Environmental Impact Assessment Report (EIAR)

Proposed Cahermurphy West Wind Farm, Co. Clare

Chapter 15: Material Assets

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'.* They may be either of human or natural origin. The cultural assets of Archaeology and Cultural Heritage are addressed in Chapter 13 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: Hydrology & Hydrogeology, Chapter 10: Air and Chapter 11: Climate. Tourism and amenity resources, which are also considered material assets, are addressed in Chapter 5 on 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 and Other Material Assets ((Section 15.2), which are economic assets of human origin. Waste Management is also considered within the EPA 2022 Guidelines as part of Material Assets. EPA Waste Management pertaining to the construction, operation and decommissioning of the Proposed Project is summarised in Section 15.2.3.6 below, as well as Section 4.4.2.7 of Chapter 4 of the EIAR. Traffic volumes generated by the removal of waste from the Proposed Project to fully authorised waste facilities, is considered in Section 15.1 below.

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

15.1 Traffic and Transport

15.1.1 Introduction

15.1.1.1 Background and Objectives

The purpose of this section is to assess the effects on roads and traffic of the traffic movements that will be generated during the construction, operational and decommissioning phases of the Proposed Project.

As detailed in Section 1.1.1 in Chapter 1, for the purposes of this EIAR, the various project components are described and assessed using the following references: 'Proposed Project', 'the Site', 'Wind Farm Site' and 'Grid Connection'.

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 both the additional traffic volumes that will be generated on the road network, and the geometric requirements of the abnormally large loads associated with the delivery of wind turbine components. The requirements of the additional traffic and abnormal sized loads generated during the construction stage are assessed on both the external road network and at the junctions that will provide access to the Site. It should be noted that abnormally sized turbine components will be cut on-site during the decommissioning phase of the Proposed Wind Farm and as such will be transported off-site using a standard HGV rather than specialist equipment.

It should be noted that abnormal weight loads are not a feature of the turbine delivery vehicles, they are abnormal in size only. All construction and delivery vehicles for the Proposed Project will be subject to the standard axle weight requirements set out under Road Traffic (Construction and Use of

Vehicles) Regulations 2003 (S.I. No. 5 of 2003) and therefore the loadings from construction traffic will not exceed the relevant standards. Notwithstanding the need to use specialist vehicles to facilitate turbine delivery, it should be noted that the number of load-bearing axles for any specialist vehicles carrying large loads are designed to ensure that the load on any one axle does not exceed acceptable load bearing statutory limits. Therefore, the structural integrity of the national and regional road network used during the construction of the Proposed Project is adequate to provide for these accepted loads.

The magnitude of the increase in traffic volumes experienced on the surrounding network is identified during the various construction stages of the Proposed Project. Traffic management measures are also provided in Section 15.1.8 aimed at minimising the traffic impact on the local highway network. Refer also to Appendix 15-2 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 the West of 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 consented or operational wind farms; 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, an Irish traffic survey company with a comprehensive knowledge of traffic data collection methods. The company, which is 10 years old, 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 Limited, 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 and Legislation

This section of the EIAR has been completed in accordance with the EIA guidance set out in Chapter 1. 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 of this EIAR.

15.1.1.4 Methodology and Section Structure

The traffic and transport assessment follows guidance for such assessments set out by Transport Infrastructure Ireland (TII), in the document PE-PDV-02045 '*Traffic and Transport Assessment Guidelines'*, (TII, 2014). The geometric requirements of the turbine delivery vehicles were assessed using Autocad and Autotrack.

The Traffic and Transport Section of this chapter is set out as follows:

- A review of the haul route, access junctions and transport infrastructure in the vicinity of the Proposed Project, including an assessment of traffic flows recorded between the year 2024 and 2026 and traffic forecasts during an adopted construction year of 2030 (Sections 15.1.2 - Receiving Environment and 15.1.4 – 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 15.1.5 – Proposed Project and Traffic Generation).
- A description of the abnormally sized loads and vehicles that will require access to the site (Section 15.1.6 – Construction Traffic Vehicle Types).
- A review of the increases in traffic volumes due to development generated traffic on links and junctions (Section 15.1.7 – Expected Traffic During Construction, During Operation and During Decommissioning.
- Identification of traffic management measures for large deliveries during construction (Section 15.1.8 – Traffic Management for Large Deliveries).
- A geometric assessment of the route and its capacity to accommodate the largest abnormal-sized loads associated with the development (Section 15.1.9 – Abnormal Load Route Assessment).
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- An assessment of the provision for sustainable modes of travel (in this case primarily with respect to the transport of construction staff) (Section 15.1.12 – Provision for Sustainable Modes of Travel).
- An assessment of the effects of the Proposed Project (Section 15.1.13 – Likely and Significant Effects and Associated Mitigation Measures, including Traffic Management Plan and Cumulative Impacts).

15.1.1.5 Scoping and Consultation

The scope for this assessment has been informed by consultation with statutory consultees, bodies with environmental responsibility and other interested parties as outlined in Section 2.5 of Chapter 2 of the EIAR and summarised below. The following consultees made reference to traffic and transport matters in their responses:

Transport Infrastructure Ireland

Transport Infrastructure Ireland (TII) responded to Scoping on the 12th April 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 as follows;

- 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.
- GE-STY-01024, Road Safety Audit, December 2017.
- DN-GEO-03030, Design Phase Procedure for Road Safety Improvement Schemes, Urban Renewal Schemes and Local Improvement Schemes, April 2021.

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 the relevant Local Authority / National Roads Design Office, with regard to locations of existing and future national roads schemes.	Consultation has been undertaken with Clare 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 Section 15.1.7 of the EIAR, while an assessment of the capacity of the N68 / R484 and R484 / L-2082 junction set out in Section 15.1.7.4.2. An assessment of the impacts during the construction of the Proposed Grid Connection underground cabling route is set out in Section 15.1.7.7 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 14 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 relevant conditions imposed by An Coimisiún Pleanála on other large scale wind energy developments in the area have been considered in the preparation of this impact assessment, and the cumulative traffic related impacts are assessed in Section 15.1.13.5.
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 proposed access junction is in accordance with TII guidelines. The proposed design and visibility splays for the proposed access junction on the L-6254 are shown in Figures 15-13.
6	The developer, in preparing EIAR, should have regard to TII's Environmental Assessment and Construction Guidelines, including the 'Guidelines for the Treatment of Air Quality	The potential impacts of the Proposed Project with regards air quality set out in Chapter 10 of this EIAR.

ID	Comment/Recommendation	Response
	During the Planning and Construction of National Road Schemes' (National Road Authority (NRA), 2006).	
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 been undertaken for the Proposed Project and is summarised in Section 15.1.10 with the report included as Appendix 15-4. In addition, a DN-GEO-03030 TII Design Report has been undertaken for the proposed minor temporary modification to a boundary wall in the proximity of the R484 / N68 junction, which is summarised in Section 15.1.11

ID	Comment/Recommendation	Response
		and is included as Appendix 15-5. The report will be uploaded to the TII portal.
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 during the construction of the Proposed Wind Farm 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 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), as set out in the Traffic Management Plan included as Appendix 15-2 .
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, set out in Section 15.1.13.6.
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 national road network is managed by a combination of PPP Concessions, Motorway Maintenance and Renewal Contractors (MMaRC) and local road authorities, in association with TII. The applicant/developer should also consult with all PPP Companies, MMaRC Contractors and road authorities over which the haul route traverses to ascertain any operational requirements, including delivery	Consultation will be undertaken with these bodies prior to the delivery of abnormally large loads.

ID	Comment/Recommendation	Response
	timetabling, etc., to ensure that the strategic function of the national road network is safeguarded.	
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 recommendation.
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 Road Authority prior to the commencement of any development onsite.	The Applicant agrees with this recommendation.
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.	It is confirmed that national road schemes have been considered during the design process of the Proposed Grid Connection route. The Proposed Grid Connection underground cabling alignment will not impede any known proposed national road schemes.
17	TII acknowledges that grid connection routing options are indicated in your EIAR Scoping referral, with connection proposed to Moneypoint 400kV substation by dedicated 110kV connection. The proposed route includes a crossing of the N68, national road, and laying cabling in a section of the N67, national road. Therefore, please note, in the context of the existing national road network, in accordance with the National Planning Framework National Strategic Outcome no. 2 'Enhanced Regional Accessibility', there is a requirement to maintain the strategic capacity and safety of the network. This requirement is further reflected in the National Development Plan, the National Investment Framework for Transport in Ireland and also the existing Statutory Section 28 'Spatial Planning and National Roads Guidelines for Planning Authorities'.	The strategic capacity and safety of the national road network will be maintained during the construction of the Proposed Grid connection underground cabling through implementation of the Traffic Management Measures, set out in Section 15.1.13.6.

ID	Comment/Recommendation	Response
18	The provision of cabling along the national road network represents a number of significant implications for TII and road authorities in the management and maintenance of the strategic national road network and TII is of the opinion that grid connection cable routing should reflect the foregoing provisions of official policy. For all renewable energy developments requiring grid connection to the national grid, TII recommends that a full assessment of all route alternatives to grid connection takes place, including alternatives to public road, where appropriate.	A comprehensive assessment of reasonable alternative grid connection cabling routes has been undertaken and is included in Chapter 3, Section 3.8.1, of this EIAR and it has been demonstrated that the chosen option is the optimum route.
19	In TII's experience, grid connection accommodated on national roads has the potential, inter alia, to result in technical road safety issues such as differential settlement due to backfilling trenches and can impact on ability and cost of general maintenance, upgrades and safety works to existing national roads.	In addition to being a route for the movement of road traffic, public roads serve a multi-purpose function as utility corridors. Public roads are the corridors that carry the vast majority of the country's water mains, wastewater sewers, telecoms cables, fibre broadband, gas pipelines and electricity cabling. Roads are multi-purpose infrastructure and communications corridors, and must be considered as such in the context of the Proposed Project. Practically every wind farm in the country that is already built and is generating renewable energy, or that has been permitted to do so by the Commission, includes an off-site grid connection that utilises the public road network as a route for the wind farm's grid connection cabling from the on-site wind farm substation to the point on the national electricity grid where the wind farm must connect In addition to the above, the Proposed Grid Connection will only be located within c.200m of the national road corridor, which is only 1% of the Proposed Grid Connections length. Furthermore, this section of road is adjacent to the ESB Moneypoint 400kV power complex, energy infrastructure at this location inclusive of underground electrical cabling is not uncommon.
20	Other consents or licences may be required from the road authority for any trenching or cabling proposals crossing the national road. TII requests	The Applicant agrees to this recommendation.

ID	Comment/Recommendation	Response
	referral of all proposals agreed and licensed between the road authority and the applicant which affect the national road network.	
21	Where grid connection involves proposals to cross a motorway, Works Specific Deeds of Indemnities, arrangements for third party access or consent from TII in accordance with Section 53 of the Roads Act, 1993, is required. Arrangements for third party access are also likely to be required. Contact should be made to 'thirdpartyworks@tii.ie' to progress this element when proposals for the crossings have been developed.	The Proposed Grid Connection underground cabling route does not cross or interact with the motorway network and therefore, this action is not required.
22	General requirements for directional drilling under a motorway include: • The launch and reception pits for the crossing are located outside the Motorway boundary. • The cabling will be installed at such depth so as not to conflict with the drainage for the Motorway. • Neither the works nor the cable crossing will damage or interfere with the Motorway. • Any maintenance and/or future planned upgrades of the cabling at the crossing location can be carried out without access to the motorway boundary. • There are no bolted joints in that part of the crossing within the motorway fenceline. • A pre and post construction survey shall be required along the length of the crossing over the extents of the motorway boundary. • Specific requirements may also arise for these proposed works.	The Proposed Grid Connection underground cabling route dies not cross or interact with the motorway network and therefore, these requirements are not relevant.
	Cable routing should avoid all impacts to existing TII infrastructure such as traffic counters, weather stations, etc. and works required to such infrastructure shall only be undertaken in consultation with and subject to the agreement of TII. Any costs attributable shall be borne by the applicant/developer. The developer should also be aware that separate approvals may be required for works traversing the national road network.	The Proposed Grid Connection underground cabling route alignment will avoid any potential impacts on traffic counters, weather stations, etc.

Department of Transport

A response to scoping was received from the Department of Transport (DoT) on the 2nd May 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.	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. 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.
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) the design needs to take account of all the variable ground conditions and not be based on a sample of the general soil conditions.	As set out in Section 15.1.13.6 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.
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).	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. Detailed grid connection design drawings have been provided in Appendix 4-2 of this EIAR.
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.	Once the Proposed Grid Connection underground cabling works have been completed, it will become an ESBN asset and be treated no differently to any other existing service or utility within the public road corridor.

ID	Comment/Recommendation	Response
5	Examination of all available technologies and route options other than the routing of cables along the public road.	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 effect on the Roads Authority in its role of construction and maintenance.	The location of the Proposed Grid Connection underground cabling within the public road corridor is shown on the 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 4-2 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.	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.	It is not proposed to attach any cabling to existing bridge or culvert structures. The proposed bridge/culvert crossing methodologies of the Proposed Grid Connection underground cabling are 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

ID	Comment/Recommendation	Response
		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.

Clare County Council

There has been no response to date (15/01/26) from the Road Section of Clare County Council with respect to the Scoping Document issued on April 5th 2024. However, Clare County Council requested that the entire length of the Turbine Delivery Route from Foynes Port, to the Cahermurphy West site be assessed in the EIAR at a pre-application meeting on the 6th of November 2024. This request has been addressed and a swept path analysis of all areas has been provided in Figures 15-6 to 15-11 below, as well as Appendix 15-3 of this Chapter.

15.1.2 Receiving Environment

15.1.2.1 Site Location

The Proposed Project is located in Co. Clare, in the townlands listed in Table 1-1 of Chapter 1.

The Proposed Project site is located approximately 26km west of Ennis and 4 km north of Kilmihil, Co, Clare. The site location is shown in Figure 15-1a.

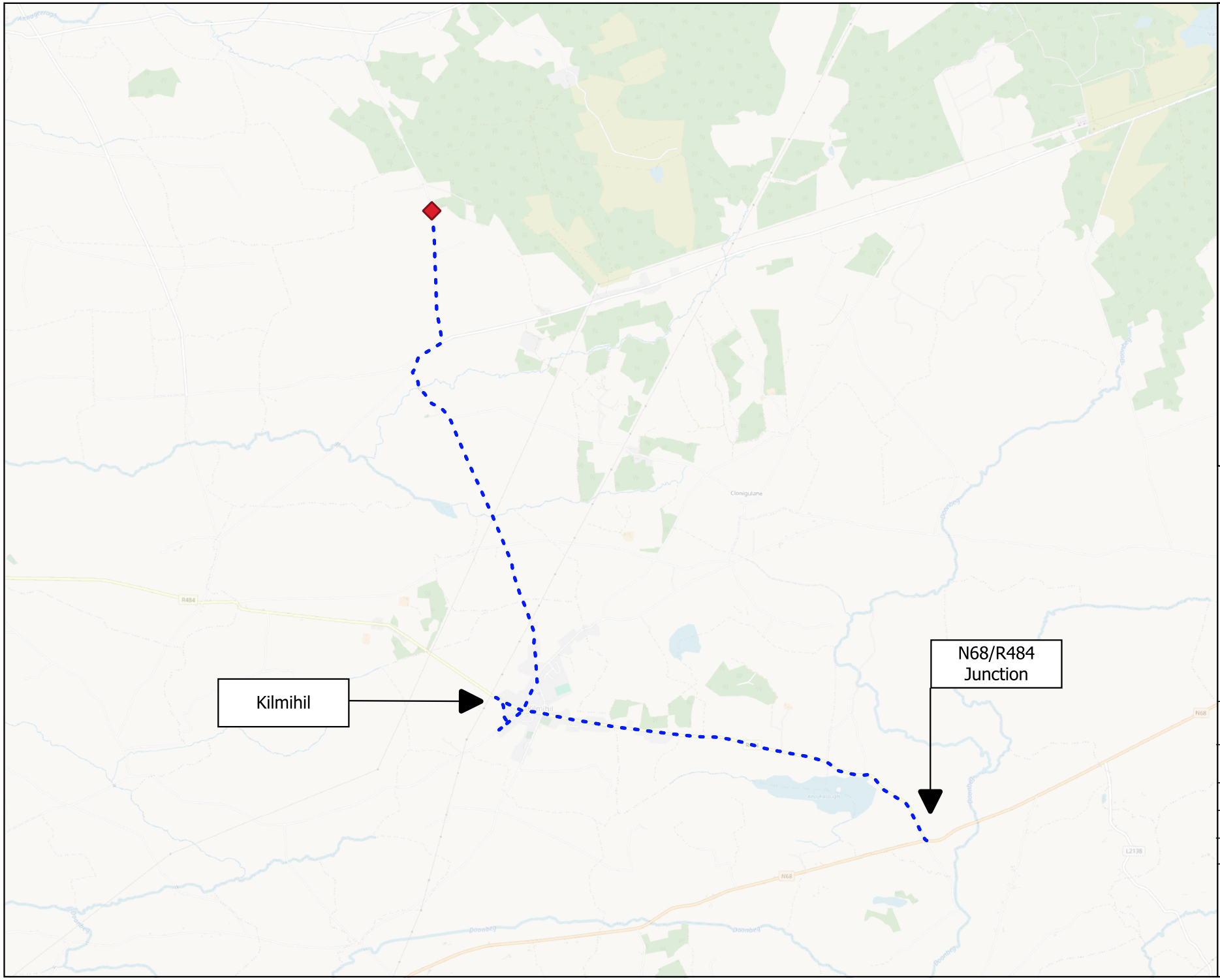
15.1.2.2 Proposed Turbine Delivery Route

A detailed assessment was undertaken of all potential pinch-points for the abnormally large turbine plant transporter vehicles between the proposed port of arrival in Foynes, and the proposed site access junction located off the L-6254.

The route assessment was undertaken by MKO and investigated a total of 16 locations on the delivery route between the Port of Foynes and the Site access located off the L6254. While the results of the assessment are addressed in Section 15.1.9, a summary of the route is as follows, with the locations assessed shown in Figure 15-1b.

- From the access road serving Foynes Port the route turns left (south) onto the N69 National Secondary Road at the existing priority junction.
- From this point the route heads east on the N69 for approximately 32kms, passing through various bends on the route.
- The route then turns left off the N69 at the Dock Road West Roundabout to head north onto the N18/M18 for approximately 30km to Junction 12 of the M18.
- At this point the turns of the M18 onto the N85 National Road and heads west for approximately 3.8km passing through the Skehanagh Roundabout and the R458 Clareabbey Roundabout to the Rocky Road Roundabout where it then turns right to head northwest for approximately 260m on the N68 to the Kilrush Road Roundabout.
- From this point the route continues southeast on the N68 for approximately 23.1km passing through the village of Lissycasey before taking the right turn at the N68/R484 junction.
- From this point the route travels west along the R484 for approximately 4.7km to the village of Kilmihil, where the vehicles will perform a reverse manoeuvre through a temporary access road across two agricultural fields into the townland of Kilmihil, onto the L-2074 local road.
- The route then heads north on the L-2074 through Kilmihil before merging onto the L-2082.
- The route then travels north on the L-2082 for approximately 4km and passing through an agricultural field in the townland of Castlepark.
- The route then passes through an agricultural field north of Scoil Mhichíl in the townland of Cahermurphy, onto the L-2048.
- The route then heads east for approximately 290m on the L2048 before turning left onto the L-6254 heading north for approximately 1.2km before reaching the site entrance on the left.

The total length of the Turbine Delivery Route from Foynes Port to the access junction off the L-6254 is approximately 102 kms. All deliveries of abnormally sized loads will be made using Garda Siochana escorts and local transient traffic management measures put in place by the haulage company.



Map Legend

- Proposed Turbine Delivery Route
- Proposed Site Access Junction

Drawing Title
Site Location and Turbine Delivery Route

Project Title
Cahermurphy West Wind Farm

Drawn By	Checked By
MC	EMC
Project No.	Drawing No.
230843	Figure 15-1a
Scale	Date
1:50,000	19.03.2026

MKO
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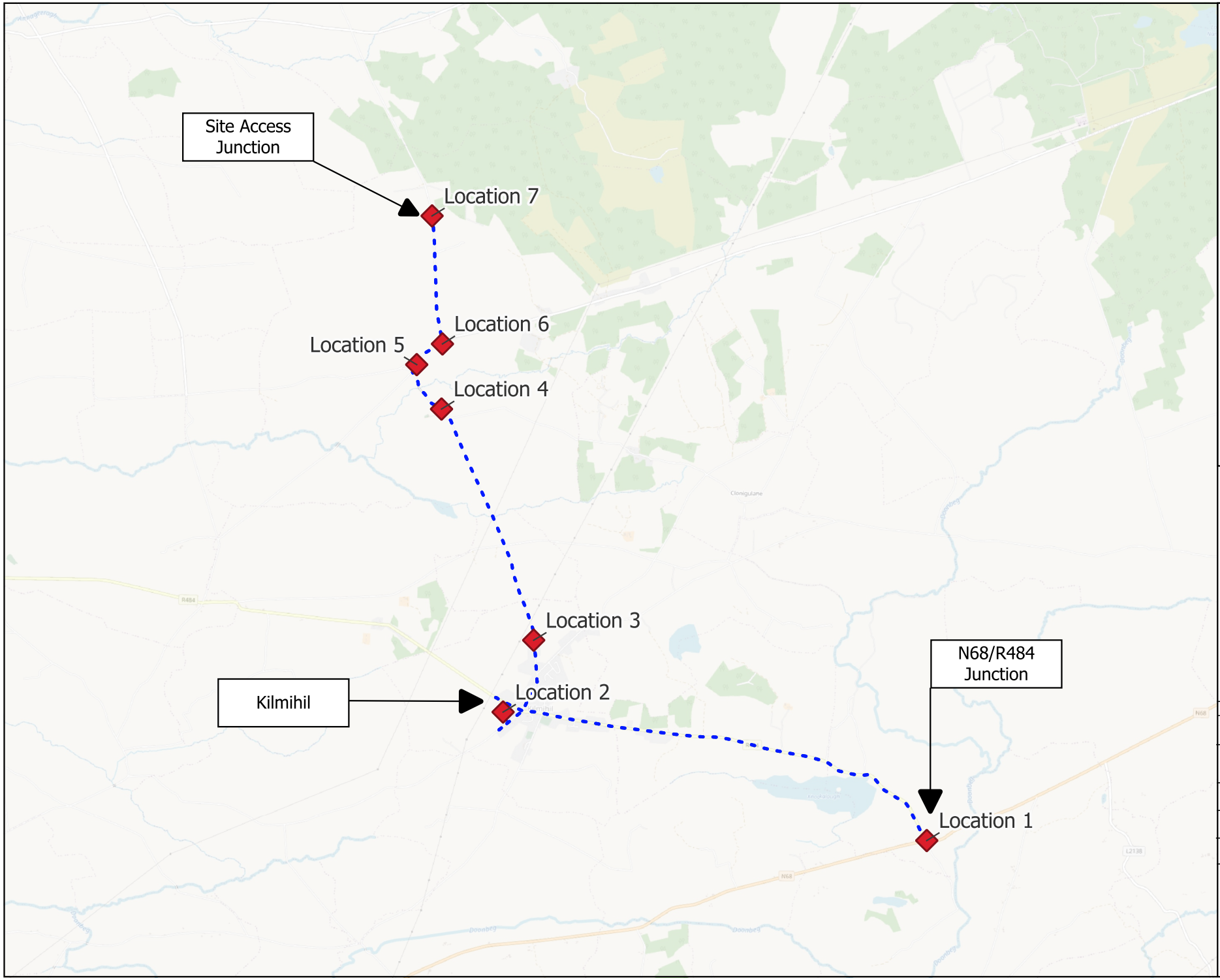

Map Legend

- Proposed Turbine Delivery Route
- Autotrack Assessment Locations

Drawing Title: Turbine Delivery Route Autotrack Assessment Location Plan

Project Title: Cahermurphy West Wind Farm

Drawn By	Checked By
MC	EMC
Project No.	Drawing No.
230843	Figure 15-1b
Scale	Date
1:50,000	19.03.2026

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15.1.2.3 Site Access Junction

It is proposed that all traffic generated by the Proposed Wind Farm component of the Proposed Project will access the Site via the junction an existing junction off the L-6254 located approximately 1.2km north of the junction with the L-2048. This junction will provide access for all traffic movements generated during the construction phase, including the abnormally sized loads, and will also provide access to the site for maintenance staff once the Wind Farm is operational. The design of the proposed site access junction is addressed in Section 15.1.9.

