

Borrisbeg Grid Connection

Chapter 14 Material Assets

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Chapter 14 Material Assets

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14 Material Assets

14.1 Introduction

Material Assets are defined in the Guidelines on the Information to be contained within Environmental Impact Assessment Reports (EPA 2022) as ‘*built services and infrastructure*’. *Traffic is included because in effect traffic consumes transport infrastructure*’.

Material Assets can originate from either human or natural sources. This section of the EIAR examines the likely significant impacts of the Proposed Grid Connection on transportation infrastructure and Irish Rail (Section 14.2 Traffic and Transport), as well as Other Material Assets such as Utilities, Waste Management, and Telecommunications (Section 14.3), which are economic material assets of human origin. Waste Management is considered part of Material Assets according to the EPA 2022 Guidelines. Waste management aspects related to the construction and operation of the Proposed Grid Connection are detailed in Chapter 3 of the EIAR. Traffic volumes generated by waste removal from the Proposed Grid Connection during the construction and operation phases to authorised waste facilities are discussed in Section 14.2 below.

Cultural assets related to Archaeology and Cultural Heritage are covered in Chapter 12 of this EIAR. Economic assets of natural heritage include non-renewable resources like minerals and soils, as well as renewable resources such as wind and water. These are addressed in Chapter 7: Land, Soils and Geology; Chapter 8: Hydrology and Hydrogeology; Chapter 9: Air Quality; and Chapter 10: Climate. Tourism and amenity resources, also considered material assets, are discussed in Chapter 4: Population and Human Health.

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

14.2 Traffic and Transport

14.2.1 Introduction

This section of the EIAR assesses the potential impacts on roads, traffic, and transport resulting from traffic generated during the construction and operational, phases of the Proposed Grid Connection which comprises the following:

- A 110 kilovolt (kV) ‘loop-in/loop-out’ Air-Insulated Switchgear (AIS) electrical substation, including 2 no. single-storey control buildings with staff welfare facilities, underground wastewater storage tank, all associated electrical plant, cabling, equipment and apparatus, and security fencing, within a substation compound with a total footprint of approximately 1.41ha;
- 2.1 kilometre 110kV underground cabling route, with 0.9km following the public road corridor and 1.2km along new proposed access track across agricultural grassland (including joint bays, communication and earth sheath link chambers and all ancillary works along the route). The proposed underground cabling route will connect the 110kV onsite electrical substation by means of an underground 110kV electricity cable to the existing Ikerrin to Thurles 110kV overhead transmission line which traverses the Site;
- 2 no. lattice-type end masts with a height of 16 metres to facilitate connection to the existing 110kV Ikerrin-Thurles overhead electricity transmission line;
- 1 no. temporary construction compound (including offices and staff welfare facilities);
- Vegetation removal and Spoil Management;
- Site Drainage; and
- All ancillary works and apparatus.

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A full description of the Proposed Grid Connection is provided in Chapter 3: Development Description 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 as a result of the additional traffic volumes that will be generated delivering and removing materials to and from the site, and due to the temporary road closures, that will be required during the construction of the underground cabling route.

14.2.2 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 (CBP) Galway office having moved there as the senior transportation engineer for the Galway Land Use and Transportation Study. Since the completion of that study in 1999, Alan has worked throughout Ireland on a range of projects including: major development schemes, the Galway City Outer Bypass, Limerick Planning Land-Use and Transportation Study, Limerick Southern Ring Road Phase II, cost benefit analyses (COBA) and various studies for the University of Galway. Before moving to Galway in 1997, Alan was involved in a wide variety of traffic and transport studies for CBP throughout the UK, Malta and Indonesia. He has particular expertise in the assessment of development related traffic, including the preparation of Traffic and Transport chapters of EIARs for many wind farm developments including the following: Ardderroe, Derrinlough, Knocknamork, Shehy More, Cloncreen, Derrykillew, Ballyhorgan, Lettergull, Barnadivane, Cleanrath, Knockalough, Sheskin South and Borrisbeg.

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

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

14.2.3 Guidance on Assessment of Effects

This section of the EIAR has been completed in accordance with the EIAR guidance and legislation set out in Chapter 1: Introduction. The assessment uses standard terminology to describe the likely significant effects associated with the construction of the Proposed Grid Connection. Further information on the classification of effects used in this assessment is presented in Section 1.9 of this EIAR. In addition, this chapter complies with the guidance for such assessments set out by Transport Infrastructure Ireland (TII), in the document number PE-PDV-02045 'Guidelines for Traffic and Transport Assessments, May 2014'.

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14.2.4 Scoping and Consultation

The scoping and consultation process with statutory and non-statutory consultees is part of the EIAR process and has been used to inform the Traffic and Transport assessment undertaken. The Scoping Report was issued to the Department of Transport and TII on 14th July 2025. No response has been received from the Department of Transport to date. The response received from TII is set out below.

14.2.4.1 Transport Infrastructure Ireland (TII)

A Scoping Request was issued to Transport Infrastructure Ireland (TII) by RPS on 14th July 2025 and a response was received via email dated 24th July 2025, within which it provided a list of recommendations to be followed when preparing the EIAR. All relevant TII guidelines and policies have been complied with in the preparation of this assessment, comprising the following;

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

Feedback provided by TII in relation to the Proposed Grid Connection is set out in Table 14-1 below.

Table 14-1: Issues raised by TII in relation to the Proposed Development and Responses Received 24/07/25

	TII Scoping Response	Applicants Response
1	TII notes that the subject site has proposed access to the non-national road network in the first instance. Consultations should be had with the relevant Local Authority/National Roads Design Office, with regard to the locations of existing and future national road schemes in the area.	It is confirmed that consultation has been undertaken with Tipperary County Council (TCC). A meeting request and project update was issued to TCC on 07 July 2025 to which TCC responded they did not feel a meeting was necessary following the several meetings held for the Consented Wind Farm.
2	TII would be specifically concerned as to potential significant impacts the development would have on the national road network (and junctions with national roads) in the proximity of the Proposed Development, including the potential haul route.	An assessment of the traffic generation and traffic impacts associated with the Proposed Grid Connection are set out within this chapter. It is noted that there are no direct traffic impacts on the National Road network forecast resulting from the Proposed Development.
3	The developer should assess visual impacts from existing national roads.	The visual impacts of the Proposed Grid Connection are set out in Chapter 13 of this EIAR.
4	The developer should have regard to any EIAR / EIS and all conditions and/or modifications imposed by An Bord Pleanála, now An Coimisiún Pleanála, regarding road schemes in the area. The developer should, in particular, have regard to any potential cumulative impacts.	It is confirmed that all An Coimisiún Pleanála conditions will be adhered to, and the cumulative traffic related impacts are assessed in Section 14.5.
5	The developer, in preparing an EIAR, should have regard to TII Publications (formerly DMRB and the Manual of Contract Documents for Road Works).	There are no permanent changes to the existing highway network proposed as part of the Proposed Grid Connection. All temporary traffic management measures proposed for temporary access to lands (for bridges) and for temporary local diversions during temporary road closures will be undertaken in accordance with TII design guidelines and 'Traffic Signs Manual, Section 8 – Temporary Traffic Measures and Signs for Road

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	TII Scoping Response	Applicants Response
		Works' (DoT, 2019) and 'Guidance for the Control and Management of Traffic at Roadworks' (DoT).
6	The EIAR should have regard to TII's Environmental Assessment and Construction Guidelines, including the Good Practice Guidance for the Treatment of Noise during the Planning of National Road Schemes (National Road Authority (NRA), 2014).	It is confirmed that the impacts of the Proposed Grid Connection with regards noise are set out in Chapter 11 of this EIAR.
7	The EIAR, should consider the "European Communities (Environmental Noise) Regulations, 2018, (S.I. no. 549 of 2018)", and, in particular how the development will affect future action plans by the relevant competent authority. The developer may need to consider the incorporation of noise barriers to reduce noise impacts (See Good Practice Guidance for the Treatment of Noise during the Planning of National Road Schemes (NRA, 2014).	All noise related impacts are addressed in Chapter 11 of this EIAR.
8	It would be important that, where appropriate, subject to meeting the appropriate thresholds and criteria and having regard to best practice, a Traffic and Transport Assessment be carried out in accordance with relevant guidelines, noting traffic volumes attending the site and traffic routes to/from the site, with reference to impacts on the national road network and junctions of lower category roads with national roads. In relation to national roads, TII's TTA Guidelines (2014) should be referred to in relation to proposed development with potential impacts on the national road network. The scheme promoter is also advised to have regard to Section 2.2 of the NRA/TII TTA Guidelines which addresses requirements for sub-threshold TTA. Any improvements required to facilitate development should be identified. It will be the responsibility of the developer to pay for the costs of any improvements to national roads to facilitate the private development proposed as TII will not be responsible for such costs.	It is confirmed that the assessment presented in Chapter 14 of the EIAR is undertaken in accordance with Traffic and Transport Assessment Guidelines, TII (2014).
9	The designers are asked to consult TII Publications to determine whether a Road Safety Audit is required.	It is noted that there is no new access junctions proposed on the national road network and that only minor temporary works are proposed on the local road network that will be accompanied by traffic management measures. It is noted that a Road Safety Audit has not therefore been undertaken. One will be undertaken and provided if required by TII or Tipperary County Council.
10	In the interests of maintaining the safety and standard of the national road network, the EIAR should identify the methods/techniques proposed for any works traversing/in proximity to the national road network.	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).
11	TII recommends that the applicant/developer should clearly identify haul routes proposed and fully assess the network to be traversed. Where abnormal 'weight' loads are a feature of the development, e.g., turbine or substation component, separate structure approvals/permits and other licences may be required in connection with the proposed haul route. All national road structures on the haul route through all the relevant County Council administrative areas should be checked by the applicant/developer to confirm their capacity to accommodate any abnormal 'weight' load proposed.	The proposed haul routes for the proposed UGC are identified in this Chapter 14 of the EIAR. It is confirmed that the construction of the Borrisbeg Renewable Energy Development will require the delivery of abnormally large loads although the axle loadings will not exceed accepted limits. A program of pre-delivery condition and structural assessment of the route is proposed, as set out in the Traffic Management Measures, included set out in Section 14.x.

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	TII Scoping Response	Applicants Response
12	In addition, the haul route should be assessed to confirm capacity to accommodate abnormal 'length' loads and any temporary works required are identified.	This was undertaken as part of the EIAR prepared for the proposed Borrisbeg Renewable Energy Development.
13	The national road network is managed by a combination of PPP Concessions, Motorway Maintenance and Renewal Contractors (MMaRC) and local road authorities, in association with TII. The applicant/developer should also consult with all PPP Companies, MMarC Contractors and road authorities over which the haul route traverses to ascertain any operational requirements, including delivery timetabling, etc., to ensure that the strategic function of the national road network is safeguarded.	The applicant agrees with this condition.
14	Where temporary works within any MMarC Contract Boundary are required to facilitate the transport of turbine components to the Site, the applicant/developer shall contact thirdpartyworks@tii.ie in advance, as a works specific Deed of Indemnity will be needed by TII before the works can take place.	The applicant agrees with this condition.
15	Additionally, any damage caused to the pavement on the existing national road arising from any temporary works due to the turning movement of abnormal loads (e.g., tearing of the surface course, etc.) shall be rectified in accordance with TII Pavement Standards and details in this regard shall be agreed with the road authority prior to the commencement of any development onsite. Any Road Safety requirements should be addressed.	The applicant agrees with this condition, as set out in Section 14.2.8.1.3
16	Any grid connection and cable routing proposals should be developed to safeguard proposed road schemes, as TII will not be responsible for costs associated with future relocation of cable routing where proposals are catered for in an area of a proposed national road scheme. In that regard, consideration should be given to routing options, use of existing crossings, depth of cable laying, etc. In the context of the existing national road network, in accordance with the National Planning Framework National Strategic Outcome no. 2 'Enhanced Regional Accessibility', there is a requirement to maintain the strategic capacity and safety of the network. This requirement is further reflected in the National Development Plan, the National Investment Framework for Transport in Ireland and also the existing Statutory Section 28 Spatial Planning and National Roads Guidelines for Planning Authorities. TII notes that grid connection routing outlined in your consultation documentation does not impact the strategic national road network in the area.	The applicant agrees with this condition.

