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# Environmental Impact Assessment Report

## Seskin Renewables Wind Farm

Chapter 15 – Material Assets (Including Traffic and Transport, Telecommunications and Aviation and Other Material Assets)

# DOCUMENT DETAILS

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# 15. MATERIAL ASSETS

Material Assets are defined in the 'Guidelines on the Information to be contained in Environmental Impact Assessment Reports' (EPA, 2022) *"*as '*built services and infrastructure. Traffic is included because in effect traffic consumes transport infrastructure'.* 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: Water, 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 Development on transportation infrastructure (Section 15.1 Traffic and Transport), on Telecommunications and Aviation (Section 15.2) and Other Material Assets (Section 15.3), which are economic assets of human origin. Waste Management is also considered within the EPA 2022 Guidelines as part of Material Assets. EPA Waste Management pertaining to the construction, operation and decommissioning of the Proposed Development is summarised in Section 4.3.4.7 of Chapter 4 of the EIAR. Traffic volumes generated by the removal of waste from the Proposed Development 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 and transport, of the traffic movements that will be generated during the construction, operational and decommissioning phases of Seskin Renewables Wind Farm (the 'Proposed Development').

A full description of the Proposed Development, including construction phasing details, is provided in Chapter 4 of this EIAR. For developments of this nature, the construction phase is the critical period with respect to the traffic effects experienced on the surrounding road network in terms of the additional traffic volumes that will be generated on the road network, and the geometric requirements of the abnormally sized loads associated with the wind turbine components. The requirements of the additional traffic and abnormal loads generated during the construction stage were assessed for the surrounding public road network that will provide access to the Proposed Development site. Locations where remedial measures are required to accommodate the abnormal loads are identified.

The magnitude of the increase in traffic volumes experienced on the surrounding public road network is identified during the various construction stages of the Proposed Development.

A Traffic Management Plan (TMP) has been developed and included as Appendix 15-2 of this EIAR. The TMP seeks to minimise the traffic impact on the local public road network.

### 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 NUI 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; Borrisbeg, Sheskin South, Kilgarvan, Glenard, Ardderoo, Derryadd, Derrinlough, Knocknamork, Shehy More, Cloncreen, Derrykillew, Coole, Ballyhorgan, Cahermurphy, Lettergull, Barnadivane, Cleanrath and Knockalough.

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

Traffic counts were undertaken by Traffinomics Ltd, which is an Irish traffic survey company with a comprehensive knowledge of traffic data collection methods. The company, 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 on Assessment of Effects

This section of the EIAR has been completed in accordance with the EIA guidance set out in Section 1.2 of Chapter 1: Introduction. The assessment uses standard terminology to describe the likely significant effects associated with the Proposed Development. Further information on the classification of effects used in this assessment is presented in Section 1.7.2 of this EIAR. With respect to the assessment of traffic effects the guidance set out in Traffic and Transport Assessment Guidelines, Transport Infrastructure Ireland, May 2014 was adopted.

### 15.1.1.4 Scoping and Consultation

#### Transport Infrastructure Ireland

Transport Infrastructure Ireland (TII) responded to Scoping on the 27th of May 2024, in which it provided a list of recommendations to be followed when preparing the EIAR. All relevant TII guidelines and policies have been taken into account in the preparation of this assessment, including the following;

- PE-PDV-02045, Traffic and 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, April 2017.

Specific traffic related issues raised by TII together with Applicant responses are set out in Table 15-1a.

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



| ID | TII Scoping Response | Response |
|---|---|---|
| 1 | TII notes that the subject site adjoins the national road network. Access to the road network shall be developed in accordance with official policy and road safety considerations. As outlined above, access directly to a national road outside a reduced 50 – 60kph speed limit location should be avoided in accordance with the provisions of official policy. Alternative arrangements should be identified to ensure adherence to the provisions of official policy. | The main access junction for the Proposed Wind Farm site is located along the local L58333 road which forms an existing junction with the N77 National Secondary Road. The site is not directly accessed off the N77. |
| 2 | Consultations should be had with relevant Local Authority / National Roads Design Offices with regards to locations of existing and future national roads schemes. | It is confirmed that consultation has been undertaken with Kilkenny County Council and Laois County Council, as set out in Chapter 2 of this EIAR. No traffic-related concerns were raised by either local authority at the pre-application meetings. The Roads Section of Kilkenny County Council, did raise concerns in relation to the siting of the Proposed Grid Connection cabling within the national secondary road corridor and requested that it be demonstrated in the EIAR that alternative grid connection routes were considered. The consideration of alternative grid connection routes is outlined in detail in Chapter 3 of this EIAR. . |
| 3 | 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 Project, including the potential haul route. | The impacts of the Proposed Development on the delivery routes in terms of link flows are set out is Section 15.1.6.1 and 15.1.6.2 of the EIAR, while an assessment of the capacity of the N77 / L-58333 junction is set out in Section 15.1.6.5. An assessment of the impacts during the construction of the Proposed Grid Connection underground cabling route is set out in Section 15.1.7 while a swept path analysis undertaken for the abnormally large loads on the Turbine Delivery Route is set out in Section 15.1.9 of the EIAR. The assessment sets out the temporary local measures that will be required on the public road network during the construction of the Proposed Development. |
| 4 | The developer should assess visual impacts from existing national roads. | The visual impacts of the Proposed Development are set out in Chapter 14 of this EIAR. |

| ID | TII Scoping Response | Response |
|---|---|---|
| 5 | The developer should have regard to any EIAR / EIS and all conditions and or modifications imposed by An Bord Pleanála regarding road schemes in the area. The developer should, in particular, have regard to any potential cumulative impacts. | It is confirmed that all conditions attached to any grant of planning permission for the Proposed Development will be adhered to.<br><br>The cumulative, traffic related impacts are assessed in Section 15.1.11.7. |
| 6 | The developer, in preparing an EIAR, should have regard to TII Publications (formerly DMRB and the Manual of Contract Documents for Road Works). | It is confirmed that the design of the access junction off the L-58333 is in accordance with TII guidelines. |
| 7 | The developer, in preparing an EIAR, should have regard to TII's Environmental Assessment and Construction Guidelines, including the "Guidelines for the Treatment of Air Quality During the Planning and Construction of National Road Schemes' (NRA, 2006). | It is confirmed that the potential effects of the Proposed Development with regards air quality is set out in Chapter 10 of this EIAR. |
| 8 | The EIAR should consider the "Environmental Noise Regulations 2006' (SI 140 of 2006) and, in particular, how the development will affect future action plans by the relevant competent authority. The developer may need to consider the incorporation of noise barriers to reduce noise impacts (see "Good Practice for the Treatment of Noise during the Planning of National Road Schemes (NRA, 2014). | It is confirmed that the potential effects of the Proposed Development with regards noise are set out in Chapter 12 of this EIAR. |
| 9 | 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 be carried out in accordance with relevant guidelines, noting traffic volumes attending the 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.<br><br>In relation to national roads, the Authority'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 promoters are advised to have regard to Section 2.2 of the NRA/TII TTA Guidelines which addresses requirements for sub-threshold TTA. | It is confirmed that the assessment presented in Chapter 15 of the EIAR is undertaken in accordance with Traffic and Transport Assessment Guidelines, TII (2014). |

| ID | TII Scoping Response | Response |
|---|---|---|
| | 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. | |
| 10 | The designers are asked to consult TII Publications to determine whether a Road Safety Audit is required. | It is noted that there is no new access junctions proposed on the national road network and that only minor temporary accommodation works along the N77 National Secondary road in the townlands of Durrow Townparks, Co. Laois and Ballynaslee, Co. Kilkenny are required to facilitate the delivery of turbine components and other abnormal sized loads. The minor accommodation works to provide a temporary runover area at the N77 / L58333 junction will be undertaken from the L58333 and will therefore not impact on the N77. It is noted that neither A Road Safety Audit or a Design Phase Procedure for Road Safety Improvement Scheme, Urban Renewal Schemes and Local Improvements Schemes (DN-GEO-03030) Report have therefore been undertaken. These will be undertaken and provided if required by TII. |
| 11 | 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. | All construction 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). |
| 12 | 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 | The proposed haul routes are identified in this Chapter 15 of the EIAR. While it is proposed that the delivery stage of the Proposed Development will involve abnormally large loads, the axle loadings will not exceed accepted limits. A program of pre-delivery condition and structural assessment of the route is however proposed, as set out in the Traffic Management Measures, included set out in Section 15.1.11.5. |

| ID | TII Scoping Response | Response |
|---|---|---|
| | accommodate any abnormal 'weight' load proposed. | |
| 13 | The haul route should be assessed to confirm capacity to accommodate abnormal 'length' loads and any temporary works required are identified. | It is confirmed that a geometric assessment was undertaken, as set out in Section 15.1.9. |
| 14 | 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.<br><br>The applicant/developer should also consult with all PPP Companies, Motorway Maintenance and Renewals Contractors (MMaRC) and road authorities over which the haul route traverses to ascertain any operational requirements, including delivery timetabling, etc. to ensure that the strategic function of the national road network is safeguarded. | The applicant agrees with this condition. |
| 15 | Where temporary works within any MMaRC Contract Boundary are required to facilitate the transport of turbine components to the Site, the applicant/developer shall contact thirdpartyworks@tii.ie in advance, as a works specific Deed of Indemnity will be needed by TII before the works can take place. | The applicant agrees with this condition. |
| 16 | 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.<br><br>Any Road Safety requirements should be addressed. | The applicant agrees with this condition, as set out in Section 15.1.11.5 of this EIAR. |
| 17 | TII notes that grid connection routing options are indicated in your EIAR Scoping referral, with connection proposed to the Ballyragget Substation. The proposed route includes significant routing along the N77, 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 applicant agrees with this condition.<br><br>Alternative grid connection routes have been considered in Chapter 3, Section 3.2.6, of this EIAR. |

| ID | TII Scoping Response | Response |
|---|---|---|
| | 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'.<br><br>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.<br><br>Section 12.4.1.1 'Accelerate Renewable Electricity Generation' of the Climate Action Plan 2024 (CAP24) outlines the objective of reaching 80% of electricity demand from renewable sources by 2030 through a range of measures, including; 'All relevant public bodies will carry out their functions in a manner which supports the achievement of the renewable electricity targets, including, but not limited to, the use of road and rail infrastructure to provide a route for grid infrastructure where this is the optimal solution'.<br><br>Consistent with CAP24, for all renewable energy developments requiring grid connection to the national grid, TII recommends that a full assessment of all route alternatives for grid connection takes place, including alternatives to public road, where appropriate. 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.<br><br>Having regard to the foregoing, in TII's opinion, the grid connection routing, where it is proposed to utilise the road network must demonstrate that the route proposed represents the 'optimal solution'. In addition, there is a finite road space available to accommodate all utilities in the road network and TII is aware of a number of other grid connection proposals routing to the Ballyragget Substation. It is recommended that a co-ordinated approach to grid connection routing in this area is achieved to avoid risk to the | |

| ID | TII Scoping Response | Response |
|---|---|---|
| | effective delivery of renewable energy projects in the area.<br><br>Other consents or licences may be required from the road authority for any trenching or cabling proposals crossing the national road. TII requests referral of all proposals agreed and licensed between the road authority and the applicant, which affect the national road network.<br><br>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. | |

## Department of Transport

A response to scoping was received from The Department of Transport on the 28th May, 2024. The response refers to issues relating to the Proposed Grid Connection underground cabling route works within the public road network and are set out together with the Applicant's responses in Table 15-1b.

*Table 15-2b Issues raised by DoT in relation to the Proposed Development and Responses*

| ID | Comment/Recommendation | Response |
|---|---|---|
| 1 | Their presence within the public road will likely significantly restrict the Road Authority in carrying out its function to construct and maintain the public road and will likely add to the costs of those works post construction. | The Applicant and their Contractor will work with the Road Authority to minimise impacts on construction and maintenance of the road network through the scheduling of construction of sections of the route. This will require a Road Opening Licence which will be applied for in advance. |
| 2 | Their 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 conditions and not be based on a sample of the general conditions. | As set out in Section 15.1.11.5 all road surfaces and boundaries will be re-instated to pre-development condition, as agreed with the local authority engineers. All works will be done in accordance with the Guidelines for the Opening, Backfilling and Reinstatement of Openings in Public Roads, DTToS, September 2015. |
| 3 | The possible effect on the remaining available road space (noting that there may be need to | The Proposed Grid Connection underground cabling trench will measure approximately 600mm in width |

| ID | Comment/Recommendation | Response |
|---|---|---|
| | accommodate other utilities within the road cross-section in the future). | and will be located predominantly in the verge of the road corridor. Therefore, there will be sufficient space for other utilities within the public road corridor. |
| 4 | The necessity to have the power in the cables switched off where the Road Authority considers this necessary in order to carry out its function to construct and maintain the public road. | The Applicant agrees with this comment. |
| 5 | Examination of all available technologies (including both Overhead Line (OHL) and Underground Cable (UGC) options or combinations of both) and route options other than the routing of cables along the public road. | 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. |
| 8 | Examination of details of any chambers proposed within the public road cross section so as to minimise the effect on the Roads Authority in its role of construction and maintenance, | The proposed locations of joint bays, communication chambers and earth sheath link chambers are shown in the detailed site layout drawings in Appendix 4-1 of this EIAR. |
| 9 | Elimination of permanent jointing bays from beneath the road 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. |
| 10 | Prevention of the attachment of cables to all bridge structures and culverts by diverting them beneath or away from these structures. | There are no bridge structures located along the Proposed Grid Connection Cabling Route. All culverts/services |

| ID | Comment/Recommendation | Response |
|---|---|---|
| | | along the proposed route will be crossed over/under or diverted, if necessary. |
| 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). | Only one cabling trench is proposed as part of the Proposed Development. |



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

The Department *of Transport* 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 be lodged with the local authority and with the ESB Networks for retention on their records.
- A condition to require the elimination of jointing bays and the use of temporary removable jointing bays instead, 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. This point is addressed under Row 9 of Table 15-1b above.
- 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 developer to notify the Roads Authority of the owner of the cables (Owner) and the controller (Power Controller) of the power transmitted along the cables. In addition, the condition should require Owner and Power Controller to notify the Roads Authority of any change in ownership of the cables or change of Power Controller transmitting power along the cables. In all instances the Owner and Power Controller should be required to maintain an agreed contacts list with the Roads Authority.

### 15.1.1.5 Methodology and Section Structure

The report adopts the guidance for such assessments set out by Transport Infrastructure Ireland, or TII, in the document number PE-PDV-02045 *'Traffic and Transport Assessment Guidelines, May 2014'*.

The geometric requirements of the transporter vehicles were assessed using AutoCAD and Autotrack.

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

- A review of the existing and future transport infrastructure in the vicinity of the Proposed Development, including the proposed haul route, an assessment of base year 2024 / 2025 traffic flows and traffic forecasts during an assumed construction year of 2028 (Section 15.1.2 Receiving Environment and 15.1.3 – Existing Traffic Volumes),
- A description of the nature of the Proposed Development and the traffic volumes that it will generate during the different construction stages and when it is operational (Section 15.1.4 – Proposed Development Traffic Generation),
- A description of the abnormally sized loads and vehicles that will require access to the site (Section 15.1.5 Construction Traffic Vehicles),
- A review of the effects of Proposed Development generated traffic on links and junctions during construction and when the facility is operational (Section 15.1.6 –Traffic Effects During Construction and Operation),
- A review of the effects of the Proposed Development on the public road network along the underground electrical cabling route (Section 15.1.7 Effect of grid connection on road network),
- A description of traffic management measures of large deliveries (Section 15.1.8 traffic Management of Large Deliveries),
- A geometric assessment of the route and its capacity to accommodate the abnormal loads associated with the Proposed Development (Section 15.1.9 – Abnormal Load Route Assessment),
- An assessment of the provision for sustainable modes of travel (in this case primarily with respect to the transport of construction staff) (Section 15.1.10 – Provision for Sustainable Modes of Travel),
- A description of potential significant effects of the Proposed Development on Roads and Traffic (Section 15.1.11 – Likely and Significant Effect and Associated Mitigation Measures).

## 15.1.2 Receiving Environment

### 15.1.2.1 Site Location and Proposed Access Arrangements

The core of the Proposed Wind Farm is located approximately 2.5 kilometres south of the town of Durrow, Co. Laois, 3.2 kilometres northwest of the town of Ballyragget, Co Kilkenny and 5.9 kilometres east of the village of Cullahill, Co. Laois.

The N77 National Secondary Road runs in a north / south direction approximately 60m to the east of the eastern boundary of the Proposed Wind Farm site. The local L58333 road connects into the west side of the N77 by means of a simple priority junction and then heads in a northbound direction, where at a point approximately 700m north of the junction with the N77 it is proposed that the sole vehicle access to the Proposed Wind Farm Site will be located. It is proposed that this access will provide for all vehicle types during the construction, operational and decommissioning phases of the Proposed Wind Farm.

The Proposed Grid Connection includes for underground 38kV cabling from the proposed onsite 38kV substation, in the townland of Ballynaslee, Co. Kilkenny, to the existing Ballyragget 110kV substation in the townland of Moatpark, Co. Kilkenny. The total length of the Proposed Grid Connection underground cable route, measures approximately 3.4km in length with approximately 2.2km located within the public road corridor and approximately 1.2km located in agricultural lands.

The Proposed Development is shown in the context of the national and local highway networks in Figures 15-1a.

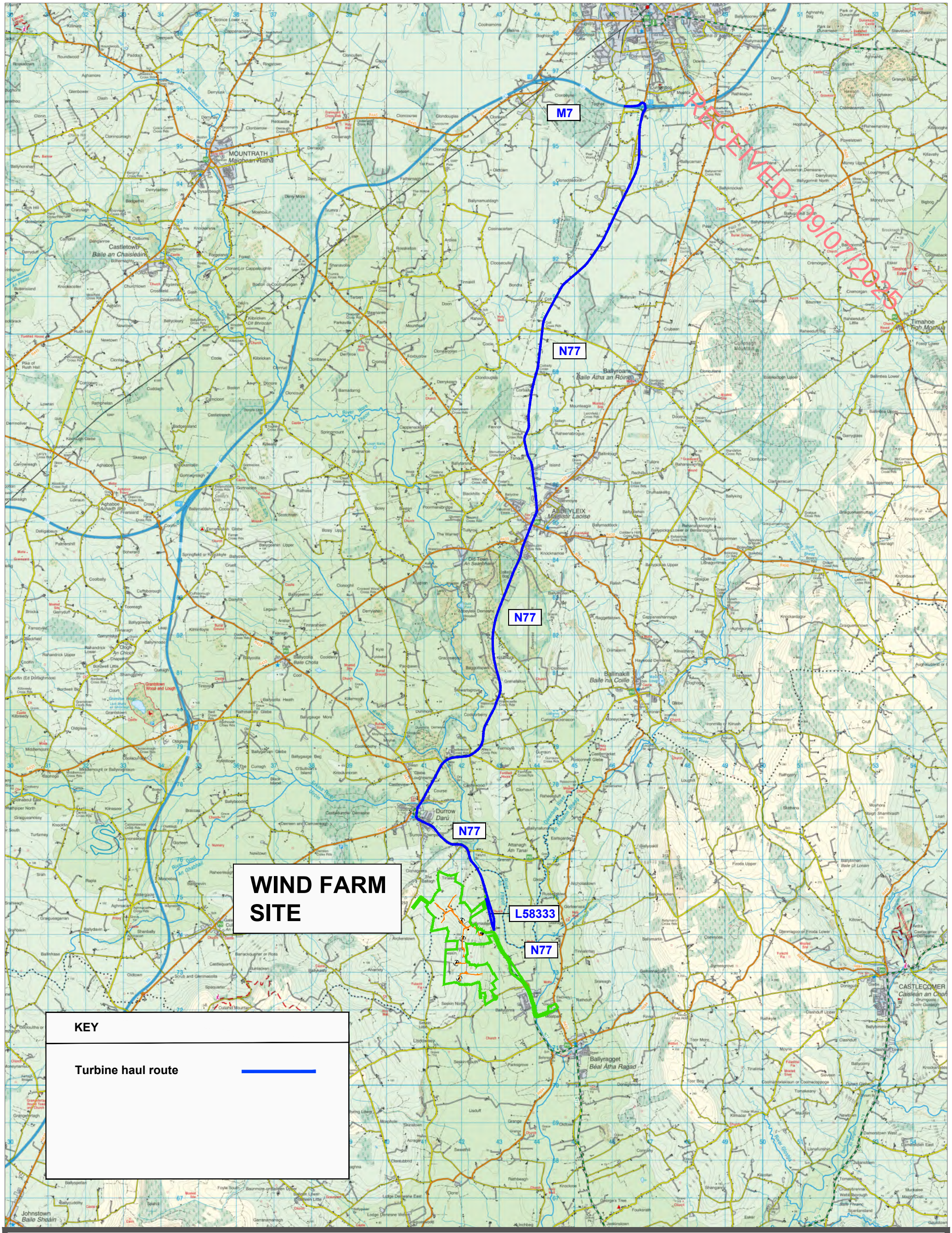


Figure 15-1a Site location and turbine delivery route

| | | | |
|---|---|---|---|
| PROJECT: | Seskin Renewables Wind Farm | | |
| CLIENT: | Seskin Renewable Energy Ltd | SCALE: | NTS |
| PROJECT NO: 11420 | DATE: 16.05.25 | DRAWN BY: | AL |

ALAN LIPSCOMBE
TRAFFIC & TRANSPORT CONSULTANTS

### 15.1.2.2 Proposed Abnormal Load Delivery Route

It is envisaged that large wind turbine components will be delivered to the Proposed Development site, from the Port of Cork (Ringaskiddy) (other ports such as Galway Port, Shannon Foynes od Dublin Port could also be used), via the N28, and N40 national roads, the M8 and M7 Motorways N77 National Secondary Road, and the L58333 local road. The proposed turbine delivery route (TDR) from the M7 to the Proposed Development is shown on Figure 15-1a.

