



APPENDIX 15-3

SWEPT PATH ANALYSIS



Digital Land Surveyors Ltd.

◆ SWEPT PATH ANALYSIS SPECIALISTS ◆

Swept Path Analysis

Delivery route for the proposed Knockshanvo Wind Farm, Co. Clare

Report for :
Future Energy Ireland Limited
27/28 Herbert Place
Dublin 2
D02 DC97

Report prepared by:
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Date:
July 2023

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Non-Disclosure Notice

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Third Party Disclaimer

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1. Introduction

1.1. Purpose of the Report

Digital Land Surveyors Ltd were commissioned by Future Energy Ireland to undertake a Swept Path Analysis on the delivery route for the proposed Knockshanvo Wind Farm, Co. Clare.

All the pinch points assessed in this report were identified by Collett & Sons Ltd in their Primary Route Assessment Report No. 375938 dated 13th December 2022 annexed hereto. The pinch point numbering sequence of the pinch points in this report mirrors that of Collett's report.

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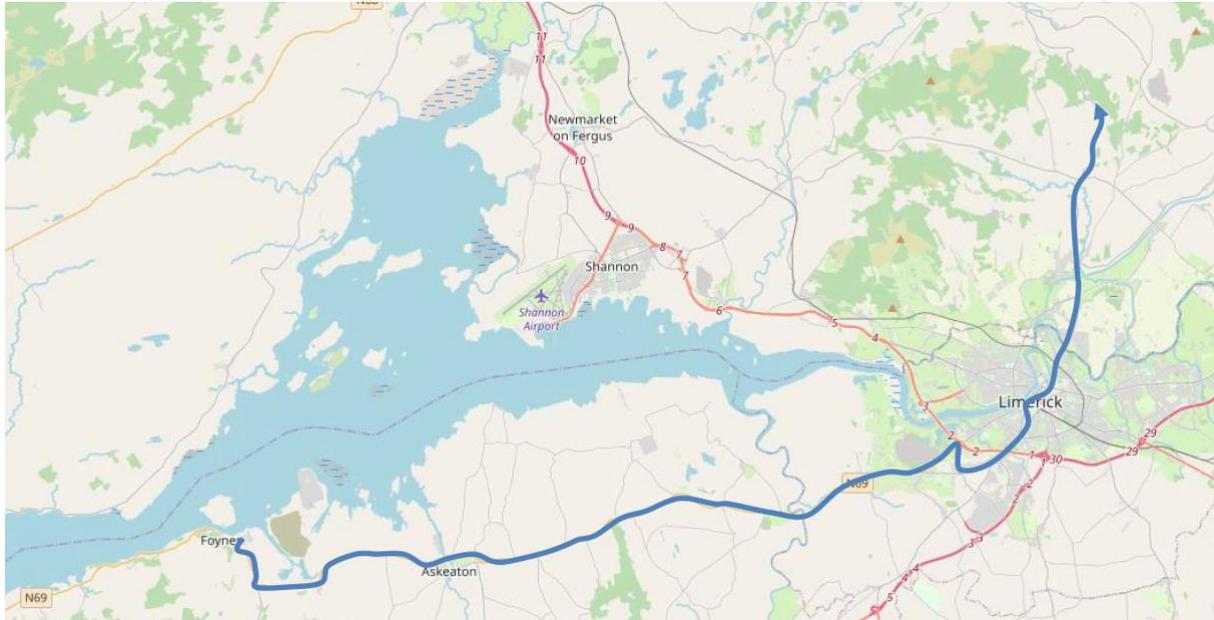
The SPA identifies where the Proposed Development may require mitigation works to accommodate the delivery of the 81.5m blade and 34.46m tower section; however, the detailed design of these remedial works is beyond the agreed scope of this report.

1.2. Important Notes

This Swept Path Analysis was carried out based on aerial imagery and a topographical survey to identify the extent of vegetation, tarmac edges, utility obstruction etc. in order to determine the least disruptive path through the pinch points outlined in Collett's report outline above. Overhead utility cables have been identified as they cross or run alongside the road however their height was not measured as part of the SPA, therefore prior to delivery of the blade the utility cables should be measured, and the utility companies should be contacted regarding heights of the cables and potential remedies. Utility poles have also been identified and where required recommended to be removed. Prior to removal consultation with the relevant utility companies is required.

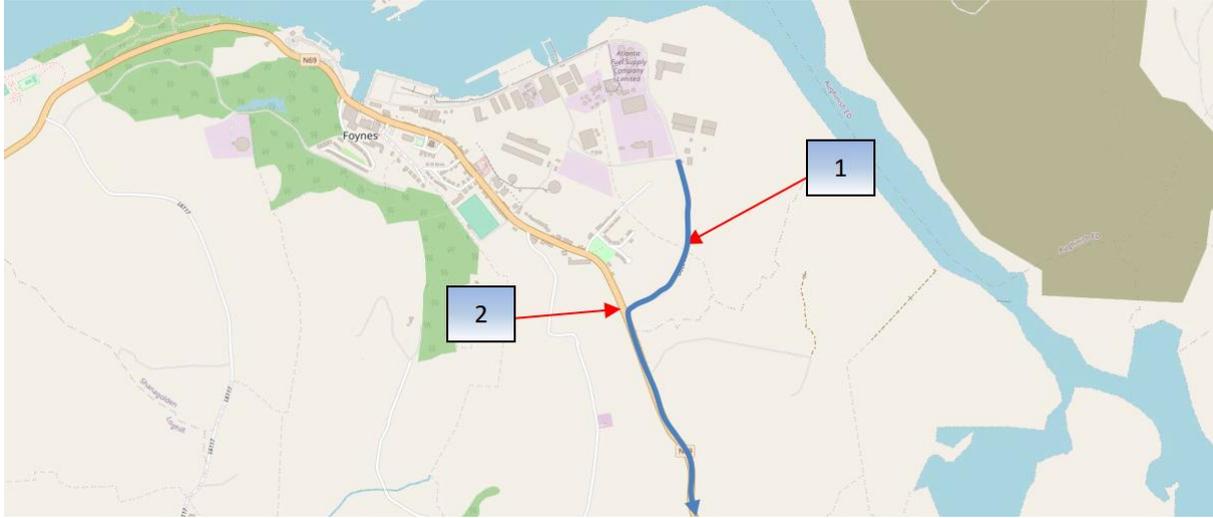
2. Drawings

2.1. Location Overview



2.2. Map of Pinch Point Locations

2.2.1. Map 1



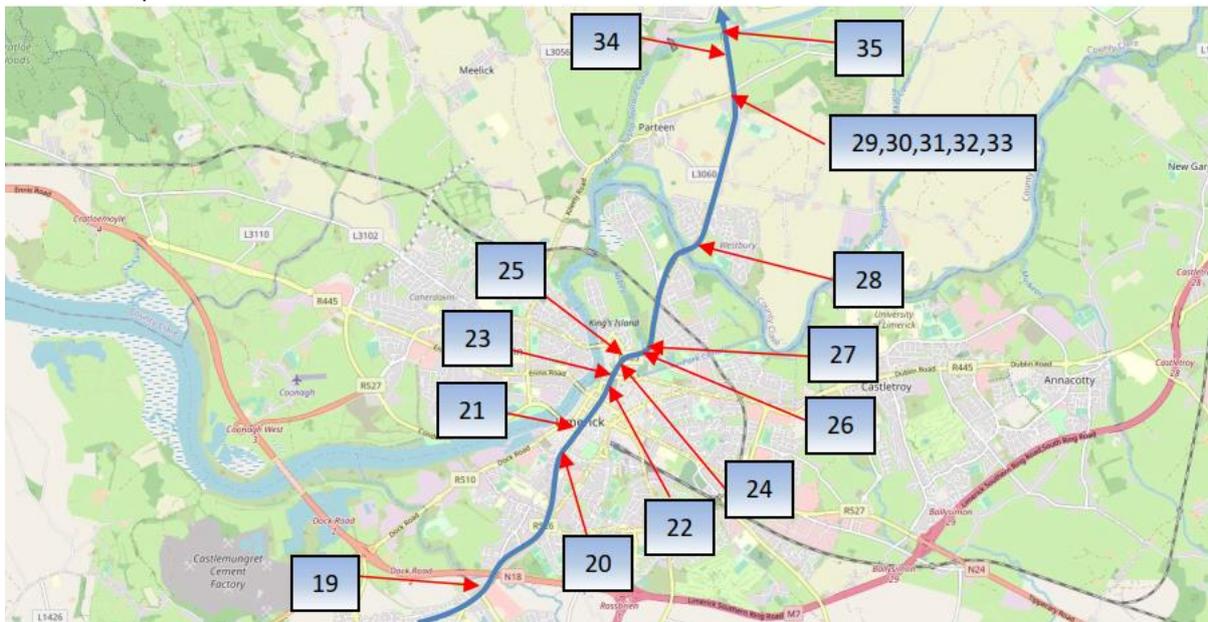
2.2.2. Map 2



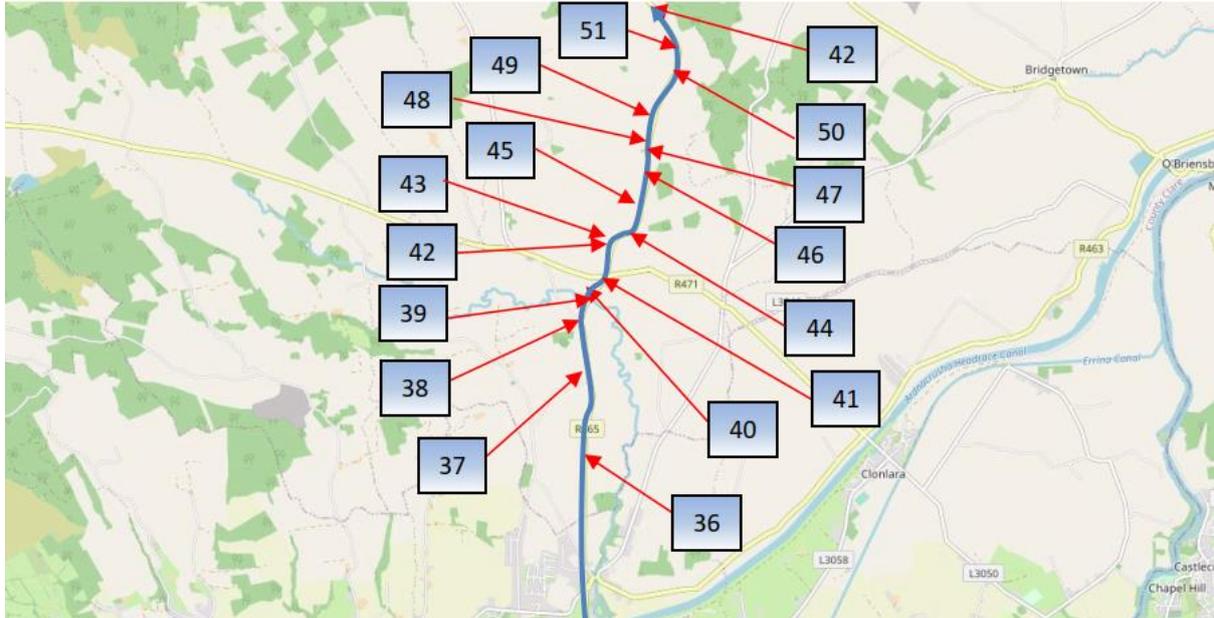
2.2.3. Map 3



2.2.4. Map 4



2.2.5. Map 5



3. Swept Path Analysis Drawings

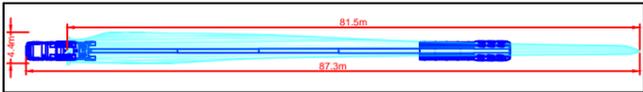
The pinch points that were analysed are as identified by Collett & Sons Ltd in their Primary Route Assessment Report No. 375938 dated 13th December 2022, these are as follows:

Location 2
Location 3
Location 4
Location 5
Location 6
Location 7
Location 10
Location 11
Location 12 [Vertical Analysis]
Location 13
Location 14
Location 15
Location 16
Location 17
Location 18
Location 19
Location 24
Location 25 [Vertical Analysis]
Location 26 [Vertical Analysis]
Location 27
Location 35 [Vertical Analysis]
Location 36 [Vertical Analysis]
Location 37 [Vertical Analysis]

The swept path analysis considered three options for the proposed route as follows:

- 3.1 Nootboom Superwing Carrier on the entire route – blade component
- 3.2 Nootboom Superwing Carrier [from Location 2 to Location 13] and Blade Lifter FTV 850 and Truck [from Location 14 to Location 37] – blade component.
- 3.3 Nootboom Lift AD-100 on entire route - tower component.

3.1. Nooteboom Superwing Carrier on the entire route – blade component



Swept Path indicates trailer utilising MANUAL steering

Generic Blade Component
NOOTEBOOM SUPERWING CARRIER



Area shaded Orange to be cleared of all obstructions to allow load to oversail. Hedge / trees to be pruned.

Road sign to be removed

S-Bend On N69

****Caution****

- Obstructions to be removed within the area shaded Orange.
- Trees, hedges shrubs etc. to be pruned / removed, as necessary, in area shaded Orange.
- Road signs to be removed in areas shaded Orange.

- Area within Magenta outline will be oversailed by vehicle load
- Area within Blue outline will be oversailed by vehicle body
- Tractor Axles outlined in Green
- Trailer Axles outlined in Red
- Area shaded Orange requires oversail by load and projections -to be cleared of all obstructions

ITM GRID REFERENCE: 526087 650306

- The Swept Path Analysis provided is produced from a transport orientated view only and does not consider any issues in terms of land ownership, or any other precincts that may otherwise be restrictive.
- This drawing has been created from data produced from Aerial Imagery and OSI mapping.
- All Swept Path diagrams, drawings and assessments are calculated for the movement of loaded trailer equipment carrying Wind Turbine components. These calculations are based on the turning circles and specification of the specified trailer equipment details in this SPA.
- Delivery vehicles can be right or left hand vehicles therefore due to driver interpretation it is assumed that each vehicle will not follow the same path. Consequently, a buffer zone will be required outside of the Swept Path Analysis.
- This SPA is a means of providing evidence of minimum clearance of any vehicle as a footprint and there is no margin or safety cordon included.
- In locations where modifications are required for road widening the road construction must be formed in strict accordance with the specification contained within the Turbine Manufactures Transport Guidance document.
- The term Land Take refers to where land is required from Privately Owned Lands. The term Road Widening refers to where land is required within the carriageway boundaries. The boundaries between privately owned lands and the carriageway curtailment are assumed to be identified by walls/fence lines/hedges etc. Actual boundaries between private lands and the carriageway curtailment are not identified within this report and should only be authenticated by land searches.
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- Dimensions are in metres. Written dimensions only. Drawing not to be scaled.

Site Inspection/Survey required prior to any works commencing.

SCALE
1:1500

DATE
26/07/2023

Trail Run of all delivery vehicles on Delivery route to be carried out on full extents of route prior to delivery of turbine components.

SHEET NO.
2

SITE
KNOCKSHANVO WINDFARM

DRG NO.
B2310

TITLE
LOCATION 3 - S-BEND ON N69

PREPARED BY
R. HARKIN

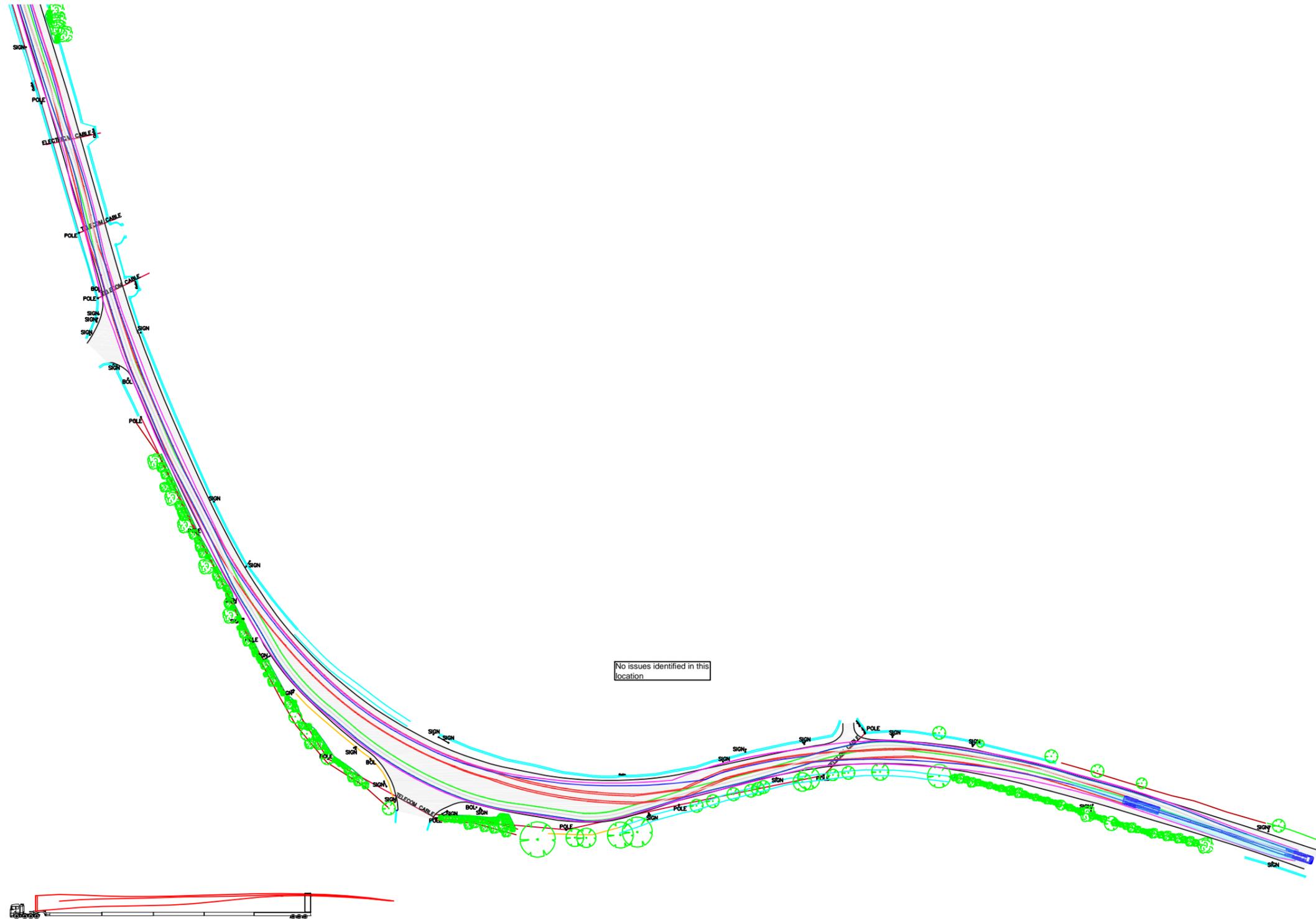
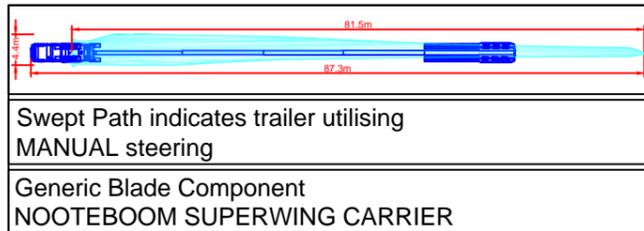
CLIENT
FUTUREENERGY IRELAND

SIZE
A3

UNIT 4, FIRST FLOOR, GLEN VIEW BUSINESS PARK,
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Left and Right Bend on N69

****Caution****

- No issues identified

- Area within Magenta outline will be oversailed by vehicle load
- Area within Blue outline will be oversailed by vehicle body
- Tractor Axles outlined in Green
- Trailer Axles outlined in Red

ITM GRID REFERENCE: 526240 649842

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SITE KNOCKSHANVO WINDFARM
TITLE LOCATION 4&5 - LEFT AND RIGHT BEND ON N69
CLIENT FUTUREENERGY IRELAND

DRG NO. B2310
PREPARED BY R.HARKIN
SIZE A3

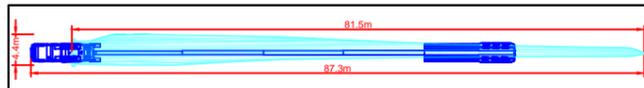
DATE 26/07/2023
SCALE 1:1500
SHEET NO. 3

Site Inspection/Survey required prior to any works commencing.

Trail Run of all delivery vehicles on Delivery route to be carried out on full extents of route prior to delivery of turbine components.

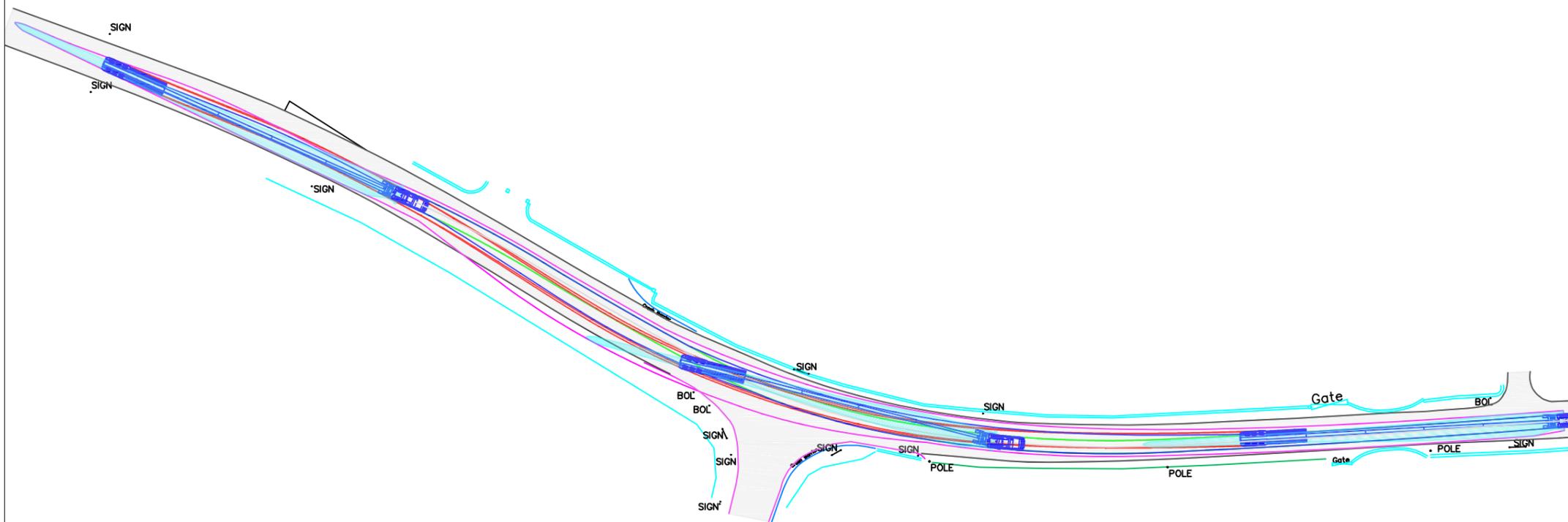
UNIT 4, FIRST FLOOR, GLEN VIEW BUSINESS PARK,
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Swept Path indicates trailer utilising
AUTOMATIC steering

Generic Blade Component
NOOTEBOOM SUPERWING CARRIER



Left bend on N69

- No issues identified at this location.

- Area within Magenta outline will be oversailed by vehicle load
- Area within Blue outline will be oversailed by vehicle body
- Tractor Axles outlined in Green
- Trailer Axles outlined in Red

ITM GRID REFERENCE: 526759 649706

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SITE KNOCKSHANVO WINDFARM	DRG NO. B2310	DATE 24/07/2023
TITLE LOCATION 6 - LEFT BEND ON N69	PREPARED BY W.GALLAGHER	SCALE 1:1000
CLIENT FUTUREENERGY IRELAND	SIZE A3	SHEET NO. 4

DRG NO. B2310	DATE 24/07/2023
PREPARED BY W.GALLAGHER	SCALE 1:1000
SIZE A3	SHEET NO. 4

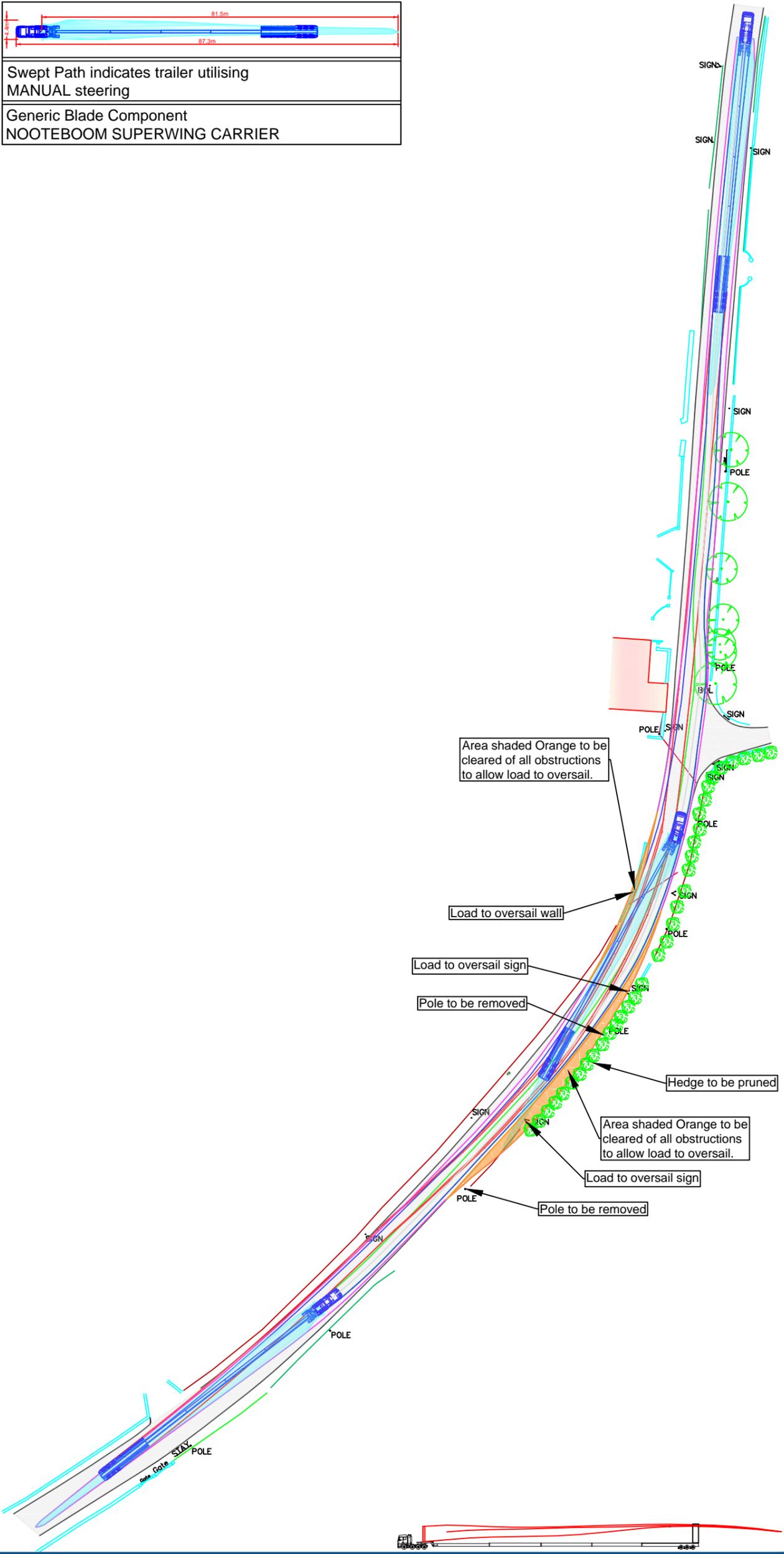
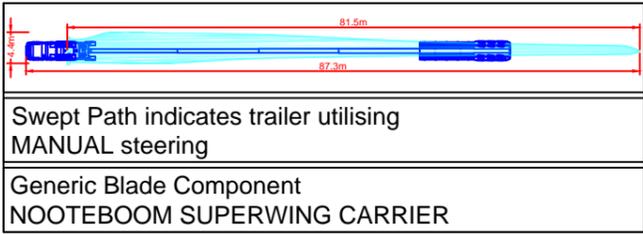
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Trail Run of all delivery vehicles on Delivery route to be carried out on full extents of route prior to delivery of turbine components.

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Left bend on N69
Caution

- Obstructions to be removed within areas shaded Orange to allow load to oversail. Poles to be removed. Hedge to be pruned.

- Area within Magenta outline will be oversailed by vehicle load
- Area within Blue outline will be oversailed by vehicle body
- Tractor Axles outlined in Green
- Trailer Axles outlined in Red
- Area shaded Orange requires oversail by load and projections -to be cleared of all obstructions

ITM GRID REFERENCE: 528714 650039

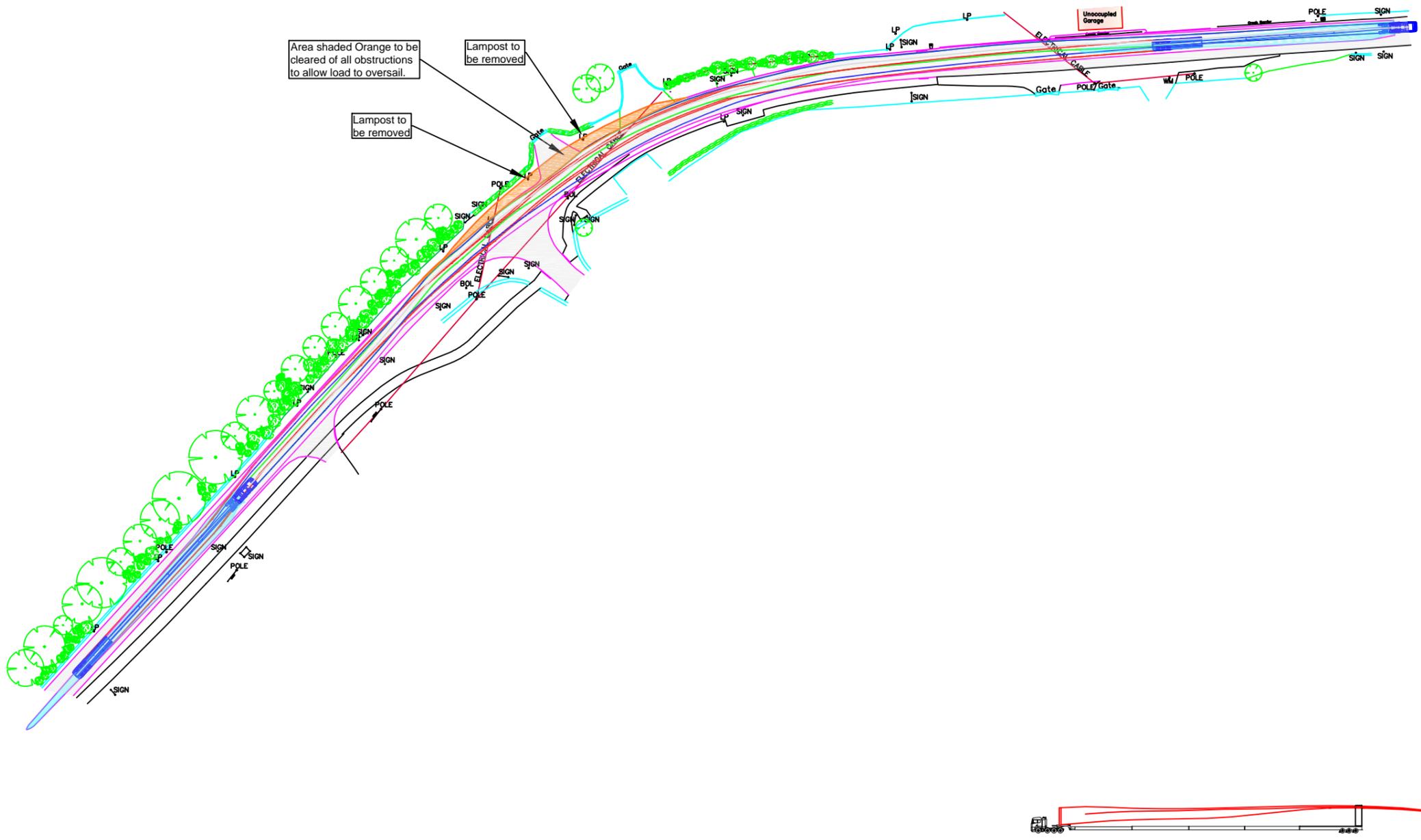
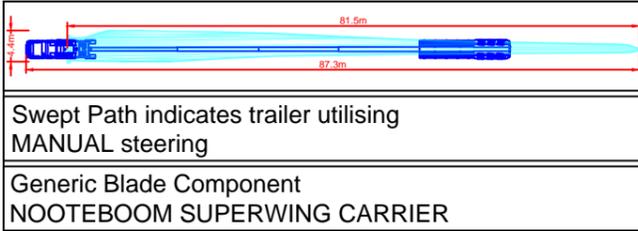
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Site Inspection/Survey required prior to any works commencing.	
Trail Run of all delivery vehicles on Delivery route to be carried out on full extents of route prior to delivery of turbine components.	
SITE KNOCKSHANVO WINDFARM	DRG NO. B2310
TITLE LOCATION 7 - LEFT BEND ON N69	PREPARED BY W.GALLAGHER
CLIENT FUTUREENERGY IRELAND	SIZE A3

SCALE 1:1000	DATE 24/07/2023
SHEET NO. 5	

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Right Bend on N69

****Caution****

- Obstructions to be removed within the area shaded Orange.
- 2no. lampposts to be removed in the area shaded Orange

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- Area within Blue outline will be oversailed by vehicle body
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- Trailer Axles outlined in Red
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ITM GRID REFERENCE: 540423 652250

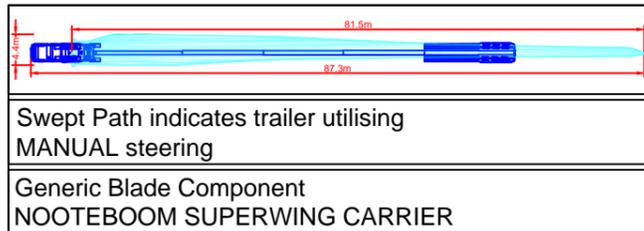
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SITE KNOCKSHANVO WINDFARM	DRG NO. B2310	DATE 26/07/2023
TITLE LOCATION 10 - RIGHT BEND ON N69	PREPARED BY R.HARKIN	SCALE 1:1250
CLIENT FUTUREENERGY IRELAND	SIZE A3	SHEET NO. 6

Site Inspection/Survey required prior to any works commencing.	
Trail Run of all delivery vehicles on Delivery route to be carried out on full extents of route prior to delivery of turbine components.	