14.2.5 Method of Assessment

As mentioned above, this section adopts the guidance for such assessments set out by Transport Infrastructure Ireland (TII), in the document number PE-PDV-02045 '*Guidelines for Traffic and Transport Assessments, May 2014*'. The assessment of the traffic impacts that will be incurred during the construction of the Proposed Grid Connection was completed under the following headings in line with the TII guidelines, EIAR guidelines and professional judgement:

- Receiving environment – A review of the Proposed Grid Connection underground cabling route from the proposed on-site substation located in the townland of Clonmore, Co. County Tipperary, *to the existing 110kV Ikerrin-Thurles overhead electricity transmission line*, with a route length of 2.1km. The delivery routes used to deliver materials to the Proposed Grid Connection site are also discussed. A full description of the Proposed Grid Connection is provided in Chapter 3.
- The assessment uses traffic counts observed at various points along the route of the Proposed Grid Connection underground cabling route and potential diversion routes that will be used during the construction phase and the estimation of traffic forecasts for the construction phase.
- Construction and operational phase traffic – an estimation of the additional traffic that will be generated during these phases of the Proposed Grid Connection.
- Assessment of the Likely and Significant Effects and Associated Mitigation Measures during the construction and operational phases of the Proposed Grid Connection.
- Provision of sustainable modes of travel.

The main effects to existing traffic due to the construction of the Proposed Grid Connection takes the form of:

- Impacts due to increased traffic generated on the local road network during the construction phase;
- At locations where the Proposed Grid Connection underground cabling route is proposed within the public road network, all trench excavation and the installation of the cabling itself, will take place within the curtilage of the public road, which will require temporary road closures at some locations. An assessment of the increased journey distances and times resulting from local road diversions during the construction of the Proposed Grid Connection underground cabling route is undertaken.

An assessment of the effects of the construction of the Proposed Grid Connection during the operational phase is also addressed. Details on the methods of construction for the Proposed Grid Connection are provided in Chapter 3 of this EIAR.

14.2.6 Receiving Environment

14.2.6.1 Site Location

The Proposed Grid Connection underground cabling route assessed in this chapter is shown in Figure 14-1. For the purpose of the assessment presented in this section of the EIAR, this is considered in 4 no. Sections, as shown in Figure 14-2 and summarised in Table 14-2. The route is 2.1km in length, with 0.9 km being along the public road network and 1.2km being off-road.

All materials required for the construction of the Proposed Grid Connection will be delivered to the appropriate location on the route from the direction of Templemore via the N62 north, the N62 west or the R433 that travels east towards the Site, as shown in Figure 14-3.



NOTES:

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Figure 14-1 Proposed grid connection route

PROJECT: Borrisbeg Renewable Energy Development

CLIENT: Buirios Ltd

SCALE: NTS

PROJECT NO: 10380

DATE: 09.10.25

DRAWN BY: AL

ALAN LIPSCOMBE
TRAFFIC & TRANSPORT CONSULTANTS

Table 14-2: Summary of grid connection route by section and length

Grid route section	On-road / off-road	Length (km)
Section 1	Off-road	0.15
Section 2	On-road	0.88
Section 3a	On-road	0.02
Section 3b	Off-road	0.18
Section 4	Off-road	0.87
Total		2.10
Total on-road		0.90

14.2.6.2 Existing and Future Traffic Volumes

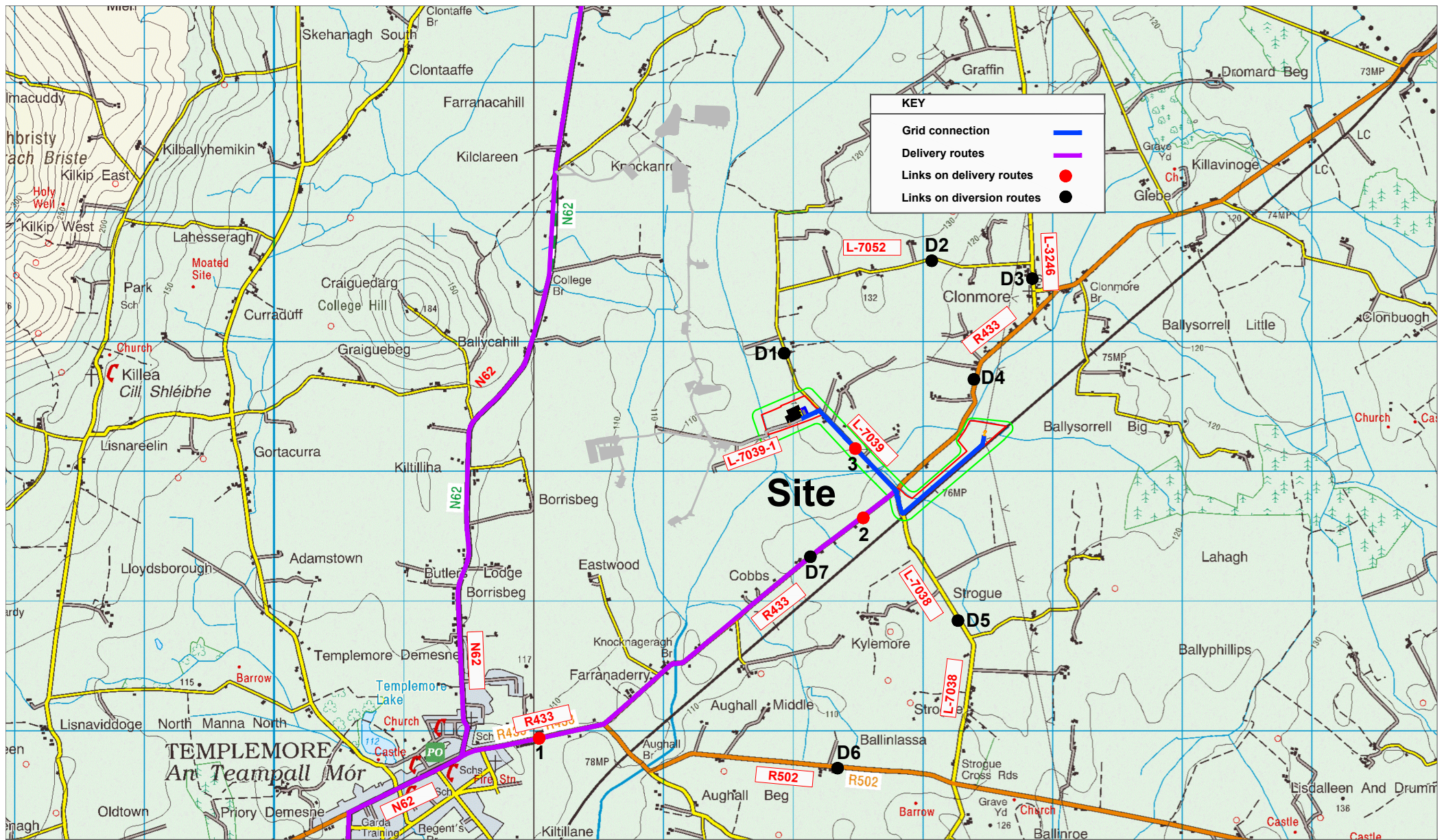
Traffic volumes are discussed in terms of either vehicle numbers, or Passenger Car equivalent Units (PCUs), where each vehicle is expressed in terms of its demand on the network relative to the equivalent number of cars. For example, an articulated HGV is given a factor of 2.4 passenger car units (as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

14.2.6.3 Base year 2025 traffic flows on Underground Cabling Route

In order to establish the traffic volumes that are on the Proposed Grid Connection underground cabling route a classified turning count survey was undertaken by Traffinomics Ltd on Tuesday 8th July 2025 at the junction of the R433 / L-7038 and L-7039, with the observed traffic flows for the on-road sections shown in Table 14-3. The location of the Traffic Counts are illustrated on Figure 14-4. The figures show that the traffic volumes are low, with 230 pcus per day observed on the Section 2 (L-7039) and 308 pcus observed on Section 3a (L-7038).

Link capacities for various road types and widths are set out in the TII Standards document DN-GEO-03031 Road Link Design, Table 6/1. The minimum standard of road included in the document is a Type 3 Single Carriageway 6m wide. For this type of road, a daily capacity of 5,000 vehicles per day is recommended. For links where there is generally one lane with passing opportunities, which applies to the L-7038 and L-7039 on the Underground Cabling Route, the daily link capacity will be significantly less. There is no existing guidance in Ireland with respect to the link capacity for such situations. Reference is therefore made to a UK Department for Transport Traffic Advisory Leaflet 2/04 where it is recommended that a maximum hourly capacity for a single lane road with passing opportunities is 300 vehicles per hour. Based on this, a conservative 24-hour capacity of 3,000 PCUs (10 peak hours) per day is adopted.

While the capacity of the highway network impacted by the Proposed Grid Connection and the impacts that will be incurred during its construction are considered further in Section 14.4.2, based on the above, it is concluded that the existing traffic flows on the full length of the route are low.



NOTES:

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PROJECT: Borrisbeg Renewable Energy Development

CLIENT: Buirios Ltd

SCALE: NTS

PROJECT NO: 10380

DATE: 09.10.25

DRAWN BY: AL

ALAN LIPSCOMBE
TRAFFIC & TRANSPORT CONSULTANTS

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Table 14-3: Observed base traffic flows along grid route, 2-way traffic flows, all day, year 2025 (pcus)

Grid route section	Roads on route	All day traffic flow (2025)
Section 1	Off-road	NA
Section 2	LS7039	230
Section 3a	LS7038	308
Section 3b	Off-road	NA
Section 4	Off-road	NA

14.2.6.4 Background Traffic Volumes for Construction Year 2028

The impacts of the construction of the Proposed Grid Connection are assessed for the construction year when background traffic levels will be highest. To produce background traffic forecasts for an assumed construction year of 2028 was used.

Revised guidelines for forecasting annual growth in traffic volumes were produced by TII in October 2021. The annual growth rates for light vehicles for County Tipperary, and factors for the years relevant to this study are shown in Tables 14-4 and 14-5, with traffic volumes forecast to increase during the period from 2025 to 2028 by 3.6 % based on a medium growth scenario. All day traffic flows on the Proposed Grid Connection underground cabling route for the base year 2025 and construction year 2028, are compared in terms of PCUs in Table 14-6. Based on these flows it is concluded that the background construction year 2028 traffic flows on the full length of the route will remain relatively low, with all day traffic flows ranging from 238 pcus to 319 pcus.

Table 14-4: TII traffic growth Rates, light vehicles, County Tipperary

Year	Lights- Annual Factor			Lights- Cumulative Index		
	low	Medium	High	low	Medium	High
2025	1.0102	1.0119	1.0152	1.000	1.000	1.000
2026	1.0102	1.0119	1.0152	1.010	1.012	1.015
2027	1.0102	1.0119	1.0152	1.021	1.024	1.031
2028	1.0102	1.0119	1.0152	1.031	1.036	1.046

Table 14-5: TII derived traffic growth rates

Period	Lights- Cumulative Index		
	Low	Medium	High
2025-2028	1.031	1.036	1.046

Table 14-6: Base year 2025 traffic flows and forecast construction year 2028 background 2-way traffic flows, grid route (pcus)

Grid route section	Roads on route	Year 2025	Construction Year 2028
Section 1	Off-road	NA	NA
Section 2	LS7039	230	238
Section 3a	LS7038	308	319
Section 3b	Off-road	NA	NA
Section 4	Off-road	NA	NA

14.2.7 Construction and Operational Phase Traffic

14.2.7.1 Construction Duration for Proposed Grid Connection

As set out in the Indicative Construction Schedule included as Table 3-3 of Chapter 3 it is estimated that the construction of the Proposed Grid Connection will take 9-12 months. For the purpose of assessing the traffic related impacts a compressed period of 12 months is adopted during which all deliveries to the site will be made. This equates to 255 working days per annum.

14.2.7.2 Construction Traffic Generation – Underground Cabling Route (31 days)

Based on an average rate of 100m grid construction per day, it is estimated that the construction of the Proposed Grid Connection underground cabling route will last 21 days, as set out in Table 14-7. With an additional 10 days required for bridge crossing on Section 2 (LS7039) the total estimated construction time is 31 days.