From the Port of Cork (Ringaskiddy), the turbine component delivery vehicles will travel north via the N28 and N40 National Primary Roads before merging onto the M8 Motorway and subsequently the M7 Motorway. At Junction 17 (Portlaoise), the vehicles will exit the M7, travelling south on the N77 National Secondary Road for approximately 25km. The vehicles will travel through the town of Abbeyleix and the village of Durrow in Co. Laois. In the townland of Ballynaslee, Co. Kilkenny the turbine component delivery vehicles will reverse on to the L58333 local road from the existing junction on the N77 and continue north on this local road for approximately 700m to the Proposed Wind Farm entrance.

It is also envisaged that general construction traffic (including materials and staff) will travel to the site via the public road network to the east of the site.

An assessment of the turning requirements of the abnormally sized loads transporting the turbine components was undertaken at the various pinch points along the route from Junction 17 on the M7 to the site entrance as identified in Figure 15-1b. The swept path assessments undertaken for these locations are discussed in Section 15.1.9.

### 15.1.2.3 Proposed Construction Traffic Haul Route

It is noted that the majority of the stone required during the construction of the Proposed Development will be won from an onsite borrow pit, as detailed in Chapter 4, Section 4.3.1.8, of the EIAR.

All concrete required for each turbine foundation will be delivered to the site in one day per foundation, for a total of 8 days. The concrete (and some crushed stone) required for the turbine foundations will be sourced from local, appropriately authorised quarries. The most likely quarries for the supply of concrete and stone are located off the N77 approximately 8km north and 9km south of the Proposed Wind Farm Site, as shown in Figure 15-2a. The potential routes for general construction materials for the purposes of this assessment, is as per the route considered for the turbine components (as described in Section 15.1.2.2 above) with the additional routes shown in Figure 15-2a.

## 15.1.3 Existing Traffic Volumes

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

### 15.1.3.1 Background Traffic Flows

The 4 no. locations included in the link flow assessment and for which base year 2024 or 2025 traffic count data was collated are shown in Figure 15-2b. The locations included in the assessment are as follows:

- Link 1 – N77 between Abbeyleix and Durrow,
- Link 2 – N77 north of L58333,
- Link 3 – N77 south of L58333, and,

- Link 4 – L58333 leading to the Wind Farm Site.



Two sources of data were used to provide all day traffic flows for the links included in the assessment, as set out in Table 15-2. For Link 1 on the N77 between Abbeyleix and Durrow, data was obtained from automatic traffic counters (ATC Site) maintained by Transport Infrastructure Ireland (TII). For the remaining Links 2 and 3 on the N77, and Link 4 on the L58333 leading to the site, an all-day traffic count was undertaken at the priority junction linking the 3 in order to provide 2-way link flows and junction turning count data. These traffic counts were undertaken by Traffinomics Ltd on Tuesday 1st April 2025. All base year Traffic count data is included as Appendix 15-1.

The all-day traffic flows observed for the base years 2024 and 2025 are shown in terms of vehicle numbers in Table 15-3. The existing traffic volumes on the proposed turbine delivery route and construction traffic route, range from 6,168 vehicles per day on the N77 between Abbeyleix and Durrow (Link 1), to 5,675 vehicles per day of the N77 just north of the L58333 (Link 2). A low flow of 111 vehicles per day was observed on the L58333 which leads to the site (Link 4).

*Table 15-2 Count locations and data source*

| Link | Data source |
|---|---|
| 1 – N77 (between Abbeyleix and Durrow) | Automatic traffic counter (TII) – year 2024 |
| 2 – N77 north of L58333 | Classified count - year 2025 |
| 3 – N77 south of L58333 | Classified count – year 2025 |
| 4 – L58333 leading to site | Classified count – year 2025 |

*Table 15-3 All day traffic flows by location, years 2024 / 2025 (2-way vehicles)*

| Link | 2024 | 2025 |
|---|---|---|
| 1 – N77 (between Abbeyleix and Durrow) | 6,168 | NA |
| 2 – N77 north of L58333 | NA | 5,675 |
| 3 – N77 south of L58333 | NA | 5,664 |
| 4 – L58333 leading to site | NA | 111 |

### 15.1.3.2 Background Traffic Volumes for the Assumed Construction Year 2028

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

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 (Unit 5.3 – Travel Demand Projections). The annual growth rates for light vehicles for County Kilkenny and factors for the years relevant to this study are shown in Tables 15-4 and 15-5. Based on TII growth rates it is estimated that traffic volumes

will increase by 5.1% (shown as 1.051 in Table 15-5) during the period from 2024 to 2028, and 1.038 between the years 2025 and 2028, that is between the years when the base traffic data was collected, and the year 2028, the latest year when the construction of the Proposed Development is forecast to take place. Observed year 2024 / 2025 and forecast 2028 all day traffic flows on the study area network are compared in Table 15-6.

It should be noted that while the latest assumed construction year of 2028 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 1.24% (as shown in Table 15-4 as 1.0124) and the traffic volumes generated by the Proposed Development will remain unchanged regardless of construction year, as presented subsequently in Section 15.1.4.

TII traffic count data recorded at the TII ATC sites, together with the classified traffic counts undertaken for the purpose of this assessment, were also used to determine the existing percentage of HGVs on the proposed delivery routes. The observed percentage of HGVs are shown in Table 15-7 and range from 11.0% observed on the M7 (Link 1), to 9.3% on the N77 between Abbeyleix and Durrow (Link 2), to 16.2% on the N77 adjacent to the L58333 (Links 3 and 4). On the L58333 (Link 4) leading to the site, 1.8% of the total flow was observed to be HGVs.

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

| Year | Lights – Annual Factor | | | Lights – Cumulative Factor | | |
|---|---|---|---|---|---|---|
| | Low | Medium | High | Low | Medium | High |
| 2024 | 1.0108 | 1.0124 | 1.0157 | 1.000 | 1.000 | 1.000 |
| 2025 | 1.0108 | 1.0124 | 1.0157 | 1.011 | 1.012 | 1.016 |
| 2026 | 1.0108 | 1.0124 | 1.0157 | 1.022 | 1.025 | 1.032 |
| 2027 | 1.0108 | 1.0124 | 1.0157 | 1.033 | 1.038 | 1.048 |
| 2028 | 1.0108 | 1.0124 | 1.0157 | 1.044 | 1.051 | 1.064 |
| 2029 | 1.0108 | 1.0124 | 1.0157 | 1.055 | 1.064 | 1.081 |
| 2030 | 1.0016 | 1.0037 | 1.0075 | 1.057 | 1.067 | 1.089 |

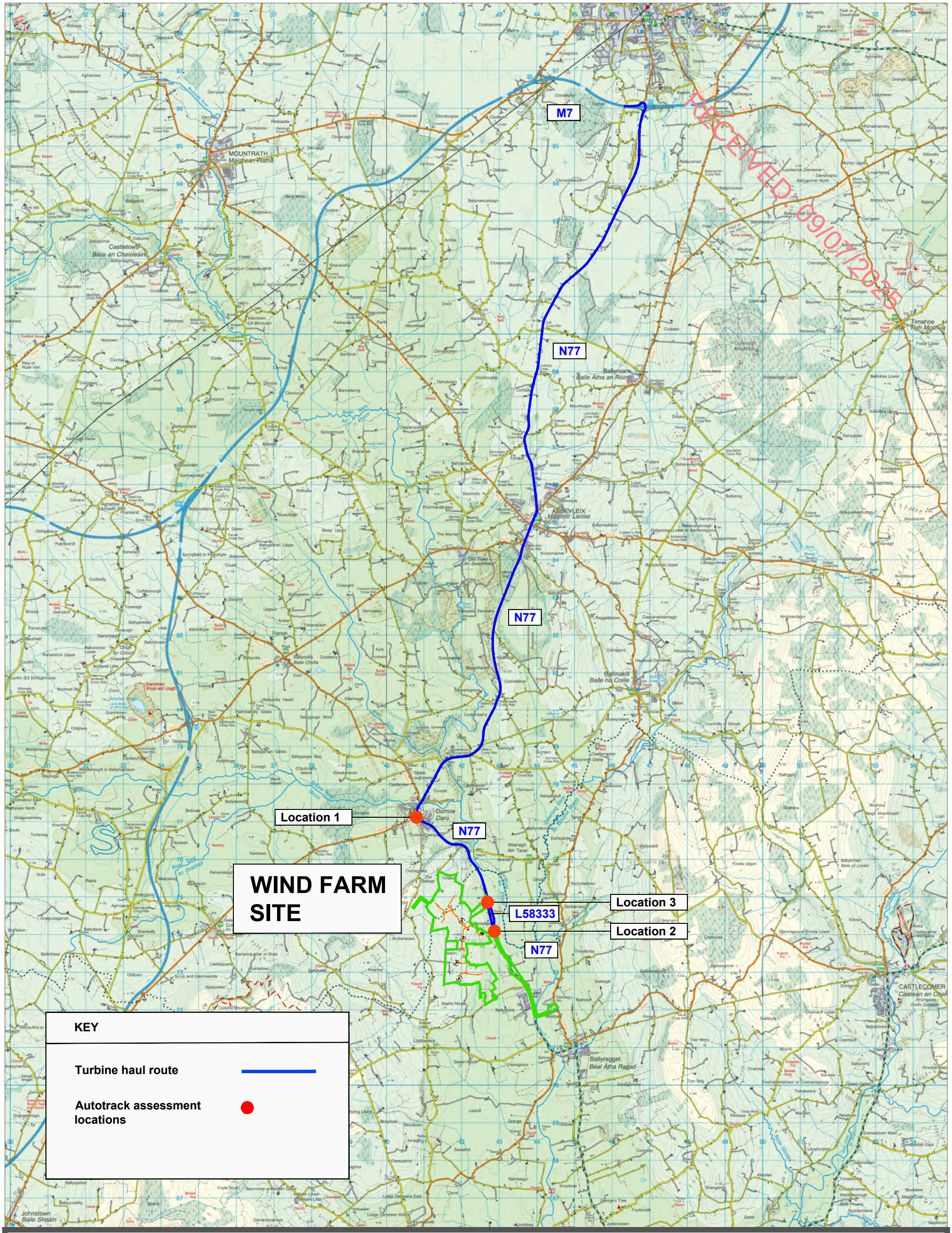


Figure 15-1b Turbine delivery route autotrack locations

| | | | |
|---|---|---|---|
| PROJECT: | Seskin Renewables Wind Farm | | ALAN LIPSCOMBE TRAFFIC & TRANSPORT CONSULTANTS |
| CLIENT: | Seskin Renewable Energy Ltd | SCALE: NTS | |
| PROJECT NO: 11420 | DATE: 17.06.25 | DRAWN BY: AL | |

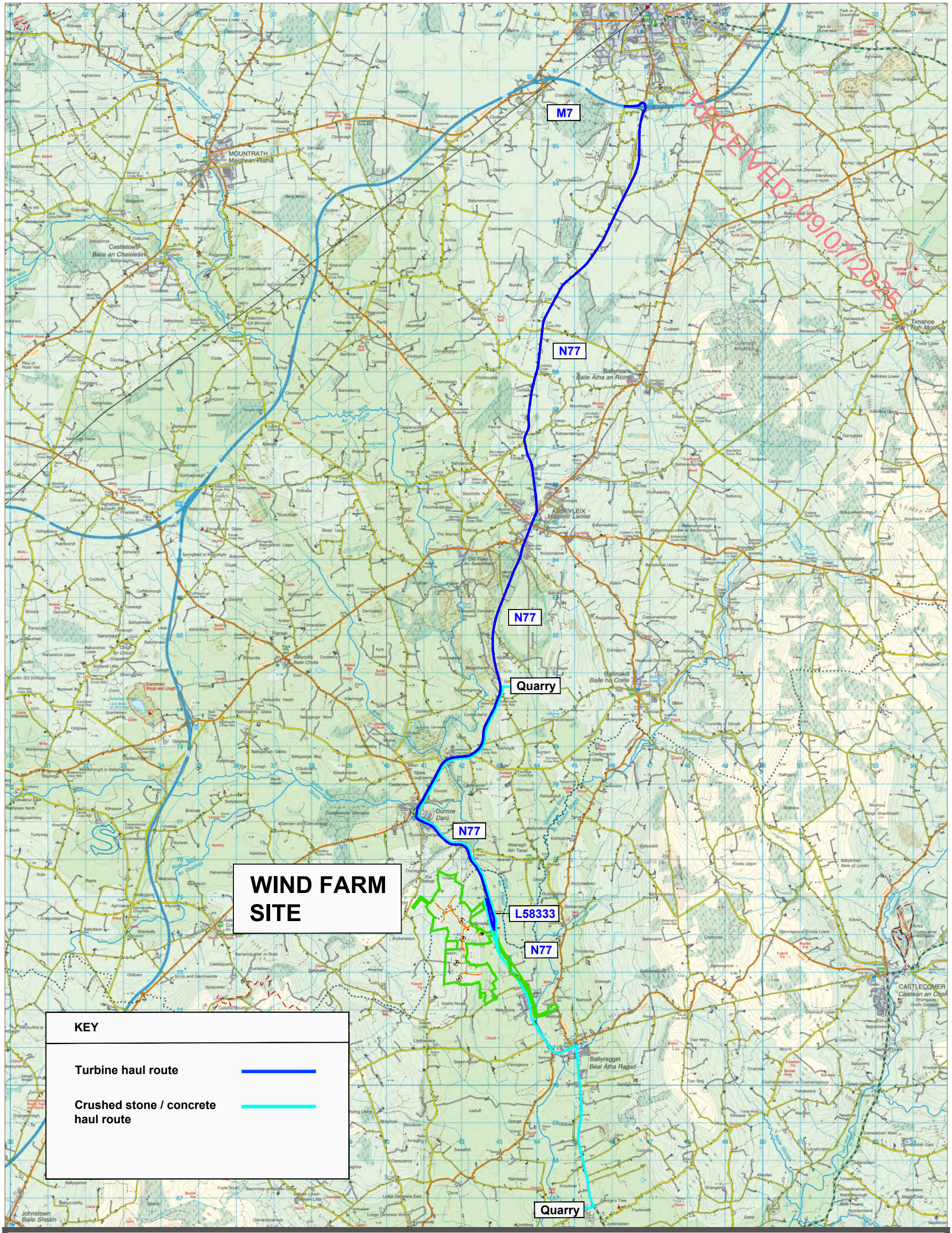


Figure 15-2a Site location and delivery route for general construction traffic

| | | | |
|---|---|---|---|
| PROJECT: | Seskin Renewables Wind Farm | | ALAN LIPSCOMBE TRAFFIC & TRANSPORT CONSULTANTS |
| CLIENT: | Seskin Renewable Energy Ltd | SCALE: NTS | |
| PROJECT NO: 11420 | DATE: 16.05.25 | DRAWN BY: AL | |

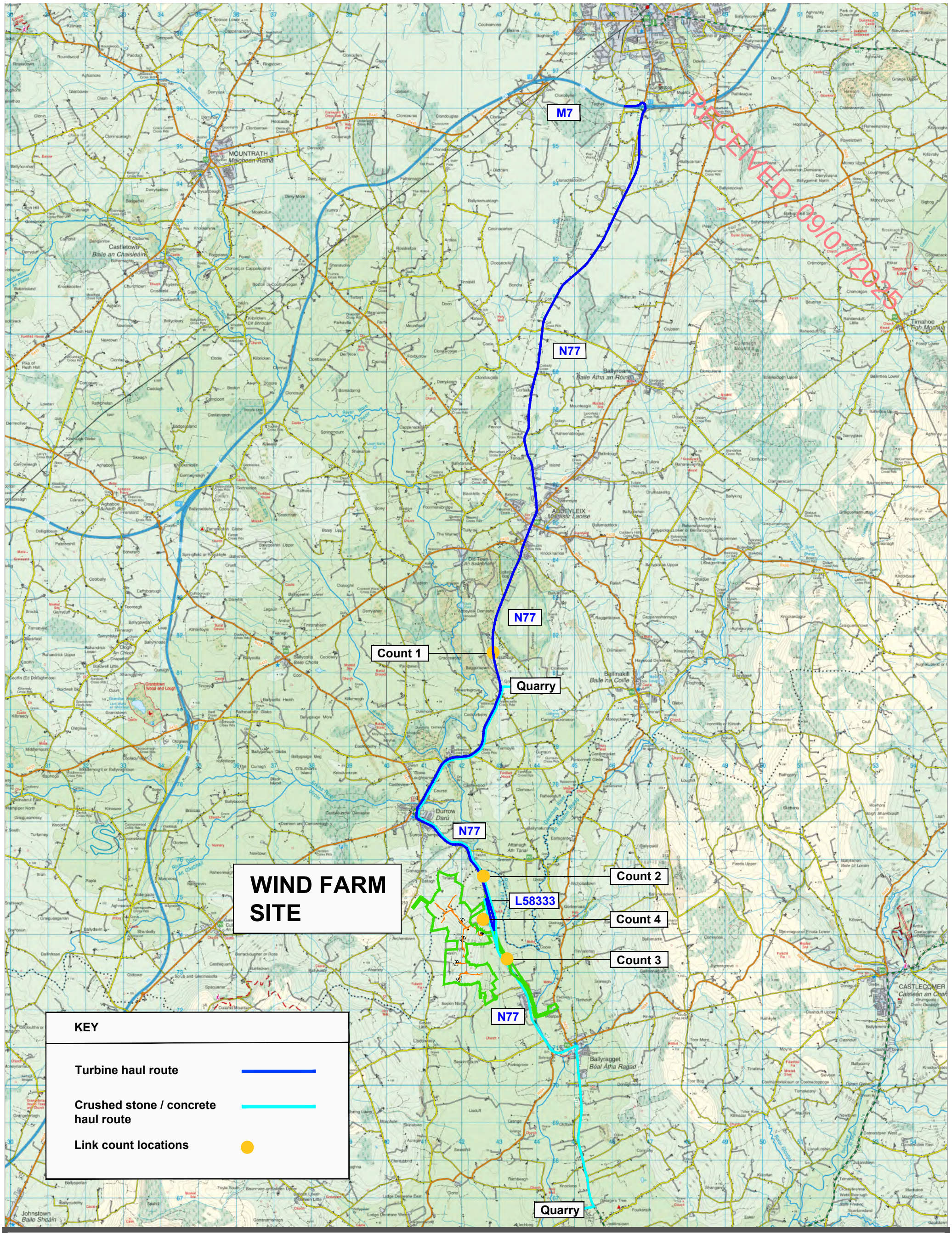


Figure 15-2b Link count locations

| | | | |
|---|---|---|---|
| PROJECT: | Seskin Renewables Wind Farm | | |
| CLIENT: | Seskin Renewable Energy Ltd | SCALE: | NTS |
| PROJECT NO: 11420 | DATE: 16.05.25 | DRAWN BY: | AL |

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*Table 15-5 TII traffic growth rates by growth scenario*

| Period | New Factors | | |
|---|---|---|---|
| | Low | Medium | High |
| 2024 – 2028 | 1.044 | 1.051 | 1.064 |
| 2025 – 2028 | 1.033 | 1.038 | 1.048 |

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

| Link | Observed 2024 | Observed 2025 | Forecast 2028 |
|---|---|---|---|
| 1 – N77 (between Abbeyleix and Durrow) | 6,168 | NA | 6,483 |
| 2 – N77 north of L58333 | NA | 5,675 | 5,891 |
| 3 – N77 south of L58333 | NA | 5,664 | 5,879 |
| 4 – L58333 leading to site | NA | 111 | 115 |

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

| Link | All day flow (vehs) | % HGV's | Vehicles | | PCUs | | |
|---|---|---|---|---|---|---|---|
| | | | HGVs | Cars / lgvs | HGVs | Cars / lgvs | Total |
| 1 – N77 (between Abbeyleix and Durrow) | 6,483 | 9.3% | 603 | 5,880 | 1,447 | 5,880 | 7,327 |
| 2 – N77 north of L58333 | 5,891 | 16.2% | 954 | 4,936 | 2,290 | 4,936 | 7,227 |
| 3 – N77 south of L58333 | 5,879 | 16.2% | 952 | 4,927 | 2,286 | 4,927 | 7,213 |
| 4 – L58333 leading to site | 115 | 1.8% | 2 | 113 | 5 | 113 | 118 |

## 15.1.4 Proposed Development Traffic Generation

### 15.1.4.1 Development Trip Generation – During Construction

For the purpose of assessing the effects of traffic generated during the construction of the Proposed Development, the construction phase is considered in two stages.

