

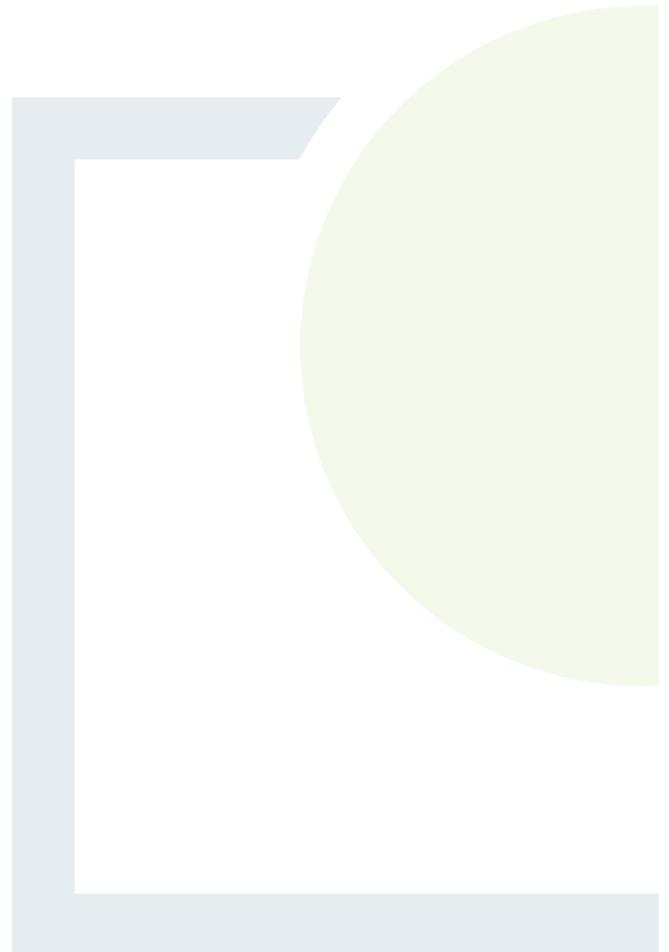


**FEHILY
TIMONEY**

CONSULTANTS IN ENGINEERING,
ENVIRONMENTAL SCIENCE & PLANNING

APPENDIX 13.1

Turbine Delivery Route Report
and Swept Path Analysis

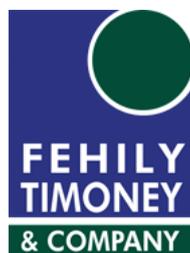


Annagh Windfarm

Route Survey Report



February 2021



Exceptional Load Services Ltd, Ballymoyle, Arklow, Co Wicklow, Ireland

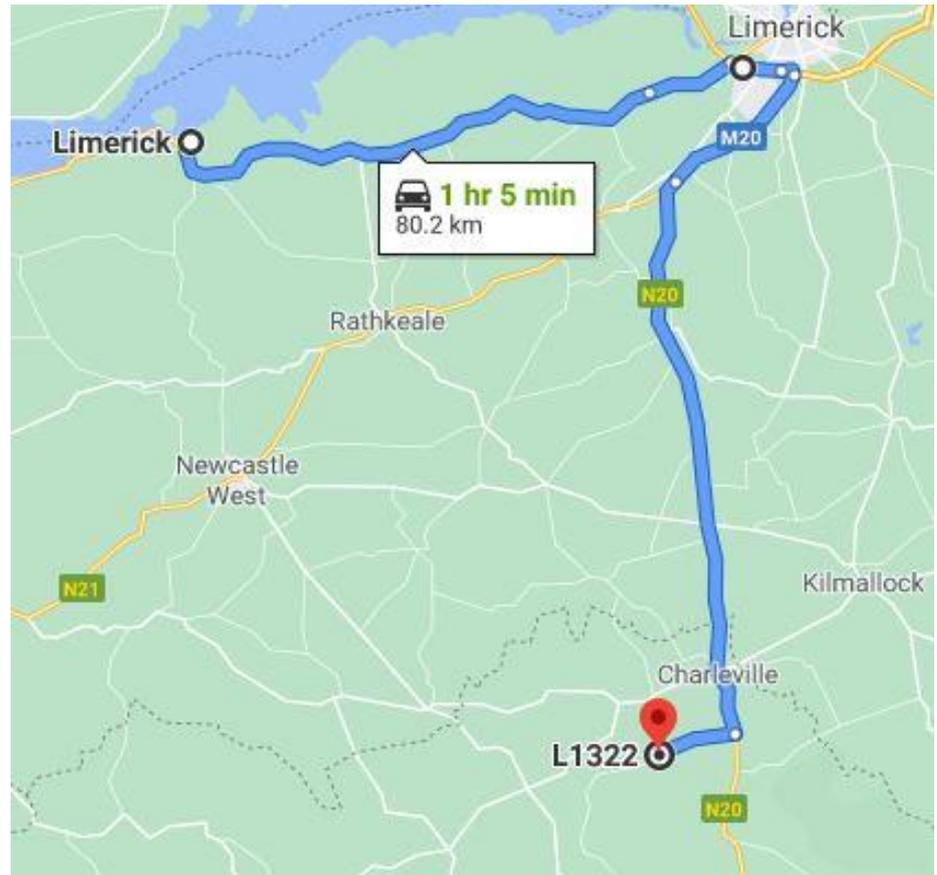
T: +353-402-31229. E. permits@wide-loads.com

Customer	Fehily Timony & Company		
Site Address	Annagh Windfarm Charleville Co cork		
Survey Date	03/03/2021		
Survey Personnel	Edwin Sunderland, ELS John Webb, ELS		
Survey Criteria	To select most suitable route from Port of Foynes to site entrance. For the purpose of the survey the following route options were considered: N69 – Mungret – N18 – Rossbrien – M20 – Patrickswell – N20 – Charleville – N20 – Ballyhea – L1322 – to site		
Surveyed Dimensions	For this survey the following components were considered Blade: 73.6m It is assumed tower sections would be delivered on tower adaptors Areas marked ORANGE are load bearing  Areas marked BLUE are oversail only. 		
Revision Record			
Revision/Version	Date	Author	Description
Issue R.0	15/03/21	Edwin Sunderland	Report.

Location Map



Proposed Route



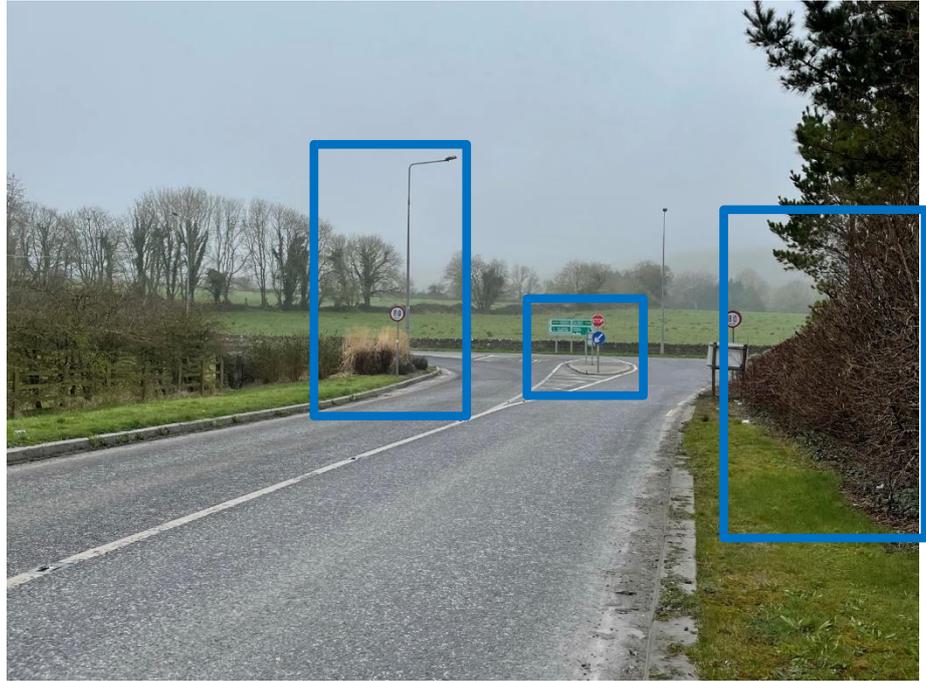
Node 1. Port Exit.

There is sufficient room on left or on right via bypass gate for standard all turbine components.



**Node 2.0. Port Access Road
– N69**

Enabling works required at this junction for mid and rear oversail



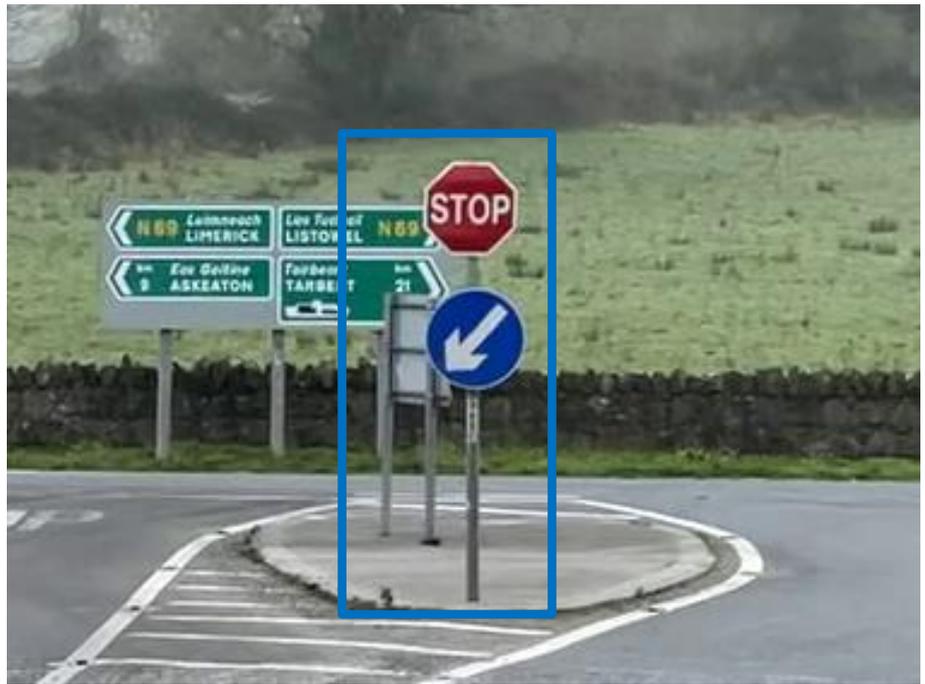
**Node 2.1. Port Access Road
– N69**

Vegetation on right will require trimming to 2.5m over road level to boundary fence. The right side only could be used but would require third party land take for load bearing and rear oversail.



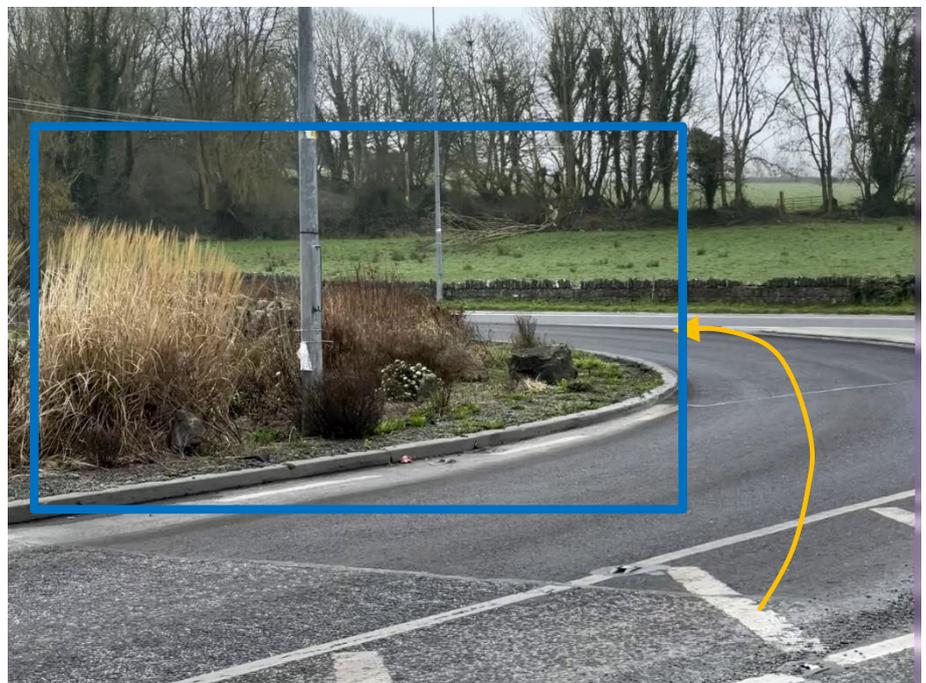
**Node 2.2 Port Access Road
– N69**

Road signs are in sleeves and will need to be removed for each transport.