The total number of truck movements and staff car trips generated on a typical day during the construction of the Proposed Grid Connection underground cabling route is set out in Table 14-8. It is estimated that during this period a total of 870 round trips will be made by HGVs to the location of construction on the Underground Cabling Route, with 56 no. 2-way HGV movements travelling to and from the construction location per day. In addition 15 staff car trips will be generated, (based on 15 staff travelling by car, with an occupancy of 2 per car) travelling to and from the temporary compound, from which they will be transferred by minibus to the point of construction. In total it is estimated that an additional 150 pcus will be generated on the delivery route to and from the Proposed Grid Connection on each of the 31 days that construction of the Underground Cabling Route takes place.

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Table 14-7: Summary of grid connection route by section - duration of construction period by section

Grid route section	Roads on route	Length (km)	Duration of grid construction (days)	Duration of bridge construction (days)	Duration for all construction (days)
Section 1	Off-road	0.15	1.5	0.0	1.5
Section 2	LS7039	0.88	8.8	10.0	18.8
Section 3a	LS7038	0.02	0.2	0.0	0.2
Section 3b	Off-road	0.18	1.8	0.0	1.8
Section 4	Off-road	0.87	8.7	0.0	8.7
Total		2.10	21.0	10.0	31.0
Total on-road		0.90	9.0	10.0	19.0

Table 14-8: Total daily trip generation during construction of grid connection route (31 days)

Trip type	Total loads	2-way movements per day	pcu value	pcus
Sand and stone	670	43.2	2.4	104
Removal of waste	100	6.5	2.4	15
Delivery of cables, other materials & plant	100	6.5	2.4	15
All HGVs	870	56		135
Staff car trips		15	1.0	15
All traffic		71		150

14.2.7.3 Construction Traffic Generation – Substation, Temporary Substation Construction Compound and all other development (224 days)

A summary of the total traffic movements that will be generated by the Proposed Grid Connection during the construction of the proposed 110kV substation, the temporary construction compound and all other associated development, is set out in Table 14-9. The figure show a total of 1,309 round trips will be made to the substation site during this period with an average of 11 taking place on each of the 224 construction days. Again, it is estimated that there will be an additional 15 trips made by staff car trips which in total will result in an additional 41 pcus travelling on the delivery route to and from the site of the proposed substation on each of these 224 days.

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Table 14-9: Total daily trip generation during construction of substation (224 days)

Trip type	Total loads	2-way movements per day	pcu value	pcus
Sand and stone	1,170	9.6	2.4	23
Substation components	100	0.8	2.4	2
Compound set up	36	0.3	2.4	1
Fencing and gates	3	0.0	2.4	0
All HGVs	1,309	11		26
Staff car trips		15	1.0	15
All traffic		26		41

14.2.7.4 Operational Traffic

Once the construction of the Proposed Grid Connection is complete, there will be a minimal number of traffic movements generated by maintenance staff to and from the 110 kV Substation. It is anticipated that requirements for maintenance / repairs of the Proposed Grid Connection will be infrequent. Once operational it is expected that the Proposed Grid Connection will generate 1-2 trips per day.

14.2.8 Local Traffic Impacts during Construction of Underground Cabling Route

14.2.8.1 Proposed Traffic Management Measures

Based on observations of the Proposed Grid Connection underground cabling route, an estimate of the likely traffic management measures required for each section of the route that will be constructed along the public road network was made, as summarised in Table 14-10. For both sections of the route proposed on the public road network, based on road widths of <5.0m it is considered that localised temporary closures of the public road will be required during the construction of the Proposed Grid Connection underground cabling route.

Table 14-10: Grid route by section - traffic management measure required during construction

Grid route section	Roads on route	Length (km)	Traffic management measure
Section 1	Off-road	0.15	NA
Section 2	LS7039	0.85	Road Closure
Section 3a	LS7038	0.02	Road Closure
Section 3b	Off-road	0.18	NA
Section 4	Off-road	0.82	NA
Total		2.02	0.0

14.2.8.2 Traffic impacts on sections requiring a temporary road closure

A diversion route for background traffic to utilise has been identified for the 2 sections of road requiring a temporary road closure. The sections of the road that are included in the diversion routes are summarised in Table 14-11, with the proposed diversion routes for each on-road section of the Proposed Grid Connection underground cabling route shown in Figure 14-5: Diversion route for Section 2 and Figure 14-6: Diversion route for Section 3a. The detours shown in Figures 14-4 and 14-5 are based on the shortest feasible route using a similar, or higher standard of road type. While these routes are adopted for the purpose of the traffic impact assessment, it is noted that they may vary slightly as part of the development of the detailed traffic management measures that will be agreed with Tipperary County Council prior to construction.

The assessment is based on work being undertaken at one location on the Proposed Grid Connection underground cabling route at any one time, although in practice work may be undertaken simultaneously at more than one location. For both cases the impacts on local traffic would be the same in terms of the extent of the impact and the number of vehicles impacted, but for the latter the overall construction period would be shorter.

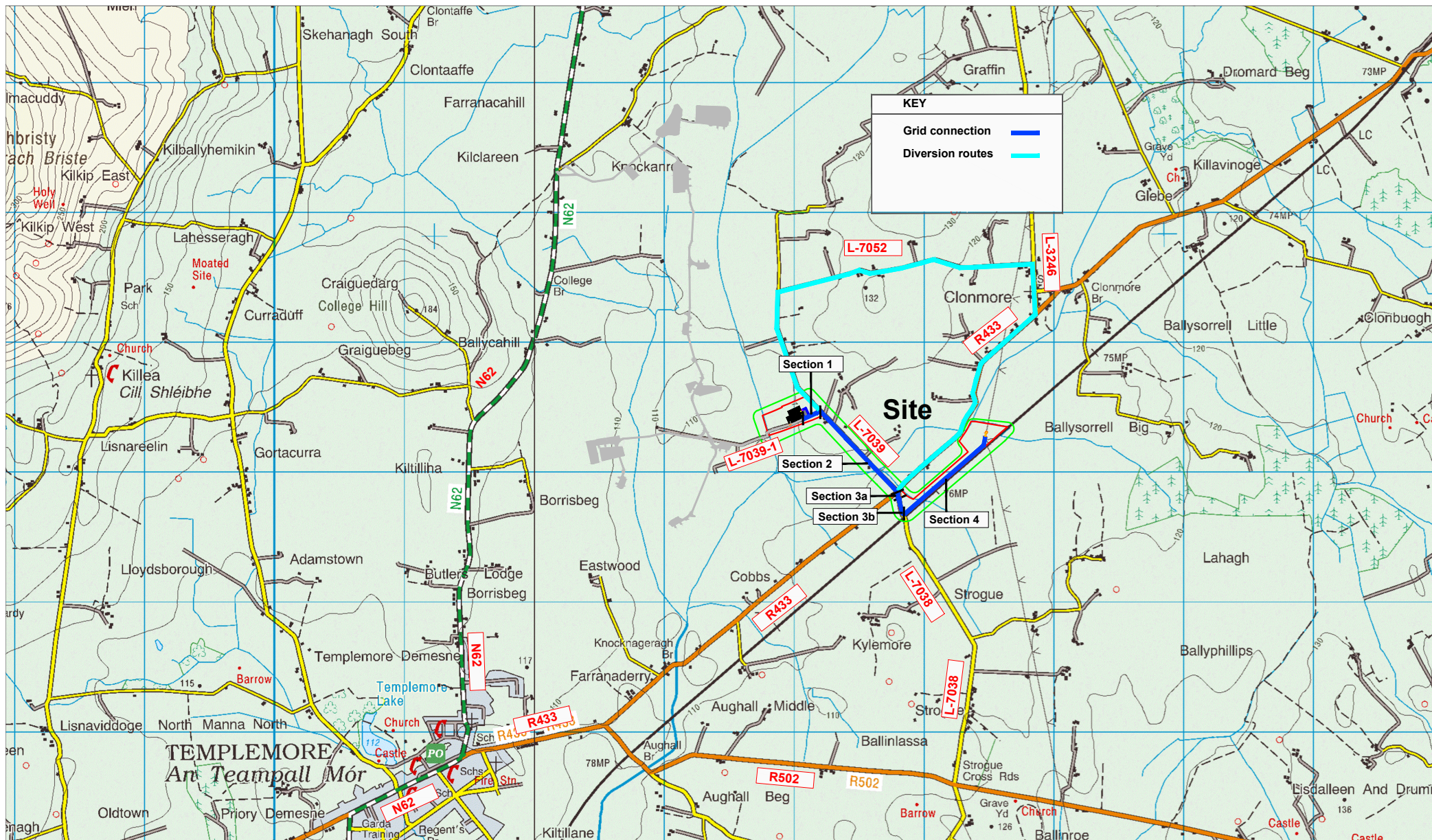
It is noted that the assessment is based on a precautionary robust case for each diversion where it is assumed that each trip starts at the one end of the diversion route and terminates at the other. In the case of the short section for closure on the L7038 on Section 3a, there will be very few trips undertaking this extent of diversion.

The existing lengths of the on-road Proposed Grid Connection underground cabling route section, together with the length of the proposed diversion, and the resulting increase in trip length that will be incurred by background traffic, are shown in Table 14-12. The figures show that the temporary increase in trip length that will be incurred during the construction of the grid route will range from +4.4 km for Section 2 (LS7039) to + 8.0km for the short Section 3a on the L7088.

The length of the diversion that will be incurred on each section of the Proposed Grid Connection underground cabling route is applied to the total number of trips that will incur the increased trip length, as shown in Table 14-13, with similar information shown for increased journey times based on a 50kph average speed shown in Table 14-14.

The main points to note from the Tables are as follows:

- It is estimated that traffic impacts on the local network will be experienced by local traffic on a total of 19 days on which diversions will occur, during which the effects will be experienced on one section of road per day.
- The maximum diversion that will be experienced will be on one day when the Proposed Grid Connection underground cabling route is constructed on the L-7038 (Section 3a) when a total of 64 trips will require to travel an additional 8 kms adding an additional 0.16 hours, or 9.6 minutes to each journey.
- During the construction period of the Proposed Grid Connection underground cabling route of 19 working days during which local diversions will take place, a total of 4,467 trips on the route will experience an impact, resulting in a total of 393 additional vehicle hours spent travelling on the network, and 19,662 vehicle kms travelled on the network during the construction period. For vehicles affected during the construction period this will result in an average of 5 minutes, 17 seconds added to each journey time, and an average detour of 4.4 km.



NOTES:

PLANNING DRAWING ONLY - NOT FOR CONSTRUCTION PURPOSES

PROJECT: Borrisbeg Renewable Energy Development

CLIENT: Buirios Ltd

SCALE: NTS

PROJECT NO: 10380

DATE: 09.10.25

DRAWN BY: AL

ALAN LIPSCOMBE
TRAFFIC & TRANSPORT CONSULTANTS



NOTES:

PLANNING DRAWING ONLY - NOT FOR CONSTRUCTION PURPOSES

Figure 14-6 Proposed grid connection route - diversion route for section 3a

PROJECT: Borrisbeg Renewable Energy Development

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DRAWN BY: AL

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Table 14-11: Summary of grid connection route by section - roads on diversion route

Grid route section	Road on diversion route	Roads on diversion route
Section 2	LS7039	LS7039, LS7052, LP3246, R433
Section 3a	LS7088	LS7088, R502, R433

Table 14-12: Summary of grid connection route by section - length of diversion route

Grid route section	Roads on route	Length (km)	Length of diversion route (km)	Change in trip length (km)
Section 2	LS7039	0.85	5.20	4.35
Section 3a	LS7088	0.02	8.00	7.98

Table 14-13 Traffic impacts to general traffic during construction of grid connection due to traffic diversions - additional pcu kms

Grid route section	Daily flows impacted 2029 (2-way pcus)	Duration of impact (days)	Total trips impacted (2-way pcus)	Change in trip length (km)	Total detour vehicle kms
Section 2	238	18.5	4,403	4.35	19,153
Section 3a	319	0.2	64	7.98	509
Total	557	19	4,467		19,662
Average detour					4.40

Table 14-14: Traffic impacts to general traffic during construction of grid connection due to traffic diversions - additional pcu hours

Grid route section	Daily flows impacted 2029 (2-way pcus)	Duration of impact (days)	Total trips impacted (2-way pcus)	Change in trip length (hours)	Total detour vehicle hours
Section 2	238	18.5	4,403	0.09	383
Section 3a	319	0.2	64	0.16	10
Total	557	19	4,467		393
Average detour					0.09

or 5 mins 17 seconds

14.2.8.3 Impacts on Traffic Flows During Construction of Underground Cabling Route

The daily background traffic volumes forecast for construction year of 2028 in Table 14-15, together with the additional traffic that is forecast to be generated during the construction phase of the Proposed Grid Connection. With respect to the impact of the additional traffic on the public road network it is forecast that on these 31 days traffic on the regional R502 and R433 roads traffic volumes will increase by 3% and 8% respectively, and on the L-7039 leading to the site, by 63%. This high increase in percentage terms is largely due to the low volumes of background traffic.

