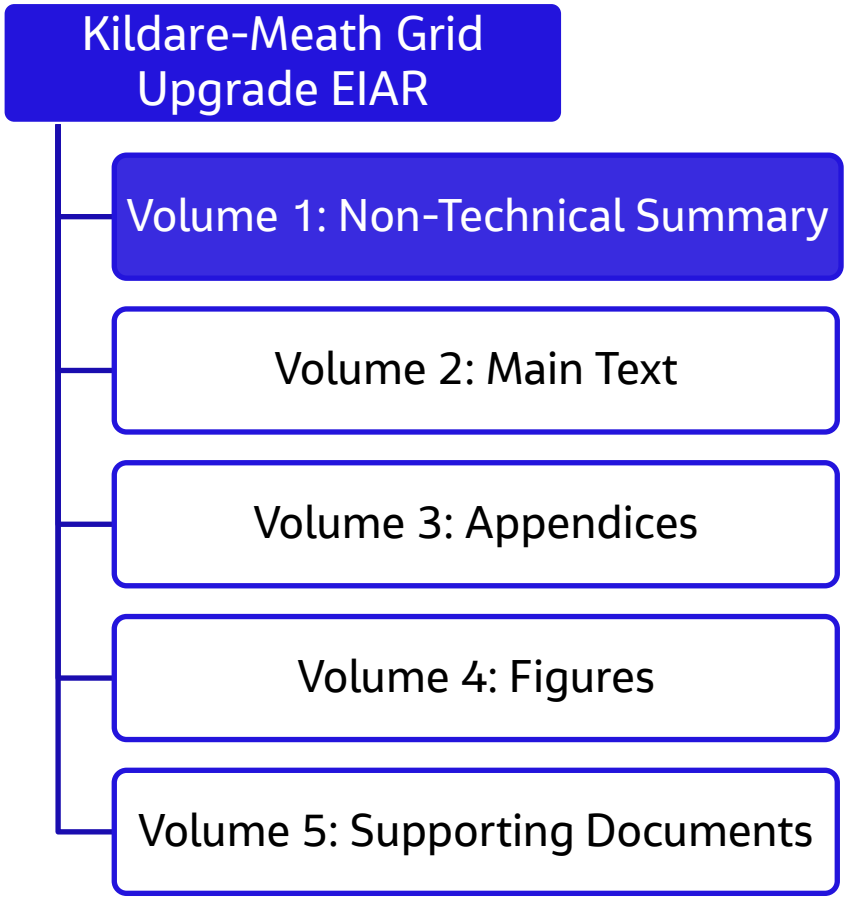
Kildare – Meath Grid Upgrade
Environmental Impact Assessment Report
Volume 1: Non-Technical Summary

March 2024

EirGrid

This document is Volume 1: Non-Technical Summary of the Kildare-Meath Grid Upgrade Environmental Impact Assessment Report (EIAR).

The whole EIAR consists of a number of documents and should be read together.



Kildare-Meath Grid Upgrade Non-Technical Summary

Project No:	321084AH
Document Title:	Kildare-Meath Grid Upgrade Non-Technical Summary
Document No.:	KMGU-JAC-TN-0201-EIAR Volume 1 NTS
Revision:	Final
Document Status:	Final
Date:	March 2024
Client Name:	EirGrid
Client No:	CP966
Project Manager:	Stephanie Moffatt
Author:	Fay Lagan
File Name:	KMGU-JAC-TN-0201-EIAR Volume 1 NTS

Jacobs Engineering Ireland Limited

Merrion House
Merrion Road
Dublin 4, D04 R2C5
Ireland
T +353 1 269 5666
F +353 1 269 5497
www.jacobs.com

Document history and status

Revision	Date	Description	Author	Checked	Reviewed	Approved
Final	March 24	Final	FL	SJ	SJ	SM

Contents

Glossary of Terms

Busbar	This is a series of metal connections within the substation which connect different electric wires (or circuits) together.
Ducts	These are plastic pipes, which the underground cable will be placed into. The ducts are buried underground first and then the cables are inserted.
Feeder bay	This is the point where the underground cable will connect into the substation. There is a range of electrical equipment in the feeder bay to allow this connection.
Joint Bay	The underground cable will not be delivered to site in one continuous length but in sections roughly 800 metres long. These lengths of cable will need to be connected together and that is done in an underground box called a joint bay, which is 10 metres long by 2.5 metres wide.
Mitigation Measure	This is a method of reducing, avoiding or preventing environmental impacts of the Proposed Development. Such measures include passing bays to get traffic moving, supervision of the construction works by environmental professionals, or measures to prevent soil and mud from entering streams and rivers.
Passing Bay	This is an area where the road is widened temporarily to allow traffic to continue around the construction area. These are placed beside the joint bays to reduce the traffic disruption.
Planning and Environmental Considerations Report	This is a non-statutory report previously prepared by EirGrid to explain the project, what its impacts could be, and what measures will be put into place to prevent or reduce the impacts. It was submitted to An Bord Pleanála in April 2023.
Proposed Development	These are the works EirGrid is applying for in this planning application – The Kildare-Meath Grid Upgrade Project.
Electrical Shunt Reactor	This equipment is used to stabilise levels across the electricity network. It is made from wire and magnets, and they are found in substations all over the world.
Strategic Infrastructure Development	This is a class of planning application for larger scale projects. It has been agreed with An Bord Pleanála that the Kildare-Meath Grid Upgrade project is Strategic Infrastructure Development. Strategic Infrastructure Development can generally be described as development which is of strategic economic or social importance to Ireland, the region or local areas. Strategic Infrastructure Developments are not submitted to the local planning authority but instead they are submitted to An Bord Pleanála for a decision.
Substations	These are the end points of the underground cable. They are areas where a number of electricity wires (or circuits) meet and they allow the flow of electricity across the network from high voltage, down to lower voltages which are used for homes and businesses. The two substations on this project are Woodland, Co. Meath and Dunstown, Co. Kildare.
Trenchless Crossing	These are methods to build the cable trench without digging up the ground surface along the length of trench. They are used to pass under a river, motorway, railway, etc. There are different ways of doing this. One of the most common ways is Horizontal Directional Drilling (HDD).
Underground Cables	These are the electrical wires that will carry the electricity between the two end points. There is not one single wire but three cables and two fibre optic cables. This is a standard design for projects of this type.

1. Introduction

In April 2023, EirGrid submitted a planning application for the Proposed Development to An Bord Pleanála. At that time, the Proposed Development was reviewed to determine if an Environmental Impact Assessment was required (EIA screening) and the Planning and Development Regulations did not require it. The April 2023 application was accompanied by a Planning and Environment Consideration Report (PECR), as an Environmental Impact Assessment Report was not required.

In July 2023, a change was made to the Planning and Development Regulations. This change meant that the Proposed Development required an Environmental Impact Assessment. Broadly speaking, this is because more than 4 kilometres of hedgerows and treelines (field boundaries) will be removed as part of the Proposed Development.

In February 2024, an Environmental Impact Assessment Report was prepared and provided to An Bord Pleanála - to assist An Bord Pleanála in undertaking the Environmental Impact Assessment.

1.1 Purpose and Content of the Non-Technical Summary

The purpose of this document is to summarise the contents of the Environmental Impact Assessment Report in non-technical language. This Non-Technical Summary is one of five volumes that make up the Environmental Impact Assessment Report.