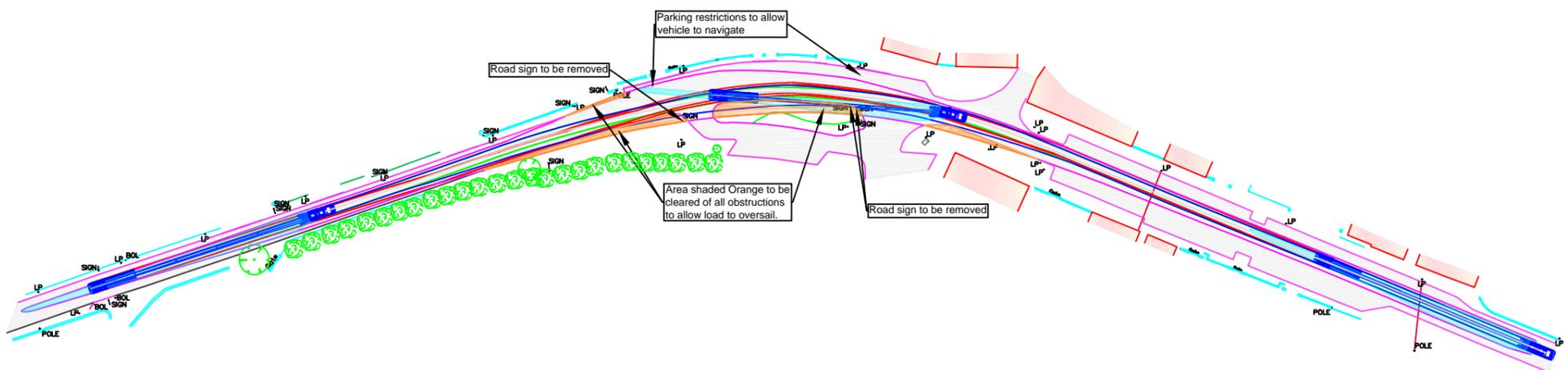
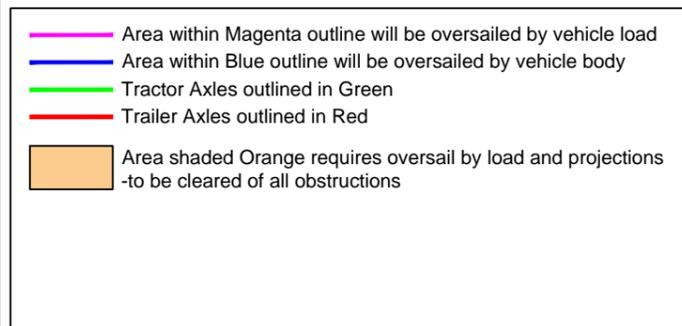
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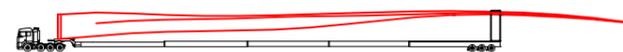
Right bend on N69 - Kildimo
Caution

- Obstructions to be removed/lowered within areas shaded Orange to allow load to oversail. Road signs to be removed.
- Parking restriction to be enforced on the nearside to allow delivery vehicle to navigate this location.



ITM GRID REFERENCE: 544962 652820

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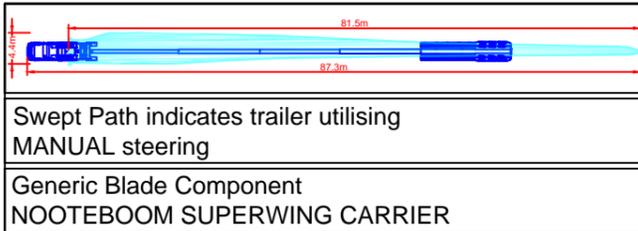


SITE KNOCKSHANVO WINDFARM	DRG NO. B2310	DATE 24/07/2023
TITLE LOCATION 11 - RIGHT BEND ON N69 - KILDIMO	PREPARED BY W.GALLAGHER	SCALE 1:1500
CLIENT FUTUREENERGY IRELAND	SIZE A3	SHEET NO. 7

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Trail Run of all delivery vehicles on Delivery route to be carried out on full extents of route prior to delivery of turbine components.	

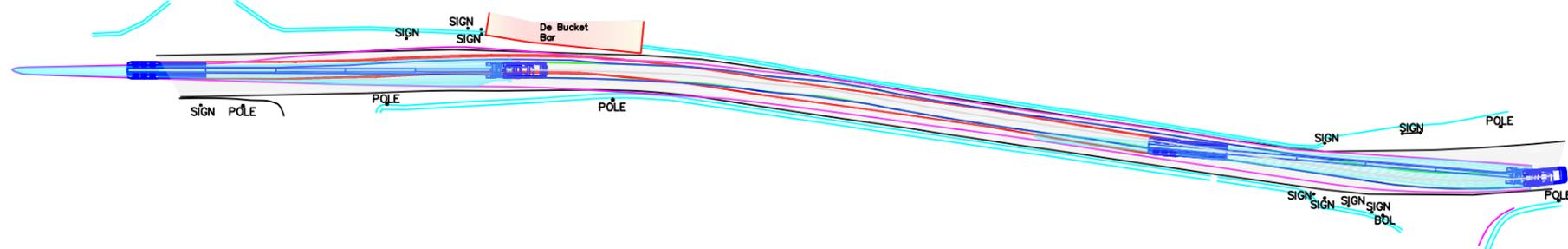
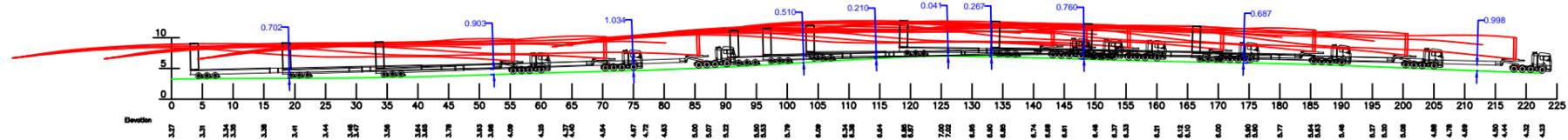
UNIT 4, FIRST FLOOR, GLEN VIEW BUSINESS PARK,
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Trailer retracted by 10m. To allow to pass over crest on bridge.

Load fully raised to avoid contact with road surface.



N69 Ferrybridge

****Caution****

- Load to be fully raised to avoid contact with the road surface.
- Trailer to be retracted by 10m.
- Minimum distance to road surface is 0.040m.
- Trailer deflection has not been considered therefore grounding maybe an issue.

- Area within Magenta outline will be oversailed by vehicle load
- Area within Blue outline will be oversailed by vehicle body
- Tractor Axles outlined in Green
- Trailer Axles outlined in Red

ITM GRID REFERENCE: 548119 652341

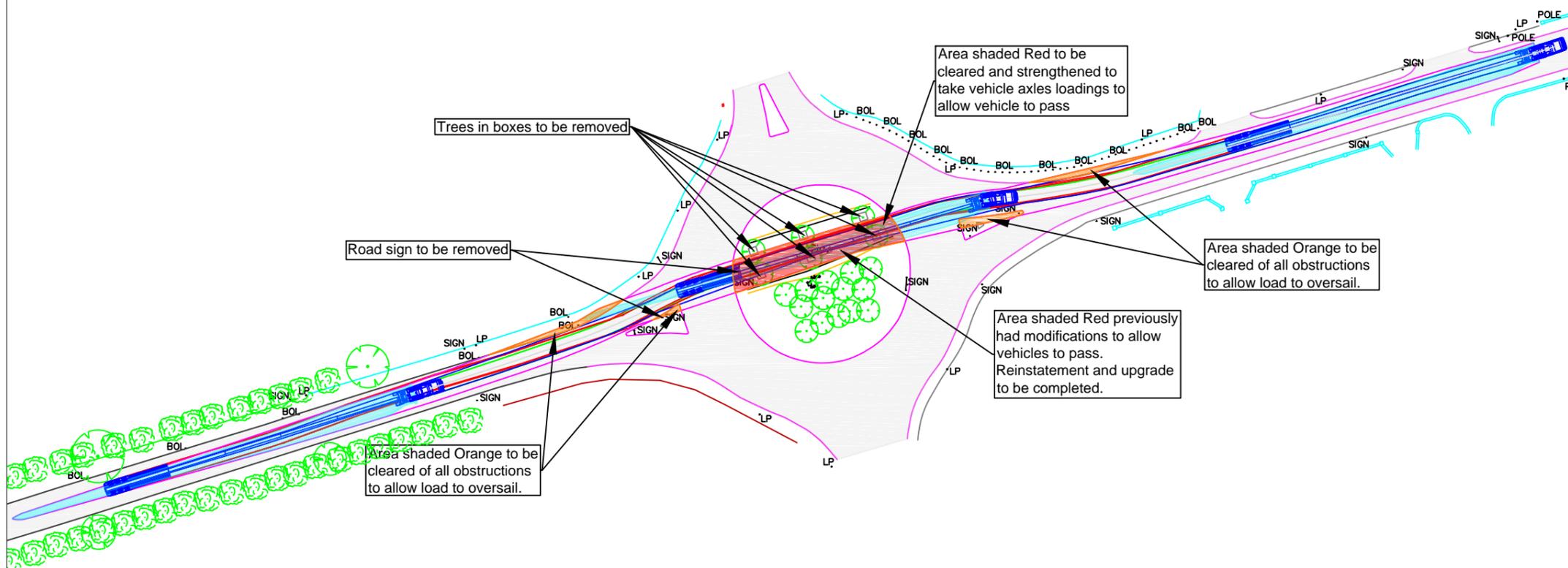
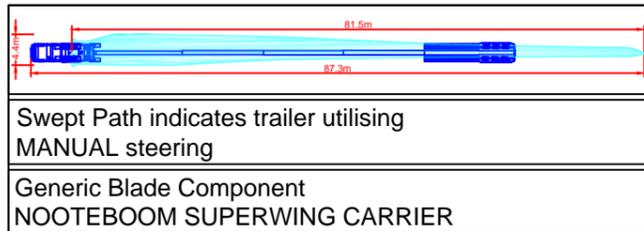
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SITE KNOCKSHANVO WINDFARM	DRG NO. B2310	DATE 26/07/2023
TITLE LOCATION 12 - N69 FERRYBRIDGE	PREPARED BY R.HARKIN	SCALE 1:1000
CLIENT FUTUREENERGY IRELAND	SIZE A3	SHEET NO. 8

Site Inspection/Survey required prior to any works commencing.	
Trail Run of all delivery vehicles on Delivery route to be carried out on full extents of route prior to delivery of turbine components.	

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Continue straight at Roundabout on N69 - Clarina
Caution

- Obstructions to be removed/lowered within areas shaded Orange to allow load to oversail. Road signs to be removed.
- Areas shaded Red to be cleared and prepared to allow vehicle axles to travel over. Road sign and boxes containing trees to be removed.
- Previous modifications carried out on roundabout to be reinstated and upgraded.

- Area within Magenta outline will be oversailed by vehicle load
- Area within Blue outline will be oversailed by vehicle body
- Tractor Axles outlined in Green
- Trailer Axles outlined in Red
- Area shaded Orange requires oversail by load and projections -to be cleared of all obstructions
- Area shaded RED requires ground works to enable the vehicle axles to pass including levelling and strengthening

ITM GRID REFERENCE: 550361 653664

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SITE KNOCKSHANVO WINDFARM	DRG NO. B2310	DATE 24/07/2023
TITLE LOCATION 13 - ROUNDABOUT ON N69 - CLARINA	PREPARED BY W.GALLAGHER	SCALE 1:1000
CLIENT FUTUREENERGY IRELAND	SIZE A3	SHEET NO. 9

DRG NO. B2310	DATE 24/07/2023
PREPARED BY W.GALLAGHER	SCALE 1:1000
SIZE A3	SHEET NO. 9

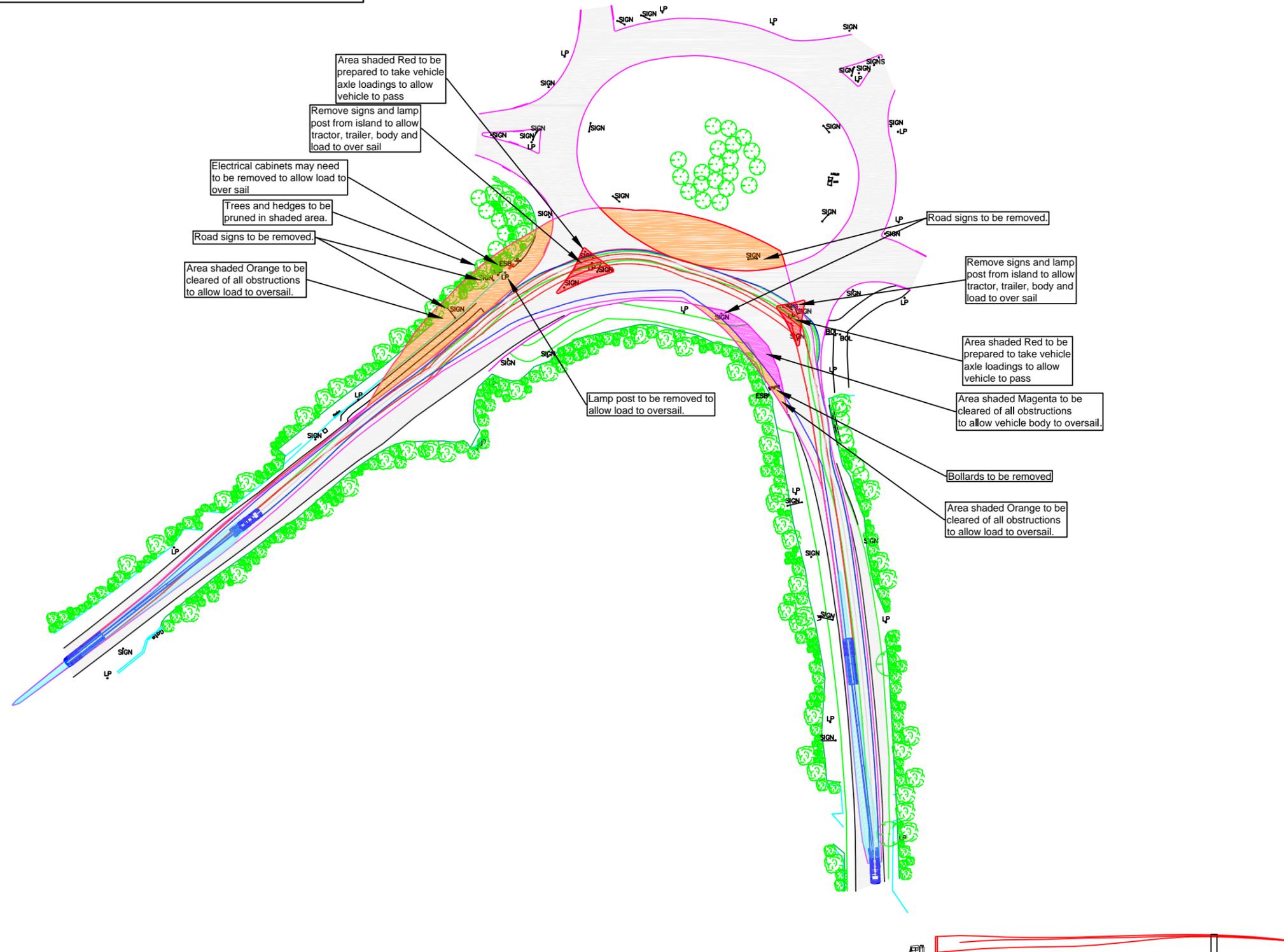
Site Inspection/Survey required prior to any works commencing.

Trail Run of all delivery vehicles on Delivery route to be carried out on full extents of route prior to delivery of turbine components.

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N69 / N18 East/R510 Roundabout

- **Caution****
- Obstructions to be removed within areas shaded Magenta to allow vehicle body to oversail. Road signs and bollards to be removed.
 - Obstructions to be removed/lowered within areas shaded Orange to allow load to oversail. Road signs and lamp post to be removed. Trees / hedge to be pruned.
 - Areas shaded Red to be cleared and prepared to allow vehicle axles to travel over. Island to be cleared to allow delivery vehicle to travel over.

- Area within Magenta outline will be oversailed by vehicle load
- Area within Blue outline will be oversailed by vehicle body
- Tractor Axles outlined in Green
- Trailer Axles outlined in Red
- Area shaded Orange requires oversail by load and projections -to be cleared of all obstructions
- Area shaded Magenta requires oversail by vehicle body - to be cleared of all obstructions
- Area shaded RED requires ground works to enable the vehicle axles to pass including levelling and strengthening

ITM GRID REFERENCE: 554514 655092

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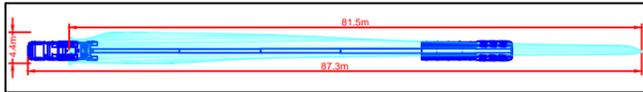
SITE KNOCKSHANVO WINDFARM	DRG NO. B2310	DATE 26/07/2023
TITLE LOCATION 14 - N69/N18 EAST/R510 ROUNDABOUT	PREPARED BY R.HARKIN	SCALE 1:1250
CLIENT FUTUREENERGY IRELAND	SIZE A3	SHEET NO. 10

Site Inspection/Survey required prior to any works commencing.

Trail Run of all delivery vehicles on Delivery route to be carried out on full extents of route prior to delivery of turbine components.

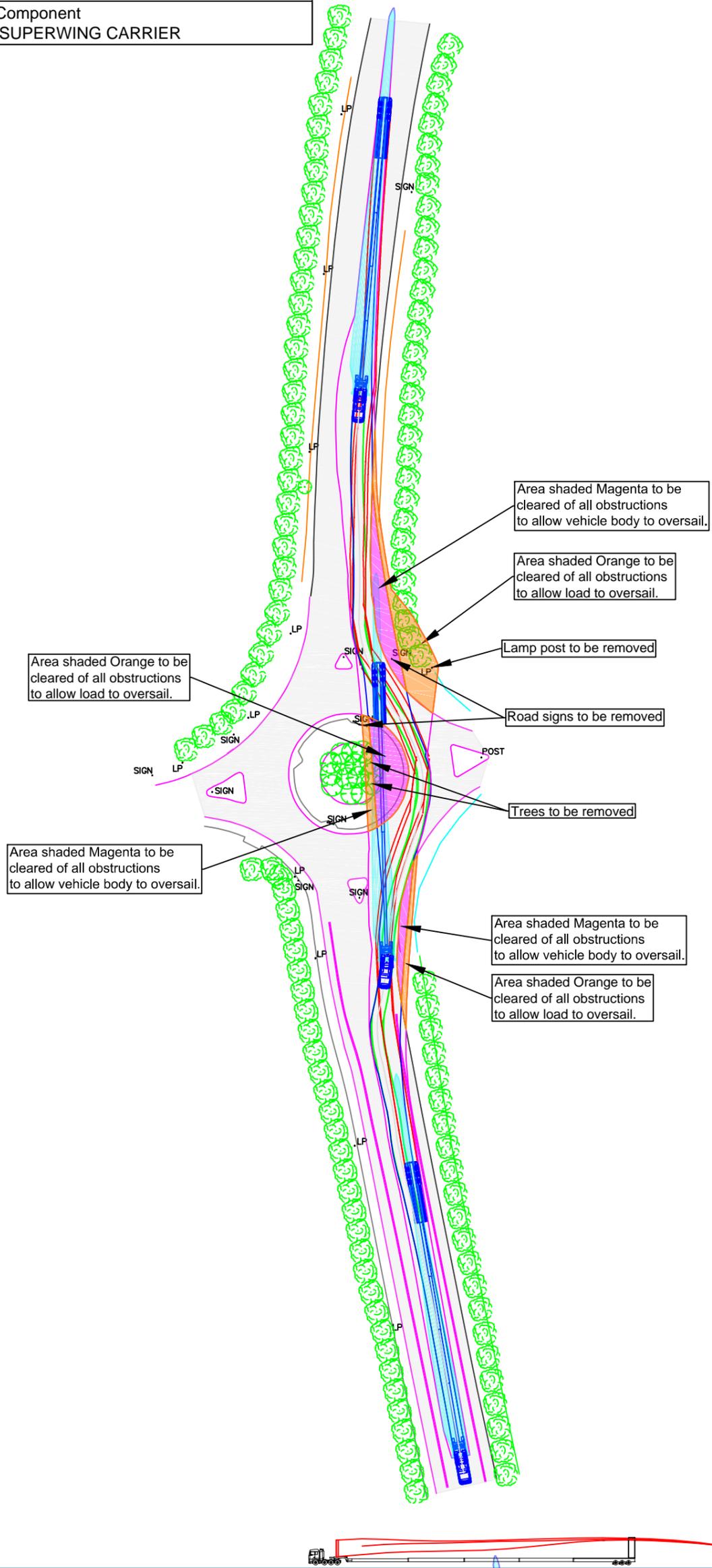
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Swept Path indicates trailer utilising MANUAL steering

Generic Blade Component
NOOTEBOOM SUPERWING CARRIER



Continue straight on R510 Roundabout
Caution

- Obstructions to be removed within areas shaded Magenta to allow vehicle body to oversail. Road sign and trees to be removed.
- Obstructions to be removed/lowered within areas shaded Orange to allow load to oversail. Lamp post and road sign to be removed. Trees and hedges to be pruned.

- Area within Magenta outline will be oversailed by vehicle load
- Area within Blue outline will be oversailed by vehicle body
- Tractor Axles outlined in Green
- Trailer Axles outlined in Red
- Area shaded Orange requires oversail by load and projections - to be cleared of all obstructions
- Area shaded Magenta requires oversail by vehicle body - to be cleared of all obstructions

ITM GRID REFERENCE: 554440 654357

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Site Inspection/Survey required prior to any works commencing.

SCALE
1:1000

DATE
24/07/2023

Trail Run of all delivery vehicles on Delivery route to be carried out on full extents of route prior to delivery of turbine components.

SHEET NO.
11

SITE
KNOCKSHANVO WINDFARM

DRG NO.
B2310

TITLE
LOCATION 15 - R510 ROUNDABOUT

PREPARED BY
W.GALLAGHER

CLIENT
FUTUREENERGY IRELAND

SIZE
A3

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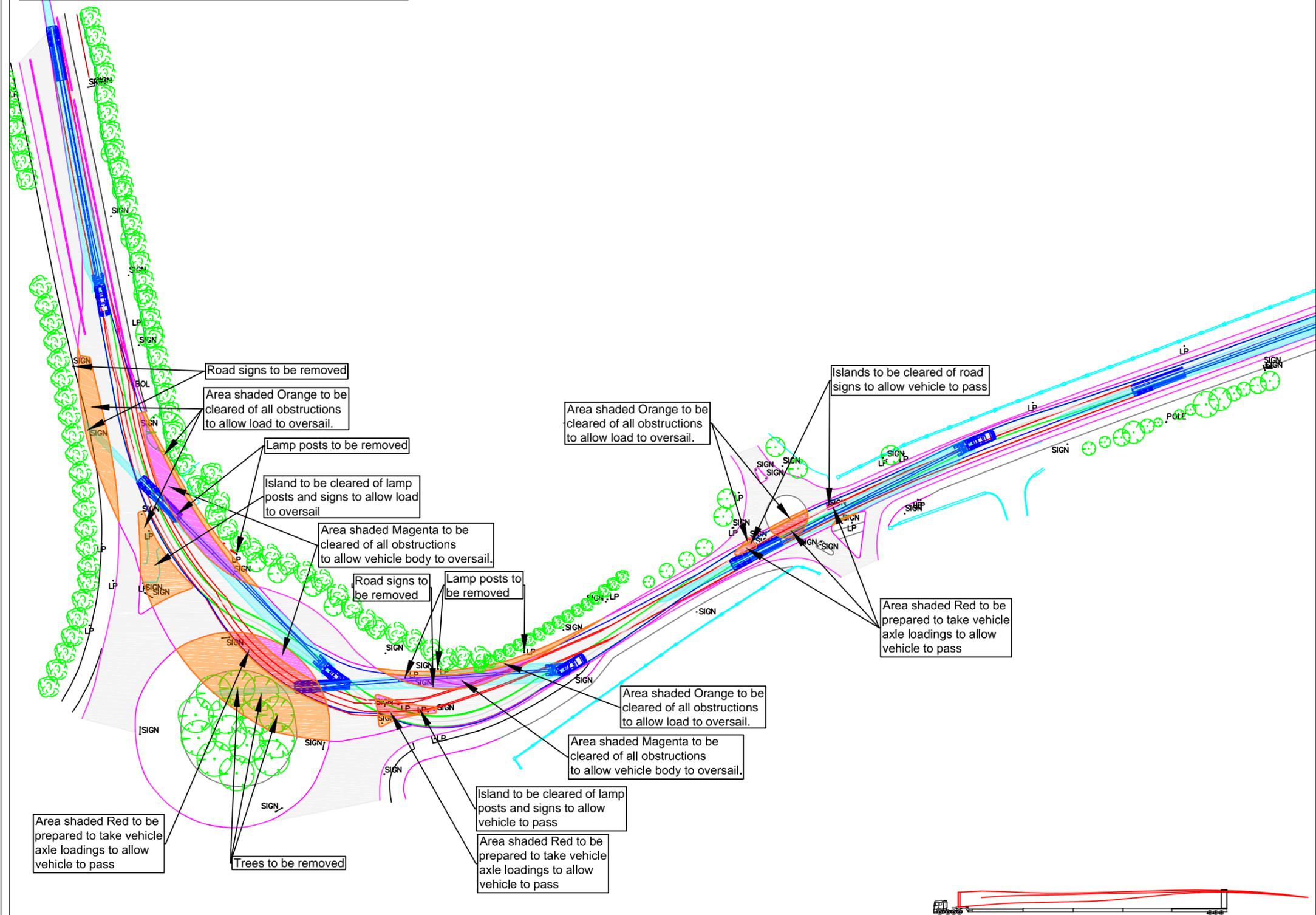


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81.6m
87.3m

Swept Path indicates trailer utilising MANUAL steering

Generic Blade Component
NOOTEBOOM SUPERWING CARRIER



Take first exit on R510 Roundabout and continue straight on Father Russell roundabout
****Caution****

- Obstructions to be removed within areas shaded Magenta to allow vehicle body to oversail. Road signs and lamp posts to be removed.
- Obstructions to be removed/lowered within areas shaded Orange to allow load to oversail. Road signs and lamp posts to be removed. Hedges to be pruned.
- Areas shaded Red to be cleared and prepared to allow vehicle axles to travel over. Road signs and lamp post to be removed. Islands to be cleared to allow delivery vehicle to travel over.

- Area within Magenta outline will be oversailed by vehicle load
- Area within Blue outline will be oversailed by vehicle body
- Tractor Axles outlined in Green
- Trailer Axles outlined in Red
- Area shaded Orange requires oversail by load and projections -to be cleared of all obstructions
- Area shaded Magenta requires oversail by vehicle body - to be cleared of all obstructions
- Area shaded RED requires ground works to enable the vehicle axles to pass including levelling and strengthening

ITM GRID REFERENCE: 554563 654016

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SITE KNOCKSHANVO WINDFARM
TITLE LOCATION 16&17 - R510/FATHER RUSSELL ROAD ROUNDABOUT
CLIENT FUTUREENERGY IRELAND

DRG NO. B2310
PREPARED BY W.GALLAGHER
SIZE A3

DATE 24/07/2023
SCALE 1:1000
SHEET NO. 12

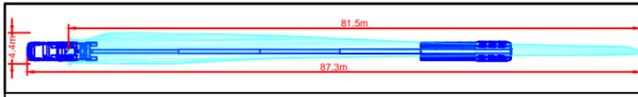
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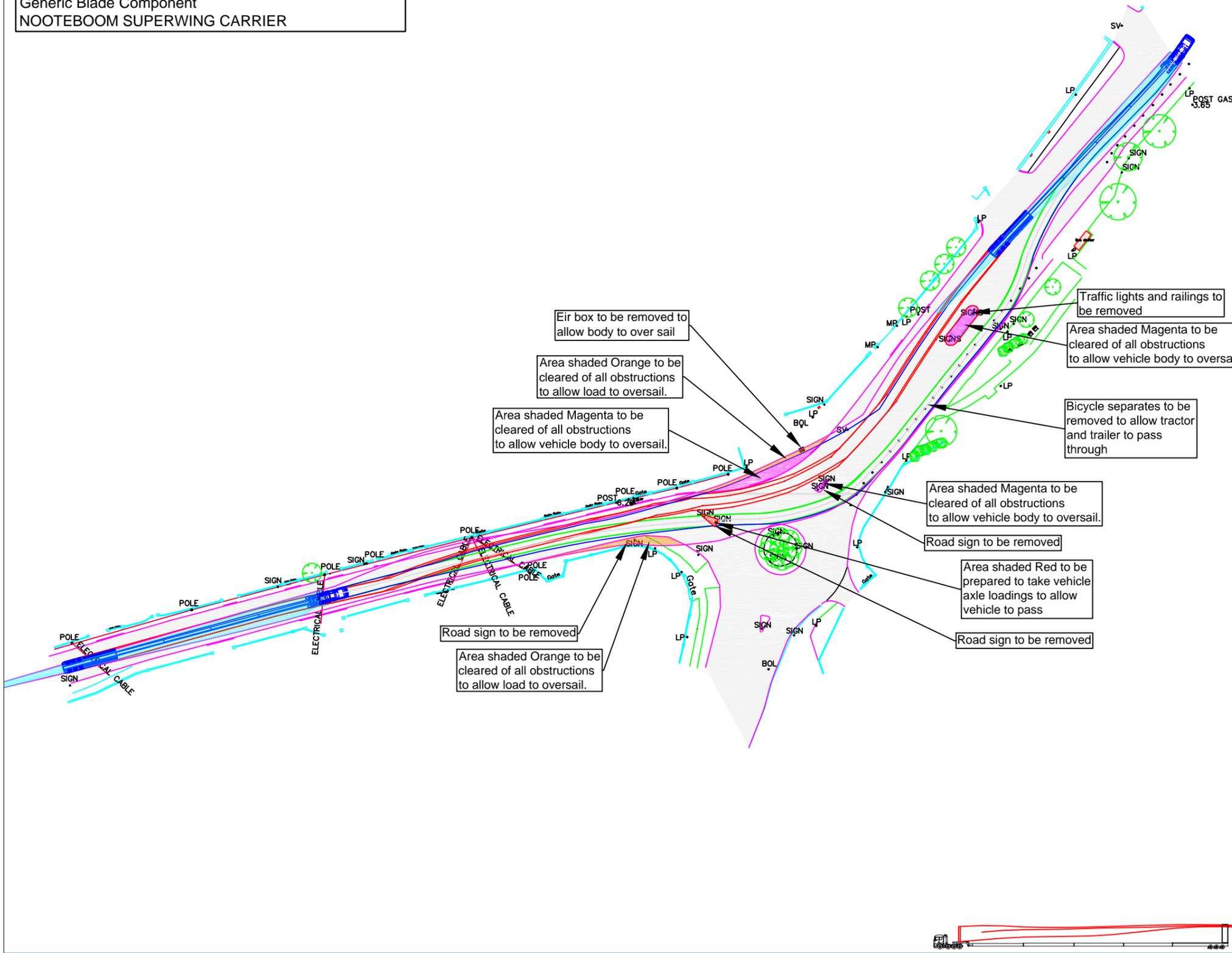


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Swept Path indicates trailer utilising MANUAL steering

Generic Blade Component
NOOTEBOOM SUPERWING CARRIER



Father Russell Road / R526 Roundabout

****Caution****

- Obstructions to be removed within areas shaded Magenta to allow vehicle body to over sail. Road signs, railings and traffic lights to be removed.
- Obstructions to be removed/lowered within areas shaded Orange to allow load to over sail. Road signs to be removed.
- Areas shaded Red to be cleared and prepared to allow vehicle axles to travel over. Island to be cleared to allow delivery vehicle to travel over.
- Bicycle separators to be removed to allow vehicle to pass through.

- Area within Magenta outline will be oversailed by vehicle load
- Area within Blue outline will be oversailed by vehicle body
- Tractor Axles outlined in Green
- Trailer Axles outlined in Red
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ITM GRID REFERENCE: 555804 654386

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SITE KNOCKSHANVO WINDFARM	DRG NO. B2310	DATE 26/07/2023
TITLE LOCATION 18 - FATHER RUSSELL ROAD/R526 ROUNDABOUT	PREPARED BY R.HARKIN	SCALE 1:1000
CLIENT FUTUREENERGY IRELAND	SIZE A3	SHEET NO. 13

Site Inspection/Survey required prior to any works commencing.	
Trail Run of all delivery vehicles on Delivery route to be carried out on full extents of route prior to delivery of turbine components.	

UNIT 4, FIRST FLOOR, GLEN VIEW BUSINESS PARK,
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SWEPT PATH ANALYSIS SPECIALISTS

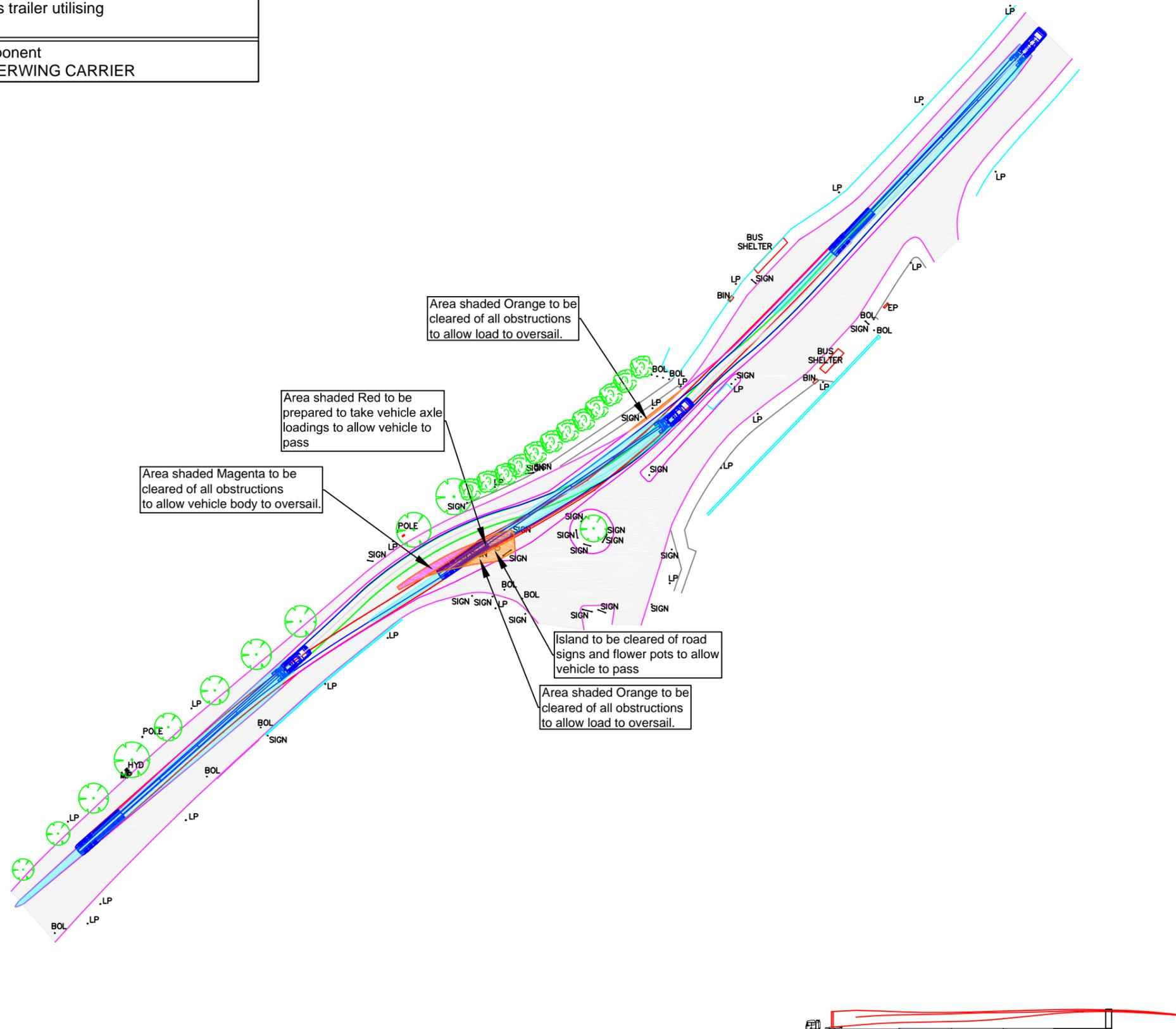
4.6m

81.6m

87.3m

Swept Path indicates trailer utilising MANUAL steering

Generic Blade Component NOOTEBOOM SUPERWING CARRIER



Take first exit on R526/R926 Roundabout
Caution

- Obstructions to be removed within areas shaded Magenta to allow vehicle body to oversail.
- Obstructions to be removed/lowered within areas shaded Orange to allow load to oversail. Road sign to be removed.
- Areas shaded Red to be cleared and prepared to allow vehicle axles to travel over. Island to be cleared to allow delivery vehicle to travel over.

- Area within Magenta outline will be oversailed by vehicle load
- Area within Blue outline will be oversailed by vehicle body
- Tractor Axles outlined in Green
- Trailer Axles outlined in Red
- Area shaded Orange requires oversail by load and projections -to be cleared of all obstructions
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ITM GRID REFERENCE: 556088 654668

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- Dimensions are in metres. Written dimensions only. Drawing not to be scaled.