15.1.3 Temporary accommodation works on the Turbine Delivery Route

Section 15.1.9 of the EIAR discusses the swept path analysis undertaken for the abnormally sized loads on the Turbine Delivery Route. It was established that temporary accommodation works will be required at 6 no. locations between the turnoff from the R484 Regional Road to the Site access off the L-6254. The locations, which are shown in Figure 15-1b, and the proposed measures are as follows.

Location 1: N68 / R484 Junction at the Crossroads Bar

Road widening including the temporary removal of a wall, street furniture and vegetation removal/trimming is proposed on the eastern side of the R484 regional road beside the Crossroads Bar. Any material removed will be reinstated.

Location 2: Reversing manoeuvre in the village of Kilmihil.

The Turbine Delivery vehicle will perform a reverse manoeuvre through 2 no. agricultural fields at the eastern boundary of Kilmihil. This manoeuvre begins on the R484 and finishes on the L-2074, where the vehicle will drive North through the village of Kilmihil. The temporary road will require some temporary removal of fencing (will be fully reinstated post construction) and vegetation clearance. A new track will be constructed using excavate and replace methodology in order to accommodate vehicles carrying abnormal loads. These tracks will remain within the field but will be left to grass over post construction.

Location 3: Slight bend on Church street, Kilmihil:

Temporary road widening works are necessary on Church street to the north of Kilmihil. Road widening and temporary vegetation removal is proposed along approximately 120m of the public road. Hedgerow temporarily removed will be fully reinstated post construction.

Location 4: Field crossing in the townland of Castlepark

Some minor temporary road widening and vegetation removal is proposed south of the beginning of the second agricultural field crossing. This hedgerow will be fully reinstated post construction. At this location, the turbine delivery vehicle will pass through agricultural fields, beginning at the L-6188/L-2082 junction and emerging back onto the L-2082 approximately 320m south of Scoil Mhichíl in the townland of Cahermurphy. Road construction methodology will follow that outlined in Section 4.2.2 of the EIAR. No protected species/habitats were noted at this crossing and no potential roosting features were recorded. Temporary hedgerow loss (which will be fully reinstated post construction) will be required here to enter the field, with a new track constructed using excavate and replace methodology to accommodate vehicles carrying abnormal loads.

Location 5: Field crossing north of Scoil Mhichíl

The turbine delivery vehicle will cross through an agricultural field north of Scoil Mhichíl and emerge onto the L-2048. Temporary hedgerow loss (which will be fully reinstated post construction) is expected at this location. A new permanent track will be constructed through this field using excavate and replace methodology (as described in Section 4.2.2 of the EIAR) to accommodate vehicles carrying abnormal loads. The Proposed Grid Connection route will traverse this field underneath the proposed new road.

Location 6: L-6254 Junction

Temporary expansion of an existing area of hardcore at an area previously used for the delivery of turbines to the existing Cahermurphy Wind Farm will be required. This will result in the temporary removal of 0.075ha of improved agricultural grassland which will be left to revegetate post construction.

For those locations where temporary access is required to agricultural land or fields during the construction of the proposed accommodation works access will be controlled by traffic management measures, including temporary signage in accordance with 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). Construction staff (flagman) will be present at these locations during all times that deliveries are made to and from the site. The sites will be closed to all traffic by means of fencing at all other times. Were a blade length in the lower end of the design flexibility range be chosen for the Proposed Wind Farm it is confirmed that the swept path of these smaller blades would be contained entirely within the 81.5m long blade oversail areas.

15.1.3.2 Proposed Construction Traffic Haul Route

General construction materials - Concrete / Rock / Stone / timber and other miscellaneous items and waste

The closest operational quarry (Darragh Quarry) is located 25.5km southwest of the Site via roads, with multiple quarries also located to the east and northeast of the site connected via national, regional and local roads. While it is proposed that quarries situated closest to the site will be used in order to minimise the traffic effects of the Proposed Project, in order to test a robust traffic scenario it is assumed that all concrete, rock and stone will be delivered along the Turbine Delivery Route.

Other wind turbine component deliveries (components delivered using standard HGVs)

All other wind turbine components delivered by standard HGVs will arrive at Foynes Port and will be delivered via the same haul route as for the abnormally sized loads as set out in 15.1.2.2 above.

The assessment presented in this chapter of the EIAR is based on adopting a precautionary approach.

15.1.4 Existing Traffic Volumes

It should be noted that traffic volumes are discussed in terms of vehicles and passenger car units, or PCUs, where each vehicle is expressed in terms of its demand on the network relative to the equivalent number of cars or light goods vehicles (LGV). For example, an articulated HGV is 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 loaders required to transport the large wind turbine components is assigned a value of 10 PCUs.

15.1.4.1 Background Traffic Flows

Classified turning counts were undertaken by Traffinomics Ltd at the following locations, as shown in Figure 15-2, and on the following dates;

- Junction A – N68 / R484 junction (5th March, 2024)
- Junction B – R484 / L2048 junction (5th March, 2024), and,
- Junction C – R484 / L2082 junction (15th January 2026).

The link counts from these traffic surveys were used to provide background traffic volumes on the local study road network. Data from a continuous traffic counter maintained by TII on the N68 from the year 2025 just to the west of the junction with the R484 junction was also used for the purpose of the traffic assessment. The 4 link count locations on roads included in the assessment are also shown in Figure 15-2.

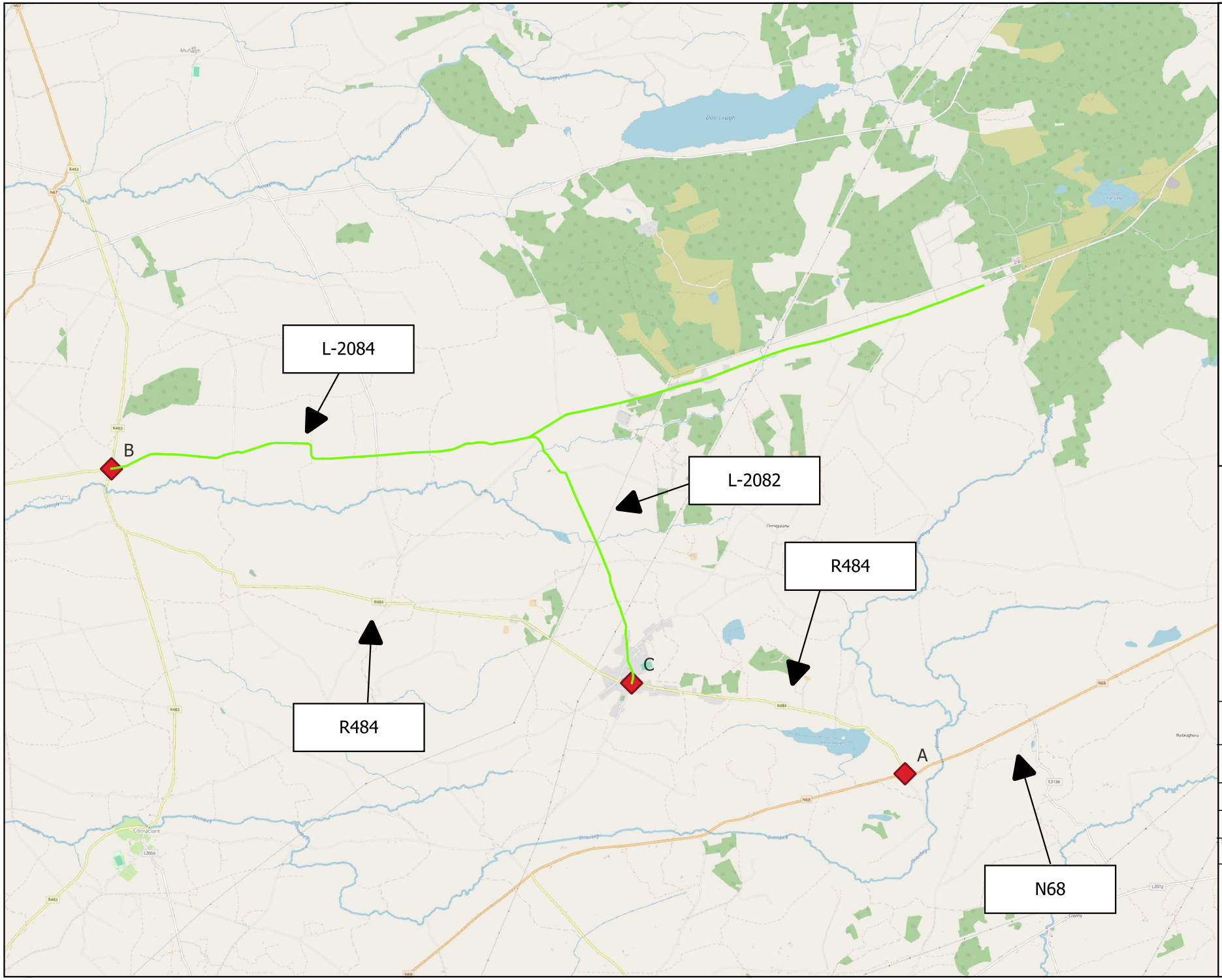
The traffic count data for these locations is included as Appendix 15-1.

The year and source for each of the link counts is shown in Table 15-2 while the all day traffic flow are shown for the survey year the count was observed in Table 15-3. Daily traffic flows on the route vary from 4,466 vehicles on the N68, to 2,287 vehicles on the R484, reducing to 1,500 on the L2082. On the L2048 approaching the L6254 leading to the site, traffic flows are low with a 2-way all day flow of 514 vehicles.

Table 15-2 Link locations, year data collected and data source

Link	Year	Source
1 - N68 - Junction A	2024/ 2025*	TII ATC count / Classified turning count
2 - R484 - Junction A, B, C	2024	Classified turning count
3 – L2082 – Junction C	2026	Classified turning count
4 – L2048 – Junction B	2024	Classified turning count

** Data from a continuous traffic counter maintained by TII on the N68 from the year 2025*



Map Legend

Junctions

Drawing Title
Traffic Count and Link Locations

Project Title
Cahermurphy West Wind Farm

Drawn By	Checked By
MC	EMC
Project No.	Drawing No.
230843	Figure 15-2
Scale	Date
1:70,000	19.03.2026

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Table 15-3 Observed all day flows by year (2-way vehicles)

Link	2024	2025	2026
1 - N68	NA	4,466	NA
2 - R484	2,287	NA	NA
3 – L2082	NA	NA	561
4 – L2048	514	NA	NA

15.1.4.2 Background Traffic Volumes for Assumed Construction Year 2030

This section describes the process adopted to produce background traffic forecasts for an adopted construction year of 2030.

Revised guidelines for forecasting annual growth in traffic volumes were produced by TII in October 2021, as set out by county in the 'Project Appraisal Guidelines for National Roads (Unit 5.3)'. The annual growth rates for light vehicles for Co. Clare, and factors for the years relevant to this study, are shown in Table 15-4 and Table 15-5. Traffic volumes are forecast to increase during the relevant periods for a medium growth scenario as follows;

- 2024 – 2030 = 1.097
- 2025 – 2030 = 1.080, and,
- 2026 – 2030 = 1.064.

Table 15-4 TII Traffic Growth Annual Factors and Indices for County Clare

Year	Lights – Annual Factor			Lights (Cars and LGVs) – Cumulative Index		
	Low	Medium	High	Low	Medium	High
2024	1.0139	1.0156	1.0191	1.000	1.000	1.000
2025	1.0139	1.0156	1.0191	1.014	1.016	1.019
2026	1.0139	1.0156	1.0191	1.028	1.031	1.039
2027	1.0139	1.0156	1.0191	1.042	1.048	1.058
2028	1.0139	1.0156	1.0191	1.057	1.064	1.079
2029	1.0139	1.0156	1.0191	1.071	1.080	1.099
2030	1.0139	1.0156	1.0191	1.086	1.097	1.120
2031	1.0019	1.0038	1.0075	1.088	1.101	1.129
2032	1.0019	1.0038	1.0075	1.090	1.106	1.137

Source: TII Project Appraisal Guidelines – Unit 5.3, October 2021

Table 15-5 TII traffic growth rates by growth scenario

Period	New Factors		
	Low	Medium	High
2024 – 2030	1.086	1.097	1.120
2025 – 2030	1.071	1.080	1.099
2026 – 2030	1.057	1.064	1.079

All day traffic flows on the study area network are compared for the years observed years and the forecast construction year of 2030 Table 15-6a. The data from the continuous traffic counter maintained by TII on the N68 just to the west of the junction with the R484 junction was also used to provide an indication of seasonal variation in traffic volumes. The data revealed that traffic volumes during the survey months of January and March were both observed to be less than average, with a factor of 1.28 and 1.07 required respectively to convert to average monthly traffic volumes. On this basis seasonally adjusted construction year traffic flows are set out in Table 15-6b

It should be noted that while the assumed construction year of 2030 may vary slightly, 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 just 0.38% (as shown in Table 15-4 as 1.0038) and the traffic volumes generated by the Proposed Project will remain unchanged regardless of construction year, as presented subsequently in Section 15.1.5.

The classified counts undertaken on the delivery routes were used to determine the existing percentage of HGVs on the study area network. The observed percentage of HGVs was observed to vary on the turbine delivery route from 2.9% on the N68, to 5.2% on the R484 east of Kilmihil, to 1.9% on the L-2082 north of Kilmihil and 3.2% on the local L-2048 nearing the site.

Traffic volumes forecast on the study network for the year 2030 are shown by vehicle type in Table 15-7.

Table 15-6 a Observed all day flows by year (2-way vehicles)

Link	2024	2025	2026	Construction year 2030
1 - N68	NA	4,466	NA	4,823
2 - R484	2,287	NA	NA	2,509
3 – L2082	NA	NA	561	597
4 – L2048	514	NA	NA	564

Table 15-6 b Observed all day flows by year with seasonal adjustment (2-way vehicles)

Link	2030	Survey month and seasonal factor	2030 seasonally adjusted
1 - N68	4,823	NA	4,823
2 - R484	2,509	March (1.07)	2,684
3 – L2082	597	January (1.28)	764
4 – L2048	564	March (1.07)	603

Table 15-7 All day flows, percentage HGVs and flows by vehicle type, year 2030

Link	All day flow (vehs)	% HGV's	Vehicles		PCUs		
			HGVs	Cars / LGVs	HGVs	Cars / LGVs	Total
1 - N68	4,823	2.9%	140	4,683	336	4,683	5,019
2 - R484	2,684	5.2%	140	2,545	335	2,545	2,880
3 – L2082	764	1.9%	15	750	35	750	784
4 – L2048	603	3.2%	19	584	46	584	630

15.1.5 Proposed Project and Traffic Generation

15.1.5.1 Development Trip Generation – During Construction

The assessment of the effects of traffic generated during the construction of the Proposed Project is considered in two stages.

- Stage 1 – Site preparation and groundworks including construction of internal roads, turbine foundations, cabling, met mast foundations, Proposed Grid Connection underground electrical cabling route laying, substation construction, construction of compound and tree felling, and,
- Stage 2 – Turbine component delivery and construction.

For the purpose of the traffic impact assessment, projections based on trip generation data collected from other permitted wind farm construction projects regarding the numbers of trips per quantum of material, the number of turbine component parts based on 8 turbines, the length of the construction phase and work periods etc. were made to inform the assessment. These projections allow for a robust assessment but should not be inferred as prescriptive limitations to the construction phase. There are numerous variables which can affect a construction project programme such as weather for example. The construction phase of the Proposed Project will be carried out in accordance with the Construction and Environmental Management Plan (CEMP), which is submitted as Appendix 4-5 of this EIAR.

The construction phase of the Proposed Project is expected to last approximately 18 months (1.5 years). While this could increase to 24 months, 18 months was assumed for the purpose of this assessment in order to test a robust scenario. The shortest construction period will give rise to higher volumes of construction traffic using the public road network at any one time.

For assessment purposes a standard 255 working days per annum was adopted for the 12 months, with a total of 382 working days for the 18 month construction period. As set out below following number of delivery days is allocated to each element of the construction phase.

- Stage 1 – Site Preparation and groundworks including cable laying – A total of 352 days is allocated to this phase of which 8 days are reserved solely for concrete deliveries for turbine foundations and 344 days for all other deliveries.
- Stage 2 – Turbine delivery (abnormally sized loads)– A total of 22 days will be required when convoys of up to 3 abnormally sized loads deliver the large turbine components to the Proposed Wind Farm site. These deliveries will be made during nighttime hours.

- Stage 2 – Turbine delivery (standard HGVs) – A total of 8 days will be required for the delivery of smaller turbine components to the site using standard HGVs.

The above equates to a total of 382 days, or 18 months.

15.1.5.1.1 Stage 1 – Site Preparation and Ground Works including Cable Laying

The total numbers of deliveries made to the site during the site preparation and ground works stage (stage 1) are shown in Table 15-8.

During all of Stage 1 it is estimated that 8,096 two-way HGV trips will be made to the site by trucks and large articulated HGVs, as set out in Table 15-8, with the daily effect on the local road network shown in Table 15-9 and 15-10.

During this construction phase, there will be two distinct types of days with respect to trip generation. A total of 8 days will be used to pour the 8 concrete wind turbine foundations. Foundations will likely be poured one per day, with an estimated 75 concrete loads required for each turbine foundation delivered to the site over a 12-hour period. This will result in just over 6 HGV trips to and from the site per hour. On the remaining 344 working days for this stage, other general materials will be delivered to the Site.

The figures in Table 15-9 show that on the 8 days that concrete will be delivered to the site an additional 360 two-way PCUs will be added to the network (comprising 75 two-way HGV trips or 150 movements, with 2.4 PCUs per movement). Similarly, on the 344 days when other materials will be delivered to the site, traffic volumes on the local network are forecast to increase by an average 105 two-way PCUs, as set out in Table 15-10.

Table 15-8 Stage 1 – Site preparation and groundworks – total movements

Material	Total no. Truck Loads	Truck type
Concrete	600	Trucks
Delivery of plant	31	Large artic
Fencing & gates	3	Large artic
Compound setup	32	Large artic
Steel	22	Large artic
Ducting and cabling (internal)	235	Large artic
Grid connection cable laying	3,500	Large artic
Tree felling	795	Truck
Crane (to lift steel)	1	Large artic
Stone / road construction	2,400	Truck
Substation	100	Large artic
Crane for turbines	12	Large artic
Refuelling for plant	165	Large artic

Material	Total no. Truck Loads	Truck type
Site maintenance	120	Large artic
Miscellaneous	80	Large artic
Total	8,096	

Table 15-9 Stage 1 – Concrete foundation pouring – total movements and volumes per delivery day

Material	Total Truck Loads	Truck type	PCU Value	Total PCUs	PCU Movements /day*	2- way PCUs/day
Concrete	600	Truck	2.4	1,440	180.0	360.0
* Estimation based on 8 concrete pouring days						

Table 15-10 Stage 1 – Site preparation and groundworks – total movements and volumes per delivery day

Material	Total Truck Loads	Truck type	PCU Value	Total PCUs	PCU Movements /day*	2- way PCUs/day
Delivery of plant	31	Large artic	2.4	74.4	0.22	0.43
Fencing & gates	3	Large artic	2.4	7.2	0.02	0.04
Compound setup	32	Large artic	2.4	76.8	0.22	0.45
Steel	22	Large artic	2.4	52.8	0.15	0.31
Ducting and cabling (internal)	235	Large artic	2.4	564.0	1.64	3.28
Grid connection cable laying	3,500	Large artic	2.4	8,400.0	24.42	48.84
Tree felling	795	Truck	2.4	1908.0	5.55	11.09

Material	Total Truck Loads	Truck type	PCU Value	Total PCUs	PCU Movements /day*	2- way PCUs/day
Crane (to lift steel)	1	Large artic	2.4	2.4	0.01	0.01
Stone / road construction	2,400	Truck	2.4	5760.0	16.74	33.49
Substation	100	Large artic	2.4	240.0	0.70	1.40
Crane for turbines	12	Large artic	2.4	28.8	0.08	0.17
Refuelling for plant	165	Large artic	2.4	396.0	1.15	2.30
Site maintenance	120	Large artic	2.4	288.0	0.84	1.67
Miscellaneous	80	Large artic	2.4	192.0	0.56	1.12
Total	7,96			17,990.4	52.30	104.6
* Estimation based on groundwork period of 344 working days						

15.1.5.1.2 Stage 2 – Turbine Delivery

During the turbine construction stage, including delivery and assembly, some deliveries to the site will be 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 normal large HGVs, transporting cables, tools and smaller component parts. The types of load and associated numbers of trips made to the site during the turbine construction period are shown in Table 15-11, 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 conventional large articulated HGVs.

Table 15-11 Stage 2 – Wind turbine plant – total movements

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

Material	Units	Quantity per Unit	Total Quantity	Quantity per Truck	Total Truck Loads	Truck type
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 purpose of this assessment a delivery period based on previously constructed wind farm sites already constructed, is provided although this may be subject to change. It is assumed that the turbine delivery element will progress at the rate of 3 extended artic trips made by convoy to the site on 5 days per week, resulting in this stage taking approximately 22 days/nights spread over a 5 week period. On a further 8 days at 2 days per week, lasting for approximately 4 weeks, the remaining equipment required during this phase will be delivered to the site. The additional traffic movements for these 2 types of days are summarised in Table 15-12 and Table 15-13. In Table 15-12, 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 5 days per week, while an additional 19.2 PCUs are forecast to be on the network on two other days per week during the turbine construction phase, as shown in Table 15-13.