The Proposed Development

EirGrid is seeking approval from An Bord Pleanála for a new underground electricity line – a major electricity transmission development. The Kildare-Meath Grid Upgrade (the Proposed Development) is a 400 kilovolt (kV) underground cable circuit linking the existing Woodland substation in Woodland, near Batterstown, County Meath to Dunstown substation, near Two Mile House, County Kildare and upgrades to the substations.

The Planning Application and An Bord Pleanála

The Proposed Development has been determined by An Bord Pleanála to be Strategic Infrastructure Development (see Glossary of Terms at the start of this document), in accordance with Section 182A of the Planning and Development Act 2000 (as amended). Strategic Infrastructure Development pre-application meetings were held with An Bord Pleanála on 15th September 2022, 15th December 2022, and 16th February 2023 where the Proposed Development was presented, and advice on the planning process from An Bord Pleanála was received. This is typical for projects of this type and the details of the meetings are set out in the various records available at www.pleanala.ie (pre-application consultation ABP Case Number VC17.314112; planning submission ABP case number ABP-316372-23).

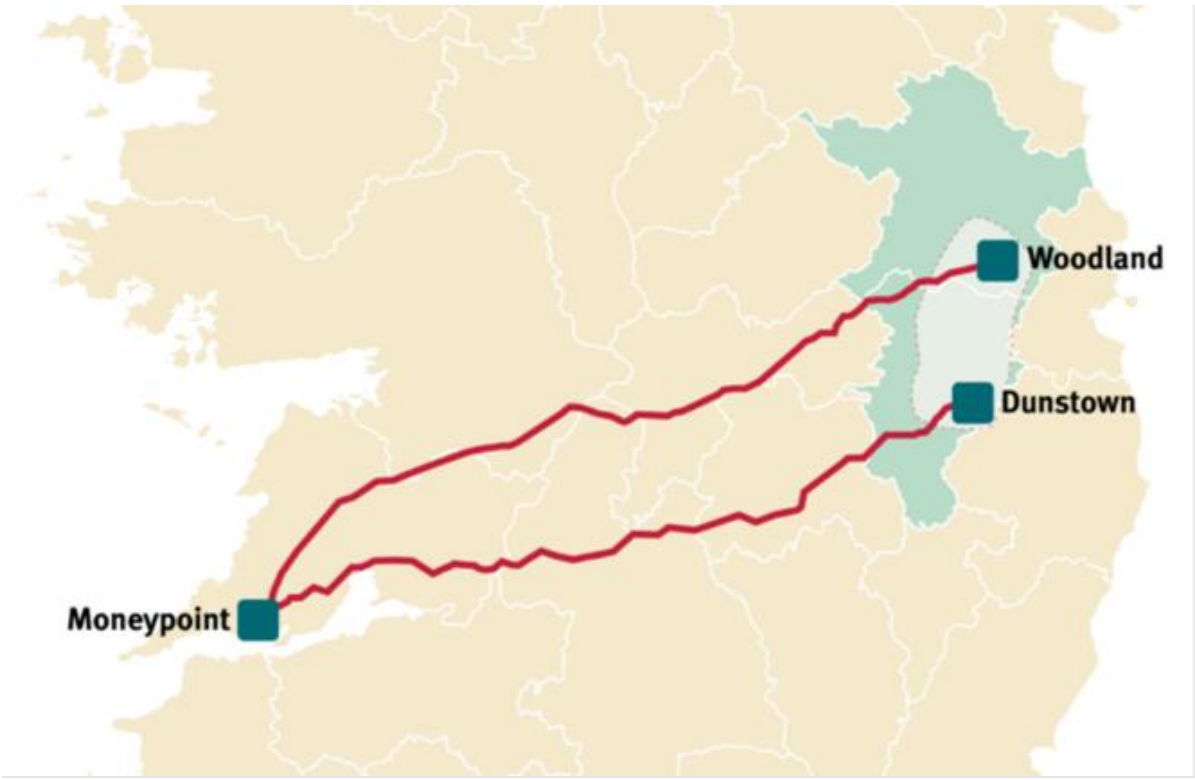
Location of the Proposed Development

2. Project Need

2.1 Introduction

There are large amounts of energy produced in the South and South West and there is large demand for electricity in the East. The Proposed Development will help move the energy (including from many wind farms and other renewable sources) from the South and South West to the East (Meath, Kildare and Dublin).

A significant number of Ireland's electricity producers (energy generators) are in the South and South West regions, including windfarms. There are significant plans for larger offshore wind projects off the South and South West coast. Improvement to the network is needed to get the electricity from where it is produced to where demand is greatest. Currently, the electricity is mainly transported cross-country on the two existing 400 kV lines from Moneypoint power station in County Clare to Dunstown substation in County Kildare and Woodland substation in County Meath. However, at the moment, there is no high voltage connection between the two substations. So if something happens to one of the substations or existing 400 kV lines (e.g. closure because of essential maintenance), it is difficult to have a backup for the high voltage system as there is no connection between the two substations. Without the Proposed Development, the electricity network does not have the backup it needs to connect all the new energy being produced and to supply all of the new demand.



Existing cross-country 400 kV lines

The Proposed Development will connect these two important substations, and this will strengthen the electricity network by improving reliability and security in the network.

2.2 Need for the Proposed Development

There are two main reasons why the Proposed Development is needed:

1. Increased demand in the East – There has been a lot of development in the Meath, Kildare, and Dublin areas and much more is planned. This includes homes, businesses, and industry. There are large demands for electricity and upgrades of the network are needed to meet this demand.

2. Connection of energy production from the South and South West regions – Significant levels of new renewable energy have been built or are planned to connect to the network in the South and South West of Ireland. This is also where the newer and more cost effective existing energy producers are located (e.g. in Moneypoint, County Clare). Improvement to the network is needed to get the electricity from where it is produced to where demand is greatest.

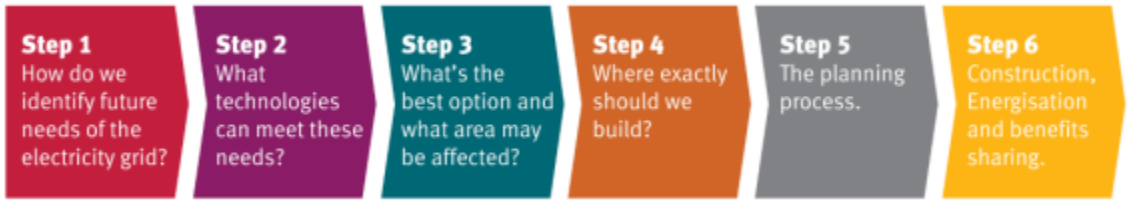
The need for the Proposed Development has been established through a series of reports prepared by EirGrid, which were completed between 2017 and 2022 (these are included in Volume 5 of the Environmental Impact Assessment Report). These reports identified the need for the Proposed Development, what type of technology would be best (e.g. overhead or underground), and where the Proposed Development should go.

The Proposed Development will help to meet the Government of Ireland's Climate Action Plan target of up to 80% renewable energy generation by 2030; this includes the transmission (movement) of electricity from wind farms (onshore and offshore). The Proposed Development will help to transport that energy from renewable and other sources (e.g. newer and more cost effective existing energy producers). EirGrid has identified that the Proposed Development will have the following benefits:

The Proposed Development will improve the electricity network; help to connect new demand for electricity to support economic growth in the area; help to reduce cost of electricity for customers; and connect new renewable energy production to meet national Climate Action Plan targets.

