



White Hill Wind Farm

Environmental Impact Assessment Report

Annex 3.5: Route Access Survey

White Hill Wind Limited

Galetech Energy Services

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EXPERTS IN MOTION



Route Access Survey
348271 – Rev 2

White Hill Wind Farm
Near Carlow, County Carlow

Galetech Energy

November 2021

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Report Details

Report for

Cormac McPhillips
Galetech Energy
Clondargan
Stradone
Co. Cavan
Ireland

Attendees of Survey

Jacob Halstead and Spencer Budgen

Time / Date of Survey: 23rd September 2020 – Updated November 2021 – No site visit

General weather conditions: Good

Issued by

Spencer Budgen

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Document Revisions

No	Date	Details
1	10/12/2021	Updated to V162
2	20/01/2022	Updated to Comments

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



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1. Executive Summary

- 1.1. This report comprises of a study of the road route as detailed here in for the road transport of V162 Turbine Blade Components to the proposed Whitehill wind Farm Near Carlow, County Carlow.
- 1.2. One route has been assessed from the Port of Waterford to the proposed site.
- 1.3. Analysis of the remaining components should be undertaken once known.

Third party land

- 1.4. Third party land is required at the bend at Crettyard and the junction of the N78 and L1834.

Road widening

- 1.5. Road widening within highways owned land is required at a number of locations:

- N29 / R711 Roundabout
- N29 / R680 Roundabout (Option 2)
- N9 / M9 Roundabout
- M9 J3 / N78 Roundabout
- N78 Roundabout
- N78 / L1834 Junction

Modifications to street furniture

- 1.6. Modifications to street furniture will be required along the route at a number of locations:

- Exit of the port of Waterford – Barrier, Fence and road sign to be removed.
- N29 / R711 Roundabout – Road signs to be removed.
- N29 / N25 Roundabout – Lamp posts and road signs to be removed.
- N29 / R680 Roundabout (Option 1) – Several Lamp posts and road signs to be removed.
- N29 / R680 Roundabout (Option 2) – Lamp post and road signs to be removed
- N25 / N9 Roundabout – Lamp posts and road signs to be removed.
- N9 / M9 Roundabout – Road signs to be removed.
- M9 J3 / N78 Roundabout – Road signs to be removed.
- N78 / R418 Roundabout – Lamp posts, Trees and road signs to be removed.

Vertical Alignment

- 1.7. Numerous locations have been analysed for vertical clearance issues. Analysis has found that the power cable is contacting the road surface at a number of locations. The blade is to be raised to provide greater clearance.

Other areas of note

- 1.8. Pruning is required throughout the route to create an envelope to meet the chosen manufactures specification.
- 1.9. A parking restriction is required on the right hand bend in Crettyard.
- 1.10. No structural assessment has been undertaken as part of this route assessment.

2. Introduction

- 2.1 Collett & Sons Ltd. were commissioned by Galetch Energy to undertake an abnormal loads route access study to assess the transportation of V162 Wind Turbine Blade components to the proposed White Hill wind Farm Near Carlow, County Carlow.
- 2.2 The road routes as detailed herein are for the road transport of the wind turbine blade component identified in Section 4.
- 2.3 The purpose of this report is to detail access from the Port of Waterford.

3. Candidate Abnormal Loads

3.1. The turbine specification was supplied by Galetch Energy.

4. Abnormal Indivisible Load Profiles

4.1. The abnormal load components are assessed based on weight, length, width and height and loaded to the most appropriate vehicle the weights and dimensions of these are detailed below. The loading diagrams are detailed in Appendix 1.

4.2.	364958-A
V162 Blade	
	Loaded vehicle dimensions
Overall vehicle Length	93.08m
Rigid Length	84.52m
Width	4.43m
Height	4.40m

5. Route Assessment Overview

5.1. This section of the report illustrates the route assessed for the delivery of V162 Blade Components from Port of Waterford to the proposed Whitehill Wind Farm. No tower specification has been assessed.

5.2. For the purpose of this report, one route to the site was surveyed. All the routes surveyed in this report have been identified by Collett.

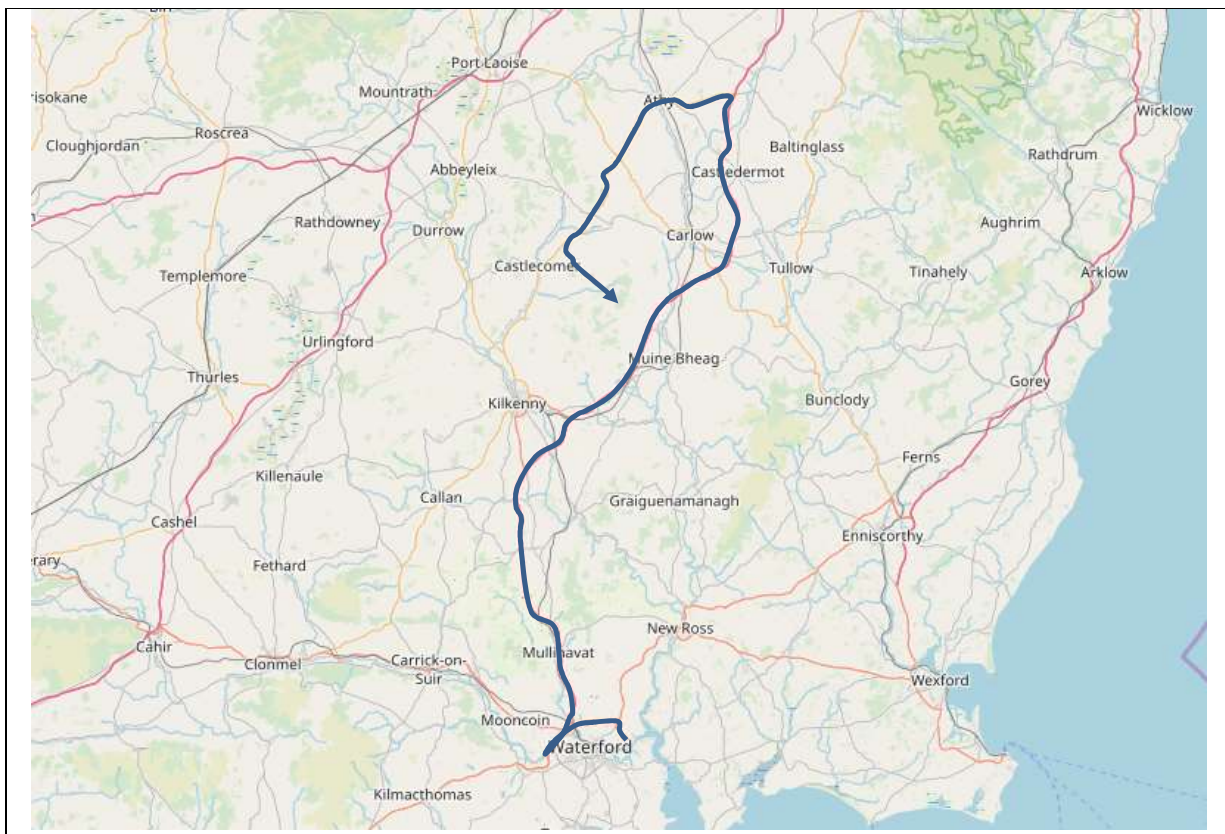
5.3.

Route

Start Location	Port of Waterford	Distance of Route	Km	Miles
Via:	N25/N9/M9/N78		166	103

- Exit Port of Waterford onto the N29.
- At roundabout, take the 3rd exit onto N29.
- At roundabout, turn left onto N25.
- At roundabout, take the 4th exit onto N25.
- Continue on N25 and take the exit onto N9.
- At the roundabout, turn right onto M9.
- Continue on M9 and take the exit at J3.
- At the roundabout, take the 1st exit onto N78.
- At the roundabout, continue on N78.
- At the roundabout, continue on N78.
- Continue on N78 and then turn left onto unnamed road.
- Continue on unnamed road to site entrance.

5.4. Map Overview



5.5. Amendment Categorisation




For the purposes of this report, the route amendments have been identified into 3 categories.

Major Amendments – Third Party Land, Road Widening

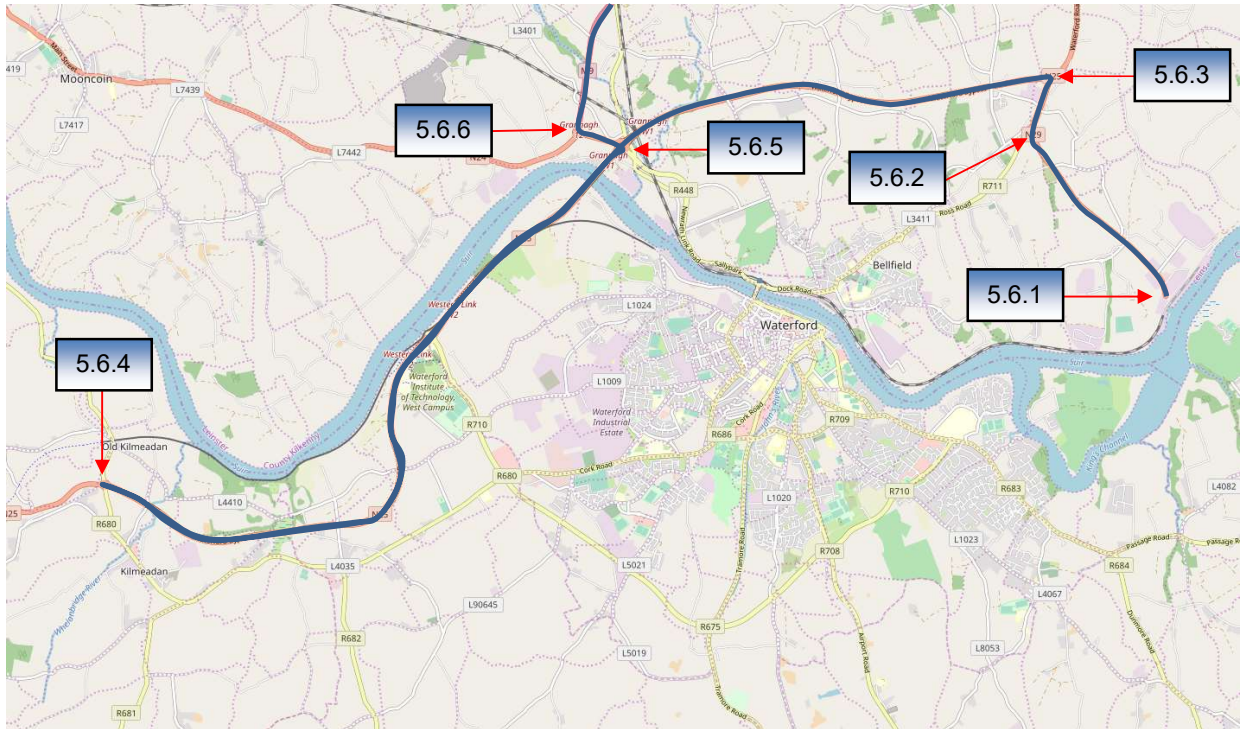
Minor Amendments – Modifications to Street Furniture, Pruning, Contraflow Manoeuvre, Manual Steering