The capacity of the links on the delivery route are shown in Table 14-16. Link capacities are based on road types and widths as set out in the TII Standards document DN-GEO-03031 Road Link Design, Table 6/1. The regional roads have the characteristics of a Type 3 single carriageway, which have a link capacity of 5,000 PCUs per day. As stated previously for links where there is generally one lane with passing opportunities, the daily link capacity is 300 vehicles per hour/3,000 vehicles per day.

The L-7039 leading to the site is a single lane local road with passing opportunities which are assigned a conservative 24-hour capacity of 3,000 PCUs per day.

Based on the link capacities above the percentage of capacity that is forecast to be used on each of the roads on the delivery route are shown for the background traffic scenario and for the construction traffic scenario in Table 14-16. Based on the assessment, the following is forecast with respect to link capacities on the delivery route during the construction of the Proposed Grid Connection:

- The section that is forecast to be busiest is the short section of the R502 just east of Templemore which is forecast to operate at 108% capacity for the background traffic only scenario, increasing by a maximum of 3% points to 111% during the 31 days that construction of the Proposed Grid Connection underground cabling route takes place; and,
- For the L7039 leading to the Site it is forecast that it will operate at just 8% of capacity based on background traffic levels, increasing to 13% on the 31 days that the construction of the Proposed Grid Connection underground cabling route takes place.

While it is noted that the short section of the R502 will operate just over capacity for the background traffic only scenario, it is concluded that the impacts that the additional traffic generated on the delivery route on these days will be negative, short term and slight with respect to severity.

Table 14-15: Traffic impacts on delivery route during construction of grid connection - additional pcus and % increase, year 2028

Road impacted	Daily flows impacted 2029 (2-way pcus)	Additional traffic generated during grid construction (2-way pcus)	With grid construction traffic volumes (2-way pcus)	% increase
1 - R502 (east of Templemore)	5,380	150	5,530	3%
2 - R433	1,904	150	2,054	8%
3 - LS7039	238	150	388	63%

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Table 14-16: Traffic impacts on delivery route during construction of grid connection – link capacity and % of capacity utilised, background traffic and with construction traffic, year 2028

Road impacted	Link capacity (pcus / day)	% capacity – background traffic	% capacity – background + construction traffic
1 - R502 (east of Templemore)	5,000	108%	111%
2 - R433	5,000	38%	41%
3 - LS7039	3,000	8%	13%

14.2.8.3.1 Traffic impacts of diversion traffic on diversion routes

The impacts of the volumes of traffic diverted from the 2 sections of road that will require temporary closures onto the proposed diversion routes are assessed in Tables 14-17 and 14-18. For the proposed construction year of 2028, Table 14-17 shows the volumes of traffic that will be diverted, the background traffic flows on the roads on each diversion route, together with the total volume of traffic that will travel on the diversion routes during the temporary closures. Table 14-18 then shows the % of capacity that will be utilised on the diversion routes with and without the temporary diversions in place. The key points to note are:

- For the diversion from Section 2 (L-7039), it is forecast that for the busiest local road on the diversion route (L3246), it is forecast that 37% of the link capacity will be utilised by the year 2028, increasing to 42% on the 19 days that the diversion will be in place.
- For the regional roads that will form the diversion route for the 1 day that Section 3a (L-7038) will be closed, it is forecast that the busiest of the regional roads (R502) will operate at 70% capacity for background traffic levels, increasing to 76% on the day of the proposed diversion.

It is therefore concluded based on the sample of diversion links assessed that they will continue to operate well within capacity during the introduction of the temporary road closures during the construction of the Proposed Grid Connection underground cabling route.

Table 14-17: Traffic volumes diverted from grid route, traffic volumes on diversion routes, background & diverted traffic volumes on diverted routes - pcus, year 2028

Section diverted	Volume of traffic diverted	Road on diversion route	Background traffic flow on diversion route (2-way pcus)	Background + diverted traffic flows (pcus)
D1 - Diversion for Section 2	238	LS7039	238	238
D2 - Diversion for Section 2	238	LS7052	238	477
D3 - Diversion for Section 2	238	LP3246	319	557
D4 - Diversion for Section 2	238	R433	1,860	2,098
D5 - Diversion for Section 3a	319	LS7038	319	319*
D6 - Diversion for Section 3a	319	R502	3,476	3,795
D7- Diversion for Section 3a	319	R433	1,904	2,223

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Table 14-18: Traffic volumes diverted from grid route, traffic volumes on diversion routes, background & diverted traffic volumes on diverted routes - pcus, year 2028

Section diverted	Road on diversion route	Link capacity	% capacity - background traffic	% capacity - background traffic
D1 - Diversion for Section 2	LS7039	3,000	8%	8%
D2 - Diversion for Section 2	LS7052	3,000	8%	16%
D3 - Diversion for Section 2	LP3246	3,000	11%	19%
D4- Diversion for Section 2	R433	5,000	37%	42%
D5 - Diversion for Section 3a	LS7038	3,000	11%	11%
D6 - Diversion for Section 3a	R502	5,000	70%	76%
D7 - Diversion for Section 3a	R433	5,000	38%	44%

14.2.8.4 Impacts on Traffic Flows During Construction of Substation, Substation Compound and Associated work

Similar to the assessment presented above for the additional traffic generated on the delivery route during the construction of the grid route, the daily background traffic volumes forecast for the construction year of 2028 are set out in Table 14-19, together with the additional traffic that is forecast to be generated during the construction of the substation, temporary construction compound and associated work. With respect to the impact of the additional traffic on the public road network it is forecast that on these 224 days traffic volumes on the regional R502 and R433 roads, will increase by 1% and 2% respectively, and on the L7039 leading to the site, by 16%, again due to the low volumes of background traffic.

Based on the link capacities discussed above the percentage of capacity that is forecast to be used on each of the roads on the delivery route are shown for the background traffic scenario and for the construction traffic scenario in Table 14-20. Based on the assessment, the following is forecast with respect to link capacities on the delivery route during the construction of the Proposed Grid Connection:

- The section that is forecast to be busiest is the short section of the R502 just east of Templemore which is forecast to operate at 108% capacity for the background traffic only scenario, increasing by less than a percentage point during the 224 days that construction of the substation and compound takes place; and,
- For the L7039 leading to the site it is forecast that it will operate at just 8% of capacity based on background traffic levels, increasing to 9% on the 224 days that the construction of the substation and compound takes place.

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Table 14-19 Traffic impacts on delivery route during construction of substation - additional pcus and % increase, year 2028

Road impacted	Daily flows impacted 2029 (2-way pcus)	Additional traffic generated during grid construction (2-way pcus)	With grid construction traffic volumes (2-way pcus)	% increase
1 - R502 (east of Templemore)	5,380	41	5,421	1%
2 - R433	1,904	41	1,945	2%
3 - LS7039	238	41	279	17%

Table 14-20 Traffic impacts on delivery route during construction of substation – link capacity and % of capacity utilised, background traffic and with construction traffic, year 2028

Road impacted	Link capacity (pcus / day)	% capacity – background traffic	% capacity – background + construction traffic
1 - R502 (east of Templemore)	5,000	108%	108%
2 - R433	5,000	38%	39%
3 - LS7039	3,000	8%	9%

14.2.8.5 Proposed Grid Connection access junctions

All access junction Figures are included as Appendix 14-2.

14.2.8.6 Proposed substation access on L-70391

The proposed junction providing access to the 110kV substation off the L-70391 is shown in Figure A14-2-1. Visibility splays of 90 metres along the nearside carriageway edge taken from a setback of 2.4m, appropriate for a design speed of 60 kph, are also shown. The splays will be kept clear during both the construction and operational phases of the Proposed Grid Connection. The proposed layout includes a 13m radius in the eastern corner to facilitate HGVs in accordance with TII guidelines. Figure A14-2-2 includes an autotrack assessment for a large articulated HGV which shows that these vehicles will be accommodated at the junction.

14.2.8.7 L-7039 / L-70391 junction

The proposed improved junction between the L-7039 and the L-70391, together with 90m x 2.4m visibility splays are shown in Figure A14-2-3. Similarly an autotrack assessment showing that a large articulated HGV will be accommodated at this junction is included as Figure A14-2-4.

14.2.8.8 Proposed construction access L-7038

The proposed access on the eastern side of the L-7038 to facilitate the construction of the off-road section of the Proposed Grid Connection underground cabling route will be operated using temporary traffic management measures, including advance temporary warning signs and the presence of site staff (Flagmen). During the construction period the access will be gated, which will be closed at all times outside of construction hours. The access will remain gated and locked during

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the operational phase and only opened at times when maintenance and repairs are required. During these times, which will be infrequent, the access will be opened with the temporary traffic management measures as per the construction phase.

14.2.8.9 Provision for Sustainable Modes of Travel

14.2.8.9.1 Walking and Cycling

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

14.2.8.9.2 Public Transport

Public bus routes 395 (Templemore / Thurles / Tipperary) and 812 (Nenagh / Roscrea / Templemore / Urlingford) traverses the site boundary, stopping at Templemore. It is noted that at present these services are infrequent, and while site staff will be encouraged to use them, they are unlikely to be suitable for most construction staff to access the Site, as there is no formal pedestrian connection between Templemore and the site. The provision of mini-buses will be considered for transporting staff to and from the Site in order to minimise traffic generation and parking demand on the Site.

14.2.9 Likely and Significant Effects and Associated Mitigation Measures

'Do-Nothing' Scenario

If the Proposed Grid Connection were not to proceed, the opportunity to capture the available renewable energy resource of the Consented Wind Farm and connect it to Ireland's electricity grid would be lost, as would the opportunity to contribute to meeting Government and EU targets for the production and consumption of electricity from renewable resources and the reduction of greenhouse gas emissions. The opportunity to generate local employment and investment and to diversify the local economy would also be lost.

With respect to traffic effects, if the Proposed Grid Connection, is not constructed, there will be no traffic related impacts as set out in this assessment. In summary, traffic volumes on the road network would grow in line with TII projections.

14.2.9.1 Construction Phase Impacts

14.2.9.1.1 Pre-Mitigation Impacts

Types of impact considered.

Traffic related impacts were considered with respect to the following:

- Traffic impacts in terms of increased travel distance and time as a result of diversions during the construction of the Proposed Grid Connection, and,
- Traffic impacts due to increased traffic volumes during the construction of the Proposed Grid Connection.
- Impacts due to Road Closures during the Proposed Grid Connection underground cabling route Construction.

It is estimated that the construction of the 2.1km Proposed Grid Connection underground cabling route will take approximately 31 days of which 19 of these days will require a temporary road closure at one location. On these days, a total of 4,467 trips will experience an average increase in trip time of 5 minutes and 17 seconds and an increase in trip distance of 4.4km. While these impacts will be noticeable to local traffic on the local road network, it is forecast that the traffic related effects will be negative, temporary, and slight in terms of severity. In addition, the Applicant will liaise with Tipperary County Council ahead of the works commencing to review the diversions and sequencing to further minimise any potential disruption, e.g. alternative diversion routes or diversion points ahead of the works. It is concluded that there will be No Significant effects to local traffic and transport as a result of diversions incurred during the construction of the Proposed Grid Connection underground cabling route.

Impacts due to increased traffic volumes during the construction of the Proposed Grid Connection

It is forecast that during the construction of the Proposed Grid Connection, the following additional traffic volumes will be generated on the surrounding road network:

- During the construction of the Proposed Grid Connection underground cabling route, an additional daily traffic flow of 150 PCUs will be generated for 31 days,
- During the construction of the 110 kV substation and associated development, an additional daily traffic flow of 41 PCUs will be generated for 224 days.