3. Alternatives Considered

The Proposed Development has been developed in-line with EirGrid's six-step Framework for Grid Development. This Framework reflects EirGrid's values and approach to its projects, like the Proposed Development. In accordance with the Framework, feedback from the public, affected landowners, Local Councils and Government bodies has been central to the process for the Proposed Development, with consultation at key stages.



Source: EirGrid

As set out in detail in Chapter 4, Volume 2 of the Environmental Impact Assessment Report, the Proposed Development process has considered a range of alternatives. The approach has been to identify the need for the Proposed Development, what technology is required; and where it should be built. Identifying where it should be built meant that Initial High-Level Route Alternatives were assessed; then a Route Option Assessment was completed. These two processes allowed the Proposed Development to be established, designed, surveyed, and assessed.

3.1 Initial High-Level Route Alternatives

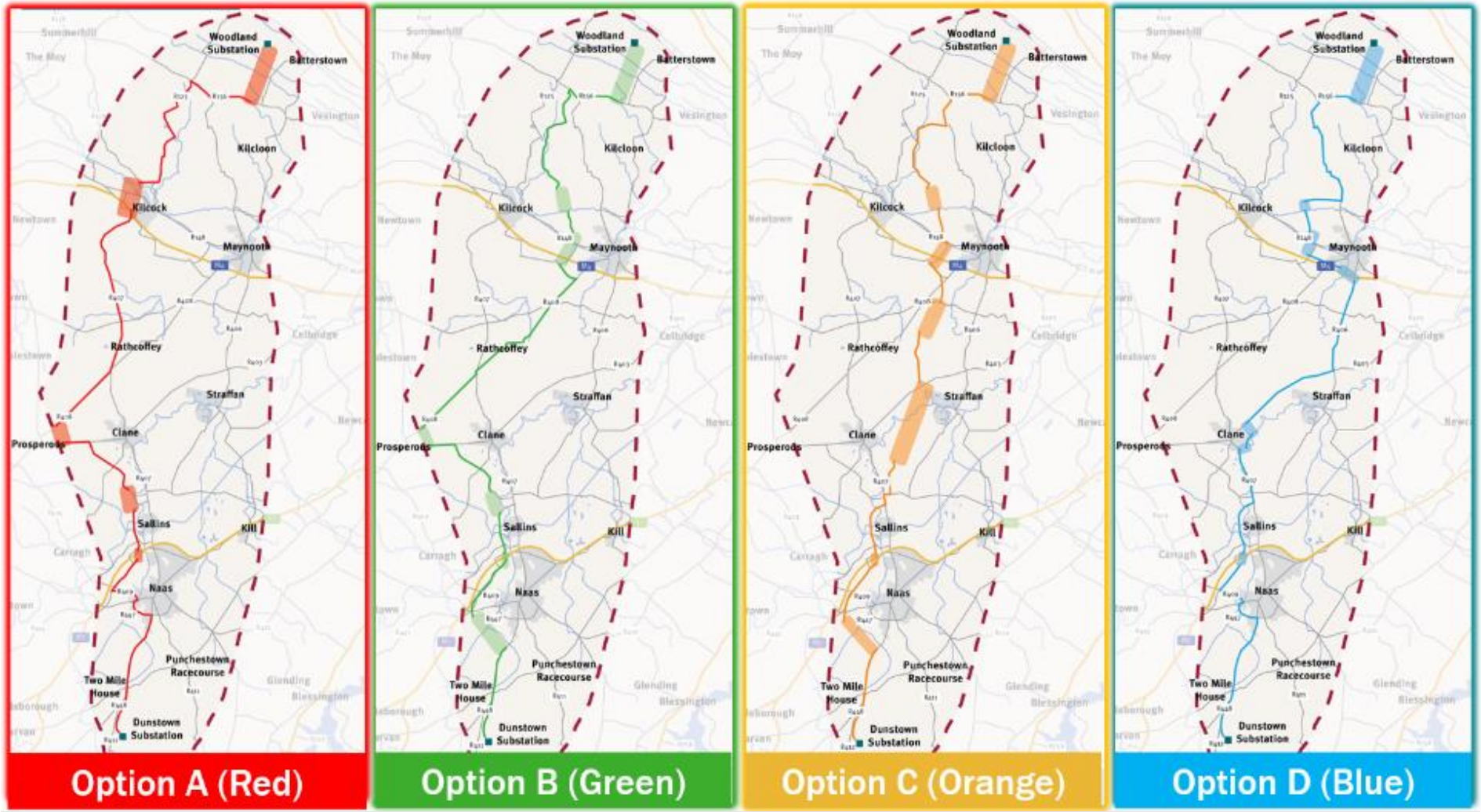
In Step 1 of EirGrid's six-step Framework for Grid Development (July 2017), EirGrid identified the need for the Proposed Development and that report is included in Volume 5 of the Environmental Impact Assessment Report. In Step 2 (December 2017), EirGrid compiled a shortlist of best performing technical options (see Volume 5), which went out for public consultation between November 2018 and February 2019. This included a mix of overhead line, underground cable, and upvoltage technologies[1]. Four of those options were taken forward to Step 3 in April 2019.

In Step 3, EirGrid re-confirmed the need for the Proposed Development and investigated and consulted on the shortlisted technology options to strengthen the electricity network between the Woodland and Dunstown substations. Feasible options were published as part of the assessment of the technology options for the Proposed Development. Following consultation with the public, and a detailed technical assessment, it was determined the best option for the Proposed Development was a new 400 kV underground cable – and this was taken forward to the next step. The consideration of the environmental effects in selecting this option are outlined in Chapter 4, Volume 2 of the Environmental Impact Assessment Report.

3.2 Route Option Assessment

Four options for new underground cable route were developed and were presented for public consultation between August and November 2021. The Step 4A Report (see Volume 5) considered the feedback from the consultation and it was published in March 2022. The report presented an assessment of the four proposed route options. The Step 4A Report selected Option A (Red) as the Emerging Best Performing Option because it scored more favourably in terms of Deliverability (or how it could be constructed) compared to the other options – in how it could be built, its impact on other projects, and how long it would take to build. Option A (Red) also had less socio-economic (community) impacts compared to other options. This was reinforced by the feedback received during the 2021 consultation period. Option A (Red) impacted the least amount of agricultural land and avoided concerns that the other options would have resulted in, such as, potential impacts to the settlements of Rathcoffey on the R408 and Ovidstown along the R403 and R406; and greater potential impacts to areas of amenity, such as Alexandra Bridge, near to Clane. The consideration of the environmental effects in selecting this option are outlined in Chapter 4, Volume 2 of the Environmental Impact Assessment Report.

[1] This is where existing overhead lines are improved to carry higher voltages.



Shortlisted Options – shown in Step 4A Public Consultation (2021)

In Step 4B, Option A (Red) was re-examined to refine the route as far as possible to replace any wider areas (corridors) with more refined routes and to provide more certainty on the specific location. Changes were made for a number of reasons, such as reducing potential environmental impacts, reducing road closures, or avoiding private lands. As a result, 3% of the route was relocated from the route shown at Step 4A. The maximum movement of the cable route was 240 metres – this occurred on the approach to Dunstown substation where the route moved 240 metres west from the location shown in Step 4A.

