East Meath - North Dublin Grid Upgrade Environmental Impact Assessment Report (EIAR): Volume 2

Chapter 21 Summary of Mitigation and Monitoring Measures

EirGrid

March 2024

Contents

21. Summary of Mitigation and Monitoring Measures

21.1 Introduction

The purpose of this Chapter is to collate the mitigation and monitoring measures identified in the Environmental Impact Assessment Report (EIAR) that are considered necessary to protect the environment, prior to the commencement of, and throughout the duration of the Construction and / or Operational Phases of the East Meath – North Dublin Grid Upgrade (hereafter referred to as the Proposed Development).

The design of the Proposed Development has evolved through comprehensive design iteration, with particular emphasis on minimising the potential for environmental impacts, where practicable. In addition, feedback received from the comprehensive consultation programme undertaken throughout the option selection and design development process have been incorporated, where appropriate. As described throughout this EIAR, the design of the Proposed Development has been progressed taking account of environmental constraints and considerations that have been identified in assessments. This has enabled the avoidance of potential environmental impacts, wherever possible.

21.2 Mitigation and Monitoring Schedule

Mitigation and monitoring measures have been identified as environmental commitments and overarching requirements which will avoid, reduce or offset potential impacts. Mitigation and monitoring measures specified within the EIAR technical assessments are also provided in Chapter 5 to Chapter 20 of this EIAR. The timing and implementation of the mitigation and monitoring measures are indicated within this Chapter as occurring during the:

- Detailed Design Stage: The completion of further design refinement of the Proposed Development prior to construction. The detailed design will account for any conditions attached to a grant of planning for the Proposed Development;
- Pre-Construction Phase: Activities such as investigative surveys (e.g. bat surveys) that need to be undertaken in advance of the construction works;
- Construction Phase: The undertaking of physical works to construct elements of the Proposed Development, as outlined in Chapter 4 (Proposed Development Description) in Volume 2 of the EIAR; and
- Operational Phase: When the Proposed Development comes into operation (i.e., any mitigation associated with the planned maintenance).

The following tables summarise the Detailed Design Stage, Pre-Construction Phase, Construction Phase and Operational Phase mitigation and monitoring measures that are outlined in the relevant EIAR technical assessments, but should be read in conjunction with the mitigation outlined in the specific Chapter and also within the Construction Environmental Management Plan (CEMP), which is included as a standalone document in this planning application pack (note that the CEMP summarises the Pre-Construction Phase / Construction Phase mitigation and monitoring measures only). Where appropriate, the location to which the mitigation or monitoring measure relates to is identified, and where the mitigation or monitoring measures is development-wide, the location is given as 'throughout (as required)'. Note that in certain instances, a mitigation or monitoring measure may be relevant to more than one environmental aspect.

21.3 General Mitigation Requirements

Table 21.1: General Mitigation Measures

Mitigation Number	EIAR Section Reference	Location	Description of Mitigation or Monitoring Measure	Implementation Phase
GEN1	N/A	Throughout (as required)	The mitigation measures appropriate to the construction contract (Pre-Construction and Construction Phase mitigation measures) summarised in this Chapter have been included in the CEMP and its associated appendices (which are included as standalone documents in the planning application pack).	Pre-Construction / Construction

21.4 Population Mitigation and Monitoring Measures

Table 21.2: Population Mitigation and Monitoring Measures

Mitigation Number	EIAR Section Reference	Location	Description of Mitigation or Monitoring Measure	Implementation Phase
N/A	N/A	N/A	No mitigation or monitoring measures are considered necessary beyond those already identified in other environmental assessments.	N/A