Table 15-12 Stage 2 – Wind turbine plant, extended artics – total movements and volumes per delivery day

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	60.0

* 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 15-13 Stage 2 - Wind turbine plant, normal artic HGVs - total movements and volumes per delivery day

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
* Based on equipment for 2 turbines being moved per week spread over 2 days for 4 weeks			

15.1.5.1.3 *Construction Employee Traffic*

It is estimated that a total of 90 construction jobs will be created during the construction, operation and maintenance phases of the Proposed Project (i.e. Proposed Wind Farm and Proposed Grid Connection) of which it is estimated that a maximum of 70 staff members will be employed on the site 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 erection stage. Based on a robust traffic scenario where all staff will travel to / from the site by car, at an average of 2 persons per car, a total of 70 PCU movements (each trip is two way) will travel on the local road network. This will reduce to 45 PCUs during the turbine construction stage. These volumes are included in the traffic impact assessment set out in this EIAR. It is noted that all staff trips will access the site via the main access junction off the L6254 and will park in the staff parking areas situated within the sites temporary construction compounds.

15.1.5.2 Development Trip Generation – During Operation

The Proposed Project will be unmanned once operational and will be remotely monitored. Traffic associated with the operational phase of the Proposed Project will be from the wind farm developers, Eirgrid personnel visiting the substation, and maintenance personnel who will visit individual turbines. It is anticipated that these trips will account for approximately two maintenance staff trips per week. The impact on the network of these trips during the operational stage is discussed in Section 15.1.11.3. There will also be occasions when plant will require to be replaced which may include large turbine component parts, although it is noted that these occasions will be rare.

15.1.5.3 Development Trip Generation – During Decommissioning

Traffic generation during decommissioning will be significantly less than the trip generation estimates for the construction phase presented in Section 15.1.4.1. This is because much of the materials brought into Site during construction will be left in-situ during the decommissioning stage and large turbine components will be broken down and removed from the Site using standard HGVs, as set out is Section 4.6 of this EIAR.

15.1.6 Construction Traffic Vehicle Types

The delivery of turbine components including blades, tower sections and nacelles is a specialist operation due to the oversized loads involved. The blades are the longest turbine component and in

the case of the Proposed Project blades up to 81.5m long (i.e. the longest blade length) have been considered for the purpose of this assessment.

For the purpose of this assessment set out in this EIAR, it is assumed that the blades, which are the largest turbine components, will be transported using a clamp and dolly system, which provides the most manoeuvrable and efficient method of steering the rear wheel axle. The Applicant confirms that a clamp and dolly system will be utilised for transporting the turbine blades to the Proposed Wind Farm site.

The tower sections, which are significantly shorter than the blade sections, will be transported using standard low deck trailers.

The critical vehicles in terms of size and turning geometry requirements and used in the detailed route assessment discussed in Section 15.1.9 is the blade transporter which has the following dimensions;

Transport of Blades – Clamp and Dolly system

Total length	87 m
Length of blade	81.5 m

All other vehicles requiring access to the site will be standard HGVs and will be significantly smaller than the design test vehicles.

15.1.7 Expected Traffic During Construction, Operation and Decommissioning

As detailed below, the 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.

15.1.7.1 Expected Traffic on Link Flows – During Construction

Background traffic volumes are as established previously, and set out in Table 15-7.

Development generated traffic volumes are shown for the typical construction day scenarios discussed in Section 15.1.5, are set out in Table 15-14 to 15-17 below. The resultant traffic effects are summarised in Tables 15-18 to 15-21.

The actual figures presented in the tables may vary slightly, however, they are considered to represent a robust assessment of the likely increases in traffic volumes. For the purpose of assessing the maximum increases in traffic volumes on links during Stage 1 of construction, it is assumed that all traffic will travel along on the traffic route identified in Figure 15-1a.

In terms of daily traffic flows the potential increase, which is concluded in Tables 15-17 to 15-18, may be summarised as follows:

During Stage 1 – Concrete Pouring (See Table 15-14)

For these 8 days an additional 430 PCUs will travel on the study network.

On these days it is forecast that the percentage increase in traffic volumes experienced on the study network will range from +8.6% on the N68, to +14.9% on the R484 between the N68 and Kilmihil. As the route travels north on the L-2082 background traffic flows reduce significantly and the percentage

increase becomes more pronounced as a result, with a +54.8% increase forecast on the L-2082 north of Kilmihil, and a 68.2% increase forecast on the short section of the L-2048 traveling towards the site.

During Stage 1 - Site Preparation and Groundworks (See Tables 15-15)

For these 344 days an additional 140 PCUs will travel on the study network.

On these days it is forecast that the percentage increase in traffic volumes experienced on the study network will range from +3.5% on the N68, to +6.1% on the R484 between the N68 and Kilmihil. On the L-2082 traveling north from Kilmihil it is forecast traffic volumes will increase by 22.3%, with a 27.8% increase forecast on the short section of the L-2048.

During Stage 2 - Turbine Erection Stage – Delivery of large equipment using extended articulated vehicles (See Table 15-16)

For these 22 nights an additional 105 PCUs will travel on the study network.

On these nights it is forecast that the percentage increase in traffic volumes experienced on the study network will range from +2.1% on the N68, to +3.6% on the R484 between the N68 and Kilmihil. On the L-2082 traveling north from Kilmihil it is forecast traffic volumes will increase by 13.4%, with a 16.7% increase forecast on the short section of the L-2048.

The most significant traffic impact may be experienced during these delivery periods primarily due to the slow speeds, size and geometric requirements of these vehicles. The provision of traffic management measures, including ensuring that these deliveries are made at night as is proposed, (as set out in Sections 15.1.9 and 15.1.13.6 and included in the CEMP), will be required to minimise the impact of development traffic on the study network on these days.

During Stage 2 - Turbine Construction Stage – Other deliveries using conventional articulated HGVs (See Table 15-17)

For these 8 days an additional 64 PCUs will travel on the study network.

On these days it is forecast that the percentage increase in traffic volumes experienced on the study network will range from +1.3% on the N68, to +2.2% on the R484 between the N68 and Kilmihil. As the route travels north on the L-2082 background traffic flows reduce significantly and the percentage increase becomes more pronounced as a result, with a +8.2% increase forecast on the L-2082 north of Kilmihil, and a 10.2% increase forecast on the short section of the L-2048 traveling towards the site.

Table 15-14 Effects of development traffic during turbine 8 days concrete pouring – Stage 1

Link	Background PCUs			Development PCUs			Total PCUs (Background + Development)		
	Car	HGV	Total	Car	HGV	Total	Car	HGV	Total
1 - N68	4,683	336	5,019	70	360	430	4,753	696	5,449
2 - R484	2,545	335	2,880	70	360	430	2,615	695	3,310
3 – L2082	750	35	785	70	360	430	820	395	1,215
4 – L2048	584	46	630	70	360	430	654	406	1,060

Table 15-15 Development traffic during site preparation and groundworks 344 days – Stage 1

Link	Background PCUs			Development PCUs			Total PCUs (Background + Development)		
	Car	HGV	Total	Car	HGV	Total	Car	HGV	Total
1 - N68	4,683	336	5,019	70	105	175	4,753	441	5,194
2 - R484	2,545	335	2,880	70	105	175	2,615	440	3,055
3 – L2082	750	35	785	70	105	175	820	140	960
4 – L2048	584	46	630	70	105	175	654	151	805

Table 15-16 Development traffic during turbine erection - extended articulated vehicles (large turbine components) – Stage 2

Link	Background PCUs			Development PCUs			Total PCUs (Background + Development)		
	Car	HGV	Total	Car	HGV	Total	Car	HGV	Total
1 - N68	4,683	336	5,019	45	60	105	4,728	396	5,124
2 - R484	2,545	335	2,880	45	60	105	2,590	395	2,985
3 – L2082	750	35	785	45	60	105	795	95	890
4 – L2048	584	46	630	45	60	105	629	106	735

Table 15-17 Effect of development traffic during turbine construction – other deliveries (standard HGVs) – Stage 2

Link	Background PCUs			Development PCUs			Total PCUs (Background + Development)		
	Car	HGV	Total	Car	HGV	Total	Car	HGV	Total
1 - N68	4,683	336	5,019	45	19	64	4,728	355	5,083
2 - R484	2,545	335	2,880	45	19	64	2,590	354	2,944
3 – L2082	750	35	785	45	19	64	795	54	849
4 – L2048	584	46	630	45	19	64	629	65	694

Table 15-18 Summary effect of development traffic during turbine concrete pouring (8 days)– Stage 1

Link	Background	Development	Total	% increase	Estimated No. of days
1 - N68	5,019	430	5,449	8.6%	8
2 - R484	2,880	430	3,310	14.9%	8

Link	Background	Development	Total	% increase	Estimated No. of days
3 – L2082	785	430	1,214	54.8%	8
4 – L2048	630	430	1,060	68.2%	8

Table 15-19 Summary effect of development traffic during site preparation and ground works (344 days) – Stage 1

Link	Background	Development	Total	% increase	Estimated No. of days
1 - N68	5,019	175	5,194	3.5%	344
2 - R484	2,880	175	3,055	6.1%	344
3 – L2082	785	175	960	22.3%	344
4 – L2048	630	175	805	27.8%	344

Table 15-20 Summary effect of development traffic during turbine construction – extended artics (large turbine components) (22 days) – Stage 2

Link	Background	Development	Total	% increase	Estimated No. of days
1 - N68	5,019	105	5,124	2.1%	22
2 - R484	2,880	105	2,985	3.6%	22
3 – L2082	785	105	890	13.4%	22
4 – L2048	630	105	735	16.7%	22

Table 15-21 Summary effect of development traffic during turbine construction – other deliveries (small turbine components) (8 days)– Stage 2

Link	Background	Development	Total	% increase	Estimated No. of days
1 - N68	5,019	64	5,083	1.3%	8
2 - R484	2,880	64	2,944	2.2%	8
3 – L2082	785	64	849	8.2%	8
4 – L2048	630	64	694	10.2%	8

15.1.7.2 Link Capacity Assessment

An assessment of the impact on link capacity (in terms of 2-way vehicles in a 24hr period) on the delivery route was undertaken for the various construction stages as set out in Tables 15-22 to 15-24 with the capacity of the links on the route options, as shown in Table 15-22, ranging from 5,000 vehicles per day for the N68 and R484, down to 3,000 on the local L-2082 and L-2048 roads on the delivery routes.

Note: While there is no existing guidance in Ireland with respect to the link capacity for such local roads reference is made to a UK Department for Transport Traffic Advisory Leaflet 2/041 where it is recommended that a maximum hourly capacity for a single lane road with passing opportunities is 300 vehicles per hour. Based on this, a conservative 24-hour capacity of 3,000 PCUs (10 peak hours) per day is adopted.

Link 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, and refer to the 2-way traffic flow within a 24 hour period. 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, or Do-Nothing Scenario (which included standard TII traffic growth) traffic flows for the construction year of 2030, are compared to flows forecast for the various construction delivery stages, in Table 15-23, with the percentage capacity reached for each stage shown in Table 15-24.

From the tables, it may be determined that Link 1 (N68 between Lissycasey and the R484) is forecast to operate at capacity (100%) based on background traffic levels by the construction year of 2030. When assessing the impact of the Proposed Project generated traffic on link flows on the delivery route, it is important to consider the relative increase. For Link 1 (N68), it is forecast that from the 100% of capacity that will be used for the Do Nothing scenario, during the 8 days the concrete foundations are poured this will increase to 109%, reducing to between 102% and 104% for the remainder of the construction period. This does not represent a significant increase over the baseline.

Based on the results in Tables 15-23 and 15-24, it is forecast that the delivery route in close proximity to the Proposed Project Site will operate well within link capacity, with the R484 between the N68 and Kilmihil (Link 2) forecast to operate at 58% of capacity for the Do Nothing Scenario, increasing to a maximum of 66% during the construction period. Similarly, the L2082 travelling north from Kilmihil (Link 3) is forecast to operate at 26% for the Do Nothing Scenario, increasing to a maximum of 40% during construction period, and the short section of the L-2048 increasing from a Do-Nothing scenario of 21% to a maximum of 35% of capacity.

Table 15-22 Carriageway widths, link type and link capacity

Link	Link type	Link capacity
1 - N68	Type 3 Single	5,000
2 - R484	Type 3 Single	5,000
3 – L2082	Local Primary	3,000
4 – L2048	Local Primary	3,000

[1] https://tsrgd.co.uk/pdf/tal/2004/tal-2-04.pdf

Table 15-23 Link capacity and summary of link flows by construction delivery stage

Link	Link capacity	Construction delivery stage				
		Background traffic / Do Nothing Scenario (See Table 15-14)	Concrete pour (Stage 1 – 8 days: See Table 15-14)	Other site works (Stage 1 – 344 days See Table 15-15)	Turbine plant (Stage 2 – 22 days See Table 15-16)	Turbine equipment (Stage 2 – 8 days See Table 15-17)
1 - N68	5,000	5,019	5,449	5,194	5,124	5,083
2 - R484	5,000	2,880	3,310	3,055	2,985	2,944
3 – L2082	3,000	784	1,214	959	889	848
4 – L2048	3,000	630	1,060	805	735	694

Table 15-24 Link capacity and % of link capacity by construction delivery stage

Link	Link capacity	Construction delivery stage				
		Background traffic	Concrete pour	Other site works	Turbine plant	Turbine equipment
1 - N68	5,000	100%	109%	104%	102%	102%
2 - R484	5,000	58%	66%	61%	60%	59%
3 – L2082	3,000	26%	40%	32%	30%	28%
4 – L2048	3,000	21%	35%	27%	25%	23%

15.1.7.3 Expected Traffic on Link Flows – During Operation

Once the Proposed Project is operational it is estimated that approximately two operational and maintenance staff will access the site at any particular time in order to carry out operational maintenance, with 2 vehicle trips forecast per week. It is considered that the traffic impact during this phase will be imperceptible. While there will be the requirement to replace plant, this will be a rare occurrence.

15.1.7.4 Junction Capacity Assessment – During Construction

Guidance relating to the requirement to undertake a detailed junction capacity assessment at junctions in the proximity of a Proposed Project is set out in Document PE-PDV-02045 Traffic and Transport Assessment Guidelines, TII, May 2014. The guidance states that a capacity assessment should be undertaken at junctions with National Roads where the Proposed Project is forecast to result in an increase in traffic volumes of 10% or greater, in situations where the network is not currently congested. As the traffic volumes on the R484 arm of the junction with the N68 are forecast to increase by greater than this threshold (+16%) on the 8 days that the concrete foundations are poured, a detailed capacity assessment was undertaken for this junction.

In addition, capacity tests were also undertaken for the R484 / L-2082 junction on the R465.

As the traffic flows through the other junctions are relatively low it is considered that no further junctions were required to be the subject of a detailed capacity assessment.

The capacity of the junction was assessed using the industry standard junction simulation software PICADY, which permits the capacity of a priority junction to be assessed with respect to existing or forecast traffic movements and volumes for a given 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.
- Delay – Output in minutes, this gives an indication of the forecast average delay during the time period modelled for each movement.

Scenarios Modelled

While other junctions and links on the network will experience an increase in traffic volumes passing through them, as discussed previously, the worst-case effect will be experienced during peak hours when, during peak construction periods, up to 70 workers (35 cars) will pass through it. It is noted that deliveries of materials to the site will take place during the day after the workers have arrived on site, and before they leave at the end of the day and will therefore not occur at the same time. In order to test a precautionary scenario where both staff and deliveries negotiate the junctions simultaneously, the maximum number of HGVs (6 cement mixers to and from the site in one hour on the 8 days that concrete foundations are poured) were also included for the with construction traffic scenario.

The tests were undertaken for the AM and PM peak hours for the construction year 2030.

N68 / R484 Junction Capacity Test Results

The AM and PM peak hour traffic flows through the N68 / R484 junction were established from the classified turning counts and are shown for the year 2024 in Figure 15-4a, with background traffic flows for the construction year of 2030 shown in Figure 15-4b. Traffic flows generated by staff trip travelling to and from the site during the AM and PM peak hours are shown in Figure 15-4c, with the HGVS travelling passing through the junction shown in Figure 15-4d and 15-4e respectively. Year 2030 traffic flows with development generated traffic are shown in Figure 15-3f.

The results of the capacity assessment for this junction are shown in Tables 15-25 and 15-26. It is forecast that during the AM peak hour a maximum RFC of 25.3% is forecast for the left turn from the R484 onto the N68, but as this movement is travelling away from the Site, it is not significantly impacted by construction traffic traveling to the site. For the movement that is impacted most during the AM peak hour, the right turn from the N68 onto the R484, it is forecast that the maximum RFC will increase from 13.6% for the Do Nothing scenario, to 23.5% with the construction traffic in place.

Similarly for the PM peak hour the maximum RFC for the movement impacted by staff leaving the site, the left turn from the R484 onto the N68, it is forecast that the RFC will increase from 10.8% to 20.1% with the additional construction traffic. The movements during the PM peak hour with the highest RFC is the right turn from the N68, which is forecast to increase from 33.6% for the Do nothing scenario to 36.6% with all construction traffic in place. This junction is therefore forecast to operate well within

acceptable limits of 85% suggested in TII guidelines for Traffic and Transport Assessments (PE-PDV-02045, TII, May2014).

Table 15-25 Junction capacity test results, N68 / R484 junction, without and with construction traffic, year 2030, AM peak

Period	Location	Without construction traffic			With construction traffic		
AM		Ratio of flow to Capacity	Queue (vehicles)	Delay (minutes)	Ratio of Flow to Capacity	Queue (vehicles)	Delay (minutes)
	Right turn from R484	0.7%	0.01	0.20	0.8%	0.01	0.21
	Left turn from R484	25.3%	0.34	0.14	28.0%	0.39	0.14
	Right turn from N68	13.6%	0.16	0.12	23.5%	0.31	0.14

Table 15-26 Junction capacity test results, N68 / R484 junction, without and with construction traffic, year 2030, PM peak

Period	Location	Without construction traffic			With construction traffic		
PM		Ratio of Flow to Capacity	Queue (vehicles)	Delay (minutes)	Ratio of Flow to Capacity	Queue (vehicles)	Delay (minutes)
	Right turn from R484	3.3%	0.03	0.23	3.4%	0.03	0.24
	Left turn from R484	10.8%	0.12	0.12	20.1%	0.25	0.13
	Right turn from N68	33.6%	0.50	0.16	36.6%	0.57	0.17

R484 / L2080 / L2074 Junction Capacity Test Results

The AM and PM peak hour traffic flows through the R484 / L2080 / L2074 junction were established from the classified turning counts undertaken in the year 2026, and are set out in Figure 15-4g, with background traffic flows for the construction year of 2030 shown in Figure 15-4h. Traffic flows generated by staff trip travelling to and from the site during the AM and PM peak hours are shown in Figure 15-4i, with the HGVS travelling passing through the junction shown in Figure 15-4j and 15-4k respectively. Year 2030 traffic flows with development generated traffic are shown in Figure 15-3l.

The results of the capacity assessment for this junction are shown in Tables 15-27 and 15-28. It is forecast that during the AM peak hour a maximum RFC of 6.9% is forecast for the exit from the L2080 onto the R484 which is forecast to increase to 9.7% with the construction traffic in place. The movement that is forecast to be most impacted during the AM peak hour is forecast to be the right turn from the R484 onto the L2080 travelling towards the site, where the RFC is forecast to increase from 2.2% for the Do nothing scenario to 12.9% with construction traffic in place. For the PM peak hour the exit from the

L2080 on to the R484 is forecast to have the highest RFC, which is forecast to increase from 8.9% for the Do nothing scenario to 18.5% with the inclusion of construction traffic.

This junction is also therefore forecast to operate well within capacity for all scenarios.