Consultations were held with potentially affected landowners. This allowed landowner input into the potential routing and provided more information on ground conditions, environmental constraints, and farming practices which were then considered in the routing process. Further surveys and assessments were undertaken to determine how the route could be refined further in order to avoid or reduce the potential environmental and social impacts, and to take account of technical issues.

In the Step 4B report (see Volume 5), it was identified that further design, survey, assessment, and consultation would be undertaken at Step 5 and refinements to the Best Performing Option would be possible. These refinements were completed and resulted in the design as described in Section 4 of this document (the Proposed Development). These refinements are normal practice for infrastructure projects, and allowed for further engagement with landowners to be taken into consideration and for the results of additional surveys and design work to be incorporated into the Proposed Development. The changes made at Step 5 of the process are described are described in detail in Chapter 4, Volume 2 (Main Text) of the Environmental Impact Assessment Report.

3.3 Proposed Cable Route

The Proposed Development seeks to minimise the impacts of off-road crossings by routing the underground cable along the existing public road network, so far as is reasonably practicable. See Chapters 2 and 4 of the Environmental Impact Assessment Report for further details. This helps to minimise environmental and socio-economic impacts from crossing off-road sections (e.g. agricultural land).

The proposed cable route leaves the Woodland substation and travels across agricultural land until it enters the R156. Traveling west until close to the Mullagh crossroads, the cable route then turns south along the R125 until it approaches Kilcock. It then travels along the R158 to go to the west of Kilcock, where there will be two trenchless underground crossings – one of the Rye Water and one of the Royal Canal and the railway. Continuing to the south, along the R148, there will be a trenchless underground crossing of the M4 motorway.

The cable route connects with the R407 to the south of Kilcock. There is a trenchless underground crossing of a watercourse along the R407. At the junction of the R408 and R407, the cable route turns west towards Prosperous. However before the village, the cable route turns off-road to the south to then connect with the R403 and Millicent Road (L2002) and travels southeast towards the River Liffey.

There will be a trenchless underground crossing of the River Liffey and then the cable route will connect with the Sallins Bypass road to travel to the south. Past the Osberstown Road bridge, the cable route leaves the Sallins Bypass to pass under the M7 in the existing road, before connecting with the Millennium Parkway. The cable route travels to the west of Naas, using the Parkway and the R409. There will be a trenchless underground crossing of Grand Canal close to the Naas Sports Centre and Jigginstown Castle. The cable route will travel along the R447 and R448, to the south of Naas. The cable route travels along the R412 for a short section before entering the Dunstown substation.

3.4 Do Nothing Alternative

The 'Do-Nothing' alternative/scenario would mean the Proposed Development will not be constructed and the existing network will be maintained in line with normal practice. EirGrid has assessed that the Proposed Development is required and if it is not constructed there would be significant challenges to the electricity network. Without the Proposed Development, the surrounding area (the existing environment) would develop in-line with the County Development Plans with typical construction projects. The long-terms of effects of Climate Change will mean changes in the species in the area, and increased temperatures and more extreme weather events.

4. Description of the Proposed Development

4.1 Overview

The Proposed Development is set out in detail in Chapter 5 of the Environmental Impact Assessment Report. In summary, the Proposed Development is approximately 53 kilometres of new underground cable in a trench along public roads and private lands, connecting the Woodland and Dunstown substations. Approximately 38 kilometres of the underground cable is in County Kildare and approximately 15 kilometres are in County Meath. The Proposed Development will include associated works such as fibre optic cables in the same trench, permanent access tracks, temporary construction compounds, laydown areas, joint bays, and passing bays. Approximately 82% of the underground cable will be located within roads while approximately 18% will be located off-road, to avoid constraints. In addition, there will be works at the existing Woodland and Dunstown substations.

4.2 Substation Works

Works at the existing Woodland substation will involve installation of additional electrical equipment, including a 400 kV feeder bay, an associated electrical shunt reactor, and other associated equipment and site development works. The works proposed as part of the Proposed Development will be in the expanded south west corner of the substation. This expanded area and other works in the substation have been separately granted planning approval by Meath County Council (Reference: 22/1550).

Works at the existing Dunstown substation will not require an extension of the substation compound. Works will include installation of additional electrical equipment and apparatus will include a 400 kV feeder bay, an associated electrical shunt reactor, an extension to the busbar, and other associated equipment and site development works.

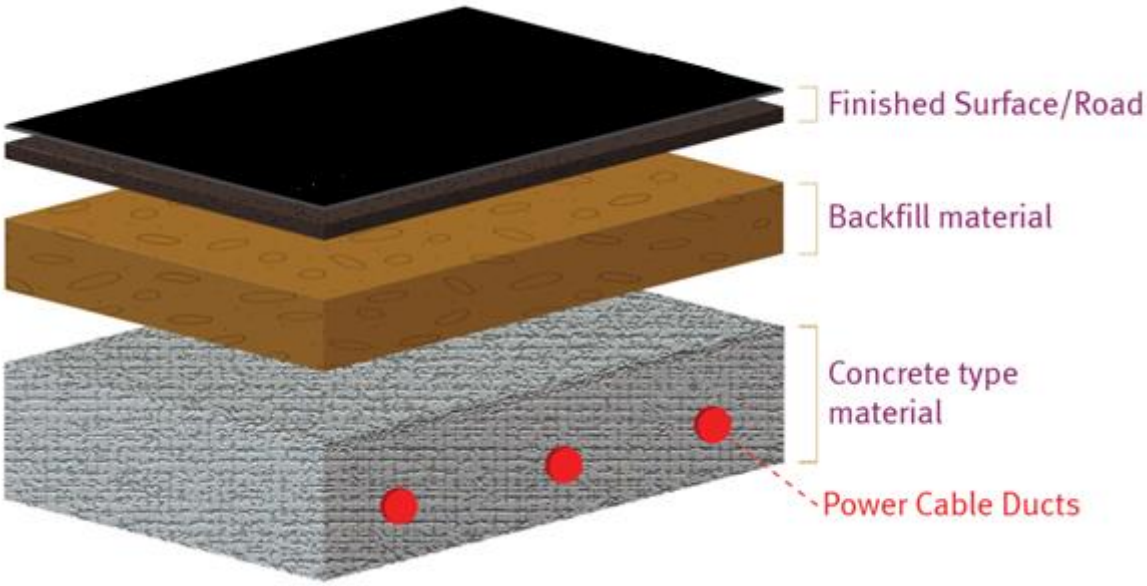
4.3 Construction of the Underground Cable

There are three key construction phases of the underground cable:

- **Phase 1: Installation of Passing Bays and Joint Bays Structure:** The construction of passing bays (where required) at joint bay locations. On completion of the passing bays, it is proposed that the joint bays will then be installed;
- **Phase 2: Excavation and Installation of Ducts:** A cable trench approximately 1.5 metres wide and 1.3 metres or 1.7 metres deep[2] will be constructed; this will contain the underground cables. A trench will be dug along the cable route, ducts installed, and the road surfacing or agricultural land will be restored. This will also include physical crossings such as motorways, rivers and railways; and
- **Phase 3: Installation of Cables:** Lengths of cables will be installed at joint bay locations within the ducts. The cables will then be jointed (connected) at each joint bay location to connect all the lengths into one continuous circuit; they will then be tested to ensure they are ready to be used.