Again, while the additional volumes of traffic generated during the construction of the Proposed Grid Connection will be noticeable on the public road network, the impacts on link carrying capacity will be negative, temporary and slight in terms of severity. It is concluded that there will be no significant impacts to local traffic resulting from additional traffic volumes on the network during the construction of the Proposed Grid Connection.

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14.2.9.1.2 Mitigation by design

The route selected for the Proposed Grid Connection underground cabling route is the shortest route possible along the public road network with suitable diversion routes available when required, and utilising some off road sections, resulting in the minimum impact on the public road network.

14.2.9.1.3 Proposed Mitigation Measures

A detailed Traffic Management Plan (TMP) will be prepared by the Applicant / Contractor and agreed with Tipperary County Council. The TMP will include but will not be limited to the following:

- Construction and Delivery Programme – A programme of construction and deliveries will be submitted to Tipperary County Council in advance of deliveries of material to the Site. Liaison with the relevant departments will be carried out where required regarding requirements such as delivery timetabling, road closures and diversions.
- A Pre and Post Construction Condition Survey – A pre-condition survey of roads associated with the Proposed Grid Connection will be carried out immediately prior to construction commencement to record an accurate condition of the road network at the time. A post construction survey will be carried out after works are completed to ensure that any remediation works are carried out to a satisfactory standard. The timing of these surveys will be agreed with the local authority. All road surfaces and boundaries will be re-instated to pre-development condition, as agreed with the local authority engineers.
- Liaison with the roads departments of Tipperary County Council. Once the surveys have been carried out and “prior to commencement” status of the relevant roads established, (and in compliance with the provisions of the CEMP), the Roads Section will be informed of the name and contact number of the Project Supervisor of the construction stage as well as the Site Environmental Manager.
- Traffic Management Coordinator – a competent Traffic Management Co-ordinator will be appointed for the duration of the project and this person will be the main point of contact for all matters relating to traffic management.
- Information to locals – Locals in the area will be informed of any upcoming traffic related matters e.g. temporary road closures and diversions, 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. Local access to all properties located on the Proposed Grid Connection underground cabling route will be maintained at all times.
- Identification of delivery routes – These routes, as show in Figure 14-3, will be agreed and adhered to by all contractors.
- Travel plan for construction workers – The proceeding assessment is based on construction staff being transported to the point of construction along the Proposed Grid Connection underground cabling route by minibus. The construction company will be required to provide a travel plan for construction staff, which will include the identification of routes to / from the Site and identification of an area for parking in the temporary construction compound.
- Temporary traffic signs – As part of the traffic management measures temporary traffic signs will be put in place at the location where works are being undertaken along the Proposed Grid Connection underground cabling route, and at locations where temporary local diversions are in place. All measures will be in accordance with the ‘Traffic Signs Manual, Section 8 – Temporary Traffic Measures and Signs for Road Works’ (DoT, 2019) and ‘Guidance for the Control and Management of Traffic at Roadworks’ (DoT). A member of construction staff (flagman) will be present at each construction site location along the route.

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- **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 at the entrance to the site and sweeping / cleaning of local roads as required.
- **Road Opening Licence** – Roads works associated with the Proposed Grid Connection underground cabling route will be undertaken in line with the requirements of a road opening licence as agreed with Tipperary County Council.
- **Diversions and road closures** – Reasonable access to residences, farms and businesses will be maintained at all times during any road closures associated with the Proposed Grid Connection underground cabling route works. The details of this will be agreed with each impacted resident/business and the Roads Section of Tipperary County Council in advance of works taking place. The network of local roads in the area will be used for traffic diversions for local traffic in order to expedite the works and limit the duration of the impact owing to the works.
- **Trench Reinstatement** - Trenches on public roads, once backfilled, will be reinstated to the relevant standard and satisfaction of the local authority. The roads conditions survey, which will be undertaken immediately prior to construction commencement of the project, will ensure that any section of road along the Proposed Grid Connection underground cabling route is not left in a degraded condition. The repetition of the survey immediately after completion of the construction phase of the project will ensure that any reinstatement works are carried out to a satisfactory standard.

14.2.9.1.4 Residual Effects

The mitigation measures set out above will ensure that local residents are fully informed of upcoming works and diversions, have continued access and can plan routes to minimise diversions. Slight increases in traffic delays and journey times will be incurred along the Proposed Grid Connection underground cabling route, resulting in a Slight, Temporary effect on local traffic, and potentially on local businesses. This effect is Not Significant.

14.2.9.1.5 Significance of Effects

Based on the assessment above, it is concluded that there will be No Significant Effects to local traffic resulting from additional traffic volumes on the network during the during the construction of the Proposed Grid Connection.

14.2.10 Operational and Maintenance Phase Impacts

There will be no potential effects on traffic during the operational phase of the Proposed Grid Connection as all required works will be completed during the construction phase unless required for maintenance works at the Borrisbeg Wind Farm 110 kV Substation, or in the event of a fault occurring along the Underground Cabling Route. It is expected that this will be infrequent.

During occasions where maintenance is required, a short-term road closure may be required at the location of the fault. During such times it is considered that the effects on the local road network will be negative, temporary and slight. On completion, the road corridors in which the works are to be undertaken will be fully reinstated, leaving no visible above-ground evidence of the proposed works that have the potential to give rise to any operational phase effects. The details of the reinstatement plan for the public road corridor will be agreed with Tipperary County Council prior to any works taking place.

14.2.11 Cumulative Effects

The potential for impact between the Proposed Grid Connection with the Consented Wind Farm, other proposed or consented wind projects within the surrounding landscape, and other relevant non-wind projects (existing, permitted or proposed) has been carried out with the purpose of identifying what influence the Proposed Grid Connection will have on Traffic and Transport, as well as the interactions between these factors, when considered cumulatively and in combination with relevant existing, permitted or proposed projects and plans in the vicinity of the Site. Please see Chapter 15 for Interactions and Cumulative Effects for the detailed cumulative assessment methodology. Please refer to Appendix 15-1 for a comprehensive listing of the considered cumulative and in combination with relevant existing, permitted or proposed projects and plans in the vicinity of the Site.

Of the developments identified the potential for cumulative impacts is as follows.

- Projects overlapping the EIAR Study Area – The Consented Wind Farm, comprising of 9 Wind Turbines has an EIAR study area that overlaps with the study area for the Proposed Grid Connection. While the delivery routes are largely separate, the wind Farm turbine delivery route and route for general construction traffic is via the N62 and the L3248, it is recommended that the delivery stages for both projects do not coincide. In the event that they do, the cumulative impacts will be negative, temporary and slight. Both the Consented Wind Farm and the Proposed Grid Connection will have Traffic Management Plans in place during the construction phase.
- Projects within 5km of EIAR study boundary – There are several granted and proposed developments within 5km of the EIAR study boundary as listed in Appendix 15-1 that may have the potential for cumulative traffic related impacts with the Proposed Grid Connection should they be constructed at the same time as the Proposed Grid Connection. However, given the scale of the projects and the proposed construction timeframes, the cumulative impacts are assessed as negative, temporary and slight.

As demonstrated above, there are no significant effects on Traffic and Transport arising from the construction, operation or maintenance of the Proposed Grid Connection. The Proposed Grid Connection and Consented Borrisbeg Wind Farm will be constructed at the same time as one another, however, there will be no significant effects arising from the construction, operation or decommissioning and maintenance of the Consented Wind Farm and Proposed Grid Connection combined, nor with any other existing, permitted or proposed project/plans listed in Chapter 15.

14.2.12 Conclusion

Overall, it is concluded that there will be no significant effects arising from the Proposed Development with respect to Traffic and Transportation during the construction, operational and maintenance phases, whether alone or cumulatively with other plans or projects.

14.3 Other Material Assets

14.3.1 Introduction

This section of the Material Assets chapter assesses the potential impacts of the Proposed Grid Connection on built infrastructure services—such as electricity, gas networks, water supply, waste management and telecommunications—during the construction and operation phases. It also evaluates the residual effects after the implementation of any necessary mitigation measures.

14.3.1 Statement of Authority

This section of the EIAR, has been prepared by Karen Mulryan and reviewed by Paul Chadwick, of RPS. Karen is a Senior Environmental Scientist with RPS with over 9 years' experience in the consultancy sector. Karen holds a BA in International in Archaeology from NUI Galway and a MSc in Archaeology from the University of Edinburgh. Karen's key strengths and areas of expertise are in project management, environmental impact assessment, wind energy site selection and feasibility assessment. Karen has experience managing wind farm Environmental Impact Assessment Report applications of various scales including SID applications across Ireland. Karen has experience in report writing, including EIAR Material Assets chapters, feasibility studies and EIA screening reports. Karen holds memberships with the Chartered Institute for Archaeologists (ACIfA) and the Institute of Archaeologists of Ireland (IAI).

Paul is a Technical Director with the Energy, Environment and Resources Sector and leads the team responsible for environmental, waste and resource management and assessment of infrastructural and industrial projects for RPS in Ireland. Paul specialises in the fields of air quality and climate. He has considerable experience, both academic and professional, in ambient air quality and a wide range of atmospheric pollutants from waste / wastewater, road traffic, air traffic, industrial and stationary sources. As a result of two years research in atmospheric chemistry, he has an in-depth knowledge of the chemical and physical transformations associated with local and regional air pollution and climate change. Paul is a trained and experienced expert witness and is supported by a team of multidisciplinary environmental experts across RPS in Ireland.

14.3.2 Methodology

The methodology for this assessment includes:

- Legislation, policy and guidance review;
- Scoping exercise with stakeholders;
- Desk study: Baseline information gathering, including review of available maps and published information, followed by mapping of constraints;
- Impact Assessment.

14.3.2.1 Legislation and Guidance

There is no specific legislation or guidance relating to the assessment of Utilities or Telecommunications. This impact assessment therefore follows the overall methodology and guidance relating to EIA as set out in section 1-7 Chapter 1: Introduction. The impact of the Proposed Grid Connection on utilities and telecommunications is assessed for the construction and operational phases, where relevant, by considering the potential impacts to electricity, telecommunications, gas, water supply and sewerage infrastructure.

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Specific legislation relating to waste management which has been considered within this chapter of the EIAR includes:

- Waste Framework Directive (2008/98/EU), as amended by Directive (EU) 2018/851.
- Waste Management Acts 1996 to 2016, as amended.
- European Communities (Waste Directive) Regulations 2011 (S.I. No. 126 of 2011), as amended.

It is noted that the Waste Directive Regulations 2011, as amended, set out the exclusions from the scope of the 2008 directive which includes the following under Article 3(1)(c):

“... uncontaminated soil and other naturally occurring material excavated in the course of construction activities where it is certain that the material will be used for the purposes of construction in its natural state on the site from which it was excavated.”

Materials arising from the Proposed Grid Connection which fall within this provision are therefore not subject to the requirements of EU and national waste legislation.

Furthermore, Article 27 of the same regulations allows an economic operator to determine, under certain circumstances, that a material is a by-product and is not a waste. Article 27 was introduced into Irish law to implement Section 5 of the Waste Framework Directive (2008/98/EU), as amended. Excess soil and stone produced during construction activities will be classed as a by-product if it meets each of the four by-product conditions as follows:

1. Further use of the substance or object is certain.
2. The substance or object can be used directly without any further processing other than normal industrial practice.
3. The substance or object is produced as an integral part of a production process.
4. Further use is lawful in that the substance or object fulfils all relevant product, environmental and health protection requirements for the specific use and will not lead to overall adverse environmental or human health impacts.

The key components of EU, national and local policy legislation and guidance which have influenced the Proposed Grid Connection are summarised as follows:

- Prevention of waste is the preferred option such that any surplus materials generated are reused within the Proposed Grid Connection. This means that products, materials, and resources are maintained at their highest value in the economy for as long as possible, the generation of waste is minimised, and the principles of circular economy are implemented.
- Where construction waste is generated, it should be source-separated to facilitate reuse, recycling and maximise diversion of waste from landfill.
- Where waste cannot be prevented, reused, or recycled, it should be transported and disposed of in accordance with the Waste Management Acts 1996 to 2016, as amended.
- Waste may only be transferred from site by a waste collection permit holder and delivered to an authorised waste facility i.e. a facility which holds a Certificate of Registration, Waste Facility Permit or Waste Licence.