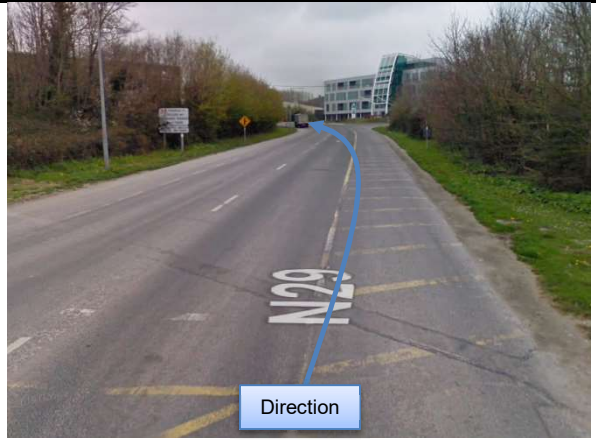


No Amendments - Location is suitable as assessed during this survey

The categories have been colour coded for each report item as per the below key.

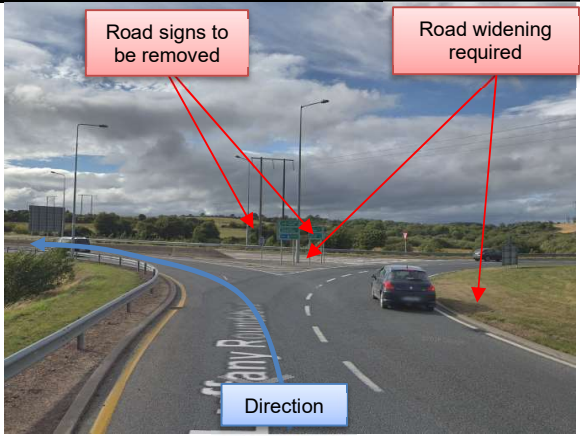
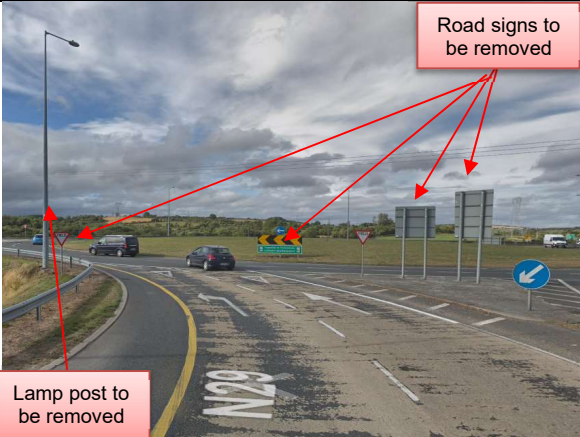

KEY					
	Major Amendments		Minor Amendments		No Amendments

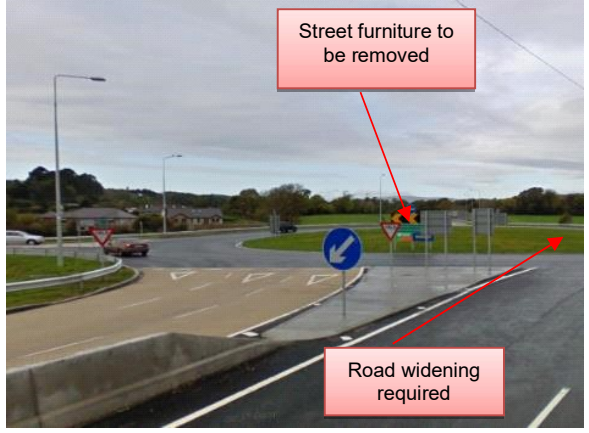
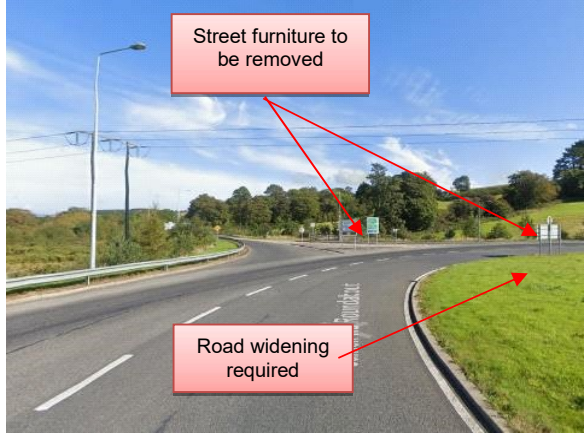
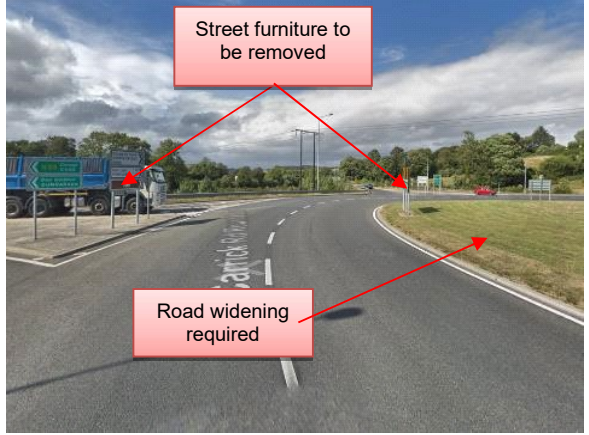

5.6. Map extract of survey locations

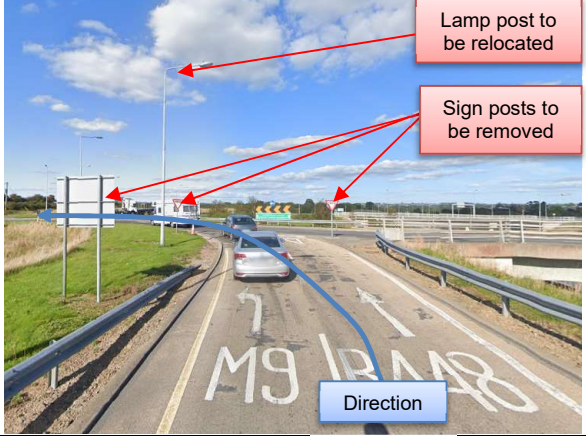




ITEM NUMBER	5.6.1			LOCATION	EXIT PORT OF WATERFORD ONTO THE N29		
DIRECTION	Continue at this location						
GRID REFERENCE	S 65780 12965						
MODIFICATION AND DESCRIPTION				PHOTOGRAPH OF LOCATION			
<p>Visual inspection indicates that the fence and road sign on the offside is to be removed.</p> <p>Blade is required to contraflow the exit gate house to reduce the amount of modifications required.</p> <p>Road signs on nearside of railway crossing required to be removed to allow rear projection of blade to oversail.</p> <p>The barrier on the offside is to be removed.</p> <p>The area in the port is to be cleared of containers.</p> <p>Swept path analysis is recommended to confirm the above.</p>							
				<p>Direction of N29</p>			
							
<p>Exit from the port</p>							
<p>Aerial View of Location</p>							
FURTHER INVESTIGATION UNDERTAKEN?				NO	TYPE	Choose an item.	
RELATED DOCUMENT NUMBERS							

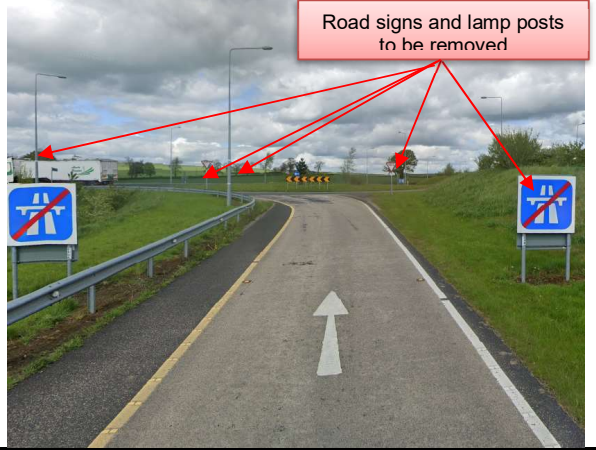

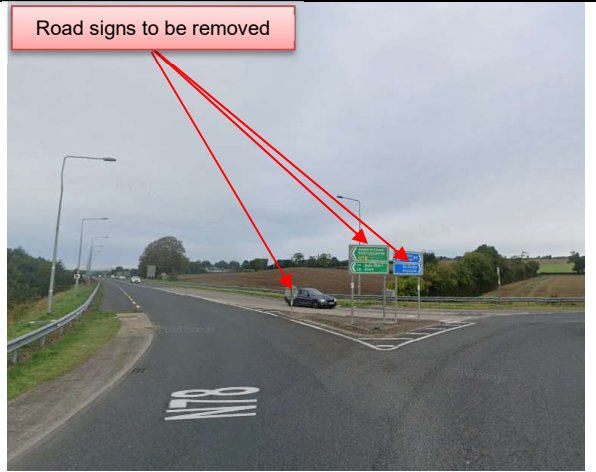

ITEM NUMBER	5.6.2		LOCATION	N29/R711 ROUNDABOUT	
DIRECTION	Take the 3 rd exit at the roundabout				
GRID REFERENCE	S 63927 15153				
MODIFICATION AND DESCRIPTION			PHOTOGRAPH OF LOCATION		
<p>Visual inspection indicates that road widening is required on the central island of the roundabout and entry splitter island to avoid the removal of lamp posts.</p> <p>Road signs on central island and entry splitter island required to be removed.</p> <p>Swept path analysis is recommended to confirm the above.</p>					
			View of roundabout		
					