Subject to the grant of planning permission and other approvals, the construction phase will commence in the summer of 2025 with the underground cable element of the Proposed Development becoming fully operational after construction and testing in the autumn of 2028 – taking approximately three and a half years.

[2] The cable trench will be 1.3 metres deep in public roads and 1.7 metres deep in all other areas.



Proposed High Voltage Cable Trench

A typical cable duct installation in the road

A typical jointing bay where cables are connected

Cables being pulled into the ducts and jointing bay

A typical passing bay in operation during cable jointing

A typical road reinstatement

While the specific programming of the construction phase is subject to change, it is proposed that cable ducts will be laid in a road at a rate of approximately 40 to 50 metres per day although a rate of 20 to 50 metres per day is anticipated in built-up areas where utilities are more common.

Joint bays are located at intervals (on average) of 745 metres along the cable route. Joint bays are proposed to be installed in three days. Road reinstatement along the route of the cable trench follows the completion of the trenching and ducting as it moves in sequence along the route. There are 70 proposed joint bays on the Proposed Development – 31 off-road and 39 in-road. Of the 39 in-road joint bays, 34 of them will have an associated passing bay. The passing bays are approximately 100 metres in length and 5.5 metres in width and will allow for a one-way flow of traffic with traffic lights controlling the flow.

Six temporary construction compounds are proposed, each approximately one hectare in size. All temporary construction compounds will be secured with hoarding/fencing. Temporary construction compounds will include facilities such as construction phase car parking and welfare facilities and temporary material storage areas, as necessary. The areas will be reinstated to their current use after construction.

Where a permanent access track is required to access off-road joint bays, this will use approximately 300 millimetres (30 centimetres) of fill material. The permanent access track will be finished to approximately 100 millimetres (10 centimetres) above ground level. The permanent access tracks will remain in place to allow access to the joint bays should future maintenance works be required. Where a temporary access track is required, engineering stone fill will be laid and compacted and maintained as required for the duration of the works. Once the works are completed, the engineered stone fill will be removed, and the land will be reinstated to its original condition.

Trenchless underground crossings are proposed at major watercourse crossings or where there are significant constraints. There will be a 'launch' and 'reception' pit either side of the drilling and those temporary compounds will be within the planning application boundary.

The cable route will cross existing structures, utilities, and watercourses at various locations. These crossings will be facilitated by either open cut trenching or trenchless crossings as appropriate for the particular crossing . The underground cable will be a minimum of 300 millimetres (30 centimetres) from existing services as set out in EirGrid's Technical Specifications. This distance will increase depending on the utility type. Future utilities in the vicinity of the underground cable will need to consult with the Electricity Supply Board (ESB) and maintain the minimum distances.

There are 41 proposed watercourse crossings: five will be crossed underneath (trenchless); 25 will be trenched through with mitigation measures; 10 will be crossed on existing bridges with no impacts; and one will be temporarily affected by a passing bay.

Of the 41 watercourse crossings, the Proposed Development will cross the following significant watercourses:

- Rye Water – trenchless crossing;
- Royal Canal – trenchless crossing;
- River Liffey (three crossings: trenchless; and crossing in-road); and
- Grand Canal (two crossings: crossed in-road; trenchless).

There are six trenchless (Horizontal Directionally Drilled (HDD)) crossings proposed along the cable route:

- HDD1 – crossing of the Rye Water, to the west of the R158. The trenchless crossing length is approximately 50 metres;
- HDD2 – crossing of the Grand Canal and Dublin–Sligo railway line, to the west of Kilcock. The trenchless crossing length is approximately 220 metres;
- HDD3 – crossing of the M4 motorway, to the south of Kilcock. The trenchless crossing length is approximately 120 metres;
- HDD4 – crossing of the Lyreen tributary of the Liffey, along the R407. The trenchless crossing length is approximately 100 metres;

- HDD5 – crossing of the River Liffey, north of Sallins. The trenchless crossing length is approximately 120 metres; and
- HDD6 – crossing of the Grand Canal, in Naas. The trenchless crossing length is approximately 150 metres.

Following consultation with Kildare County Council, it has been agreed that the Sallins Bypass will be utilised for part of the cable route. The cable route will generally follow the footpath along the eastern boundary of the road. There will also be five crossings of bridges on the Sallins Bypass. These are (from north to south):

- River Liffey Underbridge Number 2 – a clear-span crossing of the Liffey, approximately 200 metres in length;
- River Liffey Underbridge Number 1 – a clear-span crossing of the Liffey, approximately 100 metres in length;
- Grand Canal Underbridge – a clear-span crossing of the Grand Canal, approximately 60 metres in length;
- Irish Rail Overbridge – the Dublin–Cork/Limerick crossing over the Sallins Bypass, approximately 40 metres in length; and
- Osberstown Road Overbridge – the L2002 Osberstown Road crossing over the Sallins Bypass, approximately 15 metres in length.

River Liffey Underbridge Number 2 on the Sallins Bypass – footpath on the right-hand side of the image will be used for the underground cable

A Traffic Management Plan has been prepared for the Proposed Development and is contained as Appendix 5.1, Volume 3 (Appendices) of the Environmental Impact Assessment Report. Chapters 5 and 14, Volume 2 (Main Text) of the Environmental Impact Assessment Report provide a detailed breakdown of what measures will be applied where. The measures will be single lane closures up to full road closures depending on the road widths and proposed works at that location.

The cable will be delivered to site on cable drums with on average 750 metres length of cable per drum – the exact lengths will be sized to suit the distance between each joint bay. Each cable drum will be approximately 4.3 metres in diameter, and 4 metres wide. This will require a large trailer to allow for transport and will be classed as an abnormal load. Following consultation with an abnormal load specialist, at this stage it is not expected that specific road closures will be required to transport the drums as they will be accompanied by escort vehicles and road widening is not required. The escort vehicles ensure the safety of all road users but also assist the oversized load vehicle in overcoming particular obstructions. The requirement and number of escort vehicles and Garda support will be agreed before the works start. On agreement of the final cable drum, agreement of the delivery port, and specific abnormal load vehicle, the consenting authorities (County Councils and Transport Infrastructure Ireland (TII)) will be consulted and the exact requirements for permits will be jointly agreed.

In line with all large infrastructure projects, there will be a period of detailed design after planning approval and when the contractor is appointed. The contractor will confirm the detailed design within the scope, nature and location of the approved Development, including any planning conditions (should this Proposed Development be approved by An Bord Pleanála).

Typical section of the R447

5. Planning and Environmental Topics

5.1 Introduction

The following sections provide a summary of the assessments for each topic and set out the likely significant effects as a result of the construction and operation of the Proposed Development. The topics are:

- Planning;
- Population and Human Health;
- Air Quality;
- Noise and Vibration;
- Biodiversity;
- Soils, Geology and Hydrogeology;
- Hydrology;
- Archaeology, Architectural Heritage, and Cultural Heritage;
- Traffic and Transport;
- Agronomy and Equine;
- Material Assets;
- Landscape and Visual;
- Risk of Major Accidents and Disasters;
- Waste;
- Climate; and
- Cumulative Impacts and Environmental Interactions.