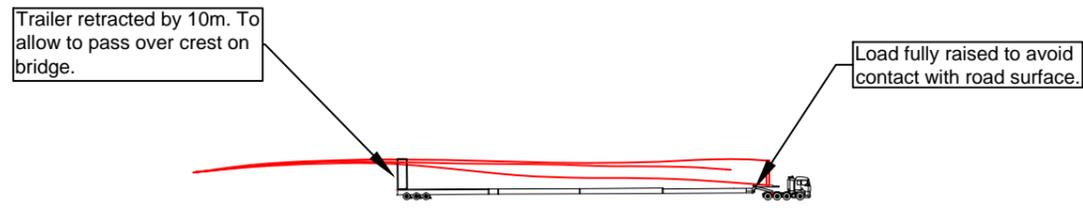
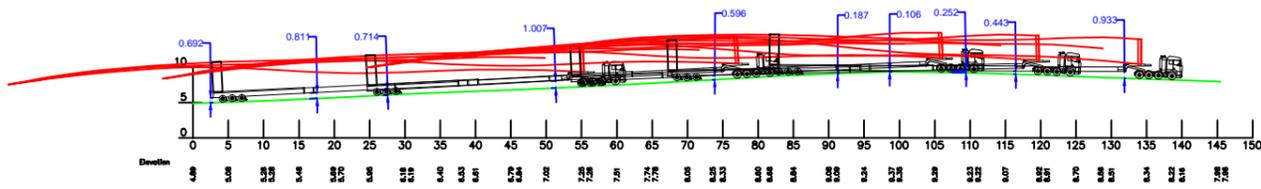
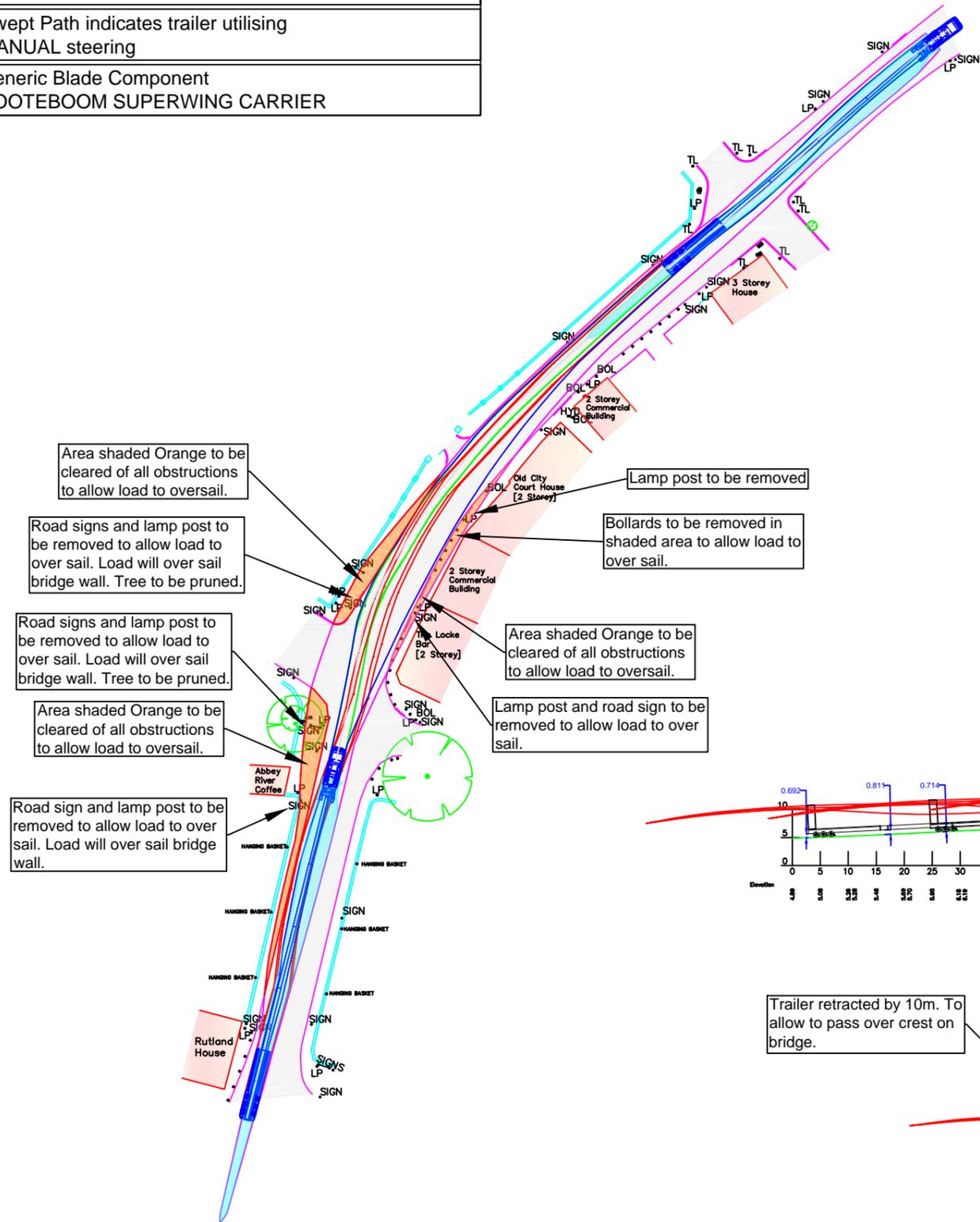
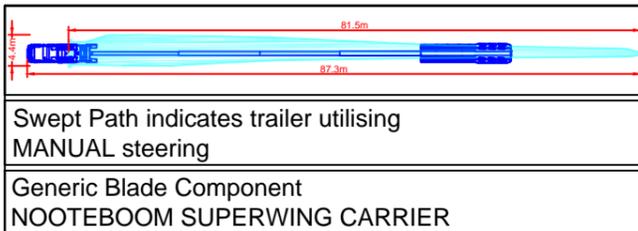
SITE KNOCKSHANVO WINDFARM	DRG NO. B2310	DATE 24/07/2023
TITLE LOCATION 19 - R526/R926 ROUNDABOUT	PREPARED BY W.GALLAGHER	SCALE 1:1000
CLIENT FUTUREENERGY IRELAND	SIZE A3	SHEET NO. 14

Site Inspection/Survey required prior to any works commencing.	
Trail Run of all delivery vehicles on Delivery route to be carried out on full extents of route prior to delivery of turbine components.	

UNIT 4, FIRST FLOOR, GLEN VIEW BUSINESS PARK,
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TEL: + 353(0)74 9127720
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MOB: + 353(0)87 8323916
EMAIL: info@landsurveyors.ie



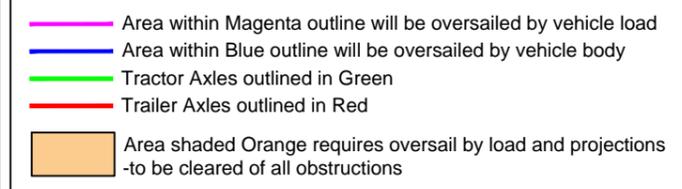
Digital Land Surveyors Ltd
SWEPT PATH ANALYSIS SPECIALISTS



Right Bend and Crest on R463

****Caution****

- Obstructions to be removed/lowered within areas shaded Orange to allow load to over sail. Road signs, lamp posts, bollards, to be removed. Tree to be pruned.
- Load to fully raised to avoid contact with the road surface.
- Trailer to be retracted by 10m to allow to pass over crest.
- Minimum distance to road surface 0.106m.
- Trailer deflection has not been considered therefore grounding maybe an issue.



ITM GRID REFERENCE: 557547 657556

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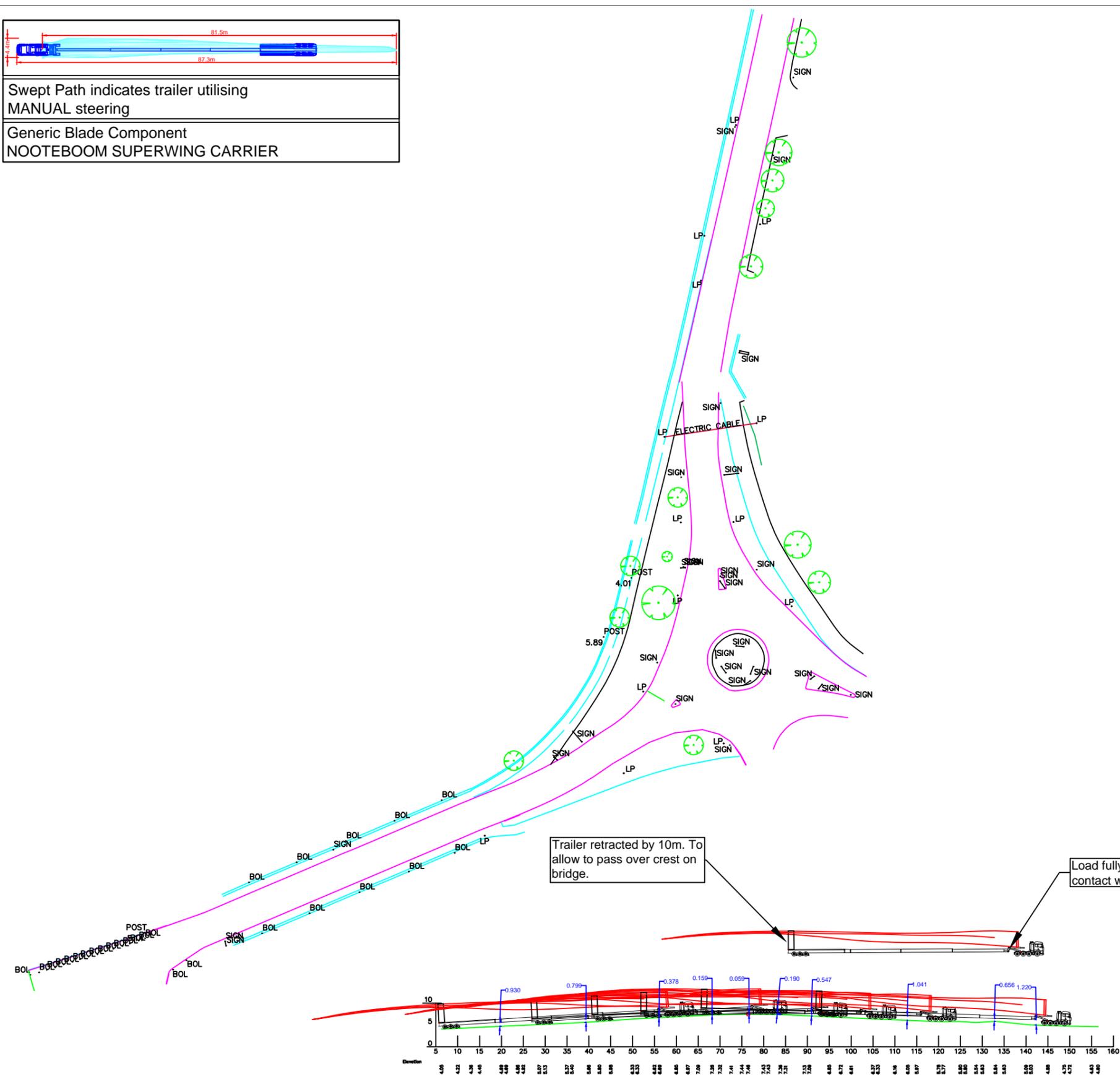
SITE KNOCKSHANVO WINDFARM	DRG NO. B2310	DATE 26/07/2023
TITLE LOCATION 24 & 25 - RIGHT BEND AND CREST ON R463	PREPARED BY R.HARKIN	SCALE 1:1000
CLIENT FUTUREENERGY IRELAND	SIZE A3	SHEET NO. 15

Site Inspection/Survey required prior to any works commencing.

Trail Run of all delivery vehicles on Delivery route to be carried out on full extents of route prior to delivery of turbine components.

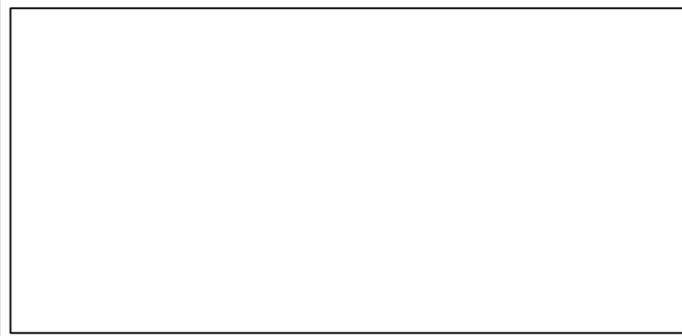
UNIT 4, FIRST FLOOR, GLEN VIEW BUSINESS PARK,
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Crest on bridge on R463
Caution

- Load to fully raised to avoid contact with the road surface.
- Trailer to be retracted by 10m to allow to pass over crest.
- Minimum distance to road surface 0.059m.
- Trailer deflection has not been considered therefore grounding maybe an issue.



ITM GRID REFERENCE: 558298 657812

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SITE KNOCKSHANVO WINDFARM
TITLE LOCATION 26 - CREST ON BRIDGE ON R463
CLIENT FUTUREENERGY IRELAND

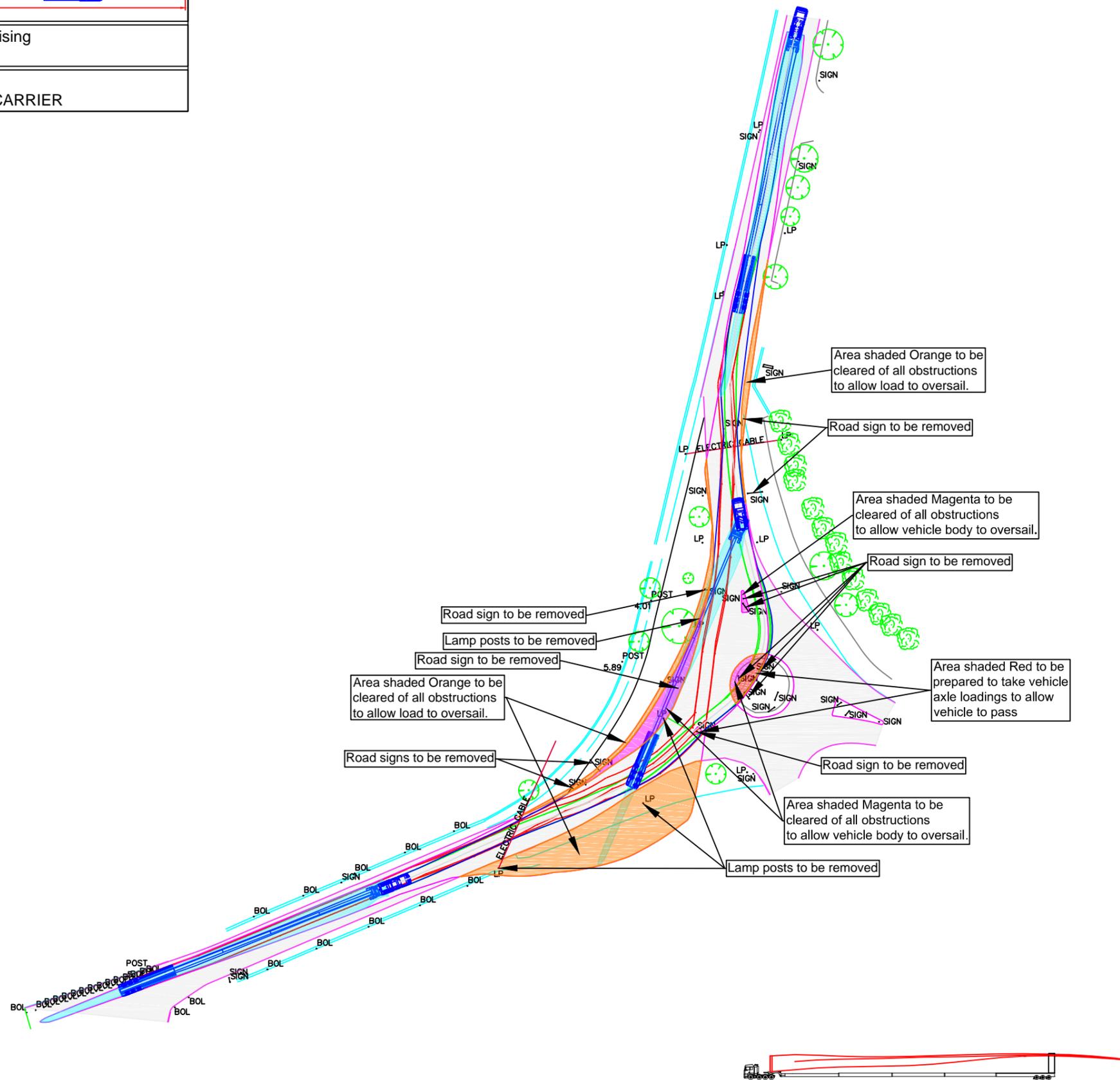
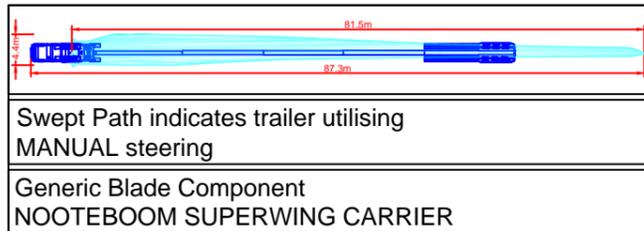
DRG NO. B2310	DATE 28/07/2023
PREPARED BY R.HARKIN	SCALE 1:1000
SIZE A3	SHEET NO. 16

Site Inspection/Survey required prior to any works commencing.

Trail Run of all delivery vehicles on Delivery route to be carried out on full extents of route prior to delivery of turbine components.

UNIT 4, FIRST FLOOR, GLEN VIEW BUSINESS PARK,
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EMAIL: info@landsurveyors.ie

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Take first exit at R463 Roundabout
Caution

- Obstructions to be removed within areas shaded Magenta to allow vehicle body to oversail. Road signs and lamp posts to be removed.
- Obstructions to be removed/lowered within areas shaded Orange to allow load to oversail. Road signs and lamp post to be removed. Trees to be pruned.
- Areas shaded Red to be cleared and prepared to allow vehicle axles to travel over. Island and roundabout to be cleared to allow delivery vehicle to travel over.

- Area within Magenta outline will be oversailed by vehicle load
- Area within Blue outline will be oversailed by vehicle body
- Tractor Axles outlined in Green
- Trailer Axles outlined in Red
- Area shaded Orange requires oversail by load and projections -to be cleared of all obstructions
- Area shaded Magenta requires oversail by vehicle body - to be cleared of all obstructions
- Area shaded RED requires ground works to enable the vehicle axles to pass including levelling and strengthening

ITM GRID REFERENCE: 558298 657812

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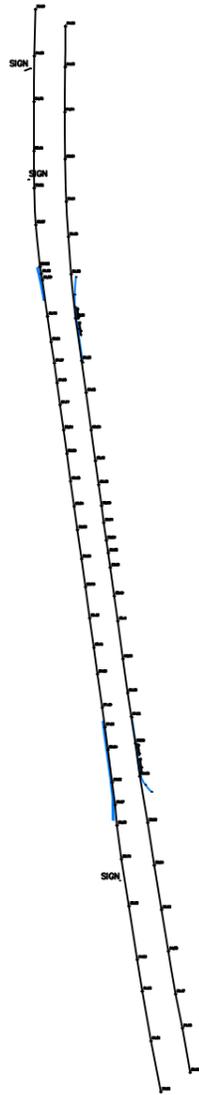
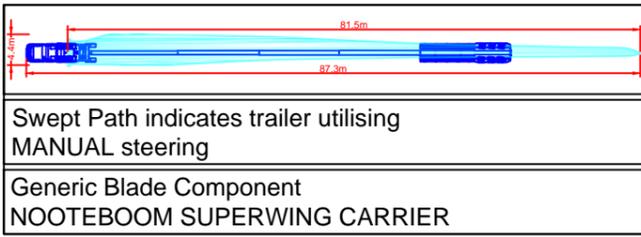
SITE KNOCKSHANVO WINDFARM	DRG NO. B2310	DATE 24/07/2023
TITLE LOCATION 26&27 - R463 BRIDGE/R463 ROUNDABOUT	PREPARED BY W.GALLAGHER	SCALE 1:1000
CLIENT FUTUREENERGY IRELAND	SIZE A3	SHEET NO. 17

Site Inspection/Survey required prior to any works commencing.

Trail Run of all delivery vehicles on Delivery route to be carried out on full extents of route prior to delivery of turbine components.

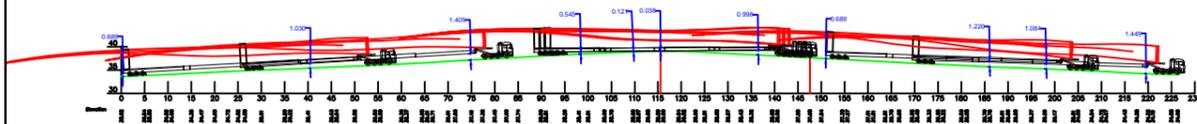
UNIT 4, FIRST FLOOR, GLEN VIEW BUSINESS PARK,
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Trailer retracted by 10m. To allow to pass over crest on bridge.

Load fully raised to avoid contact with road surface.



Crest on bridge on R463

****Caution****

- Load to fully raised to avoid contact with the road surface.
- Trailer to be retracted by 10m to allow to pass over crest.
- Minimum distance to road surface 0.038m.
- Trailer deflection has not been considered therefore grounding maybe an issue.

ITM GRID REFERENCE: 559269 661881

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Site Inspection/Survey required prior to any works commencing.

SCALE
1:1500

DATE
28/07/2023

Trail Run of all delivery vehicles on Delivery route to be carried out on full extents of route prior to delivery of turbine components.

SHEET NO.
18

SITE
KNOCKSHANVO WINDFARM

DRG NO.
B2310

TITLE
LOCATION 35 - CREST ON BRIDGE ON R463

PREPARED BY
R. HARKIN

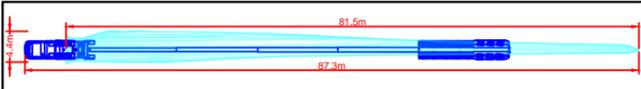
CLIENT
FUTUREENERGY IRELAND

SIZE
A3

UNIT 4, FIRST FLOOR, GLEN VIEW BUSINESS PARK,
CARNAMUGGAGH UPPER, KILMACRENNAN ROAD,
LETTERKENNY, CO. DONEGAL, IRELAND. F92 V9KE
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MOB: + 353(0)86 8044031
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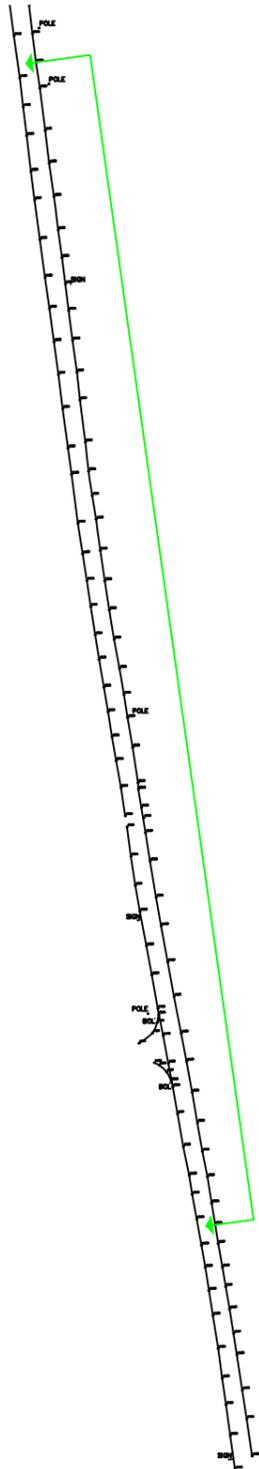


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SWEPT PATH ANALYSIS SPECIALISTS



Swept Path indicates trailer utilising MANUAL steering

Generic Blade Component
NOOTEBOOM SUPERWING CARRIER



Dip in road on R463

****Caution****

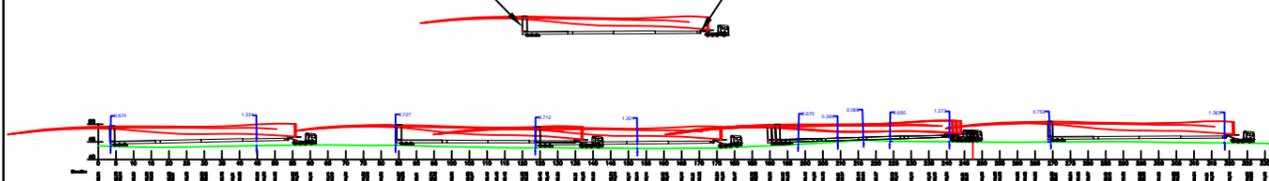
- Load to fully raised to avoid contact with the road surface.
- Trailer to be retracted by 10m to allow to pass over crest.
- Minimum distance to road surface 0.068m.
- Trailer deflection has not been considered therefore grounding maybe an issue.

ITM GRID REFERENCE: 559319 664760

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Trailer retracted by 10m. To allow to pass over crest on road.

Load fully raised to avoid contact with road surface.



Site Inspection/Survey required prior to any works commencing.

SCALE
1:2000

DATE
28/07/2023

Trail Run of all delivery vehicles on Delivery route to be carried out on full extents of route prior to delivery of turbine components.

SHEET NO.
19

SITE
KNOCKSHANVO WINDFARM

DRG NO.
B2310

TITLE
LOCATION 36 - DIP IN ROAD ON R463

PREPARED BY
R. HARKIN

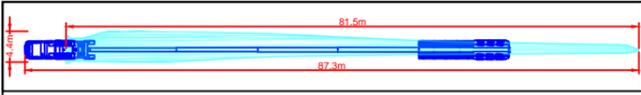
CLIENT
FUTUREENERGY IRELAND

SIZE
A3

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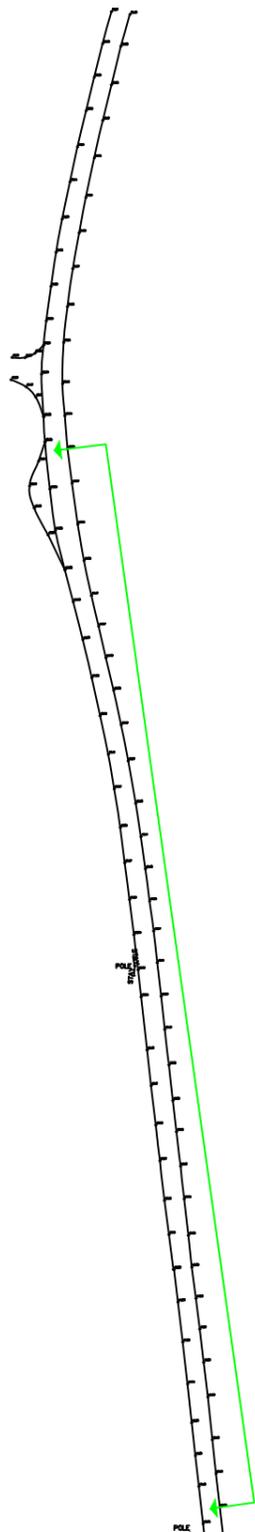
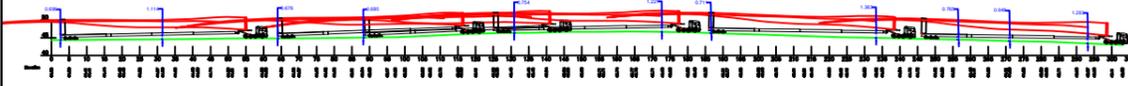
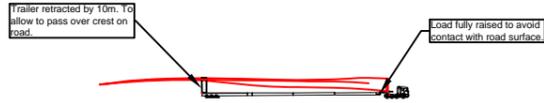


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SWEPT PATH ANALYSIS SPECIALISTS



Swept Path indicates trailer utilising MANUAL steering

Generic Blade Component
NOOTEBOOM SUPERWING CARRIER



Crest on R463

****Caution****

- Load to fully raised to avoid contact with the road surface.
- Trailer to be retracted by 10m to allow to pass over crest.
- Minimum distance to road surface 0.676m.
- Trailer deflection has not been considered therefore grounding maybe an issue.

ITM GRID REFERENCE: 559261 665198

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SCALE
1:2000

DATE
28/07/2023

Trail Run of all delivery vehicles on Delivery route to be carried out on full extents of route prior to delivery of turbine components.

SHEET NO.
20

SITE
KNOCKSHANVO WINDFARM

DRG NO.
B2310

TITLE
LOCATION 37 - CREST ON R463

PREPARED BY
R. HARKIN

CLIENT
FUTUREENERGY IRELAND

SIZE
A3

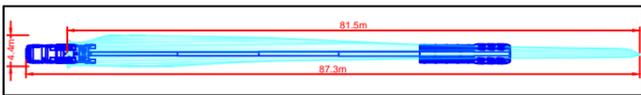
UNIT 4, FIRST FLOOR, GLEN VIEW BUSINESS PARK,
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3.2. Nootboom Superwing Carrier [from Location 2 to Location 13] and Blade Lifter FTV 850 and Truck [from Location 14 to Location 37] – blade component



Swept Path indicates trailer utilising MANUAL steering

Generic Blade Component
NOOTEBOOM SUPERWING CARRIER



S-Bend On N69

****Caution****

- Obstructions to be removed within the area shaded Orange.
- Trees, hedges shrubs etc. to be pruned / removed, as necessary, in area shaded Orange.
- Road signs to be removed in areas shaded Orange.

- Area within Magenta outline will be oversailed by vehicle load
- Area within Blue outline will be oversailed by vehicle body
- Tractor Axles outlined in Green
- Trailer Axles outlined in Red
- Area shaded Orange requires oversail by load and projections -to be cleared of all obstructions

ITM GRID REFERENCE: 526087 650306

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Site Inspection/Survey required prior to any works commencing.

Trail Run of all delivery vehicles on Delivery route to be carried out on full extents of route prior to delivery of turbine components.

SITE
KNOCKSHANVO WINDFARM

DRG NO.
B2310

TITLE
LOCATION 3 - S-BEND ON N69

PREPARED BY
R. HARKIN

CLIENT
FUTUREENERGY IRELAND

SIZE
A3

SCALE
1:1500

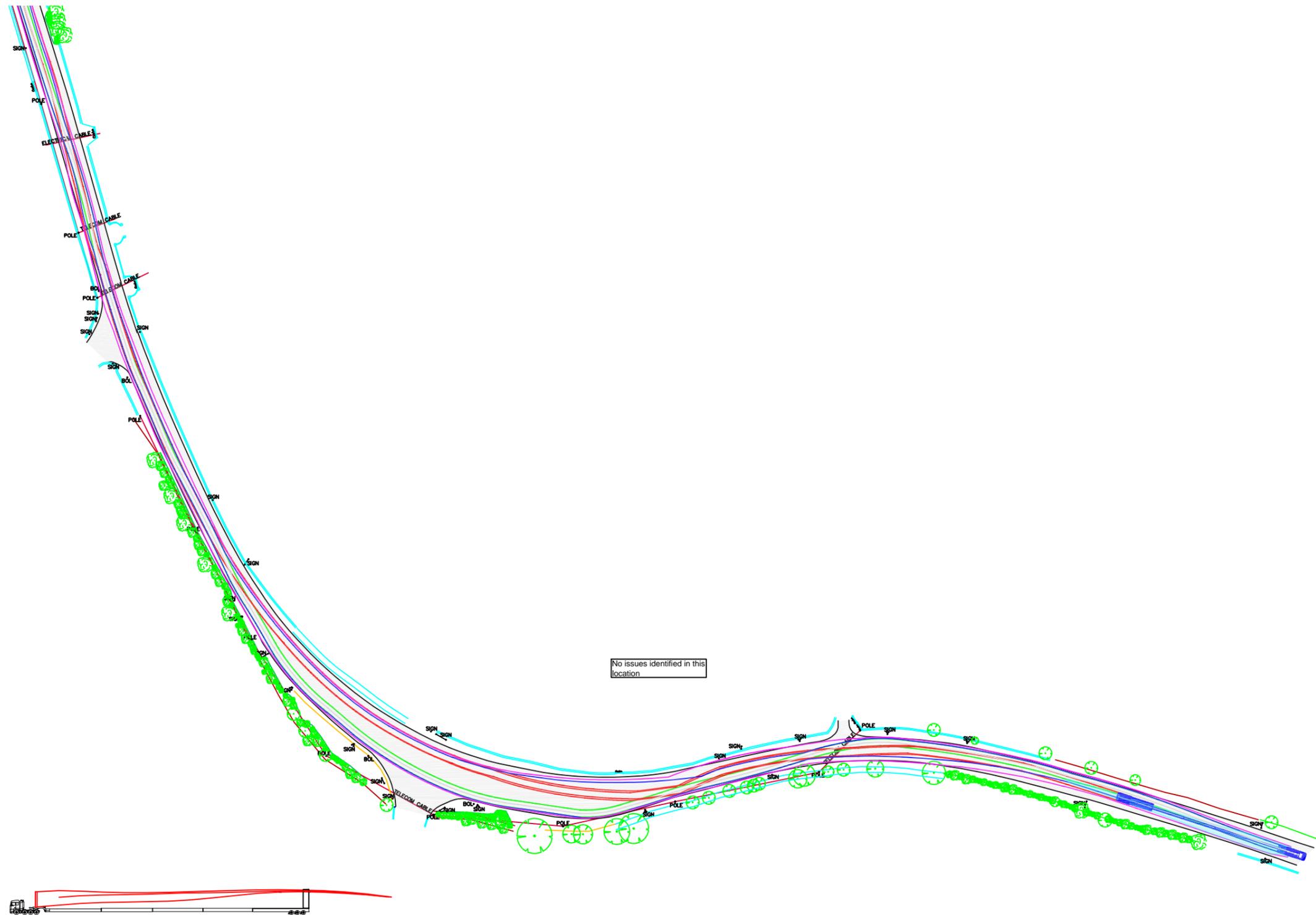
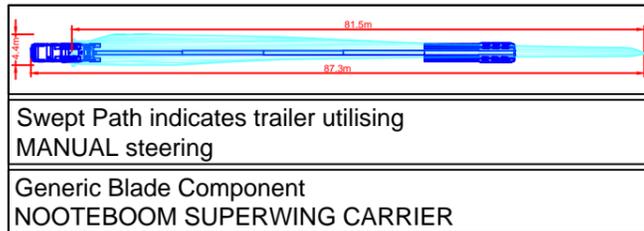
DATE
28/07/2023

SHEET NO.
22

UNIT 4, FIRST FLOOR, GLEN VIEW BUSINESS PARK,
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EMAIL: info@landsurveyors.ie



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Left and Right Bend on N69

****Caution****

- No issues identified

- Area within Magenta outline will be oversailed by vehicle load
- Area within Blue outline will be oversailed by vehicle body
- Tractor Axles outlined in Green
- Trailer Axles outlined in Red

ITM GRID REFERENCE: 526240 649842

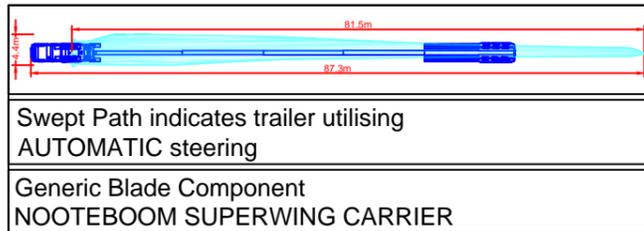
- The Swept Path Analysis provided is produced from a transport orientated view only and does not consider any issues in terms of land ownership, or any other precincts that may otherwise be restrictive.
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SITE KNOCKSHANVO WINDFARM	DRG NO. B2310	DATE 26/07/2023
TITLE LOCATION 4&5 - LEFT AND RIGHT BEND ON N69	PREPARED BY R.HARKIN	SCALE 1:1500
CLIENT FUTUREENERGY IRELAND	SIZE A3	SHEET NO. 23

Site Inspection/Survey required prior to any works commencing.	
Trail Run of all delivery vehicles on Delivery route to be carried out on full extents of route prior to delivery of turbine components.	

