Planning and Environmental Consultants

Environmental Impact Assessment Report (EIAR)

Gannow Renewable Energy Development, Co. Galway

Ch 15 Material Assets

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15. MATERIAL ASSETS

Material Assets are defined in the '*Guidelines on the Information to be contained in Environmental Impact Assessment Reports*' (EPA, 2022) as '*built services and infrastructure. Traffic is included because in effect traffic consumes transport infrastructure'.* The cultural assets of Archaeology, Architectural and Cultural Heritage are addressed in Chapter 14 of this Environmental Impact Assessment Report (EIAR). Economic assets of natural heritage include non-renewable resources such as minerals or soils, and renewable resources such as wind and water. These assets are addressed in Chapter 8: Land, Soils and Geology, Chapter 9: Water, Chapter 10: Air Quality, and Chapter 11: Climate. Tourism and amenity resources, which are also considered material assets, are addressed in Chapter 5 Population and Human Health. The Population and Human Health chapter also addresses existing land-uses (economic assets), including forestry and agriculture.

This chapter of the EIAR addresses the likely significant effects of the Proposed Project on transportation infrastructure (Section 15.1 Traffic and Transport), on Telecommunications and Aviation (Section 15.2) and Other Material Assets (Section 15.3), which are economic assets of human origin. Waste Management is also considered within EPA, 2022 as part of Material Assets. EPA Waste Management pertaining to the construction, operation and decommissioning of the Proposed Project is summarised in Section 4.4.6 of Chapter 4 Description of the Proposed Project of the EIAR.

This chapter of the EIAR has been prepared in accordance with the requirements of the EIA legislation and guidance outlined in Chapter 1: Introduction.

For the purposes of this EIAR, the various project components are described and assessed using the following references: 'Proposed Project', 'Proposed Wind Farm', 'proposed turbines', 'Proposed Grid Connection', 'Site' and 'Proposed Wind Farm site'. Please see Section 1.1.1 of this EIAR for further details. A detailed description of the Proposed Project is provided in Chapter 4 Description of the Proposed Project of this EIAR.

15.1 Traffic and Transport

15.1.1 Introduction

15.1.1.1 Background and Objectives

This section of the EIAR assesses the effects on roads, traffic and transport of the traffic movements that will be generated during the construction, operational and decommissioning phase of the Proposed Project.

For developments of this nature, the construction phase is the critical period with respect to the traffic effects experienced on the surrounding road network in terms of the additional traffic volumes that will be generated on the road network, and the geometric requirements of the abnormally large loads associated with the wind turbine components. The requirements of the additional traffic and abnormal loads generated during the construction phase were assessed for the external highway network that will provide access to the Site.

The magnitude of the increase in traffic volumes experienced on the surrounding network is identified during the various construction stages of the Proposed Project. A traffic management plan is also provided in Section 15.1.11.2 aimed at minimising the traffic impact on the local highway network. Refer also to Appendix 15-2 of this EIAR, for the Traffic Management Plan (TMP).

15.1.1.2 Statement of Authority

This section of the EIAR has been prepared by Alan Lipscombe of Alan Lipscombe Traffic and Transport Consultants Ltd. Alan is a competent expert in traffic and transport assessments. In 2007 Alan set up a traffic and transportation consultancy providing advice for a range of clients in the private and public sectors. Prior to this Alan was a founding member of Colin Buchanan's Galway office having moved there as the senior transportation engineer for the Galway Land Use and Transportation Study. Since the completion of that study in 1999, Alan has worked throughout Ireland on a range of projects including: major development schemes, the Galway City Outer Bypass, Limerick Planning Land-Use and Transportation Study, Limerick Southern Ring Road Phase II, cost benefit analyses (COBA) and various studies for the University of Galway. Before moving to Galway in 1997, Alan was involved in a wide variety of traffic and transport studies for CBP throughout the UK, Malta and Indonesia. He has particular expertise in the assessment of development related traffic, including many wind farm developments including the following; Ardderroo, Derrinlough, Knocknamork, Shehy More, Cloncreen, Derrykillew, Ballyhorgan, Lettergull, Barnadivane, Cleanrath, Knockalough, Sheskin South and Borrisbeg.

Alan has a BEng (hons) Degree in Transportation Engineering (Napier University, Edinburgh, 1989), is a member of Engineers Ireland and of the Institute of Highways and Transportation and is a TII accredited Road Safety Audit Team Member.

Traffic counts were undertaken by Traffinomics Ltd, which is an Irish traffic survey company with a comprehensive knowledge of traffic data collection methods. The company, established in 2014, is headed by Simon Wheeler, who has been in the traffic survey data collection business for 35 years. Previously Simon worked with Count On Us Ltd., followed by Abacus Transportation Surveys Ltd., Ireland's first lens-based traffic data collection business. Clients of Traffinomics Ltd. include TII, Local Authorities and many leading retailers.

15.1.1.3 Guidance on Assessment of Effects

This section of the EIAR has been completed in accordance with the EIA guidance set out in Section 1.2 of Chapter 1 Introduction. The assessment uses standard terminology to describe the likely significant effects associated with the Proposed Project. Further information on the classification of effects used in this assessment is presented in Section 1.7.2 of this EIAR.

15.1.1.4 Scoping and Consultation

Transport Infrastructure Ireland

Transport Infrastructure Ireland (TII) responded to scoping via an email dated 29th of October 2024, in which it provided a list of recommendations to be followed when preparing the EIAR. All relevant TII guidelines and policies have been adopted in the preparation of this assessment, including the following;

- PE-PDV-02045, Transport Assessment Guidelines, Transport Infrastructure Ireland, May 2014
- PE-PAG-02017, Project Appraisal Guidelines, Unit 5.3, Travel Demand Projections, Transport Infrastructure Ireland, October 2021
- DN-GEO-03060, Geometric Design of junctions, Transport Infrastructure Ireland, May 2023.

Specific issues raised by TII include the following as set out in Table 15-1a;

Table 15-1a Issues raised by TII in relation to the Proposed Project and Responses

ID	Comment/Recommendation	Response
1	Consultations should be had with relevant Local Authority / National Roads Design Offices with regards to locations of existing and future national roads schemes.	Consultation has been undertaken with Galway County Council as set out below.
2	TII would be specifically concerned as to potential significant impacts the development would have on the national road network (and junctions with national roads) in the proximity of the proposed development, including the potential haul route.	The impacts of the Proposed Project on the construction material and turbine component delivery routes in terms of link flows are set out in Sections 15.1.5 of the EIAR, while an assessment of the capacity of the R348 / L3115 junction is set out in Section 15.1.5.4.2. An assessment of the impacts during the construction of the Proposed Grid Connection underground cabling route is set out in Section 15.1.7 while a swept path analysis undertaken for the abnormally large loads on the Turbine Delivery Route is set out in Section 15.1.9 of the EIAR. The assessment sets out the temporary local measures that will be required on the national, regional and local road networks during the construction of the Proposed Project.
3	The developer should assess visual impacts from existing national roads.	The visual impacts of the Proposed Project are set out in Chapter 13 of this EIAR.
4	The developer should have regard to any EIAR / EIS and all conditions and or modifications imposed by An Bord Pleanála (now An Coimisiún Pleanála) regarding road schemes in the area. The developer should, in particular, have regard to any potential cumulative impacts.	All conditions imposed by Galway County Council will be adhered to, and the cumulative traffic related impacts are assessed in Section 15.1.12.7.
5	The developer, in preparing an EIAR, should have regard to TII Publications (formerly DMRB and the Manual of Contract Documents for Road Works).	The design of the access junctions is in accordance with TII guidelines. The proposed design and visibility splays for the proposed access junction on the L-3115 are shown in Figures 15-39.
6	The EIAR should have regard to TII's Environmental Assessment and Construction Guidelines, including the Good Practice Guidance for the Treatment of Noise during the Planning of National Road Schemes (National Road Authority (NRA), 2014).	The potential impacts of the Proposed Project with regards noise set out in Chapter 12 of this EIAR.

ID	Comment/Recommendation	Response
7	The EIAR should consider the 'European Communities (Environmental Noise) Regulations, 2018, (S.I. no. 549 of 2018)', 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 'Good Practice Guidance for the Treatment of Noise during the Planning of National Road Schemes (NRA, 2014)').	The potential impacts of the Proposed Project with regards noise set out in Chapter 12 of this EIAR.
8	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. In relation to 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. Any improvements required to facilitate development should be identified. It will be the responsibility of the developer to pay for the costs of any improvements to national roads to facilitate the private development proposed, as TII will not be responsible for such costs.	It is confirmed that the assessment presented in this section of the EIAR is undertaken in accordance with Traffic and Transport Assessment Guidelines, TII (2014).
9	The designers are asked to consult TII Publications to determine whether a Road Safety Audit is required.	A Road Safety Audit has not been undertaken at this stage as there are no permanent new junctions or alteration proposed on the regional or national road network. A Stage 1 Road Safety Audit will be undertaken for the proposed construction and operational access on the L3115 local road prior to construction.
10	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.	It is noted that only minor temporary works, including temporary overruns and the temporary removal of street furniture, are proposed on the national road network during the abnormal load

ID	Comment/Recommendation	Response
		delivery phase. All construction works on the local road network will be undertaken in accordance with current guidelines including the "*Traffic Signs Manual, Section 8 – Temporary Traffic Measures and Signs for Road Works*" (DoT now DoTT&S) and "*Guidance for the Control and Management of Traffic at Roadworks*" (DoTT&S).
11	TII recommends that the applicant/developer should clearly identify haul routes proposed and fully assess the network to be traversed. Where abnormal 'weight' loads are a feature of the development, e.g., turbine or substation components, separate structure approvals/permits and other licences may be required in connection with the proposed haul route. All national road structures on the haul route through all the relevant County Council administrative areas should be checked by the applicant/developer to confirm their capacity to accommodate any abnormal 'weight' load proposed.	The proposed haul routes are identified in this Section 15.1.9 below. While the construction phase of the Proposed Project will involve abnormally large loads, the axle loadings will not exceed accepted limits. A program of pre-delivery condition and structural assessment of the route is however proposed, as set out in the Traffic Management Measures, included set out in Section 15.1.12.5.
12	In addition, the haul route should be assessed to confirm capacity to accommodate abnormal 'length' loads and any temporary works required are identified.	A swept path analysis of the proposed turbine delivery route has been undertaken, as set out in Section 15.1.9.
13	The applicant/developer should also consult with all PPP Companies, Motorway Maintenance and Renewals Contractors (MMaRC) and road authorities over which the haul route traverses to ascertain any operational requirements, including delivery timetabling, etc. to ensure that the strategic function of the national road network is safeguarded.	Consultation will be undertaken with these bodies prior to the delivery of abnormally large loads.
14	Where temporary works within any MMaRC Contract Boundary are required to facilitate the transport of turbine components to the Site, the applicant/developer shall contact thirdpartyworks@tii.ie in advance, as a works specific Deed of Indemnity will be needed by TII before the works can take place.	The Applicant agrees with this condition.
15	Additionally, any damage caused to the pavement on the existing national road arising from any temporary works due to the turning movement of abnormal loads (e.g. tearing of the surface course, etc.) shall be rectified in accordance with TII Pavement Standards and details in this regard shall be agreed with the	The Applicant agrees with this condition, as set out in Section 15.1.12.5 of this EIAR.

ID	Comment/Recommendation	Response
	Road Authority prior to the commencement of any development onsite.	
16	Any grid connection and cable routing proposals should be developed to safeguard proposed road schemes, as TII will not be responsible for costs associated with future relocation of cable routing where proposals are catered for in an area of a proposed national road scheme. In that regard, consideration should be given to routing options, use of existing crossings, depth of cable laying, etc.	The Applicant agrees with this condition.
17	In relation to the M6 motorway in the vicinity of the proposed grid connection route, no works shall encroach onto the motorway reservation nor impact any motorway infrastructure assets, including drainage regimes, vehicle restraint and safety systems, ducting, HDD crossings, structures etc. In the event that any damage is caused by any development works to the national road or associated assets, overground or underground, costs arising to fully remediate all impacted infrastructure assets to TII Publications standards and requirements will be pursued by or on behalf of TII.	The Applicant agrees with this condition.

Department of Transport

A response to scoping was received from the Department of Transport (DoT) on the 5th November 2024. The response refers to issues relating to the Proposed Grid Connection and works within the public road network. The issues raised and the Applicants responses are provided in Table 15-1b as follows:

Table 15-1b Issues raised by DoT in relation to the Proposed Project and Responses

ID	Comment/Recommendation	Response
1	Their [grid connection cables] presence within the public road will likely significantly restrict the Road Authority in carrying out its function to construct and maintain the public road and will likely add to the costs of those works post construction.	The Applicant and their Contractor will work with the Road Authority to minimise impacts on construction and maintenance of the road network through the scheduling of construction of sections of the route and agreement with diversion routes where required. It should be noted that any works within the public road corridor will be subject to a Road Opening Licence. This is a formal process through which the specific requirements of the Road Authority will be agreed.

ID	Comment/Recommendation	Response
2	Their [grid connection cables] installation within the lands associated with the public road may affect the stability of the road. In particular where the road is a "legacy road" (where there is no designed road structure and the subgrade may be poor or poorly drained) or bog rampart the design needs to take account of all the variable ground conditions and not be based on a sample of the general soil conditions. This should include a constructability assessment to a 950mm minimum cover depth to the HV Cable on legacy roads, roads over peat/bog ramparts.	As set out in Section 15.1.12.5.2 all roads will be re-instated in line with the specification of the Roads Authority. The Road Opening Licence process includes for a long-term impact and reinstatement fees, that are held for a minimum of two years following the completion of works, to cover any road maintenance works that may be required. As identified in Chapter 8, there is no significant areas of peat along the Proposed Grid Connection; the majority of the lands surrounding the Proposed Grid Connection are comprised of agricultural lands.
3	The possible effect on the remaining available road space (noting that there may be need to accommodate other utilities within the road cross-section in the future or additional drainage for climate adaptation).	The Proposed Grid Connection underground cabling trench will measure approximately 600mm in width. Therefore, there will be sufficient space for other utilities within the public road corridor.
4	The necessity to have the power in the cables switched off where the Road Authority considers this necessary in order to carry out its function to construct and maintain the public road and a complete operation and maintenance manual should be agreed with the Local Authority.	Once the Proposed Grid Connection underground cabling works have been completed, it will be become an ESBN asset and be treated no differently to any other existing service or utility within the public road corridor.
5	Examination of all available technologies including both Overhead Line (OHL) and Underground Cable (UGC) options or combinations of both) and route options other than the routing of cables along the public road the ensure the best performing route and technology option is selected.	Refer to Chapter 3: Consideration of Reasonable Alternatives
6	Examination of options for connection to the national grid network at a point closer to the wind farm in order to reduce the adverse impact on public roads.	Refer to Chapter 3: Consideration of Reasonable Alternatives
7	Details of where within the road cross section cables are to be placed so as to minimise the	The location of the Proposed Grid Connection underground cabling within the public road corridor is shown on the

ID	Comment/Recommendation	Response
	effect on the Roads Authority in its role of construction and maintenance.	detailed site layout drawings in Appendix 4-1 of this EIAR. As noted above, any works within the public road corridor will be subject to a Road Opening Licence. This is a formal process through which the specific requirements of the Road Authority will be agreed.
8	Examination of details of any chambers proposed within the public road cross section so as to minimise the effect on the Roads Authority in its role of construction and maintenance,	The proposed locations of joint bays, communication chambers and earth sheath link chambers are shown in the detailed site layout drawings in Appendix 4-1 of this EIAR.
9	Elimination of permanent jointing bays from beneath the road pavement to protect the integrity of the road structure for the safety of those driving on the public road by eliminating hard spots and also preserve the road width for other utilities, temporary joint bays to be used in any public road installation.	Joint Bays are subject to standard ESBN specification and cannot be eliminated from the Proposed Grid Connection underground cabling design. Once the sections of cabling have been connected within each joint bay, the chamber will be backfilled and the road surface will be reinstated as per Road Authority specifications.
10	Prevention of the attachment of cables to all bridge structures and culverts by diverting them beneath or away from these structures	The proposed crossing methodologies of the Proposed Grid Connection underground cabling at all watercourses is outlined in Table 4-5 in Chapter 4 and detailed drawings are provided in Appendix 4-1 of this EIAR.
11	Rationalisation of the number of cables involved (including existing electric or possible future cables) and their diversion into one trench, in order to minimise the impacts on the road network and the environment along the road boundary (hedgerows).	The Proposed Grid Connection underground cabling design is subject to ESBN specification and no deviation from this will be acceptable to ESBN, who will take ownership of the cabling, once complete. Only 1 no. trench for underground cabling is proposed as part of the Proposed Grid Connection.

It is confirmed that the above points raised by the DoT have been considered in the route selection and design of the Proposed Grid Connection as set out in Chapter 3 of this EIAR.

The DoT considers the following should be considered when applying conditions to any approval;

- A condition requiring the specific approval of the local authority to the detail of the final route of cables through the public road space. If during construction, there is a need to deviate from the detailed design then the approval of the local authority would again be sought. This would assist in minimising the impact on the public road.

- A condition requiring the developer to comply with all appropriate standards and, inter alia the Guidelines for Managing Openings in Public Roads, 2017 in order to ensure orderly development.
- A condition requiring that the location of the cables would be recorded as exactly as possible (maybe using BIM type technology) so as to facilitate the further use of road space for utilities and the maintenance/construction of the public road by the Roads authority. This record should include as constructed surveys of all infrastructure altered, added, removed or relocated and exact detail of the road construction including any drains or other features encountered. The record should be lodged with the local authority and with the ESB Networks for retention on their records.
- A condition to require the elimination of permanent jointing bays from under the road pavement to protect the integrity of the road structure, thereby improving safety for those driving on the public road by eliminating hard spots and preserving the road width for other utilities.
- A condition requiring the developer to route cables away from bridge structures and specifically preventing the developer from attaching cables to road bridges. This would allow for the future maintenance of bridges without interruption of the electricity supply along the cables.
- A condition requiring the replacement of culverts that have been excavated during the cable duct placement operation. The replacement culverts should be designed appropriately and include an allowance for the effects of climate change.
- A condition requiring the developer to notify the Roads Authority of the owner of the cables (Owner) and the controller (Power Controller) of the power transmitted along the cables. In addition, the condition should require Owner and Power Controller to notify the Roads Authority of any change in ownership of the cables or change of Power Controller transmitting power along the cables. In all instances the Owner and Power Controller should be required to maintain an agreed contacts list with the Roads Authority.

15.1.1.5 Pre-planning Meetings

Galway County Council

A pre-planning meeting was held with Galway County Council (GCC) on 4th March 2025 and 20th May 2025. As detailed in Chapter 2, Section 2.7.3, the Proposed Project team gave an overview of the Proposed Project with detailed information on the Proposed Grid Connection and the turbine delivery route. It was also identified that construction material for the Site will be delivered from local authorised quarries. GCC noted requirement for further engagement with the Roads Department and Area Engineer in Athenry. A meeting was consequently held onsite with James Crowley of Enerco Energy Ltd. and Sean Whelan of Galway County Council on 23rd July 2025 to discuss the Proposed Project access locations and Proposed Grid Connection underground cabling route. The main points to note from the meting are as follows:

- In general, no concerns were raised in principle regarding the turbine delivery route (TDR).
- No concerns were raised in principle with the Proposed Grid Connection underground cabling route. It was noted that there is difficulty with further maintenance of roads and services with cables placed within roads.
  It was requested that a Point of Contact be provided to GCC for the lifetime of the cable, should any issues arise.
- It was noted that the Proposed Grid Connection joint bays should be located off the public road where possible, the final locations of the joint bays will be agreed with GCC at road opening licence stage.

- In relation to the diversion routes required for the construction of the Proposed Grid Connection underground cabling route, it was noted that the standard of the proposed diversion should be same or better than the road being closed.

15.1.1.6 Methodology and Section Structure

The report adopts the guidance for such assessments set out by Transport Infrastructure Ireland, or TII, in the document number PE-PDV-02045 *'Traffic and Transport Assessment Guidelines, May 2014'*. The geometric requirements of the transporter vehicles were assessed using AutoCAD and Autotrack.

The Traffic and Transport Section of the EIAR is set out as follows:

- A review of the existing and future transport infrastructure in the vicinity of the Proposed Project, including the proposed turbine delivery route, an assessment of base 2025 traffic flows and traffic forecasts during an assumed construction year of 2028 (Section 15.1.2 Receiving Environment and 15.1.3 – Existing Traffic Volumes),
- A description of the nature of the Proposed Project and the traffic volumes that it will generate during the different construction stages and when it is operational (Section 15.1.4 – Proposed Project and Traffic Generation),
- A description of the abnormally large loads and vehicles that will require access to the Site (Section 15.1.5 Construction Traffic Vehicles),
- A review of the effects during of Proposed Project-generated traffic on links and junctions during construction phase (i.e., 18 months) and when the facility is operational (Section 15.1.6 –Traffic Effects During Construction and Operation and Decommissioning of the Proposed Project),
- An assessment of the effects during the Proposed Grid Connection underground cabling route works (Section 15.1.7 – Effect on Network of the Proposed Grid Connection),
- Traffic management of large deliveries and a geometric assessment of the routes and their capacity to accommodate the abnormal loads associated with the Proposed Project (Section 15.1.8 – Traffic Management of Large Deliveries and Section 15.1.9– Abnormal Load Route Assessment),
- A review of the Proposed Wind Farm access off the L3115 (Section 15.1.10–Proposed Wind Farm Access Junction)
- An assessment of the provision for sustainable modes of travel (in this case primarily with respect to the transport of construction staff) (Section 15.1.11 – Provision for Sustainable Modes of Travel),
- A description of potential effects of the Proposed Project on Roads and Traffic (Section 15.1.12 – Likely Effects and Associated Mitigation Measures).

15.1.2 Receiving Environment

15.1.2.1 Site Location

The Proposed Project is located in County Galway in the townlands listed in Table 1-1 of Chapter 1 of this EIAR and is shown in Figure 15-1a. The Proposed Wind Farm is located within a rural, agricultural setting in eastern Galway, approximately 9.7km east of Athenry and 13km north of Loughrea. The village of Attymon, Co. Galway is located approximately 1km northwest of the nearest proposed turbine (T01) and the village of New Inn is located approximately 4.6km southeast of the nearest proposed turbine (T07). The L3115, which links into the R348 to the south, runs in a north to south orientation and is located immediately west and north of the Proposed Wind Farm. The proposed access into the Proposed Wind Farm is via a new junction in the west of the Proposed Wind Farm, located off the eastern side of the L3115 local road. The Proposed Wind Farm site is traversed by a number of existing agricultural roads and tracks.

The Proposed Grid Connection includes for 38kV underground cabling from the proposed onsite 38kV substation, in the townland of Attimonmore South, Co. Galway, to the existing Cashla 220kV substation in the townland of Barrettspark, Co. Galway. The Proposed Grid Connection is primarily located along the public road corridor, with three short sections located across private land/tracks. The Proposed Grid Connection follows the L3115, L7152, L3111, L3107, L7126, L7122, L31030, L7108, L7109, and the R347 to the existing Cashla 220kV Substation. The townlands in which the Proposed Grid Connection will pass through are detailed in Table 1-1 of Chapter 1. Refer to Section 4.3.2 of Chapter 4 for further detail on the Proposed Grid Connection.

15.1.2.2 Proposed Turbine Delivery Route

The proposed port of entry for the large wind turbine components is the Port of Galway in Galway City. The proposed turbine delivery route (TDR) for the abnormally sized turbine components from the port to the Proposed Wind Farm is shown in Figure 15-1.

From the Port of Galway the turbine delivery route is as follows;

- From Galway Harbour through Galway city on the L5048 Lough Atalia Road, the L5034 and the R336 Tuam Road to the N6 (3.3km).
- From the junction with the R336 Tuam Road in Galway City the turbine delivery route heads eastbound on the N6 passing through junctions with the R865 at Ballybrit and the R339 Monivea Road at Briarhill, before heading southeast to the Coonagh Roundabout (3.2km).
- From the Coonagh Roundabout the route heads east on the N6 and M6 (15.1 km), to Junction 17 of the M6 with the R348 located to the south of Athenry.
- The route then travels northeast passing through one roundabout on the R348 before turning right at the R347 / R347 Buanmore Roundabout (1.4 km).
- The turbine delivery route then travels south on the R348 (0.4 km) to the junction with the R347.
- From this point the route travels east on the R348 (8.4km) to the village of Kiltullagh. On this section of the route the R348 traverses the M6 at 2 locations, the western crossing by means of an underpass, and the eastern crossing via an overpass.
- From the village of Kiltullagh the route heads north on the R348 (0.4km) before continuing north on the L3115 (4.9km) to the location of the Proposed Wind Farm access junction situated on the east side of the road.

The total length of the turbine delivery route is approximately 37.4km.

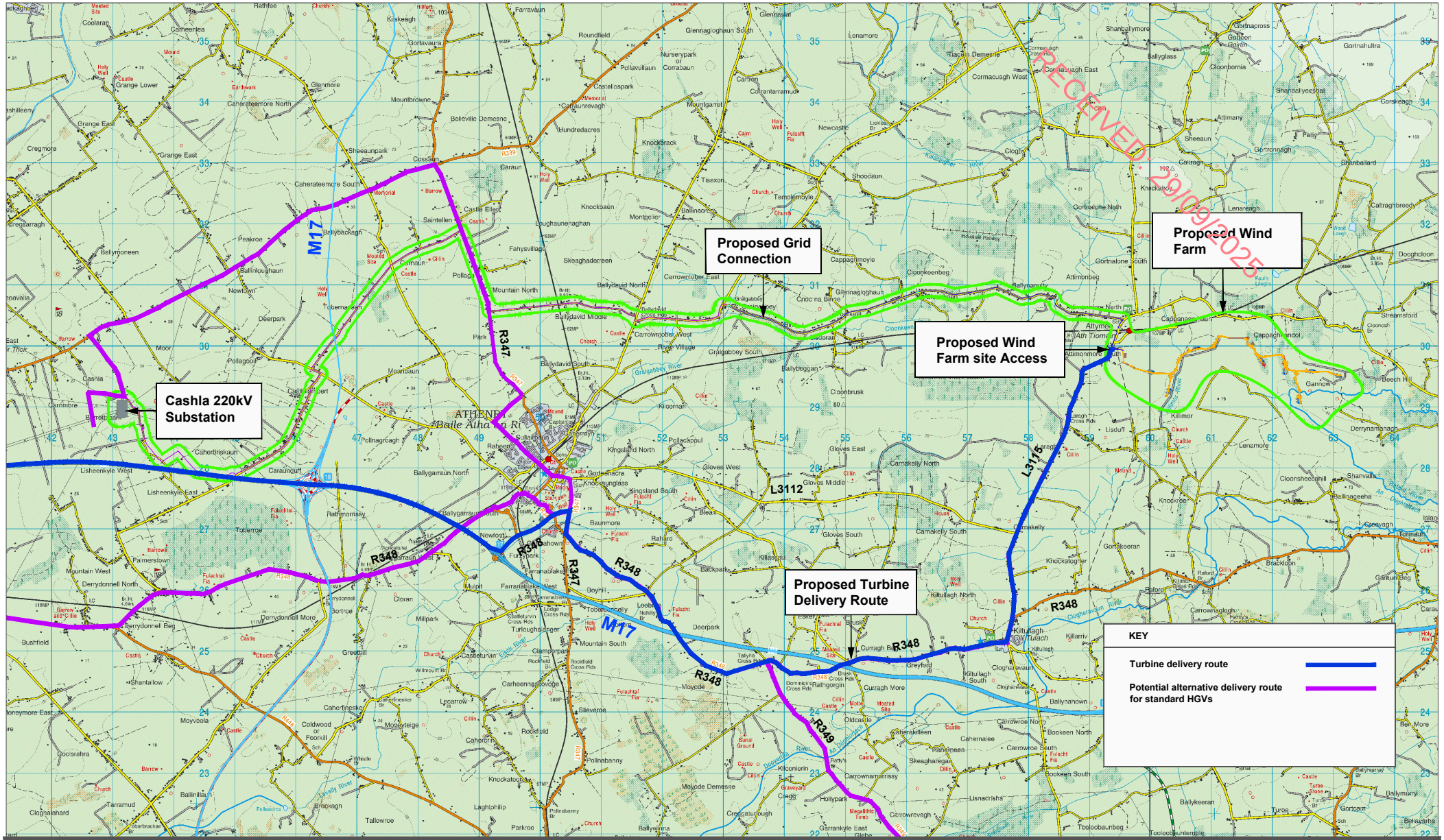
An assessment of the turning requirements of the abnormally large loads transporting the turbine components was undertaken at the various pinch points identified along the turbine delivery route from the Port of Galway to the Proposed Wind Farm site entrance off the L3115, as discussed in Sections 15.1.8 and 15.1.9 of this chapter. The swept path assessment undertaken for the locations identified in Figures 15-2a are discussed in Section 15.1.10.

15.1.2.3 Proposed Construction Traffic Haul Route

All concrete required for each turbine foundation will be delivered to the Site in one day per foundation for a total of 8 days. The concrete (and some crushed stone) required for the turbine foundations will be sourced from local, appropriately authorised quarries as shown in Figure 4-23 in Chapter 4 of this EIAR. All concrete deliveries provided by local quarries will access the Proposed Wind Farm via the new site access off the L3115 located at the western end of the Proposed Wind Farm site, as shown in Figure 15-1.

As shown in Figure 15-1 based on the location of potential suppliers of concrete and crushed stone, there are 3 additional routes (the R347 which links into Athenry from the west, the R348 which

connects into Athenry from the north, and the R349 that joins the TDR from the south) that may be used for the delivery of these materials. These additional routes converge on the TDR with these locations also included in the traffic impact assessment as discussed in Section 15.1.5 of this EIAR.