In addition to the above legislation, this impact assessment has regard to the following guidance:

- EPA (2021) Best Practice Guidelines for the Preparation of Resources & Waste Management Plans for Construction and Demolition Projects.
- IEMA (March 2020) Guide to Materials and Waste in Environmental Impact Assessment.
- EPA (2020) Guidance on Waste Acceptance Criteria at Soil Recovery Facilities.

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- EPA (2020) By-Product – Guidance Note, A Guide to By-products and Submitting a By-product Notification Under Article 27 of the European Communities (Waste Directive) Regulations 2011 (S.I. No 126 of 2011).
- EPA (2019) Guidance on Stone and Soil By-Products in the context of Article 27 of the European Communities (Waste Directive) Regulations 2011.
- TII (2017) *The Management of Waste from National Road Construction Projects*, GE-ENV-01101
- Council Recommendation of 12 July 1999 on the limitation of exposure of the general public to electromagnetic fields (0 Hz to 300 GHz)(1999/519/EC) [Official Journal L 199, 30.07.1999, p. 59–70] ESB Networks (2019) Code of Practice for Avoiding Danger from Overhead Electricity Lines (ESB, 2019).
- ESB (2017) EMF & You: Information about Electric & Magnetic Fields and the electricity network in Ireland (ESB, 2017)
- Environmental Protection Agency (2022) Guidelines on the Information to be contained in Environmental Impact Assessment Reports (EPA, 2022).
- Environmental Protection Agency Website: <https://www.epa.ie/environment-and-you/radiation/emf/>
- Tipperary County Development Plan 2022-2028 (Tipperary County Council, 2022).
- Government of Ireland (2020) Environmental Protection Agency (2021) National Hazardous Waste Management Plan 2021-2027.

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

Electric and Magnetic Fields (EMF) are generated both naturally and by manmade sources. All electricity, whether natural or man-made, produces two types of fields: electric fields and magnetic fields or EMF. Electricity can be transmitted using two technologies: alternating current (AC) and direct current (DC). Both AC and DC power lines generate electric and magnetic fields; AC lines produce alternating electric and magnetic fields, while DC lines produce static electric and magnetic fields. ESB Networks' transmission and distribution systems operate with AC. Figure 14-7, adapted from a 2017 ESB information booklet, illustrates the alternating magnetic fields produced by AC overhead lines and underground cables. As illustrated, EMF from 110kV overhead lines and underground cables decreases rapidly with distance from the source. Specifically, EMF from underground 110kV cables, like those proposed for the Grid Connection, reduces from 4 μ T to 0.5 μ T at 10 metres away, and approaches nearly 0 μ T at 20 metres.

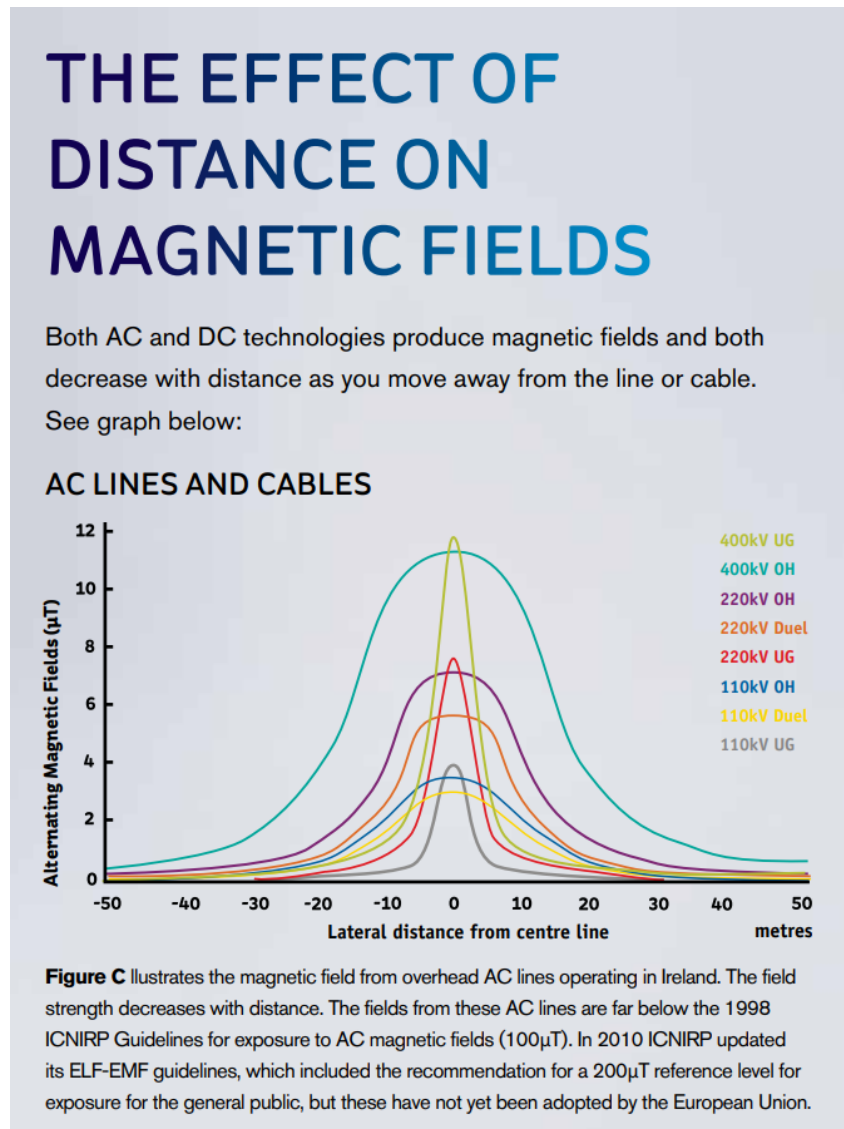


Figure 14-7: The Effect of Distance on Magnetic Fields, Source: ESB 2017, EMF & You

14.3.2.1.2 EMF Guidelines, EPA

As stated on the EPA website¹, there is no scientific evidence that exposure to low levels of electromagnetic fields (EMF) at any frequency causes harm to human health. The EPA states:

'EMF are generated by everyday items such as mobile phones and electrical appliances. EMF are intentionally produced and used to transmit information wirelessly over great distances or to heat things such as food. So, we use EMF every time we listen to the radio, watch television, warm up food in a microwave oven or use our mobile phone. EMF are also generated when electricity is produced (e.g. power plants) and distributed (e.g. power lines), and whenever we use an electric appliance at home or in work.'

¹ [What is EMF? | Environmental Protection Agency](#)

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EMF sources also occur in nature and include the earth's magnetic field, which causes compasses to point north, or the electric fields produced in the atmosphere during lightning storms. EMF are also emitted by the sun, and even by our own bodies.'

Extremely-low frequency (ELF) electric and magnetic fields (EMF) are produced whenever electricity is generated (i.e. power stations), transmitted and distributed (i.e. power lines) or used (i.e. electric appliances). Electric fields are easily blocked by solid materials, including buildings and trees. Therefore, the levels of ELF electric fields at which the public may be exposed are very low and generally are not a concern. ELF magnetic fields are not as easily shielded. However, magnetic fields fall off rapidly with distance from the source.

The current recommended reference level for public exposure to ELF magnetic fields (at 50 Hz) is 100 μT (1999/519/EC). As demonstrated in Figure 14-8 below, reproduced from the EPA website, overhead and underground power lines have a max 5 μT at 10m distance from an overhead line up to 1 μT at 5m or less from an underground line, with everyday household items have more at closer distances. The recommended cap for ELF exposure is 100 μT .

Source	Distance 1 (near)	Distance 2 (far)
Overhead (AC) 110-400 kV transmission line	5-4.9 μT at 10 m	<0.01 μT at 100 m
Overhead (AC) 10-60 kV distribution line	1-1.4 μT at ≤ 5 m	≈ 0.8 μT at 10 m
Underground (AC) power line	1-0.9 μT at ≤ 5 m	≈ 0.03 μT at 10 m
Hair dryer	≈ 30 μT at 15 cm	≈ 0.1 μT at 30 cm
Electric stove	≈ 3 μT at 15 cm	≈ 0.2 μT at 60 cm
Television set	≈ 0.7 μT at 30 cm	≈ 0.2 μT at 60 cm
Fluorescent bulb	≈ 0.1 μT at 15 cm	≈ 0.1 μT at 30 cm

Figure 14-8: ELF magnetic field (microTesla, μT). Source: EPA Website
<https://www.epa.ie/environment-and-you/radiation/emf/what-is-emf/extremely-low-frequency-fields/>

14.3.2.2 Scoping and Consultation

A scoping and consultation exercise was undertaken with utility providers and telecommunication operators in 2022, 2023 for the Consented Wind Farm application which considered the construction and operation of the Proposed Grid Connection within its EIAR and NIS. An updated scoping exercise was undertaken in July 2025 for the Proposed Grid Connection. Refer to **Table 14-21** below for the updated responses received which have been considered in this assessment.

Meetings and follow up consultations were arranged with stakeholders in regard to the Proposed Grid Connection. Comments and queries from stakeholders informed design and are addressed throughout this report and summarised in **Table 14-21**.

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Table 14-21: List of Consultations Relevant to Material Assets

Consultees	Scoping Response	Potential for Impact	Action Required
Broadcasting Authority of Ireland (BAI)	Response received 15.07.2025 stating “we are not aware of any issues from existing windfarms or electrical sub stations into existing FM networks. Also, the proposed substation is not located close to any existing or planned FM transmission sites”	No	N/A
Eircom Ltd/Eir	Response received 22.07.2025 stating “We have no transmission links within the proposed area of Borrisbeg Grid Connection and it has no risk to the network for Eir Mobile or the Eir fixed network”	No	N/A
Eirgrid	No Response received to date		
EMR Solutions	Response received 21.07.2025 stating “EMR Integrated Solutions do not have any links in the area that would be affected by the development”.	No	N/A
Enet	No Response received to date.		
ESB	Response received 18.07.2025 with a map detailing above and below ground ESB owned utilities in the area. None have the potential to be impacted by the Proposed Grid Connection. ESB also provided the ESB code of practise and Healthy and Safety Guidelines when working in proximity to cables.	No	N/A
2rn	Response receive 14.07.2025 stating “The proposed Grid Connection will not affect our network and will be covered by the existing protocol signed for the windfarm”.	No	N/A
Imagine Networks Ltd	Response received 31.07.2025 stating “this will not be an issue for Imagine”.	No	N/A
Three Ireland Ltd	No Response received to date		
Uisce Éireann	Response was received 09.08.2025 providing GIS data of UÉ infrastructure in the area Response was received 18.09.2025	Yes	Refer to section 14.3.2.2.1 below
Viatel	No Response received to date		
Virgin Media Ltd	Response received 14.07.2025 stating “Virgin Media does not have any record of underground services at this location as indicated by your drawing.”	No	N/A
Vodafone Ireland Ltd	No Response received to date		
Waterways Ireland	No Response received to date		
Wireless Connect Ltd	No Response received to date		
Irish Rail	No Response received to date for the current application. Response received May & Nov 2022, April 2023 in relation to the Consented Wind Farm will be adhered.	Yes	Refer to section 14.3.2.2.2 below

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14.3.2.2.1 Uisce Éireann (UÉ)

A response was received to from UÉ data share confirming the water mains along the R433. These mains will require crossing by the proposed underground electricity cabling. Additional water mains valves are also located approx. 5m from the proposed underground cable route. Refer to Figure 14-9 for details. A scoping response was received on the 18th September 2025 which states that Any underground cabling proposed with the grid connection that will interact with existing Uisce Éireann infrastructure must obtain written approval from Uisce Éireann's Diversion team prior to the lodgement of any planning application and request that a *survey of the site to determine the exact location of the assets. Any trial investigations should be carried out with the agreement and in the presence of Uisce Éireann.*

14.3.2.2.2 Irish Rail

Communications between Irish Rail and the Consented Wind Farm project team in 2022 and 2023 were held in relation to the Proposed Grid Connection. The response below was received on the 14th of April 2023.