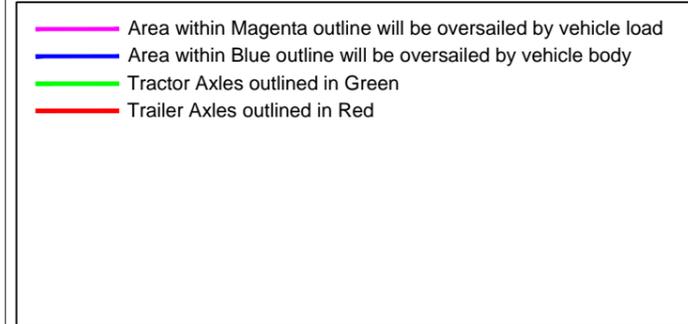
UNIT 4, FIRST FLOOR, GLEN VIEW BUSINESS PARK,
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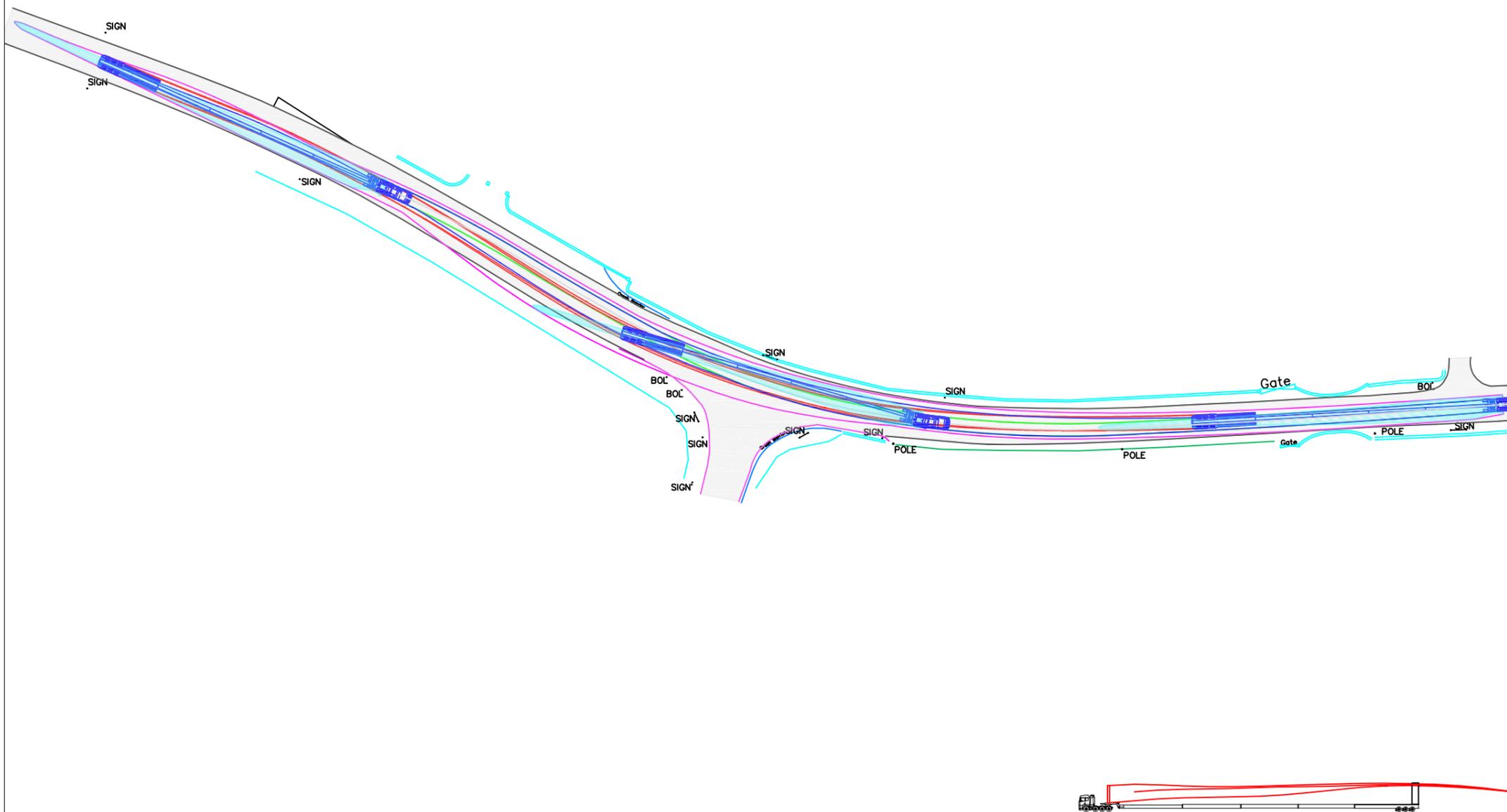


Left bend on N69

- No issues identified at this location.



ITM GRID REFERENCE: 526759 649706



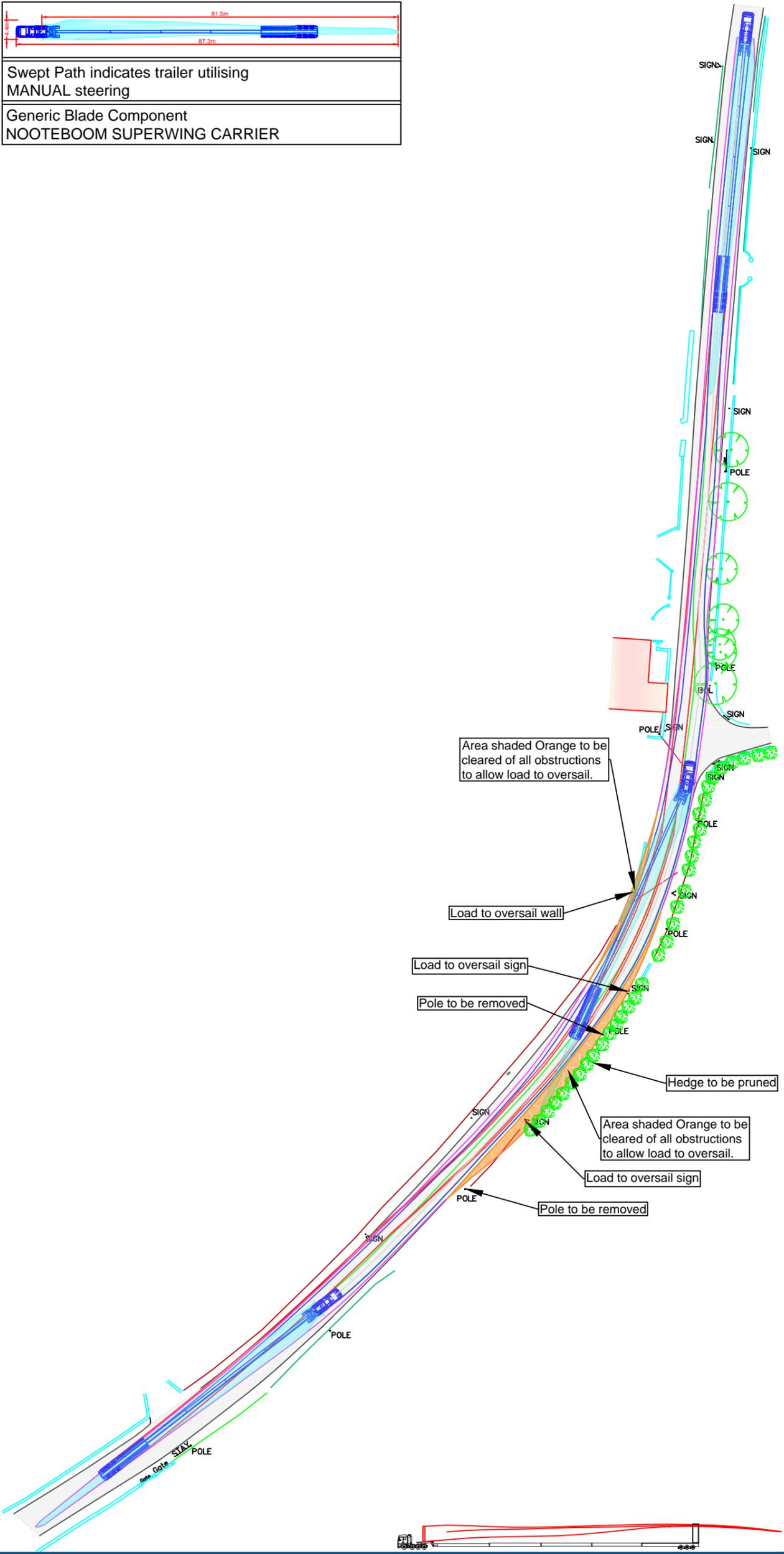
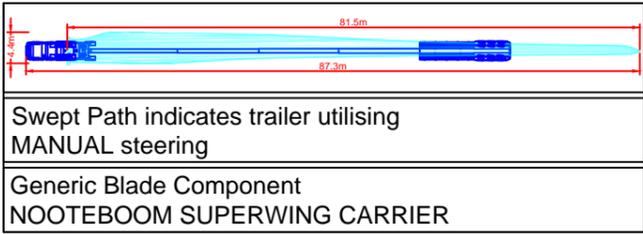
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SITE KNOCKSHANVO WINDFARM	DRG NO. B2310	DATE 24/07/2023
TITLE LOCATION 6 - LEFT BEND ON N69	PREPARED BY W.GALLAGHER	SCALE 1:1000
CLIENT FUTUREENERGY IRELAND	SIZE A3	SHEET NO. 24

Site Inspection/Survey required prior to any works commencing.	
Trail Run of all delivery vehicles on Delivery route to be carried out on full extents of route prior to delivery of turbine components.	

UNIT 4, FIRST FLOOR, GLEN VIEW BUSINESS PARK,
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Left bend on N69
Caution

- Obstructions to be removed within areas shaded Orange to allow load to oversail. Poles to be removed. Hedge to be pruned.

- Area within Magenta outline will be oversailed by vehicle load
- Area within Blue outline will be oversailed by vehicle body
- Tractor Axles outlined in Green
- Trailer Axles outlined in Red
- Area shaded Orange requires oversail by load and projections -to be cleared of all obstructions

ITM GRID REFERENCE: 528714 650039

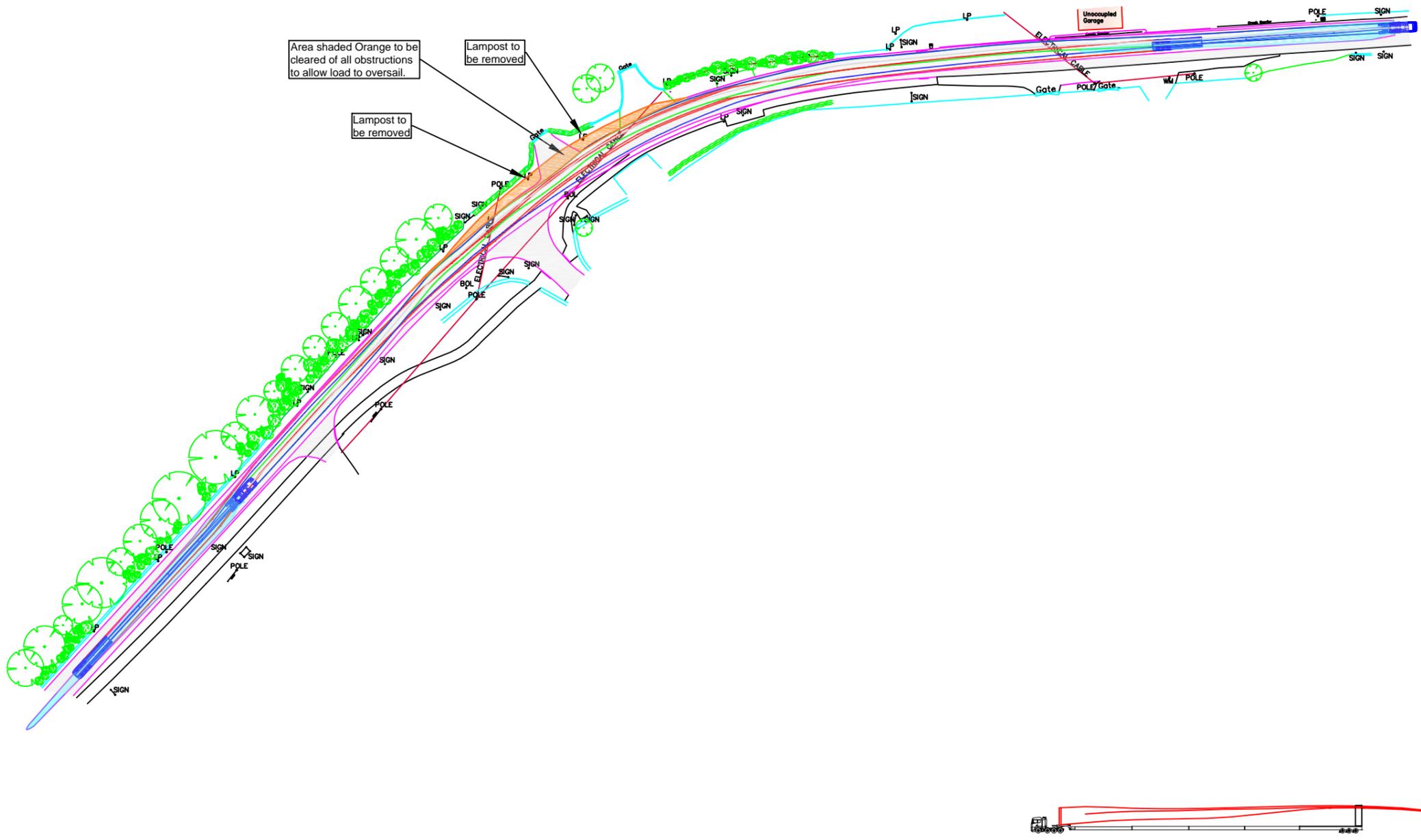
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Trail Run of all delivery vehicles on Delivery route to be carried out on full extents of route prior to delivery of turbine components.	
SITE KNOCKSHANVO WINDFARM	DRG NO. B2310
TITLE LOCATION 7 - LEFT BEND ON N69	PREPARED BY W.GALLAGHER
CLIENT FUTUREENERGY IRELAND	SIZE A3

SCALE 1:1000	DATE 24/07/2023
SHEET NO. 25	

UNIT 4, FIRST FLOOR, GLEN VIEW BUSINESS PARK,
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Right Bend on N69

****Caution****

- Obstructions to be removed within the area shaded Orange.
- 2no. lampposts to be removed in the area shaded Orange

- Area within Magenta outline will be oversailed by vehicle load
 - Area within Blue outline will be oversailed by vehicle body
 - Tractor Axles outlined in Green
 - Trailer Axles outlined in Red
- Area shaded Orange requires oversail by load and projections -to be cleared of all obstructions

ITM GRID REFERENCE: 540423 652250

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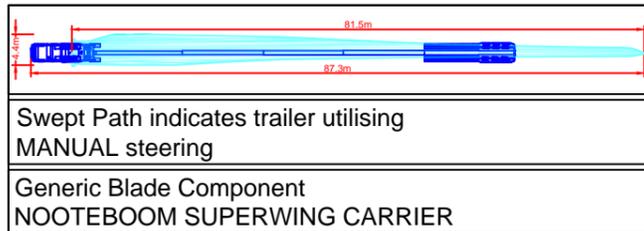
SITE KNOCKSHANVO WINDFARM	DRG NO. B2310	DATE 26/07/2023
TITLE LOCATION 10 - RIGHT BEND ON N69	PREPARED BY R.HARKIN	SCALE 1:1250
CLIENT FUTUREENERGY IRELAND	SIZE A3	SHEET NO. 26

Site Inspection/Survey required prior to any works commencing.

Trail Run of all delivery vehicles on Delivery route to be carried out on full extents of route prior to delivery of turbine components.

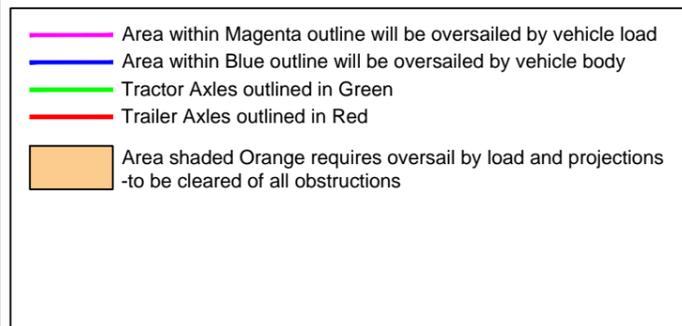
UNIT 4, FIRST FLOOR, GLEN VIEW BUSINESS PARK,
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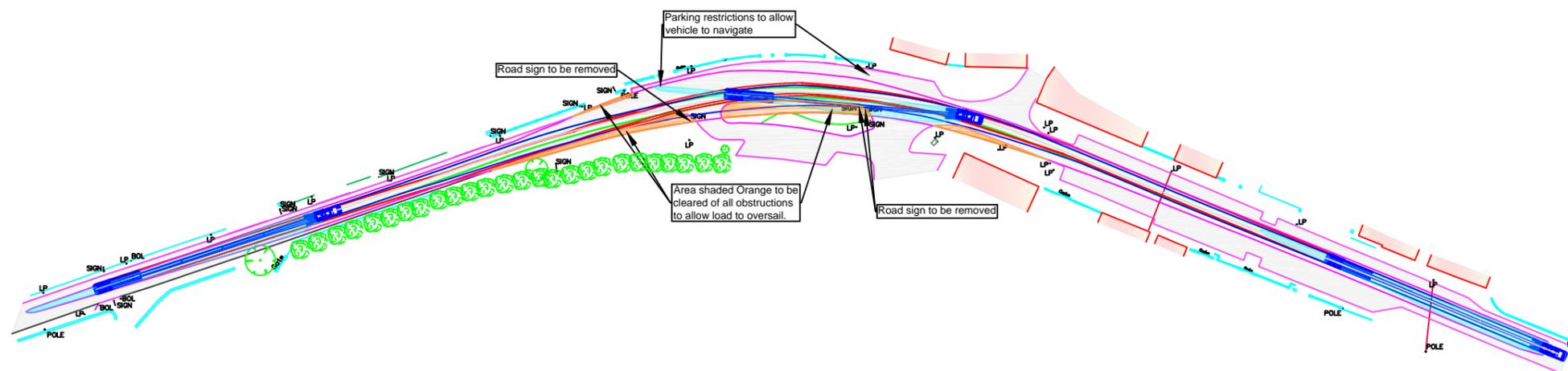


Right bend on N69 - Kildimo
Caution

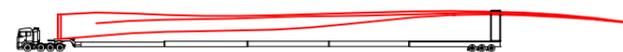
- Obstructions to be removed/lowered within areas shaded Orange to allow load to oversail. Road signs to be removed.
- Parking restriction to be enforced on the nearside to allow delivery vehicle to navigate this location.



ITM GRID REFERENCE: 544962 652820



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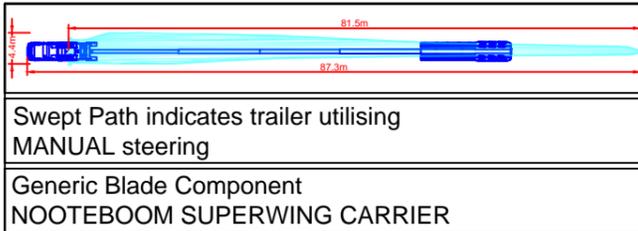
SITE KNOCKSHANVO WINDFARM	DRG NO. B2310	DATE 24/07/2023
TITLE LOCATION 11 - RIGHT BEND ON N69 - KILDIMO	PREPARED BY W.GALLAGHER	SCALE 1:1500
CLIENT FUTUREENERGY IRELAND	SIZE A3	SHEET NO. 27

Site Inspection/Survey required prior to any works commencing.

Trail Run of all delivery vehicles on Delivery route to be carried out on full extents of route prior to delivery of turbine components.

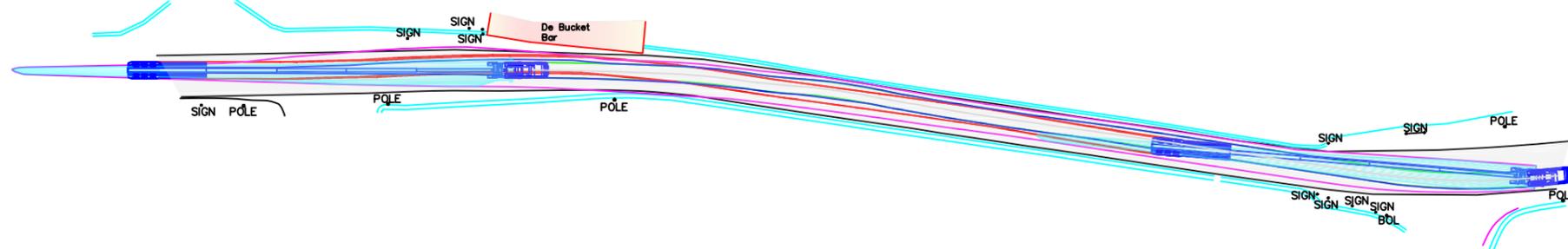
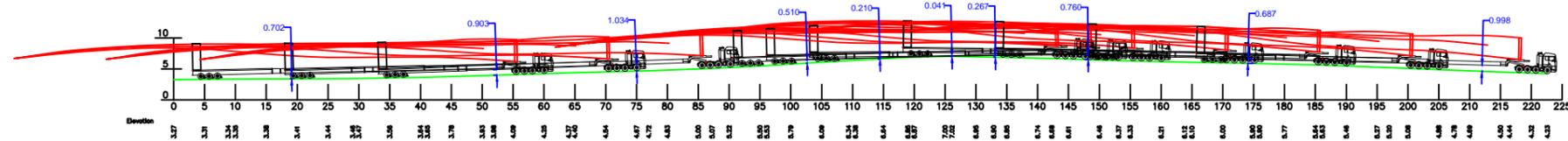
UNIT 4, FIRST FLOOR, GLEN VIEW BUSINESS PARK,
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Trailer retracted by 10m. To allow to pass over crest on bridge.

Load fully raised to avoid contact with road surface.



N69 Ferrybridge

****Caution****

- Load to be fully raised to avoid contact with the road surface.
- Trailer to be retracted by 10m.
- Minimum distance to road surface is 0.040m.
- Trailer deflection has not been considered therefore grounding maybe an issue.

- Area within Magenta outline will be oversailed by vehicle load
- Area within Blue outline will be oversailed by vehicle body
- Tractor Axles outlined in Green
- Trailer Axles outlined in Red

ITM GRID REFERENCE: 548119 652341

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SITE
KNOCKSHANVO WINDFARM

DRG NO.
B2310

DATE
26/07/2023

Site Inspection/Survey required prior to any works commencing.

TITLE
LOCATION 12 - N69 FERRYBRIDGE

PREPARED BY
R.HARKIN

SCALE
1:1000

Trail Run of all delivery vehicles on Delivery route to be carried out on full extents of route prior to delivery of turbine components.

CLIENT
FUTUREENERGY IRELAND

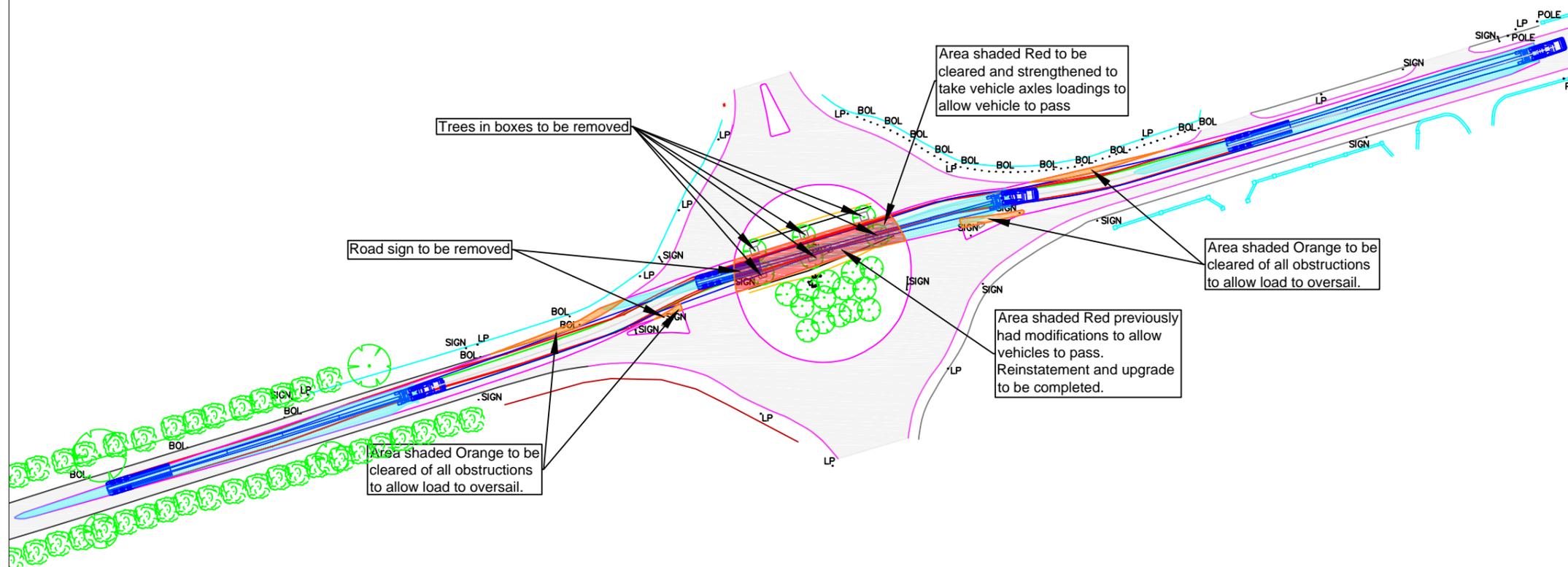
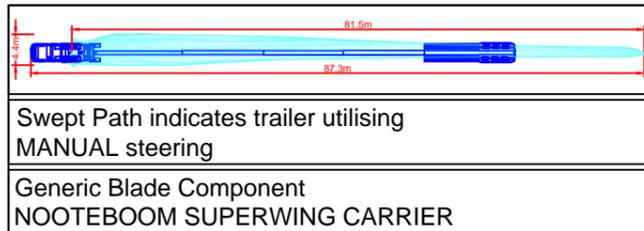
SIZE
A3

SHEET NO.
28

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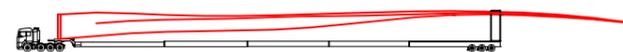
Continue straight at Roundabout on N69 - Clarina
Caution

- Obstructions to be removed/lowered within areas shaded Orange to allow load to oversail. Road signs to be removed.
- Areas shaded Red to be cleared and prepared to allow vehicle axles to travel over. Road sign and boxes containing trees to be removed.
- Previous modifications carried out on roundabout to be reinstated and upgraded.

- Area within Magenta outline will be oversailed by vehicle load
- Area within Blue outline will be oversailed by vehicle body
- Tractor Axles outlined in Green
- Trailer Axles outlined in Red
- Area shaded Orange requires oversail by load and projections -to be cleared of all obstructions
- Area shaded RED requires ground works to enable the vehicle axles to pass including levelling and strengthening

ITM GRID REFERENCE: 550361 653664

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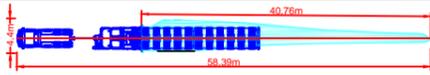
SITE KNOCKSHANVO WINDFARM	DRG NO. B2310	DATE 24/07/2023
TITLE LOCATION 13 - ROUNDABOUT ON N69 - CLARINA	PREPARED BY W.GALLAGHER	SCALE 1:1000
CLIENT FUTUREENERGY IRELAND	SIZE A3	SHEET NO. 29

Site Inspection/Survey required prior to any works commencing.

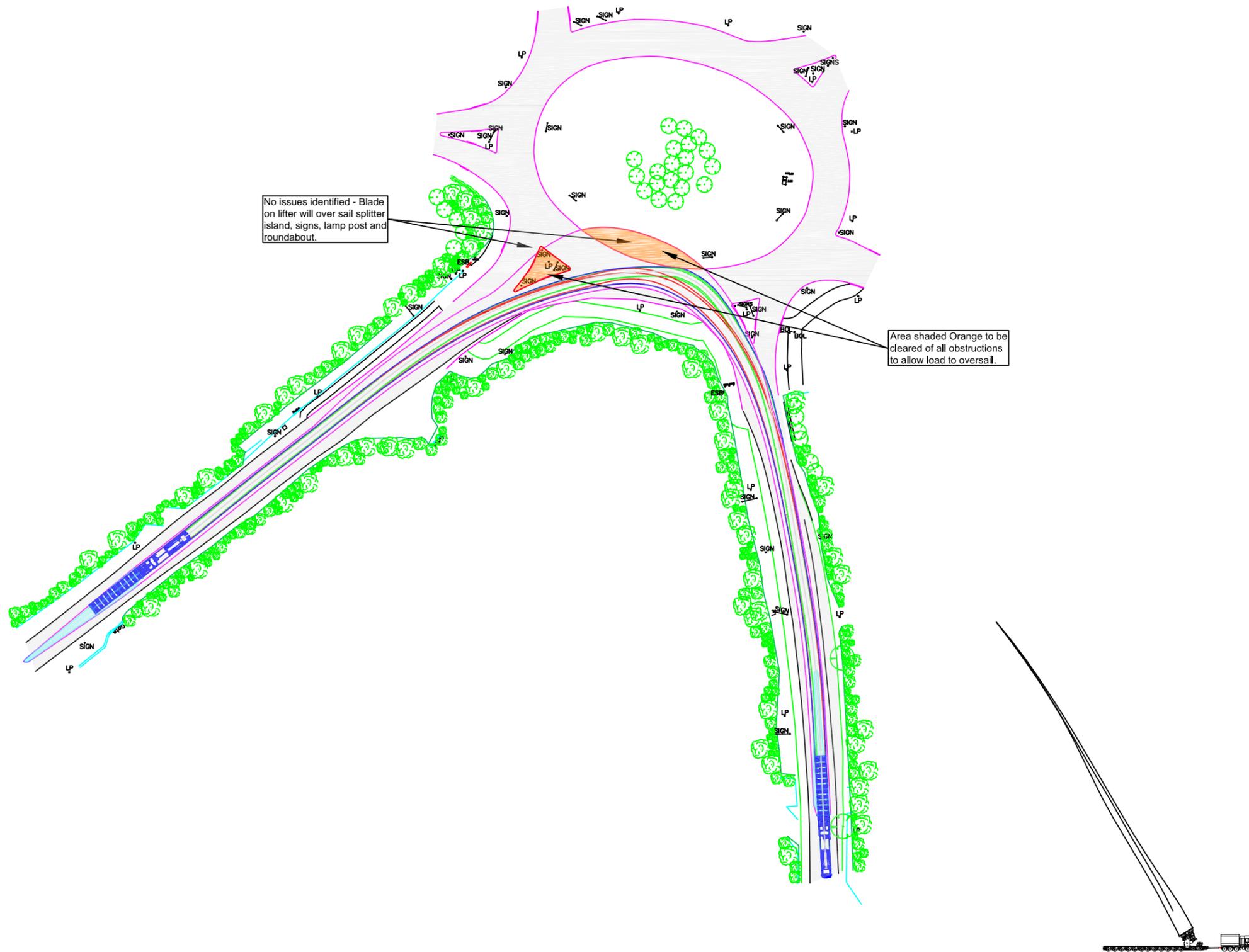
Trail Run of all delivery vehicles on Delivery route to be carried out on full extents of route prior to delivery of turbine components.

UNIT 4, FIRST FLOOR, GLEN VIEW BUSINESS PARK,
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Digital Land Surveyors Ltd
SWEPT PATH ANALYSIS SPECIALISTS



Generic Blade Component
BLADE LIFTER FTV 850 AND TRUCK



N69 / N18 East/R510 Roundabout

****Caution****

- No issues identified - Blade on lifter will over sail splitter island, signs, lamp post and roundabout.

- Area within Magenta outline will be oversailed by vehicle load
- Area within Blue outline will be oversailed by vehicle body
- Tractor Axles outlined in Green
- Trailer Axles outlined in Red
- Area shaded Orange requires oversail by load and projections -to be cleared of all obstructions

ITM GRID REFERENCE: 554514 655092

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- This drawing has been created from data produced from Aerial Imagery and OSI mapping.
- All Swept Path diagrams, drawings and assessments are calculated for the movement of loaded trailer equipment carrying Wind Turbine components. These calculations are based on the turning circles and specification of the specified trailer equipment details in this SPA.
- Delivery vehicles can be right or left hand vehicles therefore due to driver interpretation it is assumed that each vehicle will not follow the same path. Consequently, a buffer zone will be required outside of the Swept Path Analysis.
- This SPA is a means of providing evidence of minimum clearance of any vehicle as a footprint and there is no margin or safety cordon included.
- In locations where modifications are required for road widening the road construction must be formed in strict accordance with the specification contained within the Turbine Manufactures Transport Guidance document.
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SITE KNOCKSHANVO WINDFARM	DRG NO. B2310	DATE 26/07/2023
TITLE LOCATION 14 - N69/N18 EAST/R510 ROUNDABOUT	PREPARED BY R.HARKIN	SCALE 1:1250
CLIENT FUTUREENERGY IRELAND	SIZE A3	SHEET NO. 30

DRG NO. B2310	DATE 26/07/2023
PREPARED BY R.HARKIN	SCALE 1:1250
SIZE A3	SHEET NO. 30

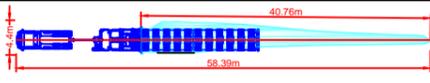
Site Inspection/Survey required prior to any works commencing.

Trail Run of all delivery vehicles on Delivery route to be carried out on full extents of route prior to delivery of turbine components.

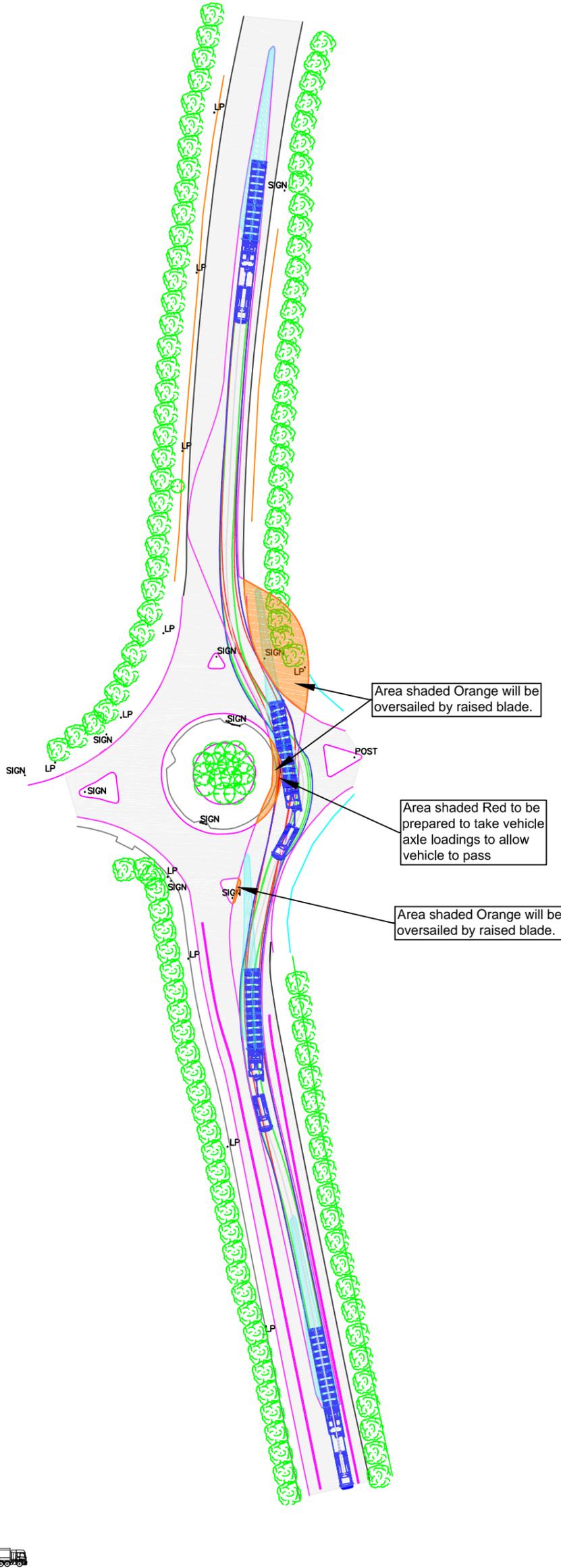
UNIT 4, FIRST FLOOR, GLEN VIEW BUSINESS PARK,
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SWEPT PATH ANALYSIS SPECIALISTS



Generic Blade Component
BLADE LIFTER FTV 850 AND TRUCK



Continue straight on R510 Roundabout
Caution

- Obstructions to be removed within areas shaded Magenta to allow vehicle body to oversail. Road sign to be removed. Trees to be pruned.
- Obstructions to be removed/lowered within areas shaded Orange to allow load to oversail. Road sign to be removed. Trees and hedges to be pruned.