- Stage 1 – Proposed Development site preparation, groundworks, tree felling, construction of temporary construction compounds, turbine foundations, met mast foundation, onsite

substation, internal electrical cabling, and grid connection underground electrical cabling route laying,
- Stage 2 – Wind turbine component delivery and construction.



For the purpose of the traffic impact assessment, projections based on trip generation data collected from other wind farm construction projects regarding the numbers of trips per quantum of material, the number of turbine component parts based on 8 no. turbines, the length of the construction phase and work periods etc. were made to inform the assessment. These projections allow for assessment using the precautionary principle but should not be inferred as prescriptive limitations to the construction phase.

The construction phase of the Proposed Development is expected to last approximately 12-18 months. The traffic generation estimates set out in the following paragraphs is based on a total construction period of 12 months. The shortest potential construction phase duration of 12 months was assumed for the purpose of this assessment in order to test a precautionary scenario. The shortest construction period will give rise to higher volumes of construction traffic using the public road network at any one time. For assessment purposes a standard 255 working days was adopted for the 12-month construction period.

#### 15.1.4.1.1 *Stage 1 – Site Preparation and Groundworks including Cable Laying*

For assessment purposes, this stage of the Proposed Development construction which includes the Proposed Development site preparation and ground works, turbine foundation construction, substation construction and internal cable laying elements and the grid connection underground cabling route, is assumed to last between 10 to 11 month (225 days). The total numbers of deliveries made to the Site during that period are shown in Table 15-8. It is estimated that a total of 5,006 deliveries by truck, cement mixer or standard articulated HGVs will be made to the Site during this period.

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 circa 107 concrete loads required for each turbine delivered to the Proposed Development site over a 10-hour period, resulting in 11 HGV trips to and from the Proposed Development site per hour.

On the remaining 217 working days for this stage other general materials will be delivered to the Proposed Development site.

The estimated additional daily traffic generated on the road network during these days are shown in Tables 15-9 and 15-10.

The figures show that on the 8 days that concrete will be delivered to the Proposed Development site, an additional 514 two-way PCUs will be added to the network (comprising 107 two-way HGV trips with 2.4 PCUs per movement), as shown in Table 15-9. Similarly, on the 217 days when other materials will be delivered to the Proposed Development site, traffic volumes on the local network will increase by an average of 92 PCUs, as set out in Table 15-10.

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

| Material | Total no. Truck Loads | Truck type |
|---|---|---|
| Concrete | 856 | Trucks |
| Delivery of plant | 31 | Large artic |
| Fencing & gates | 2 | Large artic |
| Compound setup | 32 | Large artic |

| | | |
|---|---|---|
| Steel | 22 | Large artic |
| Sand / binding / stone | 660 | Truck |
| Ducting and cabling (internal) | 234 | Large artic |
| Grid connection cable laying | 690 | |
| Crane (to lift steel) | 1 | Large artic |
| Road construction | 2,000 | Truck |
| Substation | 100 | Large artic |
| Cranes for turbines | 12 | Large artic |
| Refuelling for plant | 166 | Large artic |
| Site maintenance | 120 | Large artic |
| Miscellaneous | 800 | Large artic |
| **Total** | **5,006** | |

*Table 15-9 Trip generation - 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 | 856 | Trucks | 2.4 | 2,054 | 256.8 | 513.6 |
| * Estimation based on 8 concrete pouring days | | | | | | |

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

| 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 | 0.34 | 0.69 |
| Fencing & gates | 2 | Large artic | 2.4 | 4.8 | 0.02 | 0.04 |
| Compound setup | 32 | Large artic | 2.4 | 76.8 | 0.35 | 0.71 |
| Steel | 22 | Large artic | 2.4 | 52.8 | 0.24 | 0.49 |

| Material | Total Truck Loads | Truck type | PCU Value | Total PCUs | PCU Movements /day* | 2-way PCUs/day |
|---|---|---|---|---|---|---|
| Sand / binding / stone | 660 | Truck | 2.4 | 1584.0 | 7.30 | 14.60 |
| Ducting and cabling (internal) | 234 | Large artic | 2.4 | 561.6 | 2.59 | 5.18 |
| Grid connection cable laying | 690 | Large artic | 2.4 | 1,656.0 | 7.63 | 15.26 |
| Crane (to lift steel) | 1 | Large artic | 2.4 | 2.4 | 0.01 | 0.02 |
| Road construction | 2,000 | Truck | 2.4 | 4,800.0 | 22.12 | 44.24 |
| Substation | 100 | Large artic | 2.4 | 240.0 | 1.11 | 2.21 |
| Cranes for turbines | 12 | Large artic | 2.4 | 28.8 | 0.13 | 0.27 |
| Refuelling for plant | 166 | Large artic | 2.4 | 398.4 | 1.84 | 3.67 |
| Site maintenance | 120 | Large artic | 2.4 | 288.0 | 1.33 | 2.65 |
| Miscellaneous | 80 | Large artic | 2.4 | 192.0 | 0.88 | 1.77 |
| Total | 4,150 | | | 9,960.0 | 45.90 | 91.8 |

* Estimation based on groundwork period of 217 working days

### 15.1.4.1.2 *Stage 2 – Turbine Construction*

During the turbine construction stage, including delivery and assembly, there will be deliveries to the Proposed Development site made by abnormally sized vehicles, referred to in this section as *extended artics*, transporting the component parts of the turbines (nacelles, blades and towers). There will be deliveries made by standard large HGVs, transporting cables, tools and smaller component parts. The types of load and associated numbers of trips made to the Proposed Development 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 Proposed Development site by extended artics, with a further 32 trips made by standard large articulated HGVs.

*Table 15-11 Trip generation - Stage 2 – Wind turbine plant – total loads*

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



For the purposes of this assessment, it is assumed that the turbine delivery element will progress at the rate of 3 extended artic trips made by convoy to the Proposed Development site on 5 days per week, which is a common delivery frequency for large turbine components from the port of entry to the Proposed Development site. This will result in this stage taking 22 days spread over a 5 week period with all deliveries made during the night.

On a further two days per week, lasting for 4 weeks, the remaining equipment required during this phase will be delivered to the Proposed Development site.

The additional traffic movements for these two types of days are summarised in Tables 15-12 and 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 22 days, while an additional 19.2 PCUs are forecast to be on the network on 8 days, as shown in Table 15-13, during the turbine construction phase.

*Table 15-12 Trip generation - 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 |

| Material | Units | Truck Type | PCU Value | Total PCUs | 2-way PCUs/ day |
|---|---|---|---|---|---|
| Total per delivery day | 3 | | | 30.0 | 60.0 |
| *Estimation based on 3 abnormal sized loads being delivered per day on 5 days per week (total 64 loads will take 22 nights spread over 5 weeks) | | | | | |

*Table 15-13 Trip generation - Stage 2 - Wind turbine plant, standard 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 |
| *Estimation based on equipment for 2 turbines being moved per week spread over 2 days | | | |

## Construction Employee Traffic

It is estimated that up to 70 staff members will be employed on the Proposed Development site during the site preparation and groundworks stage of construction, with a maximum of 45 staff being on the site at any one time. Construction employee traffic for the Grid connection is dealt with in Section 15.1.7 below. If a precautionary scenario is assumed that all staff will travel to / from the site by car, at an average of 2 persons per car, then a total of 30 PCU movements (each trip is two way) will be added to the network during the groundworks stage (Stage 1) of the Proposed Development, reducing to 10 PCU trips during the turbine construction stage (Stage 2).

## Development Trip Generation – During Operation

It is estimated that the wind farm will be unmanned once operational and will be remotely monitored. The only traffic associated with the operational phase of the Proposed Development will be from maintenance personnel.

It is estimated that the traffic volumes that will be generated by the Proposed Development once it is operational will be minimal, with an estimated 3 staff employed on the Proposed Development site. The impact on the network of these trips during the operational stage is discussed in Section 15.1.6.

## Development Trip Generation – During Decommissioning

Traffic generation during decommissioning will be similar but significantly less than the trip generation estimates presented for the construction phase presented above. This is because much of the materials brought into Site during construction will be left in-situ during the decommissioning stage. A Decommissioning Plan is included as Appendix 4-4 of this EIAR.

## 15.1.5 Construction Traffic Vehicles

The delivery of turbine components including blades, tower sections and nacelles is a specialist operation owing to the oversized loads involved. The proposed turbine dimensions are detailed in Section 4.3.1 in Chapter 4 of this EIAR. With respect to the geometric requirements of the road network the traffic assessment is concerned with the longest blade being proposed, which is 75.0m.

The turbine blades are the longest turbine component and a blade length of up to 75.0 metres has therefore been assessed for the turbine delivery assessment for the Proposed Development.

The critical vehicles in terms of size and turning geometry requirements and used in the detailed route assessment discussed in Section 15.1.9, are the blade transporter and the tower transporter vehicles, with the geometry of each shown in Figures 15-3 and 15-4 respectively.

The key dimensions are as follows:

Transport of Blades – As is discussed further in Section 15.1.9, it will be required to lift the blade tip to a clearance height of 11m and to shorten the wheelbase of the blade delivery vehicle by increasing the blade overhang to 15m, in order to negotiate certain locations on the Turbine Delivery Route. The key dimensions for the blade delivery vehicle are as follows:

- Total length: 81.2 m
- Length of blade: 75m (or 74.2m in plan with tip of the blade raised to 11m above road level)
- Inner radius: 28.0 m
- Transport of Tower – Using low-bed or drop deck trailers (See Figure 15-4)
- Total length (with load): 42.8 m
- Length of load: 30 m
- Inner radius: 25.0 m

The vehicles used to transport the nacelles will be similar to the tower transporter although will be shorter in length. The profiles of the blade and tower transport vehicles are shown in Figures 15-3 and 15-4 respectively.

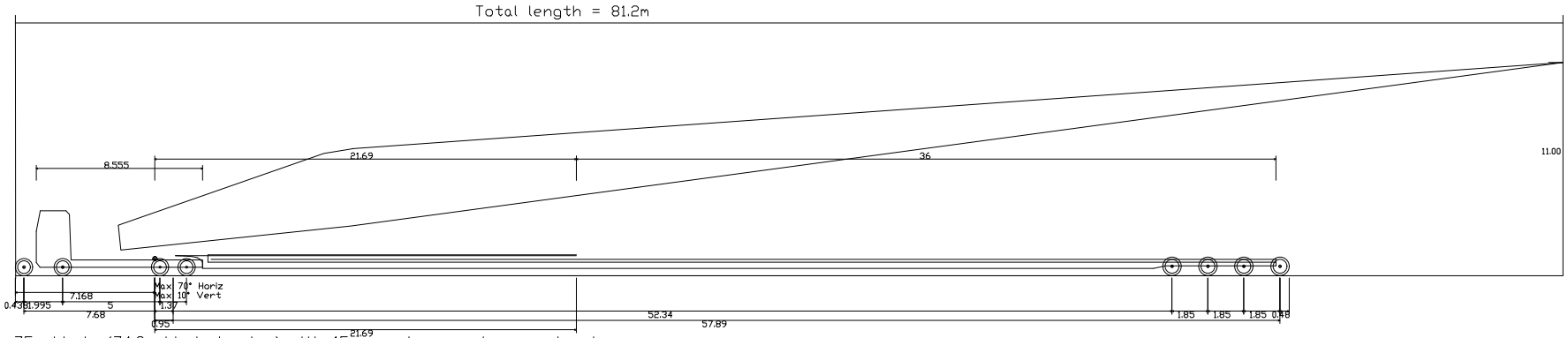
All other vehicles requiring access to the site will be standard HGVs, trucks, cement mixers or LGVs and will be significantly smaller than the design test vehicles. Standard HGVs and LGVs will navigate the National and Regional Road networks and access the site off the L58333 at the proposed site entrance.

## 15.1.6 Traffic Effects During Construction, Operation and Decommissioning

As detailed below in Section 15.1.11.5, transportation of large turbine components will be carried out at night when traffic is at its lightest and in consultation with the relevant Roads Authorities and An Garda Síochána with deliveries accompanied by Garda escort.

It should be noted that for the purpose of the assessment all vehicles travelling to and from the Proposed Wind Farm site have been assumed to do so from the same direction. The assessment is therefore based on a precautionary scenario, where all traffic generated by the Proposed Development site travels to/from the site via the same route, with the maximum increase in traffic volumes assessed on each link shown in Figure 15-2b.

The potential effects of the Proposed Grid Connection underground cabling route will have on the public road network is considered in Section 15.1.7.




75m blade (74.2m blade in plan) with 15m overhang and rear steering

| | |
|---|---|
| Overall Length | 81.17m |
| Overall Width | 2.550m |
| Overall Body Height | 4.800m |
| Min Body Ground Clearance | 0.375m |
| Track Width | 2.500m |
| Lock-to-lock time | 6.00s |
| Wall to Wall Turning Radius | 9.800m |

NOTES:

PLANNING DRAWING ONLY - NOT FOR CONSTRUCTION PURPOSES

FIGURE 15-3 Design blade extended artic profile - With tip lifted to 11m and 15m blade overhang

| | | | |
|---|---|---|---|
| PROJECT: | Seskin Renewables Wind Farm | | |
| CLIENT: | Seskin Renewable Energy Ltd | SCALE: | NTS |
| PROJECT NO: 11420 | DATE: 20.05.25 | DRAWN BY: | AL |

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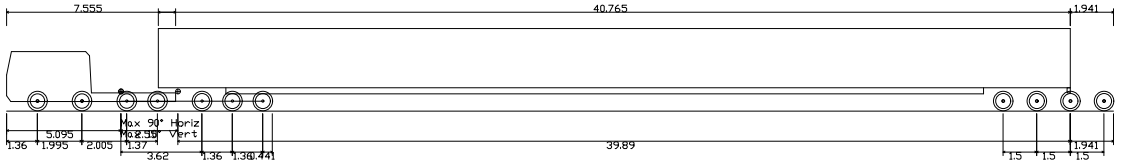


| Tower | |
|---|---|
| Overall Length | 49.476m |
| Overall Width | 2.550m |
| Overall Body Height | 3.695m |
| Min Body Ground Clearance | 0.427m |
| Max Track Width | 2.520m |
| Lock to Lock Time | 6.00s |
| Wall to Wall Turning Radius | 9.800m |

NOTES:

PLANNING DRAWING ONLY - NOT FOR CONSTRUCTION PURPOSES

FIGURE 15-4 Design tower extended artic profile

| | | | |
|---|---|---|---|
| PROJECT: | Seskin Renewables Wind Farm | | |
| CLIENT: | Seskin Renewable Energy Ltd | SCALE: | NTS |
| PROJECT NO: 11420 | DATE: 20.05.25 | DRAWN BY: | AL |

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## 15.1.6.1 Effect on Link Flows – During Construction

Background traffic volumes and Proposed Development generated traffic volumes are shown for the typical construction stage scenarios discussed in Section 15.1.4 in Tables 15-14 to 15-17, with the forecast effects, in terms of the percentage increase in traffic flows in PCUs and the number of days affected, set out in Tables 15-18 to 15-21. As stated previously in this section the actual figures presented in the tables will be subject to change, however, they are considered a robust estimation of likely traffic volumes and effects.

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

### During Stage 1 – Wind Turbine Foundation Concrete Pouring

For 8 days when the concrete foundations are poured an additional 584 PCUs will travel to/from the Proposed Development site. On the delivery route, it is forecast that the increase in traffic volumes on these days will range from between +8.0% and +8.1% on the N77 (Links 1 to 3). On the L58333 leading to the Proposed Development site (Link 4) where background traffic flows are low, it is forecast that traffic flows will increase by 494.4% on these 8 days.

### During Stage 1 – Site Preparation and Groundworks

On the remaining 217 days when the Proposed Development site preparation and groundworks and construction of the grid connection continues, an additional 162 PCUS will travel to and from the Proposed Development site. It is forecast that the increase in traffic volumes on these days will be +2.2% on the N77 (Links 1 to 3). On the L58333 leading to the Proposed Development site (Link 4) it is forecast that traffic flows will increase by 137.1% on these 217 days.

### During Stage 2 – Wind Turbine Construction Stage – Delivery of large equipment using extended articulated vehicles

On the 22 days / nights that the abnormal loads carrying the large turbine components travel to the Proposed Development site, an additional 105 PCUs will travel to/from the Proposed Development site. It is forecast that the increase in traffic volumes on these days will be between +1.4% and 1.5% on the N77 (Links 1 to 3), while on the L58333 leading to the Proposed Development site (Link 4) it is forecast that traffic flows will increase by 88.9% on these 22 days / nights.

### During Stage 2 – Wind Turbine Construction Stage – Other deliveries using conventional articulated HGVs

For 8 days an additional 64 PCUs will travel to/from the Proposed Development site. It is forecast that the increase in traffic volumes on these days will be +0.9% on the N77 (Links 1 to 3). On the L58333 leading to the Proposed Development site (Link 4) it is forecast that traffic flows will increase by 54.2% on these 8 days.

*Table 15-14 Daily traffic volumes on during concrete pouring - background, Proposed Development generated and total (PCUs), year 2028*

| Link | Background PCUs | | | Proposed Development PCUs | | | Total PCUs (Background + Proposed Development) | | |
|---|---|---|---|---|---|---|---|---|---|
| | Car | HGV | Total | Car | HGV | Total | Car | HGV | Total |
| 1 – N77 (between | 5,880 | 1,447 | 7,327 | 70 | 514 | 584 | 5,950 | 1,961 | 7,911 |

| Link | Background PCUs | | | Proposed Development PCUs | | | Total PCUs (Background + Proposed Development) | | |
|---|---|---|---|---|---|---|---|---|---|
| Abbeyleix and Durrow) | | | | | | | | | |
| 2 – N77 north of L58333 | 4,936 | 2,290 | 7,227 | 70 | 514 | 584 | 5,006 | 2,804 | 7,811 |
| 3 – N77 south of L58333 | 4,927 | 2,286 | 7,213 | 70 | 514 | 584 | 4,997 | 2,800 | 7,797 |
| 4 – L58333 leading to site | 113 | 5 | 118 | 70 | 514 | 584 | 183 | 519 | 702 |

*Table 15-15 Daily Traffic volumes during site preparation and groundworks – background, Proposed Development generated and total (PCUs), year 2028*

| Link | Background PCUs | | | Proposed Development PCUs | | | Total PCUs (Background + Proposed Development) | | |
|---|---|---|---|---|---|---|---|---|---|
| | Car | HGV | Total | Car | HGV | Total | Car | HGV | Total |
| 1 – N77 (between Abbeyleix and Durrow) | 5,880 | 1,447 | 7,327 | 70 | 92 | 162 | 5,950 | 1,539 | 7,489 |
| 2 – N77 north of L58333 | 4,936 | 2,290 | 7,227 | 70 | 92 | 162 | 5,006 | 2,382 | 7,389 |
| 3 – N77 south of L58333 | 4,927 | 2,286 | 7,213 | 70 | 92 | 162 | 4,997 | 2,378 | 7,375 |
| 4 – L58333 leading to site | 113 | 5 | 118 | 70 | 92 | 162 | 183 | 97 | 280 |

*Table 15-16 Daily traffic volumes during turbine construction, extended artics – background, Proposed Development generated and total (PCUs), year 2028*

| Link | Background PCUs | | | Proposed Development PCUs | | | Total PCUs (Background + Proposed Development) | | |
|---|---|---|---|---|---|---|---|---|---|
| | Car | HGV | Total | Car | HGV | Total | Car | HGV | Total |
| 1 – N77 (between Abbeyleix and Durrow) | 5,880 | 1,447 | 7,327 | 45 | 60 | 105 | 5,925 | 1,507 | 7,432 |
| 2 – N77 north of L58333 | 4,936 | 2,290 | 7,227 | 45 | 60 | 105 | 4,981 | 2,350 | 7,332 |
| 3 – N77 south of L58333 | 4,927 | 2,286 | 7,213 | 45 | 60 | 105 | 4,972 | 2,346 | 7,318 |

| Link | Background PCUs | | | Proposed Development PCUs | | | Total PCUs (Background + Proposed Development) | | |
|---|---|---|---|---|---|---|---|---|---|
| 4 – L58333 leading to site | 113 | 5 | 118 | 45 | 60 | 105 | 158 | 65 | 223 |