21.5 Human Health Mitigation and Monitoring Measures

Table 21.3: Human Health Mitigation and Monitoring Measures

Mitigation Number	EIAR Section Reference	Location	Description of Mitigation or Monitoring Measure	Implementation Phase
HH1	6.5.1	Off-Road Sections and throughout (as required)	The following mitigation measures, in relation to agronomy and equine, will be implemented in full to provide support to the farming community likely to be affected by the Proposed Development: • The appointed contractor will be required to maintain close liaison with local community representatives and landowners and farmers to provide them with adequate progress information and advance notice of works. This will ensure that construction activities are planned around the reasonable access needs of the landowner, so that access is maintained when required by the landowner for farming activities, such as for example, forage and crop harvesting, fertiliser spreading, slurry spreading, and herding of livestock etc. Scheduling of works will be agreed with each landowner to facilitate the operation of the farm and minimise disturbance. Where it is necessary to move livestock along public roads or across the working area, this will be facilitated by the appointed contractor; and • Where the working area severs land access or access to farmyards, the appointed contractor will ensure that there is adequate access provided to facilitate the farmer to effectively farm severed land.	Construction
HH2	6.5.1	Throughout (as required)	The CEMP, which is included as a standalone document in the planning application pack will be implemented.	Construction
HH3	6.5.1	Throughout (as required)	The following mitigation measures, in relation to traffic, will be implemented: • An adopted, regulated and approved Construction Traffic Management Plan (CTMP) (refer to Appendix B of the CEMP which is included as a standalone document in this planning application pack) will be implemented; • Signed diversion routes will be provided to mitigate journey disruption and to minimise potential driver delay. These are outlined in Chapter 14 (Traffic and Transport) but will be subject to final agreement with the Roads Authorities. Where practically achievable, diversion routes will not apply outside of the working area hours of operation; and • Construction activity generated vehicles will travel on predefined construction access routes to and from the relevant working areas to reduce the effects on local traffic.	Construction
HH4	6.5.1	Throughout (as required)	The following mitigation measure, in relation to air quality, will be implemented: • 'Highly recommended' measures for 'medium risk' dust soiling impacts, as identified in the Institute of Air Quality Management (IAQM) Guidance on the Assessment of Dust from Demolition and Construction (Version 2.1) (IAQM 2023), will be implemented.	Construction
HH5	6.5.1	Throughout (as required) and at HDD Compounds (HDD 1 and HDD 2)	The following mitigation measures, in relation to noise, will be implemented: • Noise barriers will be installed around two of the Horizontal Directional Drilling (HDD) Compounds (HDD1 and HDD2) Compounds and acoustic enclosures will be placed around HDD plant; and • British Standard Institute (BSI) British Standard (BS) 5228-1:2009+A1:2014 Code of practice for noise and vibration control on construction and open sites - Noise (BSI 2014a) will be complied with.	Construction

Mitigation Number	EIAR Section Reference	Location	Description of Mitigation or Monitoring Measure	Implementation Phase
HH6	6.5.1	Throughout (as required)	The following specific mitigation measures have been identified for human health and will be implemented during the Construction Phase: • All proposed traffic diversion routes will remain suitable for walkers, cyclists and horse riders as well as motorised vehicles if these user types are known or anticipated to make use of the closed route; • A Community Liaison Officer will be engaged who will act as a single point of contact for members of the community who may have concerns about construction related activities, collate data regarding issues raised by members of the community to enable them to be addressed, and who will act to resolve concerns in a timely manner; • The Community Liaison Officer will be contacted either via telephone or by a suitable online feedback mechanism; and • There will be specific liaison between the appointed contractor's Community Liaison Officer and the following facilities to develop targeted mitigation measures which will help to minimise adverse effects associated with increased traffic flows on nearby roads: o Scoil Bhríde, Kilbride Road, Kilbride; o Dunboyne Nursing Home, Harlockstown, Dunboyne; and o Anovocare Nursing Home, Stockhole Lane, Cloghran.	Construction

21.6 Air Quality Mitigation and Monitoring Measures

Table 21.4: Air Quality Mitigation and Monitoring Measures

Mitigation Number	EIAR Section Reference	Location	Description of Mitigation or Monitoring Measure	Implementation Phase
AQ1	7.5.1	Throughout (as required)	Good practice dust mitigation measures to manage the generation of dust at source will be implemented. The proposed mitigation measures, as per the) Guidance on the Assessment of Dust from Demolition and Construction (Version 2.1) (IAQM 2023).	Construction
AQ2	7.5.1	Throughout (as required)	**Communication:** • A stakeholder communication plan will be developed and implemented and will include community engagement before work commences on-site; • The name and contact details of the person(s) accountable for air quality and dust issues on the Temporary Construction Compound (TCC) and Horizontal Directional Drilling (HDD) Compound site boundaries will be displayed. This may be the environment manager / engineer or the site manager; and • The head or regional office contact information for the developer and appointed contractor will be displayed.	Construction
AQ3	7.5.1	Throughout (as required)	**Site Management:** • All dust and air quality complaints will be recorded, cause(s) will be identified, appropriate measures to reduce emissions in a timely manner will be undertaken, and the measures taken will be recorded; • The complaints log will be made available to the local authority when asked; and • Any exceptional incidents that cause dust and / or air emissions, either on-site or off site, will be recorded in a log book, along with the action taken to resolve the situation.	Construction
AQ4	7.5.1	Throughout (as required)	**Monitoring:** • Regular site inspections to monitor compliance with the CEMP or equivalent management plan will be carried out, with inspection results recorded. The inspection log will be made available to the local authority when asked; and • The frequency of site inspections by the person accountable for air quality and dust issues on-site will be increased, when activities with a high potential to produce dust are being carried out, and during prolonged dry or windy conditions. Regular site inspections to monitor compliance with the CEMP will be carried out and inspection results will be recorded.	Construction
AQ5	7.5.1	Throughout (as required)	**Preparing and maintaining the site.** • The site layout will be planned so that machinery and dust causing activities are located away from receptors, as far as is possible; • Solid screens or barriers will be erected around dusty activities that are at least as high as any stockpiles on-site; • Specific operations will be fully enclosed where there is a high potential for dust production and impacts on nearby receptors; • Site runoff of water or mud will be avoided; • Materials that have a potential to produce dust will be removed from site as soon as possible, unless being reused on-site. If they are being reused on-site, they will be covered as described below; and • Stockpiles will be covered or fenced to prevent wind whipping.	Construction