- Area within Magenta outline will be oversailed by vehicle load
- Area within Blue outline will be oversailed by vehicle body
- Tractor Axles outlined in Green
- Trailer Axles outlined in Red
- Area shaded Orange requires oversail by load and projections -to be cleared of all obstructions
- Area shaded Magenta requires oversail by vehicle body - to be cleared of all obstructions

ITM GRID REFERENCE: 554440 654357

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Site Inspection/Survey required prior to any works commencing.

SCALE
1:1000

DATE
24/07/2023

Trail Run of all delivery vehicles on Delivery route to be carried out on full extents of route prior to delivery of turbine components.

SHEET NO.
31

SITE
KNOCKSHANVO WINDFARM

DRG NO.
B2310

TITLE
LOCATION 15 - R510 ROUNDABOUT

PREPARED BY
W.GALLAGHER

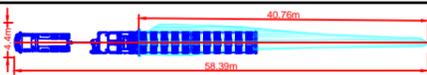
CLIENT
FUTUREENERGY IRELAND

SIZE
A3

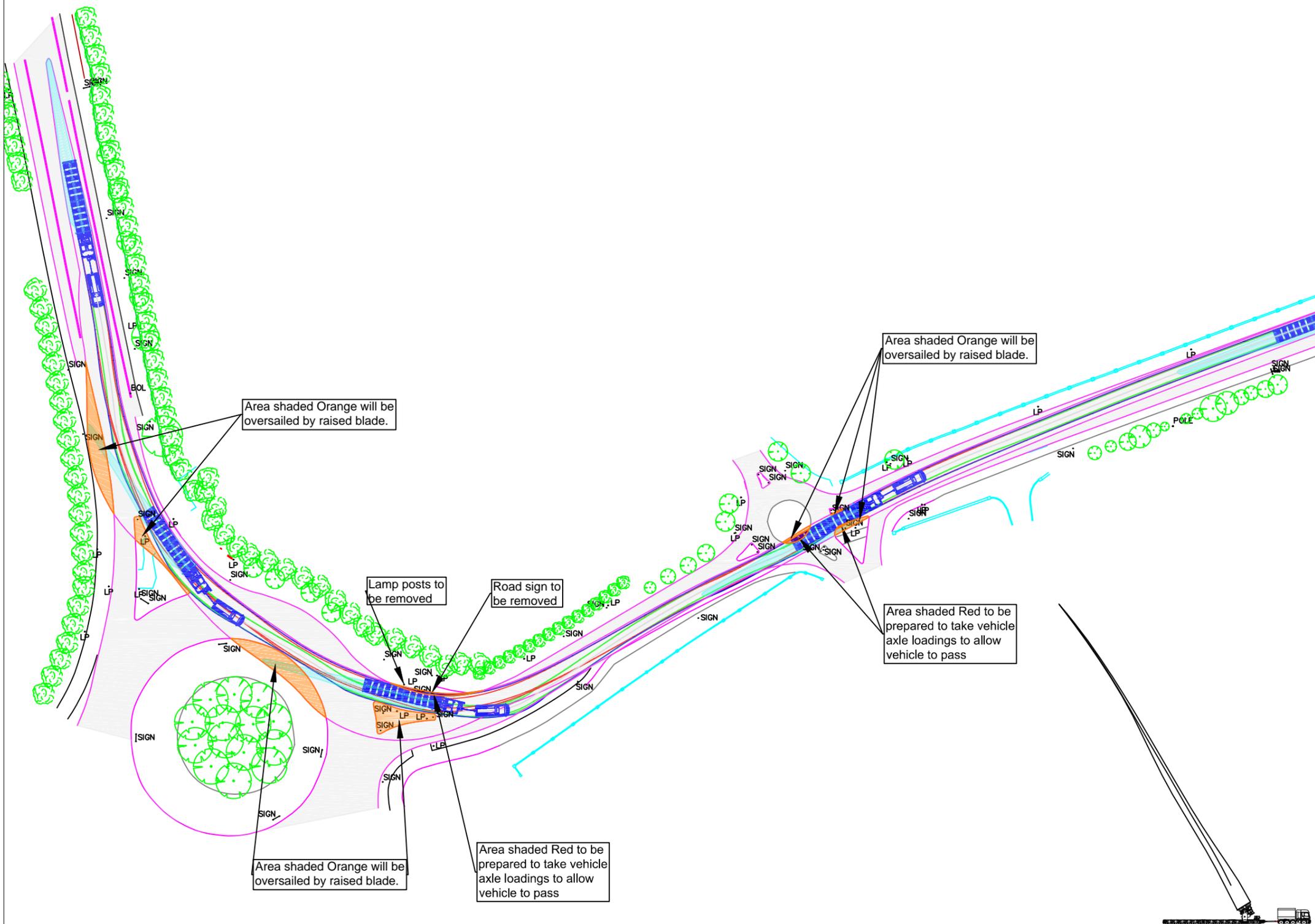
UNIT 4, FIRST FLOOR, GLEN VIEW BUSINESS PARK,
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SWEEP PATH ANALYSIS SPECIALISTS



Generic Blade Component
BLADE LIFTER FTV 850 AND TRUCK



Take first exit on R510 Roundabout and continue straight on Father Russell roundabout
Caution

- Areas shaded Orange will be oversailed by raised blade.
- Areas shaded Red to be cleared and prepared to allow vehicle axles to travel over. Road signs and lamp post to be removed. Islands to be cleared to allow delivery vehicle to travel over.
- All overhead cables to be removed along entire route of raised blade.

- Area within Magenta outline will be oversailed by vehicle load
- Area within Blue outline will be oversailed by vehicle body
- Tractor Axles outlined in Green
- Trailer Axles outlined in Red

Area shaded Orange requires oversail by load and projections
-to be cleared of all obstructions

Area shaded RED requires ground works to enable the vehicle axles to pass including levelling and strengthening

ITM GRID REFERENCE: 554563 654016

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SITE
KNOCKSHANVO WINDFARM

TITLE LOCATION 16&17 - R510/FATHER RUSSELL ROAD ROUNDABOUT

CLIENT
FUTUREENERGY IRELAND

DRG NO.
B2310

PREPARED BY
W.GALLAGHER

SIZE
A3

DATE
24/07/2023

SCALE
1:1000

SHEET NO.
32

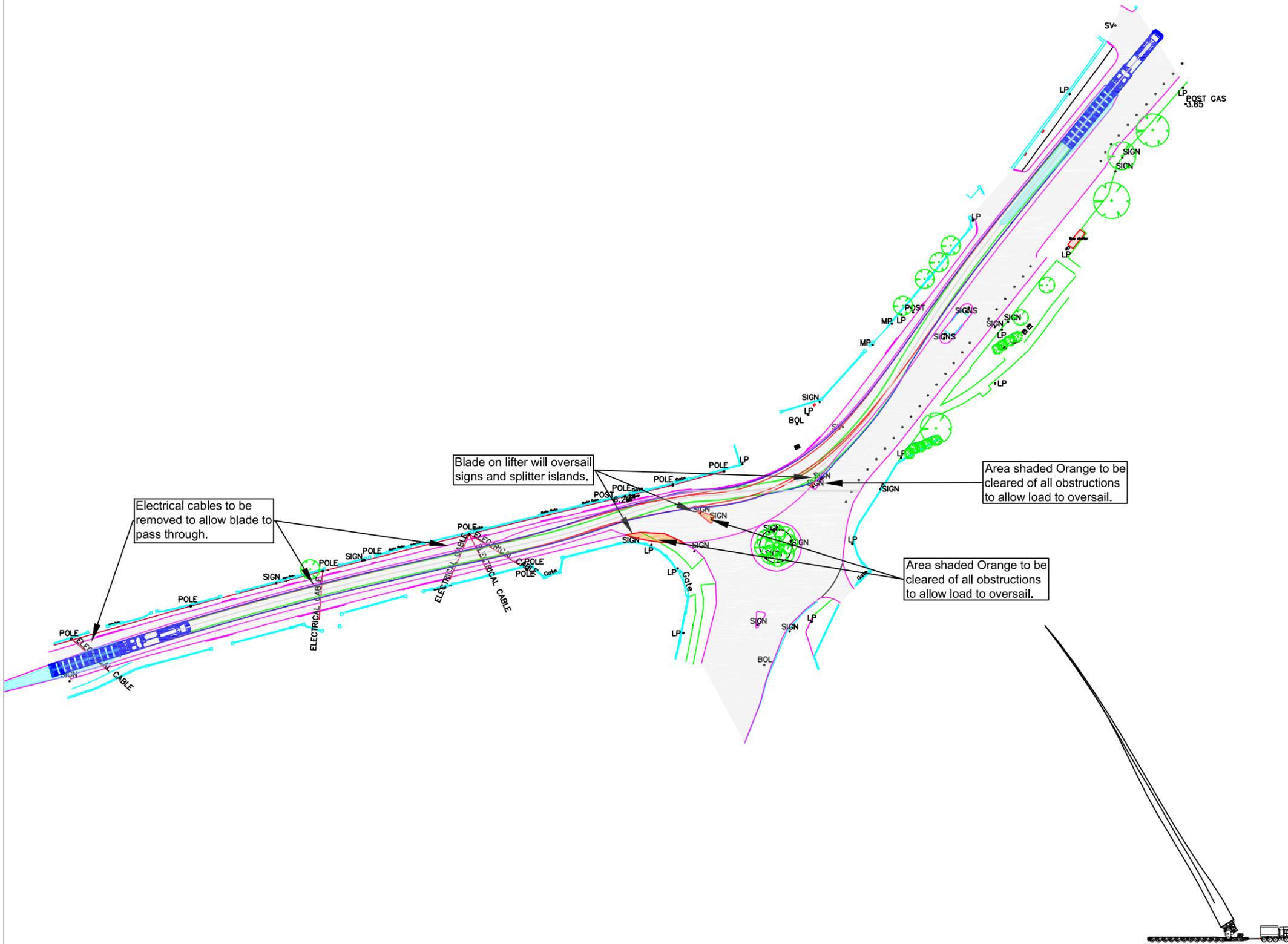
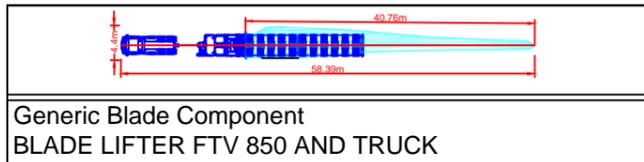
Site Inspection/Survey required prior to any works commencing.

Trail Run of all delivery vehicles on Delivery route to be carried out on full extents of route prior to delivery of turbine components.

UNIT 4, FIRST FLOOR, GLEN VIEW BUSINESS PARK,
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Digital Land Surveyors Ltd
SWEPT PATH ANALYSIS SPECIALISTS



Father Russell Road / R526 Roundabout

- **Caution****
- Electrical lines to be removed to all blade lifter and truck to pass through.
 - Blade on lifter will over sail signs and splitter island.

- Area within Magenta outline will be oversailed by vehicle load
- Area within Blue outline will be oversailed by vehicle body
- Tractor Axles outlined in Green
- Trailer Axles outlined in Red
- Area shaded Orange requires oversail by load and projections -to be cleared of all obstructions

ITM GRID REFERENCE: 555804 654386

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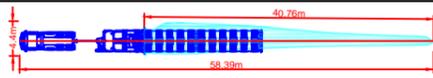
SITE KNOCKSHANVO WINDFARM	DRG NO. B2310	DATE 26/07/2023
TITLE LOCATION 18 - FATHER RUSSELL ROAD/R526 ROUNDABOUT	PREPARED BY R.HARKIN	SCALE 1:1000
CLIENT FUTUREENERGY IRELAND	SIZE A3	SHEET NO. 33

Site Inspection/Survey required prior to any works commencing.

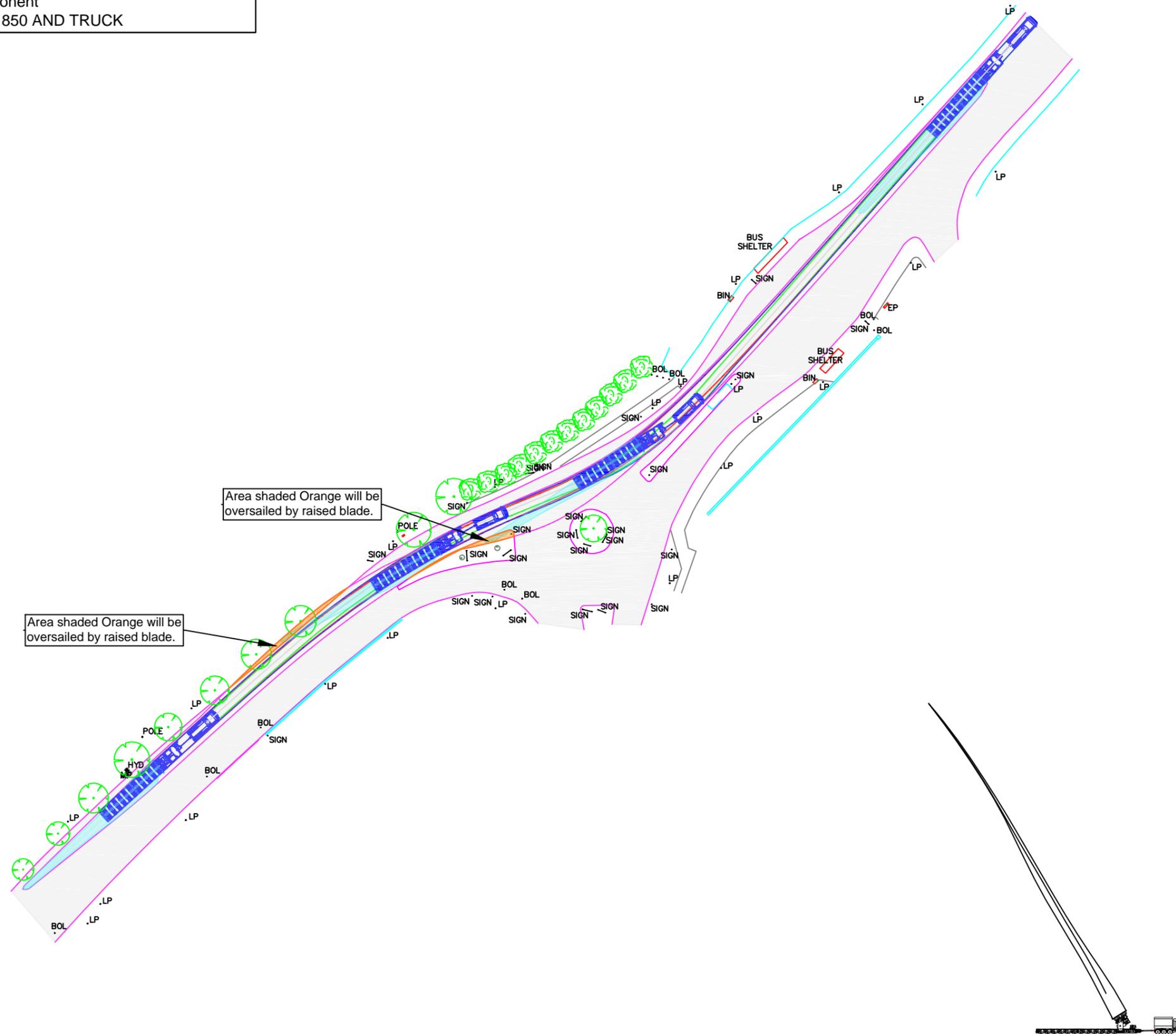
Trail Run of all delivery vehicles on Delivery route to be carried out on full extents of route prior to delivery of turbine components.

UNIT 4, FIRST FLOOR, GLEN VIEW BUSINESS PARK,
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Digital Land Surveyors Ltd
SWEPT PATH ANALYSIS SPECIALISTS



Generic Blade Component
BLADE LIFTER FTV 850 AND TRUCK



Area shaded Orange will be oversailed by raised blade.

Area shaded Orange will be oversailed by raised blade.

Take first exit on R526/R926 Roundabout
Caution

- Areas shaded Orange will be oversailed by raised blade.
- All overhead cables to be removed along entire route of raised blade.

- Area within Magenta outline will be oversailed by vehicle load
- Area within Blue outline will be oversailed by vehicle body
- Tractor Axles outlined in Green
- Trailer Axles outlined in Red
- Area shaded Orange requires oversail by load and projections -to be cleared of all obstructions

ITM GRID REFERENCE: 556088 654668

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SITE
KNOCKSHANVO WINDFARM

DRG NO.
B2310

DATE
24/07/2023

Site Inspection/Survey required prior to any works commencing.

TITLE
LOCATION 19 - R526/R926 ROUNDABOUT

PREPARED BY
W.GALLAGHER

SCALE
1:1000

Trail Run of all delivery vehicles on Delivery route to be carried out on full extents of route prior to delivery of turbine components.

CLIENT
FUTUREENERGY IRELAND

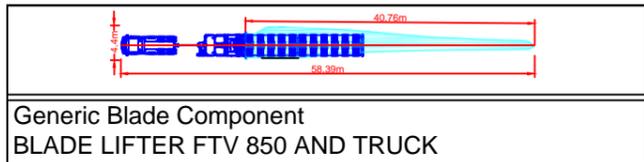
SIZE
A3

SHEET NO.
34

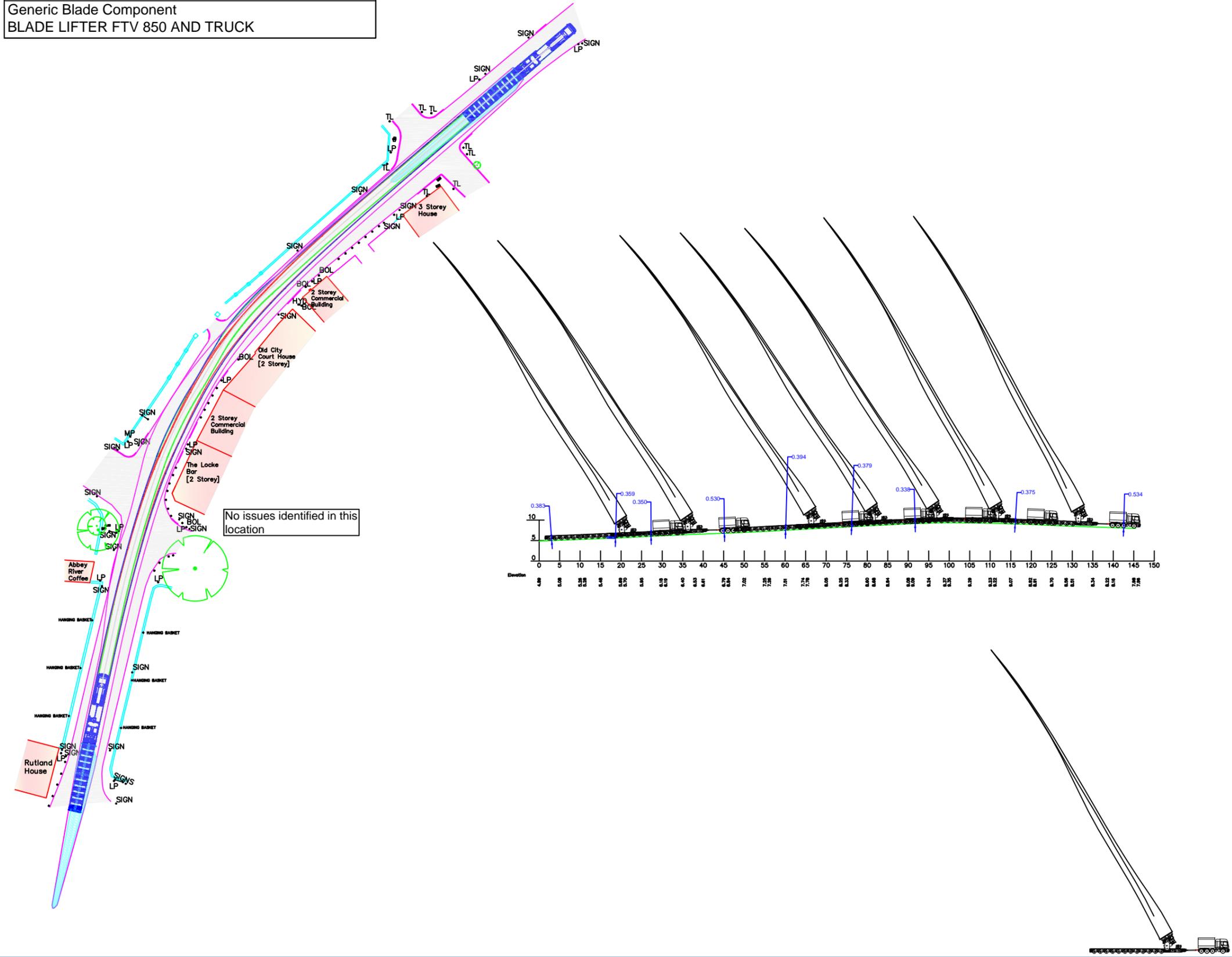
UNIT 4, FIRST FLOOR, GLEN VIEW BUSINESS PARK,
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Digital Land Surveyors Ltd
SWEPT PATH ANALYSIS SPECIALISTS



Generic Blade Component
BLADE LIFTER FTV 850 AND TRUCK



No issues identified in this location

Right Bend and Crest on R463

****Caution****

- Blade on lifter will over sail signs, lamp post etc.
- Load to be fully raised to avoid contact with the road surface.
- Minimum distance to road surface 0.338m.
- Trailer deflection has not been considered therefore grounding maybe an issue.

- Area within Magenta outline will be oversailed by vehicle load
- Area within Blue outline will be oversailed by vehicle body
- Tractor Axles outlined in Green
- Trailer Axles outlined in Red

ITM GRID REFERENCE: 557547 657556

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SITE KNOCKSHANVO WINDFARM	DRG NO. B2310	DATE 26/07/2023
TITLE LOCATION 24 & 25 - RIGHT BEND AND CREST ON R463	PREPARED BY R.HARKIN	SCALE 1:1000
CLIENT FUTUREENERGY IRELAND	SIZE A3	SHEET NO. 35

Site Inspection/Survey required prior to any works commencing.

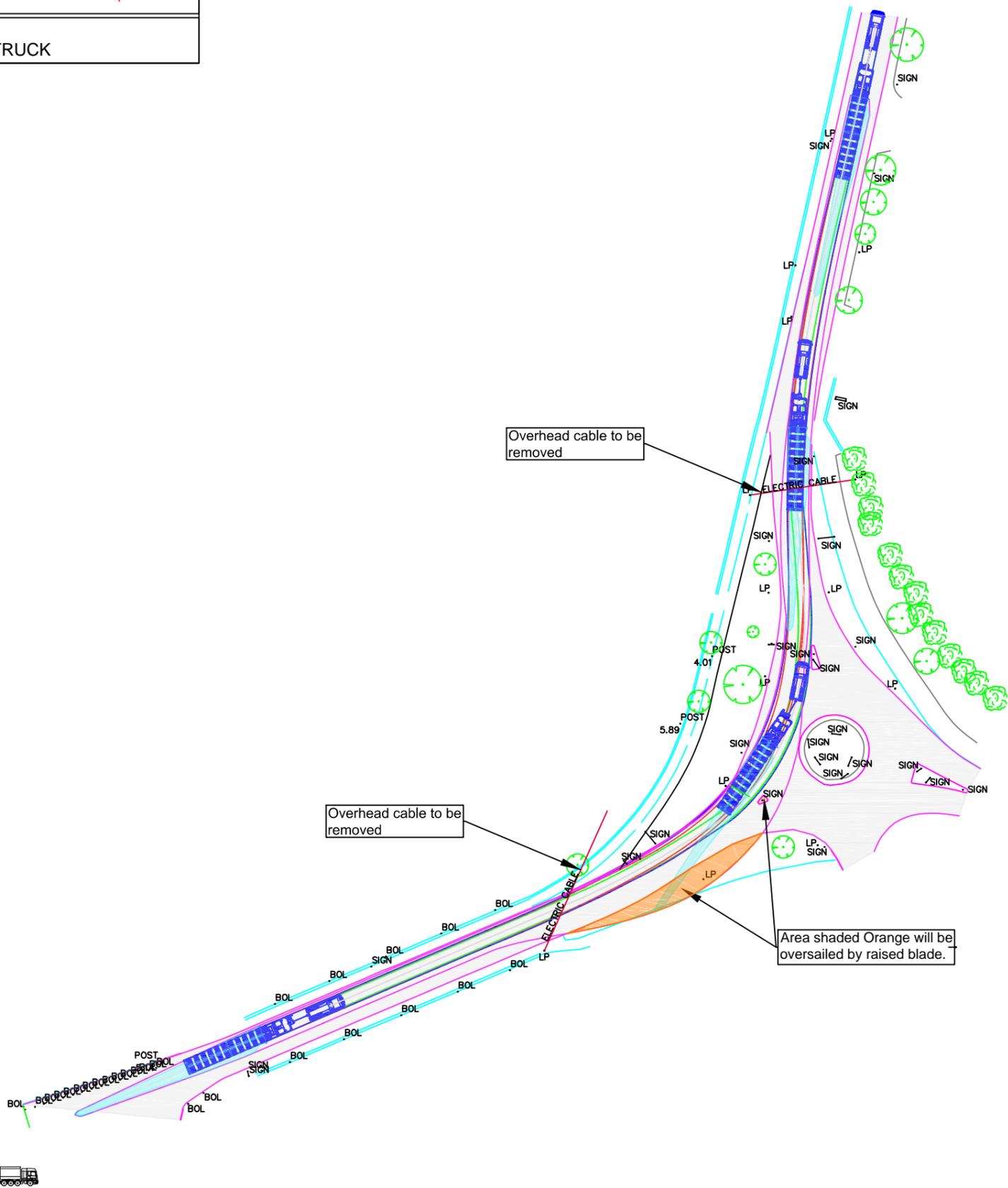
Trail Run of all delivery vehicles on Delivery route to be carried out on full extents of route prior to delivery of turbine components.

UNIT 4, FIRST FLOOR, GLEN VIEW BUSINESS PARK,
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EMAIL: info@landsurveyors.ie

Digital Land Surveyors Ltd
SWEPT PATH ANALYSIS SPECIALISTS



Generic Blade Component
BLADE LIFTER FTV 850 AND TRUCK



Take first exit at R463 Roundabout
Caution

- Areas shaded Orange will be oversailed by raised blade.
- All overhead cables to be removed along entire route of raised blade.

- Area within Magenta outline will be oversailed by vehicle load
- Area within Blue outline will be oversailed by vehicle body
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- Trailer Axles outlined in Red
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ITM GRID REFERENCE: 558298 657812

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SITE KNOCKSHANVO WINDFARM	DRG NO. B2310	DATE 24/07/2023
TITLE LOCATION 26&27 - R463 BRIDGE/R463 ROUNDABOUT	PREPARED BY W.GALLAGHER	SCALE 1:1000
CLIENT FUTUREENERGY IRELAND	SIZE A3	SHEET NO. 36

DRG NO. B2310	DATE 24/07/2023
PREPARED BY W.GALLAGHER	SCALE 1:1000
SIZE A3	SHEET NO. 36

Site Inspection/Survey required prior to any works commencing.
Trail Run of all delivery vehicles on Delivery route to be carried out on full extents of route prior to delivery of turbine components.

UNIT 4, FIRST FLOOR, GLEN VIEW BUSINESS PARK,
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EMAIL: info@landsurveyors.ie



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SWEPT PATH ANALYSIS SPECIALISTS

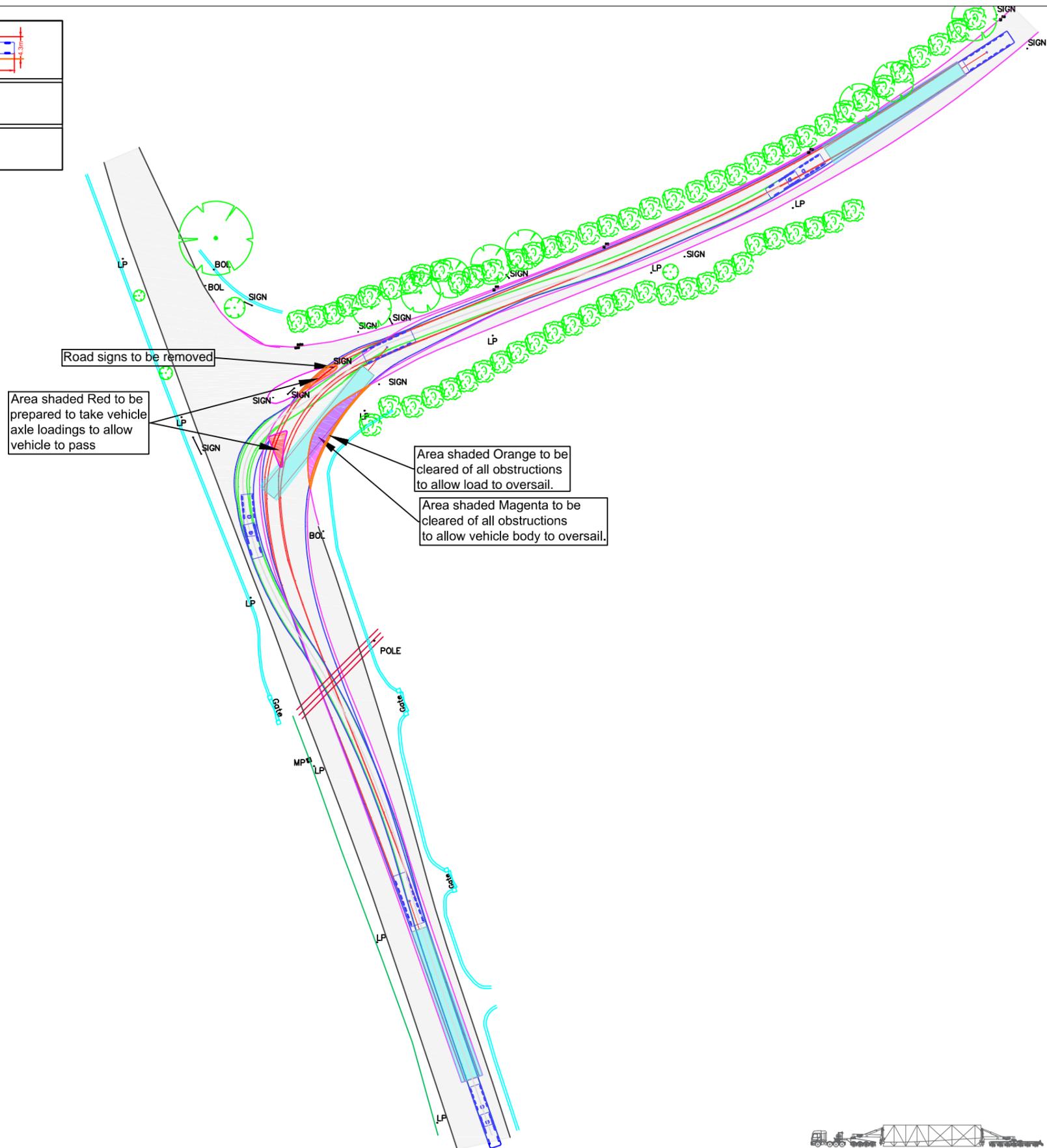


3.3. Nooteboom Lift AD-100 on entire route - tower component



Swept Path indicates trailer utilising MANUAL steering

Nordex N163 Tower
NOOTEBOOM LiftAD-100



Left turn onto N69
Caution

- Obstructions to be removed within areas shaded Magenta to allow vehicle body to oversail.
- Areas shaded Red to be cleared and prepared to allow vehicle axles to travel over. Islands to be removed of all road signs.

- Area within Magenta outline will be oversailed by vehicle load
- Area within Blue outline will be oversailed by vehicle body
- Tractor Axles outlined in Green
- Trailer Axles outlined in Red
- Area shaded Orange requires oversail by load and projections -to be cleared of all obstructions
- Area shaded Magenta requires oversail by vehicle body - to be cleared of all obstructions

ITM GRID REFERENCE: 525833 650947

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SITE KNOCKSHANVO WINDFARM	DRG NO. B2310	DATE 24/07/2023	Site Inspection/Survey required prior to any works commencing.	UNIT 4, FIRST FLOOR, GLEN VIEW BUSINESS PARK, CARNAMUGGAGH UPPER, KILMACRENNAN ROAD, LETTERKENNY, CO. DONEGAL, IRELAND. F92 V9KE TEL: + 353(0)74 9127720 MOB: + 353(0)86 8044031 MOB: + 353(0)87 8323916 EMAIL: info@landsurveyors.ie
TITLE LOCATION 2 - LEFT TURN ONTO N69	PREPARED BY W.GALLAGHER	SCALE 1:1000	Trail Run of all delivery vehicles on Delivery route to be carried out on full extents of route prior to delivery of turbine components.	
CLIENT FUTUREENERGY IRELAND	SIZE A3	SHEET NO. 37		

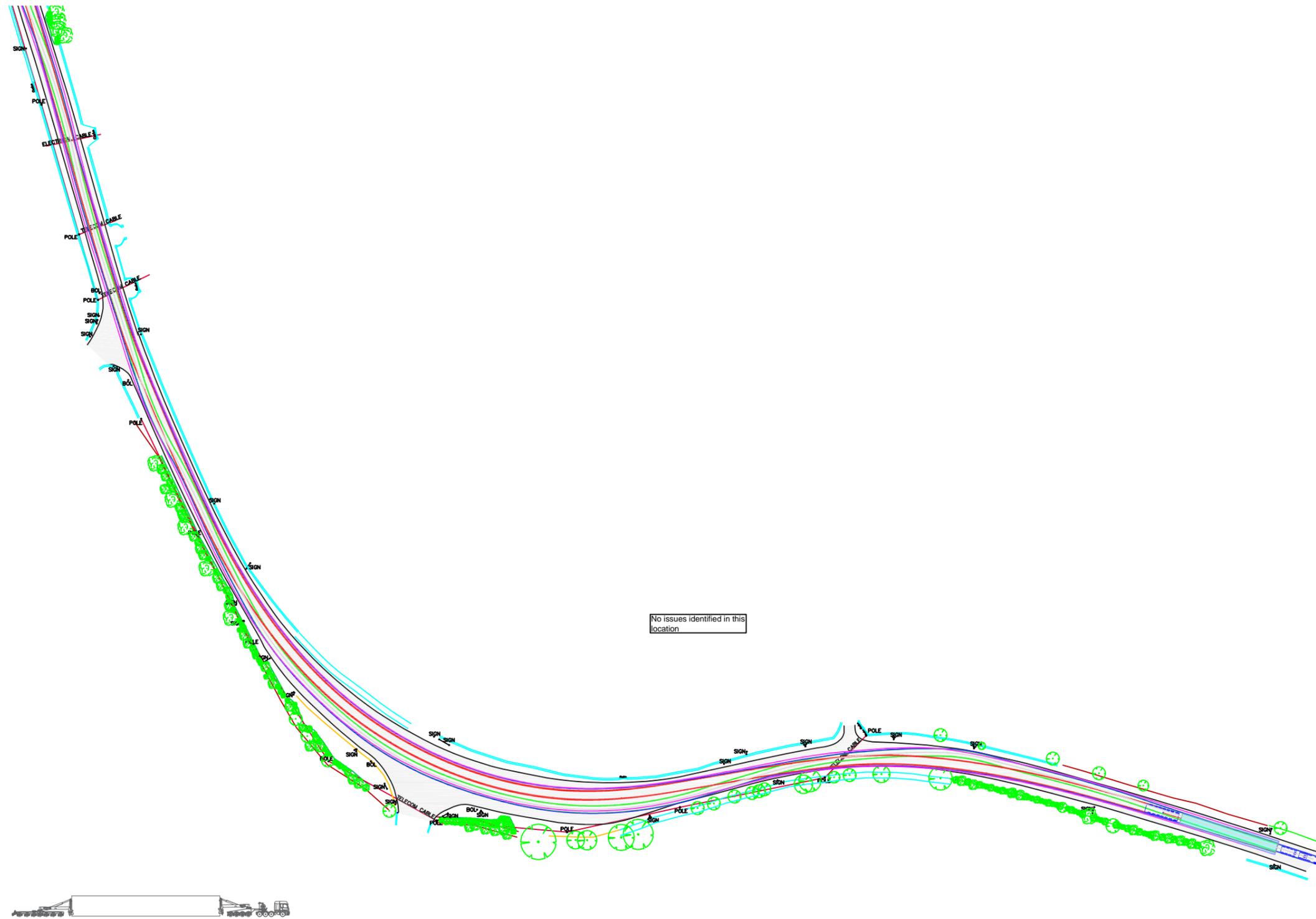


Digital Land Surveyors Ltd
SWEPT PATH ANALYSIS SPECIALISTS



Swept Path indicates trailer utilising
MANUAL steering

Nordex N163 Tower
NOOTEBOOM LiftAD-100



Left and Right Bend on N69

****Caution****

- No issues identified.