NOTES:

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Base mapping provided by MKO

Figure 15-1 Site location, turbine delivery route, general construction traffic routes and Proposed Grid Connection

PROJECT:	Gannow Renewable Energy Development, Co.Galway		
CLIENT:	Gannow Ltd	SCALE:	NTS
PROJECT NO: 11580	DATE: 16.09.25	DRAWN BY:	AL

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15.1.2.4 Proposed Grid Connection

The Proposed Grid Connection includes for 38kV underground cabling connecting the onsite 38kV substation to the existing 220kV Cashla substation, located in the townland of Barrettspark. The Proposed Grid Connection measures approximately 21.8 km, and is located primarily within the public road corridor, with three subsections (approximately 0.2km, 0.6km and 1.5km respectively) located in private land/existing track. The Proposed Grid Connection and associated traffic related impacts are discussed in Section 15.1.7.

15.1.3 Existing Traffic Volumes

Traffic volumes are discussed in terms of either vehicle numbers, or Passenger Car equivalent Units (PCUs), where each vehicle is expressed in terms of its demand on the network relative to the equivalent number of cars. For example, an articulated HGV was given a factor of 2.4 passenger car units (as per TII Project Appraisal Guidelines for National Roads Unit 5.2), while one of the extended HGVs transporting the large turbine components was assigned a value of 10.

15.1.3.1 Background Traffic Flows

The six locations included in the link flow assessment and for which base year 2025 traffic count data was collated are set out in Table 15-2 and shown in Figure 15-2b below. The locations included in the assessment are as follows,

- Link 1 – R348 – between M6 and Baunmore Roundabout,
- Link 2 – R347 – north of Baunmore Roundabout,
- Link 3 – R348 – south of Baunmore Roundabout,
- Link 4 – R348 – north of Kiltullagh,
- Link 5 – L3115 – leading to the Site,
- Link 6 – R348 – east of Kiltullagh.

The traffic counts were obtained from 24 hour classified turning count surveys undertaken at the Baunmore Roundabout south of Athenry, and the R348 / L3115 priority junction located north of Kiltullagh. The counts were undertaken on Tuesday 8th July, 2025 by Traffinomics Ltd.

All base year 2025 traffic count data is included as Appendix 15-1.

Table 15-2 Count locations and data source.

Link	Data source
1 – R348 – between M6 and Baunmore Roundabout	Classified count
2 – R347 – north of Baunmore Roundabout	Classified count
3 – R348 – south of Baunmore Roundabout	Classified count
4 – R348 – north of Kiltullagh	Classified count
5 – L3115 – leading to the Site	Classified count
6 – R348 – east of Kiltullagh	Classified count

The all-day traffic flows observed for the base year 2025 are shown in terms of vehicle numbers in Table 15-3. The figures show that there is a considerable range in existing traffic volumes on the proposed turbine delivery route and construction traffic routes, ranging from 9,594 vehicles per day on the R348 between the M6 and the Baunmore Roundabout (Link 1), to 8,279 vehicles per day on R347 northern arm of the roundabout (Link 2). On the southern R348 arm of the roundabout traffic volumes reduce slightly to 6,179 vehicles per day (Link 3) before reducing significantly to 2,462 vehicles as the route travels east on the R348 north of Kiltullagh (Link5) and down to 1,976 vehicles per day on the L3115 leading to the Site (Link 5). A daily flow of 1,171 vehicles was observed on the R348 to the east of Kiltullagh (Link 6).

Table 15-3 All day traffic flows by location, year 2025 (2-way vehicles)

Link	2025
1 – R348 – between M6 and Baunmore Roundabout	9,594
2 – R347 – north of Baunmore Roundabout	8,279
3 – R348 – south of Baunmore Roundabout	6,179
4 – R348 – north of Kiltullagh	2,462
5 – L3115 – leading to the Site	1,976
6 – R348 – east of Kiltullagh	1,171

15.1.3.2 Background Traffic Volumes for the Assumed Construction Year 2028

This section describes the process adopted to produce background traffic forecasts for an assumed construction year of 2028.

Revised guidelines for forecasting annual growth in traffic volumes were produced by TII in October 2021, as set out by count in the Project Appraisal Guidelines (Unit 5.3 – Travel Demand Projections). The annual growth rates for light vehicles for County Galway and factors for the years relevant to this study are shown in Tables 15-4 and 15-5. Based on TII growth rates it is estimated that traffic volumes will increase by 8.0 from 2025 to the year 2028, when the construction of the Proposed Project is forecast to take place. Traffic flows for the base year 2025 and the construction year of 2028 are compared in Table 15-5.

While the assumed construction year of 2028 may vary within the 10-year period for which planning permission is sought, this will not alter the forecast outcomes and effects presented in this section of the EIAR. This is due to the annual growth rate for background traffic being 2.59% by the year 2028 (as shown in Table 15-4 as 1.0259) and, more importantly, the traffic volumes generated by the Proposed Project will remain unchanged regardless of construction year, as presented subsequently in Section 15.1.5.2.

The classified traffic counts undertaken for the purpose of this assessment were also used to determine the existing percentage of HGVs on the proposed delivery routes. The observed percentage of HGVs are shown in Table 15-7 and range from a minimum of 2.6% observed on the L3115 leading to the Site (Link 5), to a maximum of 4.2% observed on the R348 south of the Baunmore Roundabout (Link 3).

Table 15-4 TII traffic growth forecasts, growth per annum and cumulative, County Galway

Year	Lights – Annual Factor			Lights – Cumulative Factor		
	Low	Medium	High	Low	Medium	High
2025	1.0243	1.0259	1.0294	1.000	1.000	1.000
2026	1.0243	1.0259	1.0294	1.024	1.026	1.029
2027	1.0243	1.0259	1.0294	1.049	1.052	1.060
2028	1.0243	1.0259	1.0294	1.075	1.080	1.091
2029	1.0243	1.0259	1.0294	1.101	1.108	1.123
2030	1.0243	1.0259	1.0294	1.128	1.136	1.156
2031	1.0087	1.0109	1.0148	1.137	1.149	1.173
2032	1.0087	1.0109	1.0148	1.147	1.161	1.190

Table 15-5 TII traffic growth rates by growth scenario

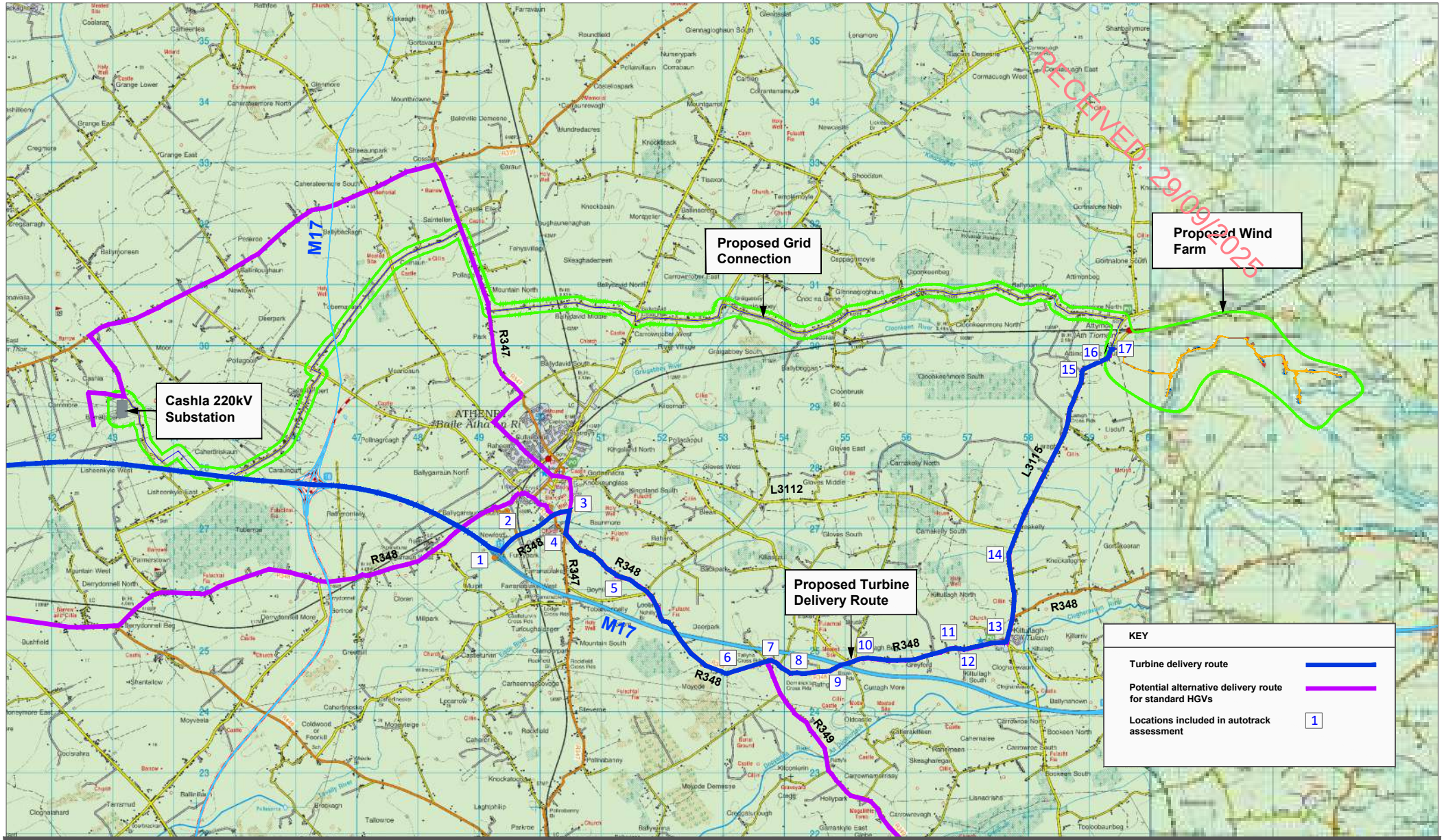
Period	New Factors		
	Low	Medium	High
2025 - 2028	1.075	1.080	1.091

Table 15-6 All day traffic flows by location and year (2-way vehicles)

Link	2025	2028
1 – R348 – between M6 and Baunmore Roundabout	9,594	10,362
2 – R347 – north of Baunmore Roundabout	8,279	8,941
3 – R348 – south of Baunmore Roundabout	6,179	6,673
4 – R348 – north of Kiltullagh	2,462	2,659
5 – L3115 – leading to the Site	1,976	2,134
6 – R348 – east of Kiltullagh	1,171	1,265

Table 15-7 All day flows, percentage HGVs and flows by vehicle type, year 2028.

Link	All day flow (vehs)	% HGV's	Vehicles		PCUs		
			HGVs	Cars / lgvs	HGVs	Cars / lgvs	Total
1 – R348 – between M6 and Baunmore Roundabout	10,361	4.0%	414	9,947	995	9,947	10,942
2 – R347 – north of Baunmore Roundabout	8,941	3.6%	322	8,619	773	8,619	9,392
3 – R348 – south of Baunmore Roundabout	6,673	4.2%	280	6,393	673	6,393	7,066
4 – R348 – north of Kiltullagh	2,659	3.5%	93	2,566	223	2,566	2,789
5 – L3115 – leading to the Site	2,134	2.6%	55	2,079	133	2,079	2,212
6 – R348 – east of Kiltullagh	1,265	4.0%	51	1,214	121	1,214	1,335



NOTES:

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Base mapping provided by MKO

Figure 15-2a Location of turbine delivery route for autotrack assessment

PROJECT:	Gannow Renewable Energy Development, Co.Galway		
CLIENT:	Gannow Ltd	SCALE:	NTS
PROJECT NO: 11580	DATE: 16.09.25	DRAWN BY:	AL

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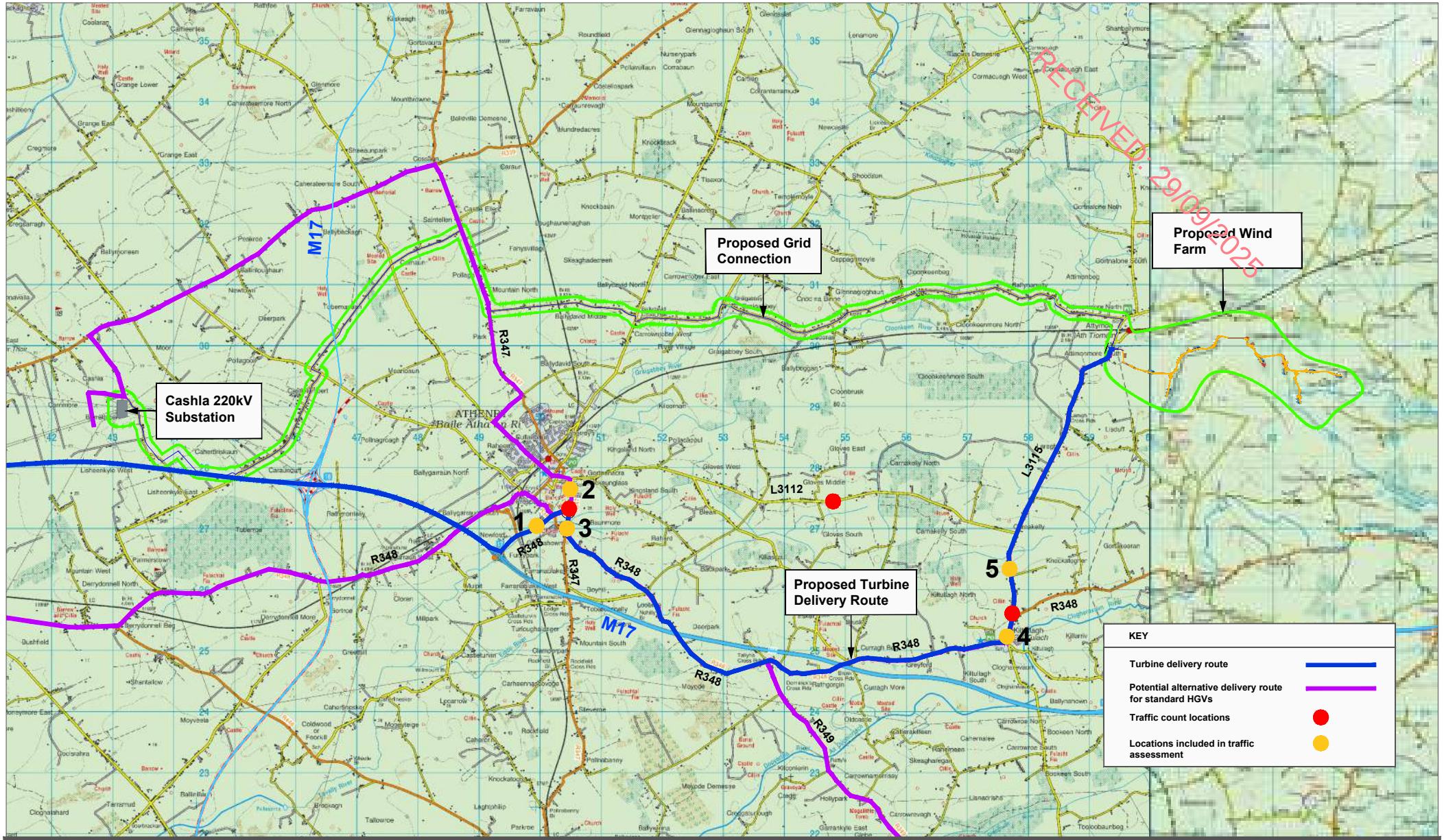

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Figure 15-2b Location of links included in traffic impact assessment

PROJECT:	Gannow Renewable Energy Development, Co.Galway		
CLIENT:	Gannow Ltd	SCALE:	NTS
PROJECT NO: 11580	DATE: 16.09.25	DRAWN BY:	AL

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15.1.4 Proposed Project and Traffic Generation

15.1.4.1 Proposed Access Junction

While the design of the junction that will provide access to the Proposed Wind Farm is discussed in Section 15.1.10, a summary of the proposed access junction is provided below. The location of the proposed access junction that will provide access to the Proposed Wind Farm is shown in Figure 15-1.

Construction and Operational Site Entrance off the L3115

The proposed access for all construction traffic, including the delivery of the abnormally sized loads, the delivery of all general construction traffic, all staff construction traffic, and for the purpose of all maintenance traffic during the operational phase, will be located off the eastern side of the L3115.

15.1.4.2 Development Trip Generation – During Construction

For the purpose of assessing the effects of traffic generated during the construction of the Proposed Project, the construction phase is in the following stages.

- Stage 1 – Proposed Project construction: groundworks, construction of temporary construction compounds, turbine foundations, met mast foundations, onsite 38kV substation, internal electrical cabling and construction of the Proposed Grid Connection underground cabling route.
- Stage 2 – Proposed turbine component delivery and construction.

For the purpose of the traffic impact assessment, projections based on trip generation data collected from other wind farm construction projects regarding the numbers of trips per quantum of material, the number of turbine component parts based on 8 no. turbines, the length of the construction phase and work periods etc. were made to inform the assessment. These projections allow for assessment using the precautionary principle but should not be inferred as prescriptive limitations to the construction phase. There are numerous variables which can affect a construction project programme, including weather. The construction phase of the Proposed Project will be carried out in accordance with the Construction Environment Management Plan (CEMP), included as Appendix 4-5 of this EIAR, which will be agreed, where required, with the relevant Local Authority.

The shortest potential construction phase duration of 18 months was assumed for the construction of the Proposed Project in order to test a precautionary scenario. The shortest construction period will give rise to higher volumes of construction traffic using the public road network at any one time. The traffic generation estimates set out in the following paragraphs are based on a total construction period of 18 months, or based on 255 working days per annum, 383 days.

15.1.4.2.1 *Stage 1 – Site Preparation and Groundworks (general construction = 375 days, concrete foundation pours = 8 days)*

For assessment purposes, this stage of the Proposed Project construction, which includes the site preparation and ground works, construction of temporary construction compounds, turbine foundations, met mast foundations, and internal electrical cabling is assumed to last approximately 18 months (383 days), during which a total of 17,685 deliveries will be made to the Site, as shown in Table 15-8. During this construction phase there will be two distinct types of days with respect to trip generation.

A total of 8 working days will be used to pour the 8 concrete wind turbine foundations. Foundations will likely be poured one per day, with circa 107 concrete loads required for each turbine delivered to the Proposed Wind Farm over a 12-hour period, resulting in 9 HGV trips to and from the Site per hour.

On the remaining 375 working days for this stage other general materials will be delivered to the Proposed Wind Farm.

The estimated additional daily traffic generated on the road network during these days are shown in Tables 15-8 and 15-9. The figures show that on the 8 working days that concrete will be delivered to the Site, an additional 514 two-way PCUs will be added to the network (comprising 107 two-way HGV trips with 2.4 PCUs per movement), as shown in Table 15-8. Similarly, on the 375 working days when other materials will be delivered to the Site, traffic volumes on the local network will increase by an average of 215 PCUs, as set out in Table 15-9.

15.1.4.2.2 Stage 1 – Proposed Grid Connection (218 days)

This stage of the Proposed Project construction includes works related to the construction of the Proposed Grid Connection underground cabling route. The construction of the of the Proposed Grid Connection is discussed further in Section 15.1.7 of the EIAR. It is forecast that the construction of the Proposed Grid Connection and associated works will take 218 working days during which a total of 3,243 HGV trips will travel to and from the Site, as shown in Table 15-8. On the 218 days when deliveries for the Proposed Grid Connection and associated works will be delivered to the Site, traffic volumes generated by deliveries on the local network will increase by an average of 72 PCUs, as set out in Table 15-11.

Total construction loads for Site preparation and groundworks for the Proposed Project are outlined in Table 15-8 below.

Table 15-8 Trip generation - Stage 1 - Site preparation and groundworks – total loads – Proposed Project

Material	Total no. Truck Loads	Truck type
Proposed Wind Farm		
Concrete	856	Concrete mixer
Delivery of plant	35	Large artic
Fencing & gates	3	Large artic
Compound setup	32	Large artic
Steel	22	Large artic
Sand / binding / stone / pile foundation	175	Trucks
Ducting and cabling (internal)	235	Large artic
Crane (to lift steel)	1	Large artic
Cranes for turbines	12	Large artic
Refuelling for plant	189	Large artic
Stone for Proposed Wind Farm	15,038	Trucks
Stone for Substation	652	Trucks

Material	Total no. Truck Loads	Truck type
Stone for Temporary construction compound	131	Trucks
Tree felling	76	Large artic
Site maintenance	137	Large artic
Miscellaneous	91	Large artic
Proposed Wind Farm - Total	17,685	
Proposed Grid Connection		
Stone for Proposed Grid Connection	708	Trucks
Materials for Proposed Grid Connection	2,535	Large artic
Proposed Grid Connection - Total	3,243	
Total	**20,928**	

Table 15-9 Trip generation - Stage 1 – Concrete foundation pouring – total movements and volumes per delivery day – Proposed Wind Farm

Material	Total Truck Loads	Truck type	PCU Value	Total PCUs	PCU Movements /day*	2- way PCUs/day
Concrete	856	Trucks	2.4	2,054	256.8	513.6
* Estimation based on 8 concrete pouring days						

Table 15-10 Trip generation - Stage 1 – Site preparation and groundworks – total movements and volumes per delivery day – Proposed Wind Farm

Material	Total Truck Loads	Truck type	PCU Value	Total PCUs	PCU Movements /day*	2-way PCUs/day
Proposed Wind Farm						
Delivery of plant	35	Large artic	2.4	84.0	0.22	0.45
Fencing & gates	3	Large artic	2.4	7.2	0.02	0.04

Material	Total Truck Loads	Truck type	PCU Value	Total PCUs	PCU Movements /day*	2-way PCUs/day
Compound setup	32	Large artic	2.4	76.8	0.20	0.41
Steel	22	Large artic	2.4	52.8	0.14	0.28
Sand / binding / stone / pile foundation	175	Trucks	2.4	420.0	1.12	2.24
Ducting and cabling (internal)	235	Large artic	2.4	564.0	1.50	3.01
Crane (to lift steel)	1	Large artic	2.4	2.4	0.01	0.01
Cranes for turbines	12	Large artic	2.4	28.8	0.08	0.15
Refuelling for plant	189	Large artic	2.4	453.6	1.21	2.42
Stone for Proposed Wind Farm	15,038	Trucks	2.4	36091.2	96.24	192.49
Stone for Substation	652	Truck	2.4	1564.8	4.17	8.35
Stone for Temporary construction compound	131	Truck	2.4	314.4	0.84	1.68
Tree felling	76	Large artic	2.4	182.4	0.49	0.97
Site maintenance	137	Large artic	2.4	328.8	0.88	1.75
Miscellaneous	91	Large artic	2.4	218.4	0.58	1.16
Total	17,865			40,389.6	107.71	215.41

Table 15-11 Trip generation - Stage 1 – Construction of Proposed Grid Connection – total movements and volumes per delivery day – Proposed Grid Connection

Material	Total Truck Loads	Truck type	PCU Value	Total PCUs	PCU Movements /day*	2-way PCUs/day
Stone for Proposed Grid Connection	708	Truck	2.4	1,699.2	7.79	15.59
Materials for Proposed Grid Connection	2,535	Large artic	2.4	6,084.0	27.91	55.82
Total	3,243			7,783.2	35.7	71.4

15.1.4.2.3 Stage 2 – Turbine Construction (abnormal loads = 22 nights, smaller components = 8 days)

During the turbine construction stage, including delivery and assembly, there will be deliveries to the Proposed Wind Farm site made by abnormally large vehicles, referred to in this section as *extended artics*, transporting the component parts of the turbines (nacelles, blades and towers). There will also be deliveries made by standard large HGVs, transporting cables, tools and smaller component parts. The types of load and associated numbers of trips made to the Proposed Wind Farm site during the turbine construction period are shown in Table 15-12, which summarises that a total of 64 trips will be made to and from the Site by extended artics, with a further 32 trips made by standard large articulated HGVs.

Table 15-12 Trip generation - Stage 2 – Wind turbine plant – total loads – Proposed Wind Farm

Material	Units	Quantity per Unit	Total Quantity	Quantity per Truck	Total Truck Loads	Truck type
Nacelle	8	1	8	1	8	Extended Artic
Blades	8	3	24	1	24	Extended Artic
Towers	8	4	32	1	32	Extended Artic
Sub total					***64***	
Transformer	8	1	8	1	8	Large Artic
Drive train and blade hub	8	1	8	1	8	Large Artic
Base and other deliveries	8	2	16	1	16	Large Artic
Sub total					***32***	
Total					**96**	

For the purposes of this assessment, it is assumed that the turbine delivery element will progress at the rate of 3 extended artic trips made by convoy to the Proposed Wind Farm on 5 days per week, which is a common delivery frequency for large turbine components from the port of entry to the Proposed

Wind Farm. This will result in this stage taking 22 days spread over a 5-week period with all deliveries made during the night. The actual trip number will be determined following consultations with An Garda Síochána. On a further two working days per week, lasting for approximately 4 weeks, the remaining equipment required during this phase will be delivered to the Proposed Wind Farm. The additional traffic movements for these two types of days are summarised in Tables 15-12 and 15-13. In Table 15-13 a PCU equivalent value of 10 was allocated to each extended artic movement, resulting in an additional 60 PCUs on the study network on these 22 days, while an additional 19.2 PCUs are forecast to be on the network on 8 other days, as shown in Table 15-14, during the turbine construction phase.

Table 15-13 Trip generation - Stage 2 – Wind turbine plant, extended artics – total movements and volumes per delivery day – Proposed Wind Farm

Material	Units	Truck Type	PCU Value	Total PCUs	2-way PCUs/ day
Nacelle	1	Extended Artic	10	10.0	20.0
Blades	3	Extended Artic	10	30.0	60.0
Towers	4	Extended Artic	10	40.0	80.0
Total per turbine	8			80.0	160.0
Total per delivery day	3			30.0	60.0
*Estimation based on 3 abnormal sized loads being delivered per day on 5 days per week (total 64 loads will take 22 nights spread over 5 weeks)					

Table 15-14 Trip generation - Stage 2 - Wind turbine plant, standard artic HGVs - total movements and volumes per delivery day – Proposed Wind Farm

Material	Quantity per Unit	PCU Value	2-way PCUs / day
Transformer	1	2.4	4.8
Drive train and blade hub	1	2.4	4.8
Base & other deliveries	2	2.4	9.6
Total	4		19.2
*Estimation based on equipment for 2 turbines being moved per week spread over 2 days for 4 weeks			

15.1.4.2.4 *Summary of construction days and trip generation by delivery route*

It is proposed that the general construction element of the Proposed Project will be undertaken for the full duration of the construction phase (i.e. 18 months), with the exception of the 8 concrete foundation delivery days, which will be undertaken without any other deliveries to the site for these 8 days. A

summary of the 2-way delivery trips in terms of pcus that will be generated on the 5 typical delivery days, together with the duration in days and the proposed access route, is shown in Table 15-15.

Table 15-15 Summary of trip generation by delivery day and delivery route

Delivery day	Days	2-way HGV pcus	2-way car pcus	2-way total pcus	Delivery route
General construction + grid construction	218	287 (215+72)	86	373	General construction materials delivery route
Concrete foundation delivery days	8	514	70	584	General construction materials delivery route
General construction + turbine delivery (abnormally sized loads)	22	275 (215+60)	70	345	General construction materials delivery route + TDR
General construction + turbine delivery (standard HGVs)	8	234 (215+19)	45	279	General construction materials delivery route
General construction only	127	215	45	260	General construction materials delivery route

Construction Employee Traffic

During the construction of the Proposed Project, it is estimated that up to 100 jobs will be created. Of this total it is estimated that up to 70 staff members will be employed at any one time during the site preparation and groundworks stage of construction, reducing to a maximum of 45 staff at any one time during the turbine construction stage. If a precautionary scenario is assumed that all staff will travel to / from the Site by car, at an average of 2 persons per car, then a total of 70 PCU movements (each trip is two way) will be added to the network during the groundworks stage of the Proposed Project, reducing to 45 PCU trips during the turbine construction stage.

15.1.4.3 Development Trip Generation – During Operation

There will be no staff permanently present on the Site once the Proposed Project is operational as it will be remotely monitored. The only traffic associated with the operational phase of the Proposed Wind Farm will be from maintenance personnel that will gain access to the Site via the proposed access junction off the L3115.

While there will be no scheduled trips required for the Proposed Grid Connection underground cabling, maintenance may be required, although this will occur rarely generating a modest number of trips.

It is estimated that the traffic volumes that will be generated by the Proposed Wind Farm once it is operational will be minimal, with an estimated 1-2 staff employed on the Proposed Wind Farm site at any time. The impact on the network of these trips during the operational stage is discussed in Section 15.1.12 below.

15.1.4.4 Development Trip Generation – During Decommissioning

Traffic generation to the Proposed Wind Farm during decommissioning will be similar but significantly less than the trip generation estimates presented for the construction phase presented in Section 15.1.4.2 above. This is because much of the materials brought into the Proposed Wind Farm during construction will be left in-situ during the decommissioning stage. Please see Appendix 4-6 Decommissioning Plan for further detail.

During this phase, there will be no traffic generation as a result of the Proposed Grid Connection or relating to the onsite 38kV substation as these elements of the Proposed Project will not be decommissioned.

15.1.5 Construction Traffic Vehicles

The delivery of turbine components including blades, tower sections and nacelles is a specialist operation owing to the oversized loads involved. As detailed in Section 1.7.3 in Chapter 1 of this EIAR, a range of turbine dimensions is proposed. With respect to the geometric requirements of the road network, the turbine blades are the longest turbine component, and the traffic assessment is concerned with the longest blade being proposed. The maximum blade length for the Proposed Project is 81.5 metres and has been assessed as the precautionary scenario for the turbine delivery assessment for the Proposed Project.

The critical vehicles in terms of size and turning geometry requirements and used in the detailed route assessment discussed in Section 15.1.2.2 are the blade transporter, the blade transporter with the blade lifted at the tip and the tower transporter vehicles, with the geometry of each shown in Figures 15-3a for the blade transporter and 15-3b for the tower transporter.