*Table 15-17 Daily traffic volumes during turbine construction – standard artic HGVs, background, Proposed Development generated and total (PCUs), year 2028*

| Link | Background PCUs | | | Proposed Development PCUs | | | Total PCUs (Background + Proposed Development) | | |
|---|---|---|---|---|---|---|---|---|---|
| | Car | HGV | Total | Car | HGV | Total | Car | HGV | Total |
| 1 – N77 (between Abbeyleix and Durrow) | 5,880 | 1,447 | 7,327 | 45 | 19 | 64 | 5,925 | 1,466 | 7,391 |
| 2 – N77 north of L58333 | 4,936 | 2,290 | 7,227 | 45 | 19 | 64 | 4,981 | 2,309 | 7,291 |
| 3 – N77 south of L58333 | 4,927 | 2,286 | 7,213 | 45 | 19 | 64 | 4,972 | 2,305 | 7,277 |
| 4 – L58333 leading to site | 113 | 5 | 118 | 45 | 19 | 64 | 158 | 24 | 182 |

*Table 15-18 Summary daily effects of Proposed Development traffic - concrete pouring - % increase and number of days, year 2028*

| Link | Background | Proposed Development | Total | % increase | Estimated No. of days |
|---|---|---|---|---|---|
| 1 – N77 (between Abbeyleix and Durrow) | 7,327 | 584 | 7,911 | 8.0% | 8 |
| 2 – N77 north of L58333 | 7,227 | 584 | 7,811 | 8.1% | 8 |
| 3 – N77 south of L58333 | 7,213 | 584 | 7,797 | 8.1% | 8 |
| 4 – L58333 leading to site | 118 | 584 | 702 | 494.4% | 8 |

*Table 15-19 Summary daily effect of Proposed Development traffic - site preparation and ground works - % increase and number of days, year 2028*

| Link | Background | Proposed Development | Total | % increase | Estimated No. of days |
|---|---|---|---|---|---|
| 1 – N77 (between Abbeyleix and Durrow) | 7,327 | 162 | 7,489 | 2.2% | 217 |

| | | | | | |
|---|---|---|---|---|---|
| 2 – N77 north of L58333 | 7,227 | 162 | 7,389 | 2.2% | 217 |
| 3 – N77 south of L58333 | 7,213 | 162 | 7,375 | 2.2% | 217 |
| 4 – L58333 leading to site | 118 | 162 | 280 | 137.1% | 217 |

*Table 15-20 Summary daily effect of Proposed Development traffic - turbine construction, extended artics - % increase and number of days, year 2028*

| Link | Background | Proposed Development | Total | % increase | Estimated No. of days |
|---|---|---|---|---|---|
| 1 – N77 (between Abbeyleix and Durrow) | 7,327 | 105 | 7,432 | 1.4% | 22 |
| 2 – N77 north of L58333 | 7,227 | 105 | 7,332 | 1.5% | 22 |
| 3 – N77 south of L58333 | 7,213 | 105 | 7,318 | 1.5% | 22 |
| 4 – L58333 leading to site | 118 | 105 | 223 | 88.9% | 22 |

*Table 15-21 Summary daily effects of Proposed Development traffic- turbine construction, standard artic HGVs – % increase and number of days, year 2028*

| Link | Background | Proposed Development | Total | % increase | Estimated No. of days |
|---|---|---|---|---|---|
| 1 – N77 (between Abbeyleix and Durrow) | 7,327 | 64 | 7,391 | 0.9% | 8 |
| 2 – N77 north of L58333 | 7,227 | 64 | 7,291 | 0.9% | 8 |
| 3 – N77 south of L58333 | 7,213 | 64 | 7,277 | 0.9% | 8 |
| 4 – L58333 leading to site | 118 | 64 | 182 | 54.2% | 8 |

### 15.1.6.2 Link Capacity Assessment

An assessment of the impact on link capacity 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, varying from 11,600 vehicles per day on the N77 down to 5,000 vehicles per day for the L58333.

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

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

Background traffic flows, are compared to flows forecast for the various construction delivery stages in the construction year of 2028, in Table 15-23, with the percentage capacity reached for each stage shown in Table 15-24.

Based on this assessment, it is forecast that the delivery route will operate well within link capacity, the N77 is forecast to operate at a maximum of 63% of capacity for the do nothing scenario, increasing to a maximum of 68% on the 8 concrete foundation pouring days reducing to a maximum of 65% during the remainder of the construction period.

The L58333 approaching the site is forecast to operate at 2% for the do nothing scenario, increasing to a maximum of 14% on the 8 concrete foundation pouring days, reducing to a maximum of 6% during the remainder of the construction period.

*Table 15-22 Delivery route link type and link capacity (at Level of Service D)*

| Link | Link type | Link capacity (Level of Service D) |
|---|---|---|
| 1 – N77 (between Abbeyleix and Durrow) | Type 1 single | 11,600 |
| 2 – N77 north of L58333 | Type 1 single | 11,600 |
| 3 – N77 south of L58333 | Type 1 single | 11,600 |
| 4 – L58333 leading to site | Type 3 single | 5,000 |

*Table 15-23 Delivery route link capacity and summary of link flows by construction delivery stage, year 2028*

| Link | Link capacity (Level of Service D) | Construction delivery stage | | | | |
|---|---|---|---|---|---|---|
| | | Background traffic | Concrete pour | Other site works | Turbine plant | Turbine equipment |
| 1 – N77 (between Abbeyleix and Durrow) | 11,600 | 7,327 | 7,911 | 7,489 | 7,432 | 7,391 |
| 2 – N77 north of L58333 | 11,600 | 7,227 | 7,811 | 7,389 | 7,332 | 7,291 |

| Link | Link capacity (Level of Service D) | Construction delivery stage | | | | |
|---|---|---|---|---|---|---|
| 3 – N77 south of L58333 | 11,600 | 7,213 | 7,797 | 7,375 | 7,318 | 7,277 |
| 4 – L58333 leading to site | 5,000 | 118 | 702 | 280 | 223 | 182 |

*Table 15-24 Delivery route link capacity and % of link capacity by construction delivery stage, year 2028*

| Link | Link capacity (Level of Service D) | Construction delivery stage | | | | |
|---|---|---|---|---|---|---|
| | | Background traffic | Concrete pour | Other site works | Turbine plant | Turbine equipment |
| 1 – N77 (between Abbeyleix and Durrow) | 11,600 | 63% | 68% | 65% | 64% | 64% |
| 2 – N77 north of L58333 | 11,600 | 62% | 67% | 64% | 63% | 63% |
| 3 – N77 south of L58333 | 11,600 | 62% | 67% | 64% | 63% | 63% |
| 4 – L58333 leading to site | 5,000 | 2% | 14% | 6% | 4% | 4% |

## 15.1.6.3 Effect on Junctions – During Construction

The capacity of the junction most affected on the delivery route will be the priority junction between the N77 and the L58333 leading to the site. This is the only junction on the delivery route where it is forecast that a temporary increase in traffic flows will exceed 10% on any link during the construction period. A 10% increase in traffic flows is the threshold set out in TII guidelines for Traffic and Transport Assessments, above which a detailed junction capacity assessment is required.

The junction was assessed using the industry standard junction simulation software PICADY, which permits the capacity of any priority junction to be assessed with respect to existing or forecast traffic movements and volumes for a given time period. The capacity for each movement 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.

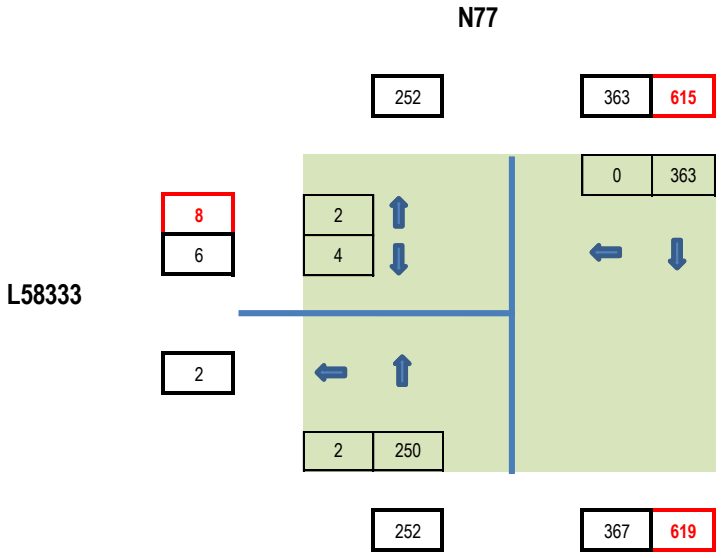
### Scenarios Modelled

The greatest effect will be experienced during peak hours when approximately 35 cars/lgvs will travel through the junction during the AM (08:00 to 09:00) and PM (17:00 to 18:00) peak hours travelling to and from the Proposed Development site.

### N77 / L58333 Junction Capacity Test Results

The AM and PM peak hour traffic flows for the base year 2025 and the proposed construction year of 2028 are shown in terms PCUs in Figures 15-5a and 15-5b. The additional traffic movements that are forecast to be generated during the peak hours during the construction period are shown in terms of PCUs in Figure 15-5c, with proposed construction year 2028 traffic flows including the additional construction traffic shown in Figure 15-5d. These traffic flows were used as input to the N77 / L58333 junction capacity tests.

It is forecast that the development generated traffic will result in an increase to the maximum ratio of flow to capacity (RFC) from 0.0% (i.e. no vehicles make this movement without the Proposed Development) to 4.0% during the AM peak hour, which will apply to the right turn from the N77 into the L58333, and from 0.8% to 5.5% during the PM peak hour, which will apply to the right turn from the L58333 onto the N77. The results of the junction capacity tests set out in Table 15-25 show that the additional traffic movements passing through the junction will be accommodated and have a minor effect on the operation of the junction. The assessment shows that the junction is forecast to operate well within the acceptable limit of 85% in accordance with TII guidelines.



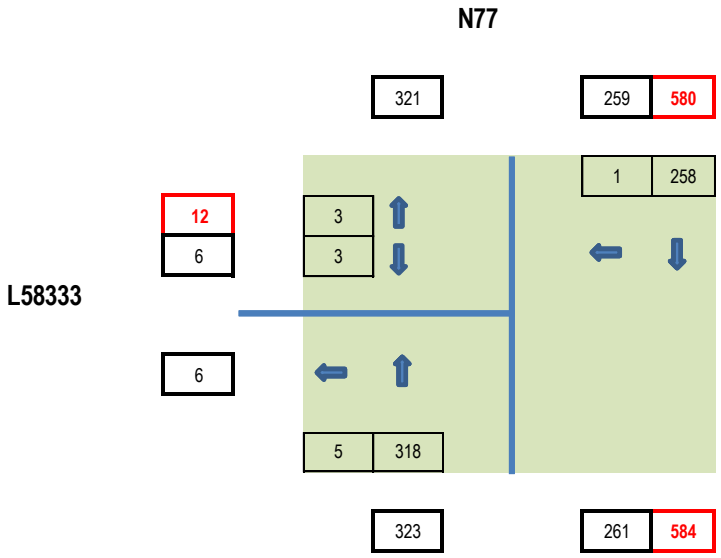

Observed traffic flows

Tuesday 1st April 2025

AM peak hour (08:00 to 09:00)

All flows in pcus

N77 / L58333 junction




Observed traffic flows

Tuesday 1st April 2025

PM peak hour (17:00 to 18:00)

All flows in pcus

N77 / L58333 junction

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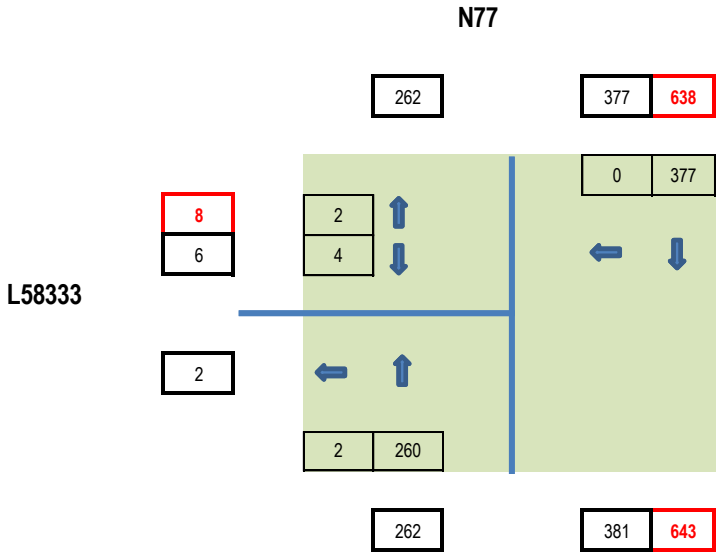
**Figure 15-5a Observed traffic flows, N77 / L58333 junction AM and PM peak hours, year 2025, pcus**



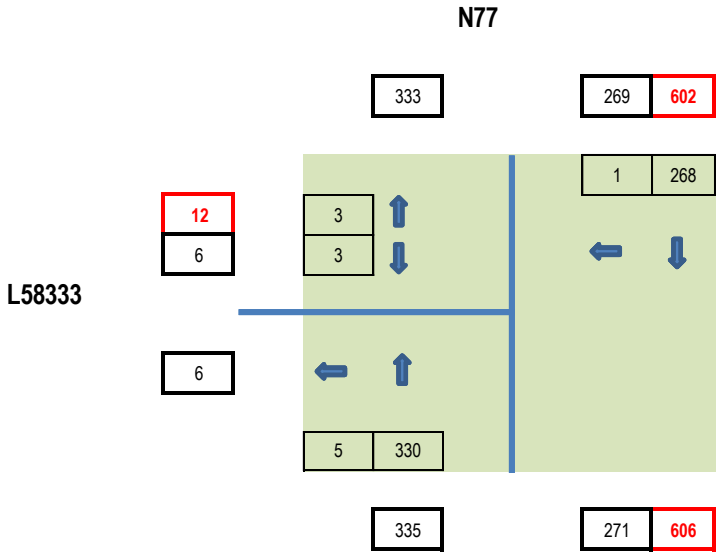

Background traffic flows

Year 2028

AM peak hour (08:00 to 09:00)

All flows in pcus

N77 / L58333 junction




Background traffic flows

Year 2028

PM peak hour (17:00 to 18:00)

All flows in pcus

N77 / L58333 junction

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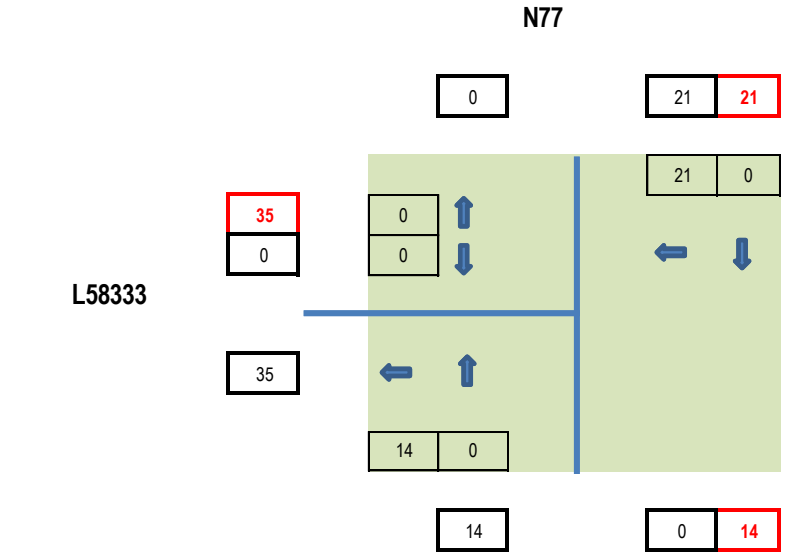
**Figure 15-5b Background traffic flows, N77 / L58333 junction AM and PM peak hours, year 2028, pcus**



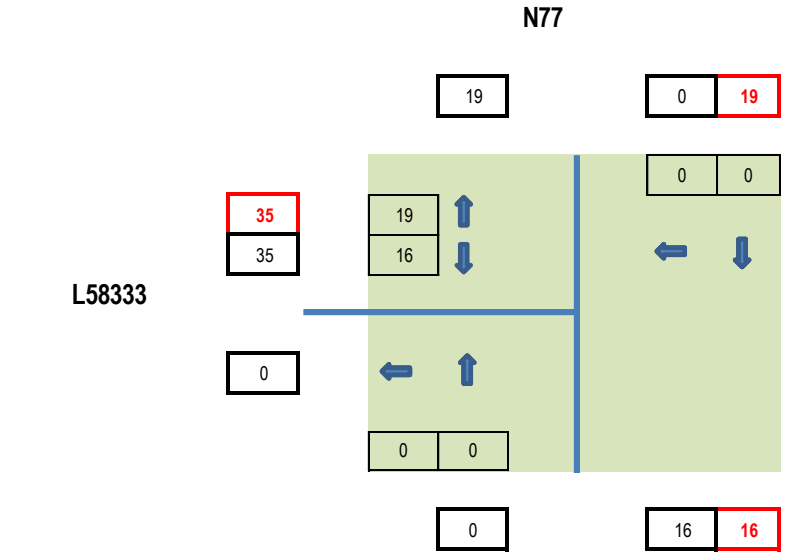




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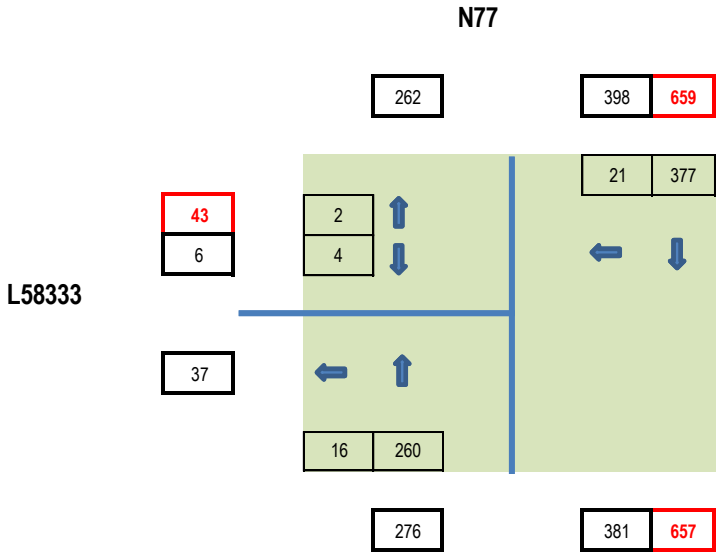
**Figure 15-5c Construction traffic flows, N77 / L58333 junction AM and PM peak hours, pcus**



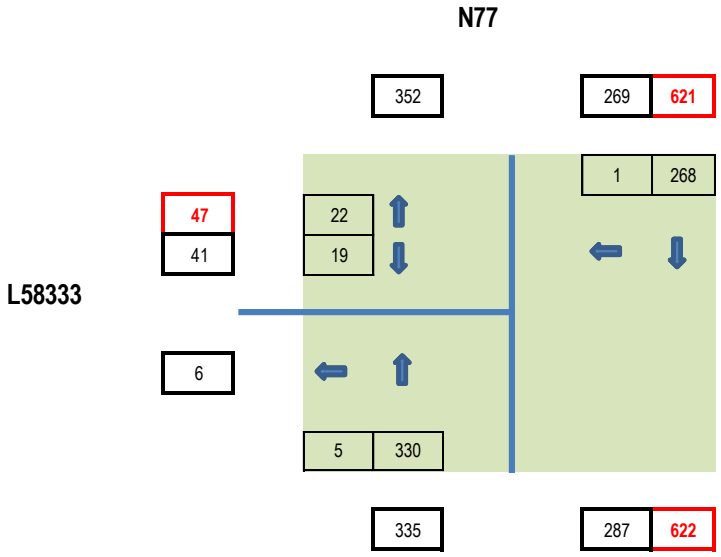

With construction traffic flows

Year 2028

AM peak hour (08:00 to 09:00)

All flows in pcus

N77 / L58333 junction




With construction traffic flows

Year 2028

PM peak hour (17:00 to 18:00)

All flows in pcus

N77 / L58333 junction

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**Figure 15-5d With construction traffic flows, N77 / L58333 junction AM and PM peak hours, year 2028, pcus**

*Table 15-25 Junction capacity test results, N77 / L58333 junction, AM and PM peak hours, without and with construction traffic, by time period, year 2028*

| Period | Location | Without construction traffic | | | With construction traffic | | |
|---|---|---|---|---|---|---|---|
| AM | | RFC | Queue (vehicles) | Delay (minutes) | RFC | Queue (vehicles) | Delay (minutes) |
| | From L58333 right turn | 1.0% | 0.01 | 0.14 | 1.1% | 0.01 | 0.15 |
| | From L58333 left turn | 0.4% | 0.00 | 0.12 | 0.4% | 0.00 | 0.12 |
| | From N77 – right turn | 0.0% | 0.00 | 0.00 | 4.0% | 0.04 | 0.11 |
| PM | | RFC | Queue (vehicles) | Delay (minutes) | RFC | Queue (vehicles) | Delay (minutes) |
| | From L58333 right turn | 0.8% | 0.01 | 0.15 | 5.5% | 0.06 | 0.16 |
| | From L58333 left turn | 0.6% | 0.01 | 0.11 | 4.4% | 0.05 | 0.11 |
| | From N77 – right turn | 0.2% | 0.00 | 0.11 | 0.2% | 0.00 | 0.11 |

### 15.1.6.4 Effect on Link Flows – During Operation

Once the Proposed Development is operational it is estimated that there will be 3 staff members employed on site with a similar number of vehicle trips, that is 3 car/lgv trips to and from the site per day. As stated previously it is likely that the Proposed Development will attract some recreational trips, although it is expected that visitor numbers will be low. It is considered that the traffic impact during this phase will be negligible.