Table 15-27 Junction capacity test results, R484 / L2082 junction, without and with construction staff, year 2030, AM peak

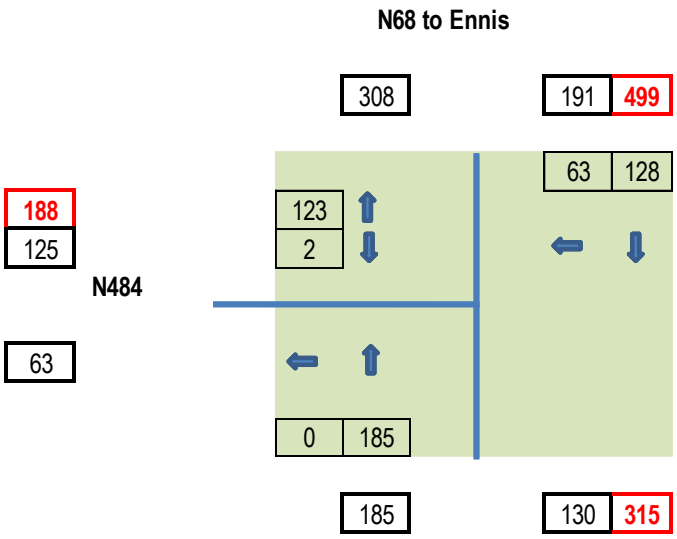
Period	Location	Without construction traffic			With construction traffic		
AM		RFC	Queue (vehicles)	Delay (minutes)	RFC	Queue (vehicles)	Delay (minutes)
	From L2080	6.9%	0.07	0.13	9.7%	0.11	0.13
	From L2074	6.1%	0.06	0.15	6.3%	0.07	0.15
	Right turn from R464 east	2.2%	0.03	0.11	12.9%	0.17	0.12
	Right turn from R464 west	0.0%	0.00	0.00	0.0%	0.00	0.00

Table 15-28 Junction capacity test results, R484 / L2082 junction, without and with construction staff, year 2030, PM peak

Period	Location	Without construction traffic			With construction traffic		
PM		RFC	Queue (vehicles)	Delay (minutes)	RFC	Queue (vehicles)	Delay (minutes)
	From L2080	8.9%	0.10	0.13	18.5%	0.23	0.14
	From L2074	3.3%	0.03	0.12	3.3%	0.03	0.12
	Right turn from R464 east	4.7%	0.07	0.10	8.1%	0.11	0.11
	Right turn from R464 west	0.2%	0.00	0.11	0.2%	0.00	0.11

15.1.7.5 Junctions Capacity Assessment – During Operation

As discussed in Section 15.1.7 it is forecast that once operational, the development will generate approximately 2 trips per week for maintenance purposes. It is noted that there will be occasions when parts of the turbines will require to be replaced, although these occasions will be rare and short in duration, and will involve lower traffic volumes than those included in the capacity tests set out in



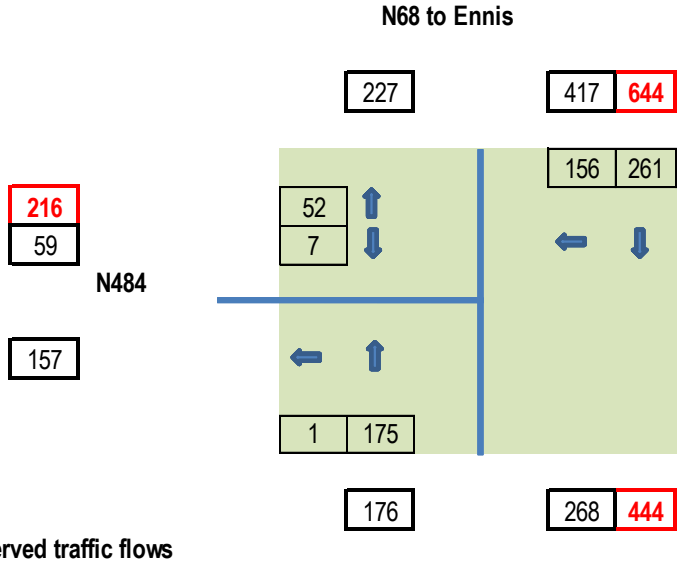


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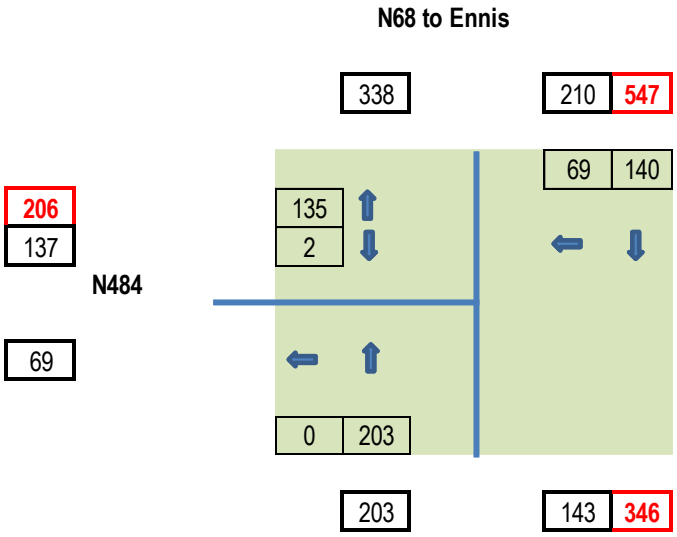
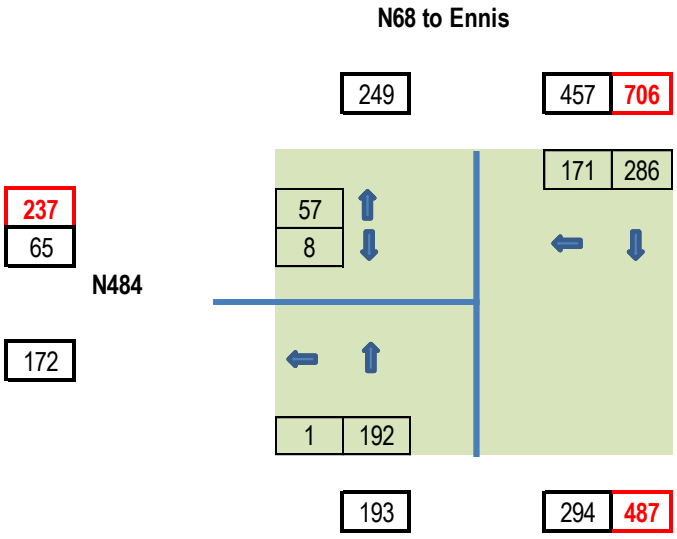
Figure 15-3a Observed traffic flows, N68 / R484 junction
Year 2024 - pcus



Forecast background traffic flows
Year 2030
AM peak hour (08:00 to 09:00)
All flows in pcus

N68 to Kilrush

N68 / R484 junction



Forecast background traffic flows
Year 2030
PM peak hour (17:00 - 18:00)
All flows in pcus

N68 to Kilrush

N68 / R484 junction

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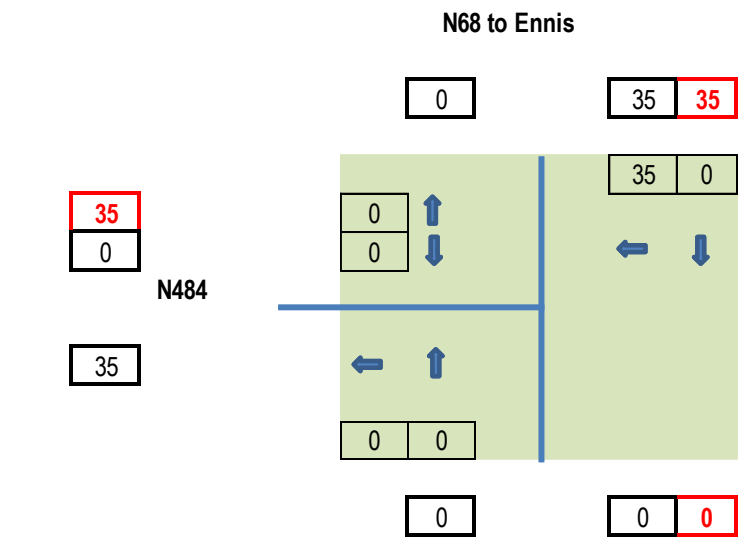
Figure 15-3b Background traffic flows, N68 / R484 junction
Year 2030 - pcus



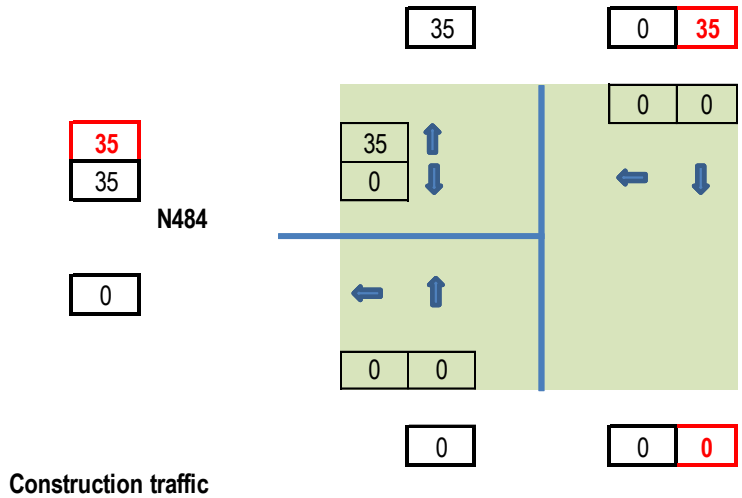


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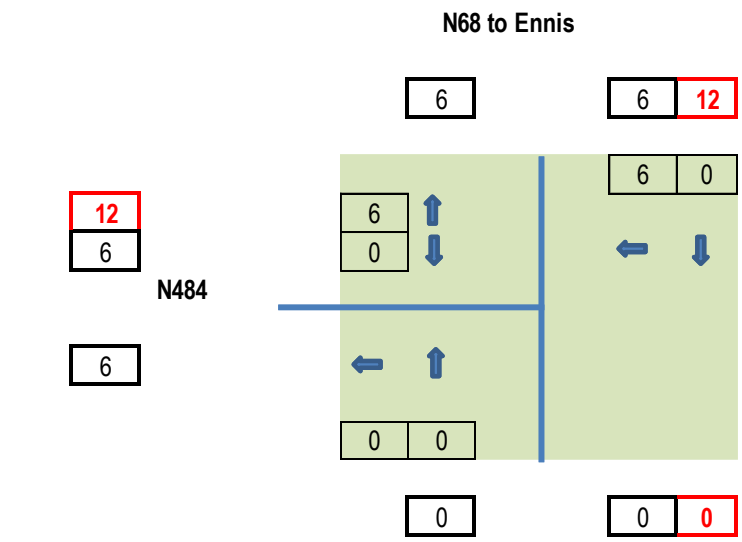
Figure 15-3c Construction staff traffic flows, N68 / R484 junction

pcus



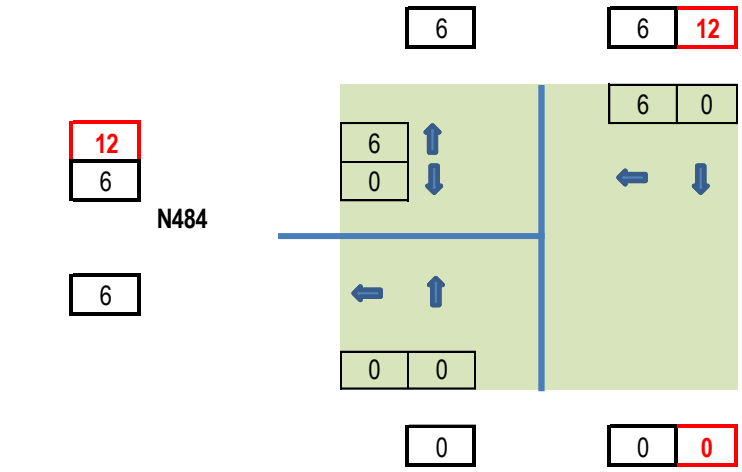


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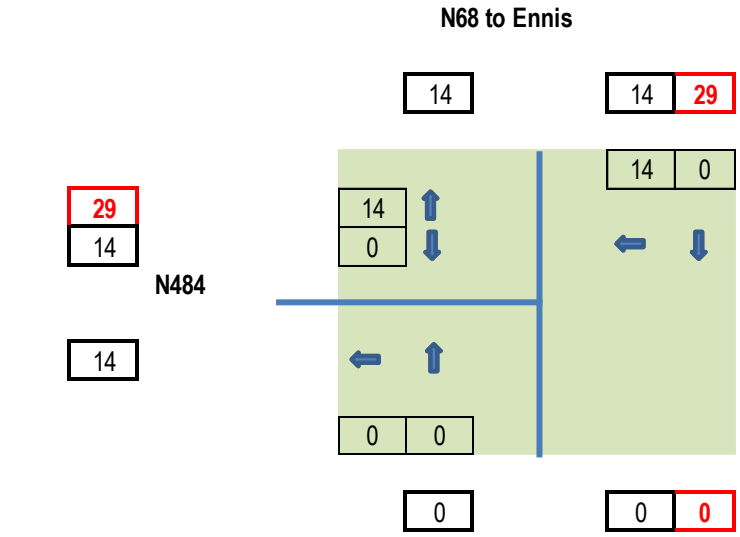
Figure 15-3d Construction HGV traffic flows, N68 / R484 junction

HGV



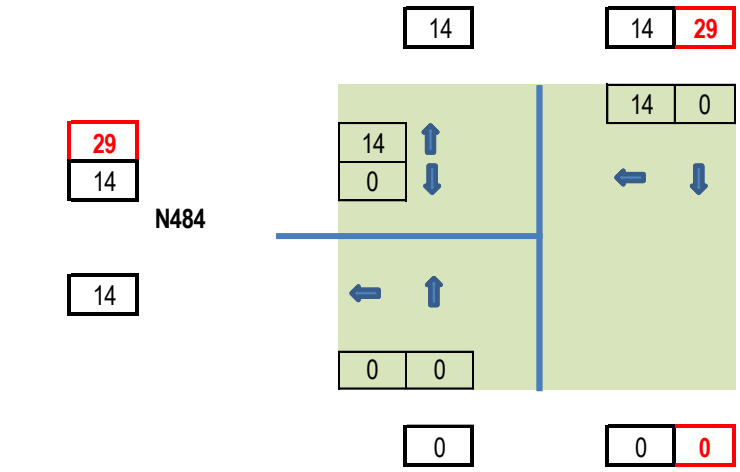


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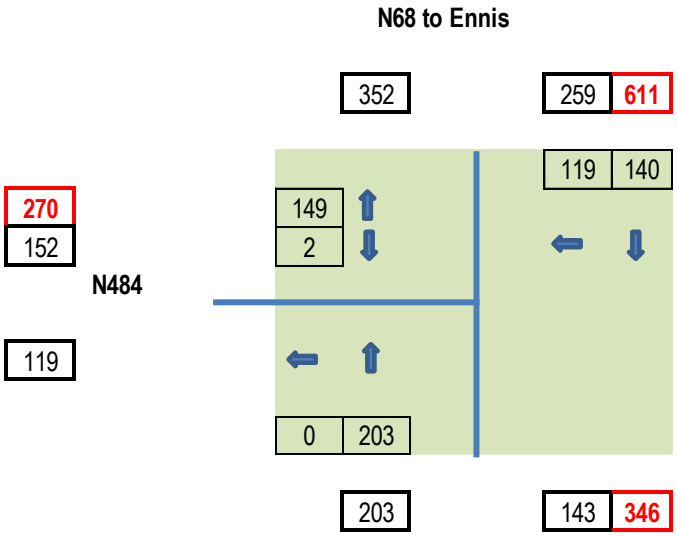
Figure 15-3e Construction HGV traffic flows, N68 / R484 junction
pcus



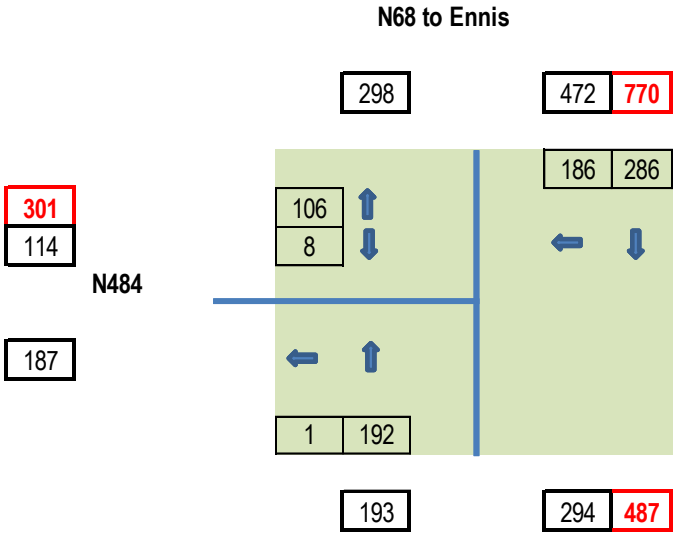


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Figure 15-3f With construction traffic flows, N68 / R484 junction
Year 2030 - pcus

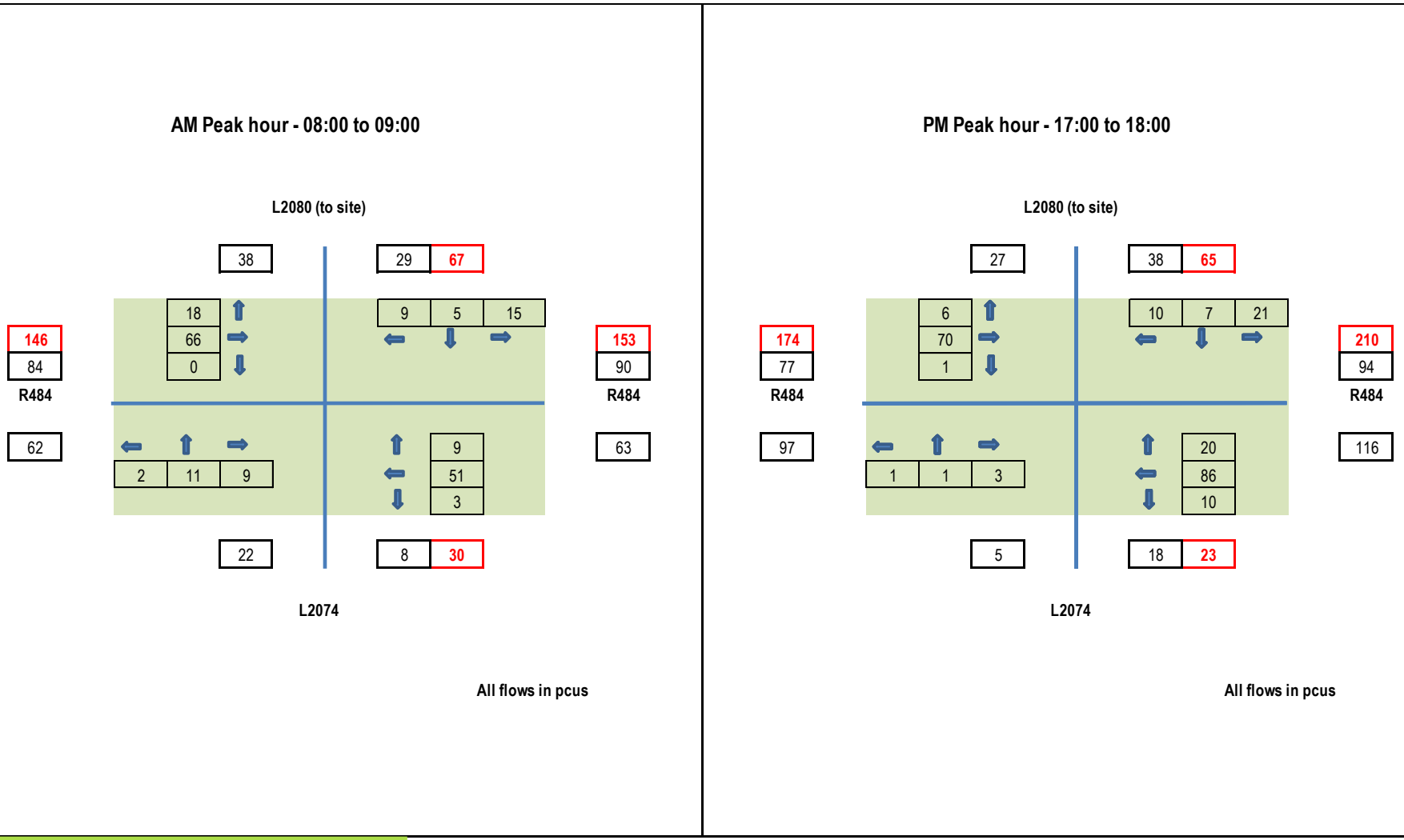

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Figure 15-4a Observed traffic flows, R484 / L2080 / L2074 junction, AM and PM peak hours, Year 2026, pcus

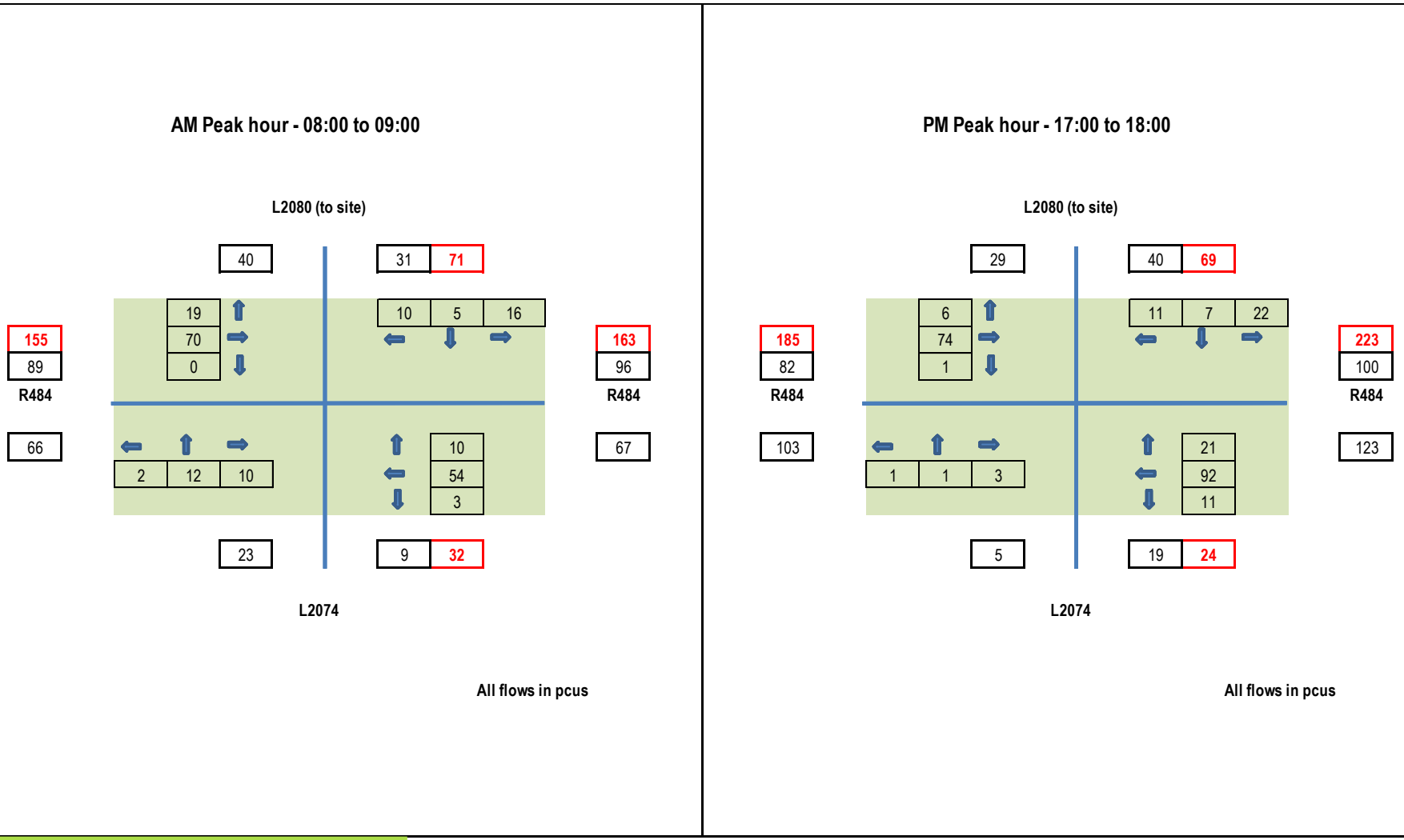

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Figure 15-4b Background traffic flows, R484 / L2080 / L2074 junction, AM and PM peak hours, Year 2030, pcus