- *'It is noted that they propose to run beside the L7038 perpendicular to the track before coming parallel. The approach embankments to bridge no. OBC202 would be ours and we would need to be sure that they would not be undermined;*
- *We need to be sure that, where they are running parallel to the track, that they are not destabilising in any way the railway embankment slope. They should not interfere with the zone of influence (shown in the diagram below from I-DEP-0121);*
- *They should not interfere with the railway drains parallel to the track which are generally outside the railway fence;*
- *I note that they are crossing a stream adjacent to culvert UBC201F which is approximately 185m northeast of the road bridge. They should not undertake works which undermine this culvert including making it more susceptible to scour;*
- *High power cables parallel to the track are particularly liable to cause electromagnetic interference with signalling cables parallel to the track (this is why we normally require cables to cross the railway at right angles as they are less likely to cause electromagnetic interference). Given the proximity of the cable parallel to the track, an electromagnetic compatibility assessment report will be required to show that interference will not occur. For guidance on what is required for this report they should refer to the CRR document.²*

14.3.2.3 Desktop Study

Other sources of Information in addition to the legislation, policy and guidance listed in section 14.3.2.1 include:

- Base mapping (Osi and Google Earth imagery)
- Data share from Gas Networks Ireland (GNI), Eircom, EirGrid, Electricity Supply Board (ESB), Enet, Uisce Éireann and Vodafone.
- Environmental Protection Agency (EPA) website

² Irish Rail Industry 2020 Irish Railway Standard IRS-203-B: EMC Co-ordination. Available at: <https://www.crr.ie/assets/files/pdf/15941257845371181.pdf>

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14.3.2.3.1 Zone of Influence

There are no guidelines or criteria to define the size of the zone of influence (ZoI) for the assessment of Material Assets. The Material Assets study area has been defined by RPS for the purpose of this assessment as the area in which there is potential for direct and indirect impact on built services (including waste facilities) as a result of the Proposed Grid Connection. This includes the immediate footprint of the Proposed Grid Connection where potential for direct impacts may occur.

14.4 Description of the Existing Environment

14.4.1 Baseline Environment

14.4.1.1 Utilities

Electricity

The Ikerrin to Thurles 110kV overhead line (OHL) crosses over the southeast of the EIAR Study Boundary in a north—south direction. The proposed end masts (lattice-type towers) will be located under this OHL, one in the townland of Clonmore, one in the townland of Strogue. Refer to Figure 14-9 for details.

Gas

There are no gas pipelines identified within or near the footprint of the Proposed Grid Connection.

Water

The nearest Public Water Scheme (Templemore) and Source Protection Area which are located approximately 2.6 km west of the Proposed Grid Connection. A data request sent to Irish Water (now Uisce Éireann) on the 19th of June 2023 which indicated that a water mains runs along the R433. An updated data request was sent to Uisce Éireann in July 2025 which confirmed the water mains along the R433. These mains will require crossing by the proposed underground electricity cabling. Additional water mains valves are also located approx. 5m from the proposed underground cable route. Refer to Figure 14-9 for details.

14.4.1.2 Waste Management Services

Licensed Waste Facilities

There are no EPA-licensed or local authority-authorised waste facilities identified within or adjacent to the footprint of the Proposed Grid Connection. The closest licensed municipal waste facility is located approximately 18 km south of the Proposed Grid Connection in Thurles, Co. Tipperary.

14.4.1.3 Telecommunications

Responses from the scoping exercise in 2025 indicate that no telecommunication links cross the Proposed Grid Connection Footprint. Refer to Table 14-21 above for details. The Dublin-to-Cork Irish Rail line which runs in a northeast to southwest direction approximately 20m south of the proposed Grid Connection cable route. Irish Rail Communications Infrastructure is located at various intervals along the railway line.



Legend

- EIA Boundary
- 110kV Substation
- Temporary Construction Compound
- Joint Bays
- End Masts
- ◆ New Clear span crossing
- ◆ HDD crossing under bridge
- Field Drain Culverts
- Proposed Cabling Route with New Track
- Proposed Cabling Route in Public Road (to be upgraded)
- Field Drains
- EPA Watercourses
- - 110kV Overhead Line
- Water Mains
- Water Network Junction
- Water System Valve
- - Irish Rail Cork to Dublin

Data Sources: EPA



Client

Buirios Ltd

Borrisbeg Grid Connection

Title

Borrisbeg Grid Connection Design



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Issue Details

File Identifier:

IE002700-RPS-AP-XX-D-Z-0003

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S1	P03	
Drawn:	PK	Date: 10/09/2025
Checked:	KM	Scale: 1:6,000 (A3)
Approved:	KM	Projection: IREN95 Irish Transverse Mercator

NOTE:

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14.5 Likely Significant Effects and Associated Mitigation Measures

14.5.1 Do Nothing Effects

If the Proposed Grid Connection did not receive a grant of permission, the landuse within the EIAR Study Boundary will continue to function as it does at present, and potential for impacts on material assets through the construction and operation of the Proposed Grid Connection would not occur.

If the Proposed Grid Connection were not to proceed, the Consented Wind Farm would not be constructed, therefore the indirect short term construction phase impacts and long term operational phase impacts, (which have been determined to not have significant environmental effects, refer to ACP Planning Reference 318704) , will not occur.

Likewise, the indirect positive contribution the Proposal Grid Connection to meeting National and EU targets for the production and consumption of electricity from renewable resources by 2030 and the reduction of greenhouse gas emissions.

14.5.2 Construction Phase

14.5.2.1 Electricity Infrastructure and Supply

14.5.2.1.1 Pre Mitigation Effects

The Ikerrin to Thurles 110kV OHL crosses over the footprint of Proposed Grid Connection at the location of the proposed end masts.

The Consented Wind Farm will be connected to the national grid via the proposed onsite 110kV substation and the associated underground grid connection cabling route which will run from the substation through local road and private agricultural land terminating at two end masts, which will be sited under the Ikerrin to Thurles 110kV OHL. The OHL will be “broken” and looped into the new end masts. During the construction phase, there is a potential, though unlikely, for unplanned and accidental interference or damage to the OHL (unconnected with the grid connection works), which could cause a temporary moderate negative impact on electricity supply.

Based on the above, the Proposed Grid Connection will have an unlikely but temporary, moderate effect on electricity supply without the implementation of mitigation measures.

14.5.2.1.2 Mitigation and Monitoring Measures

The following mitigation measures are proposed to avoid or reduce the negative effects identified associated with electricity infrastructure during the construction phase:

- The Proposed Grid Connection will be constructed in phases. This will reduce the outage times while connecting the Proposed Grid Connection to the OHL.
- Goal posts will be set up beneath the 110kV OHL prior to the commencement of construction works. These goalposts will be erected within agricultural fields. These goalposts shall not exceed 4.2 m in height unless there has been previous agreements with ESB.
- Risk assessments shall be conducted with respects to any machinery and equipment used for the construction of the Proposed Grid Connection. This risk assessment will ensure that there will be no interference between the machinery and the 110kV OHL.
- Training will be provided to all construction staff members on operating voltages of OHL within the footprint of the Proposed Grid Connection. As part of this training, staff will be made aware

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of associated risks with OHL. Any visiting contractor will be informed of the location of the OHL prior to entering the site.

- Barriers will run parallel to the OHL. These barriers will have a minimum distance of 6 m from the 110kV OHL.
- When construction works and associated activities must be undertaken beneath the 110kV OHL (i.e. component delivery or end mast construction), then a site specific risk assessment must be completed. This risk assessment must consider the maximum potential height of the plant or equipment required as part of works. If these works are required, then a proximity detection equipment will be fitted to the relevant machinery.
- Safe clearance shall be provided to all staff and visitors.
- Health and safety measures in regard to OHL will be outlined on signs. These signs will be put up in the canteens and throughout the site.
- Staff must be made aware 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 2013³'.
- All health and safety measures as detailed in the Construction Environment Management Plan and Chapter 4 Population and Human Health (section 4.7.3.1.2) will be adhered to during the construction, and operation phases.

14.5.2.1.3 Residual Impact

Following the implementation of the mitigation measures, the Proposed Grid Connection will result in a temporary slight negative residual impact on electricity supply and infrastructure during the construction phase of the Proposed Grid Connection.

14.5.2.1.4 Significance of Effects

There will be a slight effect on electricity infrastructure and/or supply during the construction phase of the Proposed Grid Connection.

14.5.2.2 Gas Infrastructure and Supply

14.5.2.2.1 Pre Mitigation Effects

There is no gas infrastructure within or near the Proposed Grid Connection footprint.

14.5.2.2.2 Mitigation and Monitoring Measures

None proposed.

³ Please note that this is the latest guidelines, however, the regulations have been updated since.

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14.5.2.2.3 Residual Impact

No Residual Impact.

14.5.2.2.4 Significance of Effects

No Significance of Effects.

14.5.2.3 Water Infrastructure and Supply

14.5.2.3.1 Pre Mitigation Effects

A water main in the R433 will be crossed by the underground electricity cabling. Additional water mains valves are also located approximately 5m from the underground grid connection cable route. Without the implementation of mitigation measures, there is potential for conflict to arise particularly from excavation works for the construction of the underground grid connection cable and access road. This potential effect will be moderate and will be temporary in nature.

14.5.2.3.2 Mitigation and Monitoring Measures

The following mitigation measures are proposed to avoid or reduce the negative effects associated with water infrastructure and supply during the construction phase.

- Prior to the commencement of connection works, confirmatory surveys along the proposed route shall be completed. These surveys will confirm the presence of services such as water supply. If water services are identified during these surveys, the utility provider will be contacted to determine appropriate mitigation measure i.e. specific excavation, relocation methods, schedule a suitable time to carry out works.
- Works undertaken within proximity to identified utilities will be carried out in accordance with the specifications of the relevant utility provider. Any underground cabling proposed with the grid connection that will interact with existing Uisce Éireann infrastructure must obtain written approval from Uisce Éireann's Diversion team prior to the lodgement of any planning application.

14.5.2.3.3 Residual Impact

Following the implementation of the mitigation measures the Proposed Grid Connection will result in an overall imperceptible, temporary negative residual impact on water infrastructure during the construction phase of the Proposed Grid Connection.

14.5.2.3.4 Significance of Effects

Based on the assessment above the effects on water infrastructure or supply during the construction phase of the Proposed Grid Connection will be imperceptible.

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14.5.2.4 Waste Management Services

14.5.2.4.1 Pre Mitigation Effects

The construction phase may give rise to hazardous wastes such as oil, diesel fuel, chemicals, paints, preservatives associated with the use and maintenance of plant machinery. Mixed municipal waste, packaging, cables, cardboard and earthworks which are not deemed suitable for reuse or recycling may also be generated. This is a short-term negative moderate impact on waste management facilities

14.5.2.4.2 Mitigation and Monitoring Measures

The following mitigation measures are proposed to avoid or reduce the negative effects identified associated with waste facilities during the construction phase:

- The CEMP, Appendix 3-2 of this EIAR, includes a Waste Management Plan (WMP) which outlines the best practice procedures for management of the waste generated during the construction phase.
- Waste management for the Proposed Grid Connection shall be carried out in accordance with *Best Practice Guidelines on the Preparation of Resource and Waste Management Plans for Construction & Demolition Projects* (EPA, 2021). The WMP outlines the measures to prevent and minimise waste via recycling, recovery and reuse throughout the construction phase. Disposal of waste will only occur if there is no other alternative.
- Hazardous waste shall be stored in bunded containers/areas before being disposed of by an authorised waste contractor and shall be transported to an EPA licensed waste facility. Hazardous and non-hazardous wastes will be kept separate from each other. Please see the CEMP for best practise measures to prevent the creation of waste materials.
- The expected waste volumes generated on-site are unlikely to be large enough to warrant source segregation at the Site. Therefore, all waste streams generated on-site will be deposited into a single waste skip. 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.
- It is not envisaged that there will be any waste material arising from the materials used to upgrade local roads or construct on site tracks as only the quantity of stone necessary will be sourced from local quarries and brought on site on an 'as needed' basis.
- Site personnel will be instructed at induction that under no circumstances can waste be brought to site for disposal in the on-site waste skip. It will also be made clear that the burning of waste material on-site is forbidden.

14.5.2.4.3 Residual Impact

Following the implementation of the mitigation measures, the residual impact of the construction phase activities for the Proposed Grid Connection have a short term slight negative effect on waste management services.

14.5.2.4.4 Significance of Effects

There will be a slight effect on waste management services from the Proposed Grid Connection during the construction phase.

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14.5.2.5 Telecommunications

14.5.2.5.1 Pre Mitigation Effects

There is no telecommunication infrastructure within or near the Proposed Grid Connection infrastructure. There is no potential to interfere with telecom links or Irish rail communications during the construction phase.