- Area within Magenta outline will be oversailed by vehicle load
- Area within Blue outline will be oversailed by vehicle body
- Tractor Axles outlined in Green
- Trailer Axles outlined in Red

ITM GRID REFERENCE: 526240 649842

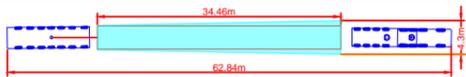
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SITE KNOCKSHANVO WINDFARM	DRG NO. B2310	DATE 28/07/2023
TITLE LOCATION 4&5 - LEFT AND RIGHT BEND ON N69	PREPARED BY R.HARKIN	SCALE 1:1500
CLIENT FUTUREENERGY IRELAND	SIZE A3	SHEET NO. 39

Site Inspection/Survey required prior to any works commencing.	
Trail Run of all delivery vehicles on Delivery route to be carried out on full extents of route prior to delivery of turbine components.	

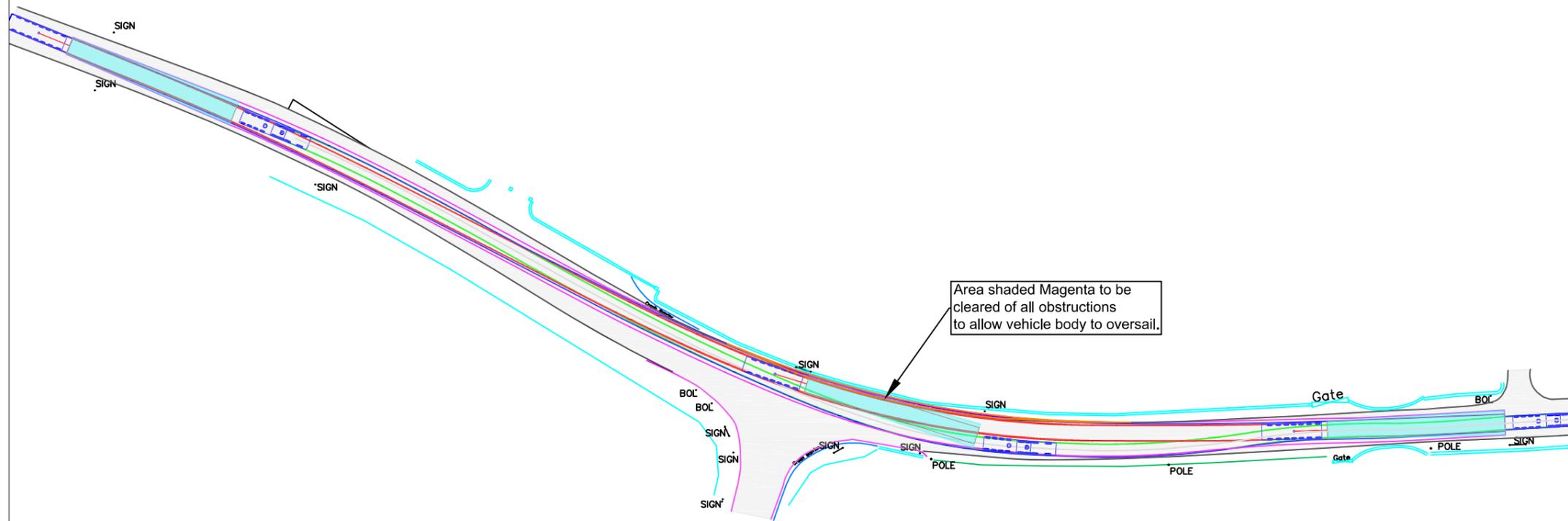
UNIT 4, FIRST FLOOR, GLEN VIEW BUSINESS PARK,
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EMAIL: info@landsurveyors.ie

Digital Land Surveyors Ltd
SWEPT PATH ANALYSIS SPECIALISTS



Swept Path indicates trailer utilising
AUTOMATIC steering

Nordex N163 Tower
NOOTEBOOM LiftAD-100



Left bend on N69
Caution

- Obstructions to be removed within areas shaded Magenta to allow vehicle body to oversail.

- Area within Magenta outline will be oversailed by vehicle load
- Area within Blue outline will be oversailed by vehicle body
- Tractor Axles outlined in Green
- Trailer Axles outlined in Red

Area shaded Magenta requires oversail by vehicle body - to be cleared of all obstructions

ITM GRID REFERENCE: 526759 649706

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SITE
KNOCKSHANVO WINDFARM

DRG NO.
B2310

DATE
24/07/2023

Site Inspection/Survey required prior to any works commencing.

TITLE
LOCATION 6 - LEFT BEND ON N69

PREPARED BY
W.GALLAGHER

SCALE
1:1000

Trail Run of all delivery vehicles on Delivery route to be carried out on full extents of route prior to delivery of turbine components.

CLIENT
FUTUREENERGY IRELAND

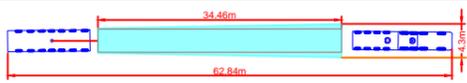
SIZE
A3

SHEET NO.
40

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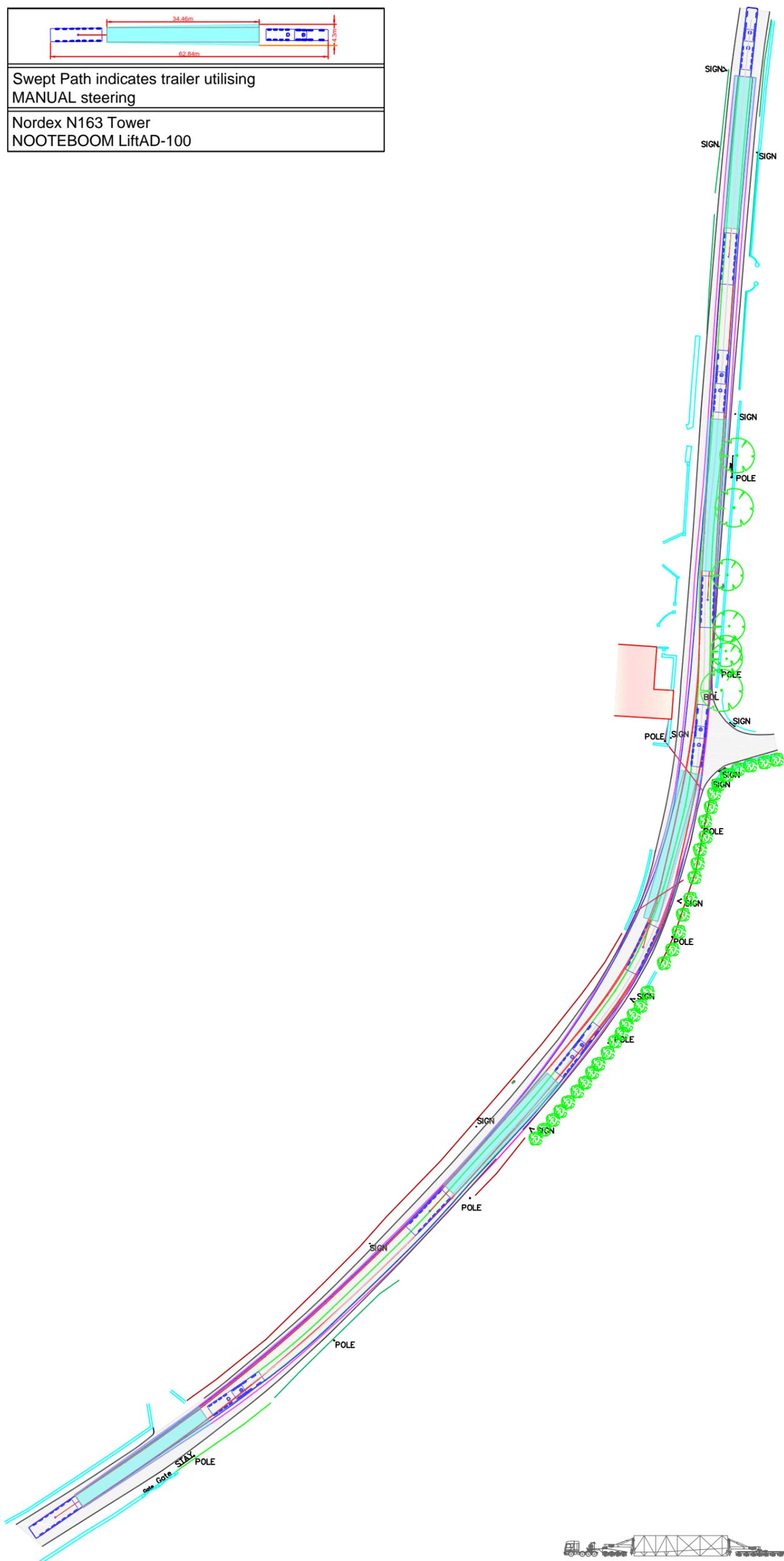


Digital Land Surveyors Ltd
SWEPT PATH ANALYSIS SPECIALISTS



Swept Path indicates trailer utilising
MANUAL steering

Nordex N163 Tower
NOOTEBOOM LiftAD-100



Left bend on N69

- No issues identified at this location.

- Area within Magenta outline will be oversailed by vehicle load
- Area within Blue outline will be oversailed by vehicle body
- Tractor Axles outlined in Green
- Trailer Axles outlined in Red

ITM GRID REFERENCE: 528714 650039

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Site Inspection/Survey required prior to any works commencing.

SCALE
1:1000

DATE
24/07/2023

Trail Run of all delivery vehicles on Delivery route to be carried out on full extents of route prior to delivery of turbine components.

SHEET NO.
41

SITE
KNOCKSHANVO WINDFARM

DRG NO.
B2310

TITLE
LOCATION 7 - LEFT BEND ON N69

PREPARED BY
W.GALLAGHER

CLIENT
FUTUREENERGY IRELAND

SIZE
A3

UNIT 4, FIRST FLOOR, GLEN VIEW BUSINESS PARK,
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MOB: + 353(0)87 8323916
EMAIL: info@landsurveyors.ie

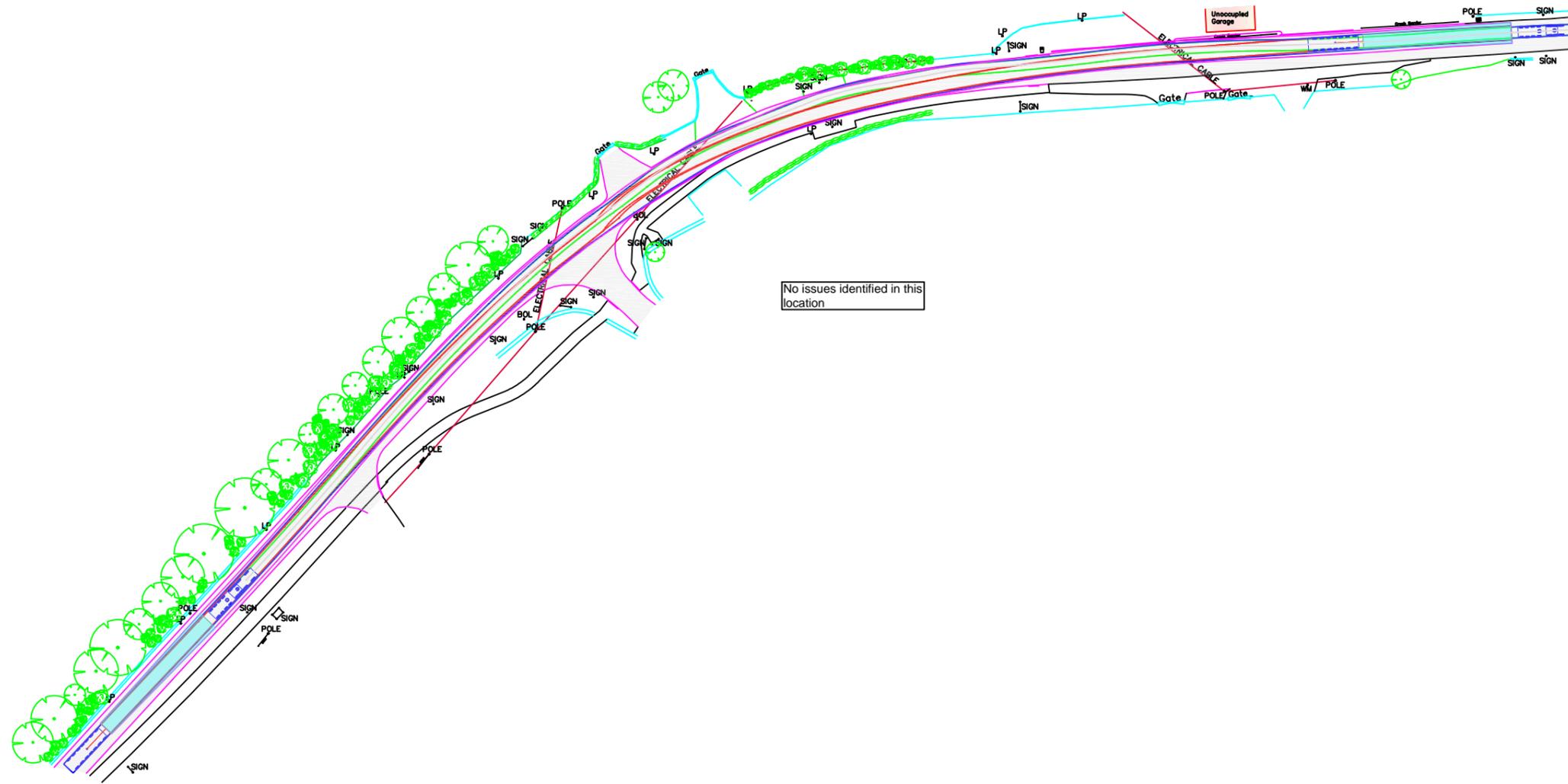


Digital Land Surveyors Ltd
SWEPT PATH ANALYSIS SPECIALISTS



Swept Path indicates trailer utilising
MANUAL steering

Nordex N163 Tower
NOOTEBOOM LiftAD-100



Right Bend on N69

****Caution****

- No issues identified

- Area within Magenta outline will be oversailed by vehicle load
- Area within Blue outline will be oversailed by vehicle body
- Tractor Axles outlined in Green
- Trailer Axles outlined in Red

ITM GRID REFERENCE: 540423 652250

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SITE
KNOCKSHANVO WINDFARM

TITLE
LOCATION 10 - RIGHT BEND ON N69

CLIENT
FUTUREENERGY IRELAND

DRG NO.
B2310

PREPARED BY
R.HARKIN

SIZE
A3

DATE
28/07/2023

SCALE
1:1250

SHEET NO.
42

Site Inspection/Survey required prior to any works commencing.

Trail Run of all delivery vehicles on Delivery route to be carried out on full extents of route prior to delivery of turbine components.

UNIT 4, FIRST FLOOR, GLEN VIEW BUSINESS PARK,
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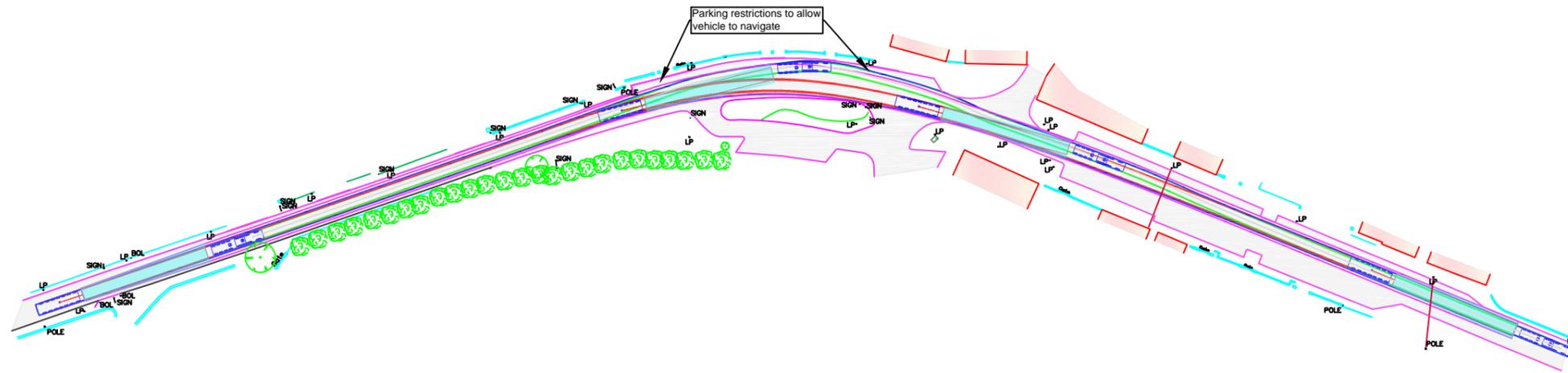


Digital Land Surveyors Ltd
SWEPT PATH ANALYSIS SPECIALISTS



Swept Path indicates trailer utilising
AUTOMATIC steering

Nordex N163 Tower
NOOTEBOOM LiftAD-100



Right bend on N69 - Kildimo
Caution

- Parking restriction to be enforced on the nearside to allow delivery vehicle to navigate this location.

- Area within Magenta outline will be oversailed by vehicle load
- Area within Blue outline will be oversailed by vehicle body
- Tractor Axles outlined in Green
- Trailer Axles outlined in Red

ITM GRID REFERENCE: 544962 652820

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SITE
KNOCKSHANVO WINDFARM

DRG NO.
B2310

DATE
24/07/2023

Site Inspection/Survey required prior to any works commencing.

TITLE
LOCATION 11 - RIGHT BEND ON N69 - KILDIMO

PREPARED BY
W.GALLAGHER

SCALE
1:1500

Trail Run of all delivery vehicles on Delivery route to be carried out on full extents of route prior to delivery of turbine components.

CLIENT
FUTUREENERGY IRELAND

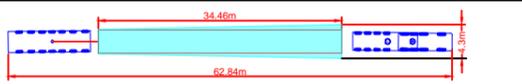
SIZE
A3

SHEET NO.
43

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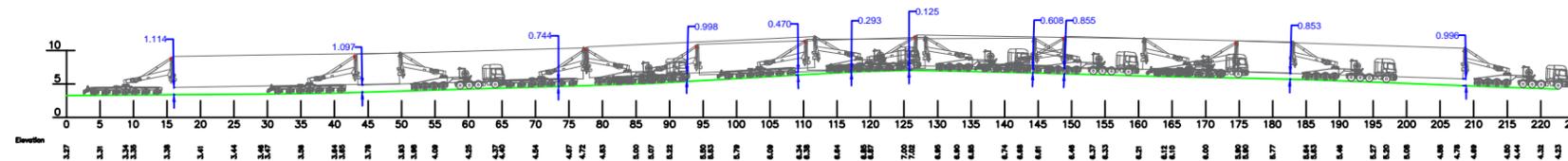
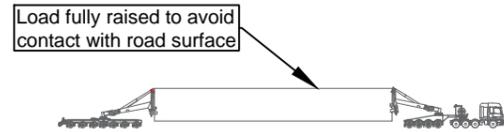


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SWEPT PATH ANALYSIS SPECIALISTS



Swept Path indicates trailer utilising
MANUAL steering

Nordex N163 Tower
NOOTEBOOM LiftAD-100



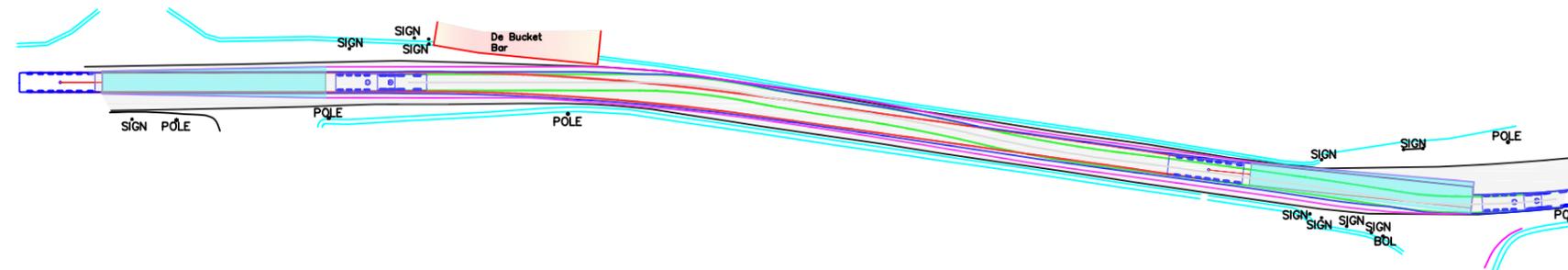
N69 Ferrybridge

****Caution****

- Load to be fully raised to avoid contact with the road surface.
- Minimum distance to road surface is 0.125m.
- Trailer deflection has not been considered therefore grounding maybe an issue.

- Area within Magenta outline will be oversailed by vehicle load
- Area within Blue outline will be oversailed by vehicle body
- Tractor Axles outlined in Green
- Trailer Axles outlined in Red

ITM GRID REFERENCE: 548119 652341



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SITE
KNOCKSHANVO WINDFARM

DRG NO.
B2310

DATE
28/07/2023

Site Inspection/Survey required prior to any works commencing.

TITLE
LOCATION 12 - N69 FERRYBRIDGE

PREPARED BY
R.HARKIN

SCALE
1:1000

Trail Run of all delivery vehicles on Delivery route to be carried out on full extents of route prior to delivery of turbine components.

CLIENT
FUTUREENERGY IRELAND

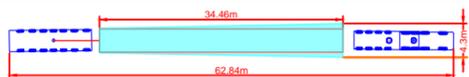
SIZE
A3

SHEET NO.
44

UNIT 4, FIRST FLOOR, GLEN VIEW BUSINESS PARK,
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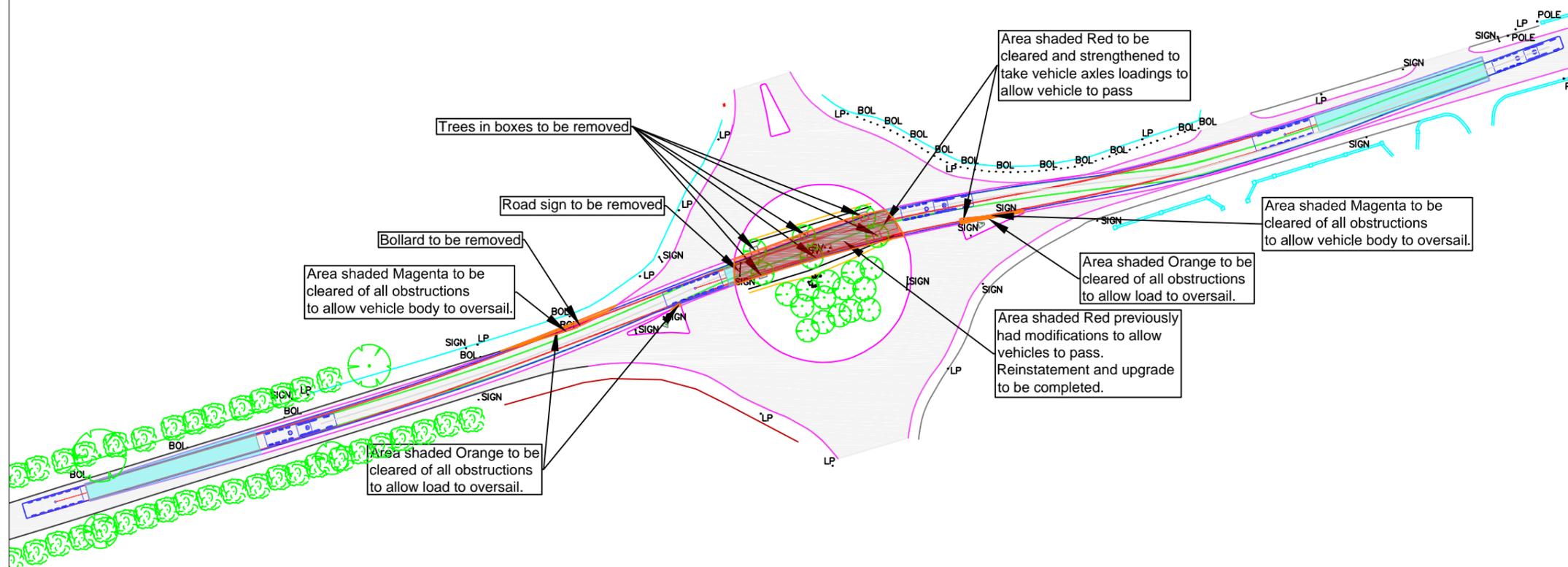


Digital Land Surveyors Ltd
SWEPT PATH ANALYSIS SPECIALISTS



Swept Path indicates trailer utilising
AUTOMATIC steering

Nordex N163 Tower
NOOTEBOOM LiftAD-100



Continue straight at Roundabout on N69 - Clarina
Caution

- Obstructions to be removed within areas shaded Magenta to allow vehicle body to oversail. Bollard to be removed.
- Obstructions to be removed/lowered within areas shaded Orange to allow load to oversail. Sign to be removed.
- Areas shaded Red to be cleared and prepared to allow vehicle axles to travel over. Road sign and boxes containing trees to be removed.
- Previous modifications carried out on roundabout to be reinstated and upgraded.

- Area within Magenta outline will be oversailed by vehicle load
- Area within Blue outline will be oversailed by vehicle body
- Tractor Axles outlined in Green
- Trailer Axles outlined in Red
- Area shaded Orange requires oversail by load and projections -to be cleared of all obstructions
- Area shaded Magenta requires oversail by vehicle body - to be cleared of all obstructions
- Area shaded RED requires ground works to enable the vehicle axles to pass including levelling and strengthening

ITM GRID REFERENCE: 550361 653664

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SITE
KNOCKSHANVO WINDFARM

DRG NO.
B2310

DATE
24/07/2023

Site Inspection/Survey required prior to any works commencing.

TITLE
LOCATION 13 - ROUNDABOUT ON N69 - CLARINA

PREPARED BY
W.GALLAGHER

SCALE
1:1000

Trail Run of all delivery vehicles on Delivery route to be carried out on full extents of route prior to delivery of turbine components.

CLIENT
FUTUREENERGY IRELAND

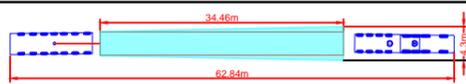
SIZE
A3

SHEET NO.
45

UNIT 4, FIRST FLOOR, GLEN VIEW BUSINESS PARK,
CARNAMUGGAGH UPPER, KILMACRENNAN ROAD,
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TEL: + 353(0)74 9127720
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MOB: + 353(0)87 8323916
EMAIL: info@landsurveyors.ie

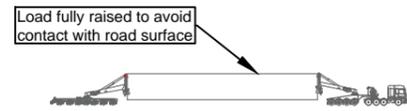
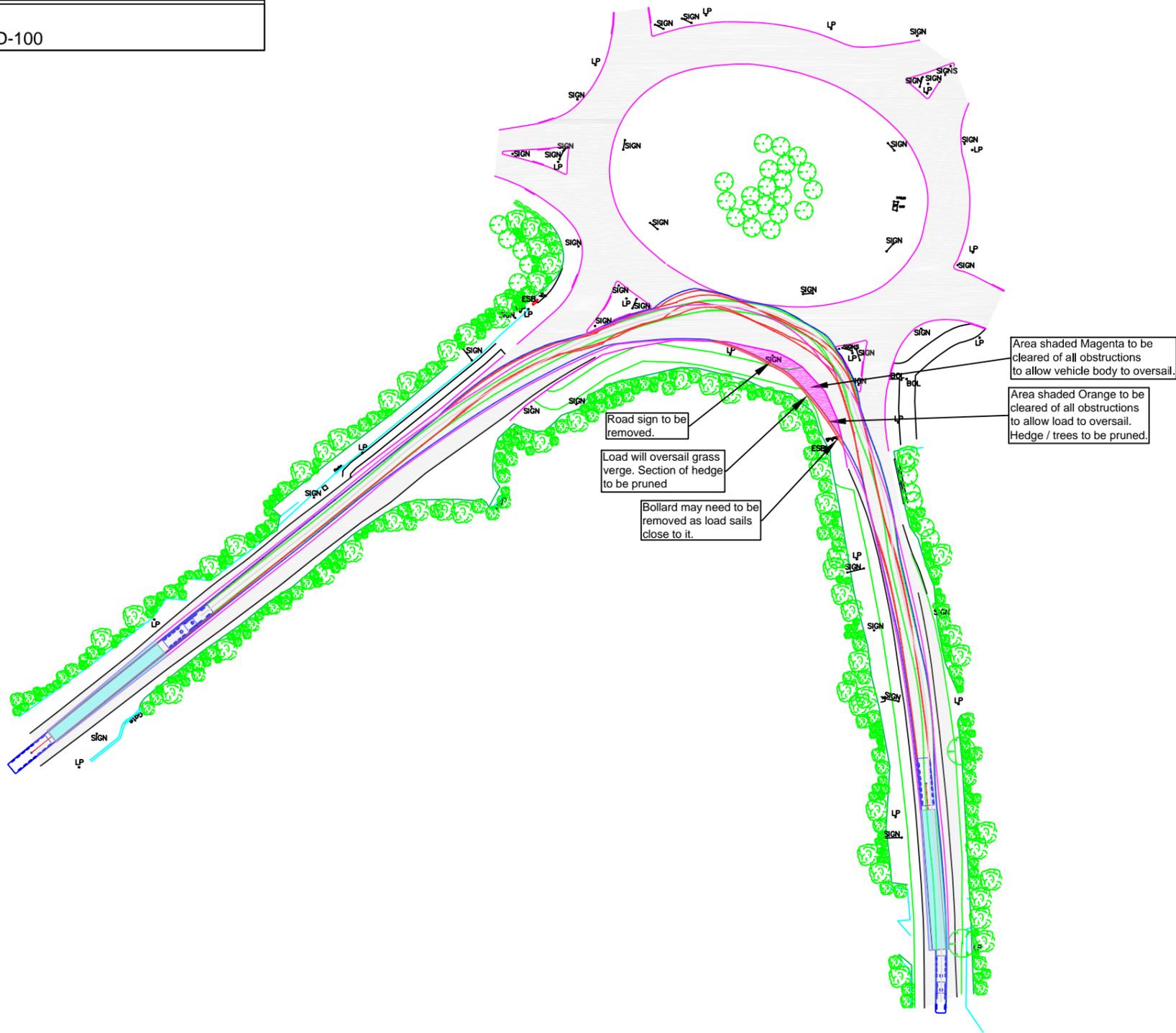


Digital Land Surveyors Ltd
SWEPT PATH ANALYSIS SPECIALISTS



Swept Path indicates trailer utilising MANUAL steering

Nordex N163 Tower
NOOTEBOOM LiftAD-100



N69/N18 East/R510 Roundabout

****Caution****

- Road sign to be removed.
- Load will oversail grass verge.
- Bollards may need to be removed to allow load to over sail.
- Section of hedge to be pruned to allow load to over sail.
- Load to be fully raised to avoid contact with the road / verge surface.

- Area within Magenta outline will be oversailed by vehicle load
- Area within Blue outline will be oversailed by vehicle body
- Tractor Axles outlined in Green
- Trailer Axles outlined in Red
- Area shaded Orange requires oversail by load and projections -to be cleared of all obstructions
- Area shaded Magenta requires oversail by vehicle body - to be cleared of all obstructions

ITM GRID REFERENCE: 554514 655092

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SITE KNOCKSHANVO WINDFARM	DRG NO. B2310	DATE 28/07/2023
TITLE LOCATION 14 - N69/N18 EAST/R510 ROUNDABOUT	PREPARED BY R.HARKIN	SCALE 1:1250
CLIENT FUTUREENERGY IRELAND	SIZE A3	SHEET NO. 46

DRG NO. B2310	DATE 28/07/2023
PREPARED BY R.HARKIN	SCALE 1:1250
SIZE A3	SHEET NO. 46

Site Inspection/Survey required prior to any works commencing.

Trail Run of all delivery vehicles on Delivery route to be carried out on full extents of route prior to delivery of turbine components.

UNIT 4, FIRST FLOOR, GLEN VIEW BUSINESS PARK,
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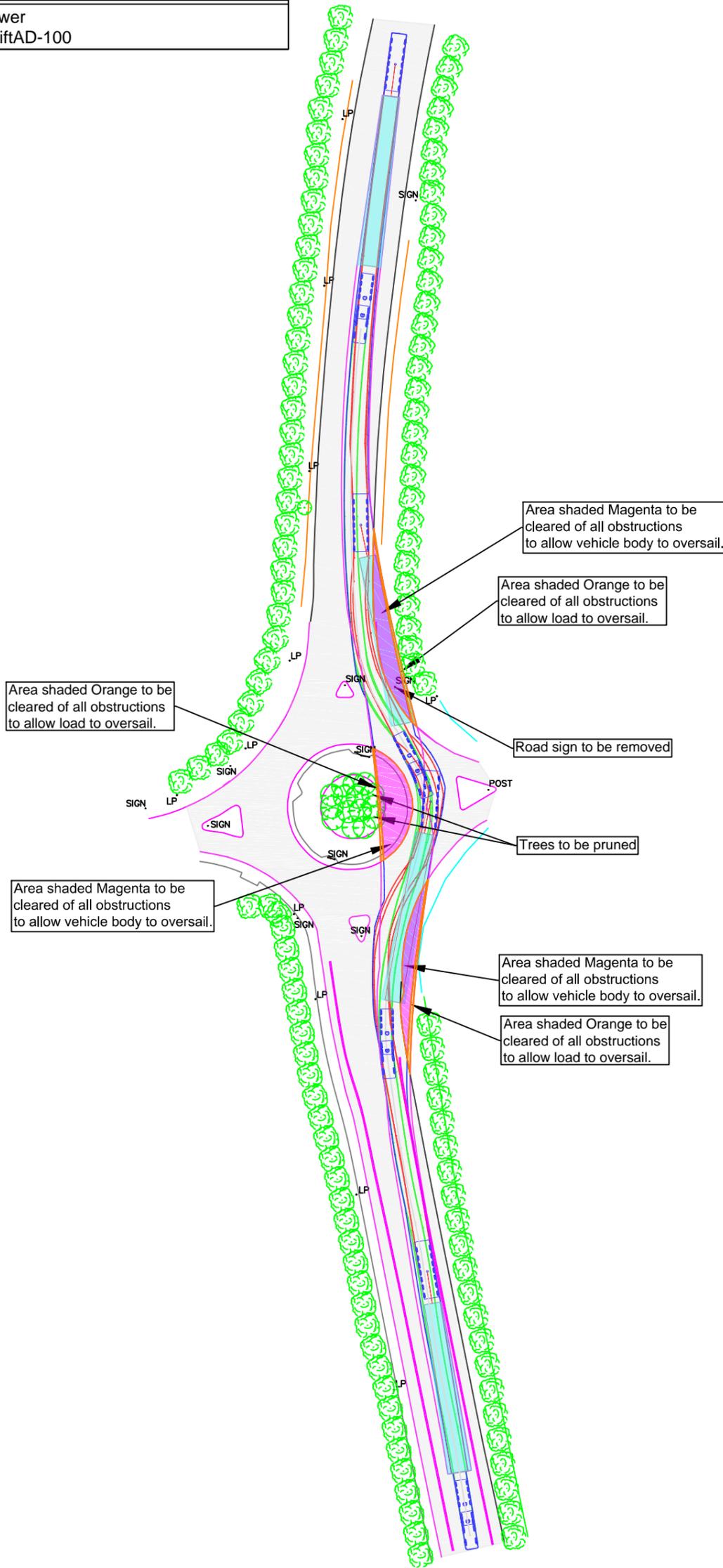


Digital Land Surveyors Ltd
SWEPT PATH ANALYSIS SPECIALISTS



Swept Path indicates trailer utilising MANUAL steering

Nordex N163 Tower
NOOTEBOOM LiftAD-100



Continue straight on R510 Roundabout
Caution

- Obstructions to be removed within areas shaded Magenta to allow vehicle body to oversail. Road sign to be removed. Trees to be pruned.
- Obstructions to be removed/lowered within areas shaded Orange to allow load to oversail. Trees and hedges to be pruned.