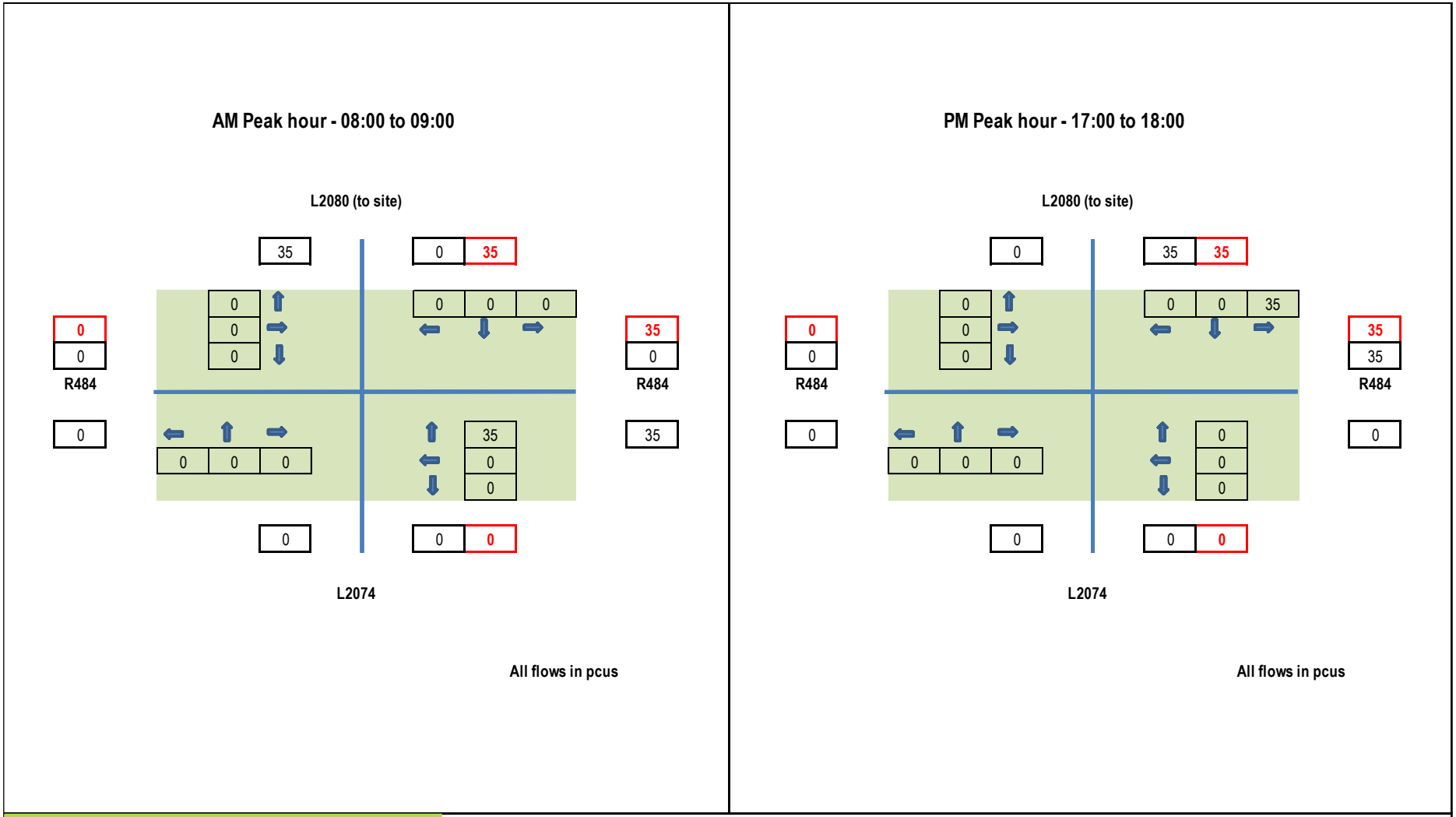

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Figure 15-4c Construction staff traffic flows, R484 / L2080 / L2074 junction, AM and PM peak hours, pcus

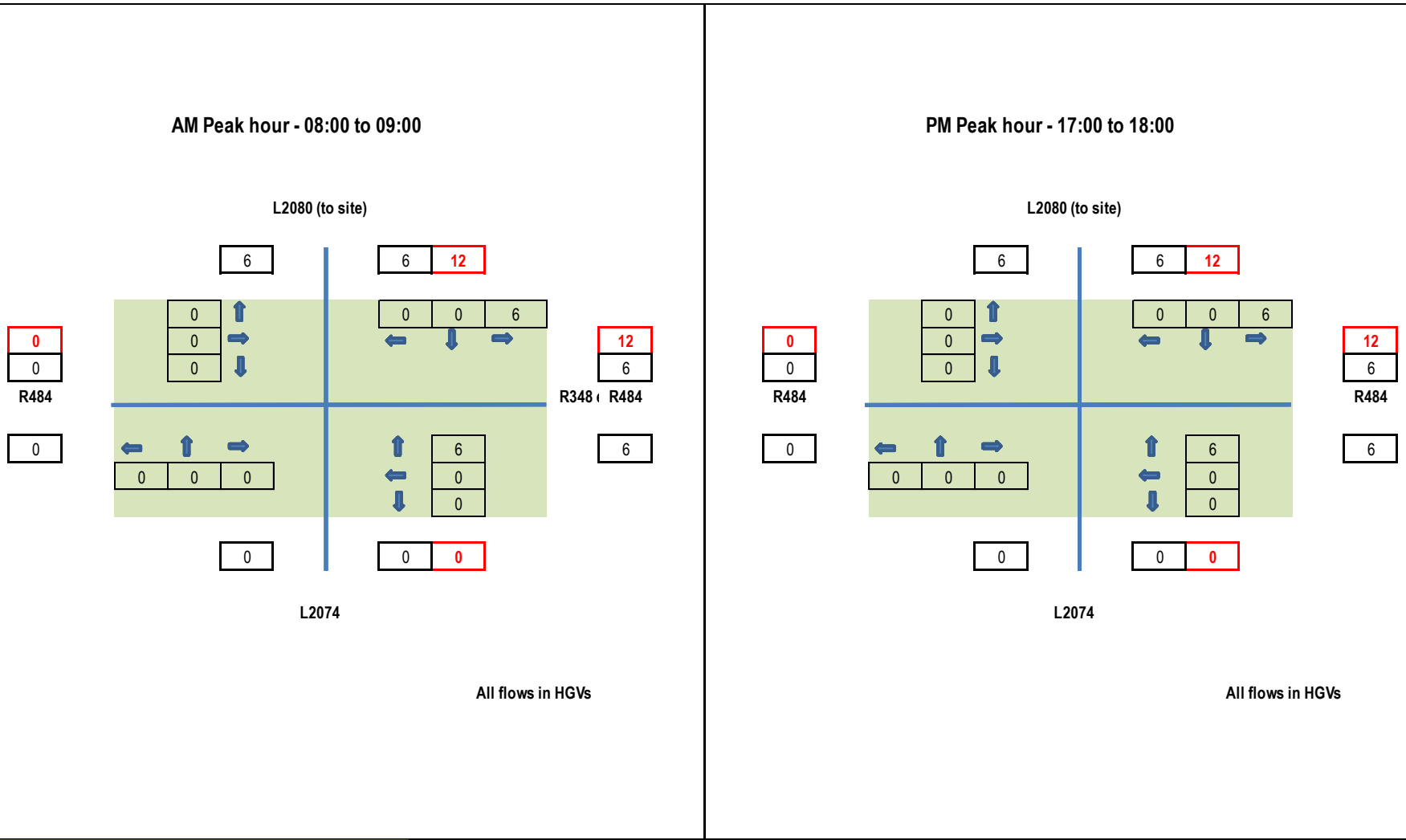

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Figure 15-4d Construction HGV traffic flows, R484 / L2080 / L2074 junction, AM and PM peak hours, HGVs

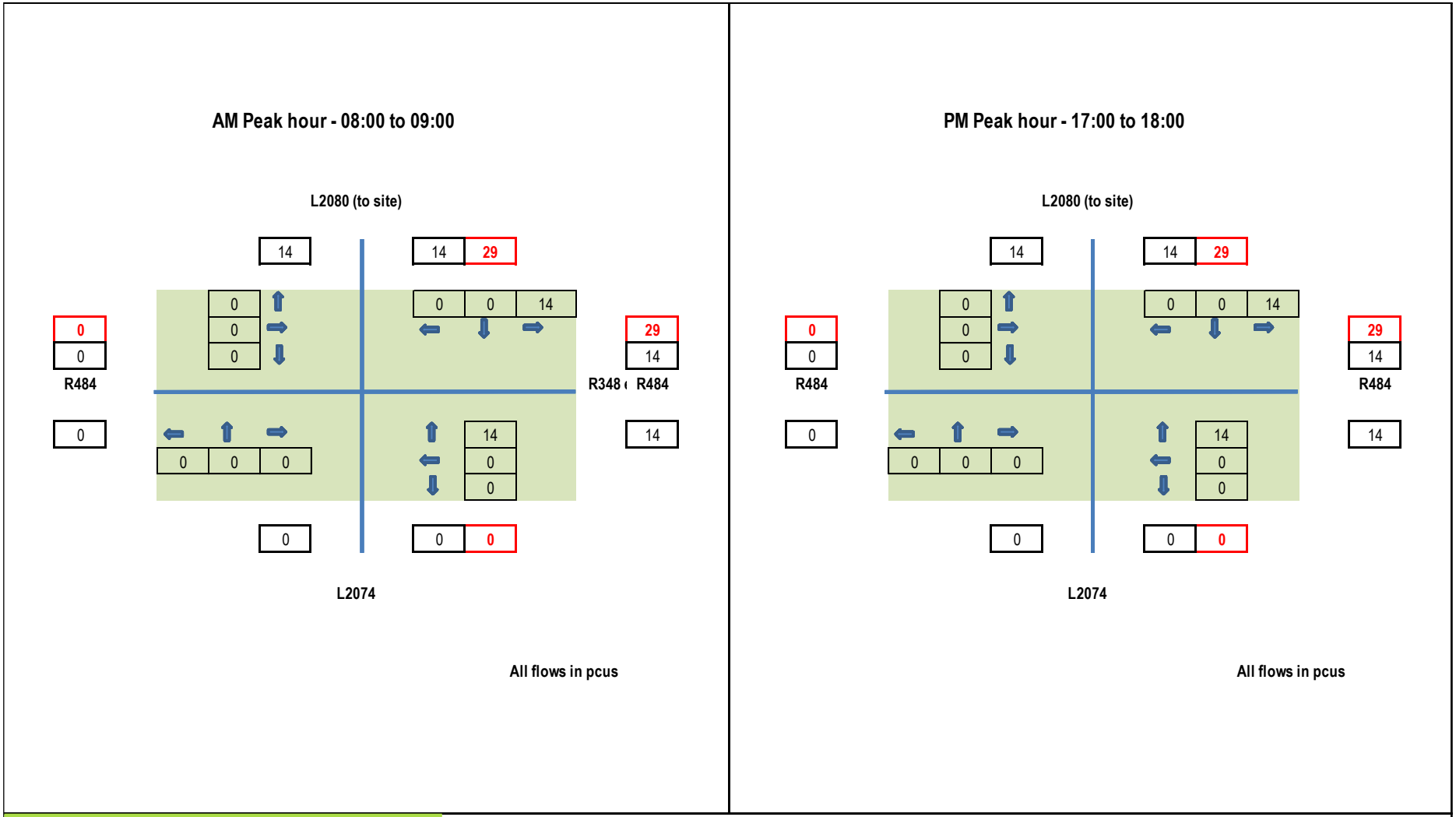

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Figure 15-4e Construction HGV traffic flows, R484 / L2080 / L2074 junction, AM and PM peak hours, pcus

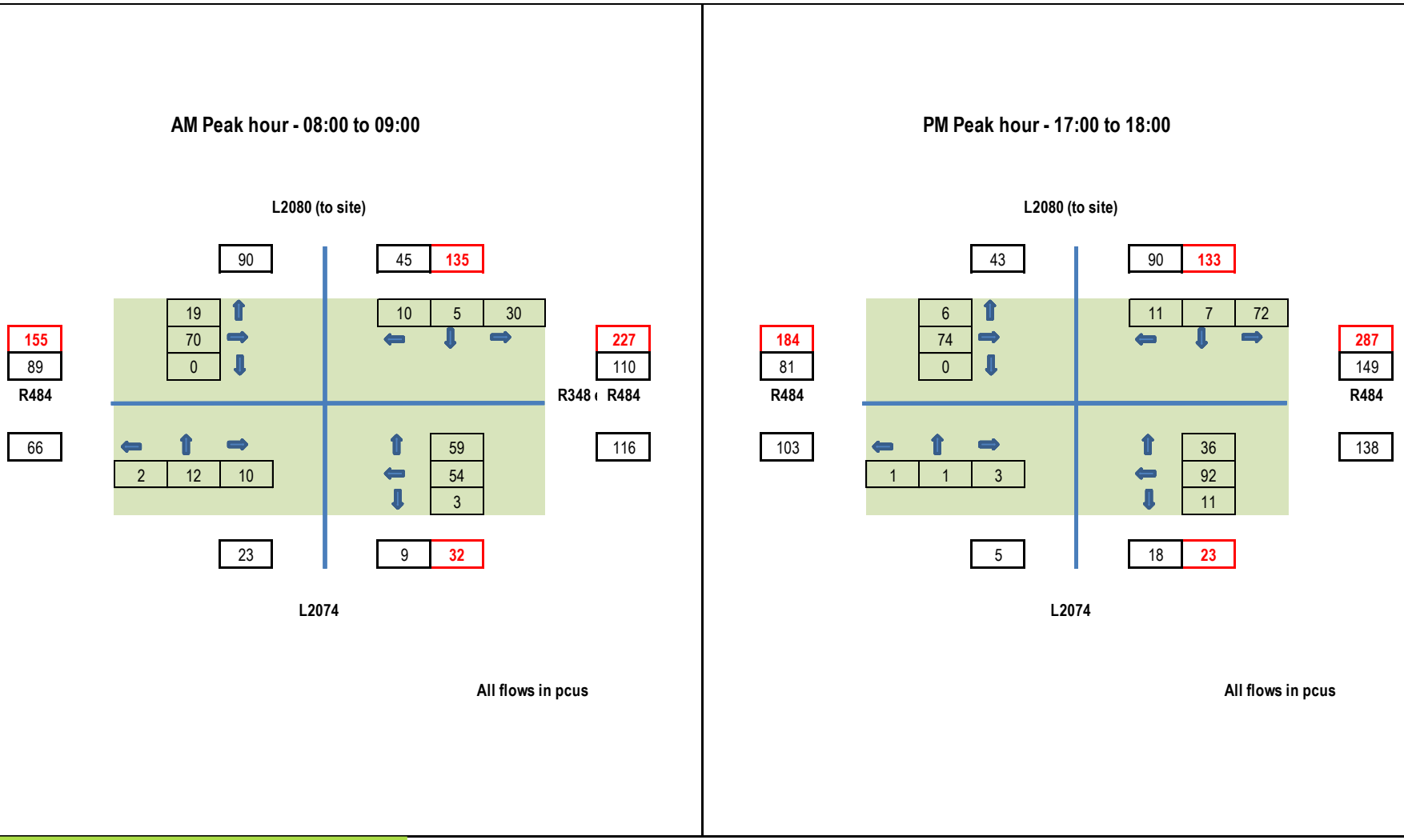

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Figure 15-4f With all construction traffic flows, R484 / L2080 / L2074 junction, AM and PM peak hours, Year 2030 pcus

Section 15.1.7.2. Given the nature and usage of the road network in the area it is therefore concluded that the development will not have a significant effect on the local network once constructed.

15.1.7.6 Expected Traffic on Link Flows – During Decommissioning

The traffic volumes that will be generated during decommissioning will be significantly less compared to those generated during the construction of the Proposed Project as set out in Section 15.1.7.1.

15.1.7.7 Impact on Traffic during Construction of 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 110kV onsite substation is connected by 110kV underground cabling to the existing 110kV Moneypoint Substation located in the townland of Carrowdotia South, Co. Clare. The underground cabling route measures approximately 25km of which approximately 24.4km is located within the public road corridor with the remaining 0.6km located in private lands (0.1km), within the Proposed Wind Farm site (0.2km) or within the grounds of Moneypoint Substation (0.3km).

All traffic for the Proposed Grid Connection will be delivered via the delivery routes as shown in Figure 15-5a.

The extent of the Proposed Grid Connection that will impact on the public road network is considered in the 14 sections, as shown in Figure 15-4, with 11 sections located on the public road network, 1 section off road in third party lands and 1 section off road in both the Proposed Wind Farm Site and Moneypoint Substation. The roads comprising each section of the route, together with the traffic management measure required during construction, the length and the estimated number of days required for construction, are set out in Table 15-29. Based on a construction rate of 100m per day, it is estimated that the Proposed Grid Connection will take approximately 250 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 0.3km the N67 National Road, with the remaining 24.1km of the on–road route sections travelling along the local primary and secondary road network. An inspection of the route indicated that the majority of the Proposed Grid Connection will require a road closure at the point of construction on any given day during the construction phase. The exception to this is the short 0.3km section of the N67 where it is proposed that a Stop & Go traffic management system will be implemented in order to maintain 2-way traffic flow.

The potential diversion routes that may be used during the construction of the various sections of the Proposed Grid Connection are set out in Table 15-30 and shown in Figure 15-5b. For sections 2, 4, 5, 6, 7, 8, 9, 10, 11 and 12, which comprises 24.1 km of the total route, the diversions will result in low volumes of existing traffic from local roads being diverted onto other local roads, or onto roads of a higher standard, including the R473, R484, N67 and the N68.

It is also noted that crossings of the following roads will be required during the construction of the Proposed Grid Connection; LP-2082, R484, N68, R473 and LP-2058.

For the diversion routes shown in Figure 15-5, the temporary additional trip length incurred by drivers during the construction of the Proposed Grid Connection will range from a minimum of 2.5km to a maximum of 10.4km. 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, and are 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.

With respect to the traffic volumes that will be generated during the construction of the underground electrical cabling route, it is estimated that there will be approximately 14 daily return trips made by a truck transporting materials, and 4 made by a car to transport 10 construction staff to and from the Site. 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 15.1.13.2.

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.

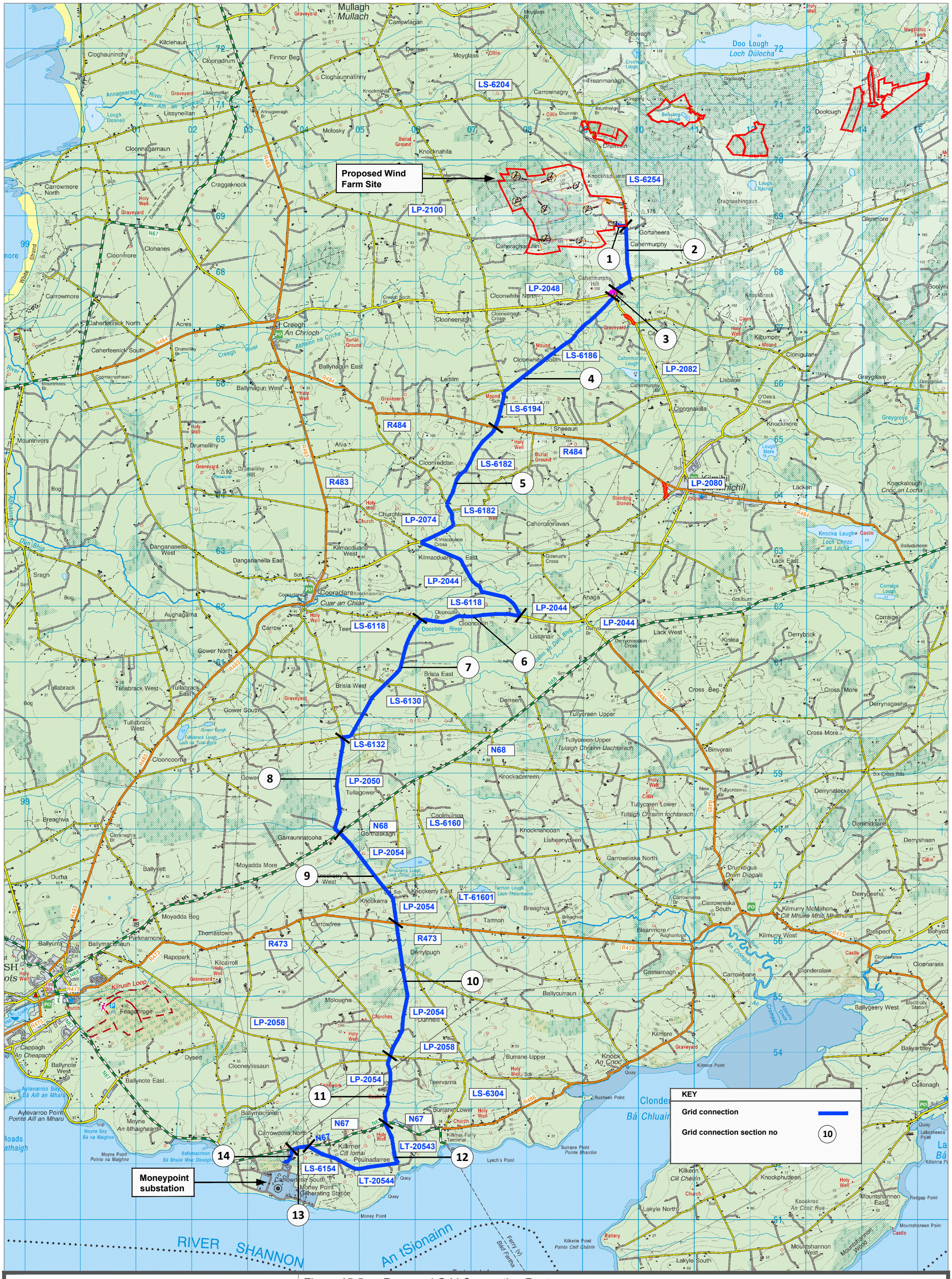
A **Traffic Management Plan (TMP)**, incorporating all the mitigation measures is included as Appendix 15-2 of this EIAR, and will be finalised and confirmatory detailed provisions in respect of traffic management agreed with the road's authority and An Garda Síochána prior to construction works commencing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

Table 15-29 Proposed Grid Connection underground cabling route link, traffic management measure, link length (km), construction duration (days)

Grid section	Proposed Grid Connection Section	Traffic management	Length (kms)	Construction duration (days)
Section 1	Off road at site	NA	0.2	2
Section 2	LS-6254, LS-2048	Closure	1.3	13
Section 3	Off road	NA	0.1	1
Section 4	LS-6186, LS-6194	Closure	3.3	33
Section 5	LS-6182, LP-2074, LP-2044	Closure	5.1	51
Section 6	LS-6118	Closure	1.8	18
Section 7	LS-6130, LP-6132	Closure	2.6	26
Section 8	LP-2050	Closure	1.9	19
Section 9	LP-2054	Closure	1.9	19
Section 10	LP-2054	Closure	2.4	24
Section 11	LP-2054	Closure	1.3	13
Section 12	LT-20543, LT-20544, LS-6154	Closure	2.5	25
Section 13	N67	Stop & Go	0.3	3
Section 14	Off road at Moneypoint	NA	0.3	3
Total			25.0	250

Table 15-30 Proposed Grid Connection underground cabling route link, link length (km), potential diversion route, length of diversion route (km), additional trip length (km)