The key dimensions are as follows:

Transport of Blades – Standard articulated HGV with 14m blade overhang at rear (See Figure 15-3a)

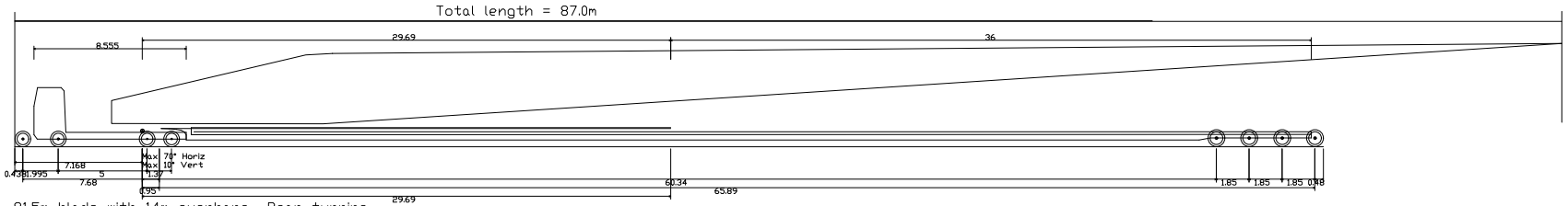
- Total length 87.0 m
- Length of blade 81.5 m
- Inner radius 28.0 m

Transport of Tower – Using low-bed or drop deck trailers (See Figure 15-3b)

- Total length (with load): 47.7 m
- Length of load: 33.9 m
- Inner radius: 25.0 m

The vehicles used to transport the nacelles will be similar to the tower transporter although will be shorter in length.

All other vehicles requiring access to the Site will be standard HGVs or LGVs and will be significantly smaller than the design test vehicles. Standard HGVs and LGVs will navigate the National, Regional and Local Road networks and access the Proposed Wind Farm off the L3115.



81.5m blade with 14m overhang	Rear turning
Overall Length	87m
Overall Width	2.550m
Overall Body Height	4.800m
Min Body Ground Clearance	0.375m
Track Width	2.500m
Lock-to-lock time	6.00s
Wall to Wall Turning Radius	9.800m

NOTES:

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Figure 15.3a Design blade extended artic profile

PROJECT:	Gannow Renewable Energy Development, Co. Galway		
CLIENT:	Gannow Ltd	SCALE:	NTS
PROJECT NO: 11580	DATE: 22.09.25	DRAWN BY:	AL

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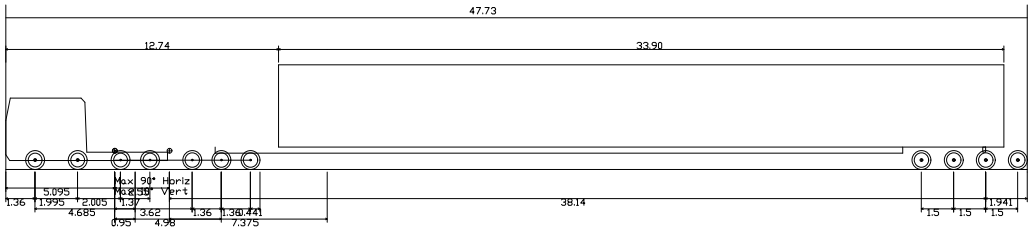
Site location, turbine delivery route, general construction traffic routes and Proposed Grid Connection



Final Tower section 33.9 full rear steer 45 degrees

Overall Length	47.726m
Overall Width	2.550m
Overall Body Height	4.900m
Min Body Ground Clearance	0.427m
Max Track Width	2.520m
Lock-to-lock time	6.00s
Wall to Wall Turning Radius	9.800m

NOTES:

PLANNING DRAWING ONLY - NOT FOR CONSTRUCTION PURPOSES

Figure 15.3b Design tower extended artic profile

PROJECT:	Gannow Renewable Energy Development, Co. Galway		
CLIENT:	Gannow Ltd	SCALE:	NTS
PROJECT NO: 11580	DATE: 22.09.25	DRAWN BY:	AL

ALAN LIPSCOMBE
TRAFFIC & TRANSPORT CONSULTANTS

15.1.6 Traffic Effects During Construction, Operation and Decommissioning of the Proposed Project

As detailed below, transportation of large turbine components will be carried out at night when traffic is at its lightest and in consultation with the relevant Roads Authorities and An Garda Síochána with deliveries accompanied by Garda escort.

It should be noted that for the purpose of the assessment all vehicles travelling to and from the Proposed Wind Farm have been assumed to do so from the TDR and delivery routes shown in Figure 15-1, Figure 15-2a, and Figure 15-2b and discussed in Sections 15.1.2.2 and 15.1.2.3 of this EIAR.

15.1.6.1.1 *Effect on Link Flows – During Construction*

Background traffic volumes and Proposed Wind Farm generated traffic volumes are shown for the five typical construction stage scenarios, discussed in Section 15.1.5.4 and shown in Tables 15-15 to 15-19, with the forecast effects, in terms of the percentage increase in traffic flows in PCUs and the number of days affected, set out in Tables 15-20 to 15-24. As stated previously in this section the actual figures presented in the tables will be subject to change, however, they are considered a robust estimation of likely traffic volumes and effects.

In terms of daily traffic flows the potential effects may be summarised as follows:

General construction + grid construction (218 days)

For 218 days, when general construction works will take place simultaneously to the construction of the Proposed Grid Connection, an additional 373 PCUs will travel to/from the Proposed Wind Farm via the identified construction delivery routes. During these days it is forecast that the increase in traffic volumes will range from between +3.4% to 5.3% on the 3 arms of the Baunmore Roundabout (Links 1, 2 and 3). Travelling toward the Site the forecast increase on these days will increase to +13.4% on the R348 north of Kiltullagh (Link 4) and to +16.9% on the L3115 leading to the Site (Link 5). Concrete foundation pouring days (8 days)

For 8 days when concrete is delivered to the Proposed Wind Farm for the construction of the turbine foundations via the identified construction delivery routes, and additional 584 PCUs will travel to/from the Site. During these days it is forecast that the increase in traffic volumes will range from between +5.3% to 8.3% on the 3 arms of the Baunmore Roundabout (Links 1, 2 and 3). Travelling east toward the Site the forecast increase on these days will increase to +20.9% on the R348 north of Kiltullagh (Link 4) and to +26.4% on the L3115 leading to the Site (Link 5).

General construction + turbine delivery (abnormally sized loads (22 days)

On the 22 nights that the abnormal loads carrying the large turbine components travel to the Proposed Wind Farm via the TDR at the same time as general construction traffic continues during the day, an additional 345 PCUs will travel to/from the Site. During this period it is determined that the additional traffic will result in an increase in traffic volumes ranging from +3.2% to 4.9% on the 3 arms of the Baunmore Roundabout (Links 1, 2 and 3), +12.4% on the R348 north of Kiltullagh (Link 4) and +15.6% on the L3115 leading to the Site (Link 5).

General construction + turbine delivery (standard HGVs) (8 days)

For 8 days when general site construction continues at the same time that the delivery of smaller turbine components are made to the Site by standard HGVs it is forecast that an additional 279 PCUs will travel to/from the Proposed Wind Farm via the TDR and the general construction routes.

During this period it is determined that the additional traffic will result in an increase in traffic volumes ranging from +2.5% to 3.9% on the 3 arms of the Baunmore Roundabout (Links 1, 2 and 3), +10.0% on the R348 north of Kiltullagh (Link 4), and +12.6% on the L3115 leading to the Site (Link 5).

General construction only (127 days)

For the remaining 127 days when general site construction only takes place on the Site it is forecast that an additional 260 PCUs will travel to/from the Proposed Wind Farm via the TDR or general construction routes.

During this period it is determined that the additional traffic will result in an increase in traffic volumes ranging from +2.4% to 3.7% on the 3 arms of the Baunmore Roundabout (Links 1, 2 and 3), +9.3% on the R348 north of Kiltullagh (Link 4), and +11.8% on the L3115 leading to the Site (Link 5).

Table 15-16 Daily traffic volumes on delivery route – background, Proposed Project traffic, with Proposed Project traffic – general construction + Proposed Grid Connection (PCUs)

Link	Background PCUs			Proposed Project PCUs			Total PCUs (Background + Proposed Wind Farm)		
	Car	HGV	Total	Car	HGV	Total	Car	HGV	Total
1 – R348 – between M6 and Baunmore Roundabout	9,947	995	10,942	86	287	373	10,033	1,282	11,315
2 – R347 – north of Baunmore Roundabout	8,619	773	9,392	86	287	373	8,705	1,060	9,765
3 – R348 – south of Baunmore Roundabout	6,393	673	7,066	86	287	373	6,479	960	7,439
4 – R348 – north of Kiltullagh	2,566	223	2,789	86	287	373	2,652	510	3,162
5 – L3115 – leading to site	2,079	133	2,212	86	287	373	2,165	420	2,585

Table 15-17 Daily traffic volumes on delivery route – background, Proposed Project traffic, with Proposed Project traffic – concrete foundation delivery (PCUs)

Link	Background PCUs			Proposed Project PCUs			Total PCUs (Background + Proposed Wind Farm)		
	Car	HGV	Total	Car	HGV	Total	Car	HGV	Total
1 – R348 – between M6 and Baunmore Roundabout	9,947	995	10,942	70	514	584	10,017	1,509	11,526

Link	Background PCUs			Proposed Project PCUs			Total PCUs (Background + Proposed Wind Farm)		
2 – R347 – north of Baunmore Roundabout	8,619	773	9,392	70	514	584	8,689	1,287	9,976
3 – R348 – south of Baunmore Roundabout	6,393	673	7,066	70	514	584	6,463	1,187	7,650
4 – R348 – north of Kiltullagh	2,566	223	2,789	70	514	584	2,636	737	3,373
5 – L3115 – leading to site	2,079	133	2,212	70	514	584	2,149	647	2,796

Table 15-18 Daily traffic volumes on delivery route – background, Proposed Project traffic, with Proposed Project traffic – general construction + turbine delivery – abnormal loads (PCUs)

Link	Background PCUs			Proposed Project PCUs			Total PCUs (Background + Proposed Wind Farm)		
	Car	HGV	Total	Car	HGV	Total	Car	HGV	Total
1 – R348 – between M6 and Baunmore Roundabout	9,947	995	10,942	70	275	345	10,017	1,270	11,287
2 – R347 – north of Baunmore Roundabout	8,619	773	9,392	70	275	345	8,689	1,048	9,737
3 – R348 – south of Baunmore Roundabout	6,393	673	7,066	70	275	345	6,463	948	7,411
4 – R348 – north of Kiltullagh	2,566	223	2,789	70	275	345	2,636	498	3,134
5 – L3115 – leading to site	2,079	133	2,212	70	275	345	2,149	408	2,557

Table 15-19 Daily traffic volumes on delivery route – background, Proposed Project traffic, with Proposed Project traffic – general construction + turbine delivery – standard HGVs (PCUs)

Link	Background PCUs			Proposed Project PCUs			Total PCUs (Background + Proposed Wind Farm)		
	Car	HGV	Total	Car	HGV	Total	Car	HGV	Total
1 – R348 – between M6 and Baunmore Roundabout	9,947	995	10,942	45	234	279	9,992	1,229	11,221
2 – R347 – north of Baunmore Roundabout	8,619	773	9,392	45	234	279	8,664	1,007	9,671
3 – R348 – south of Baunmore Roundabout	6,393	673	7,066	45	234	279	6,438	907	7,345
4 – R348 – north of Kiltullagh	2,566	223	2,789	45	234	279	2,611	457	3,068
5 – L3115 – leading to site	2,079	133	2,212	45	234	279	2,124	367	2,491

Table 15-20 Daily traffic volumes on delivery route – background, Proposed Project traffic, with Proposed Project traffic – general construction only) (PCUs)

Link	Background PCUs			Proposed Project PCUs			Total PCUs (Background + Proposed Wind Farm)		
	Car	HGV	Total	Car	HGV	Total	Car	HGV	Total
1 – R348 – between M6 and Baunmore Roundabout	9,947	995	10,942	45	215	260	9,992	1,210	11,202
2 – R347 – north of Baunmore Roundabout	8,619	773	9,392	45	215	260	8,664	988	9,652
3 – R348 – south of Baunmore Roundabout	6,393	673	7,066	45	215	260	6,438	888	7,326
4 – R348 – north of Kiltullagh	2,566	223	2,789	45	215	260	2,611	438	3,049

Link	Background PCUs			Proposed Project PCUs			Total PCUs (Background + Proposed Wind Farm)		
5 – L3115 – leading to site	2,079	133	2,212	45	215	260	2,124	348	2,472

Table 15-21 Summary daily effects of Proposed Project traffic – general construction + Proposed Grid Connection construction - % increase and number of days

Link	Background	Proposed Project	Total	% increase	Estimated No. of days
1 – R348 – between M6 and Baunmore Roundabout	10,942	373	11,315	3.4%	218
2 – R347 – north of Baunmore Roundabout	9,392	373	9,765	4.0%	218
3 – R348 – south of Baunmore Roundabout	7,066	373	7,439	5.3%	218
4 – R348 – north of Kiltullagh	2,789	373	3,162	13.4%	218
5 – L3115 – leading to site	2,212	373	2,585	16.9%	218

Table 15-22 Summary daily effects of Proposed Project traffic – concrete foundation delivery - % increase and number of days

Link	Background	Proposed Project	Total	% increase	Estimated No. of days
1 – R348 – between M6 and Baunmore Roundabout	10,942	584	11,526	5.3%	8
2 – R347 – north of Baunmore Roundabout	9,392	584	9,976	6.2%	8
3 – R348 – south of Baunmore Roundabout	7,066	584	7,650	8.3%	8
4 – R348 – north of Kiltullagh	2,789	584	3,373	20.9%	8
5 – L3115 – leading to site	2,212	584	2,796	26.4%	8

Table 15-23 Summary daily effects of Proposed Project traffic – general construction + turbine delivery (abnormal loads) - % increase and number of days

Link	Background	Proposed Project	Total	% increase	Estimated No. of days
1 – R348 – between M6 and Baunmore Roundabout	10,942	345	11,287	3.2%	22
2 – R347 – north of Baunmore Roundabout	9,392	345	9,737	3.7%	22
3 – R348 – south of Baunmore Roundabout	7,066	345	7,411	4.9%	22
4 – R348 – north of Kiltullagh	2,789	345	3,134	12.4%	22
5 – L3115 – leading to site	2,212	345	2,557	15.6%	22

Table 15-24 Summary daily effects of Proposed Project traffic – general construction + turbine delivery (standard HGVs) - % increase and number of days

Link	Background	Proposed Project	Total	% increase	Estimated No. of days
1 – R348 – between M6 and Baunmore Roundabout	10,942	279	11,221	2.5%	8
2 – R347 – north of Baunmore Roundabout	9,392	279	9,671	3.0%	8
3 – R348 – south of Baunmore Roundabout	7,066	279	7,345	3.9%	8
4 – R348 – north of Kiltullagh	2,789	279	3,068	10.0%	8
5 – L3115 – leading to site	2,212	279	2,491	12.6%	8

Table 15-25 Summary daily effects of Proposed Project traffic – general construction only - % increase and number of days

Link	Background	Proposed Project	Total	% increase	Estimated No. of days
1 – R348 – between M6 and Baunmore Roundabout	10,942	260	11,202	2.4%	127
2 – R347 – north of Baunmore Roundabout	9,392	260	9,652	2.8%	127
3 – R348 – south of Baunmore Roundabout	7,066	260	7,326	3.7%	127
4 – R348 – north of Kiltullagh	2,789	260	3,049	9.3%	127
5 – L3115 – leading to site	2,212	260	2,472	11.8%	127

15.1.6.2 Link Capacity Assessment

An assessment of the impact on link capacity on the all delivery routes (TDR and general construction routes) was undertaken for the various construction stages as set out in Tables 15-26 to 15-28 with the capacity of the links on the route options, as shown in Table 15-26, varying from 11,600 vehicles per day on the R348 between the M6 and the Baunmore Roundabout, to 8,600 vehicles per day on the R347 northern arm and R348 southern arms of the roundabout, down to 5,000 vehicles per day for the remainder of the delivery routes, including the R348 north and east of Kiltullagh, and the L3115 leading to the Site.

Capacities are based on road types and widths as set out in the TII Standards document DN-GEO-03031 Road Link Design, Table 6/1. It is noted that the link capacities adopted from the TII guidelines correspond to a Level of Service D, which the guidelines describe as being the level where:

> *"Speeds begin to decline slightly with a slight increase of flows and density begins to increase somewhat more quickly. Freedom to manoeuvre within the traffic streams is more noticeably limited, and the driver experiences reduced comfort levels".*

Background traffic flows are compared to flows forecast for the various construction delivery stages, in Table 15-27, with the percentage capacity reached for each stage shown in Table 15-28.

Based on this assessment, the following are the key points to note;

- Link 1 – R348 (between the M6 and the Baunmore Roundabout) - It is forecast that this section of the R348 will operate at 94% link capacity based on background traffic levels by the year 2028. For the 8 days that the concrete foundations are poured it is forecast that this will increase to a maximum of 99%, reducing to a 97% to 98% for the remainder of the construction period.
- Link 2 – R348 (north of Baunmore Roundabout) – While not on the TDR this arm of the roundabout may be used as an alternative route for the delivery of stone and concrete to the Site. This link is forecast to operate over links capacity at 109% based on background traffic levels by the year 2028. For the 8 days that the concrete foundations are poured it is

forecast that this will increase to +116%, reducing to 112% to 113% for the rest of the construction period.

- For the remainder of the TDR and the links assessed on the alternative delivery route, it is forecast that all links will operate well within link capacity for all scenarios.

In summary, while 2 arms of the Baunmore Roundabout are forecast to operate above or at link capacity by the year 2028, it is considered that the impacts of construction traffic generated by the Proposed Project will be slight with respect to link capacity.

Table 15-26 Delivery routes link type and link capacity (at Level of Service D)

Link	Link type	Link capacity (Level of Service D)
1 – R348 – between M6 and Baunmore Roundabout	Type 1 Single	11,600
2 – R347 – north of Baunmore Roundabout	Type 2 Single	8,600
3 – R348 – south of Baunmore Roundabout	Type 2 Single	8,600
4 – R348 – north of Kiltullagh	Type 3 Single	5,000
5 – L3115 – leading to the Site	Type 3 Single	5,000
6 – R348 – east of Kiltullagh	Type 3 Single	5,000

Table 15-27 Delivery route link capacity and summary of link flows by construction delivery day

Link	Link capacity (Level of Service D)	Construction delivery day					
		Background traffic	General construction Proposed Grid Connection	Concrete foundation construction	General construction + turbine delivery (abnormal loads)	General construction + turbine delivery (standard HGVs)	General construction only
1 – R348 – between M6 and Baunmore Roundabout	11,600	10,942	11,315	11,526	11,287	11,221	11,202
2 – R347 – north of Baunmore Roundabout	8,600	9,392	9,765	9,976	9,737	9,671	9,652

3 – R348 – south of Baunmore Roundabout	8,600	7,066	7,439	7,650	7,411	7,345	7,326
4 – R348 – north of Kiltullagh	5,000	2,789	3,162	3,373	3,134	3,068	3,049
5 – L3115 – leading to site	5,000	2,212	2,585	2,796	2,557	2,491	2,472
6 – R348 – east of Kiltullagh	5,000	1,336	1,709	1,920	1,681	1,615	1,596

Table 15-28 Delivery route link capacity and % of link capacity by construction delivery day

Link	Link capacity (Level of Service D)	Construction delivery day					
		Background traffic	General construction + Proposed Grid Connection	Concrete foundation construction	General construction + turbine delivery (abnormal loads)	T General construction + turbine delivery (standard HGVs)	General construction only
1 – R348 – between M6 and Baunmore Roundabout	11,600	94%	98%	99%	97%	97%	97%
2 – R347 – north of Baunmore Roundabout	8,600	109%	113%	116%	113%	112%	112%
3 – R348 – south of Baunmore Roundabout	8,600	82%	86%	89%	86%	85%	85%
4 – R348 – north of Kiltullagh	5,000	56%	63%	67%	63%	61%	61%

5 – L3115 – leading to site	5,000	44%	52%	56%	51%	50%	49%
6 – R348 – east of Kiltullagh	5,000	27%	34%	38%	34%	32%	32%

15.1.6.3 Effect on Link Flows – During Operation

Once the Proposed Project is operational it is estimated that there will be 1-2 staff members accessing the Site with a similar number of vehicle trips. It is considered that the traffic impact during this phase will be imperceptible.

15.1.6.4 Effect on Junctions – During Construction

The junction most affected on the identified delivery routes will be the junction between the R348 and the L3115 approaching the Proposed Wind Farm site access junction. For this reason a detailed junction capacity test was undertaken for this junction, as discussed below.

Junction capacity tests were undertaken using the industry standard junction simulation software PICADY, which permits the capacity of any junction to be assessed with respect to existing or forecast traffic movements and volumes for a given time period. The capacity for each movement possible at the junction being assessed is determined from geometric data input into the program with the output used in the assessment as follows:

- Queue – This is the average queue forecast for each movement and is useful to ensure that queues will not interfere with adjacent junctions.
- Degree of Saturation or Ratio of Flow to Capacity (% Sat or RFC) – As suggested, this offers a measure of the amount of available capacity being utilised for each movement. Ideally each movement should operate at a level of no greater than 85% of capacity, in accordance with TII requirements.
- Delay – Output in minutes, this gives an indication of the forecast average delay during the time period modelled for each movement.

15.1.6.4.1 *Scenarios Modelled*

The greatest effect in terms of traffic will be experienced during peak hours when, during peak construction periods, approximately 70 workers (35 cars) will pass through it. It is assumed that deliveries of materials to the Proposed Wind Farm will take place during the day after the workers have arrived, and before they leave at the end of the day and will therefore not occur at the same time.

15.1.6.4.2 *R348 / L3115 Junction Capacity Test Results*

The AM and PM peak hour traffic flows for the base year 2025 and the proposed construction year of 2028 are shown in Figures 15-5a and 15-5b respectively. The additional traffic movements that are forecast to be generated by construction workers are shown in Figure 15-5c, with proposed construction year 2028 traffic flows including the additional construction traffic shown in Figure 15-5d. The results of the junction capacity tests are shown in Table 15-29 and show that the additional trip passing through the junction will have a slight effect on the operation of the junction, increasing the maximum ratio of flow to capacity (RFC) at the junction from 10.6% to 10.8% during the AM peak hour, and from 19.6% to 33.4% for the movement affected during the PM peak hour. The assessment shows that the junction is forecast to operate well within the acceptable limit of 85% as specified by TII in the Traffic and Transport Assessment Guidelines.

Table 15-29 Junction capacity test results, R348/L3115 junction, AM and PM peak hours, without and with construction traffic, by time period, year 2028.

Period	Location	Without construction traffic			With construction traffic		
AM		RFC	Queue (vehicles)	Delay (minutes)	RFC	Queue (vehicles)	Delay (minutes)
	Right turn from L3115	10.6%	0.12	0.14	10.8%	0.12	0.14
	Left turn from L3115	0.8%	0.01	0.11	0.8%	0.01	0.11
	Right turn from R348	0.9%	0.01	0.11	2.7%	0.03	0.12
PM		RFC	Queue (vehicles)	Delay (minutes)	RFC	Queue (vehicles)	Delay (minutes)
	Right turn from L3115	19.6%	0.24	0.17	33.4%	0.50	0.20
	Left turn from L3115	3.9%	0.04	0.12	7.3%	0.08	0.13
	Right turn from R348	4.9%	0.05	0.13	4.9%	0.05	0.13

15.1.6.4.3 *Effect on Junctions – During Operation*

As discussed in Section 15.1.5.3 it is forecast that once operational, the Proposed Wind Farm is expected to generate 1 to 2 trips per day for maintenance purposes. It is therefore concluded that the Proposed Wind Farm will have an imperceptible effect on the local network once constructed.

15.1.7 Effect on Network of the Proposed Grid Connection

A detailed description of the Proposed Grid Connection is provided in Section 4.3.2 of Chapter 4 of this EIAR. It is proposed that the 38kV onsite substation is connected by 38kV underground cabling to the existing 220kV Cashla Substation located in the townland of Barrettspark, Co. Galway. The underground cabling route measures approximately 21.8km of which approximately 19.5km is located within the public road corridor with the remaining 2.3km located in private land or existing track.

The volumes of stone and other materials that will be delivered for the purpose of the Proposed Grid Connection underground cabling route is considered below. All traffic for the Proposed Grid Connection will be delivered via the delivery routes as shown in Figure 15.1.

The extent of the Proposed Grid Connection that will impact on the public road network is considered in the 14 sections (10 on-road 4-off road) shown in Figure 15-4a and summarised in Table 15-30. Based on a construction rate of 100m per day, it is estimated that the Proposed Grid Connection will take approximately 218 working days to complete based on one construction crew operating at one location. In practice the construction duration may be significantly reduced using 2 construction crews operating at different locations on the route.

The on-road sections of the Proposed Grid Connection travels along 1.4km of the R347 Regional Road, with the remaining 18.1km of the on–road route travelling along the local road network. An inspection

of the route would indicate that the significant majority of the Proposed Grid Connection will require a road closure at the point during the construction phase. A precautionary scenario, where a road closure will be required for the entire route is assumed for the purpose of the assessment.

The potential diversion routes that may be used during the construction of the various sections of the Proposed Grid Connection that are on the public road network are set out in Table 15-31 and shown in Figure 15-4b. For sections 2, 3, 4, 5, 7, 10, 11 and 13, which comprises 16.7 km of the total route, the diversions will result in low volumes of existing traffic on local roads being diverted onto other local roads, or onto roads of a higher standard, including the R347.

For Section 6 on the R347 this will result in traffic volumes on these roads being diverted onto some sections of lower standard local roads for a duration of 14 days. Prior to the construction of the Proposed Grid Connection, the final diversion routes that will be used during the construction of the various sections of the cabling route will be discussed and agreed with Galway County Council.

For the diversion routes shown in Figure 15-4b, the temporary additional trip length incurred by drivers during the construction of the Proposed Grid Connection will range from a minimum of 2.3km to a maximum of 22.3km. It should also be noted that the length of the diversion routes shown for the various sections of the Proposed Grid Connection are the longest that may be incurred, measured from either end of the section being constructed, and that in practice the number of trips that incur the full diversion will be very few. It is also noted that many drivers undertaking longer trips will divert onto other parallel routes further afield to avoid the closure, incurring shorter actual diversions.

The impact of the additional traffic that will be generated on the network during the construction of the Proposed Grid Connection is presented in Section 15.1.12.2.2.

It is proposed that construction staff will travel to and from the point of construction along the Proposed Grid Connection by minibus, or alternatively, staff will travel to the site by carpooling encouraged as part of a staff travel plan. By its nature the impacts of these additional trips on the network will be transient and will therefore be temporary and slight.

The construction methodology of providing a Proposed Grid Connection under and along local road networks is well established and accepted nationwide. There are in excess of 300 wind farms currently operational in Ireland and the majority of these are connected to the national grid via underground cable connections predominantly along the public road networks.

A **Traffic Management Plan (TMP)**, incorporating all the mitigation measures is included as Appendix 15-2 of this EIAR, and will be finalised and confirmatory detailed provisions in respect of traffic management agreed with the road's authority and An Garda Síochána prior to construction works commencing on site.