The following text is a non-technical summary for each of the assessment topics and a summary of the likely significant effects is provided. In this document, the effects of the Proposed Development are identified as significant or not significant - more details and a more technical assessment are provided in the chapters within Volume 2 (Main Text) of the Environmental Impact Assessment Report.

5.2 Planning

The Proposed Development facilitates the delivery of national energy policy outlined in the National Planning Framework (sustainability, security of supply, and competitiveness) and aids in moving Ireland towards a low carbon, climate resilient society. It also delivers on the National Development Plan through the delivery of an expanded and strengthened electricity network. In terms of the Climate Action and Low Carbon Development (Amendment) Act 2021 and Climate Action Plan 2023 and 2024, the Proposed Development helps climate action via strengthening of the electricity grid and allowing the supply (transmission) of more renewable energy.

The Proposed Development meets the polices within the Meath and Kildare County Development Plans and Local Area Plans. Both County Development Plans identify the clear need for improved energy grid infrastructure alongside new development, and outline policies that facilitate grid infrastructure improvements. The Kildare County Development Plan specifically supports the Proposed Development.

5.3 Population and Human Health

The area of the Proposed Development includes four main settlements: Naas, Sallins, Prosperous and Kilcock. Outside of the settlements, much of the population lives in communities and housing alongside the regional and local roads. Impacts to community facilities, tourism sites, towns, villages, businesses, and other key receptors have been avoided where possible through the careful routing of the cable route and through the mitigation measures that will be implemented. Mitigation measures will be implemented at sensitive receptors such as such as Larchill Arcadian Gardens, County Meath, and schools in the Killashee area, south of Naas to further reduce the traffic impacts. By carefully planning the construction phase, impacts to access will be avoided and so there will no significant effects to these receptors.

During the construction phase, the key impacts of the Proposed Development will be disruption to traffic while the construction takes place in and along public roads. Traffic Management will minimise the effects but there will be some temporary disruption to road users and to the communities of the area. There will be no significant effects during the operational phase.

Overall, it is anticipated that through appropriate mitigation and monitoring measures there will be no significant adverse effects on Population and Human Health.

5.4 Air Quality

The Proposed Development is located primarily within Air Quality Zone D – Rural Ireland. Where the cable route traverses Naas, County Kildare, it enters Air Quality Zone C – cities and large towns. The air quality monitored at the nearest air quality monitoring site is well within the national Air Quality Standards.

The potential effects on local air quality during the construction phase, at sensitive human and ecological locations in the vicinity of the Proposed Development, associated with emissions from plant and machinery and associated vehicle traffic are anticipated to be not significant. As the air quality effects associated with the Proposed Development are not significant, the national Air Quality Standards will not be exceeded. There will be no significant effects during the operational phase.

5.5 Noise and Vibration

Mitigation measures will ensure that noise and vibration effects are not likely to be significant at any sensitive receptor (houses, nursing homes, etc). No significant noise or vibration effects are anticipated as a result of construction traffic on surrounding roads or as a result of construction activities. However there will be some temporary noise impacts while the works are ongoing, especially at roadside properties where the cable route will travel past. There will be no significant effects during the operational phase.

5.6 Biodiversity

The Proposed Development does not pass through any nature conservation sites (Special Areas of Conservation, Special Protection Areas, or Ramsar sites). The nearest nature conservation site to the Proposed Development is the Rye Water Valley/Carton Special Area of Conservation, located 7 kilometres to the east and downstream from where the Proposed Development crosses the Rye Water.

One Natural Heritage Area, seven proposed Natural Heritage Areas, and one candidate Natural Heritage Area are in the vicinity of the Proposed Development. These include the Royal Canal and Grand Canal proposed Natural Heritage Areas, which Proposed Development will cross underneath. Harristown Common candidate Natural Heritage Area (fen grassland) lies 113 metres to the northeast of the Proposed Development at its nearest location. Mitigation measures will be implemented to ensure there will be no significant impacts to any nature conservation sites.

The area is generally agricultural land (improved grassland). Important Ecological features include treelines, hedgerows, watercourses, mature trees, wet grassland, scrub, woodland, and reed swamps. No Habitats Directive Annex 1 habitats (some of the most important types of ecological habitats) were recorded within the area. Protected species found in the study area include white-clawed crayfish, European eel, Atlantic salmon, badger, bats, otter, pine marten, and many protected species of birds. It has been assessed that there will no significant effects on these habitats or species.

No wintering bird habitat will be affected by the Proposed Development.

There will be temporary losses of trees and hedgerows as well as permanent losses. The temporary losses will occur where the construction works can be completed, and the area then replanted. The permanent losses will be in areas of the Proposed Development that cannot be replanted – such as joint bays, and the area above the cable (called the permanent easement).

There will be 348 trees removed (equivalent to 4% of the trees in the tree study area which comprises the Planning Application Boundary plus a 30 metre buffer), with a further 710 trees potentially at risk (equivalent to 8% of the trees in the tree study area). Three significant tree features were identified as at risk from removal from the Proposed Development., however none were assessed as veteran or ancient. Before mitigation and off-site compensation, there will be:

- 3.2 kilometres of hedgerow temporarily lost, and 0.7 kilometres permanently lost (equivalent to 2.1% of the hedgerows within the Planning Application Boundary).
- 1.1 kilometres of treelines temporarily lost, and 0.8 kilometres permanently lost (3.1% of the hedgerows within the Planning Application Boundary).

An Off-site Hedgerow Compensation Strategy will deliver species-rich planting, outside the Proposed Development boundary, to deliver an overall net gain of hedgerow habitat. A minimum of 130% compensatory off-site planting will be delivered by the Developer (ESB), in consultation with EirGrid.

For receptors other than mature trees and hedgerows, residual effects from the Proposed Development will be at local level.

As part of the mitigation measures for the Proposed Development, replanting of trees, hedgerows, and treelines will be undertaken within the Planning Application Boundary. The species to be planted will be Irish native and will reflect the species that have been felled as far as possible. Please note that ash, which is suffering ash dieback, and non-native species such as beech will not be replanted. No replanting will be provided on top of the permanent easement for the cable route (5 metres or 15 metres wide depending on the section) or on joint bays, hardstanding, or permanent access tracks.

EirGrid has identified sites in Co. Meath and Dublin with a charity partner, who provides planting options on third-party lands. A minimum of 130% compensatory off-site planting will be put into place, meaning an overall gain in trees, hedgerows, and treelines (as measured by simple habitat area). There is no compensation available for loss of mature trees, or above off-road infrastructure, where habitat fragmentation cannot be mitigated through replanting.

Despite this compensation, there will be a residual effect of County significance from the loss of mature trees which will take longer to establish and grow, and from where replacement planting cannot be done on top of permanent works.

The proposed mitigation will provide a net gain (increase) in hedgerow lengths. This will minimise long-term effects and follows with Kildare and Meath County Development Plan policies on trees and hedgerows.

Rye Water Crossing Point

5.7 Soils, Geology and Hydrogeology

The land use that surrounds the majority of the Proposed Development is agricultural land used for pasture.

Groundwater (bedrock aquifers) in the majority of the area is classified as locally important and locally produces moderate amounts of water. Within the centre of the study area there is a small area which is a locally important bedrock aquifer. In the southern part of the study area there is an area classified as a regionally important bedrock aquifer. There are eight Water Framework Directive[3] groundwater bodies within the study area, all of which have a "good" overall status, as defined by the Environmental Protection Agency. The scale of the Proposed Development relative to the size of the groundwater bodies as a whole is very small. The Proposed Development will not cause negative impacts to any groundwater body.