Grid section	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	LS-6254, LS-2048	1.3	LS-6254, LS-6204, LP-2100, LP-2048	11.7	10.4
Section 3	Off road	0.1	NA	NA	NA
Section 4	LS-6186, LS-6194	3.3	LP-2082, R484	7.3	4
Section 5	LS-6182, LP-2074, LP-2044	5.1	R484, R483, LS-6118	12.5	7.4
Section 6	LS-6118	1.8	LS-6130, LS-6132, N68, LP-2044	9.4	7.6
Section 7	LS-6130, LP-6132	2.6	LS-6132, N68, LP-2044	8.9	6.3
Section 8	LP-2050	1.9	LS-6132, N68	6.1	4.2
Section 9	LP-2054	1.9	N68, LS-6160, LT-61601, R473	5.8	3.9
Section 10	LP-2054	2.4	R473, LP-2058	9.4	7
Section 11	LP-2054	1.3	LP-2058, LS-6304, N67	3.8	2.5
Section 12	LT-20543, LT-20544, LS-6154	2.5	N67	2.5	0
Section 13	N67	0.3	NA	NA	NA
Section 14	Off road at Moneypoint	0.3	NA	NA	NA
Total		**25.0**			



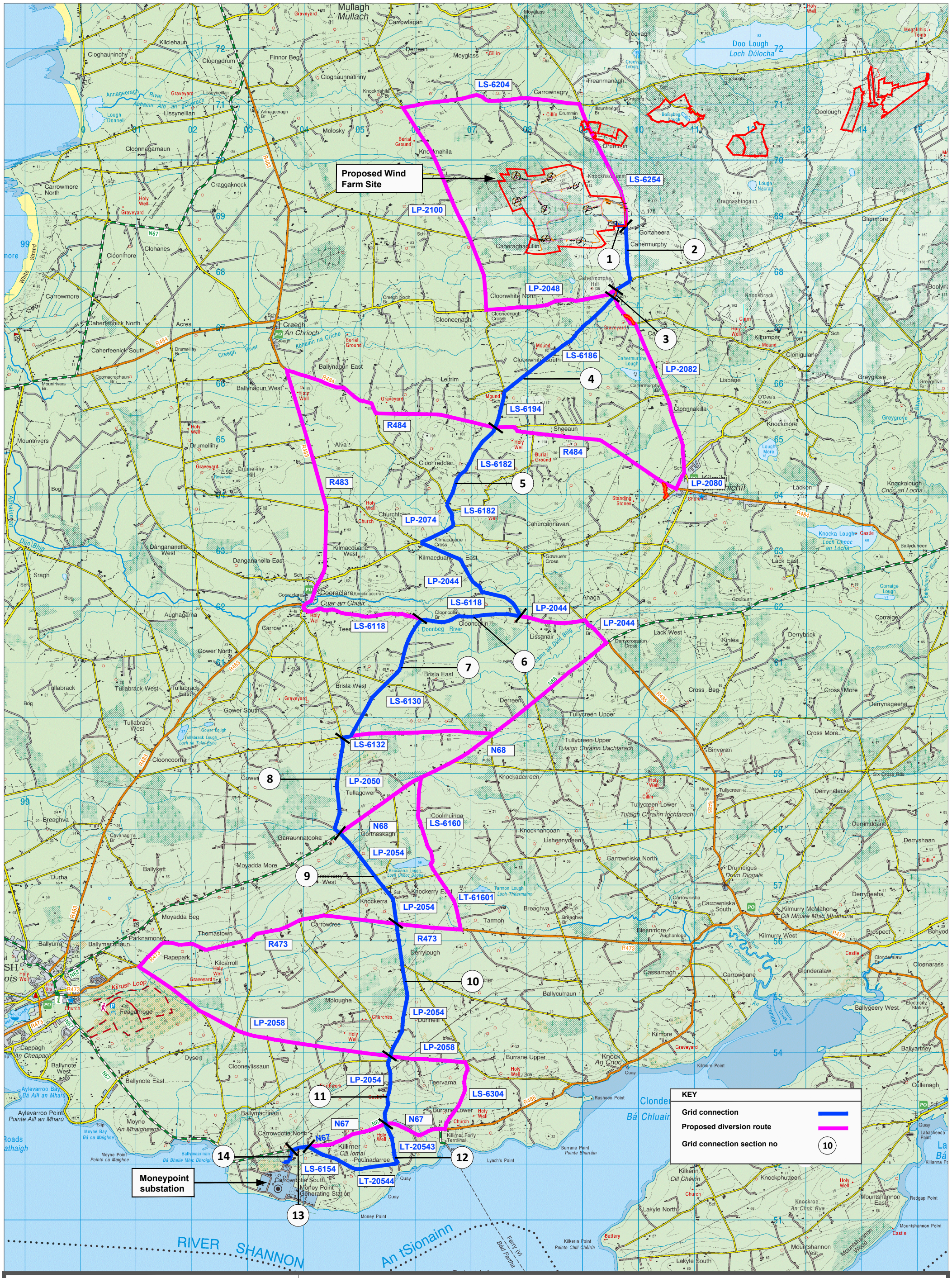
NOTES:

PLANNING DRAWING ONLY - NOT FOR CONSTRUCTION PURPOSES

Figure 15-5a Proposed Grid Connection Route

PROJECT:	Cahermurphy West Wind Farm, Co Clare		
CLIENT:	Cahermurphy Renewables DAC	SCALE:	NTS
PROJECT NO: 11190	DATE: 22.01.26	DRAWN BY:	AL

ALAN LIPSCOMBE
TRAFFIC & TRANSPORT CONSULTANTS



NOTES:

PLANNING DRAWING ONLY - NOT FOR CONSTRUCTION PURPOSES

Figure 15-5b Proposed Grid Connection Route - Potential diversion routes

PROJECT:	Cahermurphy West Wind Farm, Co Clare		
CLIENT:	Cahermurphy Renewables DAC	SCALE:	NTS
PROJECT NO: 11190	DATE: 22.01.26	DRAWN BY:	AL

ALAN LIPSCOMBE
TRAFFIC & TRANSPORT CONSULTANTS

15.1.8 Traffic Management of Large Deliveries

The greatest effect on the road network will likely be experienced on the approximately 22 days during which the 3 abnormally sized loads comprising the tower sections, the blades and the nacelles are delivered to the site.

Traffic management measures include the following:

- Identification of a delivery schedule,
- Details of the alterations required to the infrastructure identified in Section 15.1.9 (below), of this report and any other minor alteration identified,
- 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 and the various local authorities. Turbine components are generally transported at night when traffic is lightest and this is done in consultation with the roads authorities and An Garda Síochána, and special permits are required.

As discussed in Section 15.1.3 above, hedge or tree cutting, temporary relocation of services, removal of stone walls and signage are proposed and will be agreed with the appropriate local authorities prior to the delivery of turbine components. It is not anticipated that any sections of the local road network will be closed, although there may be delays to local traffic at various locations if the deliveries are made during daylight hours. It is noted it is proposed that all deliveries of abnormally sized loads will be made during nighttime hours, as is the norm for such deliveries. A dry run using a vehicle with the dimensions of the blade delivery vehicle will be undertaken by the haulage company prior to the construction phase.

15.1.9 Abnormal Load Route Assessment

A route assessment was undertaken covering the proposed delivery route for the abnormal loads, with the route and assessment locations shown in Figure 15-1b. The route assessment discussed in this section includes all locations on the proposed delivery route from the Port of Foynes to the proposed access junction on the R465. The assessment was undertaken by MKO and is based on topographical survey data.

The route/autotrack assessment establishes the locations where the wind turbine transport vehicles will be accommodated, and identifies locations where some form of remedial measure, including temporary accommodation works, or local road widening, may be required.

For locations 1 to 6 that approach the Site from the turnoff from the N68 to the Wind Farm Site access inclusive, the results of the swept path analysis together with proposed temporary works required to accommodate the abnormally sized loads are discussed below. The swept path analysis undertaken for the remaining locations between the Port of Foynes and the N68 / R475 Kilrush Roundabout located in the south of Ennis, as well as swept path analysis of areas which were not deemed to require accommodation works are included in Appendix 15-3. The autotrack assessment demonstrates that temporary overrun areas are required over the central islands of 6 no. roundabouts.

Location 1: N68 / R484 Junction at the Crossroads Bar

Based on the swept path analysis undertaken for the blade transporter at this location it is established that local road widening, including the temporary removal of a wall, street furniture and vegetation removal/trimming is required and proposed on the eastern side of the R484 regional road adjacent to the Crossroads Bar. The swept path for this location is shown in Figure 15-6. It is confirmed that conditions at this location will be reinstated to as existed pre-construction.

Location 2: Reversing manoeuvre in the village of Kilmihil.

The Turbine Delivery vehicle will perform a reverse manoeuvre through 2 no. agricultural fields at the eastern boundary of Kilmihil. This manoeuvre begins on the R484 and finishes on the L-2074, where the vehicle will drive North through the village of Kilmihil. The temporary road will require some temporary removal of fencing (will be fully reinstated post construction) and vegetation clearance. A new track will be constructed using excavate and replace methodology in order to accommodate vehicles carrying abnormal loads. These tracks will remain within the field but will be left to grass over post construction. The swept path analysis for the blade vehicle undertaking the above manoeuvre is shown in Figure 15-7.

It is confirmed that boundaries at this location will be reinstated to as existed pre-construction and run over areas in fields will be grassed over.

Location 3: Slight bend on Church street, Kilmihil:

The swept path analysis undertaken for the blade vehicle included as Figure 15-8 shows that temporary road widening works are necessary on Church Street to the north of the village of Kilmihil. Road widening and vegetation removal is proposed along approximately 120m of the public road. Conditions at this location will be reinstated to as existed pre-construction.

Location 4: Field crossing, Castlepark:

The swept path analysis undertaken for the blade vehicle included as Figure 15-9 indicates that some minor temporary road widening and vegetation removal is required and proposed to the south of the beginning of the second agricultural field crossing. Conditions at this location will be reinstated to as existed pre-construction. The assessment shows that it is proposed that the turbine delivery vehicles will pass through agricultural fields, beginning at the L-6188/L-2082 junction and emerging back onto the L-2082 approximately 320m south of Scoil Mhichíl in the townland of Cahermurphy. Hedgerow loss will be required here to enter the field, with a new track constructed using excavate and replace methodology to accommodate vehicles carrying abnormal loads.

The boundaries at this location will be reinstated to as existed pre-construction and run over areas in fields will be grassed over.

Location 5: Field crossing north of Scoil Mhichíl

As shown in Figure 15-10, it is proposed that the turbine delivery vehicles will cross through an agricultural field north of Scoil Mhichíl and emerge onto the L-2048. Temporary hedgerow loss is expected at this location and will be reinstated post construction. A new permanent track will be constructed through this field using excavate and replace methodology to accommodate vehicles carrying abnormal loads, as well as the Propsoed Grid Connection.

Location 6: L-6254 Junction

Temporary expansion of an existing area of hardcore at an area previously used for the delivery of turbines to the existing Cahermurphy Wind Farm will be required. This will result in the temporary removal of 0.075ha of improved agricultural grassland which will be left to revegetate post construction.

Location 7 – Proposed access junction on the L6254

It is proposed use the existing access junction on the L6254 that was constructed for ongoing forestry and agricultural practices on-site. The existing junction layout together with the proposed road markings are shown in Figure 15-12. The junction design includes 13m junction radii and 1:10 tapers in

Drawing Legend

- Wheel Base Accommodation
- Blade Oversail
- Truck Body

81.5m Blade Clamp and Dolly

PROJECT TITLE:
Cahermurphy West Wind Farm

DRAWING TITLE:
Figure 15-6: Location 1

PROJECT No.:	DRAWING No.:	SCALE:
230843	15-6	N.T.S @ A3

DRAWN BY:	CHECKED BY:	DATE:	REVISION.:
KD	N/A	07.03.2025	V1

OS SHEET No.:

Email: info@www.mkoireland.ie /Website: www.mkoireland.ie

Drawing Legend

- Wheel Base Accommodation
- Blade Oversail
- Truck Body
- Wheel Base Accommodation (Reverse)
- Blade Oversail (Reverse)
- Truck Body (Reverse)

81.5m Blade Clamp & Dolly

PROJECT TITLE:
Cahermurphy West Wind Farm

Drawing:
Figure 15-7: Location 2

PROJECT No.:	DRAWING No.:	SCALE:
230843	15-7	N.T.S @ A3

DRAWN BY:	CHECKED BY:	DATE:	REVISION.:
KD	N/A	01.04.2025	V4

OS SHEET No.:

Email: info@www.mkoireland.ie /Website: www.mkoireland.ie

Drawing Legend

- Wheel Base Accommodation
- Blade Oversail
- Truck Body

81.5m Blade Clamp and Dolly

PROJECT TITLE:
Cahermurphy West Wind Farm

DRAWING TITLE:
Figure 15-8: Location 3

PROJECT No.:	DRAWING No.:	SCALE:
230843	LOC3	N.T.S @ A3

DRAWN BY:	CHECKED BY:	DATE:	REVISION.:
KD	N/A	25.02.2025	V1

OS SHEET No.:

Email: info@www.mkoireland.ie /Website: www.mkoireland.ie

Drawing Legend

- Wheel Base Accommodation
- Blade Oversail
- Truck Body

81.5m Blade Clamp and Dolly

PROJECT TITLE:
Cahermurphy West Wind Farm

DRAWING TITLE:
Figure 15-9: Location 4

PROJECT No.:		DRAWING No.:	SCALE:
230843		15-9	N.T.S @ A3
DRAWN BY: KD	CHECKED BY: N/A	DATE: 25.02.2025	REVISION.: V1

OS SHEET No.:

Email: info@www.mkoireland.ie /Website: www.mkoireland.ie

Drawing Legend

- Wheel Base Accommodation
- Blade Oversail
- Truck Body

81.5m Blade Clamp and Dolly

PROJECT TITLE:
Cahermurphy West Wind Farm

DRAWING TITLE:
Figure 15:10 Location 5

PROJECT No.:	DRAWING No.:	SCALE:
230843	15-10	N.T.S @ A3

DRAWN BY:	CHECKED BY:	DATE:	REVISION.:
KD	N/A	25.02.2025	V1

OS SHEET No.:

Email: info@www.mkoireland.ie /Website: www.mkoireland.ie

Drawing Legend

- Wheel Base Accommodation
- Blade Oversail
- Truck Body

81.5m Blade Clamp and Dolly

PROJECT TITLE:

Cahermurphy West Wind Farm

DRAWING TITLE:

Figure 15-11: Location 6

PROJECT No.:	DRAWING No.:	SCALE:
230843	15-11	N.T.S @ A3

DRAWN BY:	CHECKED BY:	DATE:	REVISION.:
KD	N/A	01.04.2025	V2

OS SHEET No.:

Email: info@www.mkoireland.ie /Website: www.mkoireland.ie

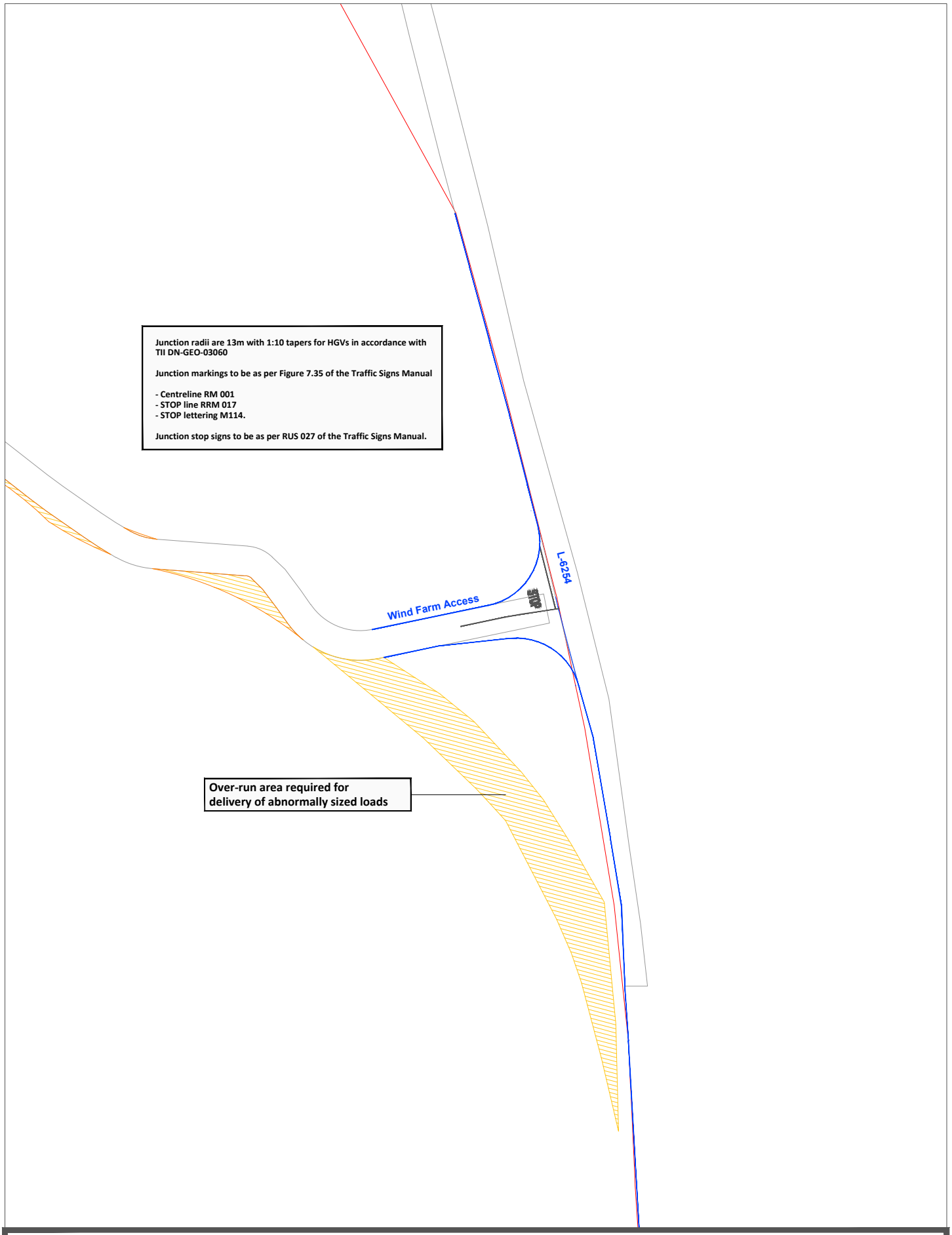


Figure 15-12 Location 7 - Proposed access junction on the L-6254, junction layout

PROJECT:	Cahermurphy West Wind Farm, Co Clare		ALAN LIPSCOMBE TRAFFIC & TRANSPORT CONSULTANTS
CLIENT:	Cahermurphy Renewables DAC	SCALE: 1:1000	
PROJECT NO: 11190	DATE: 16.01.26	DRAWN BY: AL	

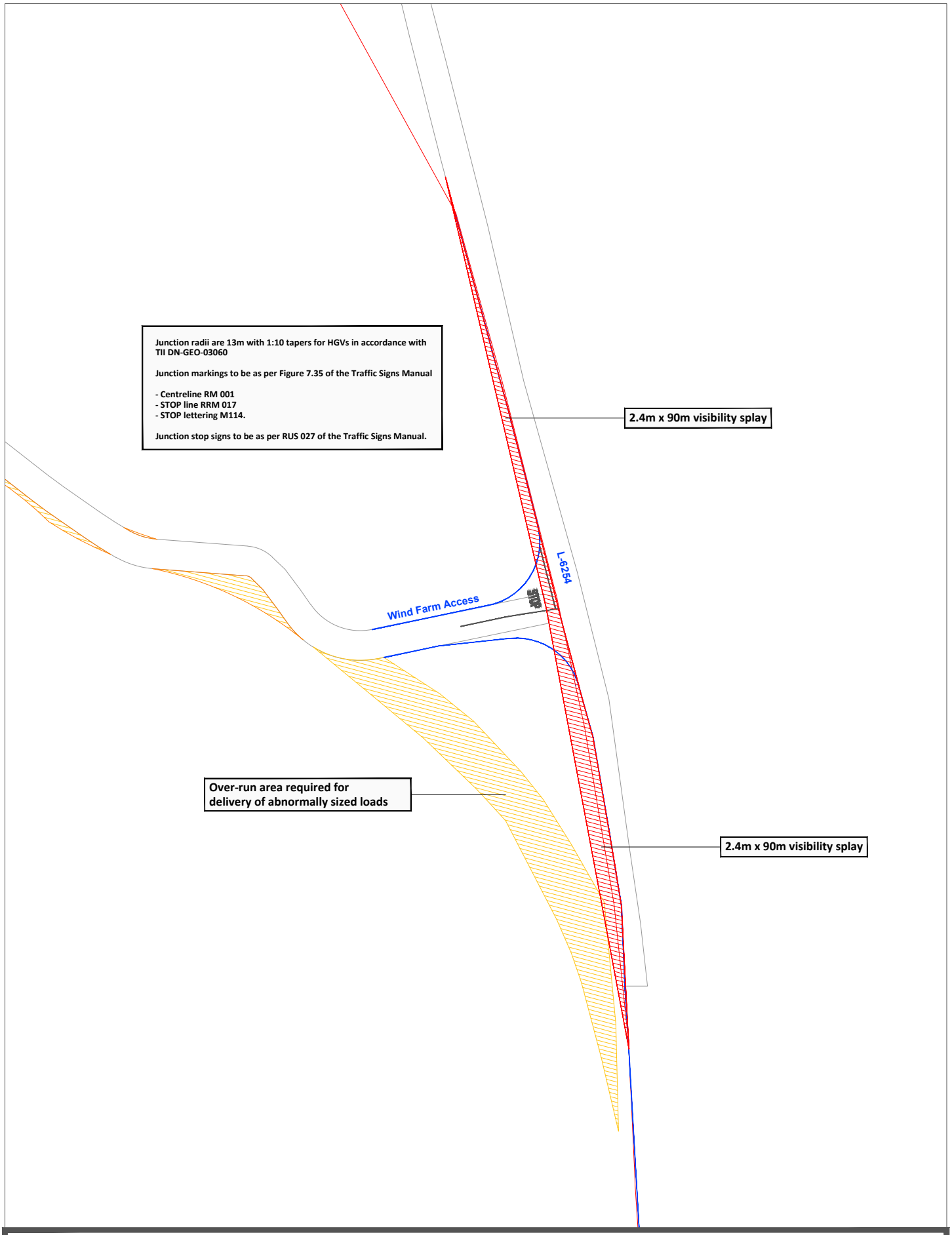


Figure 15-13 Location 7 - Proposed access junction on the L-6254, junction layout, visibility splays

PROJECT:	Cahermurphy West Wind Farm, Co Clare		ALAN LIPSCOMBE TRAFFIC & TRANSPORT CONSULTANTS
CLIENT:	Cahermurphy Renewables DAC	SCALE: 1:1000	
PROJECT NO: 11190	DATE: 16.01.26	DRAWN BY: AL	