			Aerial View of Location		
FURTHER INVESTIGATION UNDERTAKEN?			NO	TYPE	Choose an item.
RELATED DOCUMENT NUMBERS					


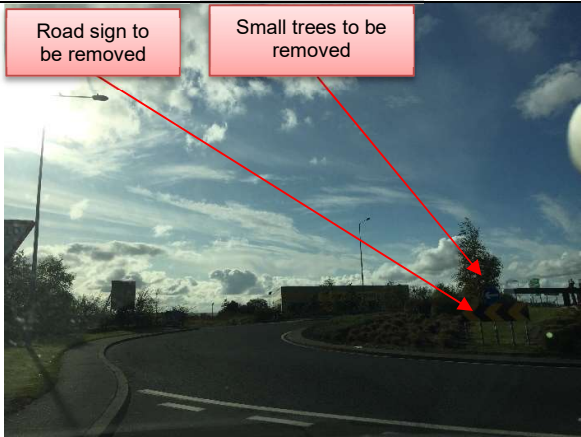


ITEM NUMBER	5.6.3		LOCATION	N29/N25 ROUNDABOUT	
DIRECTION	Take the 1 st exit at the roundabout				
GRID REFERENCE	S 64149 15861				
MODIFICATION AND DESCRIPTION			PHOTOGRAPH OF LOCATION		
<p>Visual inspection indicates that road widening is required on the central island of the roundabout and on central reservation on N25.</p> <p>Road signs on both central reservations to be removed.</p> <p>Lamp posts and road signs to be removed on the nearside of the roundabout.</p> <p>Swept path analysis recommended to confirm the extents of modifications required.</p>					
			<p>View of Direction</p> 		
			<p>View of roundabout</p> 		
Aerial View of Location					
FURTHER INVESTIGATION UNDERTAKEN?			NO	TYPE	Choose an item.
RELATED DOCUMENT NUMBERS					

ITEM NUMBER	5.6.4		LOCATION	N25/R680 ROUNDABOUT (OPTION 1)	
DIRECTION	Circumnavigate the roundabout				
GRID REFERENCE	S 51422 10214				
MODIFICATION AND DESCRIPTION			PHOTOGRAPH OF LOCATION		
<p>Blade vehicle to undertake a three point manoeuvre at this roundabout to turn around.</p> <p>Visual inspection indicates that road widening would be required on the central island of the roundabout and on the R680 and N25 3rd exit splitter islands.</p> <p>Street furniture on the R680 and N25 3rd exit splitter island to be removed. Road signs on central island of the roundabout to be removed.</p> <p>Swept path analysis recommended to confirm the extent of the modifications.</p>					
			View of roundabout		
					
View of roundabout			View of roundabout		
					
Aerial View of Location					
FURTHER INVESTIGATION UNDERTAKEN?			NO	TYPE	Choose an item.
RELATED DOCUMENT NUMBERS					

ITEM NUMBER	5.6.5		LOCATION	N25/N9 ROUNDABOUT	
DIRECTION	Turn left at junction				
GRID REFERENCE	S 58290 14812				
MODIFICATION AND DESCRIPTION			PHOTOGRAPH OF LOCATION		
<p>Visual inspection indicates that lamp posts to be relocated on the nearside.</p> <p>Sign posts to be removed on both sides of the road.</p> <p>Swept path analysis is recommended to confirm the above.</p>					
			View on slip road		
					
			View of N25		
					
Aerial View of Location					
FURTHER INVESTIGATION UNDERTAKEN?			NO	TYPE	Choose an item.
RELATED DOCUMENT NUMBERS					




ITEM NUMBER	5.6.6		LOCATION	N9/M9 ROUNDABOUT	
DIRECTION	Take the 2 nd exit at the roundabout				
GRID REFERENCE	S 57784 15057				
MODIFICATION AND DESCRIPTION			PHOTOGRAPH OF LOCATION		
<p>Visual inspection indicates that road widening is required on the central island of the roundabout to avoid significant street furniture removal and further widening.</p> <p>Road sign on central island required to be removed.</p> <p>Road sign on nearside of entry and on exit splitter island to be removed.</p> <p>Swept path analysis recommended to confirm the extents of modifications required.</p>			 <p>View of entrance to roundabout</p>		
 <p>View on roundabout</p>			 <p>View of exit of roundabout</p>		
 <p>Aerial View of Location</p>					
FURTHER INVESTIGATION UNDERTAKEN?			NO	TYPE	Choose an item.
RELATED DOCUMENT NUMBERS					

ITEM NUMBER	5.7.1			LOCATION	M9 J3/N78 ROUNDABOUT		
DIRECTION	Take the 1 st exit at the roundabout						
GRID REFERENCE	S 77664 94772						
MODIFICATION AND DESCRIPTION				PHOTOGRAPH OF LOCATION			
<p>Swept Path Analysis indicates that road widening is required on the central island of the roundabout.</p> <p>Road signs and lamp posts on the both sides of the slip road, central island of the roundabout and on the exit splitter island are to be removed.</p> <p>Tractor unit to contraflow the exit splitter island.</p>				 <p>Road signs and lamp posts to be removed</p> <p>View entrance to roundabout</p>			
 <p>Road widening required. Road sign to be removed.</p>				 <p>Road signs to be removed</p> <p>View of exit from roundabout</p>			
 <p>Aerial View of Location</p>							
FURTHER INVESTIGATION UNDERTAKEN?				YES	TYPE	Swept Path Analysis	
RELATED DOCUMENT NUMBERS				348271-10			




ITEM NUMBER	5.7.2		LOCATION	N78/R418 ROUNDABOUT	
DIRECTION	Take the 2 nd exit at the roundabout				
GRID REFERENCE	S 69750 94208				
MODIFICATION AND DESCRIPTION			PHOTOGRAPH OF LOCATION		
<p>Swept Path Analysis indicates that road widening is required on the central island of the roundabout.</p> <p>Road signs on central island and exit splitter island to be removed.</p> <p>Small trees on central island to be removed.</p>					
			View of roundabout		
					
			Direction of View		
					
Aerial View of Location					
FURTHER INVESTIGATION UNDERTAKEN?			YES	TYPE	Swept Path Analysis
RELATED DOCUMENT NUMBERS			348271-20		




ITEM NUMBER	5.7.3		LOCATION	SPLITTER ISLAND ON N78	
DIRECTION	Continue straight at this location				
GRID REFERENCE	S 69369 94157				
MODIFICATION AND DESCRIPTION			PHOTOGRAPH OF LOCATION		
<p>Visual inspection indicates that there are no issues at this location.</p>					
			View of splitter island		
					
Aerial View of Location					
FURTHER INVESTIGATION UNDERTAKEN?			NO	TYPE	N/A
RELATED DOCUMENT NUMBERS			N/A		

ITEM NUMBER	5.7.4		LOCATION	SPLITTER ISLAND ON N78 AT JUNCTION WITH GERALDINE ROAD	
DIRECTION	Continue straight at this location				
GRID REFERENCE	S 69324 94149				
MODIFICATION AND DESCRIPTION			PHOTOGRAPH OF LOCATION		
<p>Visual inspection indicates that there are no issues at this location.</p>					
			View of splitter island		
					
Aerial View of Location					
FURTHER INVESTIGATION UNDERTAKEN?			NO	TYPE	N/A
RELATED DOCUMENT NUMBERS			N/A		

ITEM NUMBER	5.7.5		LOCATION	N78 VERTICAL CREST OVER RAILWAY TRACK	
DIRECTION	Continue straight at this location				
GRID REFERENCE	S 68751 94039				
MODIFICATION AND DESCRIPTION			PHOTOGRAPH OF LOCATION		
<p>Vertical assessment indicates that the loaded components will clear the crest in the road with the blade and the tower being raised in the clamp.</p> <p>The axles of the nacelle vehicle are also required to be raised</p>					
			View of vertical		
					
			View of vertical		
					
Aerial View of Location					
FURTHER INVESTIGATION UNDERTAKEN?			YES	TYPE	Vertical Analysis
RELATED DOCUMENT NUMBERS			348271-10AV.1/10BV.1/10CV.1		

ITEM NUMBER	5.7.6			LOCATION	N78 MINI ROUNDABOUT		
DIRECTION	Continue straight at this location						
GRID REFERENCE	S 68545 94022						
MODIFICATION AND DESCRIPTION				PHOTOGRAPH OF LOCATION			
<p>Visual inspection indicates that there are no issues at this location.</p> <p>Lamp post on nearside of slip road exit may need to be removed but is recommended to be confirmed by swept path analysis.</p>							
				View of Direction			
							
				View of roundabout			
							
Aerial View of Location							
FURTHER INVESTIGATION UNDERTAKEN?				NO	TYPE	N/A	
RELATED DOCUMENT NUMBERS				N/A			

ITEM NUMBER	5.7.7			LOCATION	N78 VERTICAL CREST OVER RIVER BARROW		
DIRECTION	Continue straight at this location						
GRID REFERENCE	S 68206 93924						
MODIFICATION AND DESCRIPTION				PHOTOGRAPH OF LOCATION			
<p>Vertical assessment indicates that the loaded components will clear the crest in the road with the blade and the tower being raised in the clamp. The axles of the nacelle vehicle are also required to be raised</p>							
				View of vertical			
							
				View of vertical			
							
Aerial View of Location							
FURTHER INVESTIGATION UNDERTAKEN?				YES	TYPE	Vertical Analysis	
RELATED DOCUMENT NUMBERS				348271-20AV.1/20BV.1/20CV.1			