The cable route trench crosses multiple areas with very high/high potential for the extraction of rock, sands, and gravels. However, the areas directly impacted by the construction activities and proposed construction depths are small compared to the size of the economic deposits as a whole across the study area. Therefore potential losses in these rock, sand, and gravel deposits across the study area are not significant.

There will be temporary effects to the surface and land use due to the disruption associated with trenching for the cable installation, temporary storage of excavated materials, and change of land use at temporary construction compounds. However, given the size and minimal extent of the areas, the effects will not be significant.

[3] The Water Framework Directive which commits European Union member states to achieve good status of all water bodies. The Environmental Protection agency has classified water bodies (surface water and groundwater) based on their quality and identified challenges they face.

Mitigation measures will be implemented to ensure there will be no significant impacts to soils, geology and hydrogeology as a result of the Proposed Development in both the construction and operational phases.

5.8 Hydrology

The Proposed Development and the general surrounding area are located within the Liffey and Dublin Bay water catchment area. The Proposed Development crosses 27 watercourses that have been mapped by the Environmental Protection Agency, as part of its requirements under the Water Framework Directive. Fourteen of these watercourses have been assessed by the Environmental Protection Agency to have Good Ecological Status; five have Moderate Status; and eight are Poor. An additional 14 watercourses that have not been mapped by the EPA will be crossed by the Proposed Development. These watercourses will be considered to be of Good potential status and mitigation measures will be applied to ensure that the Proposed Development would not affect that potential status or the Water Framework Directive status of any water body.

The Proposed Development crosses several floodplains including those associated with the River Liffey. The Proposed Development is located in Flood Zone C[4], apart from minor local areas in close proximity to watercourses. While flooding was considered in the routing of the Proposed Development, it was not feasible to entirely avoid floodplains. The nature of the underground cable means that there will be no effect on floodplains post-construction. The cable and joint bays will be designed to be watertight and so there will be no impact from flooding on the Proposed Development. The proposed works at the substations are within existing substation sites and will not affect nor be affected by flooding. Mitigation measures will ensure no significant effects during construction.

In summary, there will be no significant effects to watercourses with the proposed mitigation measures.

Typical watercourse crossed by the Proposed Development

[4] An area where there is a moderate risk of flooding, with an estimated probability of flooding of between 1 in 100 and 1 in 1,000 per year.

5.9 Archaeology, Architectural Heritage and Cultural Heritage

The area surrounding the Proposed Development is a rich network of Ireland's history from prehistoric[5] up to the post-medieval periods[6]. This includes prehistoric settlements, the remains of the Pale (a boundary constructed by the Anglo-Normans to divide their lands from those held by the Irish) to Protected Structures[7] comprising houses and churches. There is one National Monument[8] and three sites with Preservation Orders[9] located within the study area. These form part of the Jigginstown Castle complex, in Naas. Mitigation measures will be implemented to ensure the cable route will pass Jigginstown Castle with no significant impacts.

The Proposed Development is located within the Zones of Notification[10] of six Recorded Monuments[11] – these are enclosures, raths/ringforts, mounds, and earthworks. While the Proposed Development would not directly impact the Recorded Monuments themselves, excavation of the cable trench would have a direct impact on any archaeological remains that may survive within this zone.

Construction of the Proposed Development would directly impact 12 sites that have been recorded from historic mapping or from surveys undertaken for the Proposed Development. These are ring-ditches; cropmarks; an enclosure; boundary/marker stone; a mound; a possible rath/ringfort site; the remains of a small group of buildings, post-medieval farmstead, post-medieval corn mill, and two post-medieval buildings. Mitigation measures will be implemented and there will be no significant effects as a result of these impacts. There will be no significant operational phase effects. Archaeological testing will be undertaken pre-construction and there will be archaeological supervision during construction to ensure that any archaeological remains are not affected.

Jigginstown Castle

[5] Roughly between 10,000 BCE to 400 CE
[6] Roughly between 1550–1850 CE
[7] A protected structure is a structure that a planning authority thinks is of special interest from an architectural, historical, archaeological, artistic, cultural, scientific, social or technical point of view.
[8] A National Monument is a structure or site, the preservation of which has been deemed to be of national importance and therefore worthy of state protection.
[9] Preservation Orders can be placed on a monument by the Office of Public Works where the monument is at risk. None of the sites at are risk from the Proposed Development.
[10] Every archaeological monument is surrounded by a Zone of Notification (formerly known as zones of archaeological potential).
[11] Recorded monuments are sites, structures and features of archaeological significance which are protected by National Monuments legislation.

5.10 Traffic and Transport

Along the approximately 53 kilometre cable route, there will be one section (4 kilometres in length) that will have a temporary but significant effect for Heavy Goods Vehicles (lorries, etc). This section along the R156 in County Meath will have a significant effect as a result of the proposed Single Lane Closure with Heavy Goods Vehicles Diversion. This means that there will be traffic lights to control the flow of traffic, but cars will be able to pass the in-road works. Lorries and larger vehicles will be required to use the diversion because of how narrow the road is at this location. There will be a large diversion of 27.4 kilometres that will be signposted from the affected regional road to an alternative regional road. While the effect will be significant, the impacts will be limited to the construction of the cable trench, which will be a temporary impact – lasting approximately seven working days. The other sections of affected roads will have no effect or have been assessed to be not significant. Other effects to public transport users or to the community (such as temporary traffic delays) will be not significant. There will be no significant effects during the operation al phase.

Typical section of the R156

5.11 Agronomy and Equine (Agriculture and Horses)

In general, the agricultural land surrounding the Proposed Development is good quality. The average size of farms along the Proposed Development is larger than the national average (44 hectares versus 33.4 hectares). Of the total of 68 land holdings located along the Proposed Development, ten are equine enterprises. i

Significant impacts on agriculture and equine will not arise where the Proposed Development is constructed in-road. There are 43 land parcels where there will be permanent easements or land-take required for the underground cable, access tracks, and joint bays. Where the construction works are off-road there will be eight locations where insignificant effects arise due to the Proposed Development and the remaining 62 directly affected farms will have no significant effects. None of the significant effects will be to high or very high sensitive enterprises (e.g. equine).

The overall effect on agriculture and equine along the entire Proposed Development is not significant. The works will affect less than 2.5% of the area of these land parcels. The Proposed Development will have direct effects on 0.02% of the area of County Kildare and County Meath. The overall impact on agriculture within this region is not significant. There will be no significant operational phase effects.

Crossing Point of the Dublin–Sligo Railway Line and the Royal Canal

5.12 Material Assets

The land along the Proposed Development is a mixture of agricultural land, residential settlements, single dwellings, community, industrial, and commercial properties. The main non-residential properties within the study area include:

- Schools;
- Medical facilities;
- Retail, commercial, and industrial properties;
- Sports and recreational facilities; and
- Churches and graveyards.