Table 15-30 Proposed Grid Connection underground cabling route link, traffic management measure, link length (km), construction duration (days)

Proposed Grid Connection Section	Traffic management	Length (kms)	Construction duration (days)
Section 1 – Off road at site	NA	0.2	2
Section 2 – L3115	Closure	0.6	6
Section 3 – L7152, L3111	Closure	8.7	87
Section 4 – L3107	Closure	0.1	1
Section 5 – L7126	Closure	2.4	24

Proposed Grid Connection Section	Traffic management	Length (kms)	Construction duration (days)
Section 6 – R347	Closure	1.4	14
Section 7 – L7122	Closure	1.4	14
Section 8 – Off road	NA	0.7	7
Section 9 – L31030	Closure	1.4	14
Section 10 – L3103	Closure	0.3	3
Section 11 – L7108	Closure	2.4	24
Section 12 – Off road	NA	1.2	12
Section 13 – L7109	Closure	0.8	8
Section 14 – Off road at Cashla Substation	NA	0.2	2
Total		**21.8**	**218**

Table 15-31 Proposed Grid Connection underground cabling route link, link length (km), potential diversion route, length of diversion route (km), additional trip length (km)

Proposed Grid Connection Section	Length (kms)	Potential diversion route	Length of diversion route (kms)	Additional trip length (kms)
Section 1 – Off road at site	0.2	NA	NA	NA
Section 2 – L3115	0.6	L3115, L3112, L3107, L3111, L7152	22.9	22.3
Section 3 – L7152, L3111	8.7	L3115, L3112, L3107	14.8	6.1
Section 4 – L3107	0.1	L3107, R347, L7126	7.9	7.8
Section 5 – L7126	2.4	L3107, R347	5.6	3.2
Section 6 – R347	1.4	R347, L7124, L3105	8.4	7
Section 7 – L7122	1.4	L3105, R339, R347	3.7	2.3
Section 8 – Off road	0.7	NA	NA	NA
Section 9 – L31030	1.4	Local access only	NA	NA
Section 10 – L3103	0.3	L3103, R339, L3105, L7124	15.2	14.9
Section 11 – L7108	2.4	L7108, L7109, R339, L3103	8.3	5.9

Proposed Grid Connection Section	Length (kms)	Potential diversion route	Length of diversion route (kms)	Additional trip length (kms)
Section 12 – Off road	1.2	NA	NA	NA
Section 13 – L7109	0.8	L7109, R339, L3103	10	9.2
Section 14 – Off road at Cashla Substation	0.2	NA	NA	NA
Total	**21.8**			

NOTES:

PLANNING DRAWING ONLY - NOT FOR CONSTRUCTION PURPOSES

Base mapping provided by MKO

Figure 15-4a Proposed Grid Connection

PROJECT:	Gannow Renewable Energy Development, Co.Galway		
CLIENT:	Gannow Ltd	SCALE:	NTS
PROJECT NO: 11580	DATE: 25.09.25	DRAWN BY:	AL

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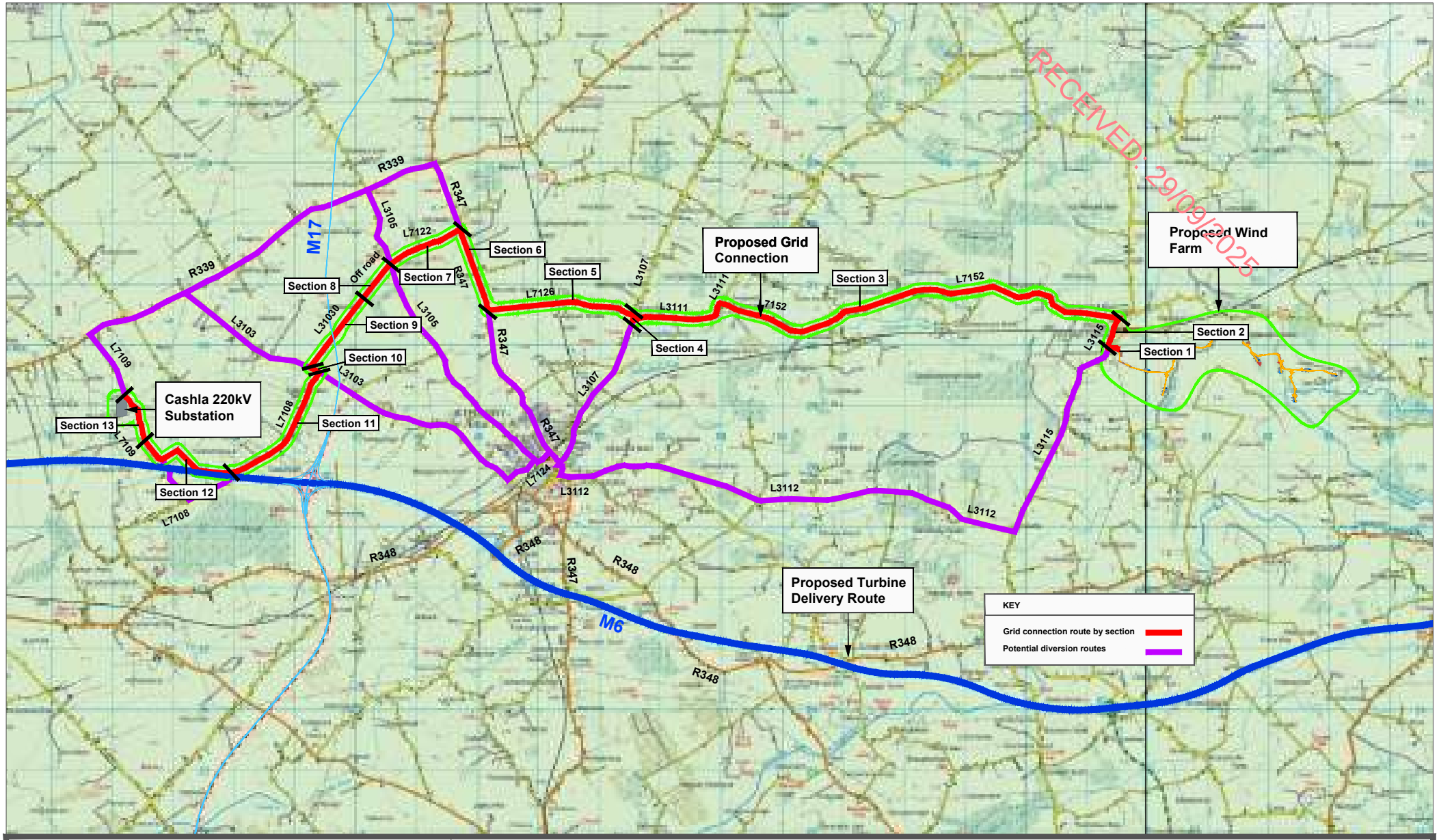
TRAFFIC & TRANSPORT CONSULTANTS



NOTES:

PLANNING DRAWING ONLY - NOT FOR CONSTRUCTION PURPOSES

Base mapping provided by MKO

Figure 15-4b Proposed Grid Connection - Potential diversion routes

PROJECT:	Gannow Renewable Energy Development, Co.Galway		
CLIENT:	Gannow Ltd	SCALE:	NTS
PROJECT NO: 11580	DATE: 25.09.25	DRAWN BY:	AL

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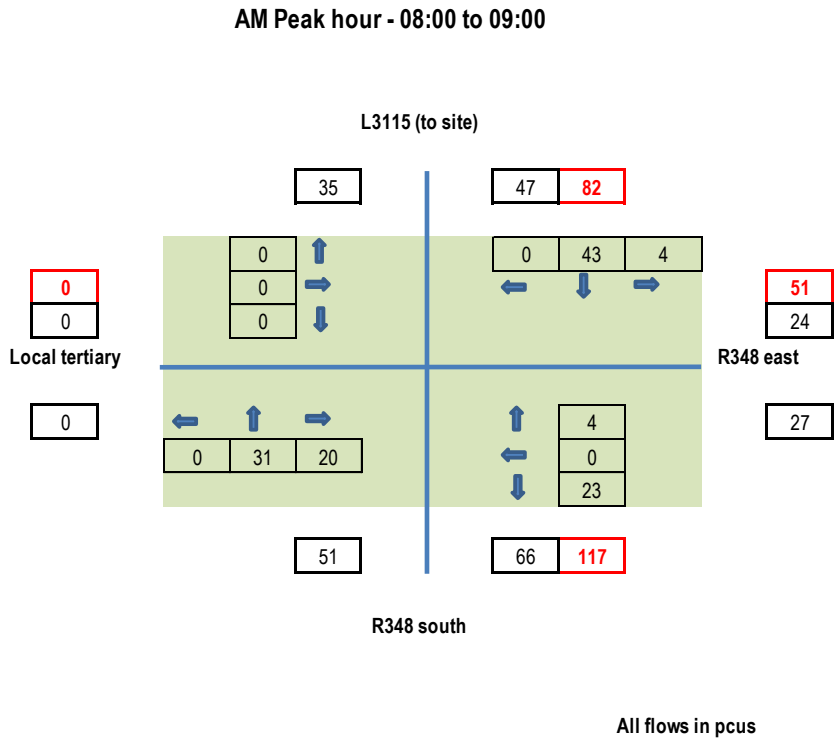

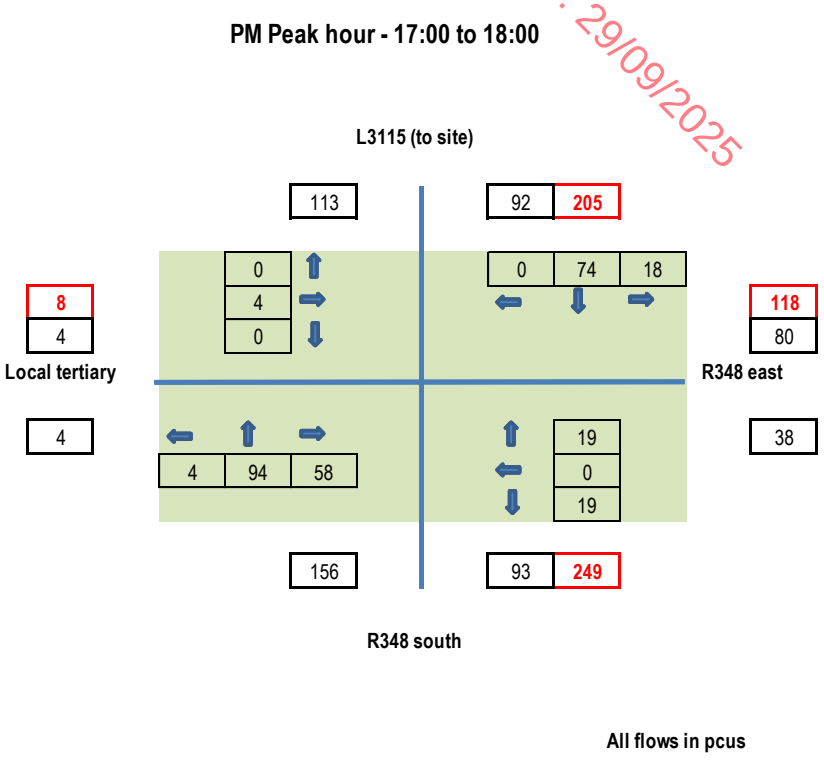

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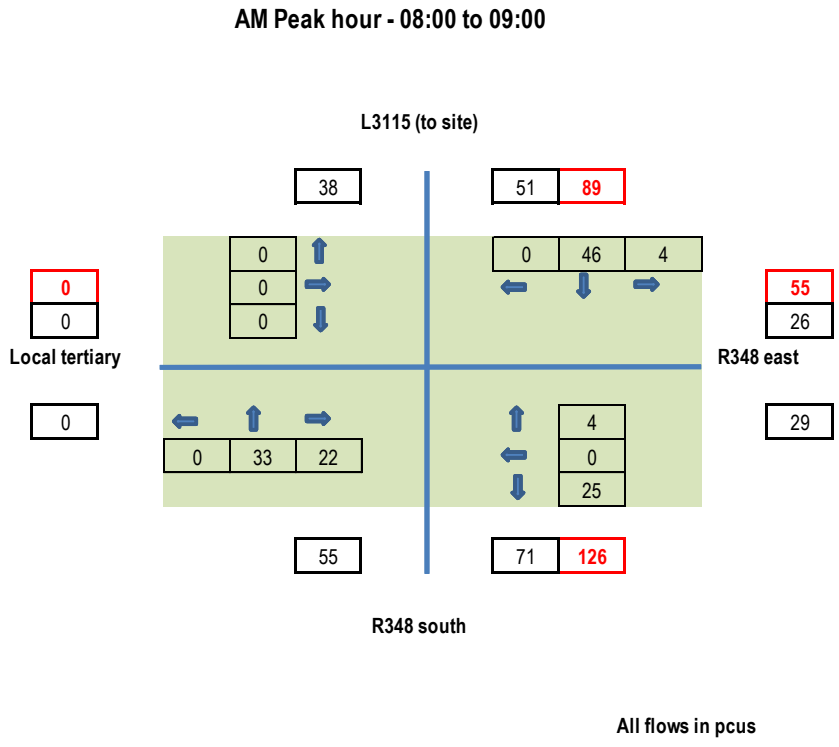
Figure 15.5a Observed traffic flows, R348 / L3115 junction, AM and PM peak hours, Year 2025, pcus



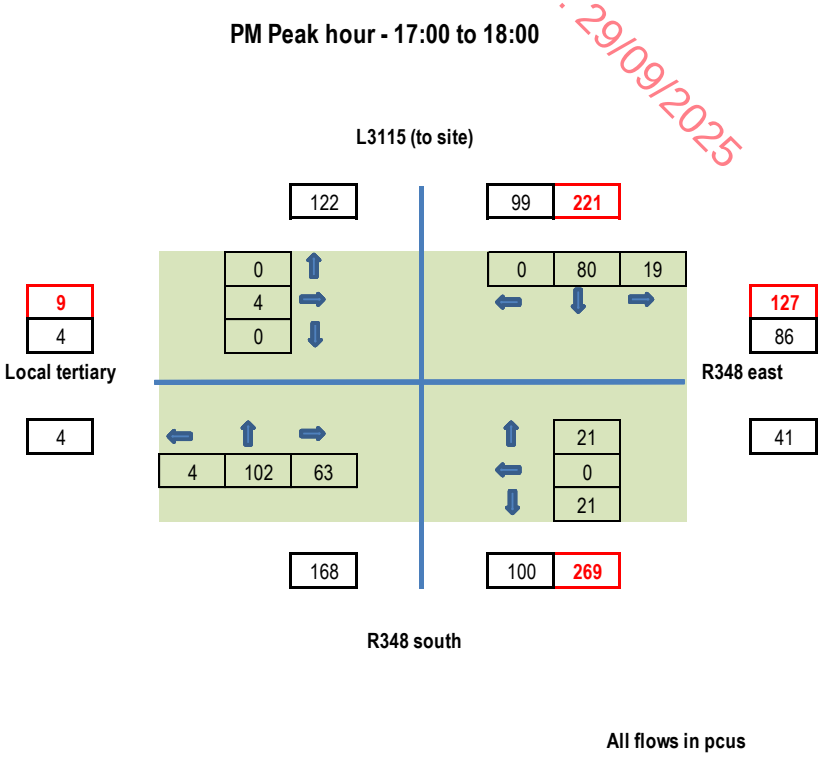


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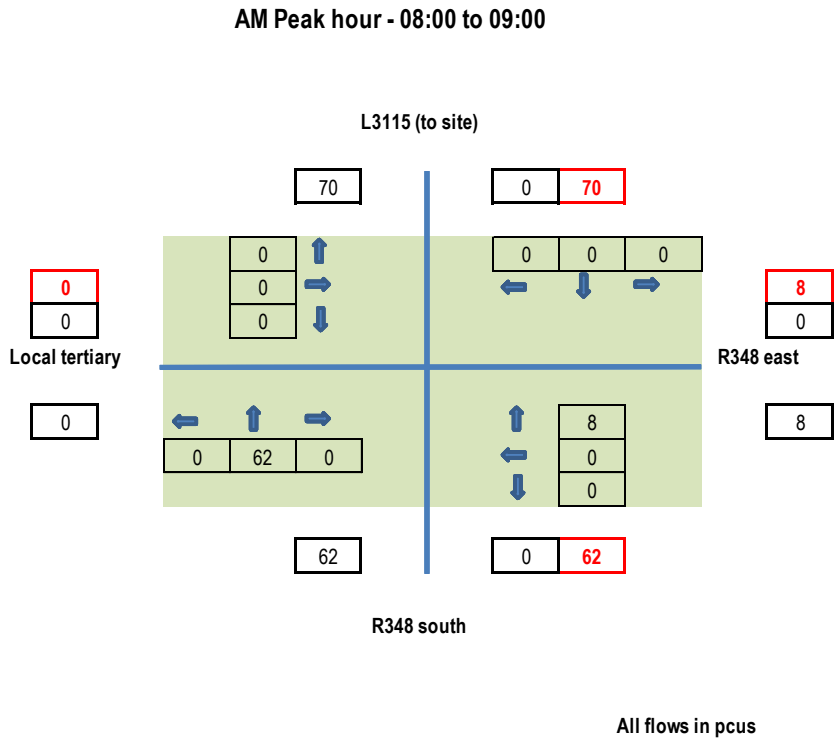
Figure 15.5b Background traffic flows, R348 / L3115 junction, AM and PM peak hours, Year 2028, pcus



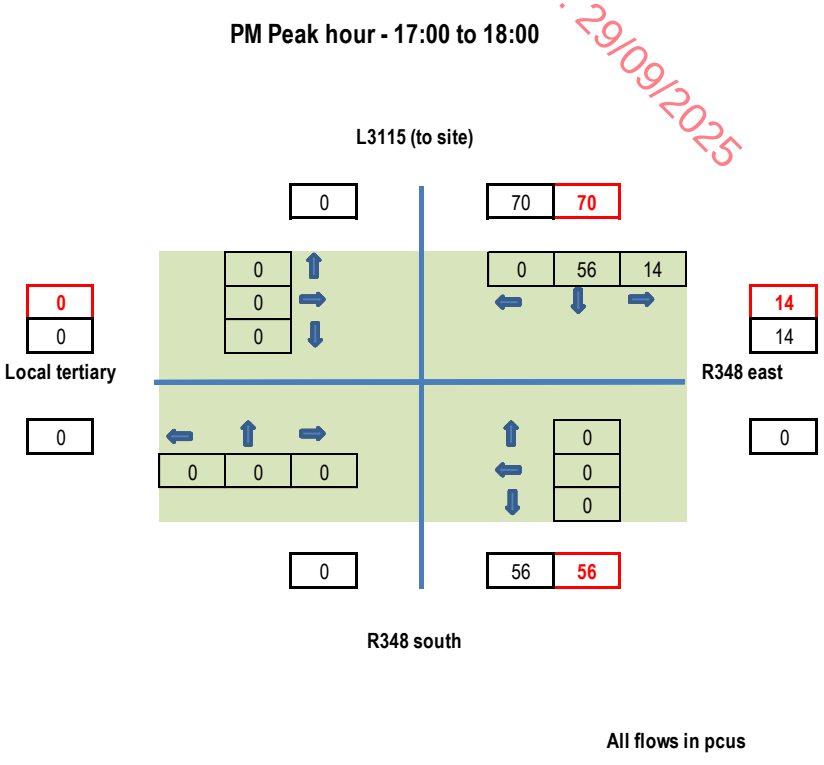


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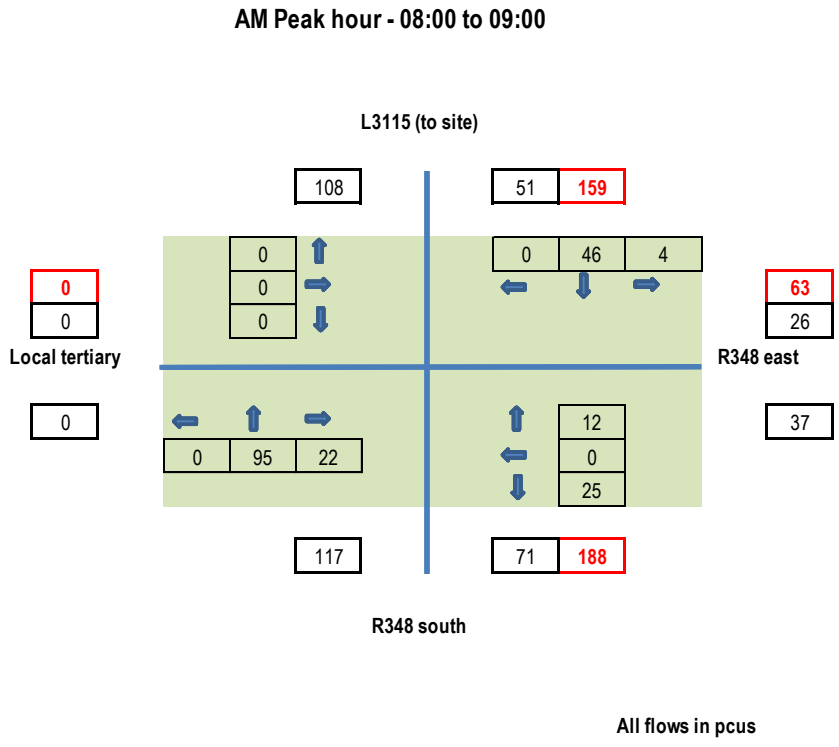
Figure 15.5c Development generated traffic flows, R348 / L3115 junction, AM and PM peak hours



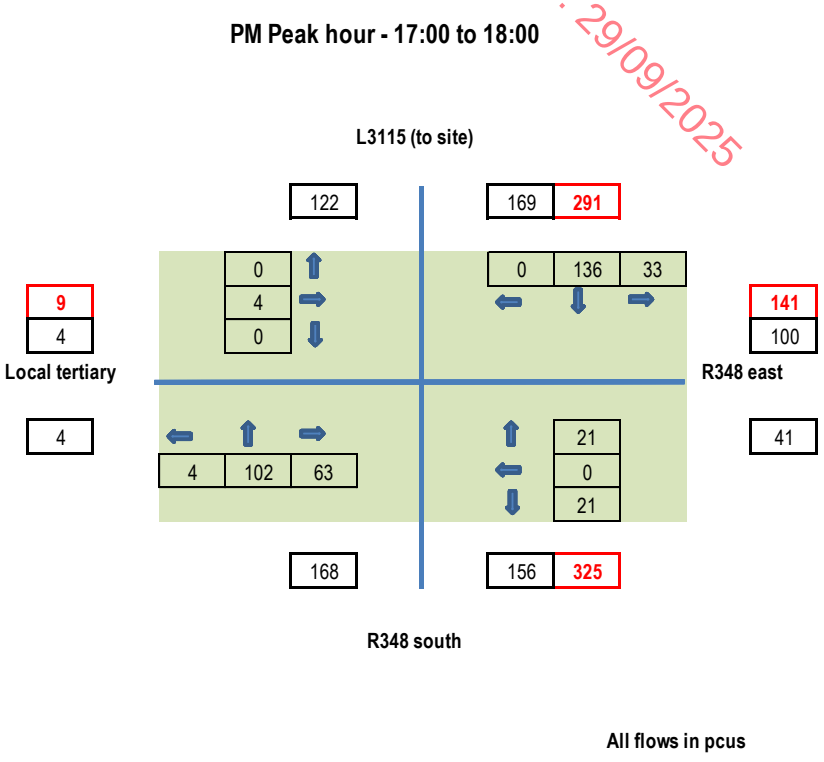


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Figure 15.5d With construction traffic flows, R348 / L3115 junction, AM and PM peak hours, Year 2028, pcus

15.1.8 Traffic Management of Large Deliveries

Traffic management measures include the following:

- Identification of a delivery schedule,
- Details of the alterations required to the infrastructure identified in this report and any other minor alteration identified (hedgerows etc),
- A dry run of the route using vehicles with similar dimensions.

The transport of large components is challenging and can only be done following extensive route selection, route proofing and consultation with An Garda Síochána, the local authority and its road section and roads authorities. Turbine components are usually transported at night when traffic is lightest and this is done in consultation with the road's authorities, An Garda Síochána Traffic Corp and special permits are generally required.

In some cases, minor accommodation works are required along the turbine delivery route such as hedge or tree cutting, temporary relocation of powerlines/poles, lampposts, signage, local road widening, and at one location, the provision of a temporary over-run areas over a roundabout centre island. Any upgrades to the public road network will be carried out in advance of turbine deliveries and following consultation and agreement with the relevant authorities. It is not anticipated that any sections of the local road network will be closed during the delivery of the abnormally sized loads.

Refer also to Appendix 15-2 of this EIAR, for the Traffic Management Plan.

15.1.9 Abnormal Load Route Assessment

Galway Port in Galway City is the proposed point of arrival for the large turbine components for the Proposed Wind Farm. The port is a well-established point of arrival for wind turbine components of similar scale into the State on a regular basis, as is the road network between the port and the national road network.

A route assessment was undertaken covering the entire delivery route between the port and the Proposed Wind Farm. An autotrack assessment from Galway Port to the N6 Coonagh Roundabout located on the east side of Galway City is provided as Appendix 15-3. This assessment illustrates that the abnormal loads will be accommodated on that section of the route with minor temporary alterations within the curtilage of the existing road network.

For the section of the TDR approaching the Site from the exit slip of the M6 onto the R348 roundabout to the Proposed Wind Farm site access off the L3115, a swept path assessment was undertaken at the locations shown in Figure 15-2a. The analysis was undertaken in order to establish the locations where the wind turbine transporter vehicles will be accommodated, and the locations where some form of remedial measure may be required.

Location 1 – M6 junction 17 slip / R348 roundabout

The swept path analysis undertaken for this junction is shown for the blade and tower transporters in Figures 15-6 and 15-7 respectively. The swept path analysis undertaken for this location shows that both vehicles will be accommodated with overhang of the body of the blade required at the northern corner of the M6 approach to the roundabout. Over-sail of the blade tip will also occur on the southern side of slip approach to the roundabout. The figure indicates that the wheels of both vehicles will be accommodated with the existing carriageway edge.

Location 2 – R348 / R348 roundabout

The swept path analysis undertaken for this roundabout is shown for the blade and tower transporters in Figures 15-8 and 15-9 respectively. The assessment shows that the body of the blade will require to overhang the centre island of the roundabout, and the blade tip will oversail the western side of the roundabout. The assessment indicated that minor over-run of the roundabout centre island edge will be required.

Location 3 – R348 / R347 Baunmore Roundabout

As shown in Figures 15-10 and 15-11, the swept path analysis undertaken for this roundabout indicates that the blade will require to overhang a significant part of the green area of the southwestern corner of the roundabout and the blade tip will oversail the north side of the R348 approach and the centre island of the roundabout.

Location 4 – R348 / R347 junction at graveyard

The swept path analysis undertaken for this junction is shown for the blade and tower transporters in Figures 15-12 and 15-13. The assessment shows that there will be slight overhang of the blade body on the eastern side of the junction and over-sail of the blade tip on the western side of the R348.

Location 5 – Bend on the R348

The swept path analysis undertaken for this location shown for the blade and tower transporters in Figures 15-14 and 15-15 indicates that there will be minor oversail of the blade tip on the southern side of the R348.

Location 6 – Bend on the R348

The swept path analysis undertaken for this bend shown for the blade and tower transporters in Figures 15-16 and 15-17 shows that that there will be minor oversail of the blade tip on the southern side of the R348 and minor overhang of the body of the blade to the north.

Location 7 – Bend on the R348

In order to ensure the blade tip clears the trees on the northern side of the road there will be minor overhang of the body of the blade on the southern side of the R348. The swept path analysis for this location is shown in Figures 15-18 and 15-19.

Location 8 – Bend on the R348

The swept path assessment for this series of bends indicates that minor oversail of the blade tip and overhang of the blade body will be required north and south of the R348. The swept path analysis for this location is shown in Figures 15-20 and 15-21.

Location 9 – R348 overpass of the M6

The swept path assessment for this section of the R348, as set out in Figures 15-22 and 15-23, shows that the approach and the overpass will accommodate the abnormally sized loads.

Location 10 – Bend on the R348

The swept path assessment for this bend indicates that minor overhang of the blade body will be required south of the R348. The swept path analysis for this location is shown in Figures 15-24 and 15-25.

Location 11 – Bend on the R348

The swept path assessment for this bend indicates that the abnormally sized loads will be accommodated at this location. The swept path analysis for this location is shown in Figures 15-26 and 15-27.

Location 12 – Bend on the R348

The swept path assessment for this bend indicates that minor overhang of the blade tip will be required at this location. The swept path analysis for this location is shown in Figures 15-28 and 15-29.

Location 13 – Bend on the R348 at Kiltullagh

The assessment for this relatively sharp left hand bend shows that the wheels of the abnormally sized loads will be able to negotiate this location with the wheels kept within the existing carriageway. The blade tip will, however, oversail the existing carpark to the south and the body of the blade will overhang the roadside boundary to the north. The swept path analysis for this location is shown in Figures 15-30 and 15-31.

Location 14 – Bend on the L3115

The swept path assessment for this bend indicates that the abnormally sized loads will be accommodated at this location. The swept path analysis for this location is shown in Figures 15-32 and 15-33.

Location 15 – Sharp bend on L3115

The assessment for this sharp right hand bend shows that the wheels of the abnormally sized loads will be able to negotiate this location with the wheels kept within the existing carriageway. Oversail of the blade tip will occur on the west of the bend and overhang of the blade will occur on the eastern side of the L3115. The swept path analysis for this location is shown in Figures 15-33 and 15-35.

Location 16 – Bend on the L3115 south of the Site

The swept path analysis undertaken for this bend shown for the blade and tower transporters in Figures 15-36 and 15-37 shows that that there will be oversail of the blade tip on the southern side of the L3115 and overhang of the body of the blade to the northwest.