### 15.1.6.5 Effect on Junctions – During Operation

As discussed in Section 15.1.6 it is forecast that once operational, the Proposed Development is expected to generate a maximum of 3 car/lgv trips to and from the site per day for maintenance purposes. It is also likely that small numbers of amenity traffic will be attracted to the site. It is therefore concluded that the Proposed Development will have a negligible effect on the local network once constructed.

## 15.1.7 Grid Connection Construction on Road Network

A detailed description of the Grid Connection underground cabling route is provided in Section 4.3.2 and Section 4.8.2 of Chapter 4 of this EIAR, and the route is shown in Figure 15-6.

It is proposed to connect the Proposed Development to the national electricity grid via a 38kV underground electrical cable connection to the existing 110 kV Ballyragget substation, in the townland

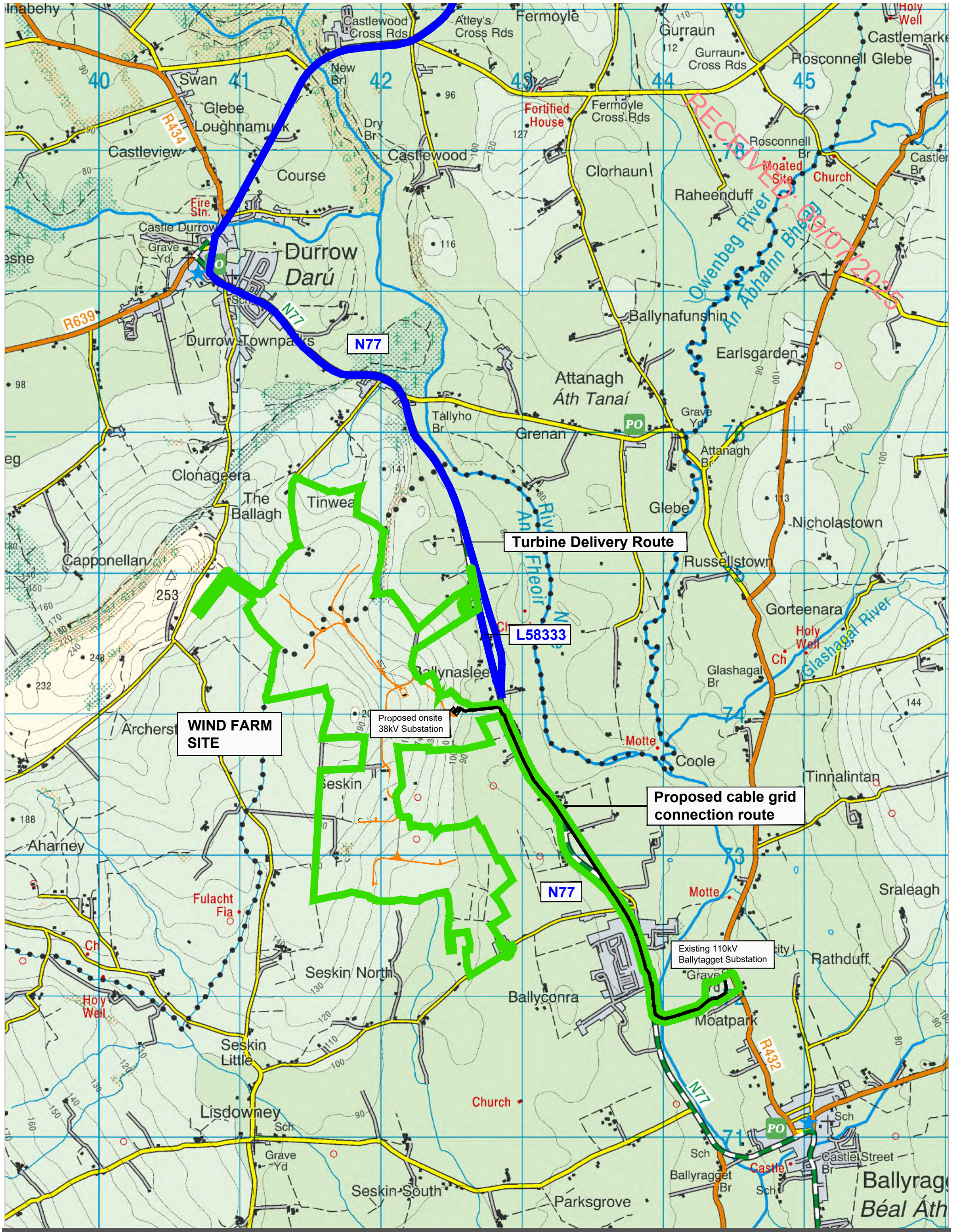


Figure 15-6 Proposed cable grid connection route

| | | | |
|---|---|---|---|
| PROJECT: | Seskin Renewables Wind Farm | | |
| CLIENT: | Seskin Renewable Energy Ltd | SCALE: | NTS |
| PROJECT NO: 11420 | DATE: 17.06.25 | DRAWN BY: | AL |

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of Moatpark near the town of Ballyragget, Co. Kilkenny. From the proposed on-site substation the underground electrical cabling route is approximately 3.4km in length to Ballyragget substation of which approximately 2.2 km is located primarily within the curtilage of the public road network (N77 Natation Secondary Road), with the remaining 1.2km being located in agricultural land.

The Proposed Grid Connection underground cabling route originates at the proposed onsite substation, in the townland of Ballynaslee, Co. Kilkenny, and heads east for approximately 335 metres through agricultural pastoral land. The underground cabling route joins the N77 National Secondary Road corridor and heads south for approximately 2.2km before turning east into agricultural pastoral land in the townland of Ballyconra, Co. Kilkenny. The underground cabling will then cross beneath the River Nore and continue east through agricultural land to the Ballyragget 110kV substation. The section from the N77 corridor to the Ballyragget Substation is approximately 860m. The total length of the Proposed Grid Connection underground cabling route measures approximately 3.4km.

For the 2.2km section of the route that follows the N77 road corridor, as part of the detailed design process, every effort has been made to locate the Proposed Grid Connection cabling trench off the existing road carriageway and within the hard shoulder or soft margin/grass verges. The existing carriageway of the N77 has been avoided apart from a short section measuring approximately 35m where the cabling trench crosses from west to east across the public road corridor.

The section of the N77 impacted is typically a Type 1 single carriageway with a carriageway width of approximately 7.0m and 2 x 2.5m hard shoulders, comprising a total carriageway width of 12m.

The requirements for the operation of active traffic lanes together with an area reserved for a lane to lay a grid connection on a national road may be determined using guidelines set out in the Traffic Signs Manual (Chapter 8, Temporary Traffic Measures and Signs). The total width of the works area required has been estimated as follows:

***The width of an excavator (2.5m) + 2 traffic lanes (6.5m) + safety zone (1.2m) = total width of 10.2m***

The preliminary assessment above indicates that the retention of 2 lane operation on the N77 will be possible for the majority of the duration of the construction of the Proposed Grid Connection underground cabling route. The exception to this will be during the construction of the short 35m section of the route when it crosses west to east over the N77. During the construction of this section, which could be undertaken during one night, a “Stop & Go” traffic management system will be in operation in order to retain a 2-way flow on the N77. It is therefore concluded that no road closures will be required during the construction of the Proposed Grid Connection underground cabling route.

Based on an average construction rate of 150m of cable route per day, it is estimated that the underground electrical cabling route will take approximately 23 days to construct, of which approximately 14.5 days will be required to construct the section following the alignment of the N77 road corridor.

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 30 daily return trips made by trucks removing spoil and transporting materials to the site, and 4 made by a car to transport 10 construction staff from the proposed temporary construction compound on the Proposed Wind Farm site and the point of construction on the grid route. It is noted that these trips are included in the trip generation estimates presented in Section 15.1.4.1 and the traffic impact assessment set out in Section 15.1.6.1.

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

A detailed **Traffic Management Plan (TMP)**, incorporating all the mitigation measures is included as Appendix 15-2. All measures 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.



## 15.1.8 Traffic Management of Large Deliveries

Traffic management measures are set out in Section 15.1.11.5 and includes the following:

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

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

In some cases, minor accommodation works are required along the turbine delivery route such as hedge or tree cutting, temporary relocation of powerlines/poles, lampposts, signage and local road widening. Any works on the public road network will be carried out in advance of turbine deliveries and following consultation and agreement with the relevant authorities, if required. It is not anticipated that any sections of the local road network will be closed.

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

## 15.1.9 Abnormal Load Route Assessment

While the potential turbine delivery routes from the port of entry is discussed in Section 15.1.2.2 the route assessment discussed in this section includes all locations on the proposed turbine delivery route from the right turn off Junction 17 the M7, to the Proposed Wind Farm Site access junction on the local L5833 Local Road, with the route and assessment locations shown in Figure 15-1b.

A swept path analysis was undertaken at all locations using Autotrack in order to establish the locations where the wind turbine transporter vehicles will be accommodated, and the locations where some form of remedial measure may be required.

It is noted that a dry run involving a vehicle adapted to replicate the geometry of the extended transport vehicles will be undertaken over the entire turbine delivery route prior to the construction stage of the Proposed Development.

### Location 1 – N77 Mary Street / N77 Carrigan Street / Chapel Street junction, Durrow (Townparks, Co Laoise)

At this location it is proposed to carry out temporary accommodation works within and adjacent to the green space, located at the Chapel Street/Mary Street (N77) junction, in the townland of Durrow Townparks, Co. Laois.

The existing trees, ornamental street furniture, signage and electricity/telecommunication poles, within and around the green space will be temporarily removed for the duration of the turbine component delivery phase. Crushed stone will be used to raise the level of the laneway, which bounds the northwestern side of the green space, up to the level of the grassed area within the green space. Further details of the works are provided in Section 4.4.3.1 of Chapter 4 of the EIAR.

The proposed route through this location is shown for the blade and tower transporters in Figures 15-7 and 15-8. It is noted that this temporary accommodation area will be utilised only during the delivery of the abnormal loads which will take place during the night accompanied by a Garda escort. The accommodation areas will be closed off by means of fencing and gates during all other times.

Upon completion of the turbine component delivery phase, the crushed stone and ground protection mats will be removed and the trees, ornamental street furniture, signage and electricity / telecommunication poles will be reinstated.

### Location 2 – N77 / L58333 junction (Ballynaslee, Co. Kilkenny)

Due to the acute angle at this junction it is proposed that the abnormally sized loads will travel south on the N77 past the junction and will then reverse north up the L58333 towards the proposed access junction on the L58333.

The autotrack assessments for the blade and tower transport vehicles making this manoeuvre are shown in Figures 15-9 and 15-10 respectively. They show the location of the temporary accommodation area at the southwest corner of the junction that will be required during the turbine delivery phase. Details of the accommodation area are provided in Chapter 4, Section 4.4.3.1 of this EIAR. Once the accommodation areas have been reinstated, they will only be used again only in the unlikely event that an oversized delivery is required for wind turbine maintenance purposes.

All other traffic generated by the Proposed Development required to negotiate this junction will do so within the confines of the existing junction layout.

### Location 3 – Site Access junction on the L58333 (Ballynaslee, Co. Kilkenny)

With the abnormally sized loads approaching the proposed access junction reversing northbound along the L58333, these vehicles will be required to reverse north past the Proposed Development access junction before driving forward in a southbound direction to turn right into the site.

The proposed access junction layout on the L58333 and the required visibility splays are shown in Figures 15-11 and 15-12 respectively. Visibility splays of 90m x 3.0m are provided in accordance with a design (operational) speed of 60 km/h in order to facilitate safe access and egress through the junction. The junction design and visibility splays are in accordance with TII guidelines Geometric Design of Junctions (DN-GEO-03060) and as required in the Kilkenny City and County Development Plan 2021 – 2027 (Reference Section 13.22.1 of DP). The visibility splays will be kept clear during the construction and operational stages of the Proposed Development.

The swept path analysis indicates that temporary accommodation areas will be required at this junction in order to accommodate the abnormally sized deliveries. Autotrack assessments for the blade and tower vehicles shown in Figures 15-13 and 15-14 demonstrate that these vehicles will be accommodated at the access junction. The accommodation areas will be reinstated following the completion of the construction phase and the junction will take the form of a standard access junction. An autotrack of a standard large articulated HGV travelling through the reduced junction is shown in Figure 15-15.

It is proposed that this junction will serve as the only site access junction for all HGVs and abnormally sized loads, and for all staff generated trips during the construction phase. The junction will then be controlled using fencing and gates during the operational phase and will only be used by maintenance staff during the operational phase, or in the unlikely event of a turbine blade replacement or other abnormally sized delivery required for the purpose of turbine component replacement.


Figure 15-7 Location 1 - N77 Mary Street / N77 Carrigan Street / Chapel Street junction, autotrack assessment, blade extended artic

| | | | |
|---|---|---|---|
| PROJECT: | Seskin Renewables Wind Farm | | ALAN LIPSCOMBE<br>TRAFFIC & TRANSPORT CONSULTANTS |
| CLIENT: | Seskin Renewable Energy Ltd | SCALE: 1:1000 | |
| PROJECT NO: 11420 | DATE: 16.06.25 | DRAWN BY: AL | |


Figure 15-8 Location 1 - N77 Mary Street / N77 Carrigan Street / Chapel Street junction, autotrack assessment, tower extended artic

| | | | |
|---|---|---|---|
| PROJECT: | Seskin Renewables Wind Farm | | ALAN LIPSCOMBE<br>TRAFFIC & TRANSPORT CONSULTANTS |
| CLIENT: | Seskin Renewable Energy Ltd | SCALE: 1:1000 | |
| PROJECT NO: 11420 | DATE: 16.06.25 | DRAWN BY: AL | |

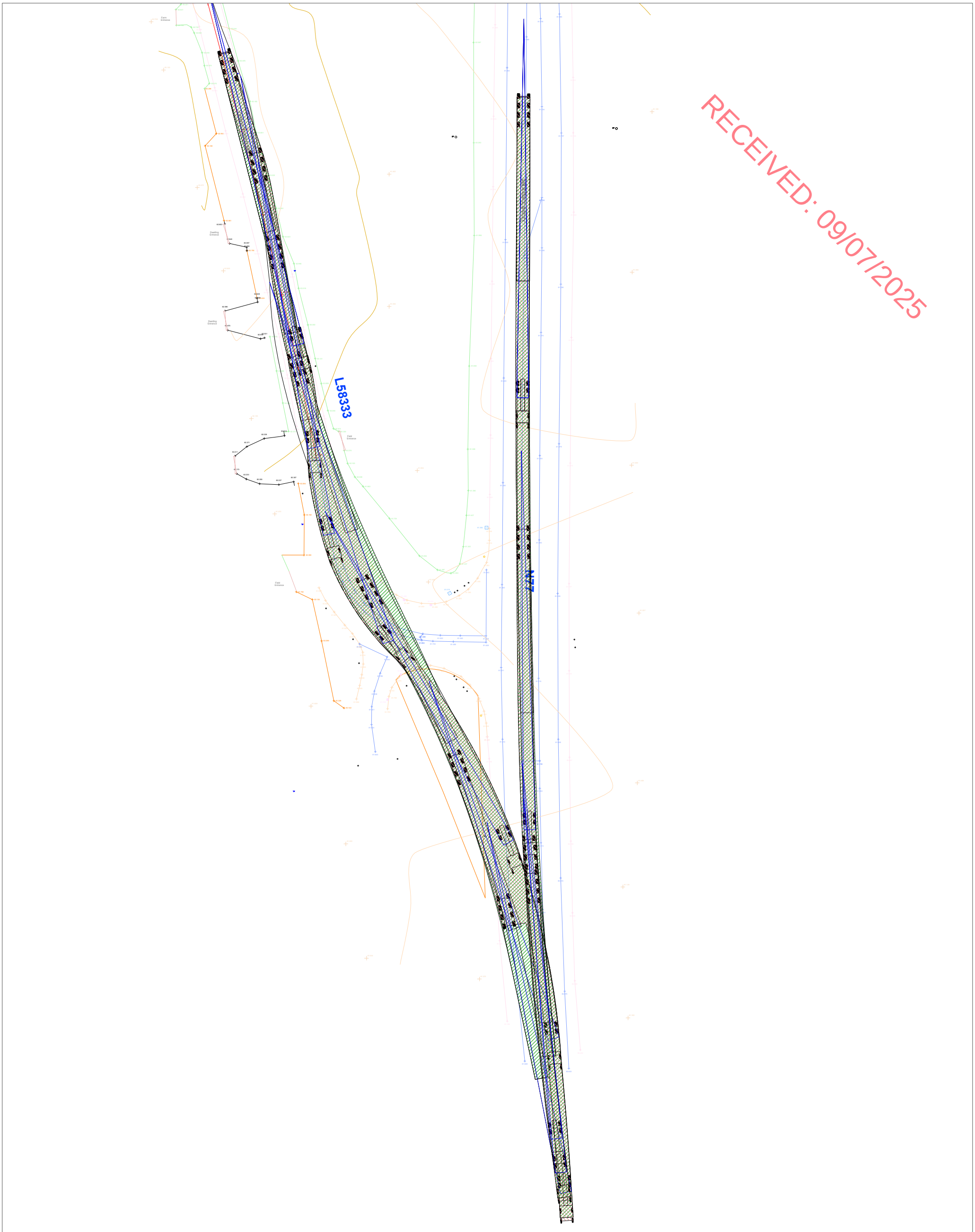




Figure 15-9 Location 2 - N77 / L58333, autotrack assessment, blade extended artic

| | | | |
|---|---|---|---|
| PROJECT: | Seskin Renewables Wind Farm | | ALAN LIPSCOMBE<br>TRAFFIC & TRANSPORT CONSULTANTS |
| CLIENT: | Seskin Renewable Energy Ltd | SCALE: 1:1000 | |
| PROJECT NO: 11420 | DATE: 16.06.25 | DRAWN BY: AL | |

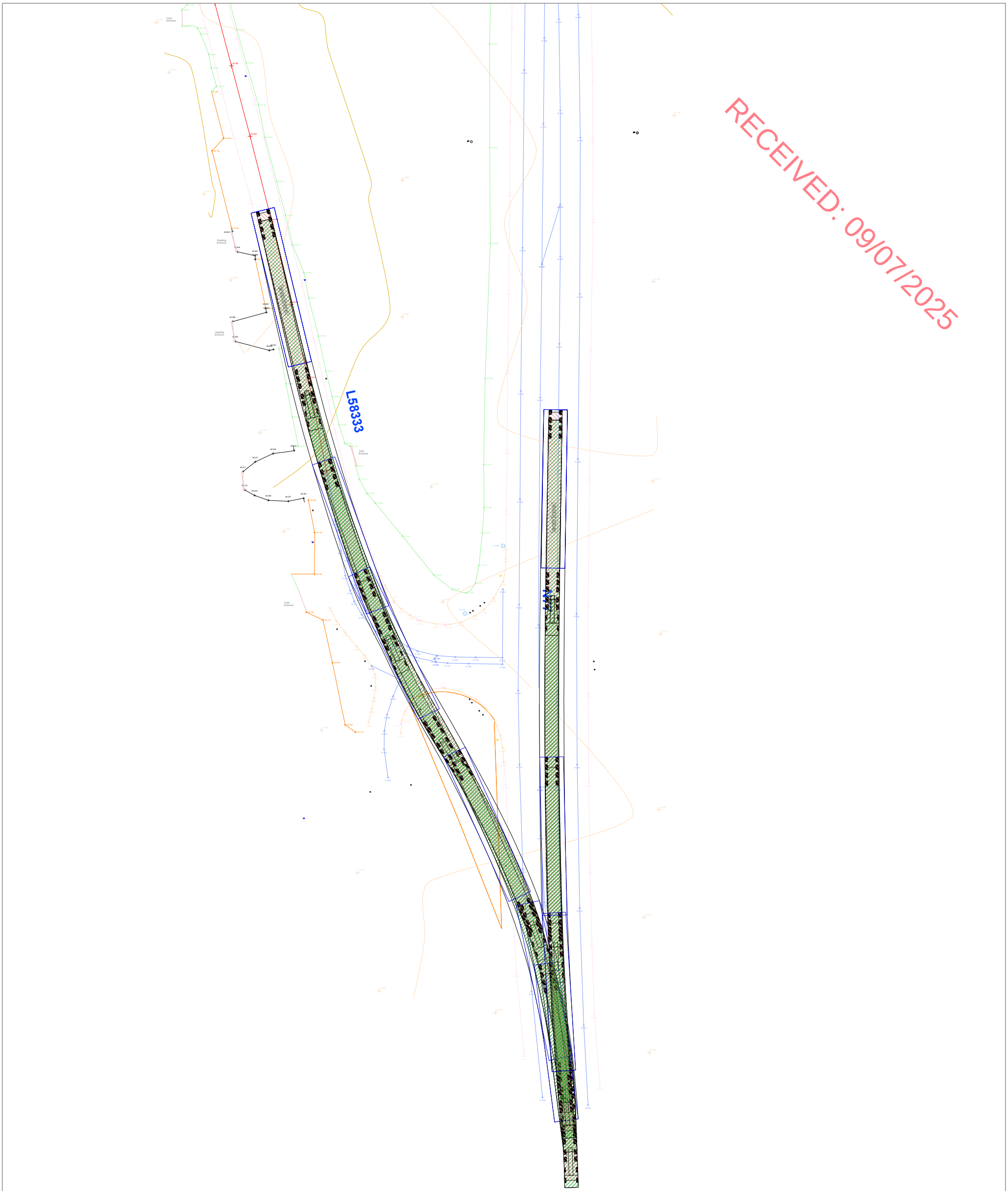




Figure 15-10 Location 2 - N77 / L58333, autotrack assessment, blade extended artic

| | | | |
|---|---|---|---|
| PROJECT: | Seskin Renewables Wind Farm | | |
| CLIENT: | Seskin Renewable Energy Ltd | SCALE: | 1:1000 |
| PROJECT NO: 11420 | DATE: 16.06.25 | DRAWN BY: | AL |