**Node 2.3 Port Access Road
– N69**

This area needs to be cleared of all obstruction over 1m height for mid oversail



**Node 2.3 Port Access Road
– N69**

Top 40cm of wall should be removed to allow for mid oversail. Exact amount will be defined by trailer type. Third party agreement needed.



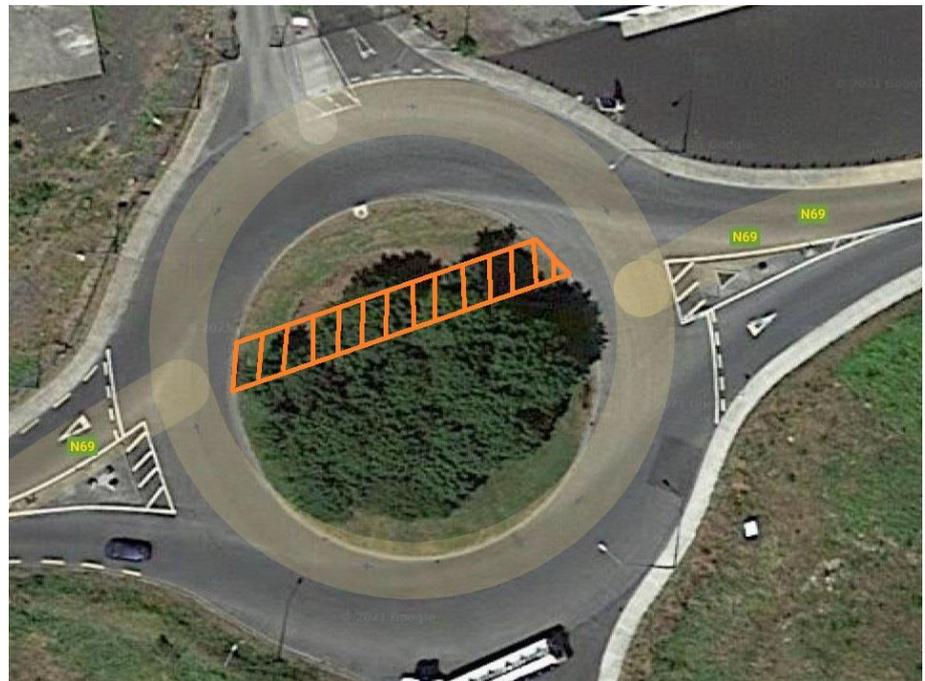
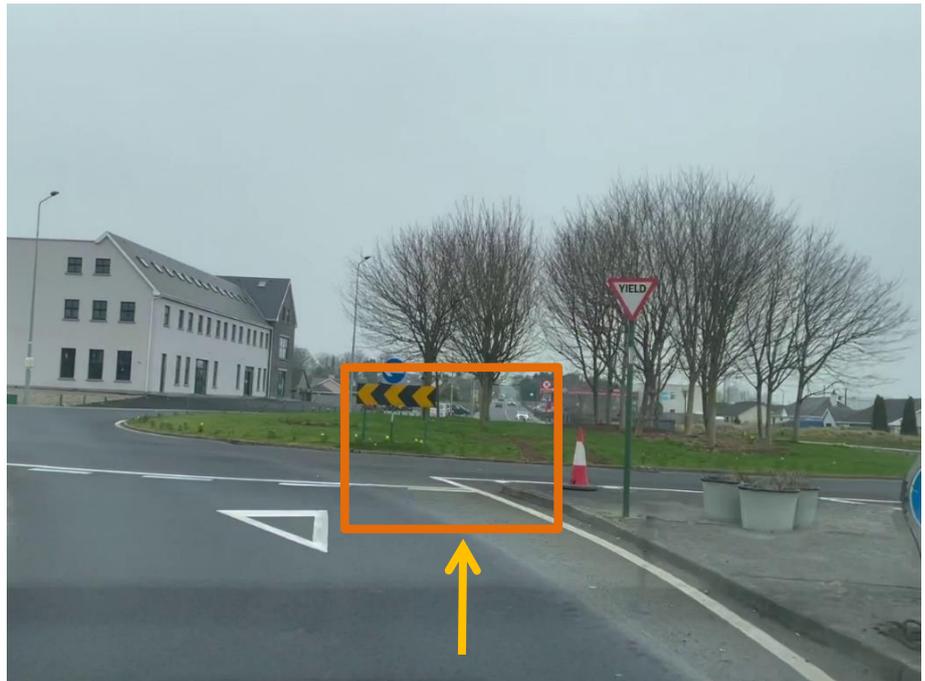
Node 3 Ferrybridge

This bridge has restrictions both lateral and vertical. Lateral alignment should be ok with correct trailer selection but vertical alignment will be affected by trailer length/rear overhang and may need some works to avoid grounding.



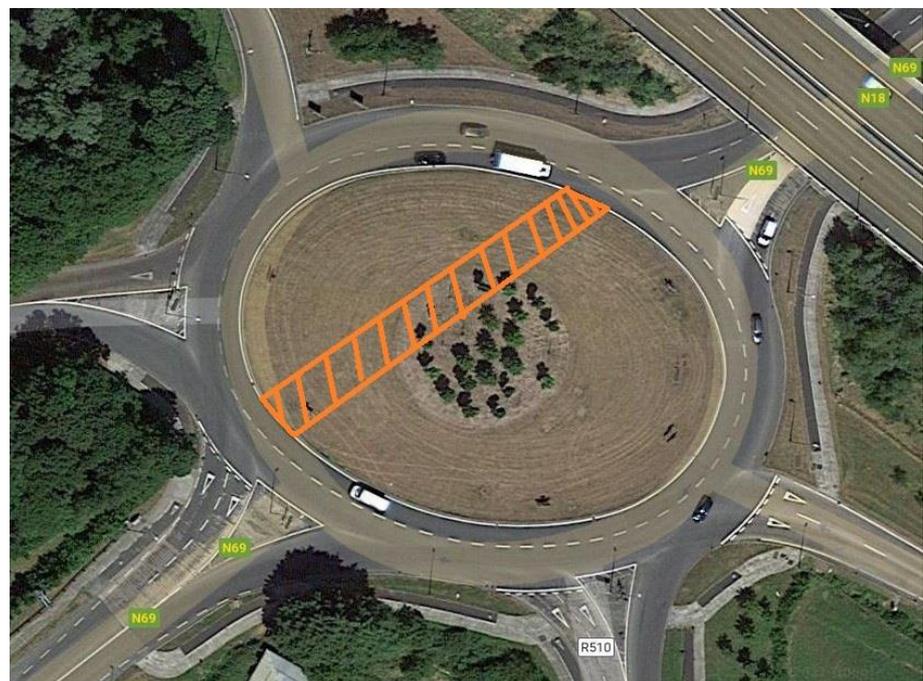
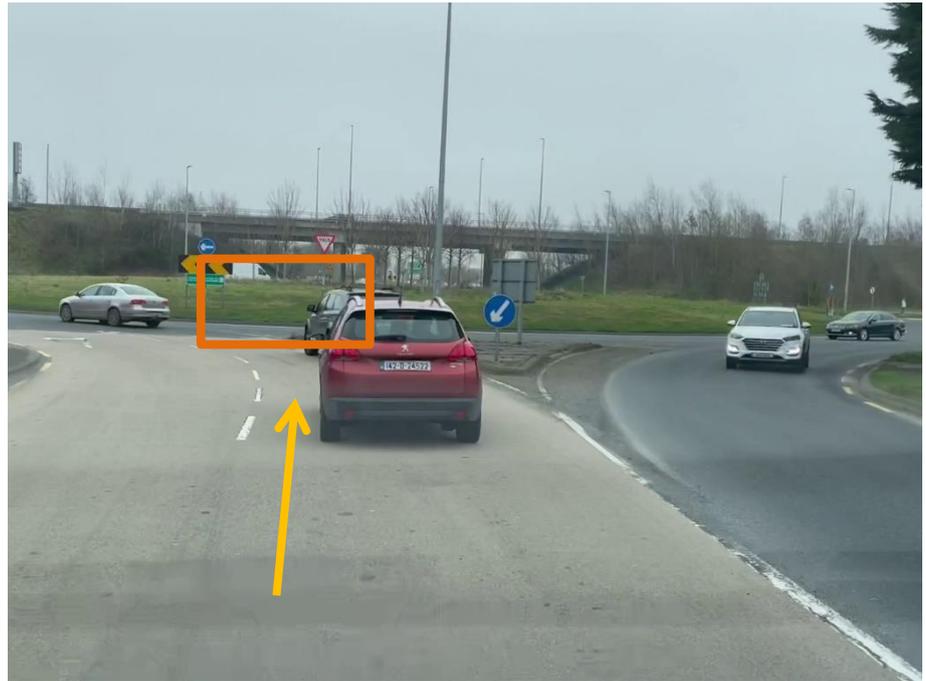
Node 4. Clarina Roundabout.

The best and correct option for this roundabout is a 'cut-through' track through the centre island. The roundabout does not have the necessary dimensions to drive around even with oversail.



Node 5. Mungret Interchange – West Roundabout.

The best option for this roundabout is a 'cut-through' track through the centre island either on north or south side. Again here it alleviates the need to remove critical road signs and street lighting.



Node 6. Mungret Interchange – East Roundabout.

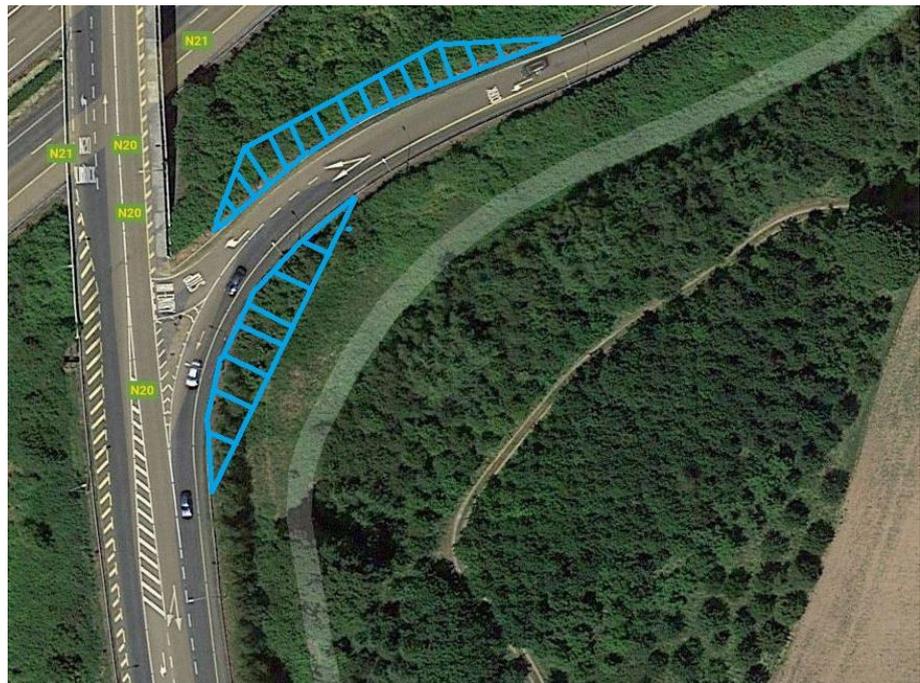
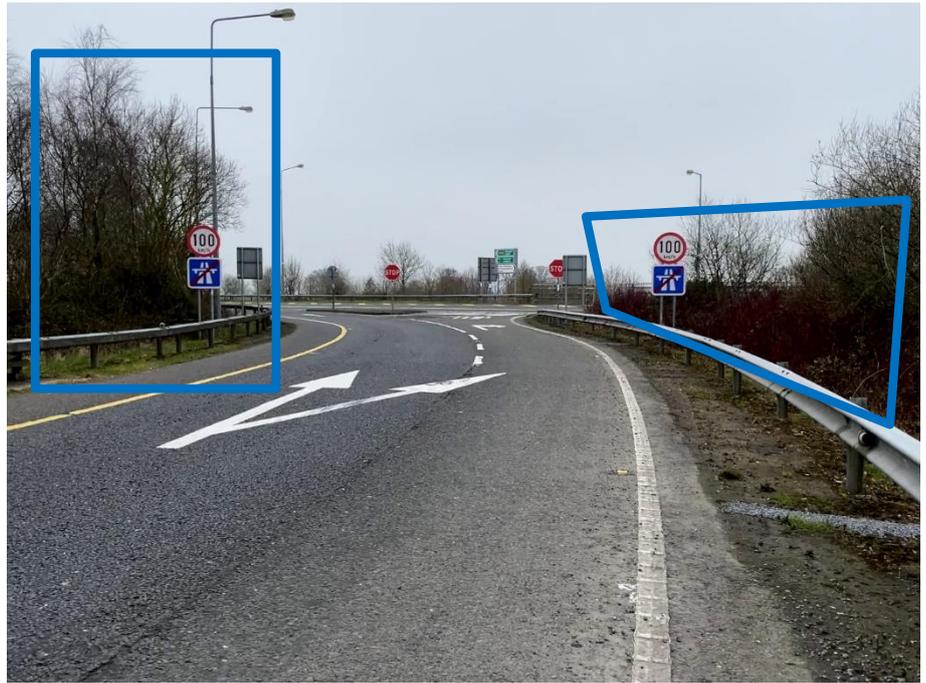
The roundabout has sufficient dimension but will require substantial enabling works for blade transport.