NOTES:

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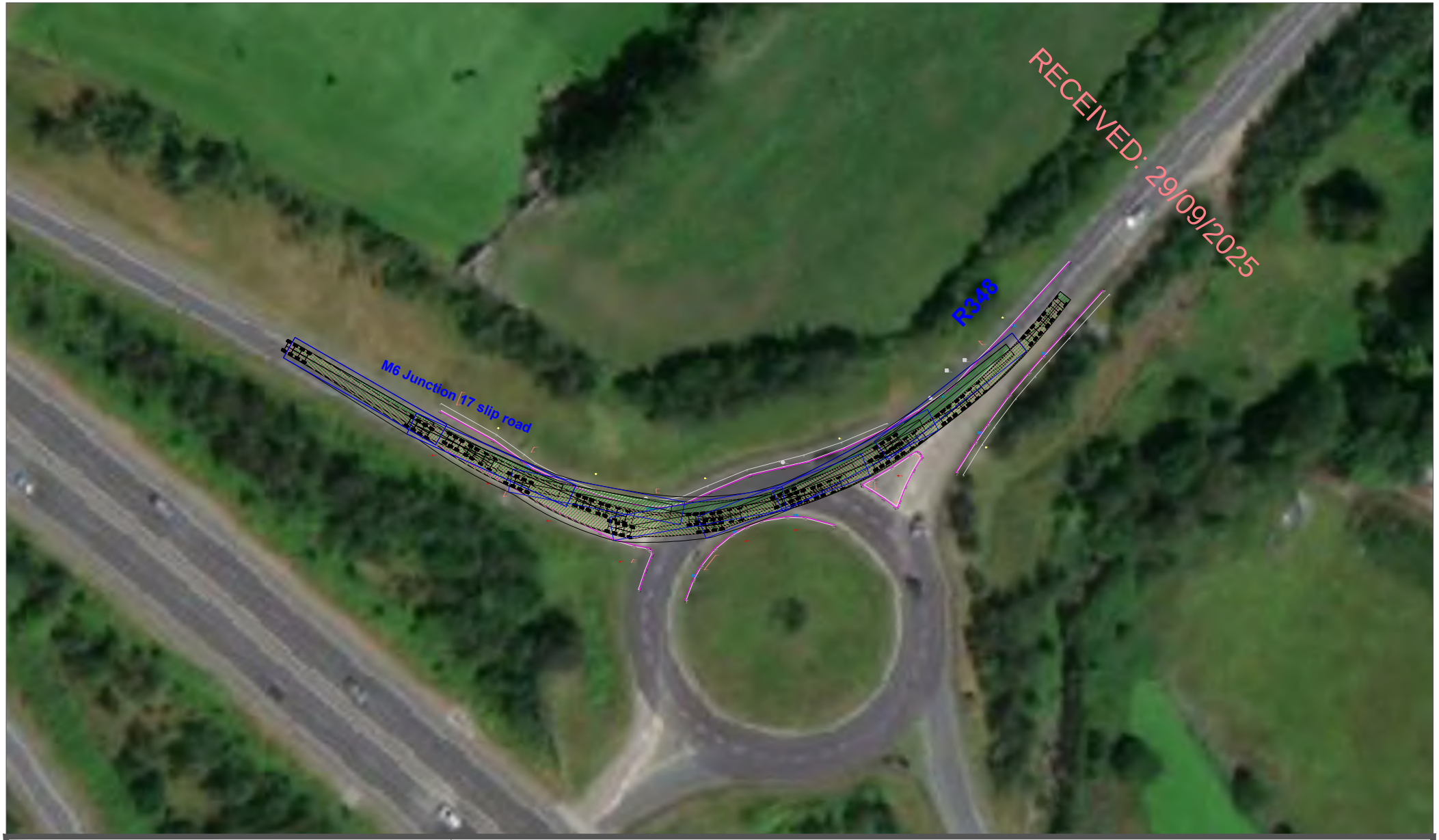
Figure 15-6 Location 1 - M6 junction 17 slip / R348 roundabout, blade extended artic

PROJECT: Gannow Renewable Energy Development, Co. Galway			ALAN LIPSCOMBE TRAFFIC & TRANSPORT CONSULTANTS
CLIENT: Gannow Ltd		SCALE: 1:1000	
AL PROJECT NO: 11580	DATE: 19.09.25	DRAWN BY: AL	



NOTES:

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Figure 15-7 Location 1 - M6 junction 17 slip / R348 roundabout, tower extended artic

PROJECT: Gannow Renewable Energy Development, Co. Galway			ALAN LIPSCOMBE TRAFFIC & TRANSPORT CONSULTANTS
CLIENT: Gannow Ltd		SCALE: 1:1000	
AL PROJECT NO: 11580	DATE: 19.09.25	DRAWN BY: AL	

NOTES:

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Figure 15-8 Location 2 - R348 / R348 roundabout, blade extended artic

PROJECT:	Gannow Renewable Energy Development, Co. Galway		
CLIENT:	Gannow Ltd	SCALE:	1:1000
AL PROJECT NO: 11580	DATE: 19.09.25	DRAWN BY:	AL

ALAN LIPSCOMBE
TRAFFIC & TRANSPORT CONSULTANTS

NOTES:

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Figure 15-9 Location 2 - R348 / R348 roundabout, tower extended artic

PROJECT:	Gannow Renewable Energy Development, Co. Galway		
CLIENT:	Gannow Ltd		SCALE: 1:1000
AL PROJECT NO: 11580	DATE: 19.09.25		DRAWN BY: AL

ALAN LIPSCOMBE
TRAFFIC & TRANSPORT CONSULTANTS

NOTES:

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Figure 15-10 Location 3 - R348 / R347 Baunmore Roundabout, blade extended artic

PROJECT:	Gannow Renewable Energy Development, Co. Galway		
CLIENT:	Gannow Ltd	SCALE:	1:1000
AL PROJECT NO: 11580	DATE: 19.09.25	DRAWN BY:	AL

ALAN LIPSCOMBE
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NOTES:

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Figure 15-11 Location 3 - R348 / R347 Baunmore Roundabout, tower extended artic

PROJECT:	Gannow Renewable Energy Development, Co. Galway		
CLIENT:	Gannow Ltd		SCALE: 1:1000
AL PROJECT NO: 11580	DATE: 19.09.25		DRAWN BY: AL

ALAN LIPSCOMBE
TRAFFIC & TRANSPORT CONSULTANTS

NOTES:

PLANNING DRAWING ONLY - NOT FOR CONSTRUCTION PURPOSES

Figure 15-12 Location 4 - R348 / R347 junction at graveyard, blade extended artic

PROJECT:	Gannow Renewable Energy Development, Co. Galway		
CLIENT:	Gannow Ltd	SCALE:	1:1000
AL PROJECT NO: 11580	DATE: 19.09.25	DRAWN BY:	AL

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NOTES:

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Figure 15-13 Location 4 - R348 / R347 junction at graveyard, tower extended artic

PROJECT:	Gannow Renewable Energy Development, Co. Galway		
CLIENT:	Gannow Ltd		SCALE: 1:1000
AL PROJECT NO: 11580	DATE: 19.09.25		DRAWN BY: AL

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NOTES:

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Figure 15-14 Location 5 - Bend on R348, blade extended artic

PROJECT:	Gannow Renewable Energy Development, Co. Galway		
CLIENT:	Gannow Ltd		SCALE: 1:1000
AL PROJECT NO: 11580	DATE: 19.09.25		DRAWN BY: AL

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NOTES:

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Figure 15-15 Location 5 - Bend on R348, tower extended artic

PROJECT:	Gannow Renewable Energy Development, Co. Galway		
CLIENT:	Gannow Ltd	SCALE:	1:1000
AL PROJECT NO: 11580	DATE: 19.09.25	DRAWN BY:	AL

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NOTES:

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Figure 15-16 Location 6 - Bend on R348, blade extended artic

PROJECT:	Gannow Renewable Energy Development, Co. Galway		
CLIENT:	Gannow Ltd	SCALE:	1:1000
AL PROJECT NO: 11580	DATE: 19.09.25	DRAWN BY:	AL

ALAN LIPSCOMBE
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NOTES:

PLANNING DRAWING ONLY - NOT FOR CONSTRUCTION PURPOSES

Figure 15-17 Location 6 - Bend on R348, tower extended artic

PROJECT:	Gannow Renewable Energy Development, Co. Galway		
CLIENT:	Gannow Ltd		SCALE: 1:1000
AL PROJECT NO: 11580	DATE: 19.09.25		DRAWN BY: AL

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TRAFFIC & TRANSPORT CONSULTANTS

NOTES:

PLANNING DRAWING ONLY - NOT FOR CONSTRUCTION PURPOSES

Figure 15-18 Location 7 - Bend on R348, blade extended artic

PROJECT:	Gannow Renewable Energy Development, Co. Galway		
CLIENT:	Gannow Ltd	SCALE:	1:1000
AL PROJECT NO: 11580	DATE: 19.09.25	DRAWN BY:	AL

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NOTES:

PLANNING DRAWING ONLY - NOT FOR CONSTRUCTION PURPOSES

Figure 15-19 Location 7 - Bend on R348, tower extended artic

PROJECT:	Gannow Renewable Energy Development, Co. Galway		
CLIENT:	Gannow Ltd	SCALE:	1:1000
AL PROJECT NO: 11580	DATE: 19.09.25	DRAWN BY:	AL

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NOTES:

PLANNING DRAWING ONLY - NOT FOR CONSTRUCTION PURPOSES

Figure 15-20 Location 8 - Bend on R348, blade extended artic

PROJECT:	Gannow Renewable Energy Development, Co. Galway		
CLIENT:	Gannow Ltd	SCALE:	1:1000
AL PROJECT NO: 11580	DATE: 19.09.25	DRAWN BY:	AL

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NOTES:

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Figure 15-21 Location 8 - Bend on R348, tower extended artic

PROJECT:	Gannow Renewable Energy Development, Co. Galway		
CLIENT:	Gannow Ltd		SCALE: 1:1000
AL PROJECT NO: 11580	DATE: 19.09.25		DRAWN BY: AL

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NOTES:

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Figure 15-22 Location 9 - R348 overpass of N6, blade extended artic

PROJECT:	Gannow Renewable Energy Development, Co. Galway		
CLIENT:	Gannow Ltd	SCALE:	1:1000
AL PROJECT NO: 11580	DATE: 19.09.25	DRAWN BY:	AL

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NOTES:

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Figure 15-23 Location 9 - R348 overpass of N6, tower extended artic

PROJECT:	Gannow Renewable Energy Development, Co. Galway		
CLIENT:	Gannow Ltd	SCALE:	1:1000
AL PROJECT NO: 11580	DATE: 19.09.25	DRAWN BY:	AL

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NOTES:

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Figure 15-24 Location 10 - Bend on R348, blade extended artic

PROJECT:	Gannow Renewable Energy Development, Co. Galway		
CLIENT:	Gannow Ltd	SCALE:	1:1000
AL PROJECT NO: 11580	DATE: 19.09.25	DRAWN BY:	AL

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NOTES:

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Figure 15-25 Location 10 - Bend on R348, tower extended artic

PROJECT:	Gannow Renewable Energy Development, Co. Galway		
CLIENT:	Gannow Ltd		SCALE: 1:1000
AL PROJECT NO: 11580	DATE: 19.09.25		DRAWN BY: AL

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NOTES:

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Figure 15-26 Location 11 - Bend on R348, blade extended artic

PROJECT:	Gannow Renewable Energy Development, Co. Galway		
CLIENT:	Gannow Ltd	SCALE:	1:1000
AL PROJECT NO: 11580	DATE: 19.09.25	DRAWN BY:	AL

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NOTES:

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Figure 15-27 Location 11 - Bend on R348, tower extended artic

PROJECT:	Gannow Renewable Energy Development, Co. Galway		
CLIENT:	Gannow Ltd	SCALE:	1:1000
AL PROJECT NO: 11580	DATE: 19.09.25	DRAWN BY:	AL

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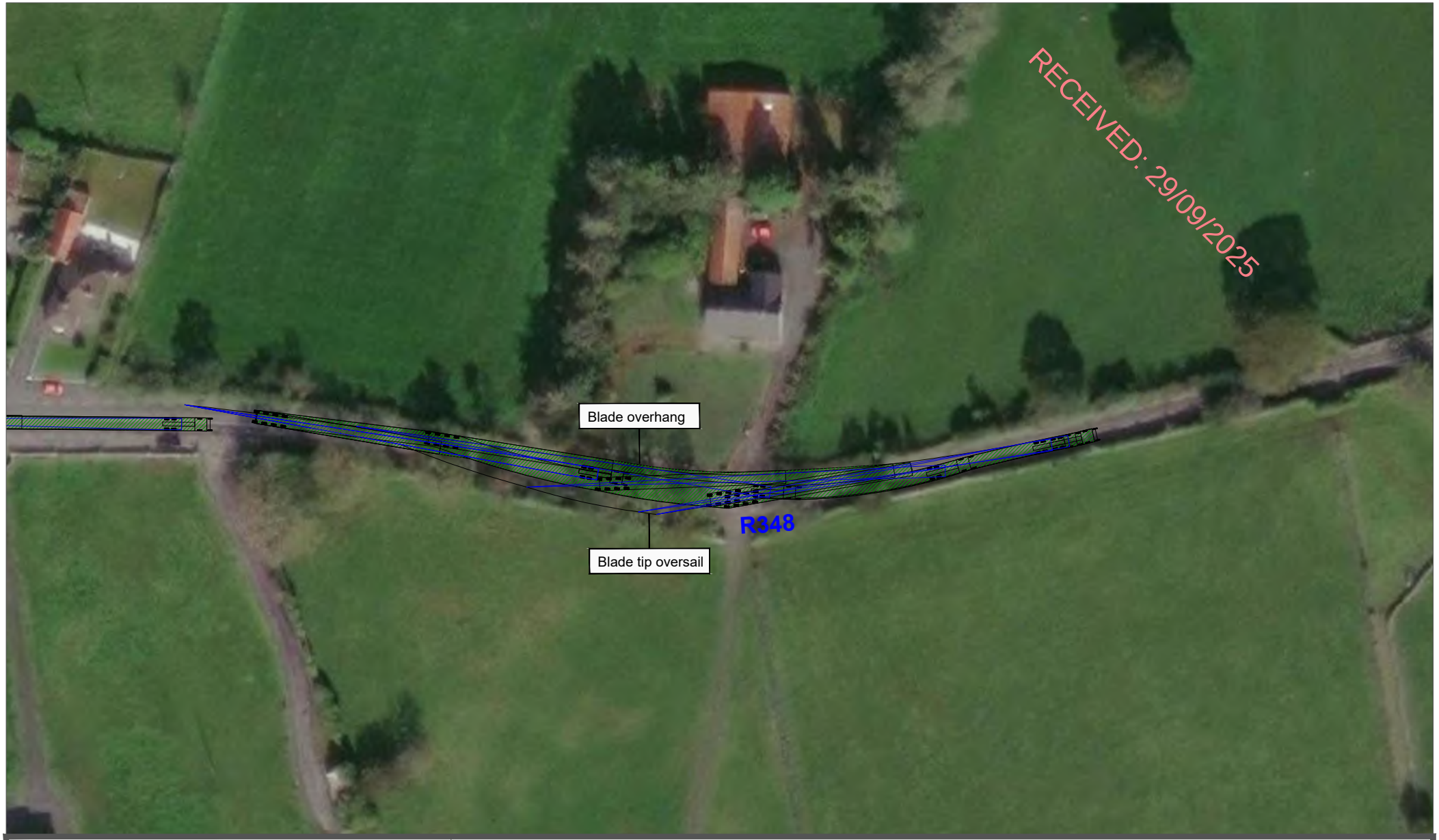

NOTES:

PLANNING DRAWING ONLY - NOT FOR CONSTRUCTION PURPOSES

Figure 15-28 Location 12 - Bend on R348, blade extended artic

PROJECT:	Gannow Renewable Energy Development, Co. Galway		
CLIENT:	Gannow Ltd	SCALE:	1:1000
AL PROJECT NO: 11580	DATE: 19.09.25	DRAWN BY:	AL

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NOTES:

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Figure 15-29 Location 12 - Bend on R348, tower extended artic

PROJECT:	Gannow Renewable Energy Development, Co. Galway		
CLIENT:	Gannow Ltd	SCALE:	1:1000
AL PROJECT NO: 11580	DATE: 19.09.25	DRAWN BY:	AL

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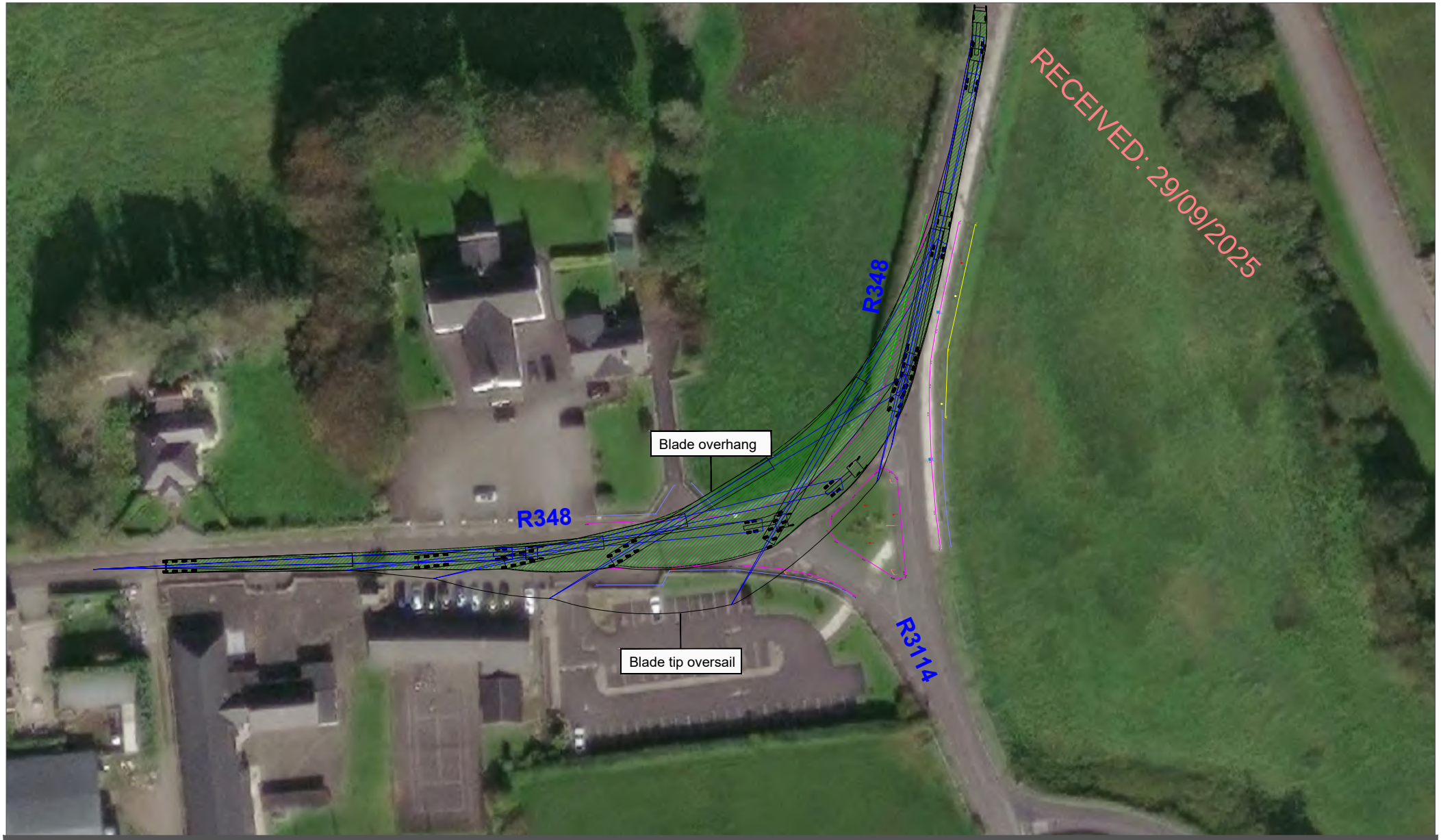

NOTES:

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Figure 15-30 Location 13 - Bend on R348 at Kiltullagh, blade extended artic

PROJECT: Gannow Renewable Energy Development, Co. Galway		
CLIENT: Gannow Ltd		SCALE: 1:1000
AL PROJECT NO: 11580	DATE: 19.09.25	DRAWN BY: AL

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NOTES:

PLANNING DRAWING ONLY - NOT FOR CONSTRUCTION PURPOSES

Figure 15-31 Location 13 - Bend on R348 at Kiltullagh, tower extended artic

PROJECT:	Gannow Renewable Energy Development, Co. Galway		
CLIENT:	Gannow Ltd	SCALE:	1:1000
AL PROJECT NO: 11580	DATE: 19.09.25	DRAWN BY:	AL

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NOTES:

PLANNING DRAWING ONLY - NOT FOR CONSTRUCTION PURPOSES

Figure 15-32 Location 14 - Bend on L3115, blade extended artic

PROJECT:	Gannow Renewable Energy Development, Co. Galway		
CLIENT:	Gannow Ltd	SCALE:	1:1000
AL PROJECT NO: 11580	DATE: 19.09.25	DRAWN BY:	AL

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NOTES:

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Figure 15-33 Location 14 - Bend on L3115, tower extended artic

PROJECT:	Gannow Renewable Energy Development, Co. Galway		
CLIENT:	Gannow Ltd	SCALE:	1:1000
AL PROJECT NO: 11580	DATE: 19.09.25	DRAWN BY:	AL

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NOTES:

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Figure 15-34 Location 15 - Sharp bend on L3115, blade extended artic

PROJECT:	Gannow Renewable Energy Development, Co. Galway		
CLIENT:	Gannow Ltd	SCALE:	1:1000
AL PROJECT NO: 11580	DATE: 19.09.25	DRAWN BY:	AL

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NOTES:

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Figure 15-35 Location 15 - Sharp bend on L3115, tower extended artic

PROJECT:	Gannow Renewable Energy Development, Co. Galway		
CLIENT:	Gannow Ltd	SCALE:	1:1000
AL PROJECT NO: 11580	DATE: 19.09.25	DRAWN BY:	AL

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NOTES:

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Figure 15-36 Location 16 - Bend on L3115 south of site access, blade extended artic

PROJECT:	Gannow Renewable Energy Development, Co. Galway		
CLIENT:	Gannow Ltd	SCALE:	1:1000
AL PROJECT NO: 11580	DATE: 19.09.25	DRAWN BY:	AL

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NOTES:

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Figure 15-37 Location 16 - Bend on L3115 south of site access, tower extended artic

PROJECT:	Gannow Renewable Energy Development, Co. Galway		
CLIENT:	Gannow Ltd	SCALE:	1:1000
AL PROJECT NO: 11580	DATE: 19.09.25	DRAWN BY:	AL

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15.1.10 Proposed Wind Farm Access Junction

Location 17 – Site access for all vehicles on L3115

The proposed access junction on the L3115 for all traffic that will access the Proposed Wind Farm during the construction and operational stages of the Proposed Project is shown in Figure 15-38. The access is located in the townland of Attimonmore, Co Galway and is situated on the eastern side of the L3115. The proposed junction radii are 13m with 1:10 tapers provided for standard HGV access in accordance with TII DN-GEO-03060. STOP road markings and signs are as per Figure 7.35 of the Traffic Signs Manual.

The proposed junction includes a run-over area north and south of the proposed access road in order to facilitate the delivery of the abnormally sized turbine loads. An additional area to the south of the junction will be cleared to facilitate overhang of the turbine blade transport vehicles. On completion of the delivery of the abnormally sized loads the temporary run-over areas will be closed off to traffic with the junction layout reduces in size to the standard junction layout described above.

The required visibility splays for a 60 kph speed limit, 90m along the nearside carriageway edge taken from a setback of 2.4m, are available along the L3115 to the north and south, as shown in Figure 15-39.

The autotrack assessment shown in Figures 15-40 and 15-41 demonstrates that the temporary access proposed on the L3115 will accommodate the turning requirements of the blade and tower transport vehicles. Similarly, the autotrack assessment set out in Figure 15-42 demonstrates that the junction layout proposed to accommodate the standard HGVs will accommodate a large articulated HGV.

L3115

STOP

Junction radii are 13m with 1:10 tapers for HGVs in accordance with TII DN-GEO-03060

Junction markings to be as per Figure 7.35 of the Traffic Signs Manual

- Centreline RM 001
- STOP line RRM 017
- STOP lettering M114.

Junction stop signs to be as per RUS 027 of the Traffic Signs Manual.

Temporary area required for overrun during turbine delivery phase

Proposed Passing Bay

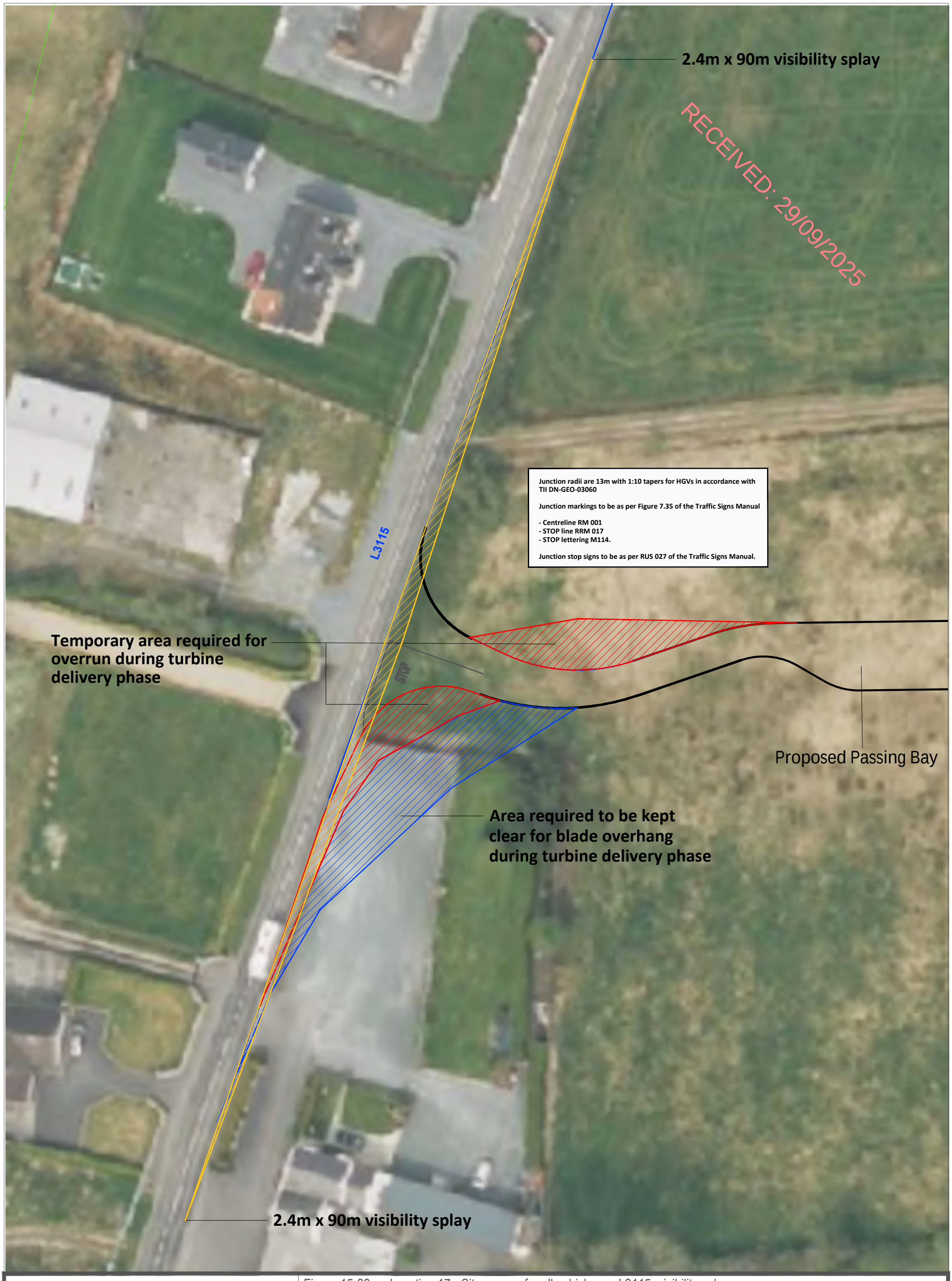
Area required to be kept clear for blade overhang during turbine delivery phase

NOTES:

PLANNING DRAWING ONLY - NOT FOR CONSTRUCTION PURPOSES

Figure 15-38 Location 17 - Site access for all vehicles on L3115

PROJECT: Gannow Renewable Energy Development, Co Galway			ALAN LIPSCOMBE TRAFFIC & TRANSPORT CONSULTANTS
CLIENT: Gannow Ltd		SCALE: 1:500	
PROJECT NO: 9510	DATE: 21.09.25	DRAWN BY: AL	



NOTES:

PLANNING DRAWING ONLY - NOT FOR CONSTRUCTION PURPOSES

Figure 15-39 Location 17 - Site access for all vehicles on L3115, visibility splays

PROJECT:	Gannow Renewable Energy Development, Co Galway		ALAN LIPSCOMBE TRAFFIC & TRANSPORT CONSULTANTS
CLIENT:	Gannow Ltd	SCALE: 1:500	
PROJECT NO: 9510	DATE: 21.09.25	DRAWN BY: AL	

Junction radii are 13m with 1:10 tapers for HGVs in accordance with TII DN-GEO-03060

Junction markings to be as per Figure 7.35 of the Traffic Signs Manual

- Centreline RM 001
- STOP line RRM 017
- STOP lettering M114.

Junction stop signs to be as per RUS 027 of the Traffic Signs Manual.

L3115

Temporary area required for overrun during turbine delivery phase

Proposed Passing Bay

Area required to be kept clear for blade overhang during turbine delivery phase

Blade overhang

NOTES:

PLANNING DRAWING ONLY - NOT FOR CONSTRUCTION PURPOSES

Figure 15-40 Location 17 - Site access for all vehicles on L3115, blade extended artic

PROJECT:	Gannow Renewable Energy Development, Co Galway		
CLIENT:	Gannow Ltd	SCALE:	1:500
PROJECT NO: 9510	DATE: 21.09.25	DRAWN BY:	AL

ALAN LIPSCOMBE
TRAFFIC & TRANSPORT CONSULTANTS

Junction radii are 13m with 1:10 tapers for HGVs in accordance with TII DN-GEO-03060

Junction markings to be as per Figure 7.35 of the Traffic Signs Manual

- Centreline RM 001
- STOP line RRM 017
- STOP lettering M114.

Junction stop signs to be as per RUS 027 of the Traffic Signs Manual.

L3115

Areas required for over-run during turbine delivery phase

Proposed Passing Bay

Area required to be kept clear for blade overhang during turbine delivery phase

NOTES:

PLANNING DRAWING ONLY - NOT FOR CONSTRUCTION PURPOSES

Figure 15-41 Location 17 - Site access for all vehicles on L3115, tower extended artic

PROJECT:	Gannow Renewable Energy Development, Co Galway		
CLIENT:	Gannow Ltd	SCALE:	1:500
PROJECT NO: 9510	DATE: 21.09.25	DRAWN BY:	AL

ALAN LIPSCOMBE
TRAFFIC & TRANSPORT CONSULTANTS

Junction radii are 13m with 1:10 tapers for HGVs in accordance with TII DN-GEO-03060

Junction markings to be as per Figure 7.35 of the Traffic Signs Manual

- Centreline RM 001
- STOP line RRM 017
- STOP lettering M114.

Junction stop signs to be as per RUS 027 of the Traffic Signs Manual.

L3115

STOP

Temporary area required for overrun during turbine delivery phase

Proposed Passing Bay

Area required to be kept clear for blade overhang during turbine delivery phase

NOTES:

PLANNING DRAWING ONLY - NOT FOR CONSTRUCTION PURPOSES

Figure 15-42 Location 17 - Site access for all vehicles on L3115, standard artic HGV

PROJECT:	Gannow Renewable Energy Development, Co Galway		
CLIENT:	Gannow Ltd	SCALE:	1:500
PROJECT NO: 9510	DATE: 21.09.25	DRAWN BY:	AL

ALAN LIPSCOMBE
TRAFFIC & TRANSPORT CONSULTANTS

15.1.11 Provision for Sustainable Modes of Travel

15.1.11.1 Walking and Cycling

The provision for these modes is not relevant during the construction stage of the Proposed Project as travel distances will likely exclude any employees walking or cycling to work.