ITEM NUMBER	5.7.8			LOCATION	N78 VERTICAL CREST OVER CANAL		
DIRECTION	Continue straight at this location						
GRID REFERENCE	S 67825 93806						
MODIFICATION AND DESCRIPTION				PHOTOGRAPH OF LOCATION			
<p>Vertical assessment indicates that the loaded components will clear the crest in the road with the blade and the tower being raised in the clamp.</p> <p>The axles of the nacelle vehicle are also required to be raised</p>							
				View of vertical			
							
				Aerial View of Location			
FURTHER INVESTIGATION UNDERTAKEN?				YES	TYPE	Vertical Analysis	
RELATED DOCUMENT NUMBERS				348271-30AV.1/30BV.1/30CV.1			

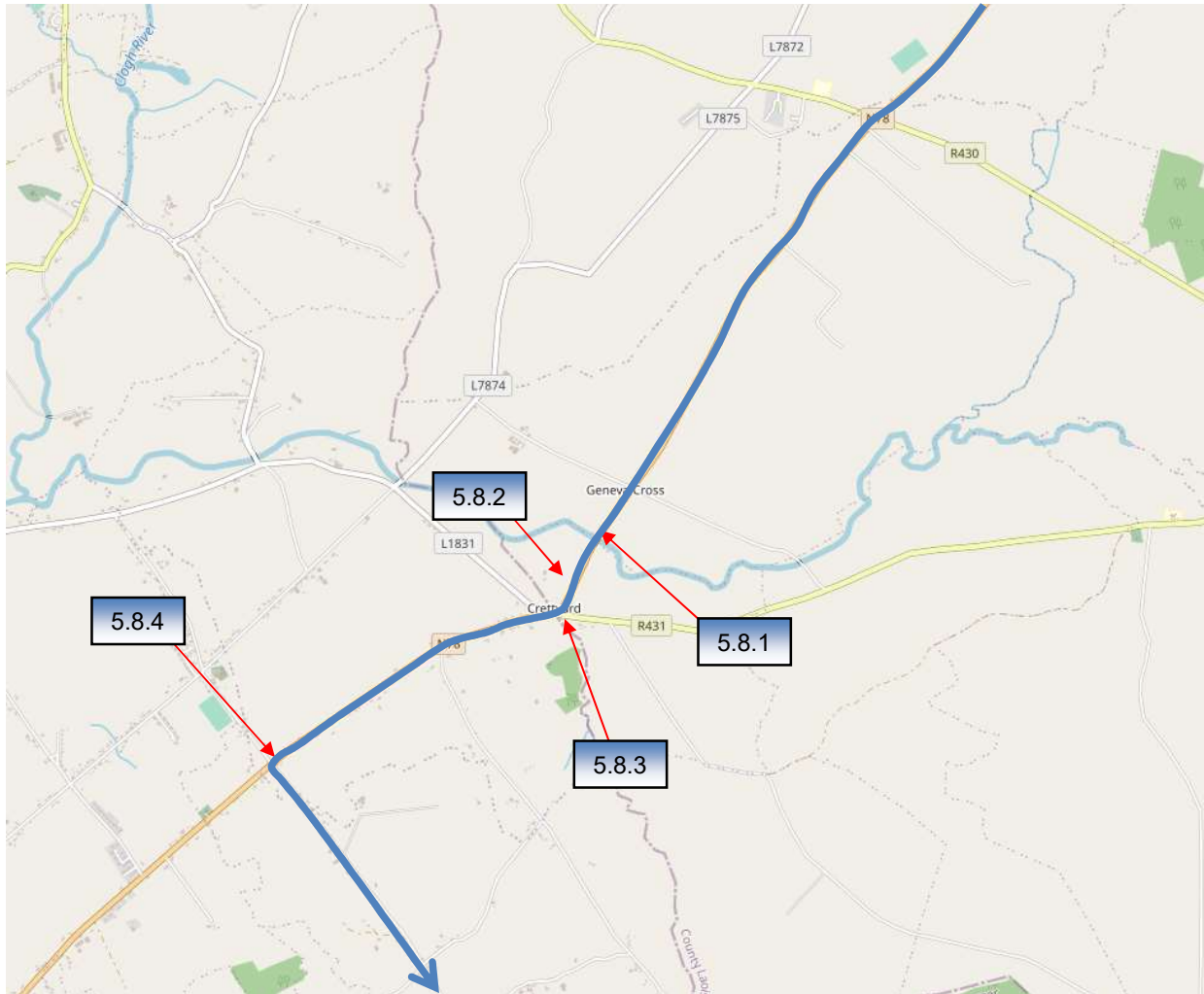
ITEM NUMBER	5.7.9		LOCATION	N78 SPLITTER ISLAND	
DIRECTION	Continue straight at this location				
GRID REFERENCE	S 67392 93326				
MODIFICATION AND DESCRIPTION			PHOTOGRAPH OF LOCATION		
<p>Visual inspection indicates that there are no issues at this location.</p>					
			View of splitter island		
					
Aerial View of Location					
FURTHER INVESTIGATION UNDERTAKEN?			NO	TYPE	N/A
RELATED DOCUMENT NUMBERS			N/A		




ITEM NUMBER	5.7.10		LOCATION	N78 SPLITTER ISLAND	
DIRECTION	Continue straight at this location				
GRID REFERENCE	S 67289 93238				
MODIFICATION AND DESCRIPTION			PHOTOGRAPH OF LOCATION		
<p>Visual inspection indicates that there are no issues at this location.</p>					
			View of splitter island		
					
Aerial View of Location					
FURTHER INVESTIGATION UNDERTAKEN?			NO	TYPE	N/A
RELATED DOCUMENT NUMBERS			N/A		

ITEM NUMBER	5.7.11		LOCATION	N78 SPLITTER ISLAND	
DIRECTION	Continue straight at this location				
GRID REFERENCE	S 67187 93161				
MODIFICATION AND DESCRIPTION			PHOTOGRAPH OF LOCATION		
<p>Visual inspection indicates that there are no issues at this location.</p>					
			View of splitter island		
					
Aerial View of Location					
FURTHER INVESTIGATION UNDERTAKEN?			NO	TYPE	N/A
RELATED DOCUMENT NUMBERS			N/A		

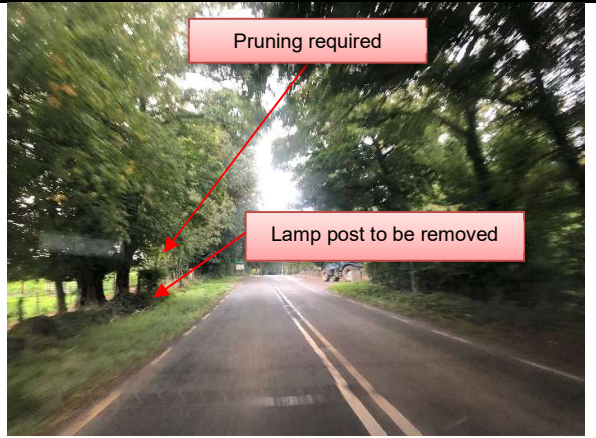
ITEM NUMBER	5.7.12		LOCATION	N78 SPLITTER ISLAND	
DIRECTION	Continue straight at this location				
GRID REFERENCE	S 67140 93117				
MODIFICATION AND DESCRIPTION			PHOTOGRAPH OF LOCATION		
<p>Visual inspection indicates that there are no issues at this location.</p>					
			View of splitter island		
					
Aerial View of Location					
FURTHER INVESTIGATION UNDERTAKEN?			NO	TYPE	N/A
RELATED DOCUMENT NUMBERS			N/A		

5.8. Map extract of survey locations



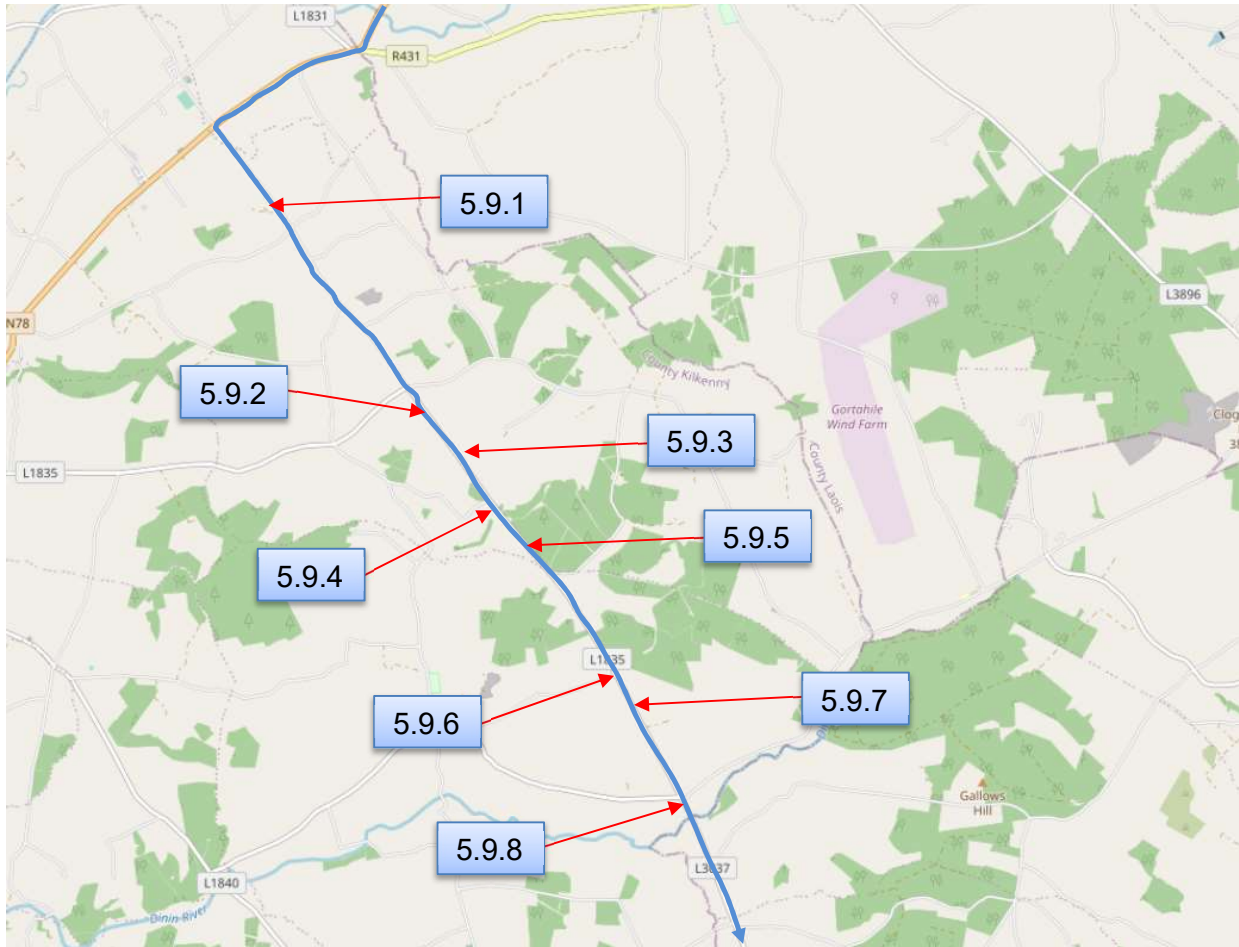
ITEM NUMBER	5.8.1			LOCATION	N78 SPLITTER ISLAND AT ENTRANCE TO NEWTOWN		
DIRECTION	Continue straight at this location						
GRID REFERENCE	S 60240 79594						
MODIFICATION AND DESCRIPTION				PHOTOGRAPH OF LOCATION			
<p>Visual inspection indicates that the street furniture on the splitter island is to be removed.</p>							
				<p>View of approach to splitter island</p>			
							