Mitigation Number	EIAR Section Reference	Location	Description of Mitigation or Monitoring Measure	Implementation Phase
AQ6	7.5.1	Throughout (as required)	**Operating vehicles / machinery and sustainable travel:** • All vehicle operators will be required to switch off engines when vehicles are stationary (i.e. no idling vehicles); and • The use of diesel, or petrol-powered generators will be avoided. Mains electricity or battery powered equipment will be used, where practicable.	Construction
AQ7	7.5.1	Throughout (as required)	**Operations:** • Site personnel will only use cutting, grinding or sawing equipment fitted or in conjunction with suitable dust suppression techniques such as water sprays or local extraction (e.g., suitable local exhaust ventilation systems); • An adequate water supply will be made available for dust / particulate matter suppression, where required; • Covered skips will be used; • Drop heights from conveyors, loading shovels, hoppers and other loading or handling equipment will be minimised, and fine water sprays will be used on such equipment, wherever appropriate; and • The appointed contractor will ensure that equipment is readily available on-site to clean any dry spillages. Spillages will be cleaned up as soon as reasonably practicable after the event using wet cleaning methods.	Construction
AQ8	7.5.1	Throughout (as required)	**Waste management:** • Bonfires and burning of waste materials will be avoided.	Construction
AQ9	7.5.1	Throughout (as required)	**Measures specific to trackout**: • Water-assisted dust sweeper(s) will be used on the access and local roads, to remove, as necessary, any material tracked out of the site. This may require the sweeper being continuously in use; • Dry sweeping of large areas will be avoided; • It will be required to ensure that vehicles entering and leaving sites containing friable materials are covered to prevent escape of materials during transport; • On-site haul routes will be inspected for integrity and instigate necessary repairs to the surface as soon as reasonably practicable; • All inspections of haul routes and any subsequent action will be recorded in a site log book; • A surfaced haul route to the TCCs and HDD Compounds will be installed, which will be regularly damped down with fixed or mobile sprinkler systems, or mobile water bowsers and will be regularly cleaned, if required; • A wheel washing system (with rumble grids to dislodge accumulated dust and mud prior to leaving the site where reasonably practicable) will be implemented; • It will be required to ensure that there is an adequate area of hard surfaced road between the wheel wash facility and the site exit, wherever site size and layout permits; and • Access gates will be located at least 10m from receptors, where possible.	Construction

21.7 Climate Mitigation and Monitoring Measures

Table 21.5: Climate Mitigation and Monitoring Measures

Mitigation Number	EIAR Section Reference	Location	Description of Mitigation or Monitoring Measure	Implementation Phase
CL1	8.5.2.2	Throughout (as required)	The compensation of unavoidable residual GHG emissions will be considered during the detailed design stage of the Proposed Development.	Detailed Design
CL2	8.5.1.2	Throughout (as required)	The following good practice measures will be implemented to reduce greenhouse gas (GHG) emissions during the Construction Phase of the Proposed Development: • Investigating and implementing sustainable reuse of any materials won from excavation; • The reuse, where possible of materials and waste generated from construction works; • Procuring locally sourced materials where reasonably practicable to reduce transportation emissions; • Careful consideration of material quantity requirements to avoid over-ordering and generation of waste materials, while also reducing transportation-related emissions; and • The appointed contractor will develop and implement a plan to reduce energy consumption and GHG emissions throughout construction, including, for example: o Monitoring of fuel and mains electricity use on site (site accommodation to have motion activated lighting and use lower power lighting techniques such as light-emitting diodes (LEDs)); o Training of plant operatives in fuel efficient driving techniques or use of appropriate technology on construction vehicles (e.g. stop – start); and o Consideration of renewable / and or low carbon energy sources to power TCCs and HDD Compounds.	Construction
CL3	8.5.2.2	Throughout (as required)	The party responsible for maintenance of the assets (the Electricity Supply Board (ESB) and its appointed contractor(s)) will ensure that the following mitigation measures are implemented to reduce GHG emissions during the Operational Phase of the Proposed Development: • Locally sourced, low carbon materials will be used, where technically feasible for asset replacements; and • Regular planned preventative maintenance checks will be implemented to optimise operational efficiency.	Operational