15.1.11.2 Public Transport

A review of the TFI's Regional Transport Map of August 2025 indicates that there are no bus services that travel the L3115 between Kiltullagh and Attymon in the proximity of the Proposed Wind Farm. Public transport is therefore not an option for construction staff to access the Proposed Wind Farm. The provision of minibuses will be considered for transporting staff to and from the Site in order to minimise traffic generation and parking demand.

As the Proposed Grid Connection is located along the public road network there are a number of public transport services that service this aspect of the Proposed Project. However, due to the transient nature of construction works along the Proposed Grid Connection, use of these public transport services would be limited to short durations and is unlikely to be relied upon.

15.1.12 Likely and Significant Effects and Associated Mitigation Measures

15.1.12.1 'Do-Nothing' Scenario

If the Proposed Project does not proceed there will be no additional traffic generated or works carried out on the road network and therefore no effects with respect to traffic.

If the Proposed Project were not to proceed, the opportunity to capture part of Galway's valuable renewable energy resource would be lost, as would the opportunity to contribute to meeting Government and EU targets for the production and consumption of electricity from renewable resources and the reduction of greenhouse gas emissions.

Furthermore, as this application includes a Biodiversity Management and Enhancement Plan (BMEP) (Appendix 6-4) to be implemented during the development's operation, the opportunity to enhance the Site for biodiversity, at a local scale, would also be lost.

15.1.12.2 Construction Phase: Traffic and Transport

15.1.12.2.1 *Proposed Wind Farm*

For 218 days, when general construction works will take place at the same time as the construction of the Proposed Grid Connection, an additional 373 PCUs will travel to/from the Proposed Wind Farm via the TDR or via the alternative delivery routes. During these days it is forecast that the increase in traffic volumes will range from between +3.4% to 5.3% on the 3 arms of the Baunmore Roundabout (Links 1, 2 and 3). Travelling toward the Site the forecast increase on these days will increase to +13.4% on the R348 north of Kiltullagh (Link 4) and to +16.9% on the L3115 leading to the Site (Link 5). It is forecast that this will have a temporary slight negative and not significant effect on existing traffic on the delivery routes and at the proposed access junction on the L3155.

For 8 days, when concrete is delivered to the Proposed Wind Farm for the construction of the turbine foundations via the identified construction delivery route, an additional 584 PCUs will travel to/from the Site. During these days, it is forecast that the increase in traffic volumes will range from between +5.3%

to 8.3% on the 3 arms of the Baunmore Roundabout (Links 1, 2 and 3). Travelling east toward the Site the forecast increase on these days will increase to +20.9% on the R348 north of Kiltullagh (Link 4) and to +26.4% on the L3115 leading to the Site (Link 5). It is forecast that this will have a temporary moderate negative and not significant effect on existing traffic on the delivery route and at the temporary access junction on the L-3155.

For the remaining 127 days general construction works will be undertaken only, it is forecast that an additional 260 PCUs will travel to/from the Proposed Wind Farm site via the TDR or the general construction routes. During this period it is determined that the additional traffic will result in an increase in traffic volumes ranging from +2.4% to 3.7% on the 3 arms of the Baunmore Roundabout (Links 1, 2 and 3), +9.3% on the R348 north of Kiltullagh (Link 4) and +11.8% on the L3115 leading to the Site (Link 5). It is forecast that this will have a temporary slight negative and not significant effect on existing traffic on the delivery routes and at the proposed access junction on the L3115.

15.1.12.2.2 *Proposed Grid Connection*

On the 22-day duration that general site construction will continue at the same time the delivery of the abnormally sized loads are made during the night it is estimated that an additional 345 pcus will travel to the Site via the TDR or the alternative construction routes. During this period it is estimated that the additional traffic will result in an increase in traffic volumes ranging from +3.2% to 4.9% on the 3 arms of the Baunmore Roundabout (Links 1, 2 and 3), +12.4% on the R348 north of Kiltullagh (Link 4) and +15.6% on the L3115 leading to the Site (Link 5). It is forecast that this will have a temporary moderate negative and not significant effect on existing traffic on the delivery route and at the temporary access junction on the L-3155.

On the 8 days that general site construction will continue at the same time the delivery of the smaller turbine components by standard HGVs are made an additional 279 pcus will travel to the Site via the TDR or the alternative construction routes. During this period it is estimated that the additional traffic will result in an increase in traffic volumes ranging from +2.5% to 3.9% on the 3 arms of the Baunmore Roundabout (Links 1, 2 and 3), +10.4% on the R348 north of Kiltullagh (Link 4) and +12.6% on the L3115 leading to the Site (Link 5). It is forecast that this will have a temporary moderate negative and not significant effect on existing traffic on the delivery route and at the temporary access junction on the L-3155.

With respect to the traffic volumes that will be generated during the construction of the Proposed Grid Connection, it is estimated that there will be approximately 14 daily return trips made by a truck transporting materials, and 8 return trips made by a car to transport construction staff, to and from the site. Short term diversions are required for local traffic, as discussed in Section 15.1.7 of this EIAR, although the traffic volumes that will be impacted on the local road network are low. Therefore, by its nature the effects of these additional trips and diversions on the network will be transient, will be temporary and will be slight.

15.1.12.3 Operational Phase: Traffic and Transport

The impacts on the surrounding local highway network will be negligible given that there will only be an average of approximately 1 to 2 trips made to the Proposed Wind Farm by car or light goods vehicle per day, with no regular visits required for the Proposed Grid Connection. The effects of the maintenance traffic on the surrounding highway network will therefore be imperceptible, negative and long term.

15.1.12.4 Decommissioning Phase: Traffic and Transport

The proposed turbines are expected to have a lifespan of approximately 35 years. Following the end of their useful life, the wind turbines may be replaced with new turbines, subject to planning permission being obtained, or the proposed turbines may be decommissioned fully.

Any impact and consequential effect that occurs during the decommissioning phase will be similar to that which occurs during part of the construction phase when turbines were being erected. The impacts and associated effects will be materially less than during the construction phase as significant ground works are not required to decommission a wind farm.

Following decommissioning of the Proposed Wind Farm, turbine foundations will be rehabilitated, i.e. left in place, covered over with local soil/subsoil and allowed to re-vegetate naturally, if required. The internal site access tracks may be left in place, as they will serve as useful access to the agricultural and forestry land. It is considered that leaving these areas in-situ will cause less environmental damage than removing and recycling them.

While the actual number of loads that will be required to remove materials from the Proposed Wind Farm site in the event that the Proposed Wind Farm is decommissioned has not been determined at this stage, the impact in terms of traffic volumes will be significantly less than during the construction stage.

The onsite 38kV substation will remain in place as it will remain under the management and operation of ESBN. There are no impacts associated with this.

The works required during the decommissioning phase are described in Chapter 4: Description of the Proposed Project and the accompanying Decommissioning Plan included as Appendix 4-6 of this EIAR.

The Proposed Grid Connection will remain in place as it will remain under the management and operation of ESBN. There are no impacts associated with this.

The works required during the decommissioning phase are described in Chapter 4: Description of the Proposed Project and the accompanying Decommissioning Plan included as Appendix 4-6 of this EIAR.

15.1.12.5 Mitigation Measures

This section summarises the mitigation measures to minimise the effects of the Proposed Project during both the construction and operational stages (decommissioning will be same as construction where required).

15.1.12.5.1 Mitigation by Design

Mitigation by design measures include the following:

- Selection of the most appropriate delivery route to transport the wind turbine components, requiring the minimum remedial works to accommodate the vehicles as set out in Section 15.1.2.2.
- Selection of the shortest Proposed Grid Connection diversion routes, minimising the impacts on the existing road network and traffic.

15.1.12.5.2 *Mitigation Measures During the Construction Phase*

The successful completion of the Proposed Project will require significant coordination and planning, and it is therefore recommended that the following comprehensive set of mitigation measures will be put in place before and during the construction stage in order to minimise the effects of the additional traffic generated by the Proposed Project.

Delivery of abnormal sized loads

The following are the main points to note for these deliveries which will take place after peak evening traffic:

- The delivery of turbine components is a specialist transport operation with the transportation of components carried out at night when traffic is at its lightest and the impact minimised.
- The deliveries will be made in consultation with the Local Authority and An Garda Síochána.
- It is estimated that 64 abnormal sized loads will be delivered to the Site, comprising 22 convoys of 3 vehicles, undertaken over 8 separate nights.
- These nights will be spread out over an approximate period of 5 weeks and will be agreed in advance with the relevant authorities
- In order to manage each of the travelling convoys, for each there will be two Garda escort vehicles that will stop traffic when required at the front and rear of the convoy of 3 vehicles.
- There will also be two escort vehicles provided by the haulage company for each convoy.

Other traffic management measures

A detailed **Traffic Management Plan (TMP)** will be provided specifying details relating to traffic management and included in the CEMP prior to the commencement of the construction phase of the Proposed Project. The TMP will be agreed with the local authority and An Garda Síochána prior to construction works commencing onsite. The detailed TMP will include the following:

- **Traffic Management Coordinator** – a competent Traffic Management Co-ordinator will be appointed for the duration of the development, and this person will be the main point of contact for all matters relating to traffic management.
- **Delivery Programme** – a programme of deliveries will be submitted to Galway County Council in advance of deliveries of turbine components to the Site. Liaison with the relevant local authorities, TII and MMaRC and will be carried out where required regarding requirements such as delivery timetabling. The programme will ensure that deliveries are scheduled in order to minimise the demand on the local network and minimise the pressure on the access to the Site.
- **Information to locals** – Locals in the area will be informed of any upcoming traffic related matters e.g. temporary lane/road closures (where required) or delivery of turbine components at night, via letter drops and posters in public places. Information will include the contact details of the Project Co-ordinator, who will be the main point of contact for all queries from the public or local authority during normal working hours. An "out of hours" emergency number will also be provided.
- **A Pre and Post Construction Condition Survey** – Where required by the local authority, a pre-condition survey of roads associated with the Proposed Project can be carried out immediately prior to construction commencement to record an accurate condition of the road at the time. A post construction survey will be carried out after works are completed to ensure that any remediation works are carried out to a satisfactory standard. Where required the timing of these surveys will be agreed with the local authority. All road surfaces and boundaries will be re-instated to pre-development condition, as agreed with the local authority engineers.
- **Diversion routes during grid construction –** The identification and agreement with suitable diversion routes during the construction of the Proposed Grid Connection.
- **Liaison with the relevant local authority** - Liaison with Galway County Council and An Garda Síochána, will be carried out during the delivery phase of the large turbine vehicles, when an escort for all convoys will be required. Once the surveys have been carried out and “prior to commencement” status of the relevant roads established, (in

compliance with the provisions of the CEMP), the Roads section will be informed of the relevant names and contact numbers for the Project Developer/Contractor Site Manager as well as the Site Environmental Manager.

- **Implementation of temporary alterations to road network at critical junctions** – at locations highlighted in Section 15.1.9. In addition, in order to minimise the impact on the existing environment during turbine component deliveries the option of blade adaptor trailers will also be used where deemed practicable.
- **Identification of delivery routes** – These routes will be agreed with Galway County Council and adhered to by all contractors.
- **Delivery times of large turbine components** - The TMP will include the option to deliver the large wind turbine plant components at night in order to minimise disruption to general traffic during the construction stage.
- **Travel plan for construction workers –** While the assessment above has assumed the worst case in that construction workers will drive to the Site, the construction company will be required to provide a travel plan for construction staff, which will include the identification of routes to / from the Site and identification of an area for parking.
- **Additional measures** - Various additional measures will be put in place in order to minimise the effects of the development traffic on the surrounding road network including wheel washing facilities on site and sweeping / cleaning of local roads as required. These are set out in the CEMP which is contained in Appendix 4-5.
- **Re-instatement works** - All road surfaces and boundaries will be re-instated to pre-development condition, as agreed with the local authority engineers.

15.1.12.5.3 Mitigation Measures During Operational Stage

Due to the very low volumes of traffic forecast to be generated during this stage no mitigation measures are required.

15.1.12.5.4 Mitigation Measures During Decommissioning Stage

In the event that the Proposed Project is decommissioned after the 35 years of operation, a decommissioning plan, will be prepared for agreement with the local authority, as described in Chapter 4 and Appendix 4-6 Decommissioning Plan. This plan will include a material recycling / disposal and traffic management plan will be prepared for agreement with the local authority prior to decommissioning, in accordance with Scottish Natural Heritage report (SNH) *Research and Guidance on Restoration and Decommissioning of Onshore Wind Farms* (SNH, 2013).

15.1.12.6 Residual Effects

15.1.12.6.1 *Construction Stage*

During the 18 month construction stage of the Proposed Project, it is forecasted that the additional traffic that will appear on the public road network serving the Proposed Wind Farm site and during the construction of the Proposed Grid Connection will have a slight to moderate, short-term negative effect on existing road users, which will be minimised with the implementation of the mitigation measures included in the proposed Traffic Management Plan (TMP) included as Appendix 15-2. There will be no significant impacts.

15.1.12.6.2 *Operational Stage*

The traffic impact of the Proposed Project will be imperceptible during the operational stage. The residual impacts will be imperceptible, long term and negative. There will be no significant impacts.

15.1.12.6.3 *Decommissioning Stage*

As stated above, in the event that the Proposed Wind Farm is decommissioned, a decommissioning plan will be prepared and implemented in order to minimise the residual effects during this stage. The residual effect will be less than for the construction stage as set out above and will be an imperceptible to slight, negative, temporary effect. There will be no significant impacts.

For this scenario the Proposed onsite 38kV substation and Proposed Grid Connection will remain in-situ and continue to operate as part of the national electricity grid network.

15.1.12.7 Cumulative Effects

The extent of the study area of the traffic and transport cumulative impact assessment is based on the guidance set out in the Traffic and Transport Assessment Guidelines, PE-PDV-02045, May 2014, TII, which states that the assessment should include "*developments granted planning permission, but which are yet to become operational as well as any planning applications that have been submitted but have yet to be determined".*

The same guidelines are referenced to determine which of the developments that fit the above criteria have to potential for cumulative effects with the Proposed Project, which is a function of the level of increase on traffic volumes that may be experienced on a common road network.

An assessment of all existing, permitted, and proposed projects were assessed for the potential for cumulative traffic and transport effects with the Proposed Project based on the following criteria;

- Project status (existing, permitted, or proposed)
- Degree of overlap on the highway network (low to high)
- Traffic volumes (low to high).

A detailed list of all developments at varying stages in the development process (from pre-planning to operational), is set out in Appendix 2-3 of this EIAR. The developments included in the cumulative impact assessment are considered under the following groups;

- Other wind farms,
- Other general applications.
- Strategic Infrastructure Development (SID) applications made to An Coimisiún Pleanála.

15.1.12.7.1 *Other Wind Farms*

The other existing, permitted and proposed wind farm developments outlined in Section 2.9 of Chapter 2 that were considered to have potential traffic related cumulative impacts are set out below in Table 15-32. Developments consisting of single domestic turbines have not been considered further in the cumulative assessment as the scale of construction traffic associated with these would be considered insignificant and therefore would not have a cumulative impact when associated with the Proposed Project.

As set out in Table 15-32 below, there are 6 wind farms within the cumulative study area that are currently existing, non-operational or proposed. Of the 6 wind farms, 2 no. are existing, 1 no. wind farm is existing and non-operational and decommissioning is proposed and 3 no. wind farms are proposed (at pre-planning stage).

Of the 6 wind farm developments listed in Table 15-32, based on the criteria set out above (project status, overlap of delivery routes and traffic volumes) it is estimated that there are 4 no. wind farms for which there is a potential for cumulative impacts with the Proposed Project. It is noted that 3 no. of these developments are at pre-application stage.

In the event that the construction of the Proposed Project coincides with the construction phase of the 3 no. proposed new wind farms (at pre-application stage), the traffic related cumulative impacts would be negative, short-term and slight, based on the potential overlap of TDRs and associated traffic generation. It is therefore proposed that the construction phase of the Proposed Project will be scheduled, where possible, to avoid the overlap of the construction phases of these proposed wind farm developments. This will ensure that the potential for cumulative effects is minimised.

Similarly, in the event that the proposed decommissioning of Derrybrien Wind Farm coincides with the construction phase of the Proposed Project the traffic related cumulative impacts would be negative, short-term and slight, based on the potential overlap of TDR and associated traffic generation. It is therefore proposed that the construction phase of the Proposed Project will be scheduled, where possible, to avoid the decommissioning phase of the proposed decommissioning of Derrybrien Wind Farm. This will ensure that the potential for cumulative effects is minimised.

It is noted that the port of entry/exit for the Proposed Wind Farm and the 3 no. proposed new wind farms will likely be Galway Port, therefore, theoretically there is the potential that there could be cumulative impacts at the port and on the turbine delivery routes in close proximity to the port should the delivery of the turbines for one or more of these developments be done simultaneously. It is, however, the case that even if the port has the handling and storge capacity to provide for more than one of these developments at a time, typically the Gardaí would limit the delivery from the port to one convoy of 3 vehicles per night, so the cumulative impacts would not occur at this location.

Table 15-32 Summary of other wind farms considered in cumulative assessment and potential for cumulative traffic effects with Proposed Project

Project	Status	Degree of overlap of highway network (low / medium / high)	Traffic volumes (low / medium / high)	Potential cumulative traffic effects*
1 - Cloonlusk Wind Farm (2 turbines) – GCC Planning references 08/2407, ACP Ref 07.232902	Existing	NA	NA	Already constructed and operational traffic low volume and included in base traffic flows.
2 -Derrybrien Wind Farm Decommissioning (70 existing turbines not operational) - GCC Planning references 97/3470, 97/3652, 98/194 – ACP Reference SU07.308019. ACP: FD07.323018	Not operational and Proposed (decommissioning application)	Low	High	Low

3 – Sonnagh Wind Farm (8 turbines) – GCC Planning references 00/3234	Existing	NA	NA	Already constructed and operational traffic low volume and included in base traffic flows.
4 - Cooloo Wind Farm (9 turbines) ACP Reference PC07.316466	Proposed	Medium	Medium	Low
5 - Killuremore Wind Farm (14 turbines) ACP Reference PC07.314212	Proposed	Medium	Medium	Low
6 - Derryfadda Wind Farm (undefined no turbines) – Pre-planning	Proposed	Low	Medium	Low

Other development applications in the Planning Process (with the local authorities and with ACP)

There are a total of 5 other developments currently within the cumulative study area progressing through the planning process (4 permitted by Galway County Councils 1, permitted by An Coimisiún Pleanála and 1 proposed to An Coimisiún Pleanála) with the potential for cumulative impacts with the Proposed Project, as set out in Tables 15-33 and 15-34.

Of these there are 3 developments where it is considered that the potential for cumulative impacts is High. The first of these involves the construction of overhead line works (2.5km) and a section of underground cable construction (1.2km) between the existing 38kV Athenry Substation and the Dexcom Campus located in Athenry. It is noted that a short section of the route on the R348 overlaps with the TDR and construction route for the Proposed Project. The potential for cumulative impacts may be mitigated against by ensuring that the construction phase of the Proposed Project will not overlap with the works on this proposed development relating to this section of the R348. In the event that it is constructed at the same time as the Proposed Project it is forecast that the cumulative impacts will be negative, short term and slight, which is not significant.

The second development where it is considered that the potential for cumulative impacts is High is the proposed mixed-use development located off the Caherroyn Road in Athenry, Co Galway. While the site is not located on the TDR or any potential delivery route, the site is in close proximity to these routes. Should this development be constructed at the same time as the construction of the Proposed Project, it is forecast that the cumulative impacts will be negative, short term and slight, which is not significant.

The third development where it is considered that the potential for cumulative impacts is High is the proposed Bord Gáis Energy Cashla Peaker Plant, which includes for underground cabling to the existing Cashla 220kV substation in the townlands of Pollnagroagh and Rathmorrissy. This connection and the Proposed Grid Connection will partially overlap when approaching the existing Cashla 220kV substation. Should this development be constructed at the same time as the construction of the Proposed Project, it is forecast that the cumulative impacts will be negative, short term and slight, which is not significant.

Table 15-36 Summary of other developments with Local Planning Authorities considered in cumulative assessment and potential for cumulative traffic effects with Proposed Project

Project	Status	Degree of overlap of highway network (low / medium / high)	Traffic volumes (low / medium / high)	Potential cumulative traffic effects*
1 - New Co-op store building, including new access off Monivea Road and parking. Ballidavid South, Co. Galway. County Galway Planning Ref 17/1042.	Permitted	Medium	Low	Low
2 - For the demolition of the existing school, and construction of a new 2-storey, 11 classroom school and related site development. Glennagaghaun North, Co. Galway. County Galway Planning Reference 16/268.	Permitted	Low	Low	Low
3 – Ground mounted 130 kWh PV array system (approximately 300 photovoltaic panels). adjacent to the existing toll plaza building to supplement. Cappataggle Ballinasloe , Co. Galway.	Permitted	Low	Low	Low

County Galway Planning Reference 22/60984.				
4 – construction of a new overhead line from the existing Athenry 38kV substation to the customers new 38kV substation on the Dexcom campus. The development includes stringing of c.2.5km of overhead line and the laying of c.1.2km of underground cable and all ancillary works. Bookeen North , Kiltullagh , Athenry, Co Galway. County Galway Planning Reference 25/60807.	Permitted	High	Low	High

Table 15-34 Summary of other developments with ACP considered in cumulative assessment and potential for cumulative traffic effects with Proposed Project

Project	Status	Degree of overlap of highway network (low / medium / high)	Traffic volumes (low / medium / high)	Potential cumulative traffic effects*
1 - Construction of a mixed use office, enterprise and residential development. Caherroyn, Athenry, Co. Galway. Co. Galway.	Permitted	High	Low	High

ACP Ref 316109.				
2 - Construction of a 300MW Open Cycle Gas Turbine plant, primarily fuelled by Natural Gas and ancillary development, including a 220kV Substation and 220kV connection from the substation to the existing Cashla 220kV Substation. ACP Ref PC07.320975	Proposed	High	High	High

15.2 Telecommunications and Aviation

15.2.1 Introduction

This section of the EIAR assesses the likely significant effects of the Proposed Project on other material assets such as telecommunications and aviation assets. This section should be read in conjunction with Appendix 15-5 Telecommunications Impact Assessment Report.

The full description of the Proposed Project, including proposed turbine locations and elevations, is provided in Chapter 4 of this EIAR.

Section 15.2.3 describes the way in which wind turbines can potentially interfere with telecommunications signals or aviation activities. Section 15.2.4 presents details on scoping and consultation carried out to date with relevant consultees and how identified effects will be avoided, Section 15.2.5 provides details on a Telecommunications Impact Assessment undertaken by Ai Bridges, and the likely significant effects are assessed (and mitigation measures proposed) in Section 15.2.6.

15.2.1.1 Statement of Authority

This section of the EIAR has been prepared by Brandon Taylor and Catherine Johnson and reviewed by Ellen Costello and Sean Creedon, all of MKO. Brandon Taylor is an Environmental Scientist with over two and a half years of private consultancy experience. Brandon holds a BSc (Hons) in Geography from McGill University, and a MSc (Hons) in Coastal & Marine Environments from the University of Galway. Brandon's key skills include scientific research and report writing, particularly in the context of local communities and their interactions with environmental stressors, and geospatial analysis and the application of GIS and remote sensing tools across the fields of renewable energy development, coastal

zone management, and education and scientific communication. Since joining MKO, Brandon has been involved in the design and environmental impact assessment (EIA) of multiple large-scale onshore wind energy developments across Ireland, contributing to and managing the production of EIA reports. Catherine is an Environmental Scientist at MKO with over three years of consultancy experience in climate and sustainability. Prior to joining MKO in 2022, Catherine worked as an Environmental Social Governance (ESG) analyst for Acasta in Edinburgh. Catherine has expertise in international climate law and policy, earth science, and sustainability/ESG processes. Catherine has a BSc in Earth and Ocean Science and an LLM in Global Environment and Climate Change Law.

Ellen Costello is a Senior Environmental Scientist with MKO with over five years of experience in private consultancy. Ellen holds a BSc (Hons) in Earth Science, and a MSc (Hons) in Climate Change: Integrated Environmental and Social Science Aspects where she focused her studies on renewable energy development in Europe and its implications on environment and society. Ellen's key strengths and expertise are Environmental Protection and Management, Environmental Impact Statements, Project Management, and GIS Mapping and Modelling. Since joining MKO, Ellen has been involved in a range of renewable energy infrastructure projects. In her role as a project manager, Ellen works with and co-ordinates large multidisciplinary teams including members from MKO's Environmental, Planning, Ecological and Ornithological departments as well as sub-contractors from various fields in the preparation and production of EIARs. Ellen is a Practitioner Member of the Institute of Environmental Management & Assessment. Ellen has completed numerous Material Assets (Other Material Assets) sections of EIARs for wind farm developments. This section has also been reviewed by Sean Creedon (B.Sc., M.Sc.). Sean has 22 years' experience in planning and environmental impact elements within all stages of wind farm project delivery.

The Telecommunications Impact Assessment was managed by Kevin Hayes of Ai Bridges. Kevin is a senior radio planner / engineer with Ai Bridges and holds a M.Eng., B.Eng. in Communications & & Electronic Engineering with over 30 years of experience in telecommunications network design, telecommunications software modelling services radio and rollout of turnkey solutions for telecommunication software design projects. Kevin Hayes takes overall responsibility for the approval of all Telecommunications, Aviation and Television Impact Statements provided by Ai Bridges.

Ai Bridges is a leading supplier of telecommunications software prediction modelling solutions and services for the renewable industry sector and also provide comprehensive turnkey solutions and have extensive experience and knowledge of network design, implementation and deployment of telecommunications software solutions. Ai Bridges have been involved in the wind energy sector since 2007 and have a team of qualified and trained personnel with 200+ years' experience. More recently Ai Bridges have undertaken software modelling of Aviation Impact Assessments and well as EMC\EFF assessments for Solar Park pre-planning projects. They have undertaken Telecommunications & Aviation consultant roles in Environmental Impact Assessment Reports (EIAR) on behalf of wind farm clients and delivered Mitigation Measure strategy solutions to remediate wind farm impacts on telecommunications, aviation and television &radio networks. Ai Bridges has uses proprietary 3D software prediction models, based on industry standards, that can predict the impact of a wind farm development on telecommunications and television transmission networks at the pre-construct development stage.

15.2.2 Methodology and Guidance

This section of the assessment focuses particularly on the scoping and consultation exercise conducted with telecommunications operators and aviation authorities. Telecommunications operators and aviation authorities were contacted in August 2023 and followed up with in September 2023 as part of early-stage feasibility in order to determine the presence of telecommunications links either traversing or in close proximity to the Proposed Wind Farm site.

Scoping was carried out in line with EPA, 2022, and the '*Best Practice Guidelines for the Irish Wind Energy Industry*' (Irish Wind Energy Association, 2012), which provides a recommended list of

telecommunications operators for consultation. In addition to this, consultation was also carried out with the Commission for Communications Regulation (ComReg) in order to identify any other additional licensed operators in the vicinity of the Proposed Wind Farm site to be contacted, who may not have been on the list of main operators.

Following the scoping and consultation exercise undertaken, Ai Bridges were engaged to carry out a Telecommunications Impact Assessment for the Proposed Project, which is included as Appendix 15-5, to evaluate the Irish Rail communications network and to assess the possible impacts that the proposed turbines could have this network. Using the technical information obtained during the desktop survey assessments and consultation process, a telecommunications impact analysis was carried out utilising radio planning\modelling software. Further detail on the methodology for the Telecommunications Impact Assessment is included in Section 15.2.5 below and Appendix 15-5.

A full description of the scoping and consultation exercise is provided in Section 2.7 of Chapter 2 Background of the Proposed Project of this EIAR. Consultation with the telecommunications operators and aviation bodies informed the constraints mapping process, which in turn informed the layout of the Proposed Wind Farm site, as described in Chapter 3 Consideration of Reasonable Alternatives, Section 3.2.5 of the EIAR.

The assessment of likely significant effects on material assets uses the standard methodology and classification of impacts as presented in Section 1.7.2 of Chapter 1 of this EIAR.

15.2.2.1 Legislation, Policy and Guidance

This section has been carried out in accordance with the 'EIA Directive' as amended by Directive 2014/52/EU and having regard, where relevant, to guidance and policy documents listed below:

- Galway County Development Plan 2022-2028
- Guidelines on the Information to be contained in Environmental Impact Assessment Reports' (EPA, 2022)
- Draft Air Corps Wind Farm/Tall Structures Position Paper (August 2014)
- Best Practice Guidelines for the Irish Wind Energy Industry (Irish Wind Energy Association, 2012)
- Wind Energy Development Guidelines for Planning Authorities (Department of the Environment, Heritage and Local Government, 2006), hereafter referred to as the DoEHLG 2006 Guidelines,
- Draft Revised Wind Energy Development Guidelines for Planning Authorities (Department of the Environment, Heritage and Local Government, 2019), hereafter referred to as the Draft DoEHLG 2019 Guidelines,
- Code of Practice for Avoiding Danger from Overhead Electricity Lines (ESB Networks, 2019),
- EMF & You: Information about Electric & Magnetic Fields and the Electricity Network in Ireland (ESB, 2017),
- Irish Rail (2018) CCE Department Technical Guidance Document CCE-TMS-310 Guidance on Third Party Works,
- Irish Rail (2009) CCE Departmental and Multidisciplinary Standard I-DEP-0121 Third Party Works: Additional Details of Railway Safety Requirements.