ALAN LIPSCOMBE
TRAFFIC & TRANSPORT CONSULTANTS

## Location 3 - Site access on L58333

**Junction radius at eastern corner is 13m with 1:10 tapers for HGVs in accordance with TII DN-GEO-03060.**

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

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

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

**Visibility splays of 2.4m x 90m are available in accordance with TII requirements. It is proposed that this junction will be managed on site during the construction phase, including temporary signage with all abnormally sized turbine loads accompanied by a Garda escort and vehicles provided by haulage company. During the operational stage the junction will be gated and opened during visits by maintenance staff only.**

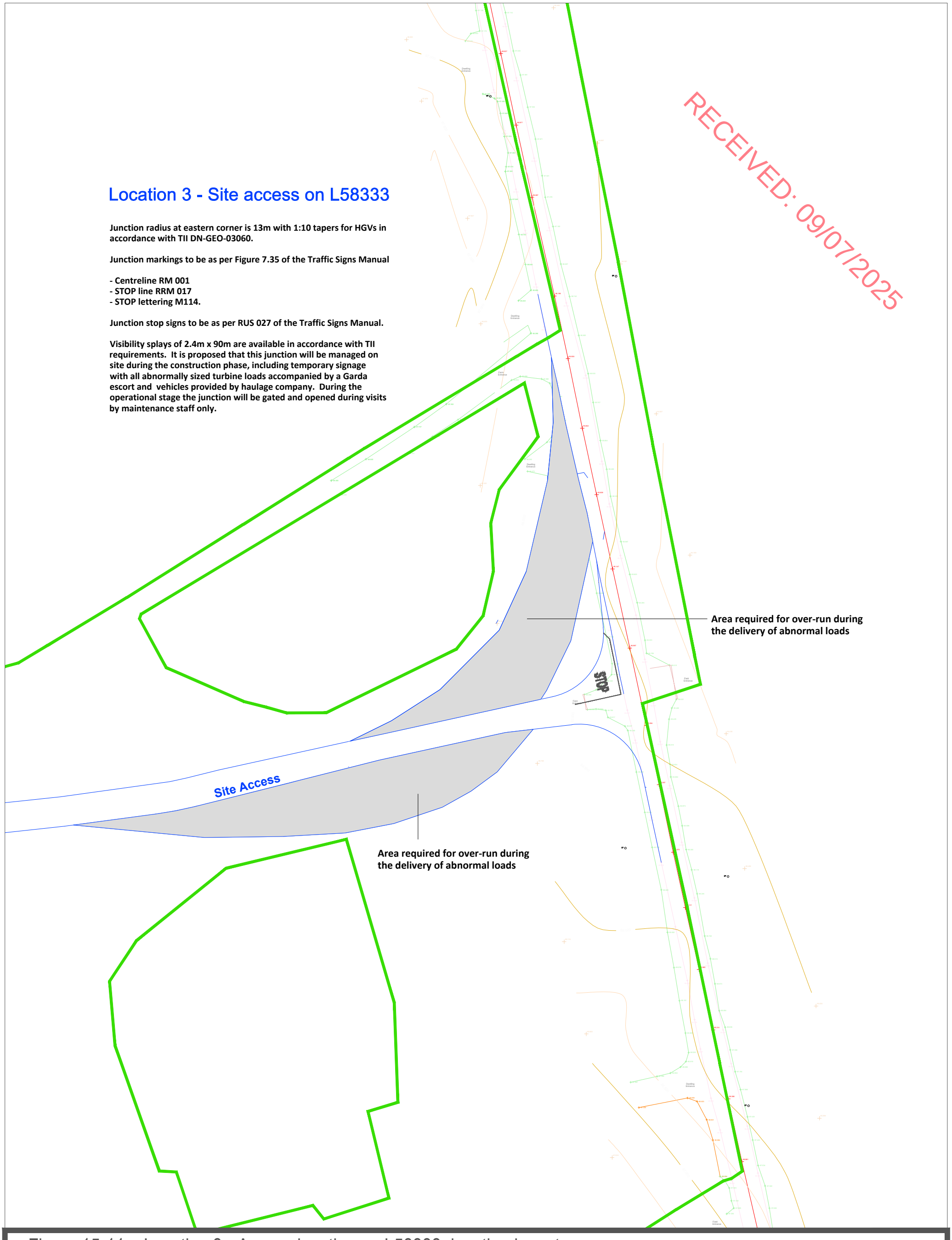


Figure 15-11 Location 3 - Access junction on L58333, junction layout

| | | | |
|---|---|---|---|
| PROJECT: | Seskin Renewables Wind Farm | | ALAN LIPSCOMBE TRAFFIC & TRANSPORT CONSULTANTS |
| CLIENT: | Seskin Renewable Energy Ltd | SCALE: 1:1000 | |
| PROJECT NO: 11420 | DATE: 16.06.25 | DRAWN BY: AL | |

## Location 3 - Site access on L58333

**Junction radius at eastern corner is 13m with 1:10 tapers for HGVs in accordance with TII DN-GEO-03060.**

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

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

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

**Visibility splays of 2.4m x 90m are available in accordance with TII requirements. It is proposed that this junction will be managed on site during the construction phase, including temporary signage with all abnormally sized turbine loads accompanied by a Garda escort and vehicles provided by haulage company. During the operational stage the junction will be gated and opened during visits by maintenance staff only.**

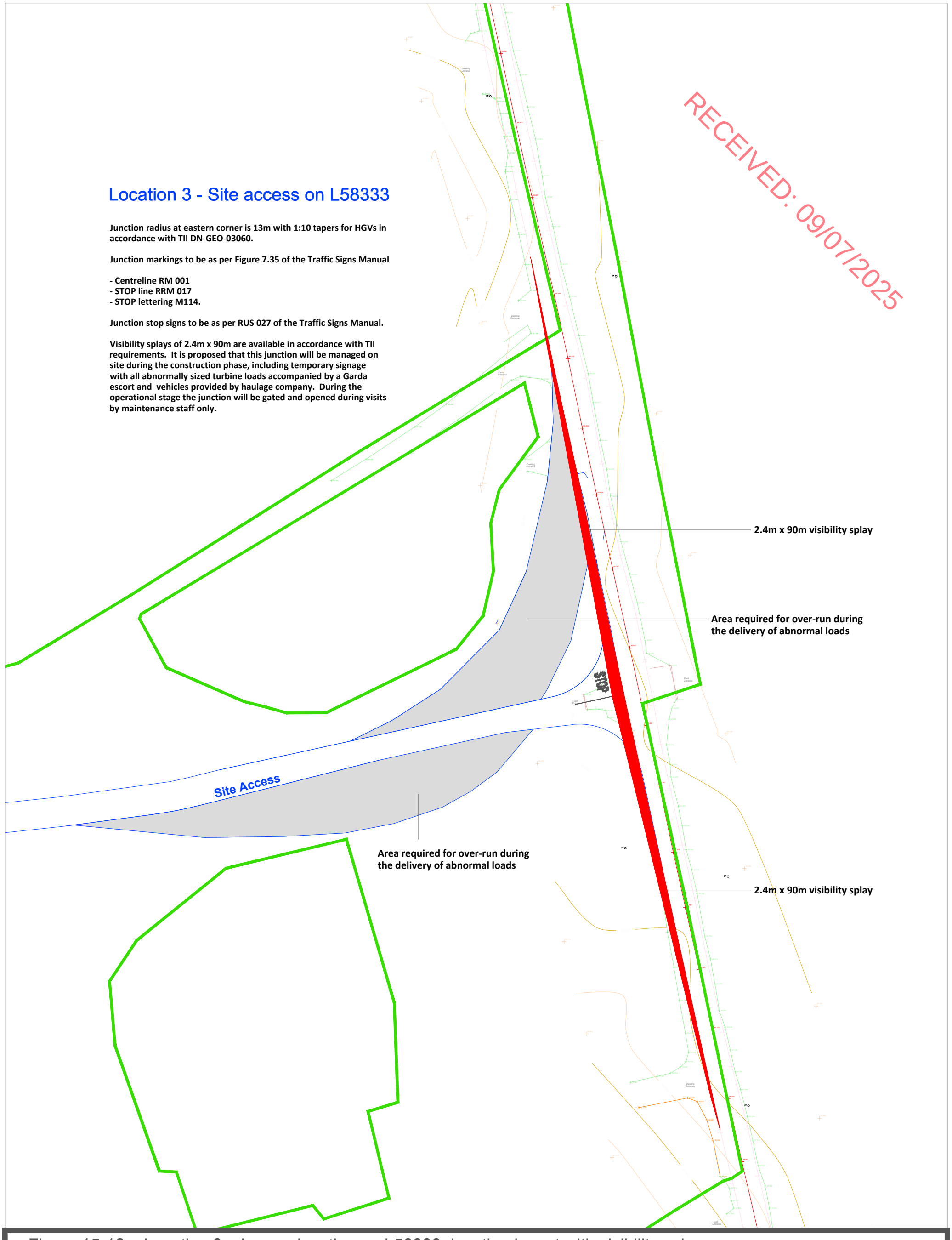


Figure 15-12 Location 3 - Access junction on L58333, junction layout with visibility splays

| | | | |
|---|---|---|---|
| PROJECT: | Seskin Renewables Wind Farm | | ALAN LIPSCOMBE TRAFFIC & TRANSPORT CONSULTANTS |
| CLIENT: | Seskin Renewable Energy Ltd | SCALE: 1:1000 | |
| PROJECT NO: 11420 | DATE: 16.06.25 | DRAWN BY: AL | |

## Location 3 - Site access on L58333

**Junction radius at eastern corner is 13m with 1:10 tapers for HGVs in accordance with TII DN-GEO-03060.**

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

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

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

**Visibility splays of 2.4m x 90m are available in accordance with TII requirements. It is proposed that this junction will be managed on site during the construction phase, including temporary signage with all abnormally sized turbine loads accompanied by a Garda escort and vehicles provided by haulage company. During the operational stage the junction will be gated and opened during visits by maintenance staff only.**

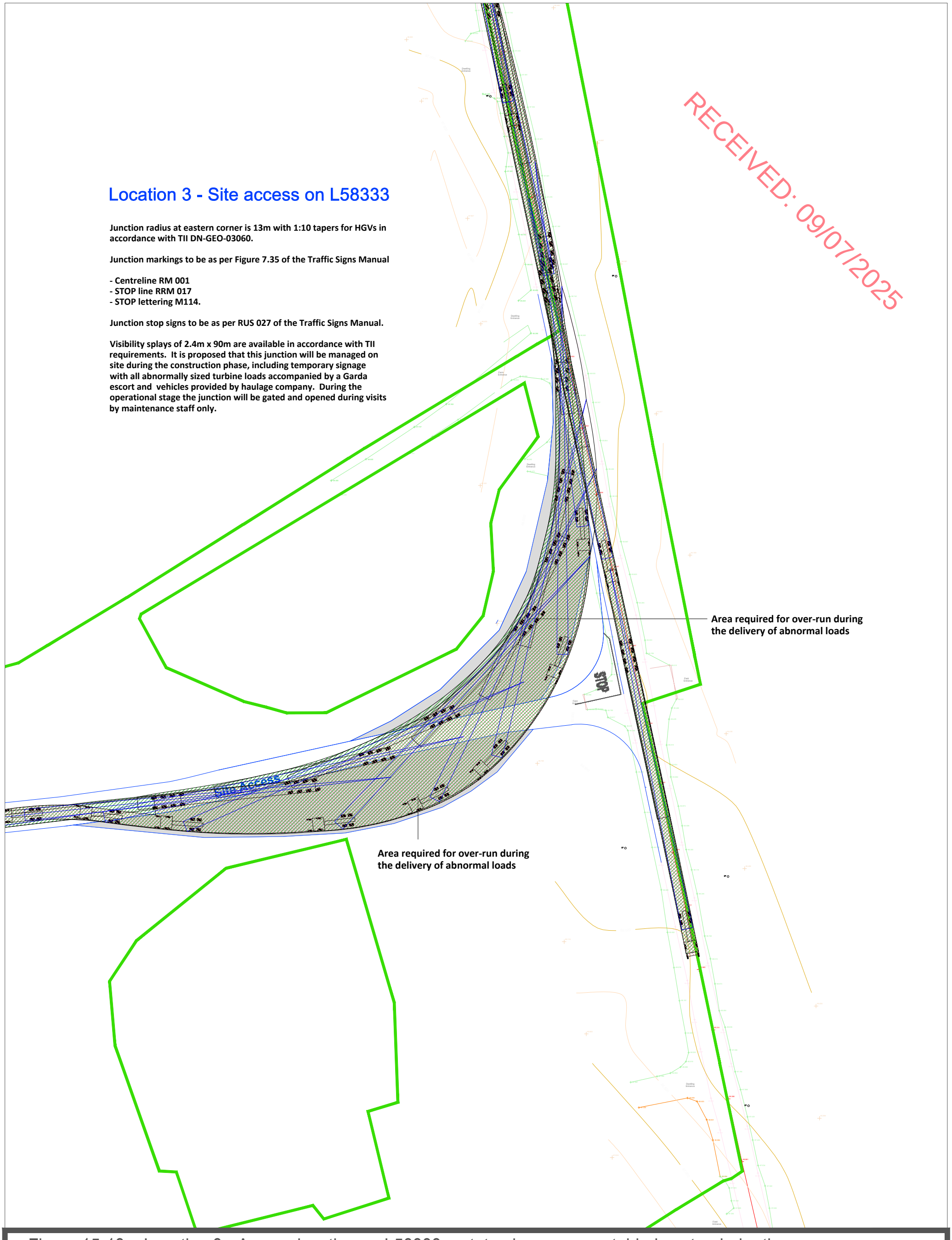


Figure 15-13 Location 3 - Access junction on L58333, autotrack assessment, blade extended artic

| | | | |
|---|---|---|---|
| PROJECT: | Seskin Renewables Wind Farm | | ALAN LIPSCOMBE TRAFFIC & TRANSPORT CONSULTANTS |
| CLIENT: | Seskin Renewable Energy Ltd | SCALE: 1:1000 | |
| PROJECT NO: 11420 | DATE: 16.06.25 | DRAWN BY: AL | |

## Location 3 - Site access on L58333

**Junction radius at eastern corner is 13m with 1:10 tapers for HGVs in accordance with TII DN-GEO-03060.**

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

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

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

**Visibility splays of 2.4m x 90m are available in accordance with TII requirements. It is proposed that this junction will be managed on site during the construction phase, including temporary signage with all abnormally sized turbine loads accompanied by a Garda escort and vehicles provided by haulage company. During the operational stage the junction will be gated and opened during visits by maintenance staff only.**

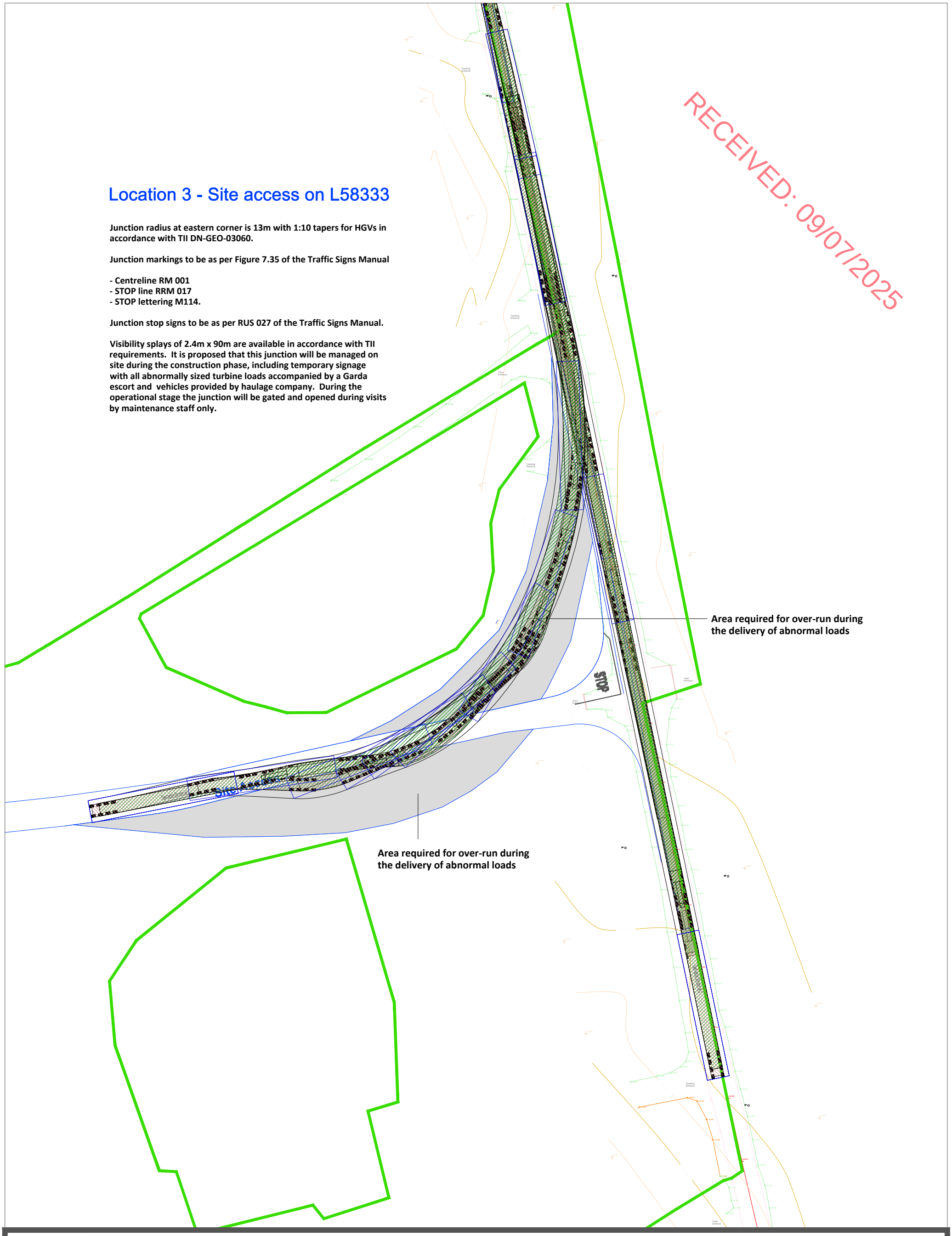


Figure 15-14 Location 3 - Access junction on L58333, autotrack assessment, tower extended artic

| | | | |
|---|---|---|---|
| PROJECT: | Seskin Renewables Wind Farm | | |
| CLIENT: | Seskin Renewable Energy Ltd | SCALE: | 1:1000 |
| PROJECT NO: 11420 | DATE: 16.06.25 | DRAWN BY: | AL |