The required area could be made up of load bearing and oversail but such determination can only be made when trailer type and overhang are decided.



Node 7. M20- N20 off ramp southbound

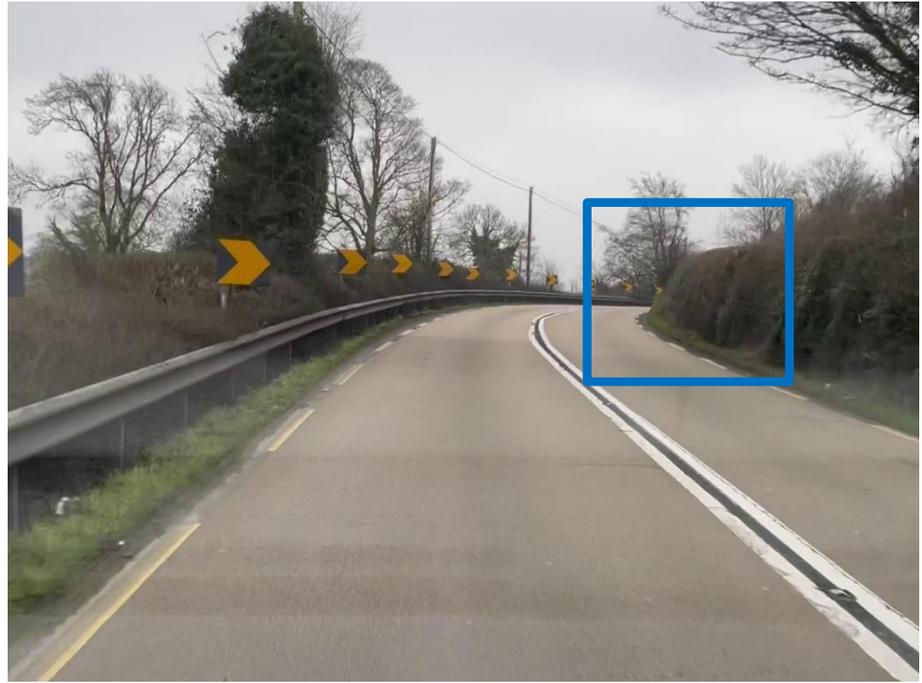
The junction does not have sufficient clearances and will require removal of signs and street lamp on left side and scrub clearance on left and right for mid and rear oversails.



**Node 8. N20 Right Curve.
Ballymacrory**

52.496368 -8.706154

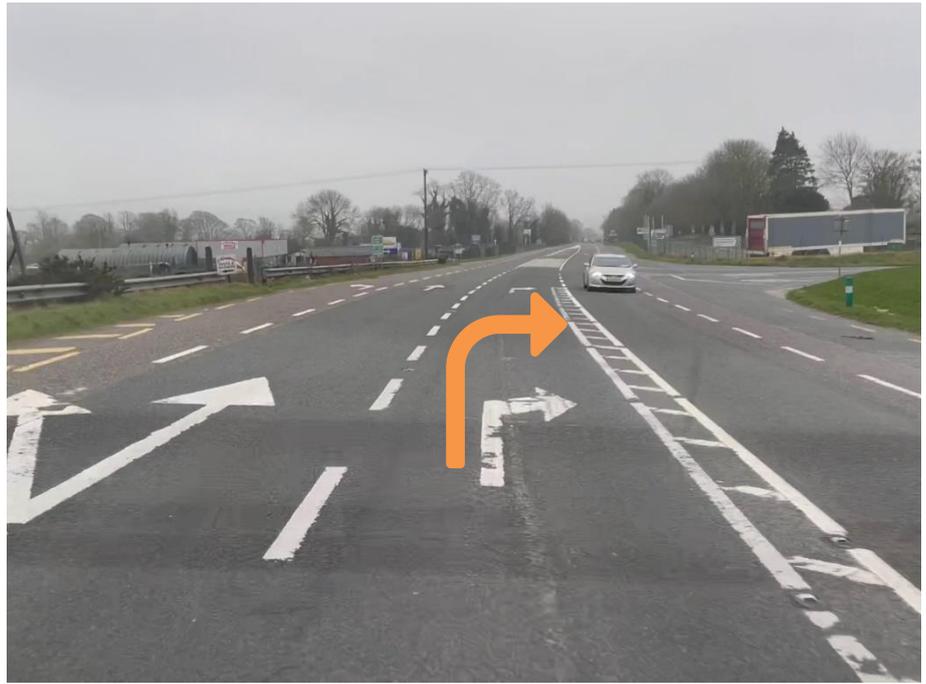
This right curve does not have sufficient dimension for 73m blade length. Enabling works on left or right or both for oversail only will be required.



**Node 9. N20 – L1322
Junction, Ballyhea**

This junction will require load bearing enabling works on the L1322

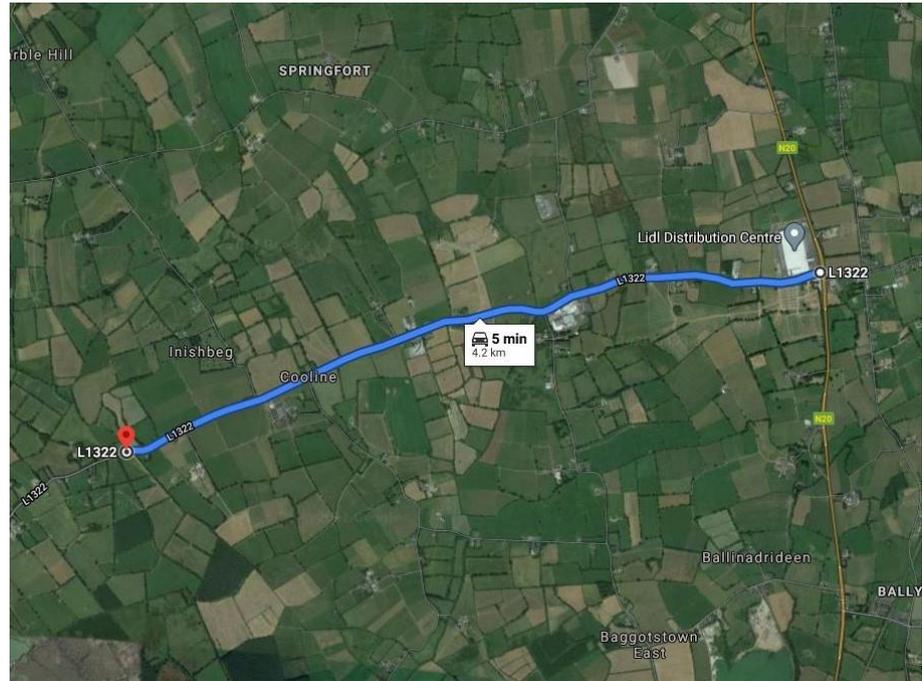
Road sign to be removed.





Node 10. L1322

The L1322 from the N20 junction to site entrance will require upgrading and widening. Third party land take will be required at various points to facilitate blade transport. A number of areas have weak verges with poor drainage and will need to be upgraded during widening process.



Node 10.1. L1322

Enabling works on right for mid oversail. Possible third party land take.



Node 10.2. L1322

Enabling works on left for mid oversail. Third party land take required. Possible additional option for rear oversail on right.



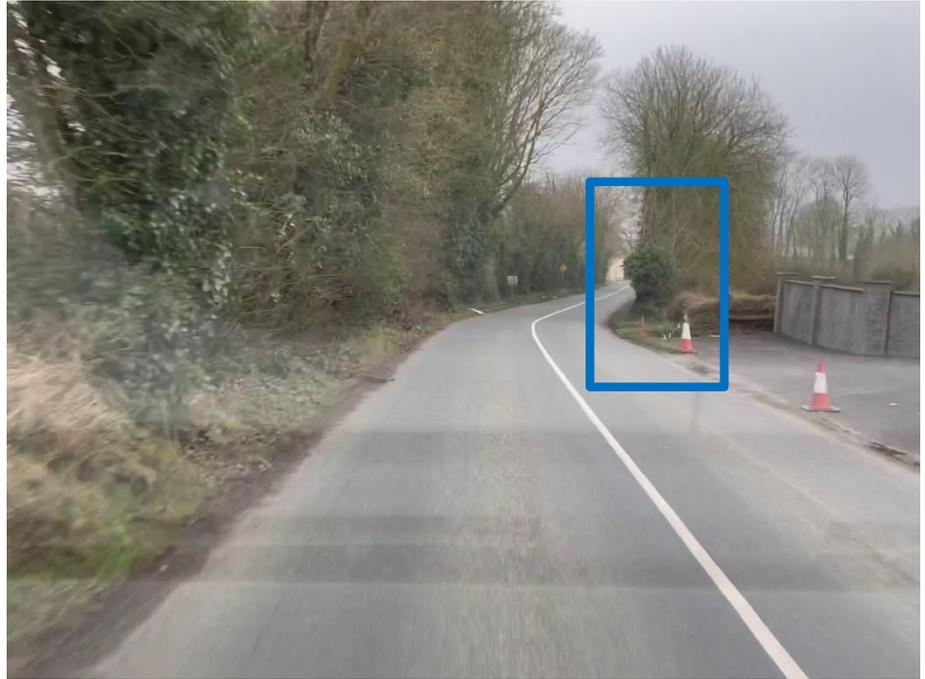
Node 10.3. L1322

Enabling works on left for mid oversail. Third party land take required



Node 10.4. L1322

Enabling works on right for mid oversail. Possible third party land take.



Node 10.5. L1322

Enabling works on right for mid oversail. Walls of water pump enclosure should be reduced.



Node 10.6. L1322

Enabling works on right for mid oversail. Possible third party land take.



Node 10.7. L1322

Enabling works on left for mid oversail with option for rear oversail on right. Third party land take required.



Node 10.8. L1322

Enabling works on right for mid oversail. Possible third party land take.



Node 10.9. L1322

Enabling works on right, left or both for mid and rear oversail. Possible third party land take.



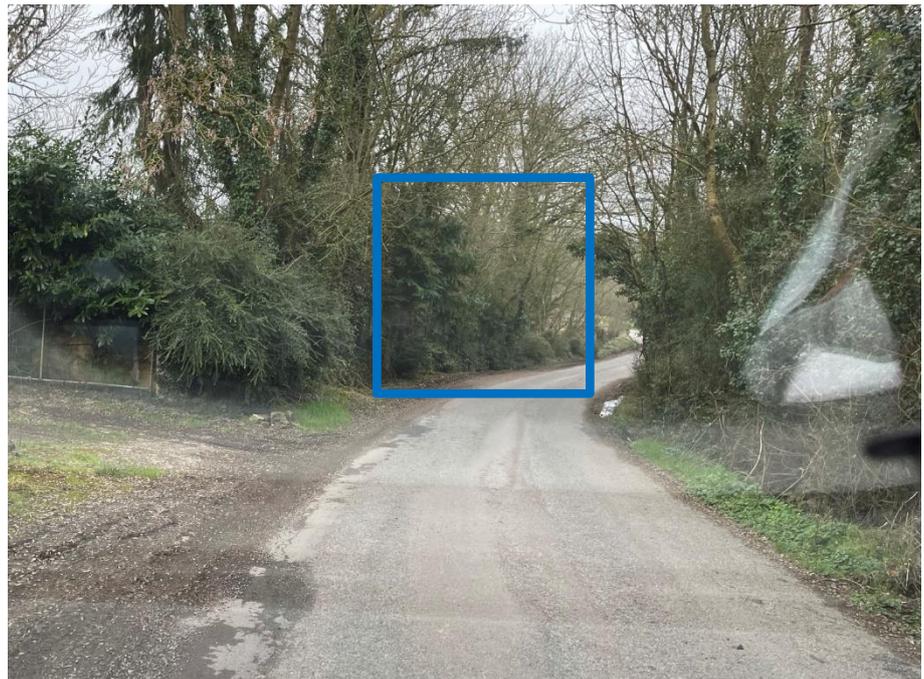
Node 10.10. L1322

Enabling works on right for mid oversail.