21.8 Noise and Vibration Mitigation and Monitoring Measures

Table 21.6: Noise and Vibration Mitigation and Monitoring Measures

Mitigation Number	EIAR Section Reference	Location	Description of Mitigation or Monitoring Measure	Implementation Phase
NV1	9.5.1.1	Throughout (as required)	Construction activities will comply with BS 5228-1:2009+A1:2014 Code of practice for noise and vibration control on construction and open sites - Noise (BSI 2014a) and BS 5228-2:2009+A1:2014 Code of practice for noise and vibration control on construction and open sites – Vibration (BSI 2014b).	Construction
NV2	9.5.1.1	Throughout (as required)	The appointed contractor will comply with local authority controls on noise and vibration during the Construction Phase of the Proposed Development.	Construction
NV3	9.5.1.1	HDD Compounds (and throughout as required)	Noise barriers will be installed around the following HDD Compounds, and acoustic enclosures will be placed around the HDD plant: • HDD2 M2 Motorway (Chainage 23,550). Noise barriers will be placed on the perimeter of both launch and receiver HDD Compounds (HDD Compound 2a and 2b) to screen noise at the nearest sensitive receptors; • HDD1 M3 Motorway (Chainage 12,800). Noise barriers will be placed on the perimeter of both launch and receiver HDD Compounds (HDD 1a and 1b) to screen noise at the nearest sensitive receptors; • The noise barriers will be within the Planning Application Boundary. The requirement for the noise barriers will be confirmed pre-construction through confirmatory assessment following detailed design for the HDD (within the parameters assessed in this EIAR). The location of the noise barrier will be set out and agreed with the local planning authority in advance of the works designed to keep noise levels within the specified limits. If it can be demonstrated to the local authorities that the barriers are not required, in accordance with the limits in this assessment, then they will not be provided, subject to agreement with the local planning authority; • BS 5228-1:2009+A1:2014 Code of practice for noise and vibration control on construction and open sites - Noise (BSI 2014a) states that a noise barrier which blocks the line of sight between the source and the receptor would result in an approximate attenuation of 10dB. Therefore, the noise barriers will be designed to block the line of sight between the noise source and the affected receptors; • Noise barriers will comply with the standard BS EN 14388:2015 – Road traffic noise reducing devices. Specifications (BSI 2015); • Portable acoustic enclosures will be placed around the HDD plant in HDD2 and HDD1 including the drilling rig and the generator. Acoustic enclosures will surround the noise source in order to reduce noise levels at nearby receptors; • Local residents will be kept informed of any HDD works taking place outside normal working hours; • All valid complaints will be dealt with expeditiously and appropriate action will be taken; • The routing, depth, locations, and drilling types of the proposed HDD works will be carefully selected to avoid effects. Confirmatory structural surveys will be completed pre-construction at all structures that will be crossed or that are within 50m of the HDD locations. Monitoring by the appointed contractor of these locations will occur during the HDD works, and the surveys will be repeated post-construction. In the extremely unlikely event of repairs being required, these will be immediately undertaken in agreement with the structure owner; and • During the HDD works, constant monitoring by the specialist drilling team will be carried out. The volume of cuttings produced will also be monitored to ensure that no over cutting takes place and that hole cleaning is maintained. The nature of the cuttings will also be monitored to understand the ground conditions as the drilling progresses. The CEMP (included as a standalone document in the planning application pack) will be updated pre-construction with further	Detailed Design / Pre-Construction / Construction