15.2.3 Background

15.2.3.1 Broadcast Communications

Wind turbines, like all large structures, have the potential to interfere with broadcast signals, by acting as a physical barrier or causing a degree of scattering to microwave links. The most significant effect at a domestic level relates to a possible flicker effect caused by the moving rotor, affecting, for example,

radio signals. The most significant potential effect occurs where there are proposed turbines directly in line with the transmitter radio path.

15.2.3.2 Domestic Receivers

Depending on local topography, a domestic receiver may receive broadcast signals from more than one location. The strength of the signals varies with distance from the transmitter, and the receiver's antenna is generally always directed towards the most local, and usually strongest, broadcasting station.

There are two types of potential electromagnetic interference to domestic receivers depending on the location of the receiver in relation to a wind farm. 'Shadowed' houses are located directly behind a wind farm, relative to the location from where the signal is being received. In this case, the main signal passes through the wind farm and the rotating blades can create a degree of signal scattering. In the case of viewers located beside the wind farm (relative to the broadcast signal direction), the effects are likely to be due to periodic reflections from the blade, giving rise to a delayed signal.

In both cases, i.e., shadowed houses located behind the wind farm and those located to the side of it, the effects of electromagnetic interference may depend to some degree on the wind direction, since the plane of rotation of the rotor will affect both the line-of-sight blockage to viewers located behind the wind farm and the degree of reflection to receivers located to the side.

15.2.3.3 Other Signal Types

Wind turbines have the potential to affect other signal types used for communication and navigational systems, for example tower-to-tower microwave communication links, and airborne and ground radar systems. Interference with radar systems occurs when wind turbines are located close to an airport or directly in line with the instrument landing approach. The nearest operational airport is Galway Airport located approx. 22.5km west of the Proposed Wind Farm site and the nearest operational airfield is Craughwell Airfield which is located approx. 9.6km southwest of the Proposed Wind Farm site. The closest large international airport is Knock Airport which is located over 67km north of the Proposed Wind Farm site. Other airports/airfields in the vicinity of the Proposed Wind Farm include Shannon Airport, located over 72km south of the Proposed Wind Farm site, Connemara Airport, located over 57km to the west of the Proposed Wind Farm site, and the University of Galway helipads which are both located approximately 31km to the west of the Proposed Wind Farm site.

All airports listed above are outside the range at which such issues would be expected, and as detailed in Table 15-35 below, the Irish Aviation Authority noted no issues with the Proposed Project however they issued observations as discussed in Section 15.2.4.3.

15.2.3.4 Electromagnetic Interference

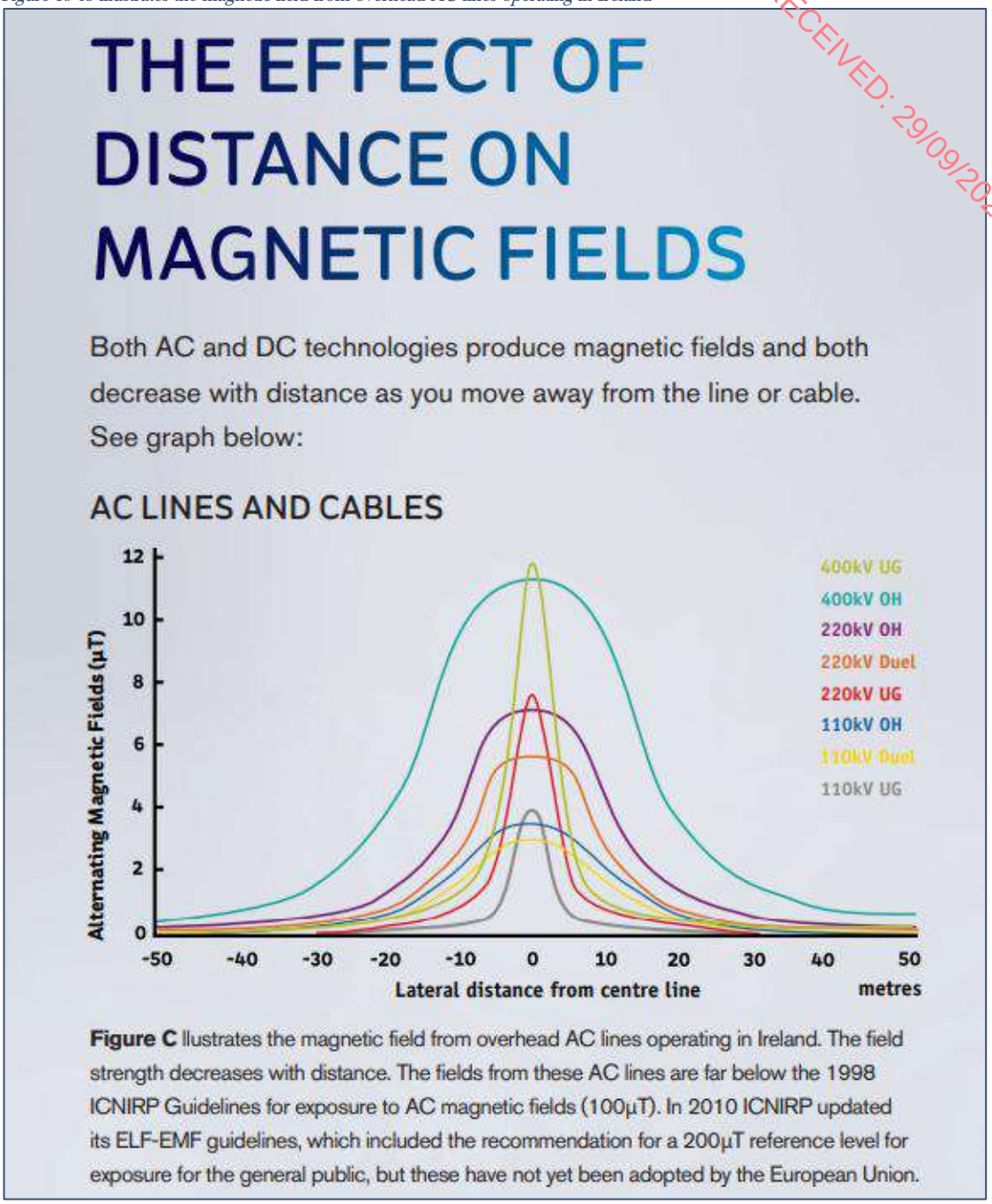
Both the adopted '*Wind Energy Development Guidelines for Planning Authorities'* produced by the Department of the Environment, Heritage and Local Government in 2006 (hereafter referred to as the 'Guidelines' (DoEHLG, 2006)) and the *Draft Wind Energy Development Guidelines'* (December 2019) (hereafter referred to as 'Draft Guidelines' (DoHPLG, 2019)) state that interference with broadcast communications can be overcome by the installation of deflectors or repeaters where required.

Developers are advised to contact individual local and national broadcasters and mobile phone operators to inform them of proposals to develop wind farms. This consultation has been carried out by MKO as part of the assessment of the Proposed Project as summarised below in Table 15-35; full details are provided in Section 2.7 in Chapter 2 of this EIAR.

15.2.3.4.1 *ESB (2017) EMF & You: Information about Electric & Magnetic Fields and the electricity network in Ireland'*

Electric and Magnetic Fields occur both naturally and from man-made sources. All electricity, both natural and man-made, produces two types of fields: electric fields and magnetic fields which are referred to as EMF. Two types of technology can be used to transmit electricity, alternating current (AC) and direct current (DC). Both AC and DC power lines produce electric and magnetic fields. AC lines produce AC electric and magnetic fields and DC lines produce static electric and magnetic fields. ESB Networks transmission and distribution networks are AC systems. Please see Figure 15-43 reproduced from the 2017 ESB information booklet which demonstrates the alternating magnetic field of AC overhead lines and underground cables. As shown below, EMF from 110kV overhead lines and underground cables diminishes quickly with distance from the potential impacted receptor, with EMF from underground 110kV cables, diminishing from 4µT to 0.5µT at 10m away from the cable, reducing to almost 0µT at 20m. The Proposed Grid Connection and onsite substation present on the Site constitutes 38kV infrastructure, and so the EMF from this kV infrastructure will be of an even lower magnitude.

Figure 15-43 illustrates the magnetic field from overhead AC lines operating in Ireland



15.2.3.5 Aviation

The Draft Guidelines (DoHPLG, 2019) note that wind turbines or any structure exceeding 90 metres (m) in height are considered obstacles to aerial navigation and need to be shown on aviation charts. Contact with the Irish Aviation Authority (IAA) is advised at the pre-planning stage of consultation to ensure that a proposed wind farm will not cause difficulties with air navigation safety, including airports, radar and aircraft guidance systems.

In addition, the Irish Air Corps (IAC) drafted the '*Air Corps Wind Farm/Tall Structures Position Paper*' in 2014 (hereafter referred to as the IAC Position Paper), with the intent of ensuring IAC operations and training may be accomplished in a safe and economical manner, relevant aerodromes remain viable for air traffic, the ability to train military flying skills is protected and vital navigation routes are protected to safeguard the ability of the IAC to fulfil its role.

In line with the above, the IAC notes they are opposed to any wind farms or tall structures in the following areas:

- Lands underlying military airspace used for flying activity, including designated Military Operation Areas (MOA)
- Areas wherein military flying occurs at low levels
- Critical low level routes in support of IAC operational requirements

The IAC Position Paper also notes that in all locations where wind farms or masts are permitted, they should be illuminated by high intensity strobe lights, be identifiable hazards relative to additional lighting in the vicinity and remain visible to night vision equipment.

Following the guidance above, consultation with the IAA and the Department of Defence (DoD) has been carried out by MKO as part of the assessment of the Proposed Project as summarised below in Table 15-35; full details are provided in Section 2.7 in Chapter 2 of this EIAR.

15.2.4 Scoping and Consultation

As part of the EIAR scoping and consultation exercise, MKO contacted the relevant national and regional broadcasters, fixed and mobile telephone operators, aviation authorities and other relevant consultees in August 2023. Consultation was also carried out with ComReg in order to identify any other additional licensed operators in the vicinity of the Proposed Wind Farm site to be contacted.

The responses received from the telecommunications and aviation consultees are summarised below in Table 15-35.

A full description of the scoping and consultation exercise is provided in Section 2.7 of Chapter 2 of this EIAR.

As detailed in Section 15.2.2 above, a Telecommunications Impact Assessment was undertaken by Ai Bridges, which included for continued consultation with Irish Rail in March 2025, which is clarified in Table 15-35 below and further detailed in Section 15.2.4 and Appendix 15-5.

Table 15-35 Telecommunications and Aviation Scoping Responses

Consultee	Response	Potential for Interference Following Consultation Exercise
2rn/Eir	Received 28th August 2023	See Section 15.2.4.1 below
Broadcasting Authority of Ireland	Received 28th August 2023	No
Cellnex	Followed up on 11th September 2023 No response received	N/A
ComReg (Commission for Communications Regulation)	Received 25th August 2023	N/A – Provided list of Telecommunications Operators in vicinity of the Proposed Wind Farm site.
Dense air	Followed up on 11th September 2023. No response received	N/A

Consultee	Response	Potential for Interference Following Consultation Exercise
Eircom Ltd/Meteor Mobile Communications Ltd	Received 28th August 2023	Yes, 4 no. links in area, however there is no overlap
Electricity Supply Board (ESB)	Followed up on 11th September 2023. No response received	N/A
ENET	Received 28th August 2023	No
EOBO Ltd	Followed up on 11th September 2023. No response received	N/A
FastCom Broadband Limited	Followed up on 11th September 2023. No response received	N/A
Hibernian Towers	Received 11th September 2023	No
Imagine Network Services	Received 13th September 2023 and 14th February 2025	Yes, in September 2023 Imagine identified 2 no. links in the area that would require a 50m setback. In February 2025 Imagine identified that 1 no. of the previously identified links was no longer present. Please see Section 15.2.4.2 below for further detail.
Irish Aviation Authority (IAA)	Received 21st October 2024	Yes – outlined general observations to be followed. Please see Section 15.2.4.3 below for further detail.
Irish Rail	Received 29th August 2023	Yes, Analogue Train Radio and GSM-R Train Radio in service along operational railway line that transverses the northern portion of the Proposed Wind Farm site. Please see Section 15.2.4 which details the Telecommunications Impact Assessment undertaken by Ai Bridges (included as Appendix 15-5).
Uisce Eireann	Followed up on 11th September 2023. No response received to	No

Consultee	Response	Potential for Interference Following Consultation Exercise
	telecoms scoping. Uisce Eireann was contacted under the general scoping exercise, please see Section 15.3.2 below.	
Ivertec Ltd	Received 28th August 2023	No
JFK Communications Ltd	Followed up on 11th September 2023. No response received	N/A
JS Whizzy Internet Limited	Followed up on 11th September 2023. No response received	N/A
Lackabeha Services Ltd T/A Airwaves Internet	Followed up on 11th September 2023. No response received	N/A
TETRA Ireland	Received 18th September 2023	No
Three Ireland Ltd	Received 29th August 2023	Yes, 3 no. links in area, however there is no overlap
Towercom	Followed up on 11th September 2023. No response received	N/A
Viatel	Followed up on 11th September 2023. No response received	N/A
Virgin Media	Received 11th September 2023	No
Vodafone Ireland	Received 30th August 2023	Yes, 3 no. links in area, however there is no overlap
Western Broadband Network	Received 28th August 2023	No

The scoping responses from the telecommunications and aviation consultees are described below. Relevant copies of scoping responses are provided in Appendix 2-1. The locations of identified telecoms links and setbacks requested by providers is shown in Figure 15-44 below.

15.2.4.1 Broadcasters

Of the scoping responses received from telephone, broadband and other telecommunications operators, those who highlighted an initial potential interference risk are summarised below.

RTE/2rn

RTÉ Transmission Network, replied on the 28th August 2023 to a scoping request from MKO stating that the operation of the Proposed Wind Farm site will not have any impact on RTÉ fixed linking services. In their scoping response, the operator identified an exclusion zone to the west of the Proposed Wind Farm site and stated that *'There is however a risk of interference to broadcast coverage to viewers in the area. We would therefore ask that a protocol be signed between the developer and 2rn should the site go ahead'.*

As there is no infrastructure associated with the Proposed Wind Farm site within the exclusion zone there is no potential for interactions with this area.

A standard Protocol Document has been prepared by 2rn for the Proposed Wind Farm, which has been signed by Gannow Ltd. (the Applicant). A copy of the Protocol Document is presented in Appendix 15-4 of this EIAR. The Protocol Document ensures that in the event of any interference occurring to RTÉ television or radio reception due to operation of a wind farm, the required measures as set out in the Protocol Document, will be carried out by the developer to rectify this. The Protocol Document ensures that the appropriate mitigation is carried out in the event of any unanticipated broadcast interference arising to RTÉ television or radio reception as a result of the Proposed Wind Farm site.

Virgin Media

Virgin Media, replied on the 11th September 2023 to a scoping request from MKO stating that they had no links in the area and therefore no interference with their links is anticipated.

15.2.4.2 Other Consultees

Of the scoping responses received from telephone, broadband and other telecommunications operators, those who highlighted an initial potential interference risk are addressed below. The remaining consultees who responded to scoping, operate links either outside the Proposed Wind Farm site, and therefore are not subject to any interference risk, or do not operate any links in the area.

Eircom Ltd

Eircom responded to a scoping request from MKO on the 28th August 2023, noting that they had four links in the area, however there was no overlap with proposed turbine locations and therefore no interference with their links is anticipated.

Irish Rail

Irish Rail responded to a scoping request from MKO on the 29th August 2023, noting that they have Analogue Train Radio and GSM-R Train Radio in service along operational railway line that transverses the proposed area. A second response was received on the 12th September 2023 which noted the following recommendation:

1. ***Exclusion zone:*** *wind farm not less than 5km from antenna*
2. ***Coordination zone:*** *5km < wind farm <30km: this area, between operators is required to fix any issue and impact on the signal propagation*

These antennae were further considered in the Telecommunications Impact Assessment conducted by Ai Bridges; no potential impacts were identified as a result of the Proposed Wind Farm as further detailed in Section 15.2.4 below.

Uisce Éireann

As outlined above in Section 15.2.4, MKO contacted Uisce Éireann as part of consultation with relevant national and regional broadcasters, fixed and mobile telephone operators, aviation authorities and other relevant consultees in August 2023. There was no reply from Uisce Éireann to the scoping request sent in August 20923 and September 2023.

As part of MKO consultation process as shown in Section 2.7 of Chapter 2 of the EIAR, a general Scoping Document was prepared and circulated to relevant consultees in October 2024, which included Uisce Éireann.

Uisce Éireann responded to the general Scoping Document on 14st November 2024, noting they had no communications links traversing the Proposed Wind Farm site.

Three Ireland

Three Ireland responded to a scoping request from MKO on the 29th August 2023, noting that they had three links in the area, however there was no overlap with proposed turbine locations and therefore no interference with their links is anticipated.

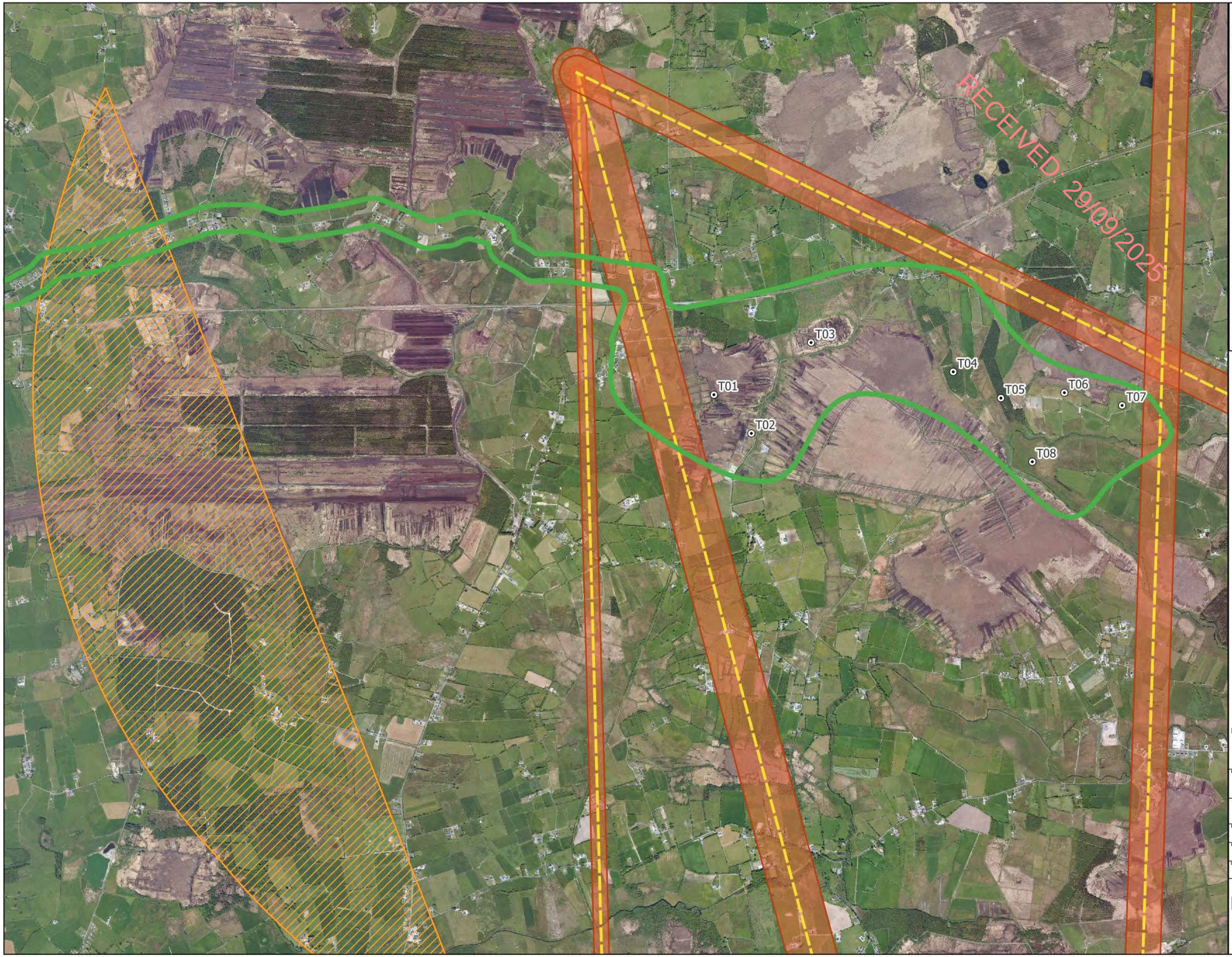
Vodafone

Vodafone responded to a scoping request from MKO on the 1st September 2023, noting that they had three links in the area, however there was no overlap with proposed turbine locations and therefore no interference with their links is anticipated.

Imagine

Imagine responded to a scoping request from MKO on the 13th September 2023, noting that they had two links in the area, however there was no overlap with proposed turbine locations and therefore no interference with their links is anticipated.

On 14th February 2025, Imagine contacted MKO and identified that they no longer had a link in place between Athenry East and Loughrea, while their link to Vantage Greearuan is still in place. There was still no overlap with proposed turbine locations and therefore no interference with the remaining link is anticipated.



Map Legend

- EIAR Site Boundary
- Proposed Turbine Layout
- 2RN Exclusion Zone
- Telecoms Links
- Telecom Buffers

N

Drawing Title	
Telecoms Links	
Project Title	
Gannow Renewable Energy Development	
Drawn By: CJ	Checked By: EC
Project No.: 240323	Drawing No.: Figure 15.44
Scale: 1:25,000	Date: 2025-08-19

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15.2.4.3 Aviation

As noted in above, scoping responses were received from the following aviation consultees:

- Irish Aviation Authority (IAA)
- Department of Defence (DoD)

Pertinent information has been summarised below, however the scoping response in Appendix 2.1 should be referenced to for further detail:

Irish Aviation Authority

As outlined above in Section 15.2.4.2, MKO contacted the IAA as part of consultation with relevant national and regional broadcasters, fixed and mobile telephone operators, aviation authorities and other relevant consultees in August 2023. There was no reply from the IAA to the scoping request.

As part of MKO consultation process as shown in Section 2.7 of Chapter 2 of the EIAR, a Scoping Document was prepared and circulated to relevant consultees in October 2024, which included the IAA.

The IAA responded to the Scoping Document on 21st October 2024, noting should a formal planning application be submitted, the IAA will likely offer the following general observations:

"In the event of planning consent being granted, the applicant should be conditioned to contact the Irish Aviation Authority to:

1. *agree an aeronautical obstacle warning light scheme for the wind turbine development,*
2. *provide as-constructed coordinates in WGS84 format together with ground and tip height elevations at each wind turbine location and*
3. *notify the Authority of intention to commence crane operations with at least 30 days prior notification of their erection."*

Department of Defence

The IAC Position Paper sets out the Air Corps position on the appropriate siting and management of wind farms and tall structures. The IAC Position Paper details Air Corps assets within which tall structures such as wind farms are not recommended and/or require early engagement with the Department of Defence (DoD).

The DoD was contacted by MKO on the 15th October 2024, a scoping response was received from the DoD on 31st October 2024 which provided the following observation:

> *"All turbines should be illuminated by Type C, Medium intensity, Fixed Red obstacle lighting with a minimum output of 2,000 candela to be visible in all directions of azimuth and to be operational H24/7 days a week. Obstacle lighting should be incandescent or, if LED or other types are used, of a type visible to Night Vision equipment. Obstacle lighting used must emit light at the near InfraRed (IR) range of the electromagnetic spectrum, specifically at or near 850 nanometres (nm) of wavelength. Light intensity to be of similar value to that emitted in the visible spectrum of light"*

In response to the lighting requirements requested by the DoD, the proposed turbines will be included on mapping, fitted with obstruction lighting and entered into aircraft navigation databases to ensure they will be avoided during flights.

15.2.5 Telecommunications Impact Assessment

Following the scoping and consultation exercises undertaken by MKO in 2020 and 2025 by MKO, Ai Bridges were engaged to carry out a Telecommunications Impact Assessment for the Proposed Wind Farm, which is included as Appendix 15-5. This details the field and desktop surveys undertaken to determine if telecommunications network infrastructure, notably those highlighted in the MKO scoping exercise, would be impacted by the Proposed Wind Farm.

As identified in Section 15.2.4.2, Irish Rail identified that they have Analogue Train Radio and GSM-R Train Radio in service along the operational railway line that transverses the northern section of the Proposed Wind Farm site. A second response was received on the 12th September 2023 which noted the following recommendation:

1. ***Exclusion zone:*** *wind farm not less than 5km from antenna*
2. ***Coordination zone:*** *5km < wind farm <30km: this area, between operators is required to fix any issue and impact on the signal propagation*

The Proposed Wind Farm site is within 5km of the Irish Rail Galway-Dublin Railway and is approx. 0.6km away at its nearest point (T03) to a GSM-R Train Radio antenna, which is shown in Plate 15-1 and Plate 15-2 below. Following this response, the Applicant commissioned Ai Bridges Ltd. to evaluate the Irish Rail communications network and assess the possible impacts associated with the operation of the Proposed Wind Farm.

Plate 15-1 Irish Rail GSM-R Train Radio antenna near Attymon Train Station (Figure 6 in Appendix 15-5)

Plate 15-2 Proposed Turbines Proximity to Irish Rail GSM-R Train Radio Antenna near Attymon Train Station (Figure 9 in Appendix 15-5)

To assess the Irish Rail communication network, Ai Bridges undertook field surveys along the rail track in the vicinity of the Proposed Wind Farm site . The field survey map and survey results are presented in Section 4.1 of Appendix 15-5.

From the findings of the field surveys, the antennas used by CIE for their GSM-R rail network are directional sector panel antennas which are aligned in the direction of the rail tracks. From a Freedom of Information (FOI) request which was made to CIE, the make and model of the antennas used for GSM-R in the Republic of Ireland have been determined to be a Kathrein K80010456V02. The antenna specification can be found in Appendix D of Appendix 15-5. Once the antenna characteristics were determined (make, model, bearing, etc.), Radio Planning software was used to plot the network service coverage from the GSM-R base stations at Woodlawn, Attymon, and Athenry.

Ai Briges were commissioned to assess any potential impacts from the proposed turbines. Plate 15-2 above shows that the nearest of the proposed turbines to any of the GSM-R base stations is proposed turbine T03, which is 0.6 km from the base station at Attymon. The Telecommunications Impact Assessment concludes that at this distance the proposed turbines will have no impacts on the Irish Rail communications network.

15.2.6 Likely Significant Effects and Associated Mitigation Measures

The below assessment evaluates the impact (where there is the potential for an impact to occur) on telecommunications and aviation during the construction, operation and decommissioning phases of the Proposed Project.

15.2.6.1 'Do-Nothing' Scenario

If the Proposed Project were not to proceed, there would be no change to existing telecommunications and aviation operations in the area.

The opportunity to capture part of Galway's valuable renewable energy resource would be lost, as would the opportunity to contribute to meeting Government and EU targets for the production and

consumption of electricity from renewable resources and the reduction of greenhouse gas emissions. The opportunity to generate local employment and investment and to diversify the local economy would be lost.

Furthermore, as this application includes a Biodiversity Management and Enhancement Plan (Appendix 6-4) to be implemented during the development's operation, the opportunity to enhance the site for biodiversity, at a local scale, would also be lost.

15.2.6.2 Construction Phase

The potential for electromagnetic interference from proposed turbines may only occur during the operational phase of the Proposed Wind Farm and the Proposed Grid Connection. There are no electromagnetic interference impacts for telecommunications and aviation assets or operations associated with the construction phase of the Proposed Wind Farm or Proposed Grid Connection and therefore no mitigation required.

Potential impacts during turbine erection and commissioning of the Proposed Wind Farm are assessed in the operational phase impact assessment (Section 15.2.5.3 below).

15.2.6.3 Operational Phase

15.2.6.3.1 *Telecommunications*

Pre-Mitigation Impact

Proposed Wind Farm

Consultation regarding the potential for electromagnetic interference from the Proposed Wind Farm was carried out with the relevant national and regional broadcasters, fixed line and mobile telephone operators and other operators, which confirmed that no turbines are proposed within the areas requested to be left clear of turbines. Therefore, no impacts were identified to telecommunications from the Proposed Wind Farm.

Following scoping with Irish Rail, a 5km exclusion zone was identified; in response, Ai Bridges was engaged on behalf of the Applicant to carry out a Telecommunications Impact Assessment (Appendix 15-5). The Telecommunications Impact Assessment concluded that the Proposed Wind Farm will not have a negative impact on the Irish Rail communications network.

Proposed Grid Connection

None identified.

Mitigation Measures

In the event of interference occurring to telecommunications, the Guidelines (DoEHLG, 2006) acknowledge that *'electromagnetic interference can be overcome'* by the use of divertor relay links out of line with a wind farm.

A signed protocol agreement between 2rn and the Applicant can be found in Appendix 15-4. The Protocol Document ensures that in the event of any interference occurring to television or radio reception due to operation of the Proposed Wind Farm, the required measures, as set out in the Protocol Document, will be carried out by the Applicant to rectify this. The Protocol Document ensures that the appropriate mitigation is carried out in the event of unanticipated broadcast interference arising to television or radio reception as a result of the Proposed Wind Farm.

Residual Effect

The Proposed Project will not have a residual effect on telecommunications, due to distance from, or absence, of any links in the area. In addition, a Protocol Document, ensuring no impacts on broadcast signals, has been signed between 2rn and the Applicant, please see Appendix 15-4.

Significance of Effect

The effect on telecommunications from the Proposed Project during the operational phase is considered Not Significant.

15.2.6.3.2 *Aviation*

Pre-Mitigation Impact

Proposed Wind Farm

There are no IAA or DoD assets within the Proposed Wind Farm or surrounds that may be impacted by the proposed turbines. Therefore, there are no potential impacts.

Proposed Grid Connection

None identified.

Mitigation Measures

None Proposed.