Node 10.11. L1322

Enabling works at site entrance.



Other Route Options	No other route options were considered in this survey.
Conclusions	<p>The route options shown are the only available for each entrance</p> <p>Bridge and other structure capacities have not been assessed.</p> <p>Tree canopy and overhead cables have not been surveyed as part of this survey</p> <p>A trial run should be carried out prior to delivery to verify works carried out.</p> <p>An early test run is recommended to verify passage of blades through node 3.</p>
	Edwin Sunderland 15/03/21



Legend

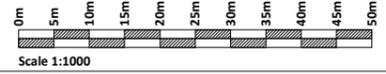
- TDR Node Works Area
- Wheel Extent
- Trailer Extent
- Blade Extent
- Oversail
- Overrun

73.6m Blade - 9m OH	
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Overall Width	2.550m
Overall Body Height	4.800m
Min Body Ground Clearance	0.133m
Track Width	2.500m
Lock-to-lock time	4.00s
Curb to Curb Turning Radius	10.000m

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Rev.	Description	App By	Date
A	ISSUE FOR APPROVAL	JH	01.04.21

PROJECT	ANNAGH WIND FARM EIAR			CLIENT	EMPOWER		
SHEET	TDR NODE 2.1, 2.2 AND 2.3			Date	01.04.21	Project number	P2359
				Scale (@ A3-)	1:1000	Drawing Number	P2359-0103-0001
				Drawn by	SOC	Checked by	EH
				Rev	A		

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Friday 21 May 2021



Legend

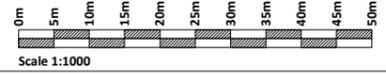
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A	ISSUE FOR APPROVAL	JH	01.04.21

PROJECT	ANNAGH WIND FARM EIAR			CLIENT	EMPOWER			
SHEET	TDR NODE 8			Date	01.04.21	Project number	P2359	
				Drawn by	SOC	Drawing Number	P2359-0103-0002	
				Checked by	EH	Scale (@ A3-)		1:1000
							Rev	A

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Friday 21 May 2021



Legend

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- Wheel Extent
- Trailer Extent
- Blade Extent
- Oversail
- Overrun

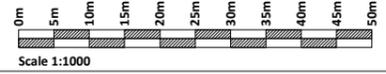
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A	ISSUE FOR APPROVAL	JH	01.04.21

PROJECT	ANNAGH WIND FARM EIAR			CLIENT	EMPOWER		
SHEET	TDR NODE 9			Date	01.04.21	Project number	P2359
				Scale (@ A3-)	1:1000		
				Drawn by	SOC	Drawing Number	P2359-0103-0003
				Checked by	EH	Rev	

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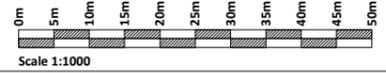
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PROJECT	ANNAGH WIND FARM EIAR			CLIENT	EMPOWER		
SHEET	TDR NODE 10.1 AND 10.2			Date	01.04.21	Project number	P2359
				Scale (@ A3-)	1:1000	Drawing Number	P2359-0103-0004
				Drawn by	SOC	Checked by	EH
				Rev	A		

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Legend

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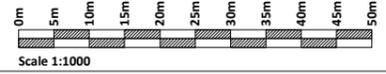
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SHEET	TDR NODE 10.3 AND 10.4			Date	01.04.21	Project number	P2359	
				Drawn by	SOC	Drawing Number	P2359-0103-0005	
				Checked by	EH	Scale (@ A3-)	1:1000	
							Rev	A

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KEY PLAN: L1322 CONSTRAINED SECTION BETWEEN NODE 10.5 and PROPOSED SITE ENTRANCE

NTS



Legend

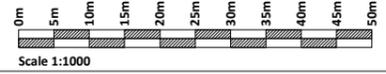
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				Drawn by	SOC	Drawing Number	P2359-0103-0006
				Checked by	EH	Scale (@ A3-)	1:1000
						Rev	A

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NTS



Legend

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- Wheel Extent
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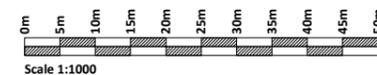
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A	ISSUE FOR APPROVAL	JH	01.04.21

PROJECT	ANNAGH WIND FARM EIAR			CLIENT	EMPOWER		
SHEET	TDR NODE 10.6 AND 10.7			Date	01.04.21	Project number	P2359
				Drawn by	SOC	Drawing Number	P2359-0103-0007
				Checked by	EH	Scale (@ A3-)	1:1000
						Rev	A

O:\ACAD\2020\2359\2359-0103-0007



KEY PLAN: L1322 CONSTRAINED SECTION BETWEEN NODE 10.5 and PROPOSED SITE ENTRANCE

NTS



- Legend**
- TDR Node Works Area
 - Wheel Extent
 - Trailer Extent
 - Blade Extent
 - Oversail
 - Overrun

73.6m Blade - 9m OH	69.700m
Overall Length	2.550m
Overall Width	4.800m
Overall Body Height	1.135m
Min Body Ground Clearance	2.500m
Track Width	4.000m
Lock-to-lock time	10.000m
Curb to Curb Turning Radius	

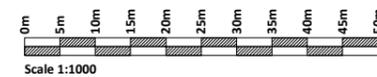
Drawing Notes:

1. This drawing is for information purposes only.
2. Dimensions in meters unless otherwise noted.
3. Levels shown relative to ordnance datum (Malin Head).
4. Co-ordinates are to Irish Transverse Mercator (ITM).
5. Temporary load bearing surface to consist of suitable graded and compacted aggregate from a licensed quarry. Aggregate placed and compacted in layers in accordance with works specification.
6. Soil removal and storage to be in accordance with approved project Soil Management Plan
7. Public road drainage to be protected and maintained throughout works.
8. Temporary drainage and earthworks not shown
9. Vehicle swept path carried out based on Ordnance Survey Ireland licensed vector mapping.
10. This drawing should be read in conjunction with the Annagh Windfarm Route Survey Report, prepared by Exceptional Load Services, February 2021.
11. Design mitigation presented is considered to represent worst case. It is recommended that topographic survey and/or trial run is carried out to refine the proposed accommodation works requirements prior to construction.
12. It is recommended that land searches are carried out to determine extent of third party land requirements.



KEY PLAN

1:20000



If Applicable : Ordnance Survey Ireland Licence No. EN 0001220 © Ordnance Survey Ireland and Government of Ireland
OSI 5796 4859 5106 5107 5473 5474



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Rev.	Description	App By	Date
A	ISSUE FOR APPROVAL	JH	01.04.21

PROJECT	ANNAGH WIND FARM EIAR			CLIENT	EMPOWER		
SHEET	TDR NODE 10.8			Date	01.04.21	Project number	P2359
				Scale (@ A3-)	1:1000	Drawing Number	P2359-0103-0008
				Drawn by	SOC	Checked by	EH
				Rev	A		

O:\ACAD\2020\P2359\P2359-0103-0008

Friday 21 May 2021



KEY PLAN: L1322 CONSTRAINED SECTION BETWEEN NODE 10.5 and PROPOSED SITE ENTRANCE

NTS



Legend

- TDR Node Works Area
- Wheel Extent
- Trailer Extent
- Blade Extent
- Oversail
- Overrun



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Track Width	4.000m
Lock-to-lock time	10.000m
Curb to Curb Turning Radius	

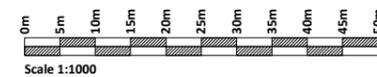
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Rev.	Description	App By	Date
A	ISSUE FOR APPROVAL	JH	01.04.21

PROJECT	ANNAGH WIND FARM EIAR			CLIENT	EMPOWER		
SHEET	TDR NODE 10.9			Date	01.04.21	Project number	P2359
				Scale (@ A3-)	1:1000		
				Drawn by	SOC	Drawing Number	P2359-0103-0009
				Checked by	EH	Rev	

O:\ACAD\2020\2359\2359-0103-0009

Friday 21 May 2021



KEY PLAN: L1322 CONSTRAINED SECTION BETWEEN NODE 10.5 and PROPOSED SITE ENTRANCE

NTS



Legend

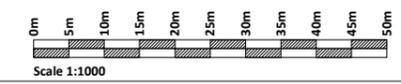
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- Wheel Extent
- Trailer Extent
- Blade Extent
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Curb to Curb Turning Radius	

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KEY PLAN
1:20000



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Rev.	Description	App By	Date
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PROJECT	ANNAGH WIND FARM EIAR			CLIENT	EMPOWER		
SHEET	TDR NODE 10.10			Date	01.04.21	Project number	P2359
				Scale (@ A3-)	1:1000	Drawing Number	P2359-0103-0010
				Drawn by	SOC	Checked by	EH
				Rev	A		

O:\ACAD\2020\2359\2359-0103-0010

Friday 21 May 2021

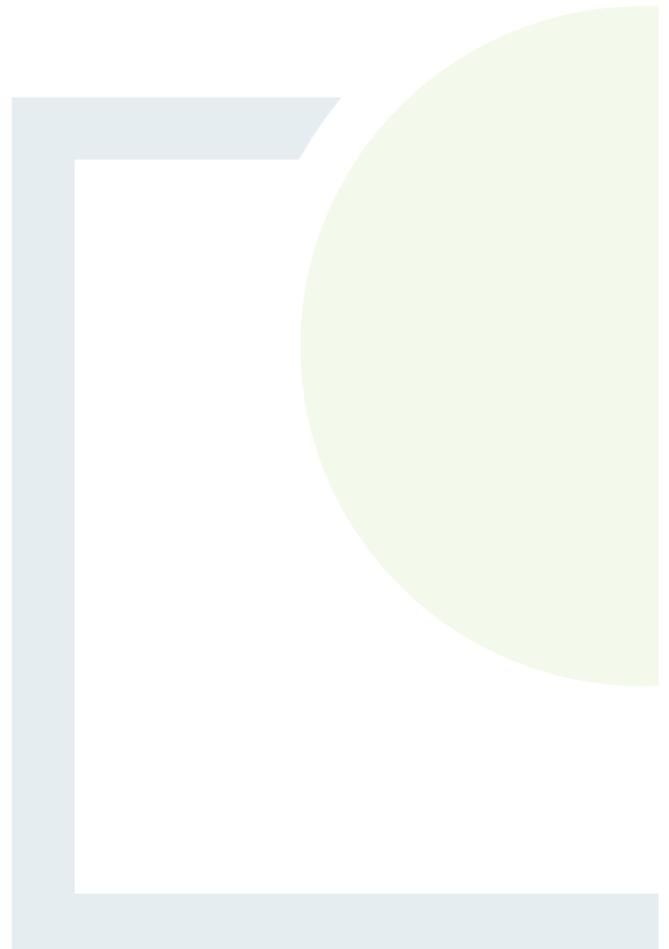


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APPENDIX 13.2

Consultation Responses



From: [INFO](#)
To: [Annagh Windfarm](#)
Subject: Proposed Annagh Wind Farm Environmental Impact Assessment Report - Scoping & Consultation Request.
TII Ref: TII20-111066.
Date: Tuesday 29 September 2020 09:20:13

Dear Mr. Hutton,

Transport Infrastructure Ireland (TII) acknowledges receipt of your EIAR Scoping request in respect of the above proposed project, received by email 22 September 2020.