Mitigation Number	EIAR Section Reference	Location	Description of Mitigation or Monitoring Measure	Implementation Phase
			information of HDD monitoring, when the appointed contractor is appointed, and will be agreed with stakeholders including the local authorities, Transport Infrastructure Ireland, Waterways Ireland, and Irish Rail.	
NV4	9.5.1.1	Throughout (as required)	The appointed contractor will develop and implement a Stakeholder Communications Plan which will facilitate community engagement prior to the commencement of construction.	Pre-construction
NV5	9.5.1.1	Throughout (as required)	Only plant conforming with or better than relevant national or international standards (including BS 5228-1:2009+A1:2014 Code of practice for noise and vibration control on construction and open sites - Noise (BSI 2014a) and BS 5228-2:2009+A1:2014 Code of practice for noise and vibration control on construction and open sites – Vibration (BSI 2014b)), directives or recommendations on noise or vibration emissions will be selected and used. Construction plant will be maintained in good condition with regards to minimising noise and vibration emissions.	Construction
NV6	9.5.1.1	Throughout (as required)	Plant will be operated and maintained appropriately, with due regard for manufacturer recommendations. All vehicles, plant and equipment will be switched off when not in use.	Construction
NV7	9.5.1.1	Throughout (as required)	Where practicable, gates (to TCCs, HDD Compounds and construction areas) will not be located opposite noise sensitive receptors.	Construction
NV8	9.5.1.1	Throughout (as required)	Routes and programming for the transport of construction materials, spoil and personnel will be carefully selected to reduce the risk of increased noise and vibration impacts during construction.	Construction
NV9	9.5.1.1	Throughout (as required)	Vehicle and mechanical plant / equipment used for the purpose of the works will be fitted with effective exhaust silencers, to be maintained in good working order and operated in such a manner to minimise noise emissions.	Construction
NV10	9.5.1.1	Throughout (as required)	Construction plant and activities will be positioned appropriately to minimise noise at sensitive locations	Construction
NV11	9.5.1.1	Throughout (as required)	Equipment that breaks concrete by pulverising or similar, rather than by percussion, will be used close to noise sensitive locations.	Construction
NV12	9.5.1.1	Throughout (as required)	Mufflers will be used on pneumatic tools.	Construction
NV13	9.5.1.1	Throughout (as required)	Works will be programmed to minimise the requirement for working outside normal working hours.	Construction
NV14	9.5.1.1	Throughout (as required)	Unnecessary revving of engines and idling will be avoided.	Construction
NV15	9.5.1.1	Throughout (as required)	Plant and vehicles will be started-up sequentially rather than all together.	Construction
NV16	9.5.1.1	Throughout (as required)	Drop height of materials will be minimised.	Construction
NV17	9.5.1.1	Throughout (as required)	Rubber linings will be used in, for example, chutes and dumpers to reduce impact noise.	Construction
NV18	9.5.1.1	Throughout (as required)	Any plant, such as generators, which are required to operate before 07:00hrs or after 19:00hrs will be surrounded by an acoustic enclosure or portable screen.	Construction
NV19	9.5.1.1	Throughout (as required)	Low vibratory or non-vibratory plant will be used when working in close proximity to a vibration sensitive receptor.	Construction

Mitigation Number	EIAR Section Reference	Location	Description of Mitigation or Monitoring Measure	Implementation Phase
NV20	9.5.1.1	Throughout (as required)	Vibratory equipment will be started-up or turned off as far away from sensitive receptors as possible.	Construction
NV21	9.5.1.1	Throughout (as required)	All site access roads will be kept even to reduce vibration.	Construction
NV22	9.5.1.2	Diversion Routes	The following mitigation measures will be implemented: • Road closures and diversion routes will be minimised; and • Suitable advanced warning of road closures will be provided to residents within 25m of the affected diversion routes.	Construction