- Area within Magenta outline will be oversailed by vehicle load
- Area within Blue outline will be oversailed by vehicle body
- Tractor Axles outlined in Green
- Trailer Axles outlined in Red
- Area shaded Orange requires oversail by load and projections -to be cleared of all obstructions
- Area shaded Magenta requires oversail by vehicle body - to be cleared of all obstructions

ITM GRID REFERENCE: 554440 654357

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Site Inspection/Survey required prior to any works commencing.

SCALE
1:1000

DATE
24/07/2023

Trail Run of all delivery vehicles on Delivery route to be carried out on full extents of route prior to delivery of turbine components.

SHEET NO.
47

SITE
KNOCKSHANVO WINDFARM

DRG NO.
B2310

TITLE
LOCATION 15 - R510 ROUNDABOUT

PREPARED BY
W.GALLAGHER

CLIENT
FUTUREENERGY IRELAND

SIZE
A3

UNIT 4, FIRST FLOOR, GLEN VIEW BUSINESS PARK,
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EMAIL: info@landsurveyors.ie

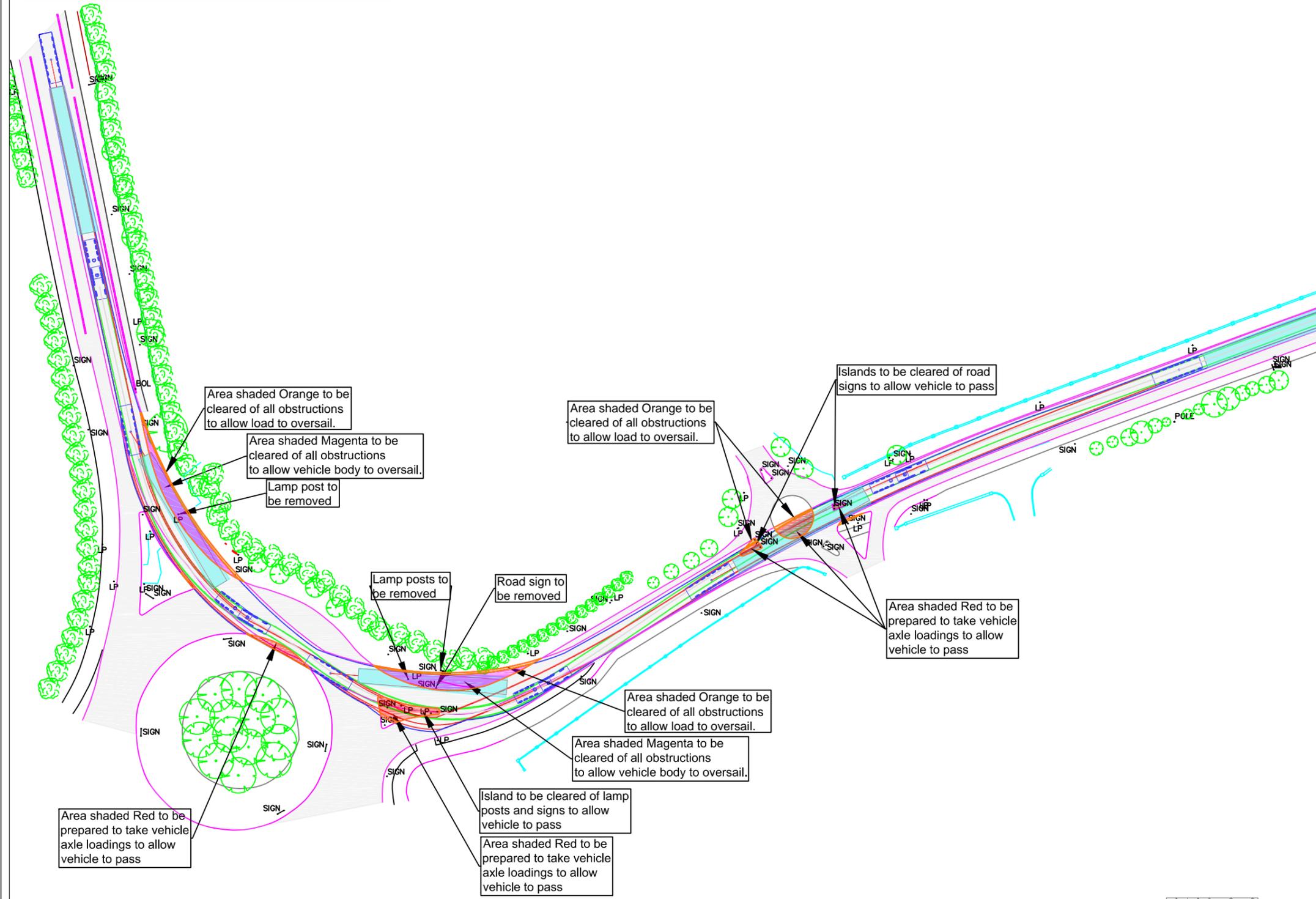


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SWEPT PATH ANALYSIS SPECIALISTS

34.46m
62.84m
4.30m

Swept Path indicates trailer utilising
MANUAL steering

Nordex N163 Tower
NOOTEBOOM LiftAD-100



Take first exit on R510 Roundabout and continue straight on Father Russell roundabout
Caution

- Obstructions to be removed within areas shaded Magenta to allow vehicle body to oversail. Road signs and lamp posts to be removed.
- Obstructions to be removed/lowered within areas shaded Orange to allow load to oversail. Road signs and lamp posts to be removed.
- Areas shaded Red to be cleared and prepared to allow vehicle axles to travel over. Road signs and lamp post to be removed. Islands to be cleared to allow delivery vehicle to travel over.

- Area within Magenta outline will be oversailed by vehicle load
- Area within Blue outline will be oversailed by vehicle body
- Tractor Axles outlined in Green
- Trailer Axles outlined in Red
- Area shaded Orange requires oversail by load and projections -to be cleared of all obstructions
- Area shaded Magenta requires oversail by vehicle body - to be cleared of all obstructions
- Area shaded RED requires ground works to enable the vehicle axles to pass including levelling and strengthening

ITM GRID REFERENCE: 554563 654016

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SITE KNOCKSHANVO WINDFARM
TITLE LOCATION 16&17 - R510/FATHER RUSSELL ROAD ROUNDABOUT
CLIENT FUTUREENERGY IRELAND

DRG NO. B2310	DATE 24/07/2023
PREPARED BY W.GALLAGHER	SCALE 1:1000
SIZE A3	SHEET NO. 48

Site Inspection/Survey required prior to any works commencing.

Trail Run of all delivery vehicles on Delivery route to be carried out on full extents of route prior to delivery of turbine components.

UNIT 4, FIRST FLOOR, GLEN VIEW BUSINESS PARK,
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TEL: + 353(0)74 9127720
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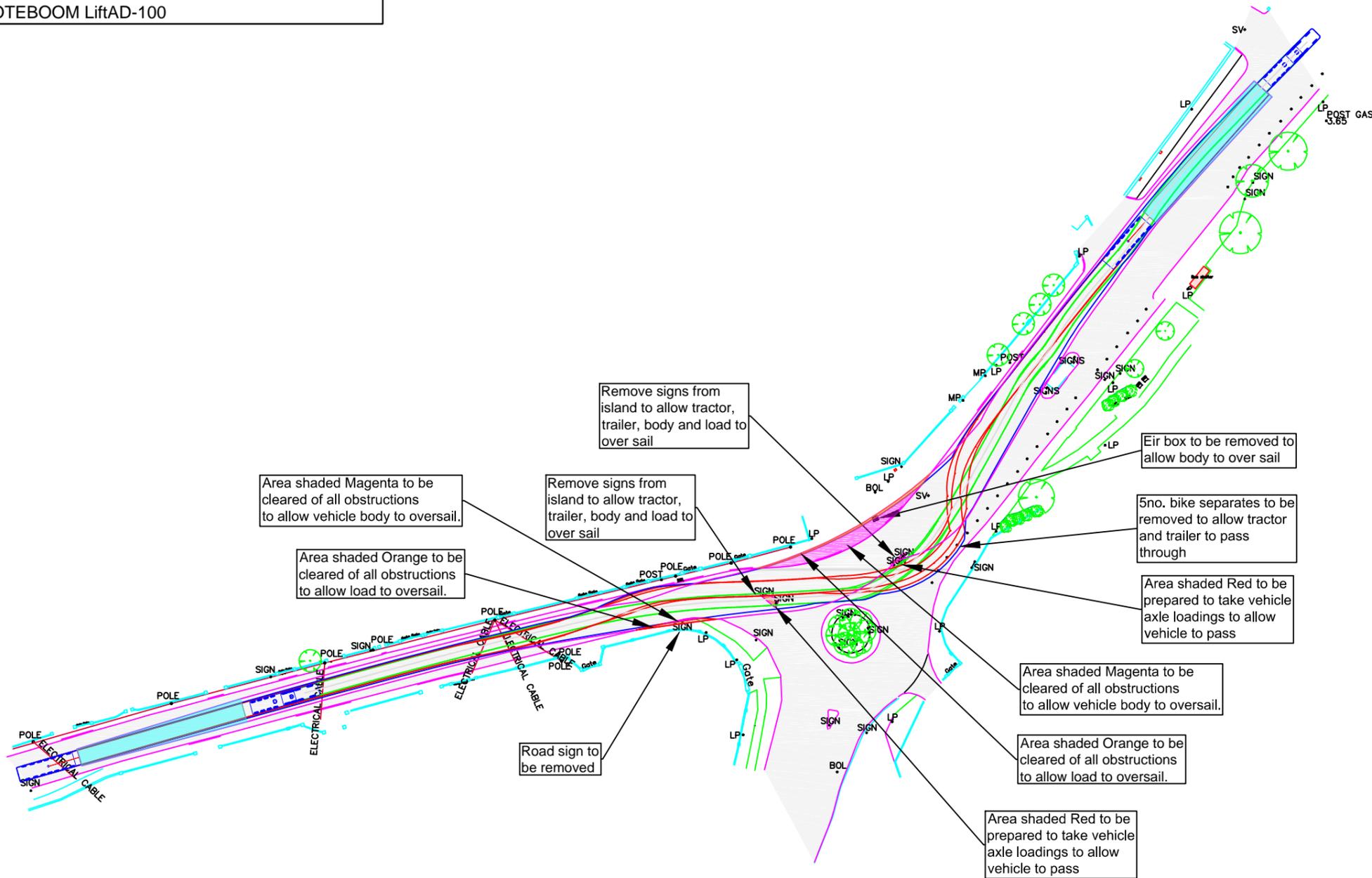


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SWEPT PATH ANALYSIS SPECIALISTS



Swept Path indicates trailer utilising
MANUAL steering

Nordex N163 Tower
NOOTEBOOM LiftAD-100



Father Russell Road / R526 Roundabout

****Caution****

- Signs to be removed from 2no. island to allow tractor, trailer, body and load to over sail.
- 5no. bike separators to be removed to allow tractor and trailer to pass through.

- Area within Magenta outline will be oversailed by vehicle load
- Area within Blue outline will be oversailed by vehicle body
- Tractor Axles outlined in Green
- Trailer Axles outlined in Red
- Area shaded Orange requires oversail by load and projections -to be cleared of all obstructions
- Area shaded Magenta requires oversail by vehicle body - to be cleared of all obstructions
- Area shaded RED requires ground works to enable the vehicle axles to pass including levelling and strengthening

ITM GRID REFERENCE: 555804 654386

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SITE KNOCKSHANVO WINDFARM	DRG NO. B2310	DATE 28/07/2023
TITLE LOCATION 18 - FATHER RUSSELL ROAD/R526 ROUNDABOUT	PREPARED BY R.HARKIN	SCALE 1:1000
CLIENT FUTUREENERGY IRELAND	SIZE A3	SHEET NO. 49

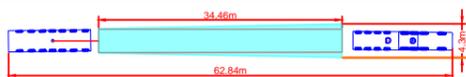
Site Inspection/Survey required prior to any works commencing.

Trail Run of all delivery vehicles on Delivery route to be carried out on full extents of route prior to delivery of turbine components.

UNIT 4, FIRST FLOOR, GLEN VIEW BUSINESS PARK,
CARNAMUGGAGH UPPER, KILMACRENNAN ROAD,
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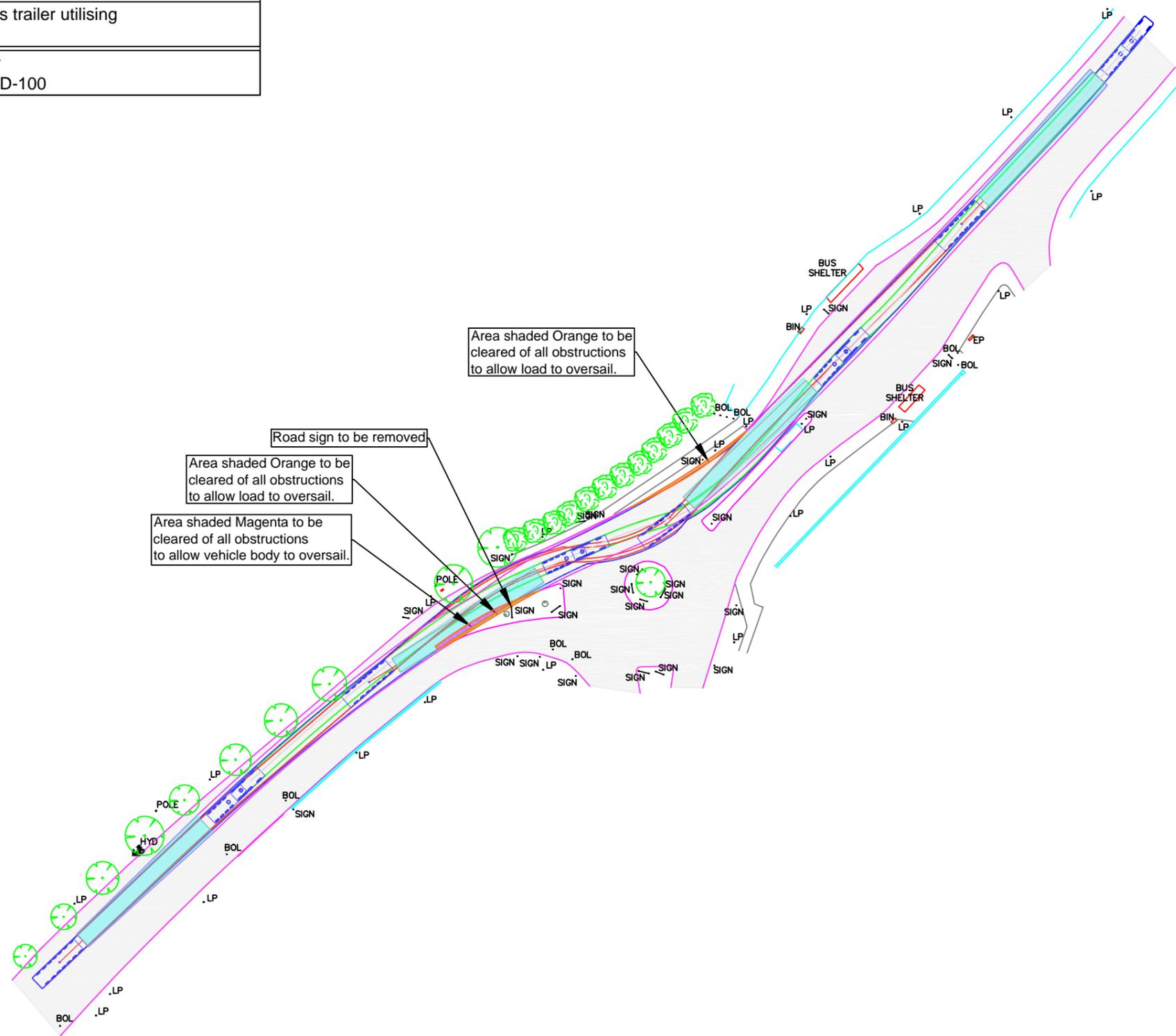


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SWEPT PATH ANALYSIS SPECIALISTS



Swept Path indicates trailer utilising
MANUAL steering

Nordex N163 Tower
NOOTEBOOM LiftAD-100



Take first exit on R526/R926 Roundabout
Caution

- Obstructions to be removed within areas shaded Magenta to allow vehicle body to oversail.
- Obstructions to be removed/lowered within areas shaded Orange to allow load to oversail. Road sign to be removed.

- Area within Magenta outline will be oversailed by vehicle load
- Area within Blue outline will be oversailed by vehicle body
- Tractor Axles outlined in Green
- Trailer Axles outlined in Red
- Area shaded Orange requires oversail by load and projections -to be cleared of all obstructions
- Area shaded Magenta requires oversail by vehicle body - to be cleared of all obstructions

ITM GRID REFERENCE: 556088 654668

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SITE
KNOCKSHANVO WINDFARM

DRG NO.
B2310

DATE
24/07/2023

Site Inspection/Survey required prior to any works commencing.

TITLE
LOCATION 19 - R526/R926 ROUNDABOUT

PREPARED BY
W.GALLAGHER

SCALE
1:1000

Trail Run of all delivery vehicles on Delivery route to be carried out on full extents of route prior to delivery of turbine components.

CLIENT
FUTUREENERGY IRELAND

SIZE
A3

SHEET NO.
50

UNIT 4, FIRST FLOOR, GLEN VIEW BUSINESS PARK,
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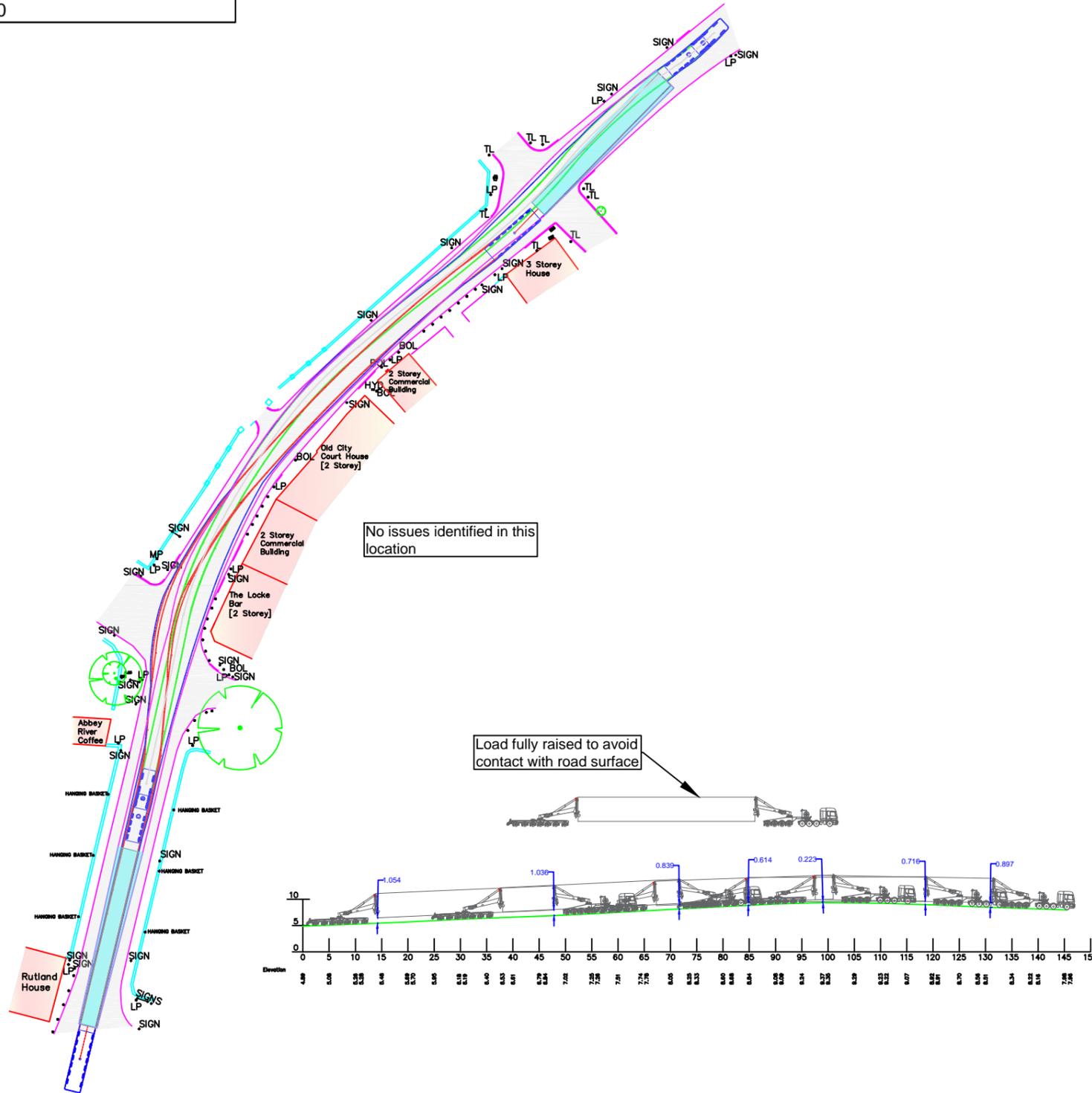


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SWEPT PATH ANALYSIS SPECIALISTS



Swept Path indicates trailer utilising MANUAL steering

Nordex N163 Tower
NOOTEBOOM LiftAD-100



No issues identified in this location

Load fully raised to avoid contact with road surface

Right bend and crest on R463

****Caution****

- Load to fully raised to avoid contact with the road surface.
- Minimum distance to road surface 0.223m.
- Trailer deflection has not been considered therefore grounding maybe an issue.

- Area within Magenta outline will be oversailed by vehicle load
- Area within Blue outline will be oversailed by vehicle body
- Tractor Axles outlined in Green
- Trailer Axles outlined in Red

ITM GRID REFERENCE: 557547 657556

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SITE
KNOCKSHANVO WINDFARM

DRG NO.
B2310

DATE
28/07/2023

Site Inspection/Survey required prior to any works commencing.

TITLE
LOCATION 24 & 25 - RIGHT BEND AND CREST ON R463

PREPARED BY
R.HARKIN

SCALE
1:1000

Trail Run of all delivery vehicles on Delivery route to be carried out on full extents of route prior to delivery of turbine components.

CLIENT
FUTUREENERGY IRELAND

SIZE
A3

SHEET NO.
51

UNIT 4, FIRST FLOOR, GLEN VIEW BUSINESS PARK,
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MOB: + 353(0)87 8323916
EMAIL: info@landsurveyors.ie

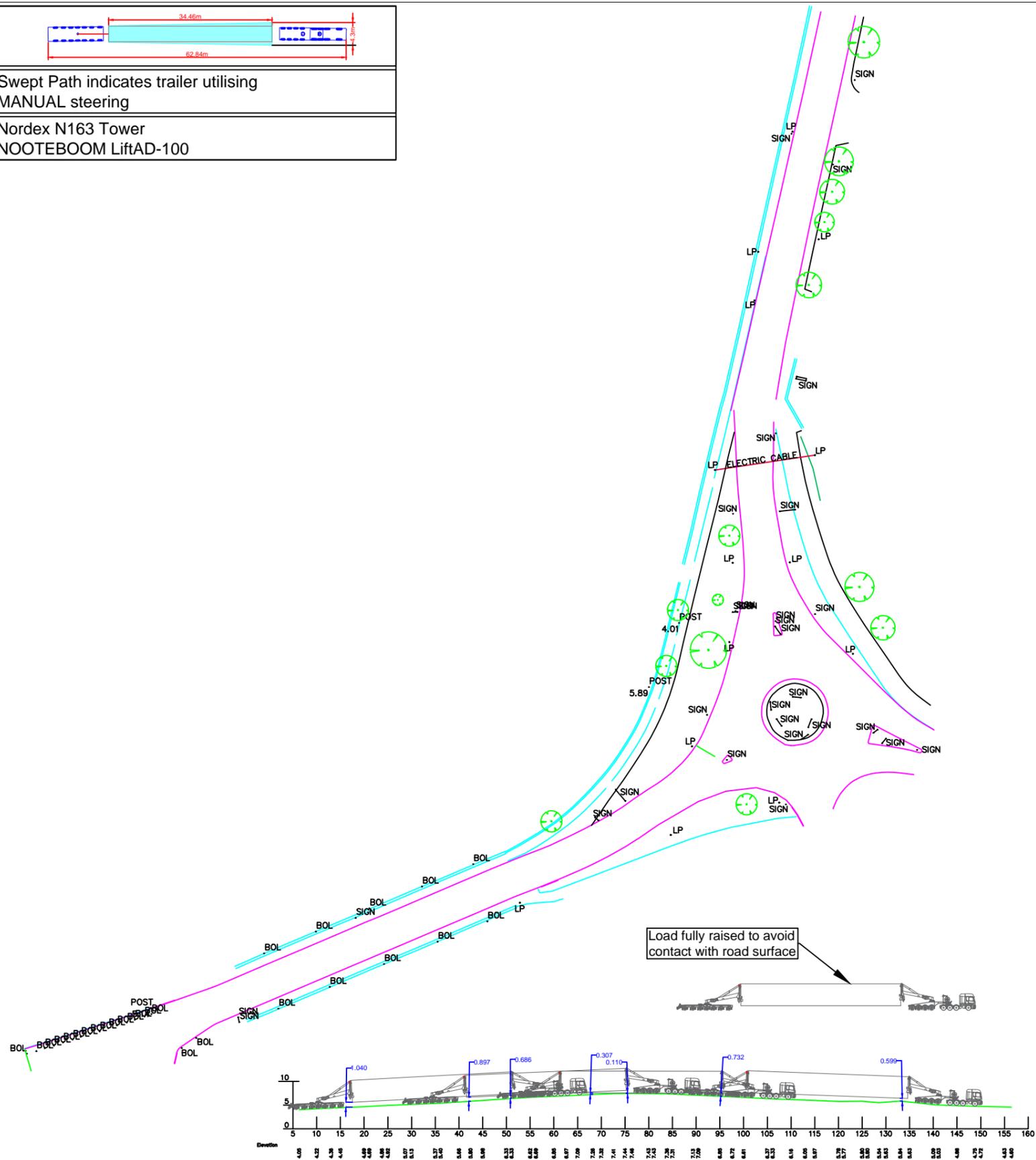


Digital Land Surveyors Ltd
SWEPT PATH ANALYSIS SPECIALISTS



Swept Path indicates trailer utilising
MANUAL steering

Nordex N163 Tower
NOOTEBOOM LiftAD-100



Crest on bridge on R463
Caution

- Load to fully raised to avoid contact with the road surface.
- Minimum distance to road surface 0.110m.
- Trailer deflection has not been considered therefore grounding maybe an issue.

ITM GRID REFERENCE: 558298 657812

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SITE KNOCKSHANVO WINDFARM
TITLE LOCATION 26 - CREST ON BRIDGE ON R463
CLIENT FUTUREENERGY IRELAND

DRG NO. B2310
PREPARED BY R.HARKIN
SIZE A3

DATE 28/07/2023
SCALE 1:1000
SHEET NO. 52

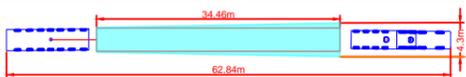
Site Inspection/Survey required prior to any works commencing.

Trail Run of all delivery vehicles on Delivery route to be carried out on full extents of route prior to delivery of turbine components.

UNIT 4, FIRST FLOOR, GLEN VIEW BUSINESS PARK,
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EMAIL: info@landsurveyors.ie

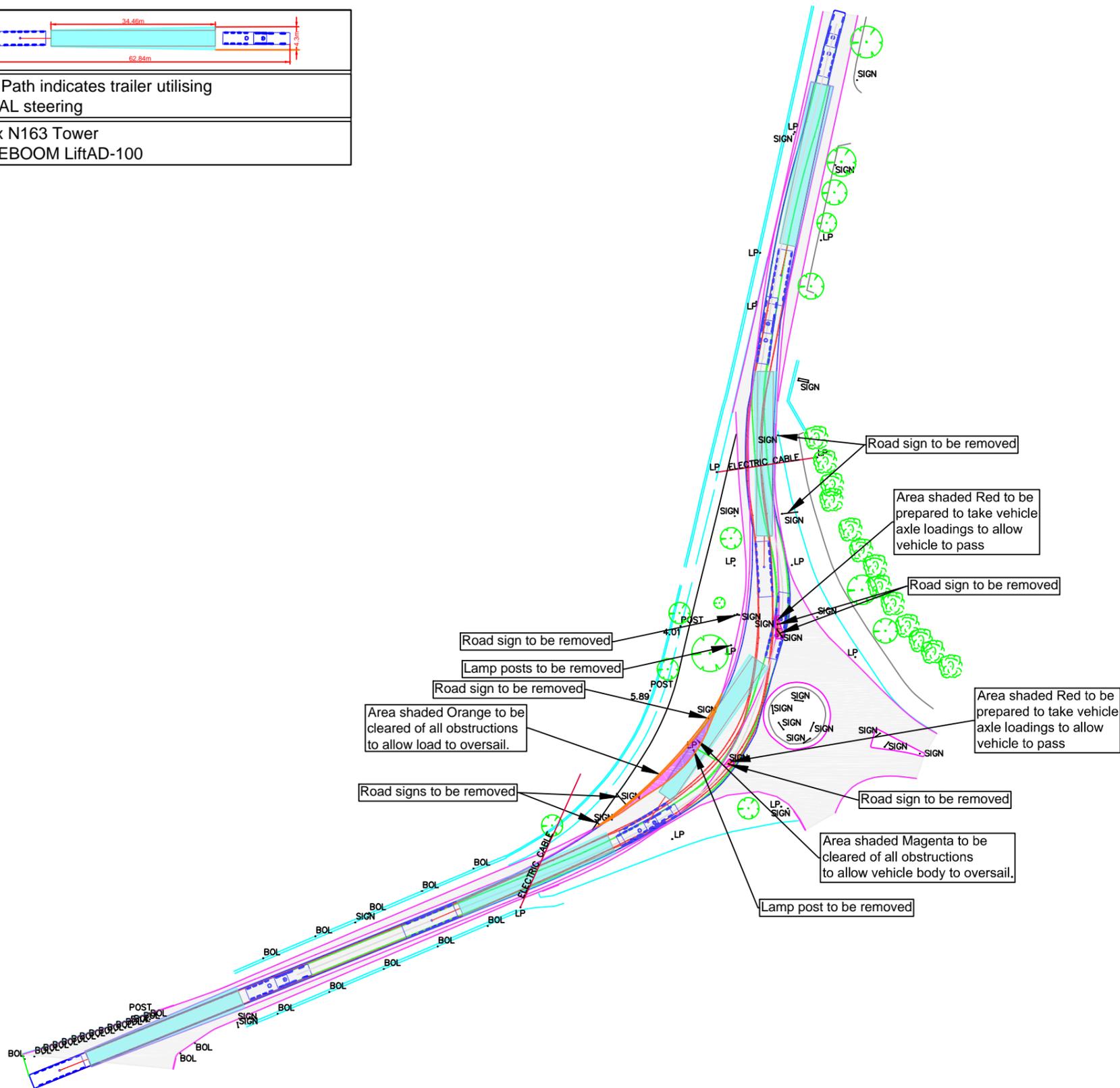


Digital Land Surveyors Ltd
SWEPT PATH ANALYSIS SPECIALISTS



Swept Path indicates trailer utilising MANUAL steering

Nordex N163 Tower
NOOTEBOOM LiftAD-100



Take first exit at R463 Roundabout
Caution

- Obstructions to be removed within areas shaded Magenta to allow vehicle body to oversail. Road signs and lamp posts to be removed.
- Obstructions to be removed/lowered within areas shaded Orange to allow load to oversail. Road signs to be removed.
- Areas shaded Red to be cleared and prepared to allow vehicle axles to travel over. Islands to be cleared to allow delivery vehicle to travel over.

- Area within Magenta outline will be oversailed by vehicle load
- Area within Blue outline will be oversailed by vehicle body
- Tractor Axles outlined in Green
- Trailer Axles outlined in Red
- Area shaded Orange requires oversail by load and projections -to be cleared of all obstructions
- Area shaded Magenta requires oversail by vehicle body - to be cleared of all obstructions
- Area shaded RED requires ground works to enable the vehicle axles to pass including levelling and strengthening

ITM GRID REFERENCE: 558298 657812

- The Swept Path Analysis provided is produced from a transport orientated view only and does not consider any issues in terms of land ownership, or any other precincts that may otherwise be restrictive.
- This drawing has been created from data produced from Aerial Imagery and OSI mapping.
- All Swept Path diagrams, drawings and assessments are calculated for the movement of loaded trailer equipment carrying Wind Turbine components. These calculations are based on the turning circles and specification of the specified trailer equipment details in this SPA.
- Delivery vehicles can be right or left hand vehicles therefore due to driver interpretation it is assumed that each vehicle will not follow the same path. Consequently, a buffer zone will be required outside of the Swept Path Analysis.
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SITE
KNOCKSHANVO WINDFARM

DRG NO.
B2310

DATE
24/07/2023

Site Inspection/Survey required prior to any works commencing.

TITLE LOCATION 26&27 - R463 BRIDGE/R463 ROUNDABOUT

PREPARED BY
W.GALLAGHER

SCALE
1:1000

Trail Run of all delivery vehicles on Delivery route to be carried out on full extents of route prior to delivery of turbine components.

CLIENT
FUTUREENERGY IRELAND

SIZE
A3

SHEET NO.
53

UNIT 4, FIRST FLOOR, GLEN VIEW BUSINESS PARK,
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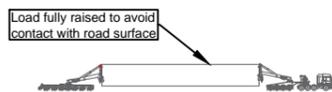
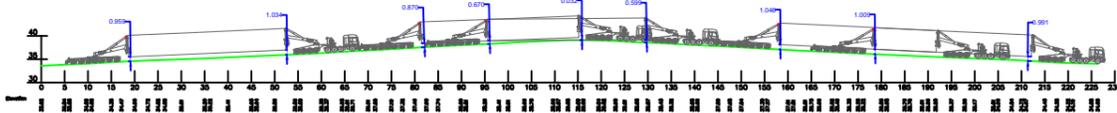
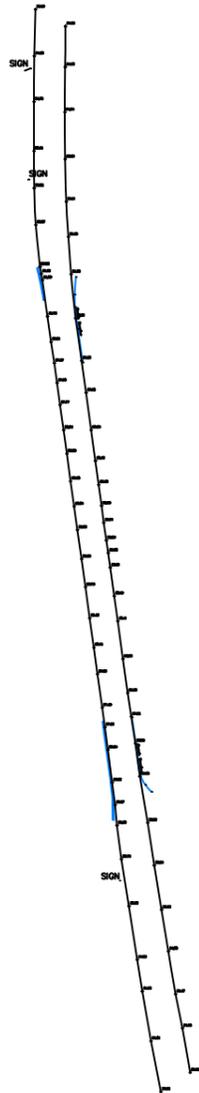


Digital Land Surveyors Ltd
SWEPT PATH ANALYSIS SPECIALISTS



Swept Path indicates trailer utilising
MANUAL steering

Nordex N163 Tower
NOOTEBOOM LiftAD-100



Crest on bridge on R463
Caution

- Load to fully raised to avoid contact with the road surface.
- Minimum distance to road surface 0.032m.
- Trailer deflection has not been considered therefore grounding maybe an issue.

ITM GRID REFERENCE: 559269 661881

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Site Inspection/Survey required prior to any works commencing.

SCALE
1:1500

DATE
28/07/2023

Trail Run of all delivery vehicles on Delivery route to be carried out on full extents of route prior to delivery of turbine components.