Transport Infrastructure Ireland (TII) wishes to advise that it is not in a position to engage directly with planning applicants in respect to proposed developments. TII will endeavour to consider and respond to planning applications referred to it given its status and duties as a statutory consultee under the Planning Acts. The approach to be adopted by TII in making such submissions or comments will seek to uphold official policy and guidelines, as outlined in the Section 28 of the Ministerial Guidelines: 'Spatial Planning and National Roads. Guidelines for Planning Authorities' (DoECLG, 2012). Regard should also be had to other relevant guidance available at www.TII.ie.

The issuing of this correspondence is provided as best practice guidance only and does not prejudice TII's statutory right to make any observations, requests for further information, objections or appeals following the examination of any valid planning application referred.

With respect to EIAR scoping issues, the recommendations indicated below provide only general guidance for the preparation of an EIAR, which may affect the National Roads Network.

- The developer should have regard to any Environmental Impact Statement and all conditions and/or modifications imposed by An Bord Pleanála regarding road schemes in the areas concerned. The developer should, in particular, have regard to any potential cumulative impacts,
- The developer/scheme promoter therefore should have regard, *inter alia*, to the following. Consultations should be had with the relevant Local Authority/National Roads Design Office with regard to locations of existing and future national road schemes in the vicinity of the subject development site. The applicant is specifically advised that the proposal is located within the Phase 2 Study Area of the N/M20 Cork to Limerick Road Improvement Scheme . Therefore, the N/M20 Project Office, Lissanalta House, Dooradoyle, Limerick should be consulted.
- TII would be specifically concerned as to potential significant impacts the development would have on the existing national road network (and junctions with national roads) in the proximity of the proposed development.
- In relation to haul route identification, the applicant/developer should clearly identify haul routes proposed and fully assess the network to be traversed. Separate structure approvals/permits and other licences may be required in connection with the proposed haul route, including where temporary modification to the road network may be required. Consultation with relevant PPP Companies and MMarC Contractors may also be required. All structures on the haul route should be checked by the applicant/developer, to confirm their capacity to accommodate any abnormal load proposed.
- Where the windfarm scheme includes grid connection proposals, the scheme promoter should note locations of existing and future national road schemes and develop proposals to safeguard proposed road schemes. In the context of existing national roads, alternatives to the provision of cabling along the national road network, such as alternative routing or the laying of cabling in private lands adjoining the national road, should be considered in the interests of safeguarding the investment in and the potential for future upgrade works to the national road network. The cable routing should avoid all impacts to existing TII infrastructure, such as traffic counters, weather stations, etc. and works required to such infrastructure shall only be undertaken in consultation with and subject to the agreement of TII. Any costs attributable shall be borne by the applicant/developer. The developer should also be aware that separate approvals may be required for works traversing the national road network and/or motorway network where applicable.
- It would be important that, where appropriate, subject to meeting the appropriate

thresholds and criteria and having regard to best practice, a Traffic and Transport Assessment (TTA) be carried out in accordance with relevant guidelines, noting traffic volumes attending the site and traffic routes to/from the site, with reference to impacts on the national road network and junctions of lower category roads with national roads. TII's 'Traffic and Transport Assessment Guidelines' (2014) should be referred to in relation to proposed development, with potential impacts on the national road network. The scheme promoter is also advised to have regard to Section 2.2 of TII's 'TTA Guidelines', which addresses requirements for sub-threshold TTA.

- The designers are asked to consult [TII Publications](#) to determine whether a Road Safety Audit is required.'
- In the interests of maintaining the safety and standard of the national road network, the EIAR should identify the methods/techniques proposed for any works traversing/in proximity to the national road network.
- The developer, in preparing EIAR, should have regard to TII Publications (formerly DMRB and the 'Manual of Contract Documents for Road Works').
- The developer should assess visual impacts from existing national roads.
- The developer, in preparing EIAR, should have regard to TII's Environmental Assessment and Construction Guidelines, including the 'Guidelines for the Treatment of Air Quality During the Planning and Construction of National Road Schemes' (National Roads Authority (NRA), 2006).
- The EIAR should consider the 'Environmental Noise Regulations 2006' (SI 140 of 2006) and, in particular, how the development will affect future action plans by the relevant competent authority. The developer may need to consider the incorporation of noise barriers to reduce noise impacts (see 'Guidelines for the Treatment of Noise and Vibration in National Road Schemes' (1st Rev., NRA, 2004)).

Notwithstanding, any of the above, the developer should be aware that this list is non-exhaustive, thus site and development specific issues should be addressed in accordance with best practise.

I hope that this information is of assistance to you.

Yours sincerely,

Tara Spain

Head of Land Use Planning



Transport Infrastructure Ireland

Parkgate Business Centre

Parkgate Street

Dublin D08 DK10

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Próiseálann BIÉ sonraí pearsanta a sholáthraítear dó i gcomhréir lena Fhógra ar Chosaint Sonraí

atá ar fáil ag <http://www.tii.ie/about/>

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APPENDIX 14.1

FIGURES



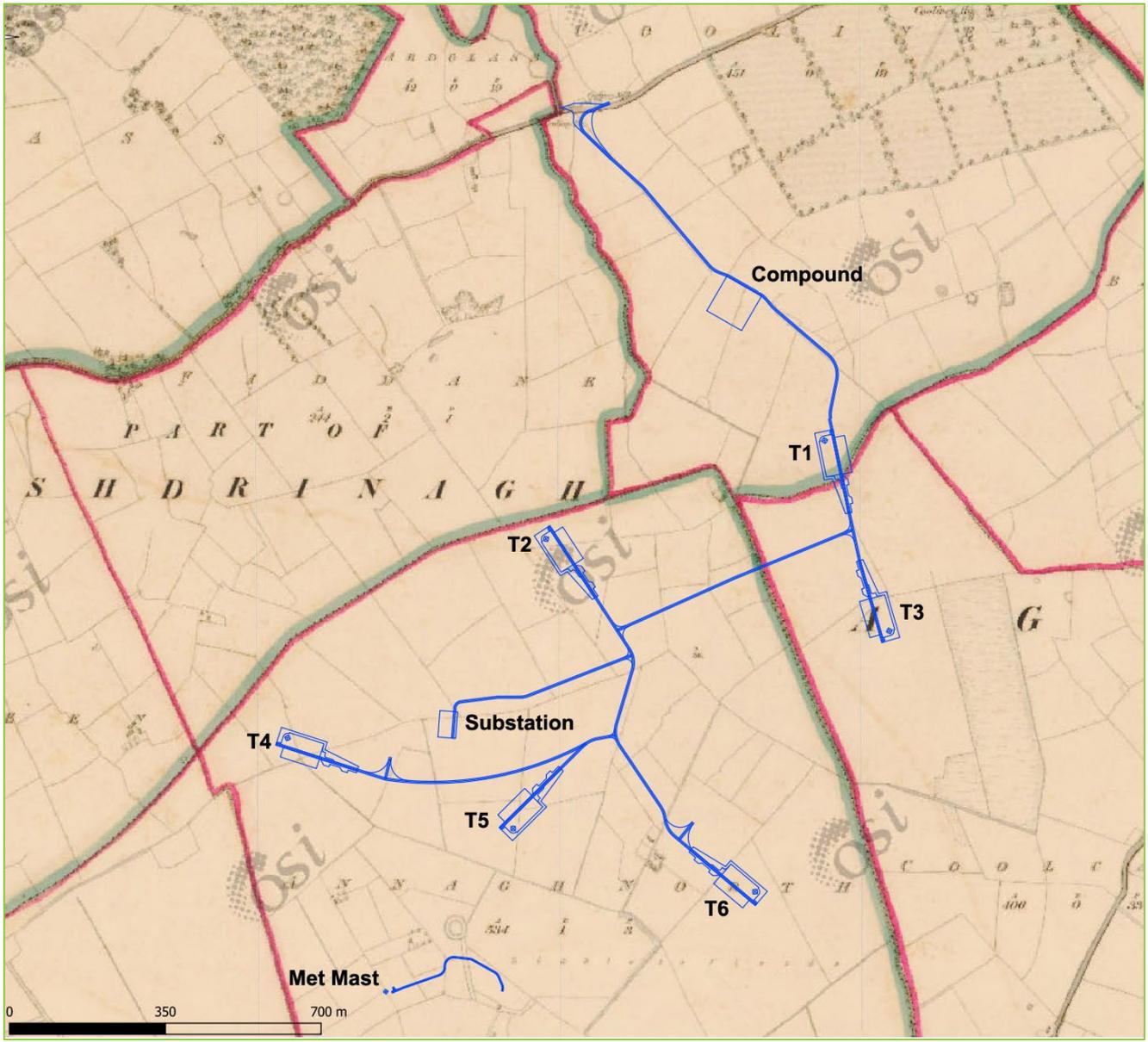


Figure 14-2: Extract from 1st edition 6-inch map showing wind farm layout in blue (OSI Licence ref. 0003321)

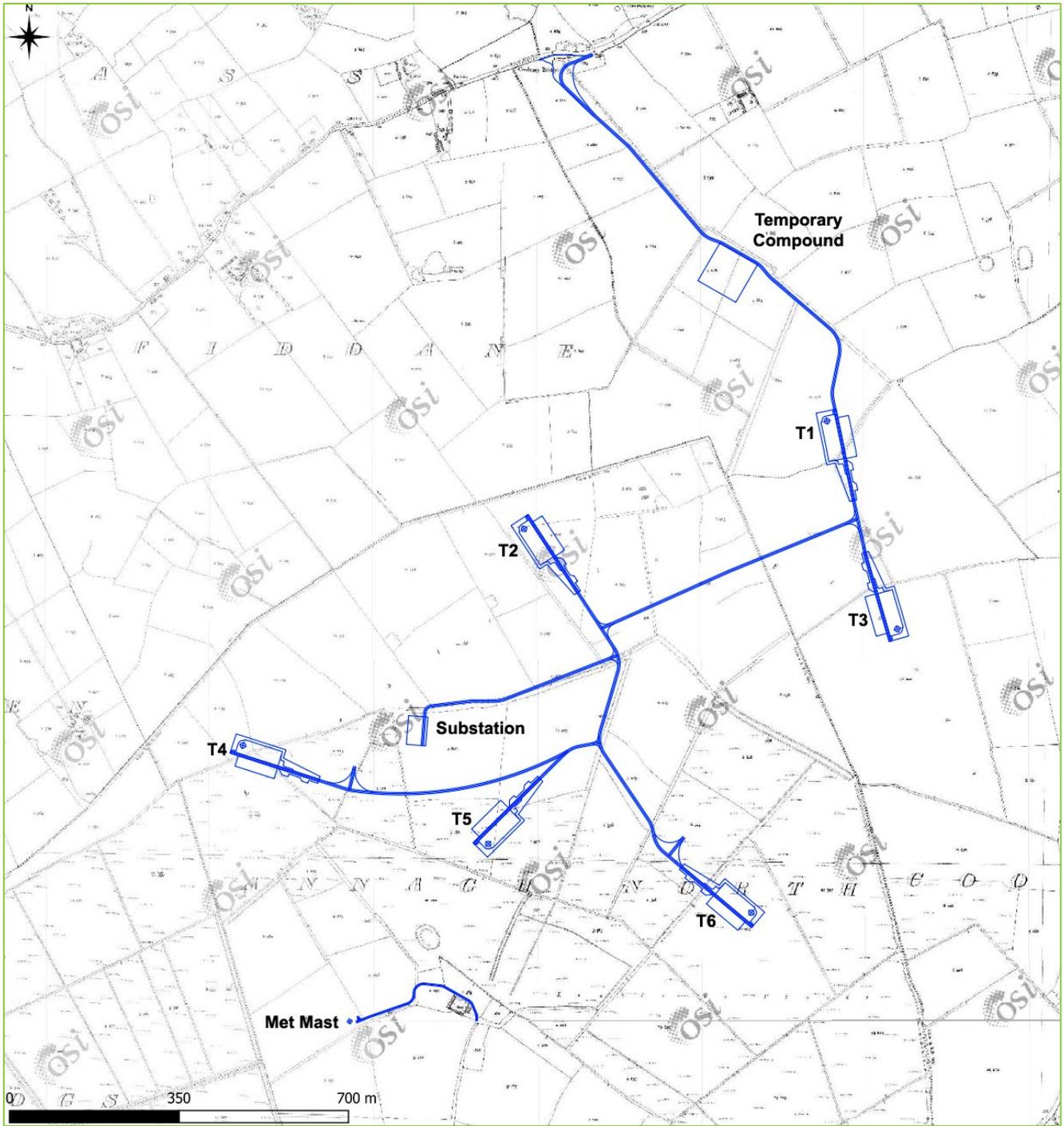


Figure 14-3: Extract from 25-inch map showing wind farm layout (OSI Licence ref. 0003321)