There is potential for impacts on material assets associated with the construction of the Proposed Development, however with the implementation of the mitigation measures, the effects on material assets will be not significant. However there will be a temporary significant effect to one property as the cable route will pass through a section of the garden. Additionally, users of the Sallins Bypass footpath and cycleway will experience a temporary significant effect from construction along the facility. Along the Sallins Bypass, early notices and signage to show diversions will be used by the Contractor. Local cycling/walking groups and community groups (as well as Cycling Ireland and Kildare County Council) will be directly contacted by the Contractor to inform them of the timing, extent, and duration of any closures and what signed diversion routes will be available. As far as possible the works along the Sallins Bypass will be phased so that the entire length of the cycleway and footpath will not be closed

at any one time. The use of the Sallins Link Road at the roundabout on the Sallins Bypass will allow a shorter diversion. There will be no significant operational phase impacts, except for the beneficial impact that the Proposed Development will have on the electricity network.

5.13 Landscape and Visual

There are five Landscape Character Areas within the Meath portion of the study area: South-East Lowlands; Tara Skryne Hills; Rathmoylan Lowlands; Royal Canal; and The Ward Lowlands. There are 12 Landscape Character Areas within the Kildare portion of the study area: Chair of Kildare; Northern Lowlands; North-western Lowlands; Western Boglands; Northern Hills; Allen Bog; Pollardstown Fen; The Curragh; Central Undulating Lands; Eastern Transition; River Liffey; and Eastern Uplands. Furthermore, several of the Landscape Character Areas within the study area are also designated as Areas of High Amenity: River Liffey; Pollardstown Fen; The Curragh; and Eastern Uplands.

There will be construction phase effects from the removal of vegetation, but these will largely be temporary in duration. After construction is completed and during the operational phase, there will be no significant effects as the Proposed Development is predominantly below ground with the land cover above largely reinstated. There will be no significant construction or operational effects from the works proposed at the two substations because of the nature of the works within existing substations and the distance from receptors.

The Proposed Development will have no significant landscape or visual effects.

5.14 Risk of Major Accidents and Disasters

The proposed construction works and technology used are designed and tested within national and international guidelines and will not result in major accidents and/or disasters. The assessment has concluded that there is nothing in the Proposed Development nor in the surrounding area that will interact to result in any significant effects.

5.15 Waste

The majority of the waste which will arise as a result of the Proposed Development will be surplus material (earth) excavated during the construction phase. Construction materials will also be required to be imported as part of the construction phase. A Construction Resource and Waste Management Plan (CRWMP) is included in Appendix 5.5, Volume 3 of the Environmental Impact Assessment Report. Given the relatively small potential quantity of surplus material to be generated and the material required for construction (resource use/importation), and that this quantity will be generated across the 42 months construction phase, the effect will be not significant. There will be no significant waste generated during the operational phase.

5.16 Climate

The Proposed Development has been designed so that there will be no likely significant effects as a result of climate change – for example, increased flooding and temperatures will not affect the Proposed Development. Although the Proposed Development is expected to result in some direct greenhouse gas emissions during the Construction and Operational Phases, the level of the direct greenhouse gas emissions has been estimated for the Construction Phase and will be not significant. The Proposed Development will help to meet the Government of Ireland's Climate Action Plan target of up to 80% renewable energy generation by 2030. This includes the transmission (movement) of electricity from offshore and onshore renewable sources (such as windfarms and solar farms). At this stage, it is not possible to identify how much renewable energy will be facilitated by the Proposed Development. However, it is considered that the Proposed Development will have an overall positive effect on climate change because of its role with connecting renewable energy during its operational phase.

5.17 Cumulative Impacts and Environmental Interactions

Cumulative impacts could occur where the Proposed Development and other planned projects in the area could together have increased (cumulative) effects on the environment. A study was completed to identify any planned projects and an assessment was undertaken. The assessment found that, for the majority of environmental topics, there were no significant cumulative effects and no additional mitigation measures were required. There is one other project for which additional mitigation measures are required, and this is the EirGrid CP1021 East Meath – North Dublin Grid Upgrade. This is a similar underground cable project proposed by EirGrid and will run from the Woodland substation to the Belcamp substation (close to Dublin Airport in County Dublin). That project will have a separate planning application and the two projects can be constructed independently of each other.

As both projects leave Woodland substation, they will share the same 15 metre wide corridor for roughly 3.5 kilometres - the 'Woodland Corridor', which extends from Woodland substation southwards to the R156 Road. A requirement for consultation and coordination with the CP1021 project will be included (in terms of air quality (dust), watercourse impacts, traffic, utilities) to ensure that the two developments are phased in order to not result in any significant cumulative impacts. This will be included in the contract documents for the Proposed Development, and once adopted, there will be no significant cumulative effects.

The assessment also addressed the potential for interactions between the different environmental topics of the Proposed Development (for example the loss of hedgerows has an effect on biodiversity, landscape, and agronomy). Impact interactions between environmental aspects are addressed as part of the individual topic assessment, so for example the population assessment included effects on community amenity, which relates to the interaction of impacts on air quality; visual amenity; traffic and transport; and noise and vibration. The likely significance of these effects has been assessed within the individual assessment chapters. For instance the Landscape and Visual Chapter includes an assessment of the relevant interactive ecological impacts. The opposite is found in the Biodiversity Chapter.

6. Conclusion

The Proposed Development will improve the electrical network (grid) in Kildare and Meath and allow the connection of more businesses to the grid, supporting economic growth in the area. The Proposed Development will also help to meet the Government of Ireland's Climate Action Plan target of up to 80% renewable energy generation by 2030. This will be through allowing more renewable energy to be connected to the electrical grid (offshore and onshore windfarms, solar, and other sources) and supplying this energy to where demand is largest in Kildare, Meath, and Dublin.

The Proposed Development complies with the policies within the Meath and Kildare County Development Plans and Local Area Plans. Both County Development Plans identify the clear need for improved energy grid infrastructure alongside new development, and outline policies that facilitate grid infrastructure improvements. The Kildare County Development Plan specifically supports the Proposed Development.

With mitigation measures, the majority of potential of environmental impacts will be avoided or will be not significant. After mitigation measures there will be four significant effects from the Proposed Development:

- **Traffic – temporary significant effect because of a diversion during construction.** Traffic disruption on a four kilometre section (out of a total cable length of 53 kilometres) on the R156 in County Meath has been assessed to be significant. A 27.4 kilometre diversion will be in place for seven working days for lorries and larger vehicles. It will be signposted from the affected regional road to an alternative regional road. Smaller vehicles such as cars will be able to pass the works in this section and would not be required to use the diversion;
- **Material Assets – temporary significant effect because the cable construction in a garden.** There will be a temporary significant effect to one residential garden because of the cable route. There will be no significant permanent adverse effects;
- **Material Assets – temporary significant effect because of a footpath and cycleway diversion during construction.** There will be a temporary significant effect because of the temporary diversion required on the Sallins Bypass footpath and cycleway. There will be no significant permanent adverse effects; and
- **Biodiversity – loss of trees and hedgerows.** The loss of mature trees will be significant because of the time it will take for these trees to be replaced. Additionally, because of the nature of some of the works, replacement planting will not be possible at all areas directly affected. For instance, on permanent access tracks or joint bays and their associated hardstanding areas. EirGrid has committed to planting more trees than are cut down for the Proposed Development. The loss of these trees as these carbon sinks will be more than outweighed by the amount of renewable energy the Kildare-Meath Grid Upgrade project will connect to the electric grid, as a key part of the nation's Climate Action Plan.