SHEET NO.
54

SITE
KNOCKSHANVO WINDFARM

DRG NO.
B2310

TITLE
LOCATION 35 - CREST ON BRIDGE ON R463

PREPARED BY
R. HARKIN

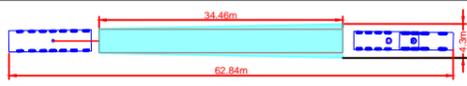
CLIENT
FUTUREENERGY IRELAND

SIZE
A3

UNIT 4, FIRST FLOOR, GLEN VIEW BUSINESS PARK,
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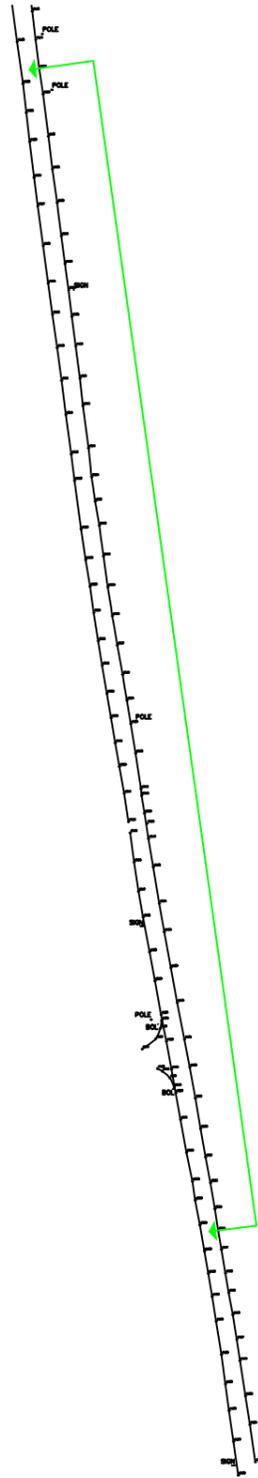


Digital Land Surveyors Ltd
SWEPT PATH ANALYSIS SPECIALISTS

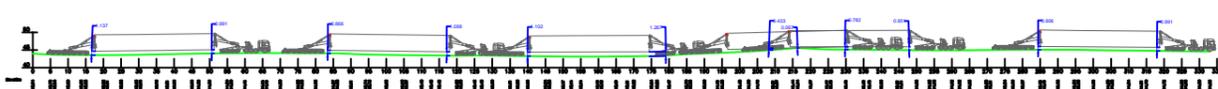


Swept Path indicates trailer utilising
MANUAL steering

Nordex N163 Tower
NOOTEBOOM LiftAD-100



Load fully raised to avoid contact with road surface



Dip in road on R463
Caution

- Load to fully raised to avoid contact with the road surface.
- Minimum distance to road surface 0.067m.
- Trailer deflection has not been considered therefore grounding maybe an issue.

ITM GRID REFERENCE: 559319 664760

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Site Inspection/Survey required prior to any works commencing.

SCALE
1:2000

DATE
28/07/2023

Trail Run of all delivery vehicles on Delivery route to be carried out on full extents of route prior to delivery of turbine components.

SHEET NO.
55

SITE
KNOCKSHANVO WINDFARM

DRG NO.
B2310

TITLE
LOCATION 36 - DIP IN ROAD ON R463

PREPARED BY
R. HARKIN

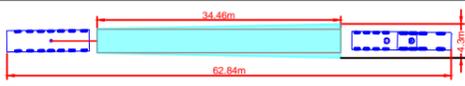
CLIENT
FUTUREENERGY IRELAND

SIZE
A3

UNIT 4, FIRST FLOOR, GLEN VIEW BUSINESS PARK,
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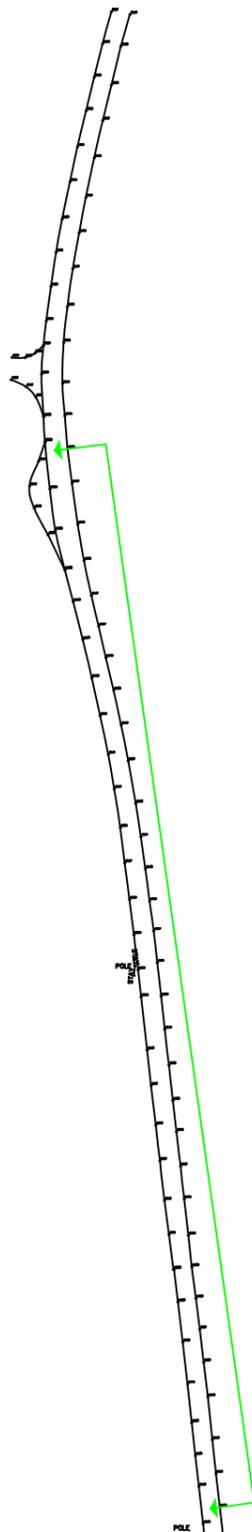
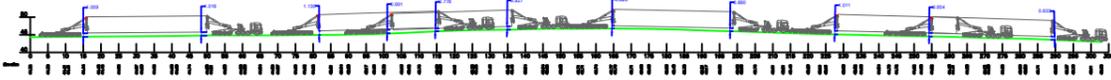
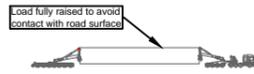


Digital Land Surveyors Ltd
SWEPT PATH ANALYSIS SPECIALISTS



Swept Path indicates trailer utilising
MANUAL steering

Nordex N163 Tower
NOOTEBOOM LiftAD-100



Crest on R463
Caution

- Load to fully raised to avoid contact with the road surface.
- Minimum distance to road surface 0.820m.
- Trailer deflection has not been considered therefore grounding maybe an issue.

ITM GRID REFERENCE: 559261 665198

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SCALE
1:2000

DATE
28/07/2023

Trail Run of all delivery vehicles on Delivery route to be carried out on full extents of route prior to delivery of turbine components.

SHEET NO.
56

SITE
KNOCKSHANVO WINDFARM

DRG NO.
B2310

TITLE
LOCATION 37 - CREST ON R463

PREPARED BY
R. HARKIN

CLIENT
FUTUREENERGY IRELAND

SIZE
A3

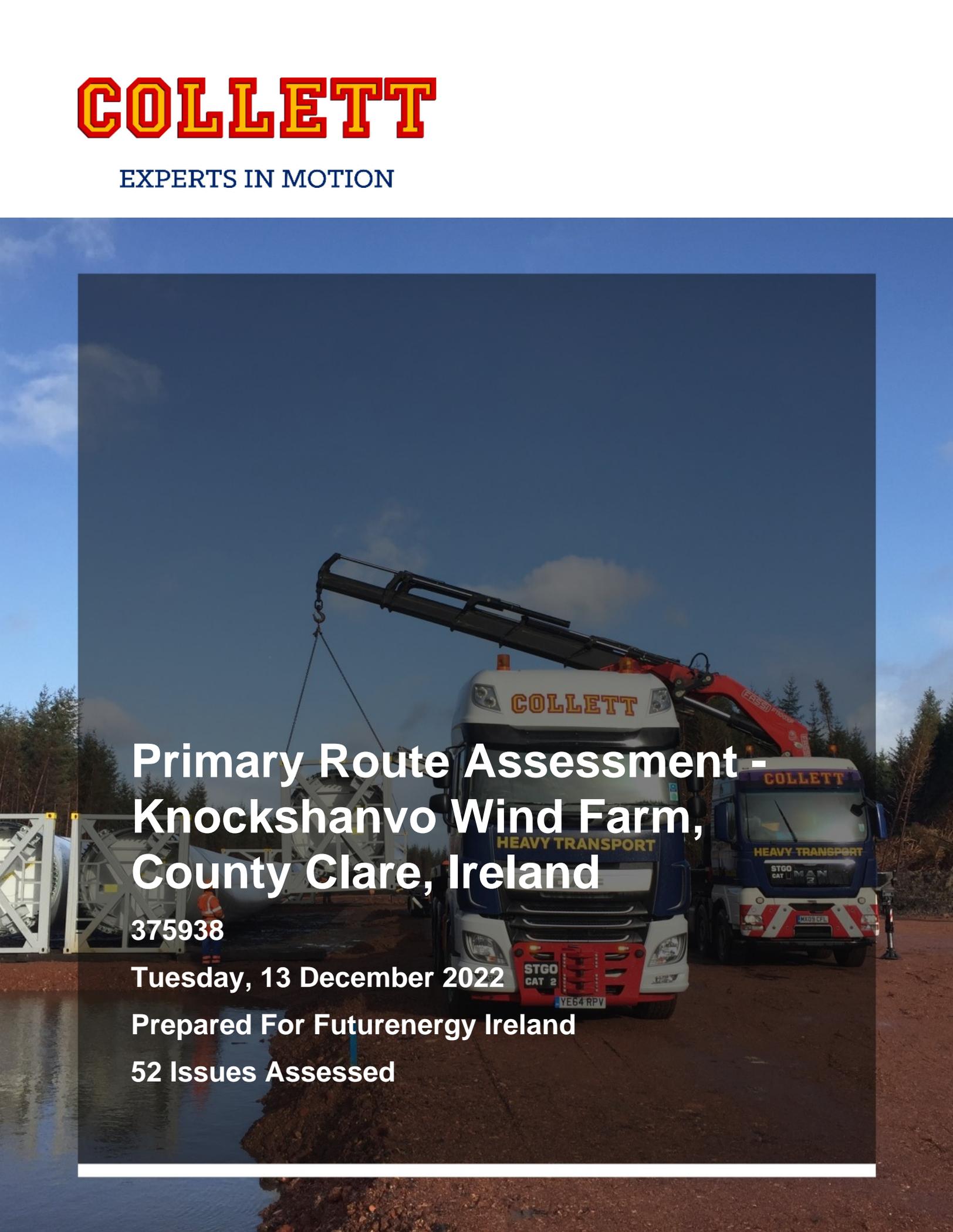
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Digital Land Surveyors Ltd
SWEPT PATH ANALYSIS SPECIALISTS

COLLETT

EXPERTS IN MOTION



**Primary Route Assessment -
Knockshanvo Wind Farm,
County Clare, Ireland**

375938

Tuesday, 13 December 2022

Prepared For Futureenergy Ireland

52 Issues Assessed

REPORT DETAILS

REPORT FOR

Futureenergy Ireland Ltd
27/28 Herbert Place
Dublin 2
D02 DC97

ATTENDEES OF THE SURVEY

Steven Mangham

DATE AND TIME OF THE SURVEY

Tuesday 13th December 2022

GENERAL WEATHER CONDITIONS

Mixed

ISSUED BY

Steven Mangham

APPROVED BY

Steven Mangham

DOCUMENT REVISIONS

No	Date	Details

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COMPANY PROFILE

Collett & Sons Ltd established in Halifax over 45 years ago specialise in the multimodal logistics throughout the UK, Europe and Worldwide.

Our Company owns a modern fleet of over 60 vehicles and over 100 trailers, operating from 3 depots located in Halifax, Goole and Grangemouth.

The depots situated in Goole and Grangemouth offer strategically located sites suitable to provide central hubs for the distribution of abnormal load throughout the UK. Each facility is complete with up to 110 tonnes lifting capacity. The company is able to offer the complete transport solution from point of manufacture through to job site.

Collett & Sons Limited operate an in-house consultancy that deals with transport feasibility, route and site access surveys, Swept Path Analysis, Traffic Management Plans, Test Drives and Environment Statements.

In addition to consulting services, Collett & Sons Limited delivers the following services;

- Marine
- Port Operation
- Heavy Lift Storage
- Heavy Transport
- Project Management
- Freight Forwarding
- Heavy Lift
- General Haulage
- Warehousing
- Test Station (DVSA-authorized)
- SHEQ Training



CONTACT DETAILS

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Fax: +44 (0) 8456 255244
renewables@collett.co.uk
www.collett.co.uk

ROUTE ASSESSMENT OVERVIEW

This section of the report illustrates the route assessed for the delivery of a Nordex N163 blade component and associated tower components to the proposed Knockshanvo Wind Farm, County Clare, Ireland.

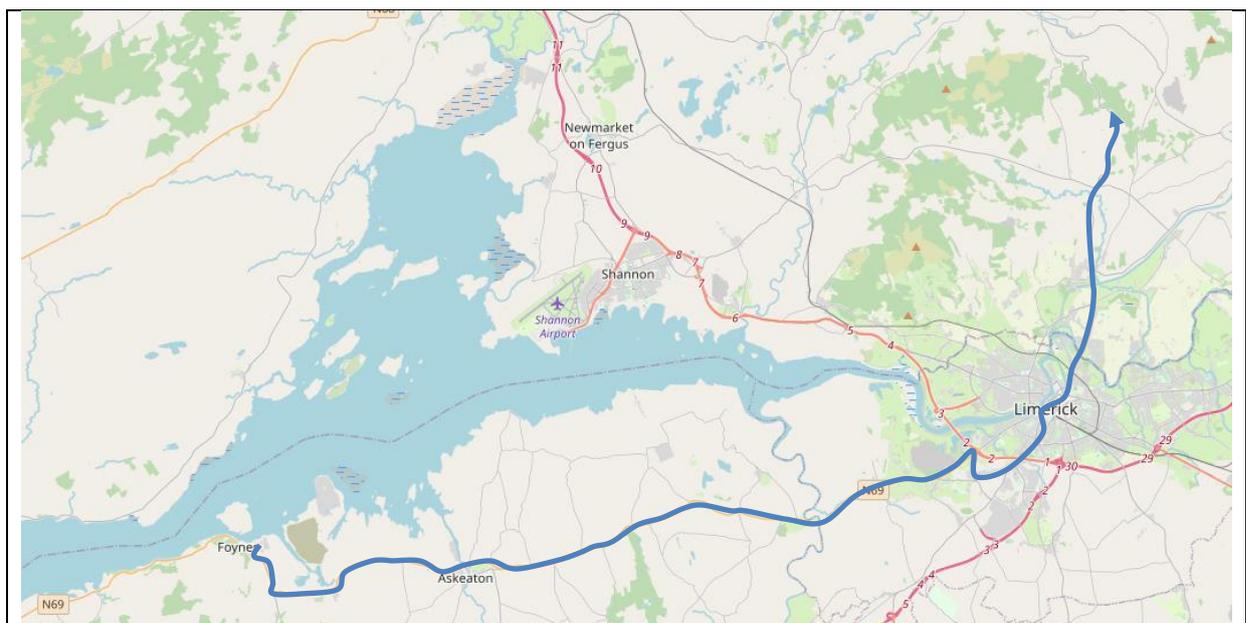
The report has been based on the use of the blade lift adapter from the N69, prior to the N18, to site in order to navigate through Limerick. Any locations where the blade is required to be lifted, will need any overhead obstructions such as cables and tree branches to be removed. These locations have been identified in the report. A full assessment identifying cables etc will be required as part of an more in depth survey.

All the routes surveyed in this report have been identified by Futureenergy Ireland and have been detailed in this report based on the following maximum dimensions instructed by Futureenergy:

Route

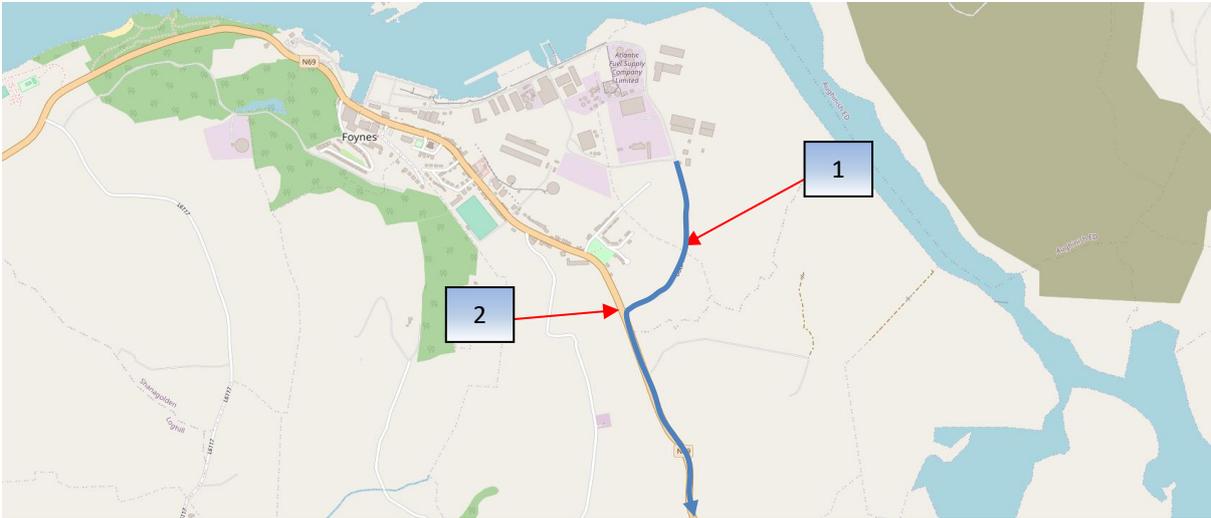
Start Location	Port of Foynes	Distance of Route	Km	Miles
Max Load Dims:	85.5m Rigid Length Approx. 4.5m width		51.7	32.1
<ul style="list-style-type: none"> • Exit Port of Foynes • Turn left onto N69 • At roundabout, continue on N69 • At roundabout, take 4th exit onto R510 • At the roundabout, take 1st exit onto R510 • At roundabout, take 1st exit onto Father Russell Road • At roundabout, continue on Father Russell Road • At roundabout, take 1st exit onto R526 • At roundabout, take 1st exit onto R526 • Continue onto R527, contraflowing one way system • Continue onto R445 • At roundabout, turn left onto R463 • Continue onto R465 • Continue on R498 to approx. proposed site entrance at OSI R 60129 68771. 				

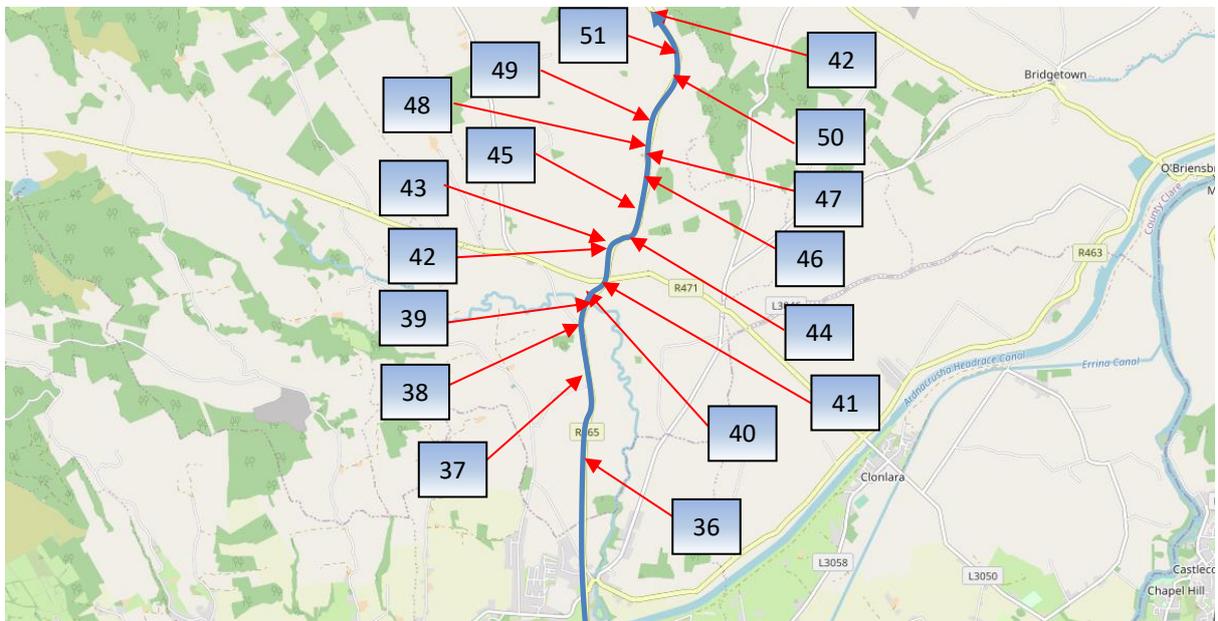
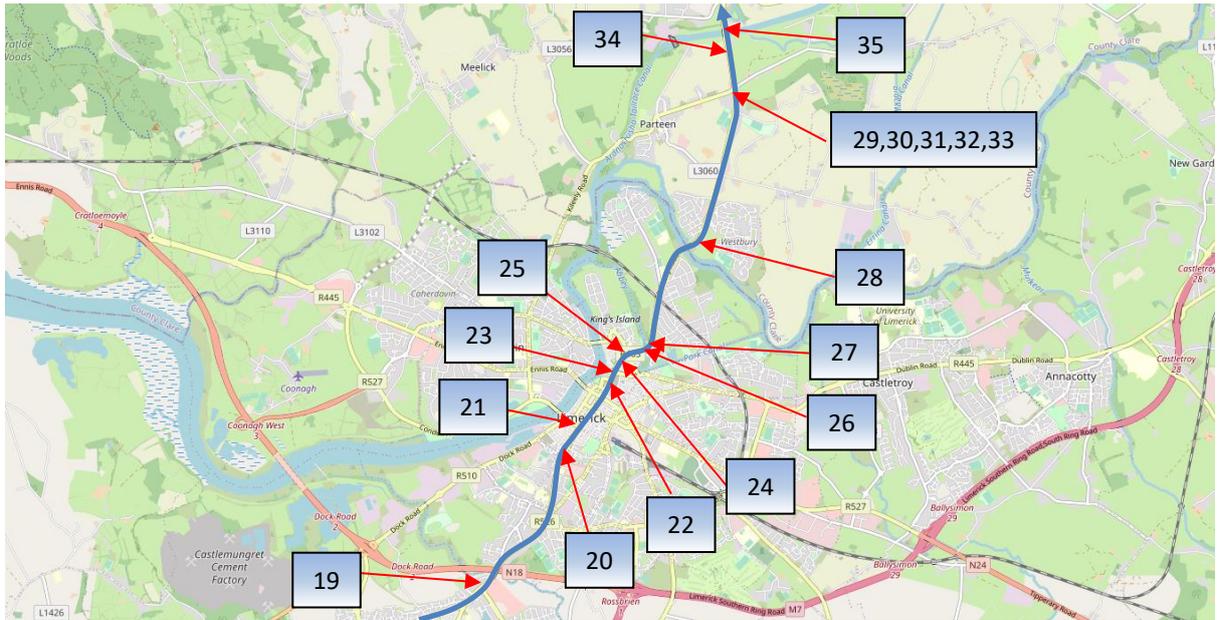
MAP OVERVIEW



ROUTE ASSESSMENT

LOCATION OVERVIEW







Location 1 - Exit Gate At Port Of Foynes

Direction - Exit Port

Visual inspection indicates that the gate on the nearside to be removed.

Barrier on the offside to be removed.



Location 2 - Port Of Foynes/N69 Junction

Direction - Turn Left Onto N69

Visual inspection indicates that third party land will be required on the nearside of the junction.

Road signs on the nearside, Splitter island on the offside to be removed.

Lamp post on the nearside to be removed.

Boundary fence/wall to be removed on the nearside.

Pruning required on the offside.

Swept Path Analysis required to confirm modifications.



Location 3 - S-bend On N69

Direction - Continue On N69

Visual inspection indicates that pruning of vegetation is required on the offside of the right bend.



Location 4 - Left Bend On N69

Direction - Continue On N69

Visual inspection indicates that Street furniture is to be removed on the offside of the bend.



Location 5 - Right Bend On N69

Direction - Continue On N69

Visual inspection indicates that pruning will be required on the offside of the bend.



Location 6 - Left Bend On N69

Direction - Continue On N69

Visual inspection indicates the road sign on the nearside of the bend to be removed.



Location 7 - Left Bend On N69

Direction - Continue On N69

Visual inspection indicates that third party land required on the nearside of the bend.

Telegraph Pole on the offside to be removed.

Pruning required on both sides of the road

Swept Path Analysis required to confirm modifications.



Location 8 - Right Bend On N69

Direction - Continue On N69

Visual inspection indicates that pruning is required on the offside of the bend.



Location 9 - Left Bend On N69

Direction - Continue On N69

Visual inspection indicates that the road sign on the nearside to be removed.

Tree on the offside to be pruned.



Location 10 - Right Bend On N69

Direction - Continue On N69

Visual inspection indicates that Street furniture will require removal at this location.

Road sign and lamp post on the nearside to be removed.

Road sign and lamp post on the offside to be removed.

Pruning required on the offside.

Swept Path Analysis required to confirm modifications.



Location 11 - Right Bend On N69

Direction - Continue On N69

Visual inspection indicates that the road signs on the offside will require removal.

Parking restrictions required on the nearside of the bend.

Swept Path Analysis recommended to confirm modifications.



Location 12 - N69 Ferrybridge

Direction - Continue On N69

Visual inspection indicates that vertical analysis is required to determine whether any grounding issues will occur during navigation.



Location 13 - N69 Roundabout At Clarina

Direction - Continue On N69

Visual inspection indicates that road widening will be required on the central island of the roundabout.

Road signs on the central island of the roundabout to be removed. These are socketed for removal.

Modifications were in situ at the time of the survey and will require reinstating for future deliveries if they have been removed.

Swept Path Analysis recommended to determine whether the current modifications are sufficient.

Blade will require transshipment into the blade lift adapter after this location. A suitable transition area to be determined and constructed.



Location 14 - N69/N18 East/R510 Roundabout

Direction - Take 4th Exit Onto R510

Loaded blade to be raised in order to navigate this location. Any overhead obstructions such as cables and tree branches oversailing the road to be removed.

Visual inspection indicates that the loaded vehicles are to contraflow the roundabout.

Lamp post, road sign and bollards on the offside to be removed.

Trees on the offside to be pruned.

Swept Path Analysis required to confirm modifications.



Location 15 - R510 Roundabout

Direction - Take 1st Exit At Roundabout

Loaded blade to be raised in order to navigate this location. Any overhead obstructions such as cables and tree branches oversailing the road to be removed.

Visual inspection indicates that the loaded vehicles are to contraflow this roundabout.

Raised blade will oversail trees and hedgerow on the offside. Ownership of this area to be determined.

Road signs on Central island on the roundabout to be removed.

Swept Path Analysis required to confirm modifications.



Location 16 - R510/Father Russell Road Roundabout

Direction - Take 1st Exit Onto Father Russell Road

Loaded blade to be raised in order to navigate this location. Any overhead obstructions such as cables and tree branches oversailing the road to be removed.

Visual inspection indicates that road widening is required on the exit Splitter Island.

Street furniture on the nearside of the roundabout entry and on the exit Splitter Island to be removed.

There is a HGV weight restriction sign indicating no vehicles over 3t can use this road. This may be just an environmental limit and clarification should be sought with the council.

Swept Path Analysis required to confirm modifications.



Location 17 - Father Russell Road Roundabout

Direction - Continue On Father Russell Road

Loaded blade to be raised in order to navigate this location. Any overhead obstructions such as cables and tree branches oversailing the road to be removed.

Visual inspection indicates that road widening will be required on the entry and exit Splitter Islands and the central island of the roundabout.

Bollards on the Splitter Islands to be removed.



Location 18 - Father Russell Road/R526 Roundabout

Direction - Take 1st Exit Onto R526

Loaded blade to be raised in order to navigate this location. Any overhead obstructions such as cables and tree branches oversailing the road to be removed.

Visual inspection indicates that road widening will be required on the entry Splitter Island.

Road signs on Splitter island and on the nearside to be removed.

Swept Path Analysis required to confirm modifications.



Location 19 - R526/R926 Roundabout

Direction - Take 1st Exit Onto R526

Loaded blade to be raised in order to navigate this location. Any overhead obstructions such as cables and tree branches oversailing the road to be removed.

Visual inspection indicates that the loaded vehicles will navigate this roundabout utilising manual steering.

Swept Path Analysis required to confirm modifications.



Location 20 - The Crescent On R527

Direction - Continue On R527

Loaded blade to be raised in order to navigate this location. Any overhead obstructions such as cables and tree branches oversailing the road to be removed.

Visual inspection indicates that parking restrictions are required on the nearside at this location.



Location 21 - One Way System On R527

Direction - Continue On R527

Visual inspection indicates that the loaded vehicles will need to contraflow the one way system in Limerick centre.

Vehicles to contraflow the splitter island.



Location 22 - Exit From One Way System Onto R445

Direction - Continue On R445

Visual inspection indicates that the loaded vehicles are to contraflow the splitter island when exiting the one way system.



Location 23 - Left Bend On R445

Direction - Continue On R463

Loaded blade to be raised in order to navigate this location. Any overhead obstructions such as cables and tree branches oversailing the road to be removed.

Visual inspection indicates that the loaded vehicles will navigate this location.



Location 24 - Right Bend On R463

Direction - Continue On R463

Loaded blade to be raised in order to navigate this location. Any overhead obstructions such as cables and tree branches oversailing the road to be removed.

Visual inspection indicates that the loaded vehicles will navigate this location utilising manual steering.

Swept Path Analysis required to confirm modifications and ensure navigation is possible due to buildings on the offside and graveyard on the nearside.



Location 25 - Crest On R463

Direction - Continue On R463

Visual inspection indicates that vertical analysis is required to determine whether any grounding issues will occur during navigation.



Location 26 - Crest On Bridge On R463

Direction - Continue On R463

Visual inspection indicates that vertical analysis is required to determine whether any grounding issues will occur during navigation.



Location 27 - R463 Roundabout

Direction - Take 1st Exit Onto R463

Loaded blade to be raised in order to navigate this location. Any overhead obstructions such as cables and tree branches oversailing the road to be removed.

Visual inspection indicates that Street furniture on the nearside to be removed.

Swept Path Analysis required to confirm modifications.



Location 28 - Left Bend On R463

Direction - Continue On R463

Loaded blade to be raised in order to navigate this location. Blade to be raised before the prior bridge at this location. Any overhead obstructions such as cables and tree branches oversailing the road to be removed.

Visual inspection indicates that the loaded vehicles will navigate this location utilising manual steering.



Location 29 - Splitter Island On R463

Direction - Continue On R463

Visual inspection indicates that there are no issues at this location.



Location 30 - Splitter Island On R463

Direction - Continue On R463

Visual inspection indicates that there are no issues at this location.



Location 31 - Splitter Island On R463

Direction - Continue On R463

Visual inspection indicates that there are no issues at this location.



Location 32 - Splitter Island On R463

Direction - Continue On R463

Visual inspection indicates that there are no issues at this location.



Location 33 - Splitter Island On R463

Direction - Continue On R463

Visual inspection indicates that there are no issues at this location.



Location 34 - Tree Lined Section On R463

Direction - Continue On R463

Loaded blade to be raised in order to navigate this location. Any overhead obstructions such as cables and tree branches oversailing the road to be removed.

Visual inspection indicates that trees on both sides of the road will require pruning.



Location 35 - Crest On Bridge On R463

Direction - Continue On R463

Loaded blade to be raised in order to navigate this location. Any overhead obstructions such as cables and tree branches oversailing the road to be removed.

Visual inspection indicates that vertical analysis is required to determine whether any grounding issues will occur during navigation.



Location 36 - Dip In Road On R463

Direction - Continue On R463

Loaded blade to be raised in order to navigate this location. Any overhead obstructions such as cables and tree branches oversailing the road to be removed.

Visual inspection indicates that vertical analysis is required to determine whether any grounding issues will occur during navigation.



Location 37 - Crest On R463

Direction - Continue On R463

Visual inspection indicates that vertical analysis is required to determine whether any grounding issues will occur during navigation.



Location 38 - Right Bend On R463

Direction - Continue On R463

Loaded blade to be raised in order to navigate this location. Any overhead obstructions such as cables and tree branches oversailing the road to be removed.

Visual inspection indicates that there are no issues at this location.



Location 39 - Right Bend On R463

Direction - Continue On R463

Loaded blade to be raised in order to navigate this location. Any overhead obstructions such as cables and tree branches oversailing the road to be removed.

Visual inspection indicates that there are no issues at this location.



Location 40 - Right Bend On R463

Direction - Continue On R463

Loaded blade to be raised in order to navigate this location. Any overhead obstructions such as cables and tree branches oversailing the road to be removed.

Visual inspection indicates that there are no issues at this location.



Location 41 - Left Bend On R463

Direction - Continue On R463

Loaded blade to be raised in order to navigate this location. Any overhead obstructions such as cables and tree branches oversailing the road to be removed.

Visual inspection indicates that there are no issues at this location.



Location 42 - Right Bend On R463

Direction - Continue On R463

Loaded blade to be raised in order to navigate this location. Any overhead obstructions such as cables and tree branches oversailing the road to be removed.

Swept Path Analysis indicates that Road widening is required on the offside of the bend. Land boundary not clear on mapping data.

Pruning required on the offside with possible tree removal required. Trees not shown on data.



Location 43 - Right Bend On R463

Direction - Continue On R463

Loaded blade to be raised in order to navigate this location. Any overhead obstructions such as cables and tree branches oversailing the road to be removed.

Swept Path Analysis indicates that Road widening is required on the offside of the bend.

Pruning required on the offside with possible tree removal required. Trees not shown on data.



Location 44 - Left Bend On R463

Direction - Continue On R463

Loaded blade to be raised in order to navigate this location. Any overhead obstructions such as cables and tree branches oversailing the road to be removed.

Swept Path Analysis indicates that Road widening is required on the nearside of the bend. Land boundary not clear on mapping data.

Pruning required on both sides of the road with possible tree removal required. Trees not shown on data.



Location 45 - Left Bend On R463

Direction - Continue On R463

Loaded blade to be raised in order to navigate this location. Any overhead obstructions such as cables and tree branches oversailing the road to be removed.

Swept Path Analysis indicates pruning required on both sides of the road with possible tree removal required. Trees not shown on data.

Land boundary not clear on data.



Location 46 - Left Bend On R463

Direction - Continue On R463

Loaded blade to be raised in order to navigate this location. Any overhead obstructions such as cables and tree branches oversailing the road to be removed.

Swept Path Analysis indicates that pruning is required on both sides of the road.



Location 47 - Left Bend On R463

Direction - Continue On R463

Loaded blade to be raised in order to navigate this location. Any overhead obstructions such as cables and tree branches oversailing the road to be removed.



Location 48 - Right Bend On R463

Direction - Continue On R463

Loaded blade to be raised in order to navigate this location. Any overhead obstructions such as cables and tree branches oversailing the road to be removed.



Location 49 - Right Bend On R463

Direction - Continue On R463

Loaded blade to be raised in order to navigate this location. Any overhead obstructions such as cables and tree branches oversailing the road to be removed.

Swept Path Analysis indicates that pruning is required on both sides of the road.



Location 50 - Left Bend On R463

Direction - Continue On R463

Loaded blade to be raised in order to navigate this location. Any overhead obstructions such as cables and tree branches oversailing the road to be removed.

Swept Path Analysis indicates that Road widening is required on the nearside of the bend. Land boundary not clear on mapping data.

Pruning required on the nearside with possible tree removal required. Trees not shown on data.



Location 51 - Left Bend On R463

Direction - Continue On R463

Loaded blade to be raised in order to navigate this location. Any overhead obstructions such as cables and tree branches oversailing the road to be removed.

Swept Path Analysis indicates that Road widening is required on the nearside of the bend. Land boundary not clear on mapping data.

Pruning required on the nearside with possible tree removal required. Trees not shown on data.



Location 52 - Site Entrance

Direction - N/A

New site entrance to be constructed prior to this location.

Entrance to be constructed in accordance with the manufacturers specification.

IMPORTANT NOTES

- Pilot car/Garda Escort will be required to negotiate the route, in order to assist with traffic control and control oncoming traffic flow.
- The information contained in this report is privileged and confidential and is for the exclusive use of the client nominated herein.
- All access diagrams and assessments are made and calculated for the road movement of loaded trailer equipment carrying components. These dimensions are based on the turning circles and specification of Collett & Sons Ltd trailer equipment.
- Land take is usually referred to when land is required from Private Land Owners; road widening is usually referred to when land is required within highways boundaries. The boundaries between private land and highways property are assumed by using obvious demarcation such as fence lines/hedges etc. It should be noted that actual boundaries between highways and private land are not substantiated in this report and can only be authenticated by carrying out land searches.
- All route assessment, proposed land-take and removal/re-instatement of nominated street furniture is deemed accurate by Collett & Sons Ltd at the date that this report is created. We cannot be held responsible for the development of future road schemes or alterations to the routes surveyed that may leave this report inaccurate.
- Due to the blade lift adapter requirement, it is advised that a further indepth survey, identifying overhead obstructions is undertaken.