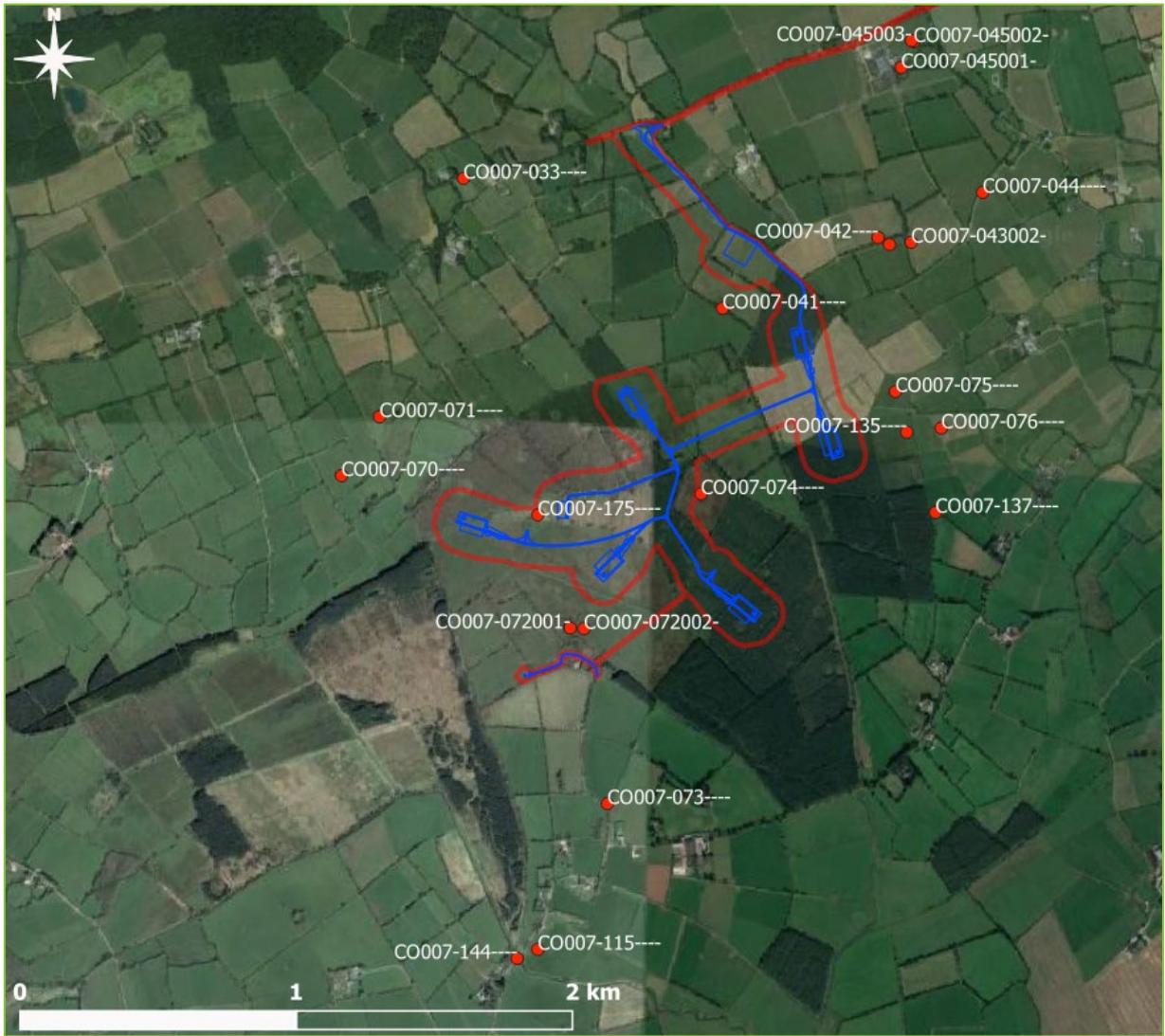


Figure 14-4: Locations of recorded archaeological sites within 1km of wind farm redline boundary

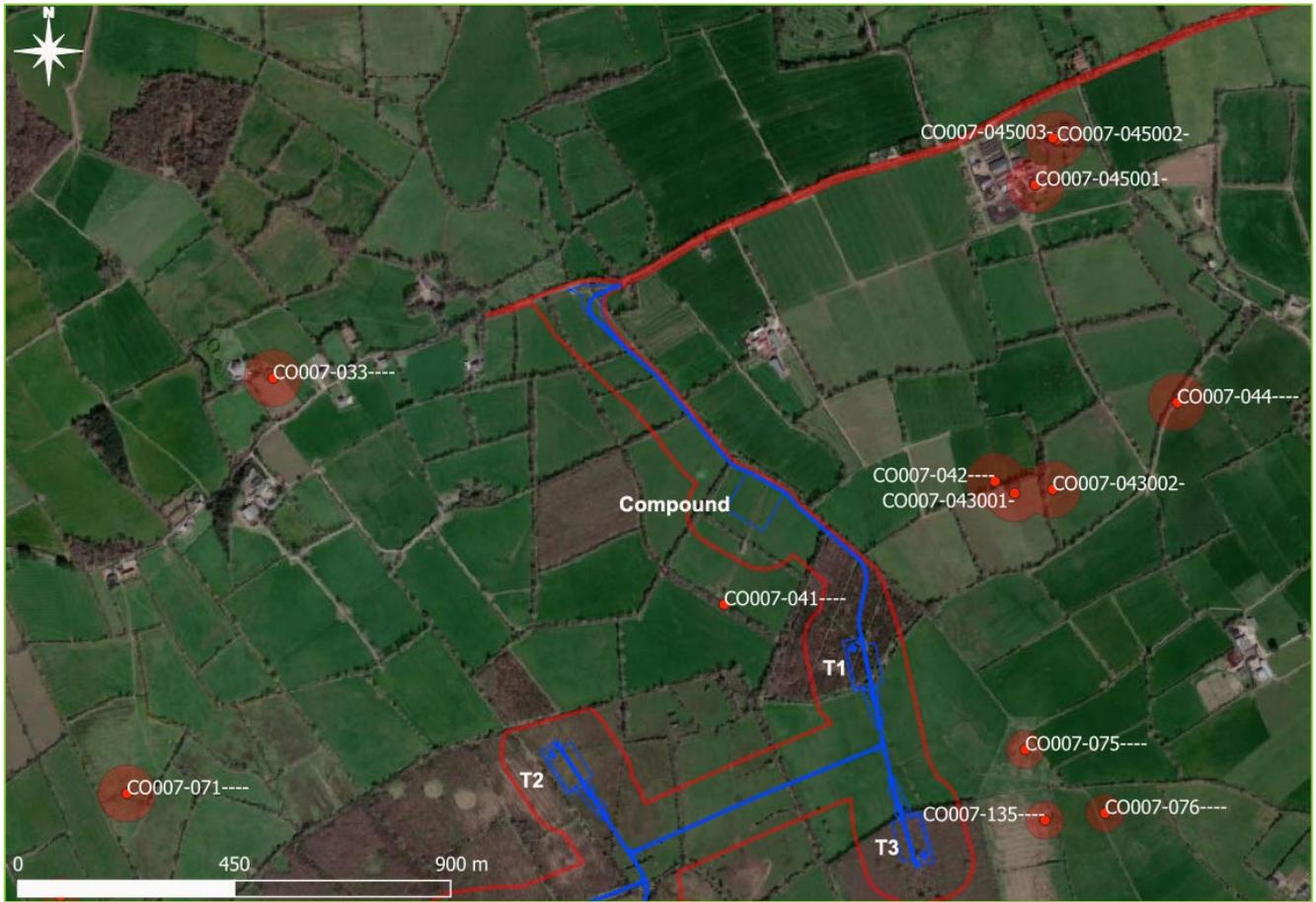


Figure 14-5: North end of Site showing recorded archaeological sites with surrounding Zones of Notification shaded



Figure 14-6: South end of Site showing recorded archaeological sites with surrounding Zones of Notification shaded

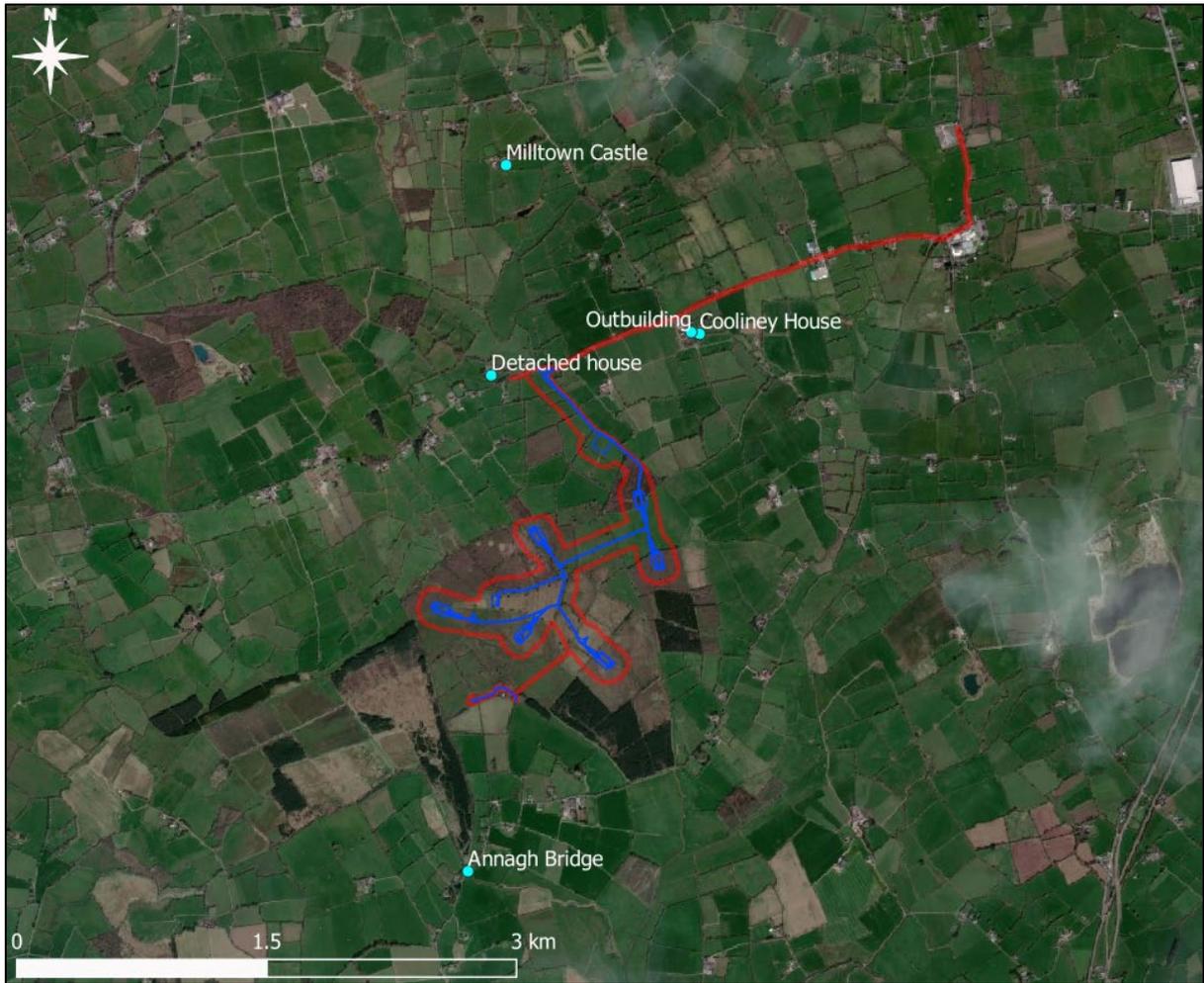


Figure 14-7: Designated Architectural Heritage Structures within 1km of Site (see Table 14.7)