21.9 Biodiversity Mitigation and Monitoring Measures

Table 21.7: Biodiversity Mitigation and Monitoring Measures

Mitigation Number	EIAR Section Reference	Location	Description of Mitigation or Monitoring Measure	Implementation Phase
BD1	10.5.1	Throughout (as required)	An on-site Ecological Clerk of Works (ECoW) will be appointed by the appointed contractor to carry out pre-construction surveys to ensure that the ecological baseline remains current and, where required, will implement the appropriate mitigation measures, as outlined in Chapter 10 (Biodiversity) and this Table. The ECoW will have sufficient experience to carry out the task(s) at hand and will be a member of a professional body, such as the Chartered Institute of Ecology and Environmental Management (CIEEM), or similar.	Pre-Construction / Construction
BD2	10.5.2	Throughout (as required)	In advance of enabling works, the appointed contractor's EcoW will complete pre-construction confirmatory surveys of selected ecological features whose distribution is dynamic over time, and which are known to have the potential to occur within the Zone of Influence (ZoI) of the Planning Application Boundary. At this time, maximum effort will be adopted to survey those small number of areas that could not be surveyed during baseline data collection for this EIAR, due to site access limitations. The pre-construction confirmatory surveys will include: • Bat trees previously identified as having roosting potential and within the ZoI will be subject to pre-construction surveys. Bat surveys will be carried out in accordance with guidance from Bat Mitigation Guidelines for Ireland – 2 (Marnell et al. 2022), Best Practice Guidelines for the Conservation of Bats in the Planning of National Road Schemes (National Roads Authority (NRA 2006a)) and Bat Surveys for Professional Ecologists: Good Practice Guidelines 4th edition (Collins 2023). Surveys will be carried out by a licensed bat worker, who will determine the locations where they are required, using best practice techniques; • Otter breeding / resting sites within the ZoI of the Planning Application Boundary (minimum 50m from watercourse crossings, up to 150m at HDD Compound sites, will be subject to pre-construction surveys, where access allows (noting that guidance recommends 20m for non-breeding sites); • Badger setts within the ZoI of the Planning Application Boundary (minimum 50m, up to 150m at HDD Compound locations, will be subject to pre-construction surveys, where access allows). Further information relating to determining sett activity and mitigation measures is provided in Mitigation Item BD15; • Squirrel (grey and red), where dreys are identified within trees to be felled within the Planning Application Boundary will be subject to pre-construction surveys.; • Amphibians and reptiles: a pre-construction survey will be undertaken by the ECoW of previously identified areas that are suitable to host these species including reptile habitat (dry calcareous grassland, dry meadows and grassy verges and recolonising bare ground) and of amphibian habitat (drainage ditches and wet grassland) within the Planning Application Boundary. A suitable safe receptor site will be pre-identified, and if amphibians or reptiles are found within the Planning Application Boundary, the ECoW will translocate animals if necessary to the suitable receptor habitat; • Watercourses within the Planning Application Boundary will be subject to pre-construction surveys, particularly for the presence of sensitive aquatic fish and invertebrate species (e.g. white-clawed crayfish, eel, lamprey species, salmon, trout); • Invasive species within the Planning Application Boundary will be subject to pre-construction surveys; and	Pre-Construction

Mitigation Number	EIAR Section Reference	Location	Description of Mitigation or Monitoring Measure	Implementation Phase
			• Hedgerows and treelines to be removed will be resurveyed before construction commences (collecting information on canopy, understorey and field layer species, and associated features such as ditches, earth banks, and walls) to inform reinstatement. All surveys will be undertaken by the ECoW and supported by a suitably qualified ecologist where needed with demonstrable experience in the survey and assessment of the feature.	
BD3	10.5.2.1	Throughout (as required)	**Reporting** The results of the pre-construction confirmatory surveys will inform the refinement of mitigation and monitoring measures (if required) in the appointed contractor's method statements (in accordance with the commitments set out in this EIAR and any conditions attached to any grant of planning), and all results will be incorporated into the appointed contractor's constraint mapping. Survey reporting and mapping will be provided to the Developer's Ecologist (ESB), EirGrid's Planning and Environmental Unit (PEU) within the Chief Infrastructure Office, and to any prescribed bodies as additionally required by any planning conditions.	Pre-Construction
BD4	10.5.3.1.1	Throughout (as required)	The appointed contractor's EcoW will be on-site during the Construction Phase for any works deemed to be of sensitive nature due to the number of sensitive ecological receptors and the works taking place within watercourses connected to European sites. Where sensitive habitats or species have the potential to be impacted, the ECoW will be on-site to oversee the implementation all mitigation measures as described below. The EcoW will be at sensitive locations, for example, where there will be in-stream works and where a watercourse is hydrologically connected to European site, at locations where there is the potential for disturbance to Special Conservation Interests (SCI) birds, where hoarding will be erected, and in areas of vegetation reinstatement, including tree planting. Table 10.29 in Chapter 10 (Biodiversity) in Volume 2 of the EIAR outlines the location of proposed silt fencing, that will be installed to prevent any silt-laden runoff from impermeable surfaces, with the aim of preserving protected areas and areas of conservation and their associated habitats and species (further detail is provided in Mitigation Item BD7). To note, some of these locations are not yet determined. The final locations will be determined by the EcoW on-site to ensure that the locations are suitable and are in-line with the requirements of this EIAR, and any conditions attached to any grant of planning. The EcoW will be a member of a professional body, such as CIEEM, or similar, and will be suitably experienced for the task at hand.	Construction
BD5	10.5.3.1.1	Throughout (as required)	The ECoW will give toolbox talk to all site personnel to highlight any environmental sensitivities and the boundaries of sensitive habitats. Toolbox talks will include findings of pre-construction surveys on baseline changes and any adaptive mitigation measures required. The ECoW will propose adaptive mitigation measures in response to, for instance, extreme weather events (amber and red Met Éireann weather warnings which can be checked on the Met Éireann website (Met Éireann 2024), or new mitigation requirements arising from pre-construction surveys. Method statements in relation to trenched crossings will be agreed with Inland Fisheries Ireland (IFI) prior to the start of works. No sensitive works will be permitted without the prior approval of the ECoW. The ECoW will be able to demonstrate previous experience and will be a member of a profession body, such as CIEEM, or similar.	Construction

