-LAYOUT NO: N/A

PROJECT TITLE
TORFICHEN
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