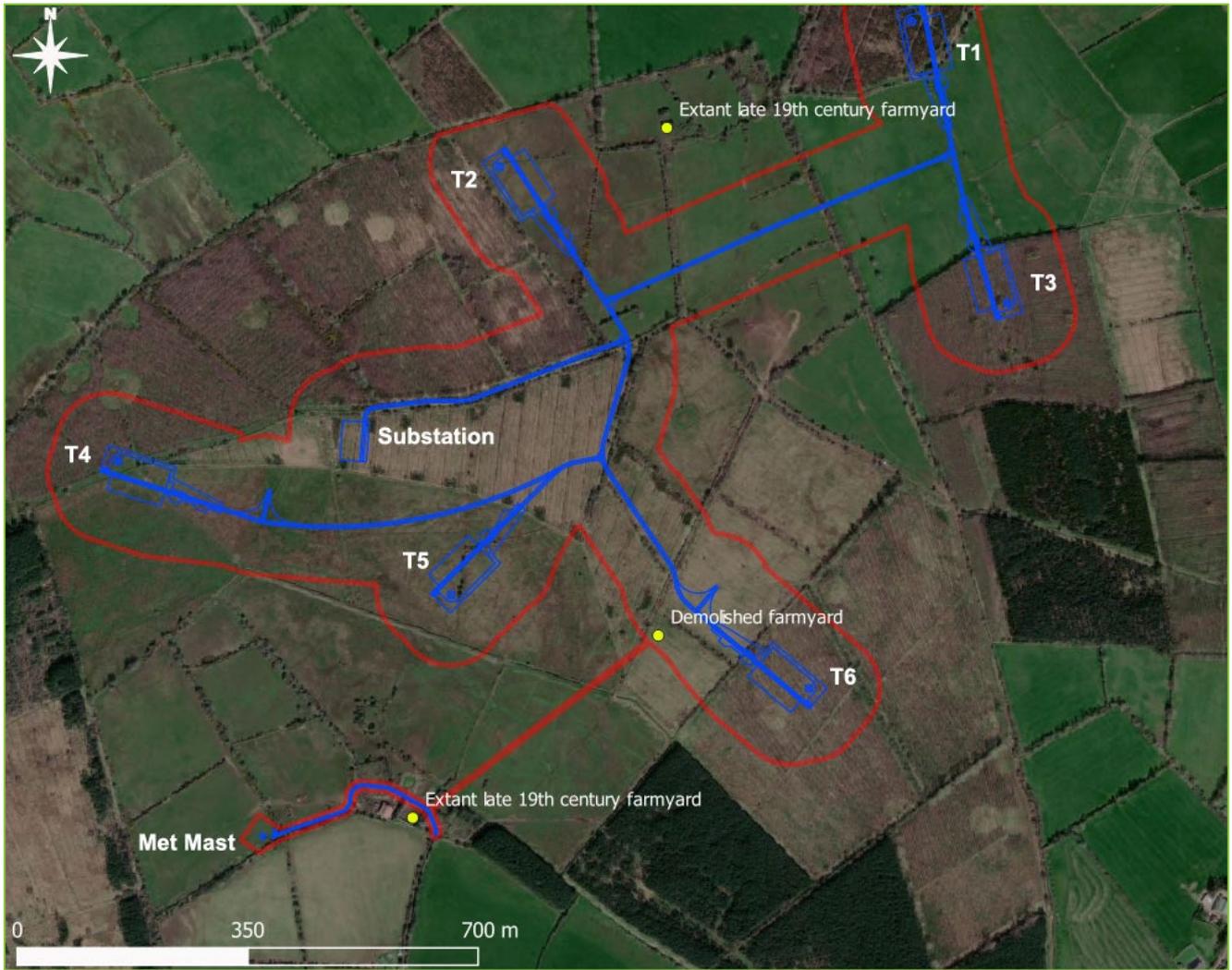


Figure 14-8: Locations of farmyards (yellow dots) depicted with the Site on historic OS maps

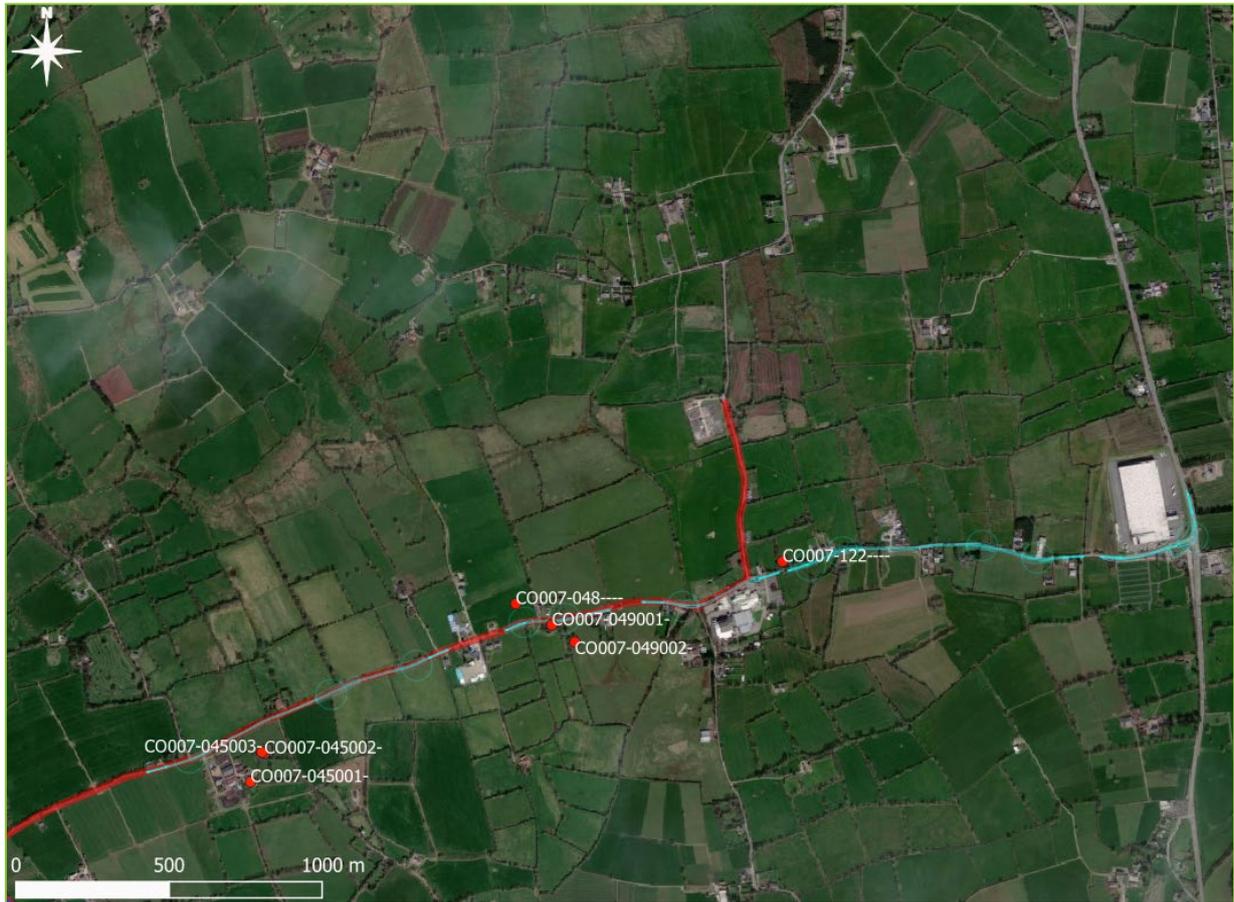


Figure 14-9: General location map of recorded archaeological sites within 100m of Grid Connection (red) and Turbine Delivery Route (blue)



Figure 14-10: Location of road verge Turbine Delivery work areas within environs of Ringfort CO007-048--- and Vernacular House CO007-049001-

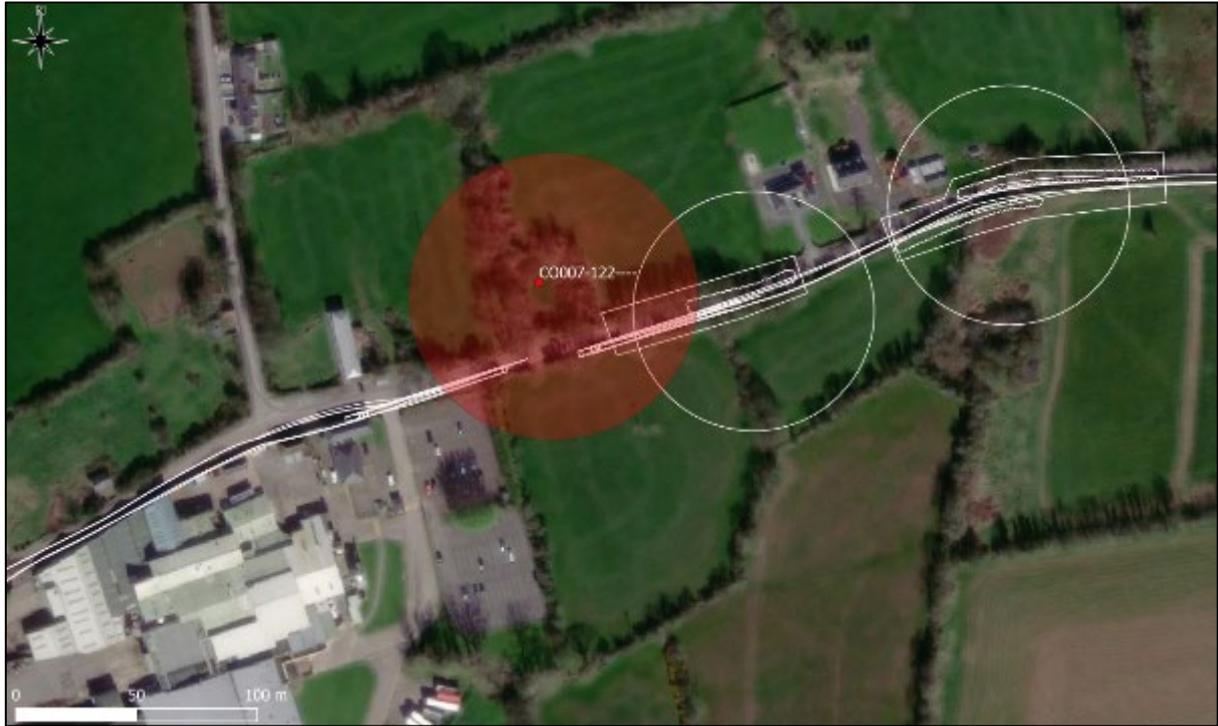


Figure 14-11: Location of Turbine Delivery road verge works within environs of recorded location of Church site CO007-122