<p>View of splitter island</p>							
<p>Aerial View of Location</p>							
FURTHER INVESTIGATION UNDERTAKEN?				NO	TYPE	N/A	
RELATED DOCUMENT NUMBERS				N/A			




ITEM NUMBER	5.8.2		LOCATION	N78 SPLITTER ISLAND BEFORE JUNCTION	
DIRECTION	Continue straight at this location				
GRID REFERENCE	S 60146 79507				
MODIFICATION AND DESCRIPTION			PHOTOGRAPH OF LOCATION		
<p>Visual inspection indicates that there are no issues at this location.</p>					
			View of splitter island		
					
Aerial View of Location					
FURTHER INVESTIGATION UNDERTAKEN?			NO	TYPE	N/A
RELATED DOCUMENT NUMBERS			N/A		




ITEM NUMBER	5.8.3		LOCATION	N78 right hand bend in Crettyard	
DIRECTION	Continue straight at this location.				
GRID REFERENCE	S 58631 77147				
MODIFICATION AND DESCRIPTION			PHOTOGRAPH OF LOCATION		
<p>Swept path analysis indicates third party land will be required on the offside of the bend.</p> <p>Road signs on the offside of the road are to be removed.</p> <p>Lamp post on the nearside to be removed.</p> <p>The wall/bridge parapet on the offside is to be removed.</p> <p>Trees on the offside to be pruned.</p>			 <p>View of approach to bend</p>  <p>View of bend</p>  <p>Aerial View of Location</p>		
FURTHER INVESTIGATION UNDERTAKEN?			YES	TYPE	Swept Path Analysis
RELATED DOCUMENT NUMBERS			348271-60		




ITEM NUMBER	5.8.4		LOCATION	N78 / L1834 Junction	
DIRECTION	Turn left at this junction				
GRID REFERENCE	S 57299 76422				
MODIFICATION AND DESCRIPTION			PHOTOGRAPH OF LOCATION		
<p>Swept path indicates loaded blade will navigate the proposed site track, although manual steering will be required on the exit of the track.</p>					
			View of approach to junction		
					
Aerial View of Location					
FURTHER INVESTIGATION UNDERTAKEN?			YES	TYPE	Swept Path Analysis
RELATED DOCUMENT NUMBERS			348271-70		




5.9. Map extract of survey locations









ITEM NUMBER	5.9.1		LOCATION	Vertical crest on L1834	
DIRECTION	Continue on L1834				
GRID REFERENCE	S 57851 75732				
MODIFICATION AND DESCRIPTION			PHOTOGRAPH OF LOCATION		
<p>Vertical assessment indicates that the loaded turbine components will navigate the vertical alignment of the road.</p>					
			View of vertical		
					
			View of vertical		
					
Aerial View of Location					
FURTHER INVESTIGATION UNDERTAKEN?			NO	TYPE	Vertical Analysis
RELATED DOCUMENT NUMBERS			348271-80V		




ITEM NUMBER	5.9.2		LOCATION	Vertical crest on L1834	
DIRECTION	Continue on L1834				
GRID REFERENCE	S 58072 75411				
MODIFICATION AND DESCRIPTION			PHOTOGRAPH OF LOCATION		
<p>Vertical assessment indicates that the loaded turbine components will navigate the vertical alignment of the road.</p>					
			<p>View of approach to the crest</p>		
					
			<p>View of crest</p>		
					
<p>Aerial View of Location</p>					
FURTHER INVESTIGATION UNDERTAKEN?			YES	TYPE	Vertical Analysis
RELATED DOCUMENT NUMBERS			348271-90V		




ITEM NUMBER	5.9.3		LOCATION	Vertical crest on L1834	
DIRECTION	Continue on L1834				
GRID REFERENCE	S 58121 75321				
MODIFICATION AND DESCRIPTION			PHOTOGRAPH OF LOCATION		
Vertical assessment indicates that the loaded turbine components will navigate the vertical alignment of the road.					
			View of approach to the vertical		
					
			View of vertical		
					
Aerial View of Location					
FURTHER INVESTIGATION UNDERTAKEN?			YES	TYPE	Vertical Analysis
RELATED DOCUMENT NUMBERS			348271-100V		

ITEM NUMBER	5.9.4	LOCATION	Left hand bend on L1834	
DIRECTION	Continue on L1834			
GRID REFERENCE	S 58399 74877			
MODIFICATION AND DESCRIPTION		PHOTOGRAPH OF LOCATION		
Swept path analysis indicates that pruning will be required on the nearside.				
		View of approach to the bend		
				
View of bend				
				
Aerial View of Location				
FURTHER INVESTIGATION UNDERTAKEN?		YES	TYPE	Swept Path analysis
RELATED DOCUMENT NUMBERS		348271-105		

ITEM NUMBER	5.9.5	LOCATION	Vertical crest on L1834
DIRECTION	Continue on L1834		
GRID REFERENCE	S 59777 73139		
MODIFICATION AND DESCRIPTION		PHOTOGRAPH OF LOCATION	
<p>Vertical assessment indicates that the loaded turbine components will navigate the vertical alignment of the road.</p>			
		<p>View of approach to the vertical</p>	
			
		<p>View of vertical</p>	
			
<p>Aerial View of Location</p>			
FURTHER INVESTIGATION UNDERTAKEN?	YES	TYPE	Vertical Analysis
RELATED DOCUMENT NUMBERS	348271-110V		

ITEM NUMBER	5.9.6		LOCATION	Dip in road on L1834
DIRECTION	Continue on L1834			
GRID REFERENCE	S 59982 72883			
MODIFICATION AND DESCRIPTION		PHOTOGRAPH OF LOCATION		
<p>Vertical assessment indicates that the loaded turbine components will navigate the vertical alignment of the road.</p>				
		View in dip		
				
			View of vertical	
				
Aerial View of Location				
FURTHER INVESTIGATION UNDERTAKEN?	NO	TYPE	Vertical Analysis	
RELATED DOCUMENT NUMBERS	348271-120V			

ITEM NUMBER	5.9.7		LOCATION	Dip in road on L1834	
DIRECTION	Continue on L1834				
GRID REFERENCE	S 61799 70100				
MODIFICATION AND DESCRIPTION			PHOTOGRAPH OF LOCATION		
Vertical assessment indicates that the loaded turbine components will navigate the vertical alignment of the road.					
			View in dip		
					
			View of dip		
					
Aerial View of Location					
FURTHER INVESTIGATION UNDERTAKEN?			YES	TYPE	Vertical Analysis
RELATED DOCUMENT NUMBERS			348271-130V		

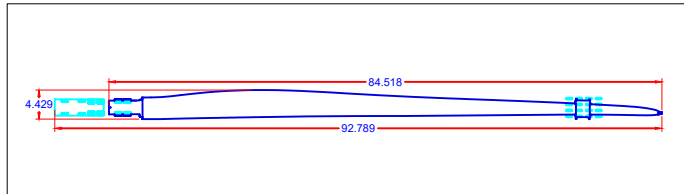
ITEM NUMBER	5.9.8		LOCATION	Vertical crests on L1834	
DIRECTION	Continue on L1834				
GRID REFERENCE	S 61865 69923				
MODIFICATION AND DESCRIPTION			PHOTOGRAPH OF LOCATION		
<p>Vertical assessment indicates that the loaded turbine components will navigate the vertical alignment of the road.</p> <p>The power cable of the blade component will make contact with the road surface so the blade should be raised in the clamp system to avoid this.</p>					
					
					
Aerial View of Location					
FURTHER INVESTIGATION UNDERTAKEN?		YES	TYPE	Vertical Analysis	
RELATED DOCUMENT NUMBERS		348271-140V			