ALAN LIPSCOMBE
TRAFFIC & TRANSPORT CONSULTANTS

## Location 3 - Site access on L58333

**Junction radius at eastern corner is 13m with 1:10 tapers for HGVs in accordance with TII DN-GEO-03060.**

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

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

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

**Visibility splays of 2.4m x 90m are available in accordance with TII requirements. It is proposed that this junction will be managed on site during the construction phase, including temporary signage with all abnormally sized turbine loads accompanied by a Garda escort and vehicles provided by haulage company. During the operational stage the junction will be gated and opened during visits by maintenance staff only.**

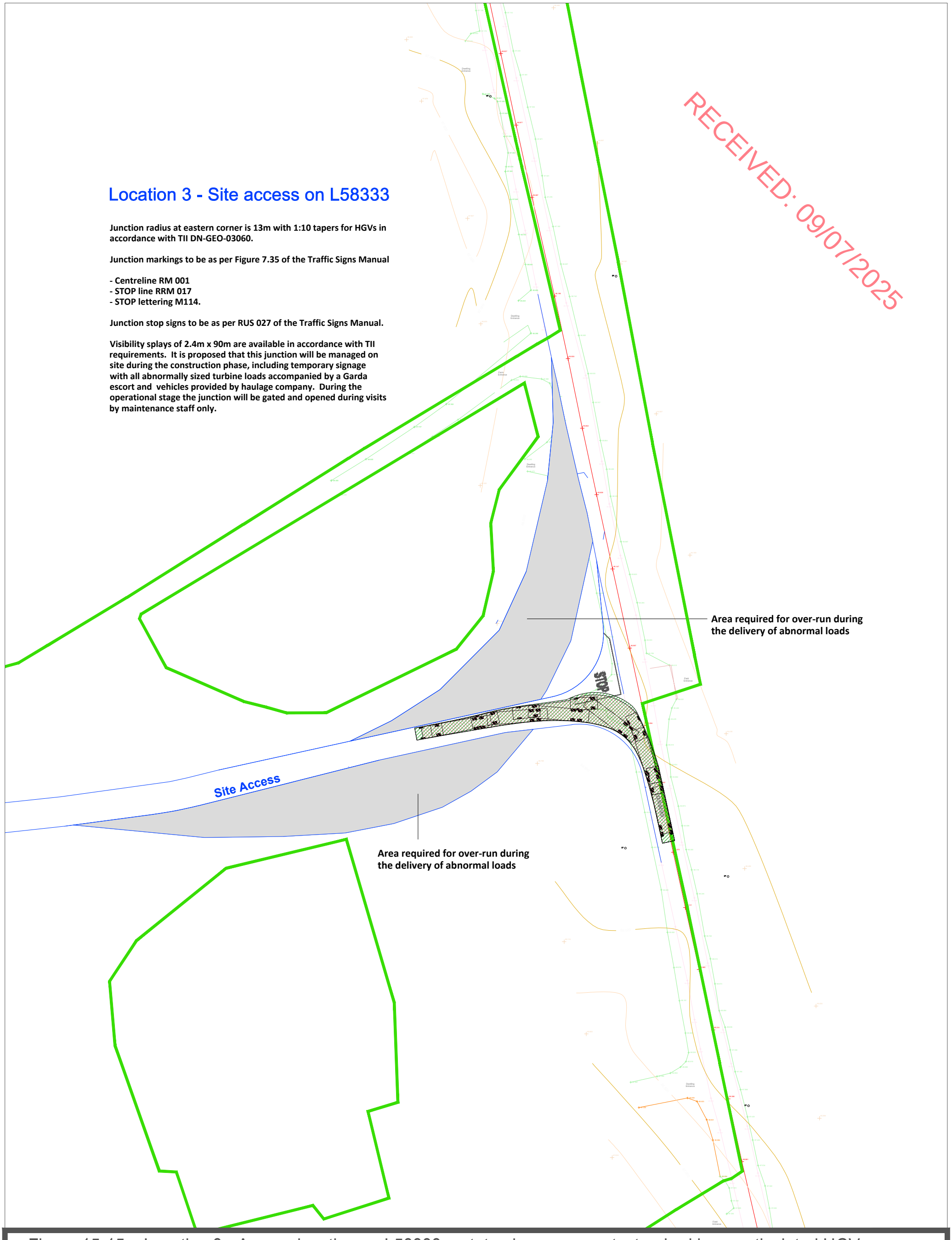


Figure 15-15 Location 3 - Access junction on L58333, autotrack assessment, standard large articulated HGV

| | | | |
|---|---|---|---|
| PROJECT: | Seskin Renewables Wind Farm | | ALAN LIPSCOMBE TRAFFIC & TRANSPORT CONSULTANTS |
| CLIENT: | Seskin Renewable Energy Ltd | SCALE: 1:1000 | |
| PROJECT NO: 11420 | DATE: 16.06.25 | DRAWN BY: AL | |

## 15.1.10 Provision for Sustainable Modes of Travel

### 15.1.10.1 Walking and Cycling

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

### 15.1.10.2 Public Transport

There are no viable public transport services that currently pass the Proposed Development site on the N77 between Durrow and Ballyragget. Car-pooling will be encouraged for the transportation of staff to and from the Proposed Development site in order to minimise traffic generation and parking demand on the Proposed Development site. As the Grid connection underground electrical cabling route is located along the same section of the N77, construction staff for this element of the Proposed Development will travel to the Wind Farm site by car and will then be transported to the point of construction by car or minibus.

## 15.1.11 Likely and Significant Effects and Associated Mitigation Measures

### 15.1.11.1 'Do-Nothing' Scenario

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

### 15.1.11.2 Construction Phase

During the 8 days when the concrete foundations are poured, the effect on the surrounding road network will be that an additional 584 PCUs will travel to/from the Proposed Development site. On the delivery route, it is forecast that the increase in traffic volumes on these days will range from +8.0% to 8.1% on the N77 (Links 1 to 3) to +494.4% on the L58333 leading to the Proposed Development site (Link 4). On these busiest 8 days it is estimated that this will have a temporary, negative and slight effect on the N77 and more noticeable temporary, negative and moderate effect on the L58333. No Significant effects are forecast.

During the remaining 217 days when the Proposed Development site preparation and groundworks and construction of the grid connection continues, an additional 162 PCUS will travel to and from the Proposed Development site. It is forecast that the increase in traffic volumes on these days will range from +2.2% on the N77 (Links 1 to 3) to +137.1% on the L58333 leading to the Proposed Development site (Link 4). It is estimated that this will have a temporary, negative and slight effect on the N77 and L58333. No Significant effects are forecast.

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 30 daily return trips made by trucks removing spoil and transporting materials to the site, and 4 return trips made by a car to transport construction staff, to and from the Site. By its nature the effect impacts of these additional trips on the network will be transient and will therefore be temporary and slight.

During the 22 days / nights that the abnormal loads carrying the large turbine components travel to the Proposed Development site, an additional 105 PCUs will travel to/from the Proposed Development site. It is forecast that the increase in traffic volumes on these days will range from between +1.4% and 1.5% on the N77 (Links 1 to 3), to +88.9% on the L58333 leading to the Proposed Development site (Link4).

It is forecast that there will be a temporary, slight negative effect on traffic flows as the delivery of the abnormally sized loads is undertaken at night. No Significant effects are forecast.

For 8 days an additional 64 PCUs will travel to/from the Proposed Development site delivering smaller component parts using standard HGVs, it is forecast that the increase in traffic volumes on these days will range from +0.9% on the N77 (Links 1 to 3) to +54.2% on the L58333 leading to the Proposed Development site (Link 4). On these days it is considered that the additional traffic will have a temporary imperceptible negative effect on the N77, and a temporary slight negative effect on the L58333 leading to the site. No Significant effects are forecast.

### 15.1.11.3 Operational Phase

The impacts on the surrounding local highway network will be negligible given that there will only be an average of 3 trips made to and from the Proposed Development site by car or light goods vehicle per day, with none required for the Grid connection underground electrical cabling route. The effects of the maintenance traffic on the surrounding highway network will therefore be imperceptible.

### 15.1.11.4 Decommissioning Phase

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

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

Following decommissioning of the Proposed Wind Farm, turbine foundations, hardstanding areas and site tracks will be rehabilitated, i.e. left in place, covered over with local soil/subsoil and allowed to re-vegetate naturally, if required. The internal site access tracks may be left in place, as they 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 Wind Farm is decommissioned has not been determined at this stage, the impact in terms of traffic volumes will be significantly less than during the construction stage.

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

The works required during the decommissioning phase are described in Chapter 4: Description of the Proposed Project and the accompanying Decommissioning Plan included as Appendix 4-5 of this EIAR.

### 15.1.11.5 Mitigation Measures

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

#### 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.
- Selection of the shortest underground grid connection route, minimising the impacts on the existing road network and traffic.

## Mitigation Measures During the Construction Stage

The successful completion of the Proposed Development will require significant coordination and planning and a comprehensive set of mitigation measures will be put in place before and during the construction stage of the Proposed Development in order minimize the effects of the additional traffic generated by the Proposed Development. A detailed **Traffic Management Plan (TMP)**, incorporating all the mitigation measures included as Appendix 15-2 of this EIAR, will be finalised and confirmatory detailed provisions in respect of traffic management agreed with the roads authority and An Garda Síochána prior to construction works commencing on Site. In addition, the traffic management measures proposed for the following construction traffic scenarios are set out for the grid connection in Appendix 15-2: Traffic Management Plan for Seskin Renewables Wind Farm Development;

- Delivery of Abnormally sized loads,
- Management of Standard HGVs on L58333 leading to site,
- Traffic management measures during construction of cable grid connection

The detailed TMP will include the following:

**Traffic Management Coordinator –** a competent Traffic Management Co-ordinator will be appointed for the duration of the construction of the Proposed Development and this person will be the main point of contact for all matters relating to traffic management.

**Delivery Programme –** a programme of deliveries will be submitted to Kilkenny County Council and other relevant authorities in advance of deliveries of turbine components to the Proposed Development site. Liaison with the relevant local authorities including the roads sections of local authorities that the delivery routes traverse and An Garda Siochana, during the delivery phase of the large turbine vehicles, when an escort for all convoys will be required.

**Information to locals** – Locals in the area will be informed of any upcoming traffic related matters e.g. delivery of turbine components at night, via letter drops and posters in public places. Information will include the contact details of the Contract 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 –** A pre-condition survey of roads associated with the Proposed Development will be carried out prior to construction commencement to record the condition of the road. A post construction survey will be carried out after works are completed. Where required the timing of these surveys will be agreed with the local authority.

Implementation of temporary alterations to road network at critical junctions – At locations where required highlighted in Section 15.1.9.

**Identification of delivery routes** – These routes will be agreed and adhered to by all contractors.

**Travel plan for construction workers to Proposed Development site–** While the assessment above has assumed the worst case that construction workers will drive to the Proposed Development site, the construction company will be required to provide a travel plan for construction staff, which will include the identification of a routes to / from the site and identification of an area for parking.

**Travel plan for construction workers to underground electric cabling route –** Due to the transient nature of the underground grid connection construction site which will generally be on a section of the public road, construction workers will be transported to and from the site by the construction company at the beginning and end of each shift.

**Traffic management measures on L58333** - Marshalling (at site access and southern end of L58333) and control of traffic will be in operation during the 8 days during which the concrete foundations are poured, as set out in the TMP included as Appendix 15-2.

**Drivers conduct** – All drivers will follow normal rules of the road and will receive toolbox talk regarding the delivery route and planned holding points prior to any deliveries.

**Standard permitted axial loads** – Will not be exceeded.

**Temporary traffic signs** – As part of the traffic management measures temporary traffic signs will be put in place at all key junctions, including the access junction on the L58333 during the 12 month construction period. All measures will be 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). A member of construction staff (flagman) will be present at the access junction on the L58333, and the N77 / L58333 junction during the 8 days on which the concrete turbine foundations are poured.

**Delivery times of large turbine components** - The management plan will include the delivery of large wind turbine plant components at night in order to minimise disruption to general traffic during the construction stage.

**Re-instatement works** - All road surfaces and boundaries will be re-instated to pre-development condition, as agreed with the local authority engineers. All works will be done in accordance with the Guidelines for the Opening, Backfilling and Reinstatement of Openings in Public Roads, DTToS, September 2015.

**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.

It is confirmed that details for the Traffic Management Plan for the Proposed Development will be agreed with the Road Section of Kilkenny County Council prior to construction and contact will be maintained with the Road and Traffic Section throughout the construction phase.

## 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.

## Mitigation Measures During Decommissioning Stage

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

## 15.1.11.6 Residual Effects

### Construction Stage

During the 12-18 month construction stage of the Proposed Development, it is forecast that the additional traffic that will appear on the public road network serving the Site will have a short-term slight negative effect on existing road users for the majority of the delivery route, and a short-term moderate negative effect on existing road users and residents on the L58333 approaching the site. While the severity of the traffic effects relates to the additional volumes of traffic movements generated during the construction of the Proposed Development, the implementation of the mitigation measures included in the proposed traffic management plan will ensure a controlled and efficient operation during this stage, and minimise the impacts on local road users.

### Operational Stage

As the traffic impact of the Proposed Development will be imperceptible during the operational stage, there will be no residual effects during this stage.

### Decommissioning Stage

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

## 15.1.11.7 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 Development, 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 operational), were assessed for the potential for cumulative traffic effects with the Proposed Development 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 farms,
- Strategic Infrastructure Development (SID) applications made to An Bord Pleanala,
- Quarries,
- Other development applications in the Environmental Impact Assessment (EIA) process.

## Other wind farms



The other permitted and proposed wind farm developments within a 25 km buffer zone around the Proposed Development that were considered to have potential traffic related cumulative impacts are set out below in Table 15-26. Of the 11 wind farm developments listed, based on the criteria set out above (project status, overlap of delivery routes and traffic volumes) it is estimated that there are 2 (Cullenagh Wind Farm and Ballynalacken Wind Farm) for which there is a high potential for cumulative impacts with the Proposed Development. It is therefore proposed that the construction phase of the Proposed Development will be scheduled, where possible, to avoid the construction phases of the 2 no. Wind Farms. This will ensure that the potential for cumulative effects is minimised. In the event that the construction phase of the Proposed Development overlaps with either of these developments it is estimated that the cumulative impacts will be negative, short term and will be slight.

*Table 15-26 Summary of other wind farms considered in cumulative assessment and potential for cumulative traffic effects with Proposed Development*



| Project | Status | Degree of overlap of highway network (low / medium / high) | Traffic volumes (low / medium / high) | Potential cumulative traffic effects* |
|---|---|---|---|---|
| 1 - Cullenagh Wind Farm (18 turbines) | Permitted | High | Medium | High |
| 2 -Ballynalacken Wind Farm (12 turbines) | Proposed | High | Medium | High |
| 3 - Foyle Wind Farm Extension (3 turbines) | Permitted | Low | Low | Low |
| 4 - Pinewoods Wind Farm (1 turbines) | Permitted | High | Low | Low |
| 5 - Farranroy Wind Farm (9 turbines) | Permitted | Low | Medium | Low |
| 6 - Bilbao Wind Farm (5 turbines) | Permitted | Low | Medium | Low |
| 7 - Briskalagh Wind Farm (7 turbines) | Proposed | Low | Medium | Low |
| 8 - Coolglass Wind Farm (13 turbines) | Proposed | Medium | Medium | Medium |
| 9 - Freneystown Wind Farm (8 turbines) | Proposed | Low | Medium | Low |
| 10 - Seskin Wind Farm (7 turbines) | Proposed | Low | Medium | Low |
| 11 - White Hill Wind Farm (7 turbines) | Proposed | Low | Medium | Low |

## Other development applications in the Planning Process

There are a total of 5 other developments currently within the 10 km buffer zone progressing through the planning process, 2 with Kilkenny County Council and 3 as appeals with An Bord Pleanala, with the potential for cumulative impacts with the Proposed Development, as set out in Table 15-27.

There are 2 l developments ( a residential development of 51 units and an Anaerobic Digester) in Ballyragget where it is considered that the potential for cumulative impacts is medium. In the event

that either of these developments is constructed at the same time as the Proposed Development it is forecast that the cumulative impacts will be negative, short term and slight in terms of severity.



*Table 15-27 Summary of other developments with Kilkenny County Council and An Bord Pleanala considered in cumulative assessment and potential for cumulative traffic effects with Proposed Development*

| Project | Status | Degree of overlap of highway network (low / medium / high) | Traffic volumes (low / medium / high) | Potential cumulative traffic effects* |
|---|---|---|---|---|
| 1 - Planning permission for an energy storage facility comprising (i) energy storage containers; (ii) electrical transformers; (iii) underground electrical and communications cabling; (iv) provision of a new access point from the R432. Kilkenny County Council Ref 24/60221.<br><br>Moatpark , Ballyragget , Co. Kilkenny | Proposed | Medium | Low | Low |
| 2 - A residential development of 51 residential units. Kilkenny County Council Ref 24/60167. The Rookery Tullyroe , Ballacolla Road (R433) , Abbeyleix Co Laois | Proposed | Medium | Medium | Medium |
| 3 - Two anaerobic digesters – ABP | ABP Appeal | Medium | Medium | Medium |

| | | | | |
|---|---|---|---|---|
| Ref 316132. Ballyconra , Ballyragget , Co Kilkenny | | | | |
| 4 - Extraction of sand and gravel over an area of ca. 2.0 hectares. - ABP Ref 303424. Ironmills (or Kilrush), Ballinakill,, Co. Laois | ABP Appeal | Low | Low | Low |

# 15.2 Telecommunications and Aviation

## 15.2.1 Introduction

This section of the EIAR assesses the likely significant effects of the Proposed Development on telecommunications and aviation assets.

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

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 Development', 'Site', 'Proposed Wind Farm' and 'Proposed Grid Connection'.

Section 15.2.3 describes the way in which wind turbines can potentially interfere with telecommunications signals or aviation activities. Section 15.2.4 presents details on how such effects will be avoided, with the likely significant effects assessed (and mitigation measures proposed) in Section 15.2.5.

### 15.2.1.1 Statement of Authority

This section of the EIAR has been prepared by Edward Ryan and reviewed by Eoin McCarthy, both of whom are Environmental Scientists with MKO.

Edward is an Environmental Scientist with a B.Sc. (Hons) in Environmental Science from the University of Limerick and a M.Sc. (hons) in Environmental Systems from Atlantic Technological University: ATU (formally GMIT) and has over 4 years of consultancy experience.

Eoin McCarthy holds a BSc. (Env.) in Environmental Science and is a Project Director with 14 years' experience in the consultancy sector. His project experience includes a significant range of energy infrastructure, tourism, waste permit, flood relief scheme and quarrying projects in addition he has been involved in the project management of the production of EIARs for almost 1GW worth of wind energy projects. Eoin has completed Material Assets (Other Material Assets) section for numerous EIARs for wind energy projects.

## 15.2.2 Methodology and Guidance

This section of the assessment focuses particularly on the scoping and consultation exercise conducted with telecommunications operators and aviation authorities. Scoping was carried out in line with the EPA guidelines, 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 2.7 of Chapter 2 of this EIAR. Consultation with the telecommunications operators and aviation bodies informed the constraints mapping process, which in turn informed the layout of the Proposed Development, as described in Chapter 3, Section 3.2.5 of the EIAR.

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

## 15.2.3 Background

### 15.2.3.1 Broadcast Communications

Wind turbines, like all large structures, have the potential to interfere with broadcast signals, by acting as a physical barrier or causing a degree of scattering to microwave links. The most significant effect at a domestic level relates to a possible flicker effect caused by the moving rotor, affecting, for example, radio signals. The most significant potential effect occurs where the renewable energy development is directly in line with the transmitter radio path.

### 15.2.3.2 Domestic Receivers

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

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

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

### 15.2.3.3 Other Signal Types

Wind turbines have the potential to affect other signal types used for communication and navigational systems, for example tower-to-tower microwave communication links, and airborne and ground radar systems. Interference with radar systems occurs when wind turbines are located close to an airport or directly in line with the instrument landing approach. The nearest licensed aerodrome to the Proposed Development site is Kilkenny Airport which is located approximately 16.5km to the south of the Proposed Development site. The closest airport to the Proposed Development is Waterford Airport which is located approximately 69.5km to the south of the Proposed Development site. Waterford Airport has no passenger services operating to or from it. The closest operational airport is Dublin Airport which is located approximately 98km to the northeast of the Proposed Development site.

The airports listed above are outside the range at which such issues would be expected, and as detailed in Table 15-28 below, the Irish Aviation Authority noted no issues with the Proposed Development however they issued observations as discussed in Section 15.2.5.3.2.

## 15.2.4 Preventing Electromagnetic Interference

### 15.2.4.1 National Guidelines

Both the adopted '*Wind Energy Development Guidelines for Planning Authorities'* produced by the Department of the Environment, Heritage and Local Government (DoEHLG, 2006) (referred to as the Guidelines) and the Draft Wind Energy Development Guidelines for Planning Authorities (DoEHLG, 2019) (referred to as the draft Guidelines) 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 Development as summarised below in Table 15-28; full details are provided in Section 2.7 in Chapter 2 of this EIAR.