As no impacts were identified by the IAA or DoD, no mitigation measures are required. However, the following IAA and DoD requests will be complied with should the Proposed Project be consented:

Irish Aviation Authority

1. *Agree an aeronautical obstacle warning light scheme for the wind farm development*
2. *Provide as-constructed coordinates in WGS84 format together with ground and blade tip height elevations at each wind turbine location and*
3. *Notify the Authority of intention to commence crane operations with at least 30 days prior notification of their erection.*

Department of Defence

1. *All turbines should be illuminated by Type C, Medium intensity, Fixed Red obstacle lighting with a minimum output of 2,000 candela to be visible in all directions of azimuth and to be operational H24/7 days a week. Obstacle lighting should be incandescent or, if LED or other types are used, of a type visible to Night Vision equipment. Obstacle lighting used must emit light at the near InfraRed (IR) range of the electromagnetic spectrum, specifically at or near 850 nanometres (nm) of wavelength. Light intensity to be of similar value to that emitted in the visible spectrum of light.*

Residual Effect

With the implementation of the above, the Proposed Project will have a long-term imperceptible neutral residual effect on aviation assets which is Not Significant.

Significance of Effects

The effect on aviation assets from the Proposed Project during the operational phase is considered Not Significant.

15.2.6.4 Decommissioning Phase

As stated in Section 15.2.6.2 above, the potential for electromagnetic interference from proposed turbines may only occur during the operational phase of the Proposed Project (i.e., the Proposed Wind Farm and Proposed Grid Connection). There are no electromagnetic interference impacts associated with the construction or decommissioning phases of the Proposed Project, and therefore no mitigation is required.

15.2.6.5 Cumulative Effect

Chapter 2, Section 2.9 of this EIAR describes the methodology used in compiling the list of permitted or proposed projects and plans in the area, (wind energy or otherwise) considered in the assessment of cumulative effects, and provides a description of each project, including current status, and is set out in Section 2.9 in Chapter 2 of this EIAR. During the development of any large project that holds the potential to effect telecoms or aviation, the developer is responsible for engaging with all relevant telecom operators and the relevant aviation authorities to ensure that the proposal will not interfere with television or radio signals by acting as a physical barrier. In the event of any potential impact, the developer for each individual project is responsible for ensuring that the necessary mitigatory measures are in place. Therefore, as each project is designed and built to avoid impacts arising, a cumulative impact cannot arise.

As outlined above in Section 15.2.6.3.2, the Proposed Project will have no residual effect on aviation as all lighting requirements will be met by the Applicant.

Therefore, there will be no cumulative effects relating to the Proposed Project and surrounding projects in relation to telecommunications or aviation.

15.3 Other Material Assets

This section of the Material Assets chapter considers other utilities or built services in the area such as electricity supply and transmission, water, gas, railways and underground telecommunications. This section also considers waste management during the construction, operational and decommissioning phases of the Proposed Project.

15.3.1 Methodology and Guidance

The methodology for this assessment includes:

- Scoping exercise with stakeholders;
- Desk study, including review of available maps and published information followed by mapping of constraints;
- Likely Significant Effects and Mitigation Measures

Consultation with all statutory consultees, bodies with environmental responsibility and other interested parties is detailed in Chapter 2 of the EIAR. Scoping was undertaken in line with Section 3.3 'Scoping' of EPA, 2022[1] on the information to be contained in EIARs.

[1] *EPA, 2022. Guidelines on the information to be contained in Environmental Impact Assessment Reports. Available at: https://www.epa.ie/publications/monitoring–assessment/assessment/EIAR_Guidelines_2022_Web.pdf*

15.3.2 Scoping and Consultation

In order to assess the potential for significant effects on built services and waste management in the vicinity of the Proposed Project, scoping requests were made to EirGrid, Uisce Éireann, Irish Rail and numerous sections of Galway County Council, including the Roads Department and Environment Department. Please refer to Section 2.7 of Chapter 2 of this EIAR for details in relation to the EIA scoping exercise.

No scoping response was received from EirGrid or the Water department of the local authority. A scoping response was received from Uisce Éireann and Irish Rail identifying relevant infrastructure within the Site. A scoping and consultation exercise was conducted with utilities operators, as outlined below in Section 15.3.2.1.1. A full description of the scoping and consultation exercise is provided in Section 2.7 of Chapter 2 of this EIAR.

15.3.2.1 Utilities

Uisce Eireann

A scoping request was sent to Uisce Eireann on the 15th October 2024. A response was received the 14th of November 2024 stating that they do not have communications links traversing the Proposed Wind Farm site.

It should be noted that the Proposed Project does not intend to connect into Uisce Eireann assets. The scoping response did not provide details in relation to specific water services within the Site.

A follow-up response / data request was received on the 14th May 2025 which provided details of water and wastewater networks in the vicinity of the Site.

The data request identified watermains along the Proposed Grid Connection. All instances of overlap are within the public road corridor, along the L7108, L3103, L31030, L7122, L7126, L3107, L3111, L7152, and L3115 local roads and the R347 regional road.

Waterways Ireland

A scoping request was sent to Waterways Ireland on the 15th October 2024 and a response was received on the 17th October 2024 stating that the Proposed Project is not located within a zone of influence of any waterways and therefore they have no comment to make on the proposal.

Department of the Environment, Climate and Communications

A scoping request was sent to the Department of the Environment, Climate and Communications (DECC) the 15th of October 2024. A response was received on the 22nd October 2024 from The Geological Survey Ireland, a division of the DECC, which recommended the use of various data sets when conducting the EIAR, including those for Lands and Soils, Water, Climate Change, Cultural Heritage, Material Assets and Landscape. No information in relation to Material Assets was provided within the received response.

Gas Networks Ireland (GNI)

GNI supply MKO their latest infrastructure data quarterly, with the most recent data being shared in August 2025. The data indicates that there is no GNI infrastructure is located within or adjacent to the Proposed Wind Farm with the nearest infrastructure being approximately 9km to the east of the Proposed Wind Farm footprint.

The Proposed Grid Connection interacts with the GNI network at 2 no. locations (1 no. interaction with a high-pressure pipeline along the L3103 and 1 no. interaction with the Aurora telecoms line along the L7108). Detailed consultation has been held with the GNI, including a meeting on 24th June 2025, in relation to these interactions.

The proposed crossing methodology at the high-pressure pipeline will be Horizontal Directional Drilling (HDD). No settlement is expected as no excavation and replacement are involved in the HDD process. A full technical assessment will be done as part of the Design Review process and settlement monitoring will be in place pre and post installation.

Please see Section 15.3.3.1.2 below for further information on the GNI pipeline services.

Irish Rail

A scoping document was issued to Irish Rail on 15th October 2024. Further correspondence included a meeting between Irish Rail, MKO and the Applicant to seek additional recommendations on the Proposed Project and its interaction with the railway. This meeting was held with Irish Rail on 21st November 2024.

Following this meeting, the Applicant commissioned Clifton Scannell Emerson (CSE) to carry out a structural assessment of the crossing point of the Proposed Grid Connection with the Galway-Dublin railway line. The structural assessment was received from CSE on 25th July 2025; the report concluded that crossing of this location via HDD can be achieved without impacting the structural integrity of the existing bridge or railway. Please see this structural assessment within Appendix 2-1, Appendix A and Section 15.3.3.1.5 below for further information.

15.3.3 Baseline Environment

15.3.3.1 Existing Built Services and Utilities

The Proposed Project has been designed to avoid identified services and utilities where insofar as possible. Prior to commencement of construction detailed site investigations will be carried out to confirm design assumptions and undertake additional surveys to identify any new services and utilities and ensure they will not be impacted by the Proposed Project. The construction of the Proposed Grid Connection would also be subject to a Road Opening Licence (ROL). The timing of these works would therefore be controlled by the ROL process with the relevant Local Authority.

15.3.3.1.1 *Electricity*

Grid Infrastructure

There are no 110kV or 38kV overhead electricity lines within or adjacent to the Proposed Wind Farm site. The Proposed Grid Connection underground cabling route passes under 2 no. 220kV overhead electricity lines in the townlands of Caraunduff, Caherbriskaun and Knocknacreeva, Co. Galway. There are no 38kV or higher known existing underground electricity cables present on the Proposed Wind Farm site or along the Proposed Grid Connection underground cabling route. The Proposed Project has been designed to avoid exisiting underground electricity cables.

15.3.3.1.2 *Gas*

There are no gas lines located within the Proposed Wind Farm site as identified in Section 15.3.2.1.1 above.

As identified in Section 4.8.2.4 of Chapter 4, the Proposed Grid Connection will cross 2 no. Gas Networks Ireland (GNI) pipeline services.

The crossing point of the Proposed Grid Connection with a GNI telecommunications duct is located at ITM X546371, Y729574. This telecommunications duct is entitled 5055/5056 and is composed of HDPE material with the ID 34778/34779. At this location the Proposed Grid Connection underground cabling route runs parallel to the telecommunications line for approximately 0.16km along the L3103 local road. The Proposed Grid Connection will then turn right off the L3103 onto the L7108.

The crossing point of the Proposed Grid Connection with a GNI high-pressure pipeline is located at ITM X545591, Y728250. At this location the Proposed Grid Connection will directly cross a high-pressure gas line with the pipe ID 4405644 via HDD. This is a high-pressure steel pipeline with a diameter of 650mm.

Prior to construction, the Applicant will engage with GNI via the 'Dial Before You Dig' procedure online. GNI will be contacted on 1800 42 77 47 **before** excavating near the identified high-pressure pipeline. Furthermore, the '*Safety advice for working in the vicinity of natural gas pipelines'* guidance document and the GNI '*Code of Practice*' standards will be adhered to during all proposed works along the Proposed Grid Connection in vicinity of the high-pressure pipeline and the telecommunication lines. Please see Section 15.3.4.2.1 below for further detail on mitigation measures associated with the interactions with the GNI network.

Proposed crossing methodologies at both locations are outlined in Section 4.8.2.4 of Chapter 4 and the location of these crossing locations are shown in Figure 15-45 below.

15.3.3.1.3 Water

There is 1 no. known water main within the Proposed Wind Farm site which does not interact with any Proposed Wind Farm infrastructure, located approximately 0.2km east of the nearest proposed infrastructure (the proposed onsite substation), and therefore there will be no potential impact on this watermain.

The data request received on 14th May 2025 identified watermains along the Proposed Grid Connection. As identified in Section 15.3.2.1.1 above, all instances of overlap are within the public road corridor, along the L7108, L3103, L31030, L7122, L7126, L3107, L3111, L7152, and L3115 local roads and the R347 regional road. Potential impacts associated with this interaction is outlined in Section 15.3.4.2 below.

15.3.3.1.4 Motorways

The Proposed Wind Farm is approximately 5km north of the nearest motorway (the M6) at its closest point (i.e., T02). The Proposed Wind Farm will not directly interact with the motorway outside of proposed turbine and abnormal load delivery. Impacts associated with traffic and transport are outlined in Section 15.1.12 of Chapter 15 Material Assets.

As identified in Section 4.8.2.4 of Chapter 4, the Proposed Grid Connection will cross the M17 Motorway at 1 no. location via HDD in the townlands of Tobernavean and Castlelambert, Co. Galway. The location of the crossing location is shown in Figure 15-45 below.

15.3.3.1.5 Railways

As identified in Section 4.8.2.4 of Chapter 4, the Proposed Grid Connection will cross the Irish Rail Galway-Dublin rail line at 1 no. location to the west of Attymon Station via HDD. It will also cross underneath a bridge containing a historic railway no longer in use and will be located entirely within the public road corridor. The location of these crossing locations are shown in Figure 15-45 below.

In their structural assessment report Clifton Scannell Emerson (CSE) identified that Irish Rail dictate a minimum depth of 4.5m below the railway line for HDD. This stipulation, combined with the assumed depth of the bedrock of 1-3m, as per the GIS website, suggests a bore at this minimum depth would be

approximately 3.5m below the existing foundation formation level. The bore will be through rock, and detailed site investigations will be needed to confirm this along with the overburden ground conditions. This investigation along with a HDD feasibility study, a crossing design with predicted settlement, bentonite frac out assessment, and an electromagnetic compatibility assessment, would facilitate the design of the required depth of the HDD bore to avoid damaging the bridge. The HDD can go as deep as is necessary to avoid undermining the foundations. Please see the detailed structural assessment in Appendix 2-1, Appendix A.

Based on the above, CSE conclude that subject to adequate engineering design and oversight during construction, the HDD crossing can be successfully achieved without adverse effects on the structural integrity of the existing bridges.

Map Legend

- EIAR Site Boundary
- Proposed Grid Connection
- Cashla 220kV Substation
- Proposed Temporary Construction Compounds
- Proposed New Roads
- Proposed Onsite 38kV Substation
- Motorways (M6 and M17)
- High Pressure Pipeline
- Telecommunications Line
- Iarnród Éireann Railway
- Iarnród Éireann Railway 203.5m Buffer
- Historic Railway No Longer in Use

Drawing Title: Built Services Crossings along Proposed Grid Connection

Project Title: Gannow Renewable Energy Developpment

Drawn By	Checked By
CJ	EC
Project No.	Drawing No.
240323	Figure 15-45
Scale	Date
1:47,500	2025-09-18

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15.3.3.2 Waste Management Services

There are no EPA-licensed or local authority-authorised waste facilities or activities located within the Site. The closest, authorised municipal waste facility is located approx. 8.6km east of the Proposed Wind Farm site at its closest point (i.e., T07) in the townland of Killagh More, Co. Galway.

A Waste Management Plan (WMP) has been prepared and forms part of the Construction and Environmental Management Plan (CEMP) in Appendix 4-5 of the EIAR.

The WMP outlines the methods of waste prevention and minimisation by recycling, recovery and reuse at each stage of construction of the Proposed Project. Disposal of waste will be a last resort.

All waste generated on site during the construction phase will be contained in waste skip at a waste storage area on site. This waste storage area will be kept tidy with skips clearly labelled to indicate the allowable material to be disposed of therein. The expected waste volumes generated on site are unlikely to be large enough to warrant source segregation at the Proposed Wind Farm site. Therefore, all waste streams generated on site will be deposited into a single waste skip. The waste material will be transferred to a Materials Recovery Facility (MRF) by a fully licenced waste contractor where the waste will be sorted into individual waste stream for recycling, recovery or disposal.

Site personnel will be instructed at induction that under no circumstances can waste be brought on site for disposal in the on site waste skip. It will also be made clear that the burning of waste material on site is forbidden.

Further details on waste management are presented in the CEMP which is included as Appendix 4-5.

It is not anticipated that any significant volume of waste will be generated within the Site during the operational phase of the Proposed Project as only a small number of operational and maintenance personnel will be present within the Proposed Wind Farm site certain times. Any waste generated due to the operation and maintenance of the Proposed Project will be disposed of in a covered skip, located within the proposed onsite 38kV substation compound. The waste material will be transferred to a Materials Recovery Facility (MRF) by a fully licenced waste contractor where the waste will be sorted into individual waste stream for recycling, recovery or disposal.

15.3.4 Likely Significant Effects and Associated Mitigation Measures

15.3.4.1 'Do-Nothing' Scenario

If the Proposed Project were not to proceed, the potential to impact on other material assets would not arise.

The opportunity to capture part of Galway's valuable renewable energy resource would be lost, as would the opportunity to contribute to meeting Government and EU targets for the production and consumption of electricity from renewable resources and the reduction of greenhouse gas emissions. The opportunity to generate local employment and investment and to diversify the local economy would be lost.

Furthermore, as this application includes a Biodiversity Management and Enhancement Plan (Appendix 6-4) to be implemented during the development's operation, the opportunity to enhance the site for biodiversity, at a local scale, would also be lost.

15.3.4.2 Construction Phase

15.3.4.2.1 *Existing Built Services*

Pre-Mitigation Impact

Proposed Wind Farm

Electricity

There are no 110kV or 38kV overhead electricity lines within or adjacent to the Proposed Wind Farm . There are no 38kV or higher known existing underground electricity cables present within the Proposed Wind Farm . The Proposed Wind Farm has been designed to avoid exisiting underground electricity cables and can be described as mitigation by design, therefore there is no potential to give rise to effects on electrical services.

Gas

The Proposed Wind Farm infrastructure has been designed to avoid any undeground gas lines and can be described as mitigation by design, therefore there is no potential to give rise to impacts on underground gas lines.

Water

The Proposed Wind Farm infrastructure has been designed to avoid any undeground water mains and can be described as mitigation by design, therefore there is no potential to give rise to impacts on underground water mains.

Motorways

The Proposed Wind Farm is approximately 5km north of the nearest motorway (the M6) at its closest point (i.e., T02). The Proposed Wind Farm will not directly interact with the motorway outside of proposed turbine and abnormal load delivery, therefore there is no potential to give rise to impacts on the motorway.

Impacts associated with traffic and transport are outlined in Section 15.1.12 above.

Railways

The Galway-Dublin railway crosses approximately 0.3km north of the Proposed Wind Farm at it's closest point (along a section of proposed new road) and is 0.6km away from the closest proposed turbine (T03). A 203.5m buffer has been applied to all railways to ensure appropriate setback distances from the Proposed Wind Farm. Therefore, there is no potential for the construction phase of the Proposed Wind Farm to impact on railway services.

Potential impacts from telecommunications is assessed in Section 15.2.6.2 above.

Proposed Grid Connection

Electricity

The Proposed Grid Connection underground cabling route passes under 2 no. 220kV overhead electricity lines in the townlands of Caraunduff, Caherbriskaun and Knocknacreeva, Co. Galway. Under a precautionary approach a short-term, slight negative impact, which is Not Significant, on local

electricity supply has been identified due to potential interference or breakage of OHL during the construction phase. Working in the vicinity of overhead electricity lines, in the absence of the correct safety measures and procedures has the potential to have a short-term significant, negative impact on health and safety.

There are no 38kV or higher known existing underground electricity cables present along the Proposed Grid Connection. The Proposed Grid Connection has been designed to avoid exisiting underground electricity cables and can be described as mitigation by design, therefore there is no potential to give rise to impacts on underground electrical services.

Gas

The construction of the Proposed Grid Connection may have an impact on underground gas lines due to its 2 no. interactions with the GNI network as outlined in Section 15.3.3.1.2 above. The Proposed Grid Connection has 2 no. interactions with the GNI network (i.e., telecommunication lines and 1 no. high pressure steel pipeline) and have undergone detailed design and further consultation with the GNI to ensure the most appropriate crossing methodology has been identified. Therefore, prior to the application of mitigation, there is a potential short-term moderate negative impact, which is Not Significant, on the GNI network as a result of the Proposed Grid Connection.

Water

As detailed in Section 15.3.3.1.3 above, the Proposed Grid Connection interacts with identified watermains along the majority of the route from the onsite 38kV substation to the existing Cashla 220kV substation.

Uisce Éireann water mains are located within the public road corridor, the Proposed Grid Connection will run alongside these water mains. There is therefore, under a precautionary scenario, a potential short-term slight negative impact, which is Not Significant, on watermains as a result of the Proposed Grid Connection.

Motorway

As identified in Section 4.8.2.4 of Chapter 4 Description, the Proposed Grid Connection will cross under the M17 Motorway at 1 no. location in the townlands of Tobernavean and Castlelambert, Co. Galway. At this location, the Proposed Grid Connection will remain within the curtilage of the public road corridor. Under a precautionary scenario a short-term slight negative impact, which is Not Significant, has been identified.

Railway

The Proposed Grid Connection will cross the Irish Rail Galway-Dublin line near the Attymon rail station. As detailed above, CSE provided a structural assessment (Appendix 2-1, Appendix A) outlining the requirements of the crossing methodology to be deployed at each crossing location to ensure no negative effects on the structural integrity of the bridge in which the railway is located. The Proposed Grid Connection will therefore have a potential short-term slight negative impact, which is Not Significant, on the Irish Rail railways.

Mitigation

Notwithstanding the above, specific measures are incorporated into the CEMP, included as Appendix 4-5 of this EIAR, to ensure that the construction of the Proposed Project will not have effect on underground electrical cables and built services within the Site. The mitigation measures include the following:

- Goal posts will be established under overhead lines for the entirety of the construction phase. They will not exceed a height of 4.2 metres, unless specifically agreed with ESB Networks[2]
    - Prior to construction, the Applicant will engage with ESB via the 'Dial Before You Dig' procedure online. ESB will be contacted via dig@esb.ie **before** excavating near any overhead lines.
- The suitability of machinery and equipment for use near power lines will be risk assessed.
- All staff will be trained on the routes and operating voltages of overhead electricity lines running above the Proposed Grid Connection. All staff will be trained to be aware of the risks associated with overhead lines. All contractors that may visit the sites are made aware of the location of lines before they come on to site.
- Barriers will run parallel to the overhead line at a minimum horizontal distance of 6 metres on plan from the nearest overhead line conductor wire.
- Prior to the delivery of turbines to the Proposed Wind Farm site, a dry run of the route using vehicles with similar dimensions will occur. Please see Section 15.1.8 above for details.
- When activities must be carried out beneath overhead lines, e.g. component delivery or grid cable laying, a site-specific risk assessment will be undertaken prior to any works. The risk assessment must take into account the maximum potential height that can be reached by the plant or equipment that will be used is undertaken prior to any works. Overhead line proximity detection equipment will be fitted to machinery when such works are required.
- Information on safe clearances will be provided to all staff and visitors.
- Signage indicating locations and health and safety measures regarding overhead lines will be erected in canteens and on site.
- All staff will be made aware of and adhere to the Health & Safety Authority's 'Guidelines on the Procurement, Design and Management Requirements of the Safety, Health and Welfare at Work (Construction) (Amendment) Regulations 2021'. This will encompass the use of all necessary Personal Protective Equipment and adherence to the site Health and Safety Plan.
- All health and safety measures as detailed in Section 5 of the CEMP and Chapter 5 Population and Human Health will be adhered to during the construction, operation and decommissioning phases.
- Any area where excavations are planned will be surveyed and all existing services will be identified prior to commencement of any works.
- Liaison will be had with the relevant sections of the Local Authority including all the relevant area engineers to ensure all services are identified.
- Excavation permits will be completed, and all plant operators and general operatives will be inducted and informed as to the location of any services.
- The contractor must comply with and standard construction codes of practice in relation to working around electricity, gas, water, sewage and telecommunications networks.
- Prior to construction, the Applicant will engage with GNI via the 'Dial Before You Dig' procedure online. GNI will be contacted on 1800 42 77 47 **before** excavating near the identified high-pressure pipeline. Furthermore, the '*Safety advice for working in the vicinity of natural gas pipelines'* guidance document and the GNI '*Code of Practice*' standards will be adhered to during all proposed works along the Proposed Grid Connection in vicinity of the high-pressure pipeline and the telecommunication lines.
    - The developer will also carry out further consultation in the pre-construction phase and construction phase with GNI to confirm the crossing

[2] https://www.esbnetworks.ie/docs/default-source/publications/code-of-practice-for-avoiding-danger-from-overhead-electricity-lines.pdf

methodology to be deployed and to ensure that no new service crossings have been implemented. Furthermore, site investigation will be undertaken post planning grant and results will be shared with GNI as part of the Design Review process prior to construction.

- In advance of any construction activity, the contractor will undertake pre-commencement surveys to confirm the presence or otherwise of any services such as water supply. If found to be present, the relevant service provider will be consulted with in order to determine the requirement for specific excavation or relocation methods and to schedule a suitable time to carry out works.
    - In the event that water mains are encountered the water supply will be turned off by the utility so work can commence on diverting the service. The section of existing pipe will be removed and will be replaced with a new pipe along the new alignment of the service. The works will be carried out in accordance with the specifications of the relevant utility provider,

Residual Effect

Following the implementation of the above mitigation measures, there will be a short-term imperceptible negative residual effect during the construction phase of the Proposed Project (Proposed Wind Farm and Proposed Grid Connection) on existing built services.

Significance of Effects

The effect on existing built services from the Proposed Project during the construction phase is considered Not Significant.

15.3.4.2.2 *Waste Management*

Pre-Mitigation Impact

Proposed Project

Construction waste will arise as a result of the Proposed Project (Proposed Wind Farm and Proposed Grid Connection) mainly from excavation and unavoidable construction waste including material surpluses and damaged materials and packaging waste. Full details of wastes expected to be generated are detailed with the Waste Management Plan (WMP) of the CEMP (Appendix 4-5 of this EIAR). In the absence of measures outlined in the WMP, impacts to the waste management services during the construction phase is considered to have a negative, moderate, short-term impact, which is Not Significant.

Mitigation Measures

All waste generated on site during the construction phase will be contained in waste skip at a waste storage area on site. This waste storage area will be kept tidy with skips clearly labelled to indicate the allowable material to be disposed of therein. The expected waste volumes generated on site are unlikely to be large enough to warrant source segregation at the site. Therefore, all waste streams generated on site will be deposited into a single waste skip. The waste material will be transferred to a Materials Recovery Facility (MRF) by a fully licenced waste contractor where the waste will be sorted into individual waste stream for recycling, recovery or disposal.

Site personnel will be instructed at induction that under no circumstances can personal waste be brought on site for disposal in the onsite waste skip. It will also be made clear that the burning of waste material on site is forbidden.

Further details on waste management are presented in Section 3.8 of the CEMP, which is included as Appendix 4-5.

Residual Effects

With the implementation of the above measures, the residual effect is considered to be a negative, short-term, slight effect on waste management services during the construction phase.

Significance of Effects

The effect on waste management from the Proposed Project during the construction phase is considered Not Significant.

15.3.4.3 Operational Phase

15.3.4.3.1 *Existing Built Services*

There will be no operational phase impacts or associated effects on built services associated with the Proposed Project. The Proposed Project will have an installed capacity of 48.8MW which has potential to produce 149,620 MWh of electricity. This would be sufficient to supply approximately 35,624 Irish households with electricity per year during its operational phase. The Proposed Project will therefore have a positive, moderate, long-term effect on built services.

15.3.4.3.2 *Waste Management*

There will be no operational phase impacts or associated effects on waste management associated with the Proposed Project. It is not anticipated that any significant volume of waste will be generated within the Site during the operational phase of the Proposed Project as only a small number of operational and maintenance personnel will be present within the Proposed Wind Farm site at certain times. Any waste generated due to the operation and maintenance of the Proposed Project will be disposed of in a covered skip, located within the proposed onsite 38kV substation compound. The waste material will be transferred to a Materials Recovery Facility (MRF) by a fully licenced waste contractor where the waste will be sorted into individual waste stream for recycling, recovery or disposal.

15.3.4.4 Decommissioning Phase

The wind turbines proposed as part of the Proposed Wind Farm are expected to have a lifespan of approximately 35 years. Following the end of their useful life, the proposed turbines may be replaced with a new set of turbines, subject to planning permission being obtained, or the Proposed Wind Farm will be decommissioned fully as described in Section 4.11 of Chapter 4 and the accompanying decommissioning plan in Appendix 4-6.

The works required during the decommissioning phase are described in Section 4.11 in Chapter 4 of this EIAR. Any impact and consequential effect that occurs during the decommissioning phase will be similar to that which occurs during the construction phase, however to a lesser extent. Based on the assessment outlined above in Section 15.3.4.2, there will be no significant effects on existing and built services, or waste management as part of the decommissioning phase.

15.3.4.5 Cumulative Impact Assessment

The potential cumulative impact of the Proposed Project and other relevant developments has been carried out with the purpose of identifying what influence the Proposed Project will have on the surrounding environment when considered cumulatively and in combination with relevant existing

permitted or proposed projects and plans in the area, in the vicinity of the Proposed Project, as set out in Section 2.9 in Chapter 2 of this EIAR.

In addition to the Proposed Project, the following permitted and proposed developments are acknowledged to have connections to the Cashla 220kV substation:

- Permitted Ballymoneen Solar Farm (Pl Ref 20961)
  - Permitted underground grid connection route to Cashla 220kV substation (Pl Ref: 2361460).
- Permitted upgrades to existing 220kV OHL between the existing 220kV Cashla substation and Tower 138 in the townland of Oughtagh, Co Galway (Pl Ref: 23355)
- Permitted works to a section of the Cashla – Salthill 110kV OHL between angle mast 52 (AM52) in Claregalway and end mast 105 (EM105) near Galway 110kV Substation, Galway City
- Proposed Bord Gáis Energy Cashla Peaker Plant including an underground cable connection to the existing Cashla 220kV substation in the townlands of Pollnagroagh and Rathmorrissy

The potential for cumulative effects with the nearby solar energy developments are not significant from the perspective of built services and waste management. There is no interaction between the permitted solar grid connection and the Proposed Grid Connection as there is no route overlap. It is also likely that the construction phases of this project will not overlap with the construction phase of the Proposed Project as this is currently ongoing and will be completed prior to any works associated with the Proposed Grid Connection. Furthermore, detailed survey of existing services along the Proposed Grid Connection will be required, therefore a Road Opening Licence (ROL) from the local authority will be required to construction the Proposed Grid Connection. It is considered best practice to apply for one ROL that will cover both detailed surveys prior to and during the construction of the Proposed Grid Connection. Section 13(10)(b) of the Roads Act 1993 ('the Roads Act') provides powers to the road authority to consent to allow works to be carried out on a road, and such permission constitutes a 'road opening licence', In the granting of a ROL, the road authority may attach restrictions and/or conditions to a ROL as it deems appropriate An application for an ROL would only be made following a grant of planning permission for the Proposed Project.

Regarding the upgrades to OHLs, this will not result in a cumulative effect as the Proposed Grid Connection will be placed in the road and have no interaction with the OHL. There were no other potential cumulative effects identified as part of this assessment.

On the basis of the assessment above, the Proposed Project will have no impact on built services and waste management. It is on this basis that it can be concluded that there would be a short-term imperceptible cumulative impact on built services and waste management from the Proposed Project during the construction phase and permitted or proposed projects and plans in the area as set out in Section 2.9 in Chapter 2 of this EIAR. There are no cumulative effects associated with the operational and decommissioning phases of the Proposed Project.