6. Important Notes

- 6.1. The recommendations in this report are made from a purely transport orientated view, and do not consider any political issues in terms of land ownership, or any other precincts raised that may otherwise be restrictive.
- 6.2. The information contained in this report is privileged and confidential and is for the exclusive use of the client nominated herein.
- 6.3. A Police escort or pilot car will be required in order to assist with traffic control for the entire route surveyed.
- 6.4. Permits will be required for the movement of all loads. These permits are at the discretion of the local authorities (L.A). Therefore, approval of these permits by the H.A is a major consideration before any movements can be undertaken.
- 6.5. It is recommended to have adequate warning signs implemented to warn other road users at critical points.
- 6.6. All hedges, shrubs, bushes, trees and overhanging branches along the nominated routes must be trimmed to allow a suitable minimum envelope.
- 6.7. All street furniture, signage etc. along the nominated route must be removed to allow a suitable minimum envelope on the road. Other specific street furniture has been nominated in this report to facilitate over-sailed and swept areas.
- 6.8. The turbine manufactures transport guidance notes will state the minimum road width required for the transport of components. Any roads below this stated width will require widening to reflect this.
- 6.9. In areas where land take or road widening is required, the road construction must be formed to the minimum specification suitable for the transfer of axle loadings up to 16Te, the road construction must be formed to the minimum specification contained in the selected manufacturers transport and erection guidance notes.
- 6.10. Overhead utility cables have not been measured as part of this survey and correspondence with the utility companies regarding cable heights and possible remedial solutions should be undertaken prior to any delivery.
- 6.11. It should be noted that all assessments and inspections have been done so with the intention of producing information to highlight anticipated problems. This includes highlighting of potential land take requirements, possible street furniture implications, and highway alignment issues.
- 6.12. 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. However, the details of the nominated land take and road widening contained in this report are highlighting the expected areas of concern, and can only be confirmed by swept path analysis. 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.
- 6.13. All inspections and assessments are made for the road movement of loaded trailer equipment carrying specific storage tank components. These dimensions are based on the turning circles and specification of Collett & Sons trailer equipment.
- 6.14. All route inspections and assessments, and subsequent conclusions and recommendations are deemed accurate by Collett & Sons Limited 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.
- 6.15. This report is based solely on a preliminary visual inspection. Nothing in this report shall be construed in any way as committing Collett & Sons Limited to being able to deliver to site using this route before further structural analysis has been undertaken, and any accommodation/remedial works undertaken which are to Collett & Sons satisfaction.

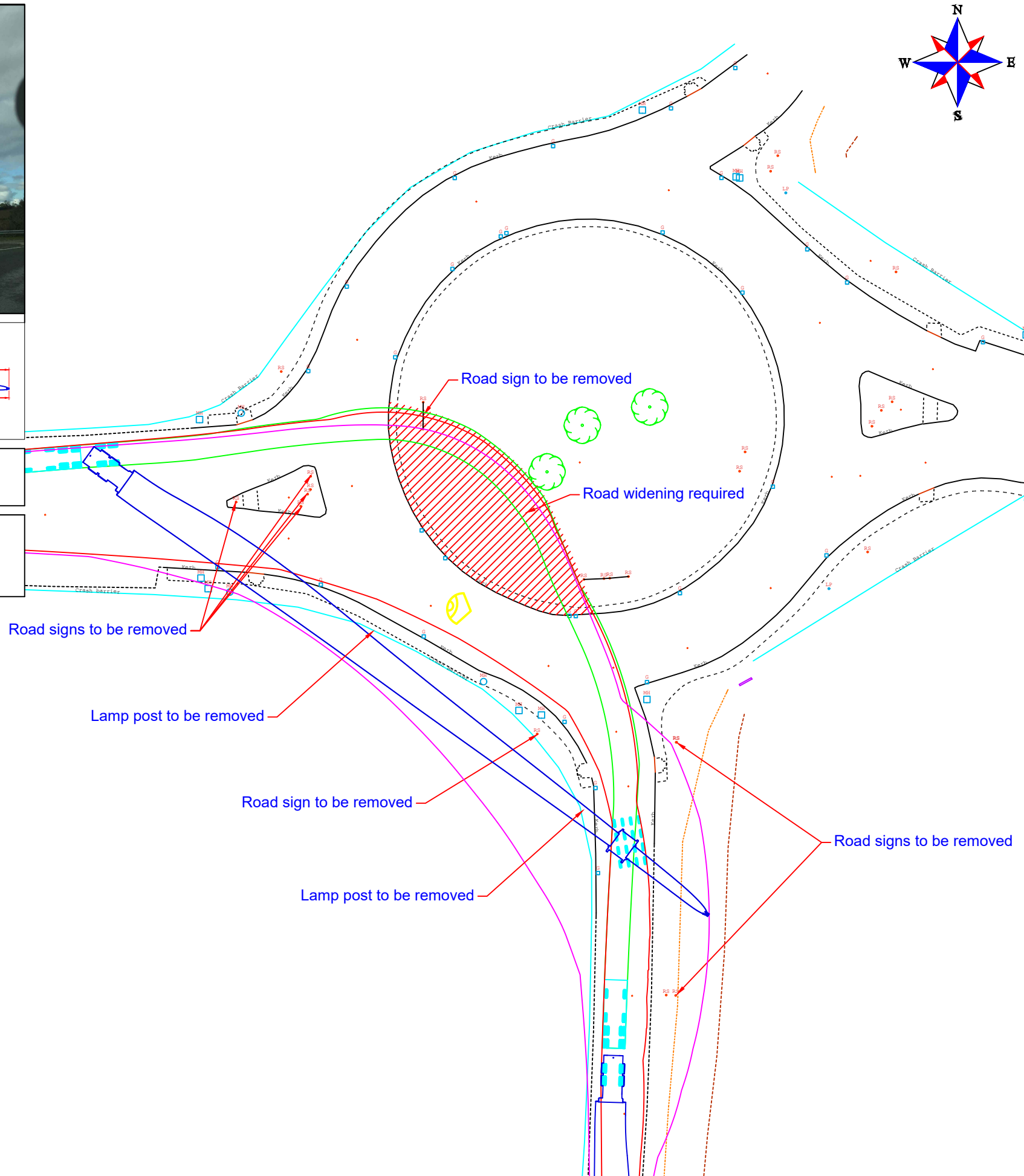
APPENDIX 1

SWEPT PATH ANALYSIS DRAWINGS



Swept Path indicates trailer utilising MANUAL steering

Vestas
V162 Blade
Clamp and bogie Trailer System



Exit M9 at Junction 3 to roundabout.
At roundabout, turn left onto N78.

****Caution****

- Widening required to provide a useable road surface as indicated by the red hatching.
- Indicated street furniture to be removed.
- Loaded blade oversailing armco barrier on nearside of roundabout.
- Ground to be prepared to accept suitable axle loadings.

OSi Grid Reference: S 77664 94772

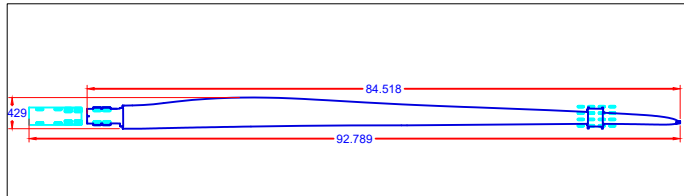
- The swept path analysis provided is produced from a purely transport orientated view, and does not consider any political issues in terms of land ownership, or any other precincts raised, that may otherwise be restrictive.
- The drawing has been produced from topographical survey data provided by the client.
- All swept path diagrams and assessments are made and calculated for the road movement of loaded trailer equipment carrying Turbine components. These dimensions are based on the turning circles and specification of Collett & Sons Ltd trailer equipment.
- This SPA is a means of providing evidence of minimum requirements of any one vehicle as a footprint and there is no safety factor or margin included.
- Turbine delivery vehicles can be both left and right hand drive vehicles, therefore due to drivers perception it must be assumed that every vehicle will not follow the exact same line and so a margin of additional space should be allowed for.
- 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.
- Police escorts and permits will be required for the movement of all of the components. These permits are at the discretion of the local authorities (LA). Therefore, approval of these 'permits for movements' by the LA are a major consideration before the physical capability to deliver these components are undertaken.
- In critical areas, where modifications are required, the road construction must be formed to the minimum specification contained in the Turbine Manufactures Transport Guidance Notes.
- The Turbine Manufactures Transport Guidance Notes will state the minimum road width required for the transport of components. Any roads below this stated width will require widening to reflect this regardless of any swept path analysis not indicating modifications.
- The information is privileged and confidential and is for the exclusive use of the nominated client.
- All dimensions in meters

- Area within red outline will be swept by tractor and trailer axles
- ▨ Hatched area within red outline to be levelled and prepared to accept axle loadings
- Area within magenta outline will be oversailed by load and projections
- Area within green outline will be oversailed by trailer body



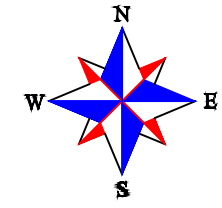
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DRAWN	S.MANGHAM	TITLE	M9 J3 / N78 ROUNDABOUT		
DATE	10/12/2021	MAPPING	PROVIDED BY CLIENT	CUSTOMER	
SCALE	1:500	SIZE	A3	PINCH POINT IDENTIFIED BY	COLLETT
			SITE	WHITEHILL	DWG. NO. 348271-10B0.1
GALETECH					