### 15.2.4.2 Scoping and Consultation

As part of the EIAR scoping and consultation exercise, MKO contacted the relevant national and regional broadcasters, fixed and mobile telephone operators, aviation authorities and other relevant consultees. Consultation was also carried out with ComReg in order to identify any other additional licensed operators in the vicinity of the Wind Farm Site to be contacted, who may not have been on the list of main operators.

The responses received from the telecommunications and aviation consultees are summarised below in Table 15-28 and relevant copies of scoping responses are provided in Appendix 2-1.

*Table 15-28 Telecommunications and Aviation Scoping Responses*

| Consultee | Response | Potential for Interference Following Consultation Exercise |
|---|---|---|
| 2rn (RTÉ Transmission Network Ltd.) | 03/05/2024 | No |
| Airwave Internet | 13/04/2023 | No |
| Broadcasting Authority of Ireland | 11/04/2023 | No |
| Coimisiún na Meán | 02/05/2024 | No |
| Cellnex | 21/04/2023 | No |
| Dense air | No Response | N/A |
| Department of Defence | 03/05/2024<br>23/05/2024 | No |
| Eir | 25/04/2023 | No |
| Electricity Supply Board | No Response | No |
| Enet Telecommunications Networks Limited | 11/07/2023 | Yes - link located within Proposed Development Site but 130m setback applied and adhered to |
| EOBO Ltd | No Response | No |
| FastCom Broadband Limited | No Response | No |
| Hibernian towers | 20/04/2023 | No |
| Imagine Networks Services | 20/04/2023 | No |
| Irish Rail | 13/04/2023 | No |

| Consultee | Response | Potential for Interference Following Consultation Exercise |
|---|---|---|
| Ivertec Ltd | 20/04/2023 | No |
| JFK Communications Ltd | No Response | N/A |
| JS Whizzy Internet Limited | 11/04/2024 | No |
| Kilkenny Airport | No Response | N/A |
| Lackabeha Services Ltd T/A Airwaves Internet | 13/04/2024 | No |
| Meteor Mobile Communications Limited | No Response | N/A |
| RTÉ/Saorview | No Response | No |
| TETRA Ireland | 24/04/2023 | No |
| Irish Aviation Authority | 05/06/2024 | N/A – Refer to Section 15.2.4.2.4 below |
| Three Ireland (Hutchison) Ltd | 11/04/2023 | Yes – link located within Proposed Development Site. The potential impact is discussed below. |
| Towercom | No Response | N/A |
| Viatel Ireland Ltd | No Response | N/A |
| Virgin media | No Response | N/A |
| Vodafone | 21/04/2023 | Yes - link located within Proposed Development Site The potential impact is discussed below |

Of the scoping responses received from telephone, broadband and other telecommunications operators, those who highlighted an initial potential interference risk are addressed below. The remaining consultees who responded to scoping, operate links either outside the Wind Farm Site, and therefore are not subject to any interference risk, or do not operate any links in the area. Relevant copies of scoping responses are provided in Appendix 2-1.

### Enet Telecommunications Networks Ireland

Enet responded to a scoping request from MKO on the 11th of July 2023, noting that they had a link traversing the Site, however all proposed turbine locations are situated outside the operator specified setback applied to the link. Therefore, no interference with this link is anticipated.

#### Vodafone

Vodafone responded to a scoping request from MKO on the 21st of April 2023, noting that they had links in the area. In planview the link appeared to overlap with one of the proposed turbines (T08). A Telecommunications Impact Assessment was carried out by Ai Bridges to determine the impact the proposed turbine may have on the Vodafone link. It was determined the Turbine would have no impact on the link as there was a Freznel Zone clearance of over 10m. Optional mitigation measures are provided in the Telecommunications Impact Assessment Report included in Appendix 15-3 of this EIAR.

#### Three

Three responded to a scoping request from MKO on the 11th of April 2023, noting that they had links in the area. In planview the link appears to overlap with one of the proposed turbines (T08). The Three link is found on a cell tower approximately 70m northwest of the cell tower where the Vodafone link originates. The Three cell tower is on the same elevation as the cell tower that has the Vodafone link. From the email response from Three the dish heights are higher than that of the Vodafone dish heights. Given the similar frequency from both providers (Vodafone – 13GHz. Three – 15GHz) it could be determined that there is a greater clearance from the Three link compared to the Vodafone link. However, if mitigation measures are required the optional mitigation measures proposed in the Telecommunications Impact Assessment Report can be implemented, there mitigation measures can be found in Appendix 15-3 of this EIAR.

### 15.2.4.2.2 *Broadcasters*

There are two broadcasters operating in Ireland, RTÉ Transmission Network (operating as 2rn) and Virgin Media.

RTÉ Transmission Network, replied on the 12th April 2023 to a scoping request from MKO stating that the operation of the Proposed Development will not have any impact on RTÉ fixed links.

A standard Protocol Document will be prepared by 2rn for the Proposed Development prior to the commencement of the construction phase.

No reply was received from Virgin Media.

### 15.2.4.2.3 *Aviation*

As noted in Table 15-24 above, scoping responses were received from the following aviation consultees:

- The Irish Aviation Authority (IAA)
- Department of Defence (Irish Air Corps)

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

#### Irish Aviation Authority

In June 2024, a scoping response was received from the Irish Aviation Authority (IAA). The requirements of the IAA include the following:

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 tip height elevations at each wind turbine location. Horizontal extent of turbines and blade length will also be provided.*

3. *Notify the Authority of intention to commence crane operations with a minimum of 30 days prior notification of their erection.*



The nearest licensed aerodrome to the Proposed Development site is Kilkenny Airport which is located approximately 16.5km to the south of the Proposed Development site. The closest airport to the Proposed Development is Waterford Airport which is located approximately 69.5km to the south of the Proposed Development site. Waterford Airport has no passenger services operation from it. The closest operational airport is Dublin Airport which is located approximately 98km to the northeast of the Proposed Development site.

In response to the lighting requirements requested by the IAA, the turbines will be marked on maps, lit at night and entered into aircraft navigation databases and therefore can be avoided during flight.

#### Department of Defence (Irish Air Corps)

The Department of Defence (DoD) replied on the 23rd May 2024 and provided the following observations:

- The Minister for Defence is responsible for the regulation of military aviation, whereas the Irish Aviation Authority (IAA) is responsible for the safety regulation of civil aviation including aerodromes. The IAA does not have remit for military aviation or installations. Safeguarding of military flight operations and installations is intended to protect both current and future aircraft operations and also to take account of the security requirements associated with some of those operations.
- Single turbines, structures, or turbines delineating the windfarm 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 of a type visible to Night Vision equipment. Obstacle lighting must emit light at the near Infra-Red (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.
- Any Irish Air Corps (IAC) requirements are separate to Irish Aviation Authority (IAA) requirements.

## 15.2.5 Likely Significant Effects and Associated Mitigation Measures

### 15.2.5.1 'Do-Nothing' Scenario

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

### 15.2.5.2 Construction Phase

The potential for electromagnetic interference from wind turbines occurs only during the operational phase of the Proposed Development. There are no electromagnetic interference impacts associated with the construction phase of the Proposed Development, and therefore no mitigation required. Potential impacts during turbine erection and commissioning are assessed in the operational phase impact assessment.

## 15.2.5.3 Operational Phase

### 15.2.5.3.1 *Telecommunications*

#### Pre-Mitigation Effects

Consultation regarding the potential for electromagnetic interference from the Proposed Development was carried out with the relevant national and regional broadcasters, fixed line and mobile telephone operators and other operators.

Ai Bridges was commissioned by MKO to evaluate the possible impacts that the Proposed Wind Farm could have on the Enet and Vodafone telecommunications networks. Using the information obtained during the field survey assessments and the consultation responses, a desktop impact analysis was carried out and the radio links were analysed (in 2D and 3D) using radio planning\ modelling software.

Results from the impact analysis show that there is a clearance distance of over 50 m between the Fresnel Zone of the Enet link and the blade-tip of the nearest of the proposed turbine (T03). At this distance there would be no impact to the Enet microwave radio link.

Results from 3D network analysis indicate that the Vodafone radio link over-shoots the Proposed Wind Farm and that there would be a clearance distance of over 10m between the Fresnel Zone of the radio link and the blade-tip of the nearest proposed turbine (T08).

Although the analysis indicates that the proposed turbine layout will not obstruct either radio link, mitigation measures have been outlined below and can be implemented in the event that there is an impact on the above or any telecommunications links.

#### Mitigation Measures

In the event of interference occurring to telecommunications, the Guidelines acknowledge that '*electromagnetic interference can be overcome'* by the use of divertor relay links out of line with the wind farm. The following mitigation options are proposed in the event of any potential impact that the Proposed Wind Farm turbines may have on telecommunications links.

- Increasing the Radio Antenna Installation heights;
- Relaying the link via existing links in the surrounding area and;
- Micro siting the turbine.

The full Telecommunications Impact Assessment report can be found in Appendix 15-3 of this EIAR.

#### Residual Effect

The Proposed Development will have no residual impact on the telecommunications signals of any other operator, due to distance from or absence of any links in the area.

#### Significance of Effects

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

### 15.2.5.3.2 *Aviation*

There are no IAA assets within the Proposed Wind Farm site or surrounding area that may be impacted by the proposed turbines.

### Mitigation Measures

The scoping response from the IAA and DoD sets out lighting requirements for turbines as detailed above. These requirements will be complied with for the Proposed Development and any further details will be agreed in advance of construction with the IAA, i.e. crane erection. The coordinates and elevations for built turbines will be supplied to the IAA, as is standard practice for wind farm developments.

### Residual Effect

The Proposed Development will have no residual impact on aviation as all lighting requirements will be met by the applicant.

### Significance of Effects

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

## 15.2.5.4 Decommissioning Phase

As stated in Section 15.2.5.3 above, the potential for electromagnetic interference from wind turbines occurs only during the operational phase of the Proposed Development. There are no electromagnetic interference impacts associated with the construction or decommissioning phases of the Proposed Development, and therefore no mitigation required.

## 15.2.5.5 Cumulative Effect

Chapter 2, Section 2.9 of this EIAR describes the methodology used in compiling the list of permitted or proposed projects and plans in the area, (wind energy or otherwise) considered in the assessment of cumulative effects, and provides a description of each project, including current status, and is set out in Section 2.9 in Chapter 2 of this EIAR. There is one existing wind farm in the surrounding area, the Lisdowney wind farm development which is located approximately 3.7km southwest of the Site.

During the development of any large project that holds the potential to effect telecoms or Aviation, the Developer is responsible for engaging with all relevant Telecoms Operators and Aviation Authorities to ensure that the proposals will not interfere with television or radio signals by acting as a physical barrier. In the event of any potential impact, the developer for each individual project is responsible for ensuring that the necessary mitigation measures are in place. All modern wind farms have lighting requirements agreed with IAA and the turbine locations entered into aircraft navigation databases and therefore can be avoided during flight. It is on this basis that it can be concluded that there would be no cumulative impacts relating to the Proposed Development and surrounding projects in relation to Telecommunications or Aviation.

# 15.3 Other Material Assets

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

In order to assess the potential for significant effects on built services and waste management in the vicinity of the Proposed Development, scoping requests were made to EirGrid, Uisce Éireann and numerous sections of Kilkenny and Laois County Councils including Water Services and Environment. Refer to Section 2.7 of Chapter 2 of this EIAR for details in relation to the EIA scoping exercise.

A request for information response was received from Uisce Éireann on the 25th of March 2024 which provided details in relation to specific water services within the EIAR Site Boundary. A request for information response was received from ESB Networks on the 28th of March 2024 which provided details in relation to electricity infrastructure within the EIAR Site Boundary. No response was received from EirGrid or the local authority sections.

No gas supply lines are located within the EIAR Site Boundary, the closest gas line is located approximately 245m west of the EIAR Site Boundary at its nearest point.

A desktop assessment, using Eir infrastructure eMaps[1], determined the presence of existing underground broadband cabling within the Site along the N77 national secondary road.

Details in relation to the Seskin Group Water Scheme (GWS) infrastructure were obtained through consultation between the Applicant and the GWS committee.

## 15.3.1 Existing Built Services and Utilities

### 15.3.1.1 Electricity

#### 15.3.1.1.1 *Infrastructure*

A 38kV overhead line traverses the EIAR Site boundary on the N77 National Secondary Road in the townland of Ballyconra, Co.Kilkenny. The local rural supply provides electricity from these overhead lines to the local residents within the vicinity of the Proposed Development. A scoping request was issued to Eirgrid in September 2022 and again in May 2023. No response was received to date. A MV/LV (10KV/2KV/400V/230V) underground cable is located in close proximity, approximately 3m east of the Proposed Grid Connection in the townland of Ballynaslee, Co.Kilkenny.

#### 15.3.1.1.2 *Supply*

Ireland faces significant challenges to its efforts to meet European Union (EU) targets for renewable energy by 2030 and its commitment to transition to a low carbon economy by 2050. The need to decarbonise the economy and reduce emissions has always been imperative, however in recent years the urgency involved has become clearer to all stakeholders. The primary driver behind the Proposed Development is the need to provide additional renewable energy to offset the use of fossil fuels within the electricity generating sector. Further detail can be found in Chapter 2, Section 2.2 of this EIAR. The Proposed Development comprises the provision of a wind farm of 8 no. wind turbines, which is capable of generating and providing a significant amount of renewable energy onto the national grid and capture an additional part of County Laois and Kilkenny's valuable renewable energy resource.

### 15.3.1.2 Water

#### 15.3.1.2.1 *Infrastructure*

There are underground water supply pipelines from the Seskin Group Water Scheme (GWS) situated within the Site. These pipelines provide agricultural water supplies to the surrounding area. The infrastructure of the Proposed Wind Farm and Proposed Grid Connection cross the underground pipelines at a number of locations within the Site.

Uisce Éireann services are located within the EIAR Boundary on the R432 Regional Road to the west of the Proposed Grid Connection. The nearest service is approximately 50m from the Proposed Grid Connection. There will be no impact on the Uisce Éireann services from the Proposed Development.

[1] [1] eMaps open eir Civil Engineering Infrastructure Service

#### 15.3.1.1 Broadband Services

##### 15.3.1.1.1 *Infrastructure*

A desktop assessment using Eir infrastructure eMaps found existing broadband services in the public road corridor on the N77 national secondary road. An analysis of the services found the broadband cables are potentially located to the eastern verge of the N77 national secondary road. No underground broadband services are located within the Proposed Wind Farm.

### 15.3.2 Waste Management

A Waste Management Plan (WMP) has been prepared and forms part of the Construction and Environmental Management Plan (CEMP) in Appendix 4-2 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 Development. Disposal of waste will be a last resort.

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. The expected waste volumes generated on-site are unlikely to be large enough to warrant source segregation at the Proposed Development site. Therefore, all wastes streams generated on-site will be deposited into a single waste skip. 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.

Site personnel will be instructed at induction that under no circumstances can waste be brought to the 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.

It is not anticipated that any significant volume of waste will be generated within the Site during the operational phase of the Proposed Development 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 Development 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.

### 15.3.3 Likely Significant Effects and Associated Mitigation Measures

#### 15.3.3.1 'Do-Nothing' Scenario

If the Proposed Development were not to proceed the opportunity to generate renewable energy and electrical supply to the national grid would be lost. All existing built services with the Site would remain unchanged.

#### 15.3.3.2 Construction Phase

##### 15.3.3.2.1 *Electricity*

There is potential for overhead and underground electricity lines and underground services to be impacted through interference or breakage during the construction phase, specifically during the delivery of turbine components and the laying of grid connection cables along the public road corridor. There

will also be a requirement, to temporarily relocate the overhead line pole-set nearest the proposed main site entrance during the turbine delivery phase. This will have a temporary, moderate negative impact on local electricity supply. Working in the vicinity of overhead electricity lines, in the absence of the correct safety measures and procedures has the potential to have a significant, negative impact on health and safety.



## Mitigation Measures

- Goal posts will be established under overhead lines for the entirety of the construction phase. They will not exceed a height of 4.2 metres, unless specifically agreed with ESB Networks[2]
- The suitability of machinery and equipment for use near power lines will be risk assessed.
- All staff will be trained on the routes and operating voltages of overhead electricity lines running across the proposed main site entrance. All staff will be trained to be aware of the risks associated with overhead lines. All contractors that may visit the sites are made aware of the location of lines before they come on to site.
- Barriers will run parallel to the overhead line at a minimum horizontal distance of 6 metres on plan from the nearest overhead line conductor wire.
- Prior to the delivery of turbines to the Proposed Development site, a dry run of the route using vehicles with similar dimensions will occur. Please see Section 15.1.9 above for details.
- When activities must be carried out beneath overhead lines, e.g. component delivery or grid cable laying, a site-specific risk assessment will be undertaken prior to any works. The risk assessment must take into account the maximum potential height that can be reached by the plant or equipment that will be used is undertaken prior to any works. Overhead line proximity detection equipment will be fitted to machinery when such works are required.
- Information on safe clearances will be provided to all staff and visitors.
- Signage indicating locations and health and safety measures regarding overhead lines will be erected in canteens and on site.
- All staff will be made aware of and adhere to the Health & Safety Authority's 'Guidelines on the Procurement, Design and Management Requirements of the Safety, Health and Welfare at Work (Construction) (Amendment) Regulations 2021'. This will encompass the use of all necessary Personal Protective Equipment and adherence to the site Health and Safety Plan.
- All health and safety measures as detailed in Section 5 of Construction Environment Management Plan and Chapter 5 Population and Human Health will be adhered to during the construction, operation and decommissioning phases.
- Any area where excavations are planned will be surveyed and all existing services will be identified prior to commencement of any works.
- Liaison will be had with the relevant sections of the Local Authority including all the relevant area engineers to ensure all services are identified.
- Excavation permits will be completed, and all plant operators and general operatives will be inducted and informed as to the location of any services.
- The contractor must comply with and standard construction codes of practice in relation to working around electricity, gas, water, sewage and telecommunications networks

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

### Residual Impact

With the implementation of the above measures, the residual impact is considered to be a temporary, slight negative impact on local electricity supply and a short term, slight negative impact on health and safety.

### Significance of Effects

There will be no significant direct or indirect effect on electricity supply from the Proposed Development during the construction phase.

#### 15.3.3.2.2 *Water*

There is potential for the water supply lines from the Seskin GWS to be impacted through interference or breakage during the construction phase.

The Uisce Éireann services are unlikely to be impacted by the Proposed Development as the only services within the EIAR Boundary are located on the R432 Regional Road to the west of the Proposed Grid Connection. The nearest service is approximately 50m from the Proposed Grid Connection. There will be no impact on the Uisce Éireann services from the Proposed Development.

### Mitigation Measures

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

### Residual Impact

With the implementation of the above measures, the residual impact is considered to be a temporary, slight negative impact on local water supply and a short term, slight negative impact on health and safety.

### Significance of Effects

There will be no significant direct or indirect effect on water supply from the Proposed Development during the construction phase.

#### 15.3.3.2.3 *Broadband Services*

The construction of the Proposed Development will be unlikely to have a significant impact on broadband services such as the eir broadband service in the public road network as the Proposed Grid Connection is located on the western verge of the N77 National Secondary road.

### Mitigation Measures

Notwithstanding the above, specific measures are incorporated into the CEMP, included as Appendix 4-2 of this EIAR, to ensure that the construction of the Proposed Development will not have effect on

underground electrical cables and built services at the Proposed Development site. 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 and standard construction codes of practice in relation to working around electricity, gas, water, sewage and telecommunications networks.



#### Residual Impacts

Following the implementation of the above mitigation measures, there will be a short-term imperceptible negative residual impact on broadband services during the construction phase of the Proposed Development.

#### Significance of Effects

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

### 15.3.3.3 Operational Phase

There will be no operational phase impacts or associated effects on built services and waste management associated with the Proposed Development.

## 15.3.4 Cumulative Impact Assessment

The potential cumulative impact of the Proposed Development and other relevant developments has been carried out with the purpose of identifying what influence the Proposed Development will have on the surrounding environment when considered cumulatively and in combination with relevant existing permitted or proposed projects and plans in the area, in the vicinity of the Proposed Development site, as set out in Section 2.9 in Chapter 2 of this EIAR.

The potential for cumulative effects with these nearby developments are not significant from the perspective of built services and waste management. The construction of the underground electrical cabling connection route for the Proposed Development would be subject to a Road Opening License, as would any other similar nearby grid connection works. The timing of these works would therefore be controlled by the road opening licensing process and would not overlap. It is also likely that the construction phases of these projects will not overlap with the construction phase of the Proposed Development.

On the basis of the assessment above, the Proposed Development will have no impact on built services and waste management. It is on this basis that it can be concluded that there would be a short-term, imperceptible cumulative impact on built services and waste management from the Proposed Development and permitted or proposed projects and plans in the area as set out in Section 2.9 in Chapter 2 of this EIAR.