Mitigation Number	EIAR Section Reference	Location	Description of Mitigation or Monitoring Measure	Implementation Phase
BD6	10.5.3.1.2	Throughout (as required)	**Pollution Control** The measures set out below will be implemented to ensure that there will be no pollution of surface water during the Construction Phase of the Proposed Development. The measures are included in the CEMP and Appendix D to the CEMP (Surface Water Management Plan (SWMP)) which are included as standalone documents in this planning application pack, and will also be incorporated into the appointed contractor's final CEMP, which is a key contract document that will be implemented in full by the appointed contractor. The CEMP will be updated to include any mitigation measures prescribed by An Bord Pleanála as a condition to any grant of planning permission. The CEMP has been developed in accordance with legislation and the following guidance documents and legislation: • Construction Industry Research and Information Association (CIRIA) C532 Control of Water Pollution from Construction Sites, Guidance for Consultants and Contractors (Masters-Williams et al. 2001); • CIRIA C648 Control of Water Pollution from Linear Construction Projects: Technical Guide (Murnane et al. 2006a); • CIRIA C649 Control of Water Pollution from Linear Construction Projects: Site Guide (Murnane et al. 2006b); • CIRIA C741 Environmental Good Practice on Site (Charles and Edwards 2015); • Guidelines for the Crossing of Watercourses during the Construction of National Road Schemes (NRA 2005); and • S.I. No. 113/2022 - (European Union (Good Agricultural Practice for Protection of Waters) (Amended Regulations).	Construction

BD7	10.5.3.1.3	Throughout (as required)	**Control of Silt-Laden Runoff**
			Specific measures to control silt, as shown in Figure 10.11 in Volume 4 of this EIAR, will be implemented to prevent surface water flowing into surface water receptors:
			• The appointed contractor will ensure no deleterious discharges are released from construction sites to the nearby water bodies during construction. If a discharge to a watercourse is necessary, the water will pass through a suitable drainage system such as a swale and / or silt buster prior to discharge. Levels of suspended solids in any discharge will be no greater than 25mg/l (milligrams per litre) as per the Guidelines on Protection of Fisheries During Construction Works in and Adjacent to Waters (IFI 2016), and flows will be controlled to levels appropriate to the receiving water. It is possible that such a discharge may require a licence under the Water Pollution Acts 1977 and 1990 (as amended), and the Arterial Drainage Act 1945 and 1995 (as amended). The appointed contractor will liaise with the regulatory authorities at an early stage to determine the need for licences and include the appropriate application time required in any construction programme;
			• Silt fences will be erected along the boundary of water bodies to prevent any silt-laden runoff from impermeable surfaces, temporary or permanent, as well as spoil heaps within the construction swathe:
			  ○ Silt fencing will also be applied to areas that are within 30m of a watercourse and hydrologically linked to a European site, where concrete pouring is to be undertaken and where there is a risk to European designated sites. Where required, this will be double silt fencing;
			  ○ Silt fences will be installed downgradient of the potential source of the silt / sediment;
			  ○ The silt curtain will contain the area where silted waters are being generated and will terminate on high ground;
			  ○ They will be constructed using permeable filter fabric (Hy-Tex Terrastop silt fence or similar) rather than a mesh material and its base will be embedded at least 15cm into the ground and staked at 2m intervals;
				Construction