Swept Path indicates trailer utilising MANUAL steering

Vestas
V162 Blade
Clamp and bogie Trailer System



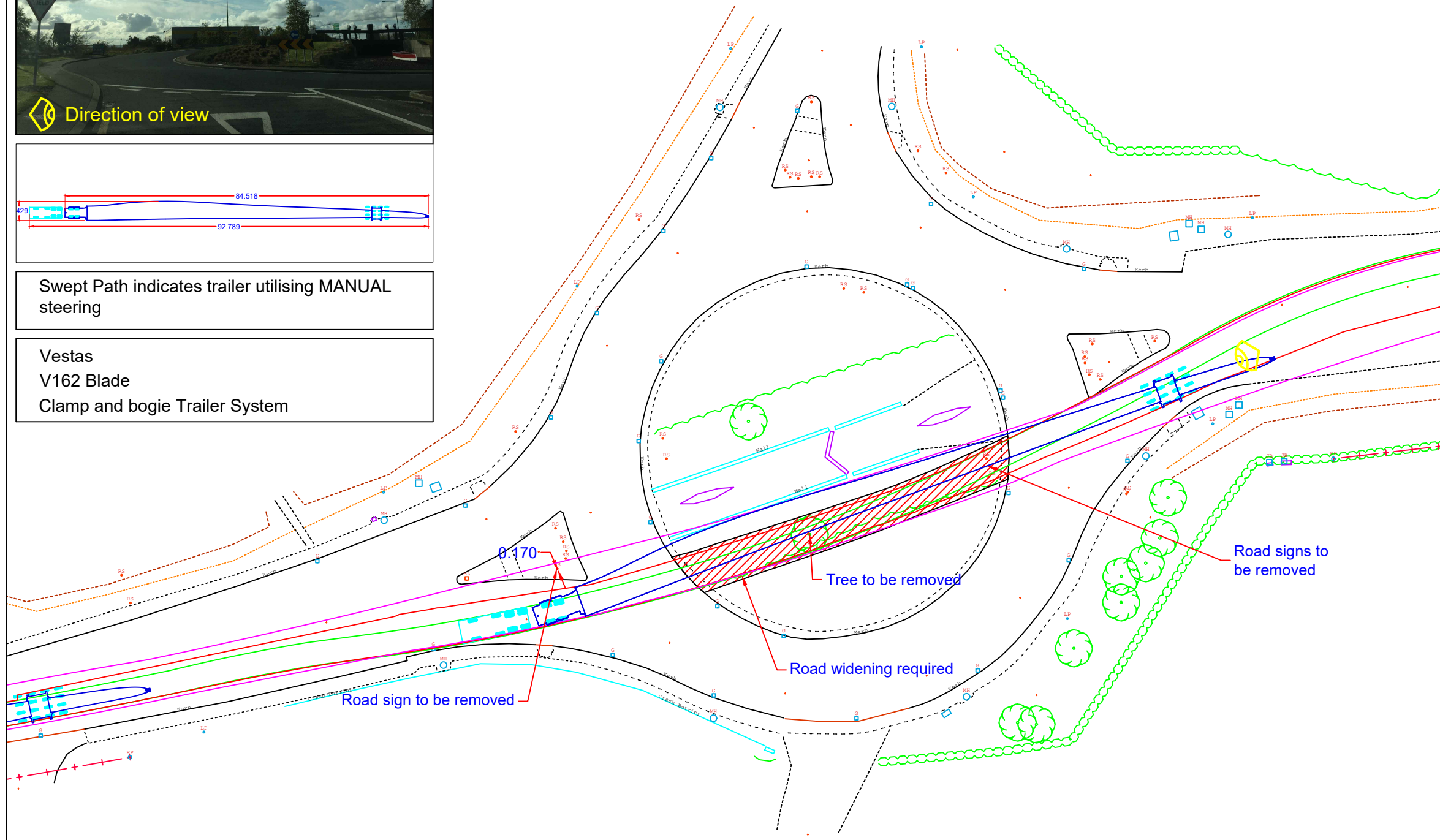
Continue on N78 to roundabout at junction with R418.
At roundabout, continue straight on N78.

****Caution****

- Widening required to provide a useable road surface as indicated by the red hatching.
- Indicated street furniture to be removed.
- Road widening is required on central island to avoid oversailing third party land on nearside of entrance to roundabout.
- Ground to be prepared to accept suitable axle loadings.

OSi Grid Reference: S 69750 94208

- The swept path analysis provided is produced from a purely transport orientated view, and does not consider any political issues in terms of land ownership, or any other precincts raised, that may otherwise be restrictive.
- The drawing has been produced from topographical survey data provided by the client.
- All swept path diagrams and assessments are made and calculated for the road movement of loaded trailer equipment carrying Turbine components. These dimensions are based on the turning circles and specification of Collett & Sons Ltd trailer equipment.
- This SPA is a means of providing evidence of minimum requirements of any one vehicle as a footprint and there is no safety factor or margin included.
- Turbine delivery vehicles can be both left and right hand drive vehicles, therefore due to drivers perception it must be assumed that every vehicle will not follow the exact same line and so a margin of additional space should be allowed for.
- 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.
- Police escorts and permits will be required for the movement of all of the components. These permits are at the discretion of the local authorities (LA). Therefore, approval of these 'permits for movements' by the LA are a major consideration before the physical capability to deliver these components are undertaken.
- In critical areas, where modifications are required, the road construction must be formed to the minimum specification contained in the Turbine Manufacturers Transport Guidance Notes.
- The Turbine Manufacturers Transport Guidance Notes will state the minimum road width required for the transport of components. Any roads below this stated width will require widening to reflect this regardless of any swept path analysis not indicating modifications.
- The information is privileged and confidential and is for the exclusive use of the nominated client.
- All dimensions in meters

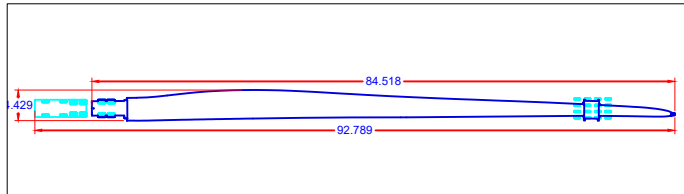


- Area within red outline will be swept by tractor and trailer axles
- ▨ Hatched area within red outline to be levelled and prepared to accept axle loadings
- Area within magenta outline will be oversailed by load and projections
- Area within green outline will be oversailed by trailer body



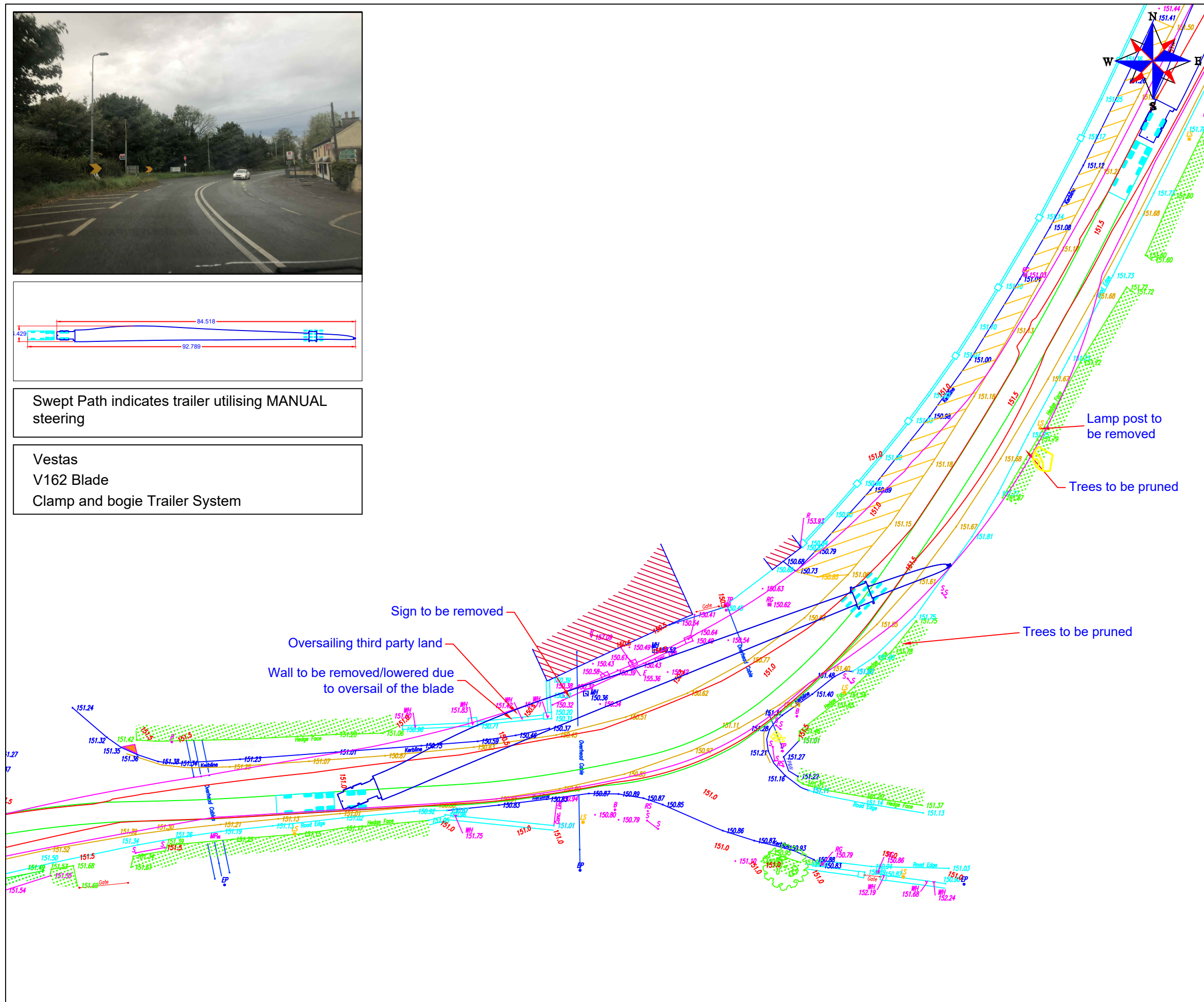
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DRAWN	S.MANGHAM	TITLE	N78 / R418 ROUNDABOUT		
DATE	10/12/2021	MAPPING	PROVIDED BY CLIENT	CUSTOMER	
SCALE	1:500	SIZE	A3	PINCH POINT IDENTIFIED BY	COLLETT
			SITE	WHITEHILL	DWG. NO. 348271-20B1.1



Swept Path indicates trailer utilising MANUAL steering

Vestas
V162 Blade
Clamp and bogie Trailer System



Continue on N78 to Crettyard

****Caution****

- Loaded blade oversailing third party land on offside of N78.
- Wall on offside required to be lowered to allow blade to oversail.
- A parking restriction is required on offside of N78 to allow trailer to utilise this area.
- Indicated street furniture to be removed.