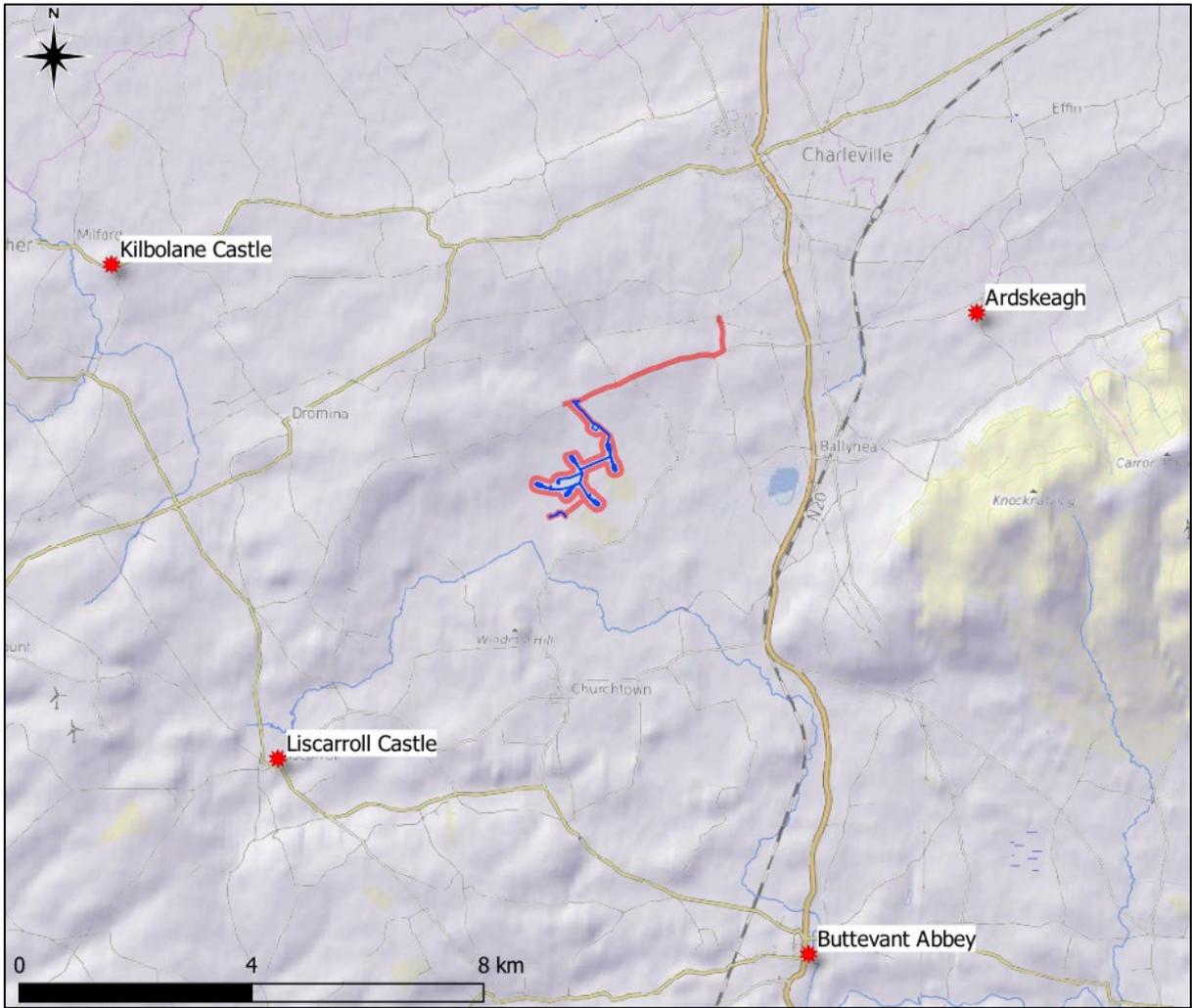


Figure 14-12: Location of National Monuments within wider landscape



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APPENDIX 14.2

PHOTOGRAPHS

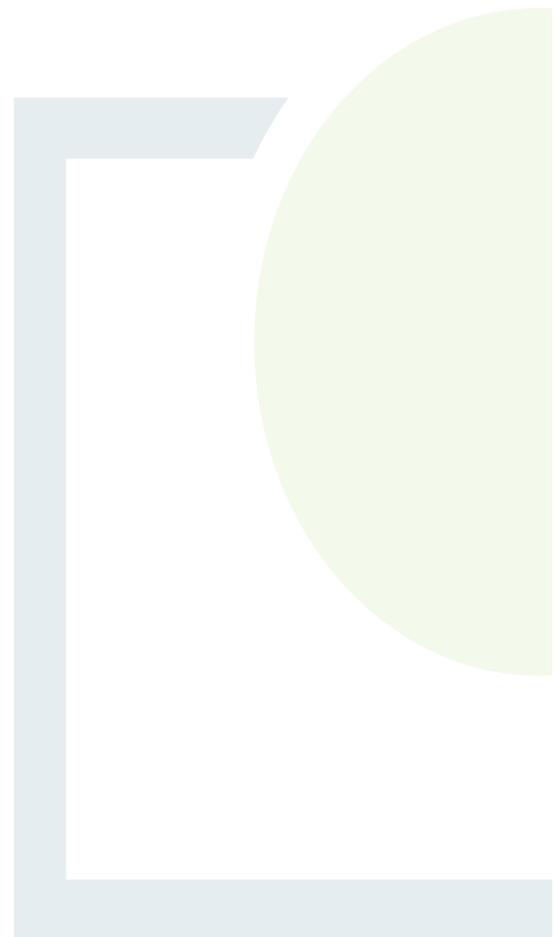




Plate 14-1: View towards location of T01 from south



Plate 14-2: View towards location of T02 from south



Plate 14-3: View towards location of T03 from north



Plate 14-4: View towards location of T04 from southeast



Plate 14-5: View towards location of T05 from northwest



Plate 14-6: View towards location of T06 from north



Plate 14-7: View of access route from site entrance towards compound and T01 from north



Plate 14-8: View of access route between T01 and T03 from west



Plate 14-9: View of access route between T04 and T05 from east



Plate 14-10: View of crossing location over Oakfront Stream from south



Plate 14-11: View of Ringfort CO007-043001- from south



Plate 14-12: View of Enclosure CO007-074---- from southeast



Plate 14-13: View of forestry at recorded location of Fulacht Fia CO007-175---- from south



Plate 14-14: View of Mound CO007-073---- from north



Plate 14-15: View of Bridge CO007-144---- from south



Plate 14-16: View towards former location of Castle CO007-115---- from southwest



Plate 14-17: View of northeast derelict farmhouse from north



Plate 14-18: View of outbuildings in southwest farmyard from south



Plate 14-19: View of modern gateway to Cooliney House (RPS No. 020) from north



Plate 14-20: View of overgrown remains of vernacular house (CO007-049001-) from north



Plate 14-21: View of roadway to south of ringfort (CO007-048----) from east



Plate 14-22: View of roadway to south of levelled church (CO007-122----) from east



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Carlow Office

Unit 6, Bagenalstown Industrial
Park, Royal Oak Road,
Muine Bheag
Co. Carlow, R21 XW81,
Ireland
+353 59 972 3800



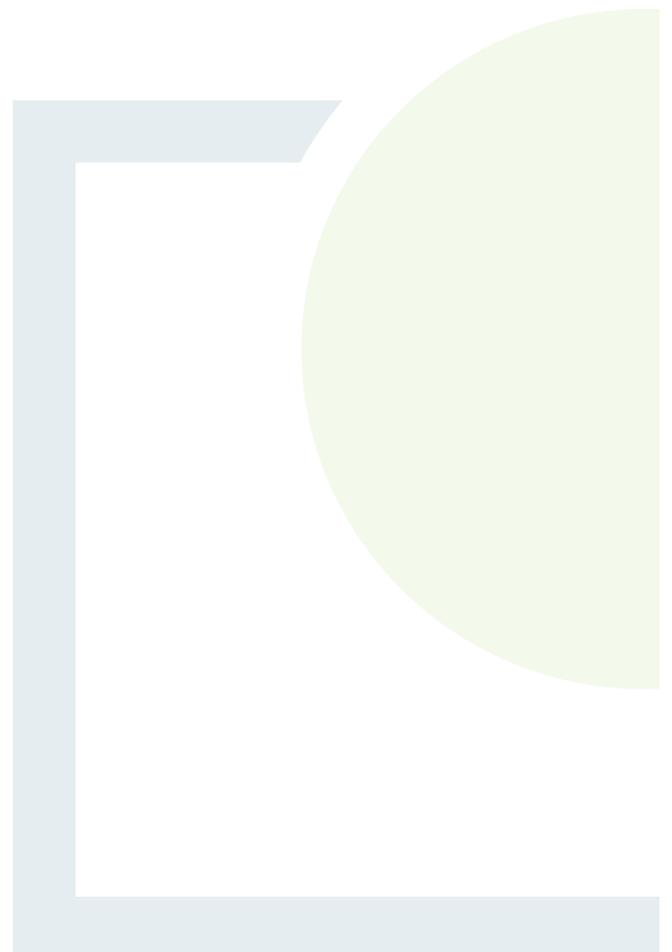


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APPENDIX 16.1

Example Consultation Letter



«AddressBlock»



CONSULTANTS IN ENGINEERING,
ENVIRONMENTAL SCIENCE & PLANNING

Our Ref: P2359/Lett/EH/CF

21 September 2020

Re: Proposed Annagh Wind Farm Environmental Impact Assessment Report – Scoping & Consultation Request

Dear Sir/Madam

EMPower intend to apply for planning permission for a renewable energy development referred to as the Annagh Wind Farm, located in North County Cork, near the town of Charleville. The proposed project includes lands contained within the following townlands: Annagh North, Coolcaum, Cooliney, Cullig and Fiddane.

This letter and enclosed scoping report is being issued to you as part of the consultation process for the project's Environmental Impact Assessment Report (EIAR). As part of the consultation process, we would be interested in receiving any comments you may have on the proposed development, relevant to your area of expertise. We respectfully ask that you forward all responses before the 2nd of November 2020 to provide adequate time to consider all material. Your response may be forwarded by email or by post to the address below.

By Email: annaghwindfarm@ftco.ie

By Post: Eamon Hutton, Fehily Timoney & Company, Core House,
Pouladuff Road, County Cork, T12 D773

If you do not have any comments to make on the proposed project, I would be grateful if you would please acknowledge receipt of this correspondence. If you have any further queries regarding the project, please contact the undersigned.

Yours sincerely,

Eamon Hutton
for and on behalf of **Fehily Timoney and Company**

Encl.

From: Annagh Windfarm <annaghwindfarm@ftco.ie>

Sent: Friday 25 September 2020 13:07

To: [insert operator address]

Subject: Annagh Wind Farm Telecoms Assessment

Greetings,

EMPower intend to apply for planning permission for a wind farm development near Charleville in north County Cork consisting of 6 no. wind turbines. The project is named the Annagh Wind Farm. The Commission for Communications Regulation have recommended that we contact you in relation to potential interferences to telecommunications service as a result of the proposed wind farm. The proposed project is located approximately 6km south west of Charleville. I have attached a KMZ file which includes the locations of the 6 no. proposed turbine (this can be opened in the google earth app) and I have attached a list of the ITM coordinates of the turbines below, as well as grid references.

Please consider the location of this project with respect to your company's infrastructure. If any potential issues arise, or if there is any further information I can provide you with regarding the proposed project, please do not hesitate to contact me by email or telephone.

Turbine ID	ITM Coordinates		Grid Ref	
	X	Y	X	Y
T1	550822	617929	150867	117894
T2	550194	617834	150239	117799
T3	550973	617471	151019	117436
T4	549617	617237	149663	117202
T5	550272	617247	150318	117212
T6	550682	616887	150728	116852

Kind regards,
Eamon Hutton



Eamon Hutton
Project Planner

Fehily Timoney and Company
Core House, Pouladuff Road, Cork, T12 D773
t: +353 21 496 4133

www.fehilytimoney.ie



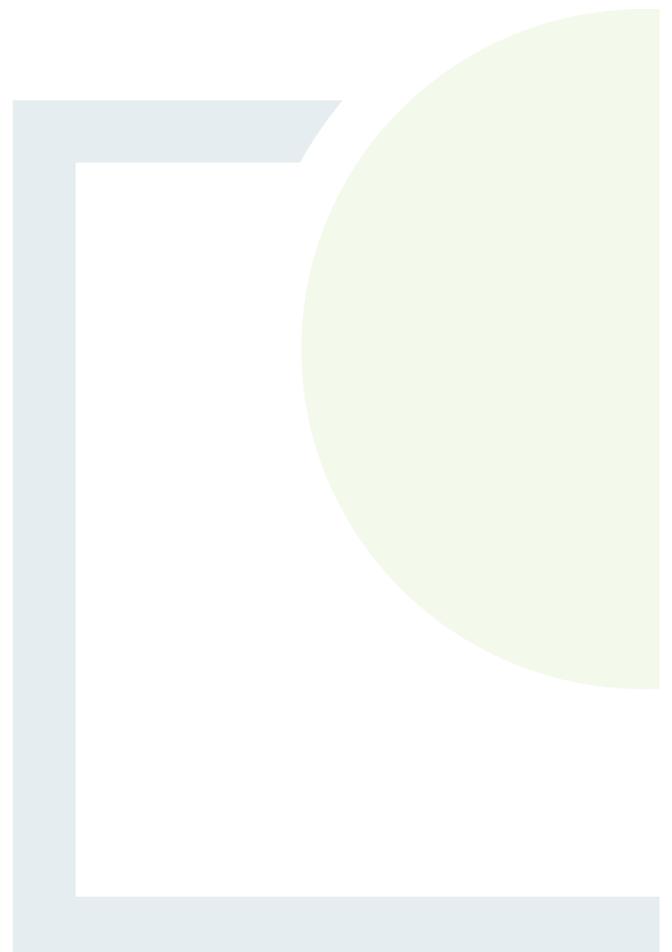


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CONSULTANTS IN ENGINEERING,
ENVIRONMENTAL SCIENCE & PLANNING

APPENDIX 16.2

EMI Impact Assessment Study



From: Annagh Windfarm <annaghwindfarm@ftco.ie>

Sent: Friday 25 September 2020 13:07

To: [insert operator address]

Subject: Annagh Wind Farm Telecoms Assessment

Greetings,

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T6	550682	616887	150728	116852

Kind regards,
Eamon Hutton



Eamon Hutton
Project Planner

Fehily Timoney and Company
Core House, Pouladuff Road, Cork, T12 D773
t: +353 21 496 4133

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