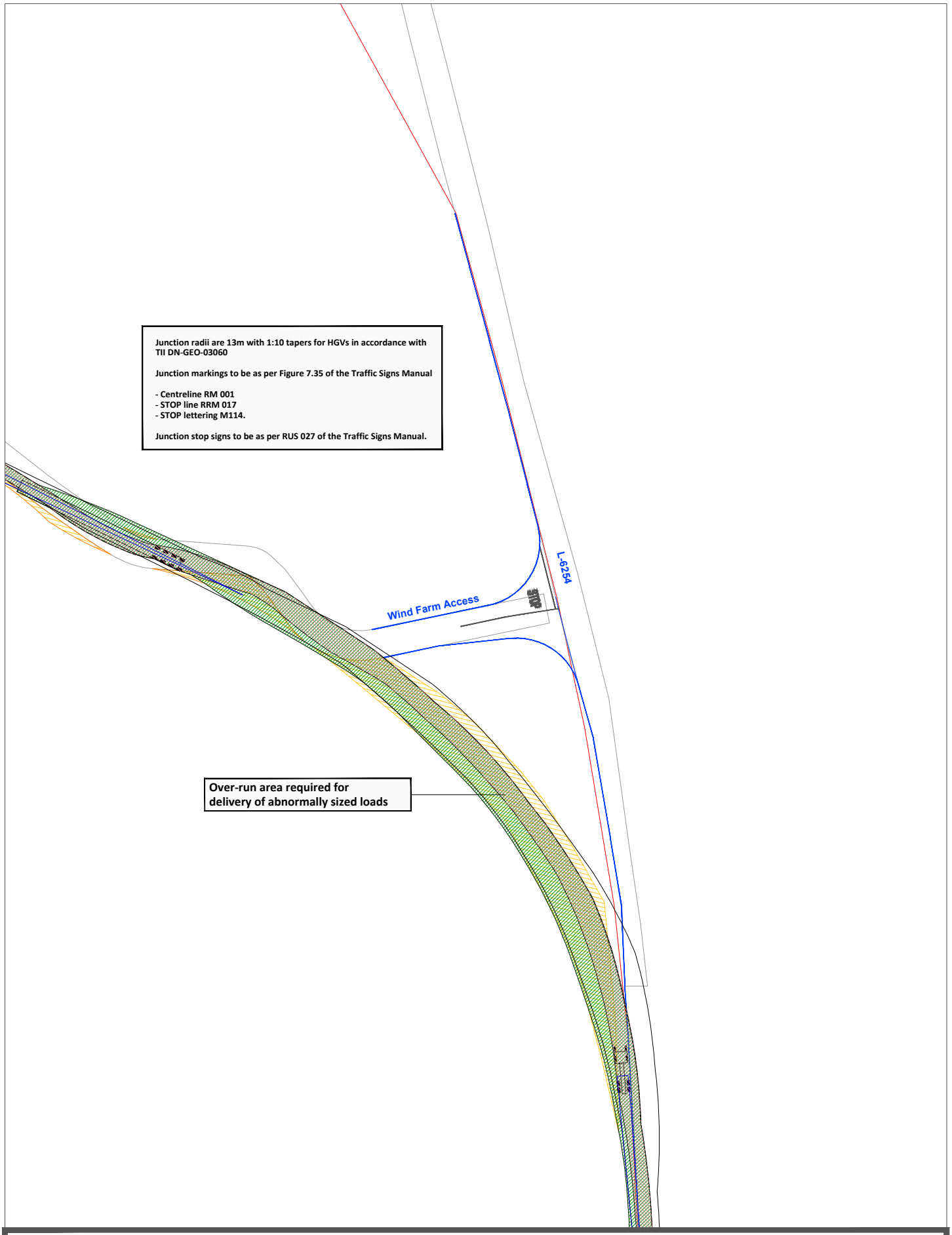


Figure 15-14 Location 7 - Proposed access junction on the L-6254, autotrack assessment - blade transporter

PROJECT:	Cahermurphy West Wind Farm, Co Clare		ALAN LIPSCOMBE TRAFFIC & TRANSPORT CONSULTANTS
CLIENT:	Cahermurphy Renewables DAC	SCALE: 1:1000	
PROJECT NO: 11190	DATE: 16.01.26	DRAWN BY: AL	

accordance with TII Junction Design Guidelines (TII DN-GEO-03060) for junctions with HGV turning movements.

While there are no signs indicating the speed limit on the L-6254, based on the road width it is considered that a design speed of 60 km/h is appropriate for the local primary road. Based on this, in accordance with the County Clare Development Plan 2023 – 2029 Appendix 1 Development Management Guidelines (Table A2), visibility splays of 90m taken from a setback of 2.4m are required. These splays are shown in Figure 15-13.

The swept path analysis for the blade vehicle included as Figure 15-14 shows that the temporary over-run areas proposed for the access will accommodate the critical blade vehicle.

15.1.10 Road Safety Audit

Traffico Road Safety Engineering Consultants Ltd were commissioned to undertake a Stage 1 Road Safety Audit for the access arrangements for the Proposed Wind Farm, in accordance with GE-STY-01024 Road Safety Audit Guidelines, TII, December 2017. The Stage 1 Road Safety Audit Report is attached as Appendix 15-4 of this EIAR.

As part of the Audit, the two junction that were highlighted for having potential issues were the N68/R484 and the proposed access junction at the L-6254. As there is only a minor intervention proposed at the N68/R484 which was remote from the junction itself, it was concluded that there was no design to be audited at this location.

As documented in the Audit Report, the Audit Team identified 2 no. potential Problems. For each Problem identified the Design Team are required to provide a response, as documented in Appendix A, Road Safety Audit Feedback Form of the Stage 1 Road Safety Audit Report. The 2 no. potential Problems identified (shown in Appendix 15-4), together with the Design Teams response and whether the response was accepted by the Audit Team, are set out below.

Problem 2.1 – Visibility Splays Partially Obstructed by Vegetation, Location: Site Entrance 1 - Boundary Treatment Either Side of Access Road Junction Onto L-6254 - The Audit Team notes that existing vegetation on both sides of the access junction may obstruct visibility, making it difficult for drivers joining the L-6254 to see approaching traffic and increasing the risk of rear-end or side impact collisions.

The Audit Team recommends that the Designer should ensure that sufficient visibility can be achieved on both sides of the access road.

The Design Team Response is as follows – The vegetation either side of the access junction will be removed as recommended.

The Design Team response was accepted in the Road Safety Audit Feedback Form included as Appendix A of the Audit Report.

Problem 2.2 – Passing Motorists Accessing the Via Overrun Area, Location: Overrun Area to South of L-6254 Access Road Junction - The Audit Teams notes that the over-run area might create confusion for passing motorists, who could access the overrun area by mistake, leading to sudden braking, loss of control or conflicts with construction traffic.

The Audit Team recommends that a suitable barrier is put in place to prevent passing motorists from accessing the abnormal load overrun area when it is not in use.

The Design Team Response is as follows – The over-run area for abnormally sized loads will be closed as a default and opened only on the nights that the abnormally sized loads are delivered, which will be accompanied with a Garda escort.

The Design Team response was accepted in in the Road Safety Audit Feedback Form included as Appendix A of the Audit Report.

Summary of Stage 1 Road Safety Audit - The Audit Team raised 2 potential road safety problems. The Design Team agreed with each problem and each recommendation suggested by the Audit Team and provided a detailed solution describing each mitigation measure proposed. It is confirmed that each solution was to the satisfaction of the RSA Team.

15.1.11 Design Phase Procedure for Road Safety Improvement Schemes, Urban Renewal Schemes and Local Improvement Schemes (DN-GEO-03030, TII)

A report in accordance with DN-GEO-03030 Design Phase Procedure for Road Safety Improvement Schemes, Urban Renewal Schemes and Local Improvement Schemes, TII, April 2021 was prepared for the existing N68 / R484 junction. The report will be uploaded onto TIIs Departures Portal upon submission of this EIAR and planning application.

15.1.12 Provision for Sustainable Modes of Travel

15.1.12.1 Walking and Cycling

The provision for these modes is not relevant during the construction stage of the development as travel distances will likely exclude any employees walking or cycling to work. This is also the case for the operational stage and for decommissioning.

15.1.12.2 Public Transport

There are no public transport services that currently pass the Wind Farm site on the L-2048 or the L6254 although private mini-buses may be considered for transporting staff to and from the Wind Farm site in order to minimise traffic generation and parking demand on the Wind Farm site. It is noted that the traffic impact assessment presented in this Chapter of the EIAR is based all staff travelling by car in order to ensure a robust case scenario.

As the Grid Connection underground electrical cabling route is located along the public road network there are a number of public transport services that service this aspect of the Site. However, due to the transient nature of construction works along the underground electrical cabling route, use of these public transport services will be limited to short durations along the underground electrical cabling route, with staff typically transported to the Grid Connection by minibus.

15.1.13 Likely and Significant Effects and Associated Mitigation Measures

15.1.13.1 “Do Nothing” Scenario

If the Proposed Project does not proceed, there will be no additional traffic generated or accommodation works carried out on the local road network and therefore no direct or indirect effects on roads and traffic due to the Proposed Project. The future traffic and transport baseline is discussed comprehensively in Section 15.1.7 above.

15.1.13.2 Construction Phase

During the 8 days when the concrete foundations are poured the effect on the surrounding road network will be negative, resulting in an increase in traffic volumes ranging from +8.6% on the N68, to +14.9% on the R484 between the N68 and Kilmihil. As the route travels north on the L-2082 background traffic flows reduce significantly and the percentage increase becomes more pronounced as a result, with a +54.8% increase forecast on the L-2082 north of Kilmihil, and a 68.2% increase forecast on the short section of the L-2048 traveling towards the site. It is forecast that the effect on all these roads will be negative, temporary and will be slight in terms of severity. There will be no significant impacts.

During the remaining 344 days for the site preparation and ground works when deliveries to the site will take place, the effect on the surrounding road network will be negative, resulting in an increase in traffic levels ranging from+3.5% on the N68, to +6.1% on the R484 between the N68 and Kilmihil. On the L-2082 traveling north from Kilmihil it is forecast traffic volumes will increase by 22.3%, with a 27.8% increase forecast on the short section of the L-2048. On these days it is forecast that direct effects will be negative, temporary and will be slight, resulting in no significant impacts.

During the 22 days when the various large component parts of the wind turbine plant are delivered to the site using extended articulated HGVs, the increase in traffic volumes will range +2.1% on the N68, to +3.6% on the R484 between the N68 and Kilmihil. On the L-2082 traveling north from Kilmihil it is forecast traffic volumes will increase by 13.4%, with a 16.7% increase forecast on the short section of the L-2048. The provision of traffic management measures, including ensuring that these deliveries are made at night, as is proposed, (as set out in Sections 15.1.8 and 15.1.13.6 and included in the CEMP), will require to be implemented to minimise the impact of development traffic on the study network on these days. It is forecast that the impacts will be negative, temporary and slight in terms of severity, with no significant impacts.

For 8 days on the delivery route 64 additional PCUs (made up of cars and standard articulated HGV movements to the site and back) will travel on the study network. On these days, the percentage increase on the study network will range from +1.3% on the N68, to +2.2% on the R484 between the N68 and Kilmihil. As the route travels north on the L-2082 background traffic flows reduce significantly and the percentage increase becomes more pronounced as a result, with a +8.2% increase forecast on the L-2082 north of Kilmihil, and a 10.2% increase forecast on the short section of the L-2048 traveling towards the site. Again, it is forecast that the impacts will be negative, temporary and slight in terms of severity, with no significant impacts forecast.

It is noted that the key junction on the delivery route (N68 / R484 junction) is forecast to operate well within capacity during the construction period, with maximum forecast RFCs of 28.0% and 36.6% forecast during the AM and PM peak hours respectively.

Similarly, for the R484 / L2080 junction in the village of Kilmihil that is also on the delivery route it is also forecast that this junction will operate well within capacity during the construction period, with maximum forecast RFCs of 12.9% and 18.5% forecast during the AM and PM peak hours respectively.

During the construction of the Grid Connection there will be closures along the route for a total of 241 days. As traffic volumes are relatively low, the direct effect will be negative, temporary and slight. It should be noted that this is a worst case scenario and in practice the construction duration may be significantly reduced using 2 construction crews operating at different locations on the route.

15.1.13.3 Operational Phase

During the operational phase the direct effect on the surrounding local highway network will be neutral and long term given that there will be approximately 2 – 3 maintenance staff travelling to site at any one time, resulting in typically 2 – 3 visits to the site on any one day made by a car or light goods

vehicle. While there will be the requirement to replace plant during the life of the Proposed Project, this will be a rare occurrence.

15.1.13.4 Decommissioning Phase

Following the end of their useful life the site may be decommissioned fully or the wind turbines may be replaced with a new set of turbines, subject to planning permission being obtained.

Any impact and consequential effect that occurs during the decommissioning phase will be significantly less 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 and large components parts will be cut and removed from the site using standard sized HGVs.

Following decommissioning of the Wind Farm site, turbine foundations, hardstanding areas and site tracks will be rehabilitated, i.e. left in place and allowed to re-vegetate naturally. The internal site access tracks may be left in place, as they may 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 require to be removed from the site in the event that the Proposed Project 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 underground electrical cabling connecting the turbines to the on-site substation will be removed from the cable ducts. The cable ducting will be left in-situ as it is considered the most environmentally prudent option, avoiding unnecessary excavation and soil disturbance. The Proposed Grid Connection underground electrical cabling route and onsite substation will remain in place as it will be under the ownership and operation of the ESB and Eirgrid. There are no impacts associated with this.

The works required during the decommissioning phase are described in Section 4.6 in Chapter 4: Description of the Proposed Project and the accompanying Decommissioning Plan included as Appendix 4-7 of this EIAR.

15.1.13.5 Cumulative Effects

The extent of the study area to be included in the traffic related cumulative impact assessment was 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 will have a cumulative impact 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 developments at varying stages in the planning process (from proposed to permitted), were assessed for the potential for cumulative traffic effects with the Proposed Project based on the following criteria;

- Project status (proposed to operational)
- Degree of overlap on the highway network (low to high)
- Traffic volumes (low to high).

The developments included in the cumulative impact assessment are considered under the following groups;

- Other wind farm developments
- Other proposed projects in the planning system.

Other wind farms

The other wind farm developments within the geographical boundary as defined in Chapter 2 that were considered to have potential traffic related cumulative impacts are set out below in Table 15-30. In total there are 5 wind farm developments listed, with 4 considered to have little overlap with their TDR and general construction delivery routes and the delivery routes for the Proposed Project. For the proposed Cloonkett Wind Farm (14 turbines) located off the L-2702 to the south of the N68 there will be a degree of overlap between the TDR and delivery routes with the Proposed Project. It is therefore proposed that the construction programs for these 2 Wind Farms do not occur concurrently. In the event that the construction of both developments occur at the same time it is considered that the cumulative impacts will be negative, temporary and light in terms of severity. There will be no significant impacts.

It is noted that none of the 5 additional proposed wind farms listed have grid connections linking into Moneypoint Substation, as proposed for the Proposed Project.

It is noted that as operational wind farm sites generate very low volumes of traffic there will be no cumulative impacts with existing wind farms.

Table 15-31 Summary of other wind farms considered in cumulative assessment and risk for cumulative impacts

Project	Status	Degree of overlap of highway network (low / medium / high)	Traffic volumes (low / medium / high)	Potential cumulative traffic effects
1 – Moanmore Lower Wind Farm (3 turbines)	Proposed	Low	Low	Low
2 – Ballykett Wind Farm (4 turbines)	Permitted	Low	Low	Low
3 - Slieveacurry Wind Farm (9 turbines)	Proposed	Low	Medium	Low
4 - Illaunbaun Wind Farm (6 turbines)	Proposed	Low	Medium	Low
5 – Cloonkett Wind Farm (14 turbines)	Proposed	Medium	Medium	Medium

Other development applications in the planning system

A planning search undertaken by MKO established a number of non wind energy developments with the potential to give rise to cumulative effects in conjunction with the Proposed Project. All of these developments are set out in the cumulative assessment table included as Appendix 2-2. Of these developments, all applications relating to small developments including single dwellings were excluded from the assessment on the basis of scale. Notwithstanding this, many of the larger scale developments are not anticipated to have overlapping construction phases, with most developments either being operational, or expected to be operational when the Proposed Project begins construction. A list of projects that have the potential to have construction phase overlaps are provided below:

- Booltiagh BESS amendment (Planning ref no. 2560670)
- Ennis LRD (Planning ref no. LH03.324062)

Whilst the Ennis LRD displayed little degree of haul route overlap, the Booltiagh BESS development was established to have a high degree of overlap with the Proposed Project with respect to the road network, but is considered to generate relatively modest volumes of traffic with a significance level of "not significant" and "short-term" being stated in the applications Construction Traffic Management Plan (CTMP) (see also Table 3-2 of the Booltiagh BESS CTMP). While it is considered that there is a greater risk for the potential of cumulative impacts between this development and the Proposed Project, it is determined that the effects will be slight at most, given the modest levels of construction phase traffic associated with the BESS application in conjunction with the information provided in Section 15.1.13.2 above.

15.1.13.6 Mitigation Measures

This section summarises the mitigation measures to avoid, reduce or offset the effects of the Proposed Project during the construction, operational and decommissioning stages.

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 15.1.9.
- Implementation of temporary alterations to the highway network at locations identified in Section 15.1.9.

Mitigation Measures During the Construction Stage

The construction of this development will require significant coordination and the following comprehensive set of mitigation measures will be put in place before and during the construction stage of the project 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 mitigation measures for these deliveries. These 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 (1 convoy will have one vehicle only), undertaken over 22 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.
- For each convoy there will be two police escort vehicles that will stop traffic at the front and rear of the convoy of 3 vehicles in addition to two escort vehicles provided by the haulage company.

Other traffic management measures

A **Traffic Management Plan (TMP)** is provided specifying details relating to traffic management and is included as Appendix 15-2 this EIAR. Prior to the commencement of the construction phase of the Proposed Project a detailed Traffic Management Plan will be prepared by the Contractor for agreement with the relevant local authorities and An Garda Síochána. In the event that An Coimisiúin Pleanála decides to grant consent for the Proposed Project the final TMP will address the requirements of any relevant planning conditions, including any additional mitigation measures which are conditioned by the ACP. The TMP prescribes the following:

- **Traffic Management Coordinator** – a competent Traffic Management Co-ordinator will be appointed for the duration of the project 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 the relevant County Councils (Clare and Limerick) in advance of deliveries of turbine components to site. Liaison with the Local Authorities and Transport Infrastructure Ireland (TII) 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.
- **Temporary traffic management measures during construction of Wind Farm Site at access junctions during construction –** Temporary measures including signage at access junctions on the L6254.
- **Temporary traffic management measures during construction of Grid Connection –** Including signage and implementation of temporary traffic diversions.
- **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 Authorities, a pre-condition survey of roads associated with the Proposed Project will 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. 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.
- **Liaison with the relevant local authority** - Liaison with the County Councils 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 relevant Roads Sections will be informed of the 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 locations** – at locations highlighted in Section 15.1.9.
- **Identification of delivery routes** – These routes will be agreed with the County Councils and adhered to by all contractors.
- **Delivery times of large turbine components** - The management plan 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 Contractor will be required to provide a travel plan for construction staff, which will include the identification of routes to / from the site.

- **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.
- **Re-instatement works** - All road surfaces and boundaries will be re-instated to pre-development condition, as agreed with the local authority engineers.

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. In the event that large component parts are required to be replaced during the life of the Proposed Project, appropriate traffic management measures will be implemented on a temporary basis.

Mitigation Measures During Decommissioning Stage

In the event that the Proposed Project is constructed and is decommissioned after the 35 years of operation, a decommissioning plan will be prepared for agreement with the local authority, as described in Section 4.6 of Chapter 4. This plan will include a material recycling / disposal plan and traffic management plan and other similar mitigation measures to those implemented during the construction phase. In terms of traffic effects, the decommissioning stage will generally mirror the constructions stage although the effects will be significantly reduced as the volumes of materials removed from the site will be less. Mitigation measures for the decommissioning stage will be similar to those proposed for the construction stage of the Proposed Project, as set out in this section above.

15.1.13.7 Residual Impacts

Construction Stage

During the 18 – 24 -month construction stage of the Proposed Project, it is forecast that the additional traffic that will travel on the delivery route indicated in Figure 15-1a will have a negative and temporary effect on existing road users, which will be minimised with the implementation of the mitigation measures included in the proposed traffic management plan. The effects will be slight during all of the construction stage, with the exception of the delivery of the abnormal loads, which will reduce from moderate to slight if these deliveries are undertaken during the night, as proposed.

Operational Stage

As the traffic impact of the Proposed Project will be imperceptible during the operational stage, no mitigation is required, and the residual effects will also be imperceptible.

Decommissioning Stage

As stated above, a decommissioning plan will be prepared and implemented in order to minimise the residual impacts during this stage. The residual effect will be less than for the construction stage as set out above and will be slight to imperceptible.

15.2 Telecommunications, Aviation and Other Material Assets

15.2.1 Introduction

This section of the EIAR assesses the likely significant effects of the Proposed Project on telecommunications, aviation and other material assets which include utilities or built services in the area such as electricity supply and transmission, water, gas and underground telecommunications.

15.2.1.1 Statement of Authority

This section of the EIAR, has been prepared by Michéal Cahill and reviewed by Eoin McCarthy, of MKO. Michéal Cahill is an Environmental Scientist with 2 years experience in environmental consulting. Michéal holds a first-class honours degree in Environmental Science at the University of Galway and was awarded the Professor Emer Colleran Medal for his academic achievements. Michéals key strengths and areas of expertise are in environmental impact assessment, the preparation and writing of high-quality reports, proficiency in geographic information systems and ecological assessment. As an environmental scientist within MKOs environmental renewables team, Michéal is involved in the preparation and revision of a variety of reports and EIAR chapters for a range of energy infrastructure projects.

Eoin McCarthy holds a BSc. (Env.) in Environmental Science and is a Senior Environmental Scientist with over 13 years' experience in the consultancy sector. Eoin has been involved in the preparation of numerous material assets chapters of EIARs for wind farm developments.

15.2.2 Methodology 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:

- Best Practice Guidelines for the Irish Wind Energy Industry (Irish Wind Energy Association, 2012
- 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)
- Department of Environment, Heritage and Local Government (2006) Wind Energy Development Guidelines for Planning Authorities "the Guidelines"
- Department of the Environment, Heritage and Local Government (2019) Draft Revised Wind Energy Development Guidelines for Planning Authorities 'the draft Guidelines'
- ESB Networks (2019) Code of Practice for Avoiding Danger from Overhead Electricity Lines.
- ESB (2017) EMF & You: Information about Electric & Magnetic Fields and the electricity network in Ireland

The assessment of likely significant effects on material assets uses the standard methodology and classification of effects, as presented in Section 1.6.2 of Chapter 1 Introduction. A full description of the Proposed Project is provided in Chapter 4 Description of the Proposed Project.