OSi Grid Reference: S 58635 77148

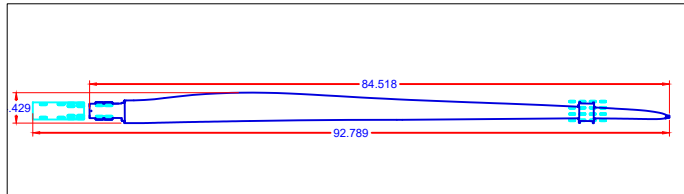
- The swept path analysis provided is produced from a purely transport orientated view, and does not consider any political issues in terms of land ownership, or any other precincts raised, that may otherwise be restrictive.
- The drawing has been produced from topographical survey data provided by the client.
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- Turbine delivery vehicles can be both left and right hand drive vehicles, therefore due to drivers perception it must be assumed that every vehicle will not follow the exact same line and so a margin of additional space should be allowed for.
- 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.
- Police escorts and permits will be required for the movement of all of the components. These permits are at the discretion of the local authorities (LA). Therefore, approval of these 'permits for movements' by the LA are a major consideration before the physical capability to deliver these components are undertaken.
- In critical areas, where modifications are required, the road construction must be formed to the minimum specification contained in the Turbine Manufactures Transport Guidance Notes.
- The Turbine Manufactures Transport Guidance Notes will state the minimum road width required for the transport of components. Any roads below this stated width will require widening to reflect this regardless of any swept path analysis not indicating modifications.
- The information is privileged and confidential and is for the exclusive use of the nominated client.
- All dimensions in meters

- Area within red outline will be swept by tractor and trailer axles
- ▨ Hatched area within red outline to be levelled and prepared to accept axle loadings
- Area within magenta outline will be oversailed by load and projections
- Area within green outline will be oversailed by trailer body



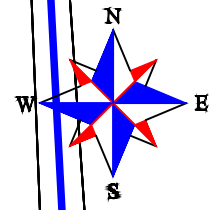
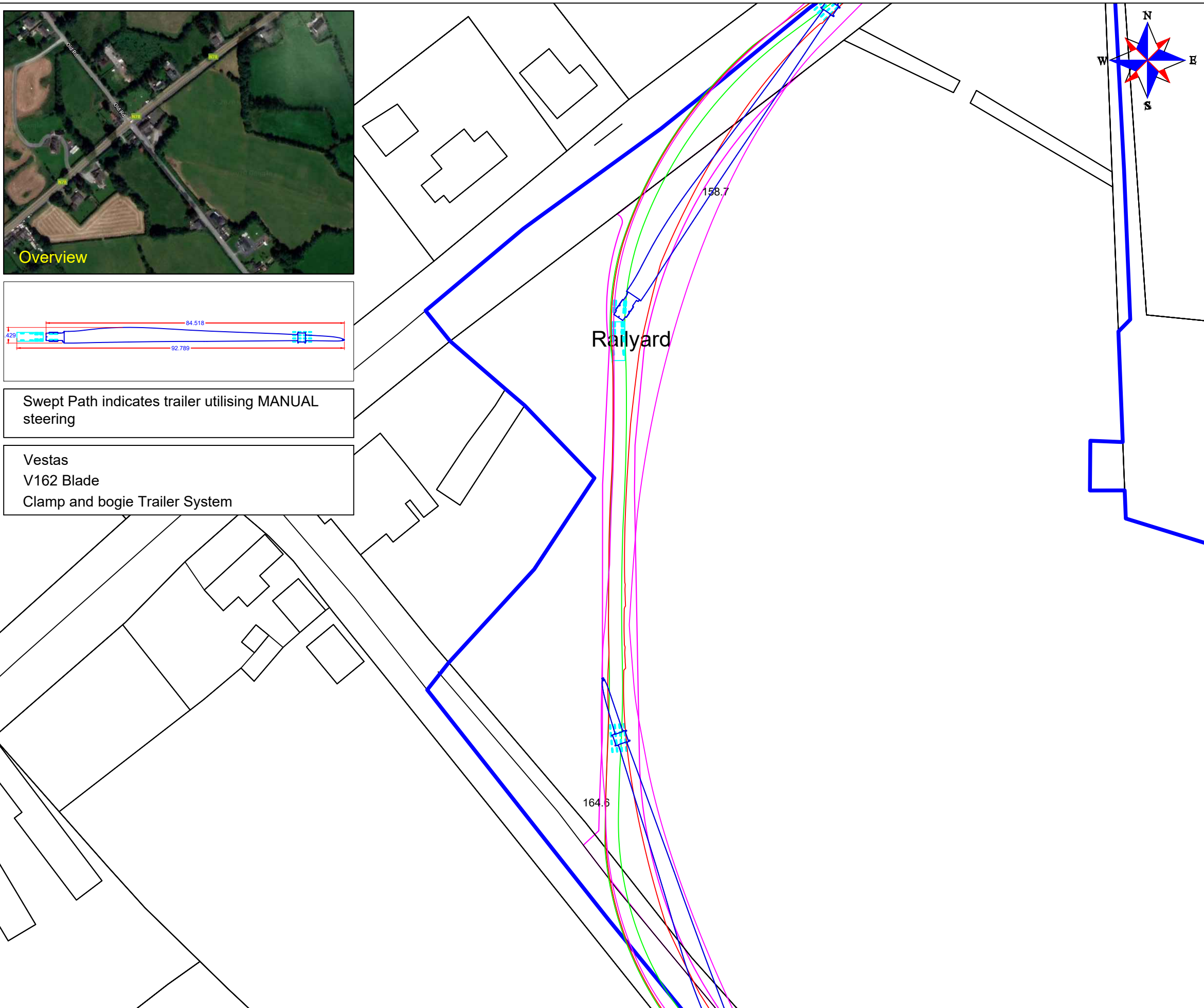
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DRAWN	S.MANGHAM	TITLE	CRETTYARD	
DATE	24/10/2020	MAPPING	PROVIDED BY CLIENT	CUSTOMER
SCALE	1:500	SIZE	A3	PINCH POINT IDENTIFIED BY
			COLLETT	SITE
			WHITEHILL	DWG. NO. 348271-60B1.2
				GALETECH



Swept Path indicates trailer utilising MANUAL steering

Vestas
V162 Blade
Clamp and bogie Trailer System



Continue on N78 to junction with L1834.
At junction turn left onto L1834.

****Caution****

- Loaded blade will navigate the proposed site track, although manual steering will be required on the exit of the track.

OSi Grid Reference: S 57319 76406

- The swept path analysis provided is produced from a purely transport orientated view, and does not consider any political issues in terms of land ownership, or any other precincts raised, that may otherwise be restrictive.
- The drawing has been produced from topographical survey data provided by the client.
- All swept path diagrams and assessments are made and calculated for the road movement of loaded trailer equipment carrying Turbine components. These dimensions are based on the turning circles and specification of Collett & Sons Ltd trailer equipment.
- This SPA is a means of providing evidence of minimum requirements of any one vehicle as a footprint and there is no safety factor or margin included.
- Turbine delivery vehicles can be both left and right hand drive vehicles, therefore due to drivers perception it must be assumed that every vehicle will not follow the exact same line and so a margin of additional space should be allowed for.
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- In critical areas, where modifications are required, the road construction must be formed to the minimum specification contained in the Turbine Manufactures Transport Guidance Notes.
- The Turbine Manufactures Transport Guidance Notes will state the minimum road width required for the transport of components. Any roads below this stated width will require widening to reflect this regardless of any swept path analysis not indicating modifications.
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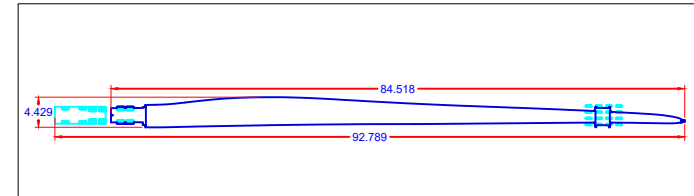
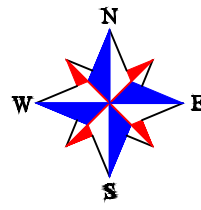
- Area within red outline will be swept by tractor and trailer axles
- ▨ Hatched area within red outline to be levelled and prepared to accept axle loadings
- Area within magenta outline will be oversailed by load and projections
- Area within green outline will be oversailed by trailer body



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DRAWN	S.MANGHAM	TITLE	N78 /	
DATE	10/12/2021	MAPPING	PROVIDED BY CLIENT	CUSTOMER
SCALE	1:750	SIZE	A3	PINCH POINT IDENTIFIED BY
			COLLETT	SITE
			WHITEHILL	DWG. NO. 348271-70B1.1

GALETECH



Swept Path indicates trailer utilising MANUAL steering

Vestas
V162 Blade
Clamp and bogie Trailer System

Continue on L1834 to left hand bend.

****Caution****

- Pruning is required on nearside of L1834.

OSi Grid Reference: S 58399 74877

- The swept path analysis provided is produced from a purely transport orientated view, and does not consider any political issues in terms of land ownership, or any other precincts raised, that may otherwise be restrictive.
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- Police escorts and permits will be required for the movement of all of the components. These permits are at the discretion of the local authorities (LA). Therefore, approval of these 'permits for movements' by the LA are a major consideration before the physical capability to deliver these components are undertaken.
- In critical areas, where modifications are required, the road construction must be formed to the minimum specification contained in the Turbine Manufactures Transport Guidance Notes.
- The Turbine Manufactures Transport Guidance Notes will state the minimum road width required for the transport of components. Any roads below this stated width will require widening to reflect this regardless of any swept path analysis not indicating modifications.
- The information is privileged and confidential and is for the exclusive use of the nominated client.
- All dimensions in meters

- Area within red outline will be swept by tractor and trailer axles
- ▨ Hatched area within red outline to be levelled and prepared to accept axle loadings
- Area within magenta outline will be oversailed by load and projections
- Area within green outline will be oversailed by trailer body



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DRAWN	S.MANGHAM	TITLE	LEFT HAND BEND		
DATE	10/12/2021	MAPPING	PROVIDED BY CLIENT	CUSTOMER	GALETECH
SCALE	1:500	SIZE	A3	PINCH POINT IDENTIFIED BY	COLLETT
				SITE	WHITEHILL
				DWG.	348271-105B1.1