14.5.2.5.2 Mitigation and Monitoring Measures

None proposed.

14.5.2.5.3 Residual Impact

No Residual Impact.

14.5.2.5.4 Significance of Effects

No Significance of Effects.

14.5.3 Operational Phase

14.5.3.1 Electricity Infrastructure

14.5.3.1.1 Pre Mitigation Effects

In the unlikely event that maintenance of the Proposed Grid Connection infrastructure is required during the operational phase, the impacts will be the same as those outlined in Section 14.5.2.1.

14.5.3.1.2 Mitigation and Monitoring Measures

In the event that maintenance of the Proposed Grid Connection infrastructure is required during the operational phase, the mitigation measures outlined in Section 14.5.2.1 will be adhered.

14.5.3.1.3 Residual Impact

There will be brief, slight negative residual impact on electrical infrastructure during the operational phase should maintenance works be required.

14.5.3.2 Electricity Supply

14.5.3.2.1 Pre-Mitigation Effects

The Proposed Grid Connection will facilitate the transmission of renewable energy from the Consented Wind Farm to the national grid, providing clean, electricity to approximately 47,000

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households per annum and offsetting 58,808 tonnes of CO₂. Based on the above, the Proposed Grid Connection will have an indirect Slight, positive, long-term effect onto the national electricity supply.

14.5.3.2.2 Mitigation and Monitoring Measures

As the effects to electricity supply are envisaged to be positive during the operational phase, no mitigation measures are proposed.

14.5.3.2.3 Residual Impact

The residual impact on electricity supply are slight, positive, and long-term.

14.5.3.2.4 Significance of Effects

The effect on electricity supply will be slight, positive, and long-term.

14.5.3.3 Gas Infrastructure and Supply

14.5.3.3.1 Pre Mitigation Effects

There is no gas infrastructure within or near the Proposed Grid Connection footprint.

14.5.3.3.2 Mitigation and Monitoring Measures

None proposed.

14.5.3.3.3 Residual Impact

No Residual Impact.

14.5.3.3.4 Significance of Effects

No Significance of Effects.

14.5.3.4 Water Infrastructure and Supply

14.5.3.4.1 Pre-Mitigation Effects

A water main running through the R433 will be crossed by the Proposed Grid Connection's underground cable route. Mains valves are also located approximately 5 m away from the proposed underground cable route. There is potential for interaction between the Proposed Grid

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Connection and the water main during potential maintenance works to the cable, although the likelihood of this is very rare.

Based on the above, the Proposed Grid Connection will have **an** imperceptible, long-term to permanent effect on water infrastructure and supply during the operational phase.

14.5.3.4.2 Mitigation and Monitoring Measures

In the event that maintenance works are required, the mitigation measures proposed in Section 14.5.2.3 will also be applied during the operational phase.

14.5.3.4.3 Residual Impact

Following on from the implementation of mitigation measures, the Proposed Grid Connection will have an indirect, imperceptible long-term negative impact onto water infrastructure and supply during the operational phase.

14.5.3.4.4 Significance of Effects

Based on the above, the effects on water infrastructure or supply during the operational phase of the Proposed Grid Connection will be imperceptible.

14.5.3.5 Waste Management Services

14.5.3.5.1 Pre-Mitigation Effects

The Proposed Grid Connection will require the establishment of welfare facilities for EirGrid staff involved in the operation and maintenance of the Proposed Grid Connection. This will result in generation of municipal waste of the Eirgrid staff. In addition to this, maintenance crew may need to dispose of hydrocarbon waste such as oil from the substation transformer.

Based on the above, the Proposed Grid Connection will have an imperceptible, long-term to permanent effect on waste facilities during the operational phase.

14.5.3.5.2 Mitigation and Monitoring Measures

The following mitigation measures are proposed to avoid or reduce the potential negative effects on waste management during the operational phase:

- General waste from the welfare facilities will be removed by maintenance personnel for disposed of at EirGrid and Developer headquarters.
- Hazardous wastes from the maintenance of the substation (including transformers) shall be stored in bunded containers/areas. The hazardous waste will be collected by an authorised waste contractor and brought to an EPA licensed waste facility.
- Emptying of the wastewater holding tank at the substation will be completed, as required, by a licenced contractor.
- Personnel will be instructed waste will under no circumstances be disposed of on-site. Moreover, personnel will be informed that burning of waste material on-site is prohibited.

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14.5.3.5.3 Residual Impact

With the implementation of the above mitigation measures, the Proposed Grid Connection will have an imperceptible effect long-term impact on waste management services.

14.5.3.5.4 Significance of Effects

The effects on waste management services during the operational phase of the Proposed Grid Connection will be imperceptible.

14.5.3.6 Telecommunications

14.5.3.6.1 Pre-Mitigation Effects

There are no telecommunications links within the EIAR Study Area, therefore no potential to impact telecommunications during the operational phase.

There are no sensitive properties within 10m of the proposed underground grid connection cabling route therefore the potential for impacts from EMF are imperceptible.

The Irish Rail scoping response as detailed in section 14.3.2.1 refers to the potential for electromagnetic interference with signalling cables parallel to the track:

'High power cables parallel to the track are particularly liable to cause electromagnetic interference with signalling cables parallel to the track (this is why we normally require cables to cross the railway at right angles as they are less likely to cause electromagnetic interference). Given the proximity of the cable parallel to the track, an electromagnetic compatibility assessment report will be required to show that interference will not occur. For guidance on what is required for this report they should refer to the CRR document'⁴

Based on the above, the Proposed Grid Connection will have an imperceptible, long-term effect on Irish Rail communications infrastructure due to EMF during the operational phase.

14.5.3.6.2 Mitigation and Monitoring Measures

- There will be no operational impact on properties (residential or other uses) as the ICNIRP guidelines will not be exceeded at any distances even directly above the cables.
- As illustrated in the ESB EMF booklet 2017 (section 14.3.2.1 above), EMF from 110kV underground cables diminishes quickly with distance from cable dropping from 4μT to 0.5μT at 10m away, reducing to almost 0μT at 20m. The proposed Grid Connection cable route will be sited at a minimum 20m from the railway track.
- Cognisance of requirements for third parties as set out in 'CCE (Chief Civil Engineers) Department Technical Guidance Document CCE-TMS-310 Guidance on Third Party Works' and 'CCE Departmental and Multidisciplinary Standard I-DEP-0121 Third Party Works: Additional Details of Railway Safety Requirements' will be adhered to.

⁴ Irish Rail Industry 2020 Irish Railway Standard IRS-203-B: EMC Co-ordination. Available at: <https://www.crr.ie/assets/files/pdf/15941257845371181.pdf>

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- Contact will be made to IEDR (Iarnród Éireann Designated Representative) 30 days prior to the works that will take place at a minimum of 20m northwest of CIE infrastructure.

14.5.3.6.3 Residual Impact

As there are no mitigation measures proposed to minimise the effects from EMF, then the residual impact will be imperceptible, long-term on sensitive properties or Irish Rail communications infrastructure.

14.5.3.6.4 Significance of Effects

Based on the assessment above the effects on Irish Rail infrastructure and sensitive properties during the operational phase of the Proposed Grid Connection will be imperceptible.

14.5.4 Decommissioning Phase

The Proposed Grid Connection will not be decommissioned. It will remain part of the national grid infrastructure under the operation of Eirgrid. Therefore no impacts from this phase are foreseen. Should substation or mast components need to be replaced or repair works required on the underground grid connection cabling route, impacts will be similar to the construction phase albeit to a lesser degree. All mitigation measures proposed for the construction phase will be adhered to during any brief or temporary maintenance works and in the unlikely event that component replacements are required; therefore, no significant effects on material assets are foreseen during the maintenance and repair works.

14.6 Cumulative Impact Assessment

The potential for impact between the Proposed Grid Connection with the Consented Wind Farm, other proposed or consented wind projects within the surrounding landscape, and other relevant non-wind projects (existing, permitted or proposed) has been carried out with the purpose of identifying what influence the Proposed Grid Connection will have on Material Assets, as well as the interactions between these factors, when considered cumulatively and in combination with relevant existing, permitted or proposed projects and plans in the vicinity of the Site. Please see Chapter 15 for Interactions and Cumulative Effects for the detailed cumulative assessment methodology. Please refer to Appendix 15-1 for a comprehensive listing of the considered cumulative and in combination with relevant existing, permitted or proposed projects and plans in the vicinity of the Site.

As demonstrated above, there are no significant effects on Material Assets arising from the construction, operation or maintenance of the Proposed Grid Connection. The Proposed Grid Connection and Consented Borrisbeg Wind Farm will be constructed at the same time as one another, however, there will be no significant effects arising from the construction, operation or decommissioning and maintenance of the Consented Wind Farm and Proposed Grid Connection combined, nor with any other existing, permitted or proposed project/plans listed in Chapter 15.

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14.7 References

1. Department of Transport, Tourism and Sport. (2019). Traffic Signs Manual, Section 8 – Temporary Traffic Measures and Signs for Road Works
2. Department of Transport, Tourism and Sport (2010) Guidance for the Control and Management of Traffic at Roadworks.
3. European Commission (2017): Environmental Impact Assessment of Projects – Guidance on the preparation of the Environmental Impact Assessment Report; Environmental Protection Agency
4. (EPA) (2022) Guidelines on the Information to be contained in Environmental Impact Assessment Reports.
5. Environmental Protection Agency (EPA) (2021) Best Practice Guidelines on the Preparation of Resource and Waste Management Plans for Construction & Demolition Projects.
6. Environmental Protection Agency Corine Land Cover Maps.
7. ESB Networks (2019) Code of Practice for Avoiding Danger from Overhead Electricity Lines. ESB (2017) EMF & You: Information about Electric & Magnetic Fields and the electricity network in Ireland
8. EPA (2020) Guidance on Waste Acceptance Criteria at Soil Recovery Facilities.
9. EPA (2020) By-Product – Guidance Note, A Guide to By-products and Submitting a By-product Notification Under Article 27 of the European Communities (Waste Directive) Regulations 2011 (S.I. No 126 of 2011).
10. EPA (2019) Guidance on Stone and Soil By-Products in the context of Article 27 of the European Communities (Waste Directive) Regulations 2011.
11. EPA Website: <https://www.epa.ie/environment-and-you/radiation/emf/>
12. European Communities (Waste Directive) Regulations 2011 (S.I. No. 126 of 2011), as amended
13. Government of Ireland (2020) Environmental Protection Agency (2021) National Hazardous Waste Management Plan 2021-2027.
14. IEMA (March 2020) Guide to Materials and Waste in Environmental Impact Assessment.
15. Irish Railway Standard IRS-203-B: EMC Co-ordination
16. Irish Rail 2020 Irish Rail (2018) CCE Department Technical Guidance Document CCE-TMS-310 Guidance on Third Party Works
17. Irish Rail (2009) CCE Departmental and Multidisciplinary Standard I-DEP-0121 Third Party Works: Additional Details of Railway Safety Requirements.
18. National Roads Authority (2007). Traffic and Transport Assessment Guidelines. NRA, Dublin.
19. National Roads Authority (2011) NRA TD 41-42/11 Geometric Design of Major/Minor Priority Junctions and Vehicular Access to National Roads. NRA, Dublin.
20. National Roads Authority (2011) Project Appraisal Guidelines, Unit 5.5 Link Based Traffic Growth Forecasting. NRA, Dublin.
21. TII (May 2019) Project Appraisal Guidelines, Unit 5.3, Travel Demand Projections PE-PAG-02017. Transport Infrastructure Ireland.
22. TII (April 2017) DN-GEO-03060, Geometric Design of junctions. Transport Infrastructure Ireland.
23. TII (April 2017) DN-GEO-03031, Rural Road Link Design. Transport Infrastructure Ireland.

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- 24. TII (2013) The Design Manual for Roads and Bridges ('DMRB'), Transport Infrastructure Ireland.
- 25. TII (May 2014) Traffic and Transport Assessment Guidelines PE-PDV-02045. Transport Infrastructure Ireland.
- 26. TII Automatic Traffic Count Data (on the M6) Tipperary County Council (2022) Tipperary County Development Plan (2022-2028)
- 27. Waste Framework Directive (2008/98/EU), as amended by Directive (EU) 2018/851.
- 28. Waste Management Acts 1996 to 2016, as amended.