15.2.2.1 Scoping and Consultation

This section of the assessment focuses particularly on the scoping and consultation exercise conducted with telecommunications operators and aviation authorities. Scoping was carried out in line with the *'Guidelines on the Information to be contained in Environmental Impact Assessment Reports'* (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. A full description of the scoping and consultation exercise is provided in Section 2.5 of Chapter 2 of this EIAR.

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. Consultation was also carried out with ComReg (Commission for Communications

Regulation) in order to identify any other additional licensed operators in the vicinity of the Proposed Project to be contacted. The responses received by MKO from the telecommunications and aviation consultees are summarised below in Table 15-32.

Table 15-32 Telecommunications and Aviation Scoping Responses

Consultee	Response	Potential for Interference Following Consultation Exercise
2rn (formerly RTÉ Transmission Network Ltd.)	Received 7th February 2024	See Section 15.2.3.3.4
AirNav Ireland	No Response Received	N/A
Broadcasting Authority of Ireland	Received 7th February 2024	No
Commission for Communications Regulation (ComReg)	Received 4th March 2024	No
Cellnex	Received 6th March 2024	No
Department of Defence	Received 17th April 2024	See Section 15.2.3.4.1
Eir	Received 8th November 2024	No
Enet	Received 7th March 2024	See Section 15.2.3.3.5
EOBO Ltd	No response received	No
Fastcom	No response received	No
Hibernian Towers	No response received	No
Imagine Group	Received 7th February 2024	No
Irish Rail	Received 7th March 2024	No
Irish Water	No response received	No
Irish Aviation Authority (IAA)	Received 17th April 2024	See Section 15.2.3.4.2
Ivertec Ltd	No response received	No
JFK Communications Ltd	Received 23rd October 2020	No
Shannon Airport Group	Received 8th February 2026	See Section 15.2.3.4.3
Tetra Ireland Communications Ltd.	No response received	No
Three Ireland Ltd	Received 7th February 2024	No
Towercom Ltd.	No response received	No

Consultee	Response	Potential for Interference Following Consultation Exercise
Viatel Ireland Ltd	No response received	No
Virgin Media Ireland Ltd	No response received	No
Vodafone Ireland Ltd	Received 7th March 2024	No
Western Broadband Network	No response received	No
Whizzy Internet	Received 7th March 2024	No

The scoping responses from the telecommunications and aviation consultees are described below. Relevant copies of scoping responses are provided in Appendix 2-1.

15.2.3 Receiving Environment

15.2.3.1 Gas

A data request was sent to Gas Networks Ireland in October 2025. The data returned concluded that there are no gas pipelines within or near the Site nor the Proposed Grid Connection. The nearest gas pipeline to the Site and Proposed Grid Connection is a high pressure Gas Networks Ireland (GNI) pipeline located approximately 18.6 km to the southeast of the nearest proposed turbine and 16.8km east of the Proposed Grid Connection route.

15.2.3.2 Electricity

There are no existing or proposed overhead lines located within the Proposed Wind Farm site itself, however a 400kV overhead line does pass through a single parcel (Area C) of the hen harrier enhancement lands. A 110kV and 400kV overhead line are located approximately 2.3km and 3.2km southeast of the nearest proposed turbine respectively, travelling from Moneypoint in the direction of Dublin. These overhead lines, as well as multiple other overhead lines, intersect the Proposed Grid Connection underground cabling route at multiple locations. Similarly, works are proposed to facilitate turbine delivery which will occur underneath overhead lines. Mitigation measures to ensure the safety of all construction staff, and to prevent any impacts on grid infrastructure is contained in the CEMP, Appendix 4-4 of this EIAR.

A scoping request was issued to EirGrid in April 2024. A response has not been received to date. There are existing underground electricity cables present adjacent to the Site given the presence of the existing Cahermurphy wind farm. Damage of underground electricity cables during construction operations could potentially result in serious injury or death of site staff. The Proposed Project has been designed to avoid existing underground electricity cables and the appropriate separation distances in accordance with ESB requirements have been maintained.

15.2.3.3 Telecommunications and Aviation

15.2.3.3.1 *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 the wind farm is directly in line with the transmitter radio path.

15.2.3.3.2 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.

15.2.3.3.3 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 airport to the Proposed Project site is Shannon Airport, County Clare, located approximately 29 kilometres southeast of the nearest proposed turbine.

Potential effects on broadcast communications are generally easily dealt with by the use of repeater relay links out of line with the wind farm (i.e., diverting the telecommunications signal path).

15.2.3.3.4 Preventing Electromagnetic Interference

National Guidelines

The *'Wind Energy Development Guidelines for Planning Authorities'* (Department of the Environment, Heritage and Local Government, 2006) 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 in section below; full details are provided in Section 2.6 in Chapter 2 of this EIAR.

Broadcasters

2rn (formerly RTÉ Transmission Network Ltd.), replied on the 7th of February 2024 to a scoping request from MKO stating that there is no fixed linking within the area. 2rn has recommended that a protocol agreement be put in place for the Proposed Wind Farm if the Site goes ahead. The Protocol Document ensures that in the event of any interference occurring to 2rn television or radio reception due to operation of a wind farm, the required measures as set out in the 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. The Applicant agrees to sign a protocol document with 2RN should the Proposed Project be granted permission.

15.2.3.3.5 Other Operators

Of the scoping responses received from telephone, broadband and other telecommunications operators, ENET were the sole operator that highlighted an initial potential interference risk, as highlighted in Table 15-32 above. The final proposed turbine layout does not overlap with the telecoms links or clearance zones requested by ENET. The remaining consultees who responded to scoping, operate links either outside the Wind Farm Site, and therefore are not subject to any interference risk, or do not operate any links in the area.

Enet

Enet replied to MKO's scoping request on the 7th of March 2024 stating that they have one link that could possibly be affected. MKO shared turbine locations and dimensions with ENET on the 10th April 2024, which ENET didn't raise any concerns about. Please see response in Appendix 2-1 of this EIAR

15.2.3.4 Aviation

As noted in Table 15-32 above, in terms of aviation consultees, a scoping response was received from the Department of Defence and the Irish Aviation Authority. Shannon Airport provided a response on the 8th of February 2026. AirNav Ireland were similarly consulted on multiple occasions in 2024 and 2026 but no response has been received to date.

15.2.3.4.1 Department of Defence

The Department of Defence replied to a scoping request from MKO Ireland on the 8th of April 2024, making the below observations:

"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 Department of Defence, the turbines will be included on mapping, fitted with obstruction lighting and entered into aircraft navigation databases to ensure they will be avoided during flight.

15.2.3.4.2 Irish Aviation Authority

The IAA replied to a scoping request on the 17th of April 2024. The IAA stated that:

"If a formal planning application is progressed, subject to Air Nav Ireland and Shannon Airport Authority advising no concerns over the proposed wind farm, it is likely that the following general observations would be proffered by the Authority during the planning process:

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 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."*

The Applicant commits to the above conditions.

15.2.3.4.3 Shannon Airport Group

Shannon Airport Group responded to a scoping request on the 8th of February 2026 with the below comments:

The locations of the turbines are approx. 6km from the perimeter of our safeguarding boundary. Therefore technically they are not impacting the Obstacle Limitational Surfaces (OLS). The closest area within that boundary has a height restriction of between 15m and 45m.

This is only one aspect of a combined required assessment process and consideration of potential impacts on Instrument Flight Procedures (IFP's) and NAVAIDS/Radar is also required. You should make contact with Air Nav Ireland Ltd.

AirNav were contacted by MKO on the 5th of April 2024 and 9th and 24th of February 2026, however, MKO have not received a response to date.

15.2.3.4.4 Aviation Review Statement

In addition to the above, an Aviation Review Statement has been produced by AiBridges to investigate any potential significant effects that the Proposed Project may have on the aeronautical resource in the wider area. A range of items relating to aviation were assessed however it was concluded that the Proposed Wind Farm would have no impacts on aviation. Please see Appendix 15-6 for the full review statement.

15.2.3.5 Water Services

A scoping request was sent to Uisce Eireann the 5th of April 2024. A response was received on the 18th of April 2024 stating that they do not have the capacity to comment on individual projects, but general aspects of Water Services should be considered in the EIA where relevant. Some of the items to consider are listed below. Please see Chapter, Section 2.7 for a full list of Uisce Eireann comments.

1. *Where the development proposal has the potential to impact an Uisce Éireann Drinking Water Source(s), the applicant shall provide details of measures to be taken to ensure that there will be no negative impact to Uisce Éireann's Drinking Water Source(s) during the construction and operational phases of the development. Hydrological / hydrogeological pathways between the applicant's site and receiving waters should be identified as part of the report.*
2. *Where the development proposes the backfilling of materials, the applicant is required to include a waste sampling strategy to ensure the material is inert*
3. *Mitigations should be proposed for any potential negative impacts on any water source(s) which may be in proximity and included in the environmental management plan and incident response.*
4. *Any and all potential impacts on the nearby reservoir as public water supply water source(s) are assessed, including any impact on hydrogeology and any groundwater/ surface water interactions.*
5. *Impacts of the development on the capacity of water services (i.e. do existing water services have the capacity to cater for the new development). This is confirmed by Uisce Éireann in the form of a Confirmation of Feasibility (COF). If a development requires a connection to either a public water supply or sewage collection system, the*

developer is advised to submit a Pre-Connection Enquiry (PCE) enquiry to Uisce Éireann to determine the feasibility of connection to the Uisce Éireann network.

6. *The applicant shall identify any upgrading of water services infrastructure that would be required to accommodate the proposed development.*
7. *In relation to a development that would discharge trade effluent – any upstream treatment or attenuation of discharges required prior to discharging to an Uisce Éireann collection network.*
8. *Any physical impact on Uisce Éireann assets – reservoir, drinking water source, treatment works, pipes, pumping stations, discharges outfalls etc. including any relocation of assets.*
9. *Any potential impact on the contributing catchment of water sources either in terms of water abstraction for the development (and resultant potential impact on the capacity of the source) or the potential of the development to influence / present a risk to the quality of the water abstracted by Uisce Éireann for public supply should be identified within the report.*
10. *Where a development proposes to connect to an Uisce Éireann network and that network either abstracts water from or discharges wastewater to a "protected"/ sensitive area, consideration as to whether the integrity of the site / conservation objectives of the site would be compromised should be identified within the report.*
11. *Mitigation measures in relation to any of the above ensuring a zero risk to any Uisce Éireann drinking water sources (Surface and Ground water).*

The scoping response did not provide details in relation to specific water services within the Site.

It should be noted that the Proposed Project does not intend to connect into Uisce Eireann assets. Whilst not directly connecting into Uisce Eireann assets, the Proposed Grid Connection will cross under 35 no. water services. On the 20th of January 2026, Uisce Eireann issued a Confirmation of Feasibility of the Proposed Grid Connection stating that the development *"can be facilitated"* and:

> *"In the scenario site investigations determine a crossing may need to be above an Uisce Éireann asset instead, then this needs to be agreed in writing with Uisce Éireann in advance prior to the works taking place on the ground."*

The Applicant endeavours to adhere to the above requests, should the Proposed Project be granted. A copy of the confirmation of feasibility from Uisce Eireann has been included as Appendix 15-7 of this EIAR.

15.2.3.6 Existing Waste Management Services

There are no EPA-licensed or local authority-authorised waste facilities or activities located within the site boundary. The closest authorised waste facility is located approximately 6.1km south of the Site, in Creegh, Co. Clare.

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 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 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 to 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 on 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 on-site 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.

15.2.4 Likely Significant Effects and Associated Mitigation Measures

15.2.4.1 'Do-Nothing' Scenario

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

If the Proposed Project were not to proceed, the opportunity to capture a greater part of County Clare's valuable renewable energy resource would be lost, as would the opportunity to contribute to meeting the Government and EU targets for the production and consumption of renewable energy by 2030, as well as the reduction in greenhouse gas emissions. Furthermore, the opportunity to create local employment and investment as well as to diversify the local economy will be lost.

15.2.4.2 Construction Phase

15.2.4.2.1 *Services*

As outlined above, no gas pipelines are located within 10km of the Proposed Project and therefore there is no risk of any impact on these services. While water mains will be encountered at 35 no. locations along the Proposed Grid Connection, Uisce Eireann have confirmed that the Proposed Grid Connection route as detailed in Appendix 4-2 is feasible in conjunction with these assets. There are no existing underground electricity cables, gas pipelines or Uisce Eireann water assests present at the Proposed Wind Farm site, however, overhead lines present along the Proposed Grid Connection and Turbine Delivery Accommodation areas, the damage of which has the potential to result in serious injury or death. Similarly, the Proposed Grid Connection travels beneath 35 no. water services, which has the potential to cause damage to Uisce Eireann assets. This has a direct, short-term, potential significant negative effect.

Mitigation Measures

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 and overhead electrical cables or other services. The mitigation measures include the following:

- 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 standard construction codes of practice in relation to working around electricity, gas, water, sewage and telecommunications networks.
- In the scenario further site investigations determine a crossing may need to be above an Uisce Éireann asset along the Proposed Grid Connection, this will be agreed in writing with Uisce Éireann in advance prior to the works taking place on the ground.

Residual Effects

Following the implementation of the above mitigation measures, there will be a direct, short-term, slight negative residual effect during the construction phase of the Proposed Project.

Significance of Effects

Based on the assessment above there will be no significant effects.

15.2.4.2.2 *Waste Generation*

The construction phase will have the potential to produce municipal waste (site office, canteen) and construction/demolition waste (wood, rubble, metal, etc.) which will need to be processed at local waste processing facilities. These are largely composed of metal and other recyclable materials which would be brought to specialised facilities for processing/recycling such items.

Waste materials will be required to be temporarily stored on site pending collection by a waste contractor. Dedicated areas for waste skips and bins will be identified across the site. These areas will need to be easily accessible to waste collection vehicles. If waste material is not managed and stored correctly, it is likely to lead to litter or pollution issues at the site.

The Waste Management Act 1996 (Act) and its subsequent amendments provide for measures to improve performance in relation to waste management, recycling and recovery. The Act also provides a regulatory framework for meeting higher environmental standards set out by other national and EU legislation.

The Act requires that any waste related activity must have all necessary licenses and authorisations. It will be the duty of the Waste Manager on the Site to ensure that all contractors hired to remove waste from the site have valid Waste Collection Permits to ensure that the waste is delivered to a licensed or permitted waste facility. The hired waste contractors and subsequent receiving facilities must adhere to the conditions set out in their respective permits and authorisations.

The use of non-permitted waste contractors or unauthorised waste facilities could give rise to inappropriate management of waste and result in negative environmental impacts or pollution. It is essential that all waste materials are dealt with in accordance with regional and national legislation, as outlined previously, and that time and resources are dedicated to ensuring efficient waste management practices. Poor waste management has the potential to cause a short-term moderate negative effect.

Mitigation Measures

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.

The following mitigation measures will be implemented:

- All waste generated on site will be contained in waste skips 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. This waste material will be transferred to a Materials Recovery Facility (MRF) by a fully licensed waste contractor where the waste will be sorted into individual waste streams for recycling, recovery or disposal. The closest, authorised waste facility is located approximately 6.1km southwest of the nearest proposed turbine, at Creegh, Co. Clare.
- Extensive waste categorisation will be in place to ensure the highest possible quality of recycling of the respective categories and to prevent an accumulation of pollutants in the material cycle – it is anticipated that the following waste types, at a minimum, will be segregated:
    - Electrical Waste
    - Plastics;
    - Oils;
    - Metals;
    - Glass; and
    - Timber.
- To minimise the generation of waste and waste disposed to landfill, wastes will be managed in accordance with the waste hierarchy and relevant regulatory controls.
- Waste will be clearly labelled and segregated on site. Measures will be taken to ensure that wastes cannot blow away.
- Housekeeping measures will be followed for the storage of materials to ensure that materials are protected as much as possible.
- Any hazardous wastes generated (such as chemicals, fuels and oils) will also be segregated and will be stored in appropriate receptacles (in suitably bunded areas, where required).
- A waste manager will be appointed by the main contractor(s) to ensure effective management of waste during the construction works.
- All staff will be provided with training regarding the waste management procedures;
- All waste leaving site will be reused, recycled or recovered where possible to avoid material designated for disposal.
- All waste leaving the site will be transported by suitable permitted contractors and taken to suitably registered, permitted or licenced facilities; and
- All waste leaving the site will be recorded and copies of relevant documentation maintained. As a minimum, the following waste management data will be provided:
    - Quantity of materials and waste removed from site by type in volume and weight.
    - Outcome of the materials and waste on and off site.
    - Waste transfer notes.
    - Hazardous waste consignment notes.

Residual Effects

Following implementation of the mitigation measures above, residual impacts of non-hazardous waste emissions for the construction phase will have a direct, short-term, slight, negative effect.

Significance of Effects

Based on the assessment above there will be no significant effects.

15.2.4.2.3 *Telecommunications and Aviation*

The potential for electromagnetic interference from wind turbines occurs only during the operational phase of the development. There are no electromagnetic interference impacts associated with the construction phase of the Proposed Wind Farm, and therefore no mitigation required.

15.2.4.3 Operational Phase

15.2.4.3.1 *Telecommunications*

Pre-Mitigation Impact

The Proposed Wind Farm has been designed to avoid the telecommunication links which traverse the Site. A single telecommunications link runs through the Site as confirmed by ENET, however, mitigation by design (i.e. implementation of a 115m buffer around the ENET link) ensures that there is no potential for interference as a result of the Proposed Project. There is therefore no potential for impacts on telecommunications as a result of the Proposed Project.

Mitigation Measures

In the event of interference occurring to telecommunications, the Department of the Environment, Heritage and Local Government 'Wind Farm Planning Guidelines' (2006) acknowledge that 'electromagnetic interference can be overcome' by the use of divertor relay links out of line with the wind farm.

The Applicant will sign a Protocol Document with RTÉ Transmission Network (operating as 2rn), which is a standard requirement for all wind farm developers. This document will ensure that the developer is responsible for rectifying any unanticipated broadcast interference arising to RTÉ television or radio reception as a result of the Proposed Wind Farm.

Residual Impact

The Proposed Project will have no residual impact on the telecommunications signals of operators in the area.

Significance of Effects

There will be no significant effect on telecommunications from the Proposed Project.

15.2.4.3.2 *Aviation*

Pre-Mitigation Impact

The scoping response of the DoD and IAA has requested that standard lighting requirements be used at the Proposed Project site. Pre-mitigation impacts are therefore direct, potential significant negative effects. It should be noted however that the nearest airport, airfield or airstrip to the Proposed Wind Farm is Shannon Airport, which is located c.29km from the nearest proposed turbine, which makes any interference between both the Proposed Project and aviation very unlikely. Regardless, a range of mitigation measures have been provided below.

Mitigation Measures

The scoping response from the DoD and IAA set out lighting requirements for turbines as detailed above. These requirements will be complied with for the Proposed Wind Farm and any further details will be agreed in advance of construction with the DoD. The coordinates and elevations for built turbines will be supplied to the IAA, as is standard practice for wind farm developments. The IAA will be notified of intention to commence crane operations with at least 30 days prior notification given of their erection.

Residual Impact

The Proposed Project will have no residual impact on aviation as all lighting requirements will be met by the Applicant, and given the fact that the Proposed Wind Farm is firmly clear of Shannon Airports safeguarding boundary.

Significance of Effects

There will be no significant effect on aviation operations due to the Proposed Project.

15.2.4.4 Cumulative Effect

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 with relevant existing, permitted or proposed projects and plans in the area, in the vicinity of the Site, as set out in Section 2.6 in Chapter 2 of this EIAR and Appendix 2-2.

Included within proposed projects, the potential for cumulative impacts with other wind farms is considered. There are 14 no. operational wind farms, as well as the 7 permitted or proposed wind farms within 25 kilometres of the proposed turbines. There will be a significant, positive cumulative effect on electrical supply with the commissioning of the Proposed Project along with the existing, proposed and permitted wind farms within the area.

The potential for cumulative effects with these nearby developments are not significant from the perspective of built services and waste management. It is possible that the proposed project cumulatively with large scale developments in the surrounding area may give rise to cumulative traffic and transport effects due to the relocating of waste from the Site to an appropriate waste management facility such as Clean (IRL) Refuse & Recycling Co. Limited, however, there are extremely few developments in the area which would give rise to large quantities of waste product, and in particular few projects which have stated that Clean (IRL) Refuse & Recycling Co. Limited will be receiving waste as a result of the proposed project. Furthermore, given a majority of large scale developments in the area are currently operational, there is currently no need for these developments to remove large quantities of waste off-site. Currently permitted projects are expected to be constructed and operational by the time the Proposed Project begins construction, and regardless, these large scale projects lie 10km+ from the Proposed Wind Farm site. Where there is overlap between the construction and decommissioning phases of the currently proposed, permitted or operational projects, the contractor hired by the Applicant involved in the construction and decommissioning of the Proposed Project will endeavour to communicate with other contractors involved with the construction or decommissioning of developments in the surrounding area with the potential to have large quantities of waste required to be exported off-site. It is on this basis, as well as the fact that the Proposed Project is not anticipated to produce large quantities of waste products that it can be concluded that there would be a short-term, negative, imperceptible, cumulative impact on built services and waste management from the Proposed Project in conjunction with permitted or proposed projects and plans in the area as set out in Section 2.6 in Chapter 2 of this EIAR and Appendix 2-2.

The potential for cumulative effects with nearby developments on aviation is not significant. The Proposed Wind Farm will be compliant with the conditions and lighting requirement provided by the DOD and IAA, and it is assumed that all Wind Farms operating in the wider area are also compliant with these standard requirements. Similarly, Shannon Airport Group have confirmed that the Site lies 6km from the from the perimeter of their safeguarding boundary, and given that there are currently operational wind farms which do not impact the aviation resource much closer to Shannon Airport than the Proposed Cahermurphy West Wind Farm, it is not anticipated that the Proposed Project will have any significant cumulative effects on the aviation resource.

Furthermore, the Aviation Review Statement produced by AiBridges (See Appendix 15-6) indicates that the Proposed Project will not have any cumulative impact on aviation given that the Proposed Wind Farm itself will not have any impact on aviation, a large number of turbines are currently operational in the wider area with no impact on aviation, and the Proposed Wind Farm is further away from Shannon airport than most of these developments.

It is on the above basis that it can be concluded that there would be no cumulative impact on aviation from the Proposed Project in conjunction with permitted or proposed projects and plans in the area as set out in Section 2.6 in Chapter 2 of this EIAR and Appendix 2-2.

15.2.5 Difficulties Encountered

No difficulties were encountered during the preparation of this EIAR chapter.

15.2.6 Conclusion

A range of material assets have been considered in the above impact assessment, inclusive of traffic and transport, aviation, gas and electricity, waste, telecommunications and water services. A road safety audit, a DN-GEO-03030 TII Design Report and a Aviation Review Statement have been carried out and appended to this chapter. The assessment of the above items revealed that upon the implementation of mitigation measures, there will be no significant residual impacts associated with the Proposed Project on Material Assets.