Mitigation Number	EIAR Section Reference	Location	Description of Mitigation or Monitoring Measure	Implementation Phase
			○ Vegetation will be retained as far as practicable. However, where targeted vegetation removal is required, additional measures will be put in place including additional silt fencing in these areas; ○ The vegetated turves will be peeled back and not detached from the ground, the materials inserted and the turves replaced to hold the base in place; ○ The silt fence will be inspected regularly by the ECoW and appointed contractor, and in particular following heavy rainfall; ○ Silt fences will remain in-situ until the vegetation on the disturbed ground is re-established as determined by the ECoW; ○ The fence will not be pulled from the ground, but cut at ground level and the stakes / posts removed; ○ Should water build up behind the fences, the sediment will settle to the bottom. Water can be released, but sediments will remain; ○ Two lines of silt fencing will be installed in sensitive areas, based on the ECoW's professional judgement; ○ A record of its installation, inspection and removal will be maintained by the ECoW; and ○ Reinstatement of any banks affected by silt-laden runoff during construction will be reinstated back to pre-development conditions.	
BD8	10.5.3.1.4	Throughout (as required)	**Stockpiling of Materials** The following mitigation measures will be implemented for the stockpiling of materials. Mobilisation sites will either be cleared in stages during the Construction Phase to prevent bare earth being exposed to ambient conditions for prolonged periods, or the bare earth will be immediately covered in a gravel / plastic covering to reduce the likelihood of sediment laden runoff following rainfall events. Stripped soil will be stockpiled more than 10m away from the surface interceptor drain. Stockpiles will be in a dry zone that is not subject to flooding (i.e., outside the1:100 flood extent (1% Annual Exceedance Probability (AEP)). The following measures will be put in place by the appointed contractor for the stockpiling of materials: • Temporary stockpiles will be located away from drains and watercourses. Stockpiles will not be located within 10m of a watercourse; • For watercourse crossings, stockpiles will not be located anywhere within the crossing working area; • Stockpiles will be managed to prevent siltation of watercourse systems through runoff during rainstorms with the measures to be implemented by the appointed contractor. These will include the following: ○ No use of commercial seed to stabilise exposed soils; ○ Coir matting to be used, where required (e.g. along all bank surfaces), to enable vegetation to establish on the exposed soil; ○ Providing silt fences or straw barriers at the toe of the stockpile to mitigate runoff during rainfall events; ○ Surrounding stockpiles with cut-off ditches to contain runoff; ○ Directing any runoff to the site drainage system or filter drains along the construction working width and to the settlement pond (or other) treatment systems; and ○ Providing bunds or another form of diversion to keep runoff from entering the stockpile area.	Construction

Mitigation Number	EIAR Section Reference	Location	Description of Mitigation or Monitoring Measure	Implementation Phase
BD9	10.5.3.1.5	Throughout (as required)	**Storage of Materials** The following mitigation measures will be implemented for the storage of materials: • All oil and diesel storage facilities will be at least 30m from any watercourse, including surface water drains, and outside the 1:100 flood extent (1% AEP), unless prior approval is confirmed by the ECOW to reduce this distance; • Spill kits and drip trays will be provided for all equipment and at locations where any liquids are stored and dispensed (all teams will also carry spill kits and spill kits will be suitably sized to address the amount of pollutant substances being used); • Storage areas for solid materials, including waste soils, will be designed and managed to prevent deterioration of the materials and their escape (via surface runoff or wind blow); • Storage areas will be kept secure to prevent acts of vandalism that could result in leaks or spills; and • All containers of any size will be correctly labelled, indicating their contents and any hazard warning signs.	Construction

BD10	10.5.3.1.6	Throughout (as required)	**Spills**
			The following mitigation measures will be implemented across the Proposed Development to prevent spills:
			• Fuel tanks, drums and mobile bowsers (and any other equipment that contains oil and other fuels) will have a secondary containment, for example double-skinned tanks;
			• All tanks, drums and mobile bowsers will be located in a sealed impervious bund with sufficient capacity to contain at least 25% of the total volume of the containers or 110% of the largest container, whichever is the greatest;
			• Storage areas will be covered, wherever possible, to prevent rainwater filling the bunded areas;
			• Fuel fill pipes will not extend beyond the bund wall and will have a lockable cap secured with a chain;
			• Where fuel is delivered through a pipe permanently attached to a tank or bowser:
			  ○ The pipe will be fitted with a manually operated pump or a valve at the delivery end which closes automatically when not in use;
			  ○ The pump or valve will be fitted with a lock;
			  ○ The pipe will be fitted with a lockable valve at the end where it leaves the tank or bowser;
			  ○ The pipework will pass over and not through bund walls;
			  ○ Tanks and bunds will be protected from vehicle impact damage;
			  ○ Tanks will be labelled with contents, capacity information and hazard warnings; and
			  ○ All valves, pumps and trigger guns will be turned off and locked when not in use. All caps on fill pipes will be locked when not in use.
			• Suitable precautions will be taken to prevent spillages from equipment containing small quantities of hazardous substances (for example, chainsaws and jerry cans) including:
			  ○ Each container or piece of equipment will be stored in its own drip tray made of a material suitable for the substance being handled; and
			  ○ Containers and equipment will be stored on a firm, level surface.
			• For deliveries and dispensing activities, the appointed contractor will ensure that:
			  ○ Site-specific procedures are in place for bulk deliveries; and
				Construction

Mitigation Number	EIAR Section Reference	Location	Description of Mitigation or Monitoring Measure	Implementation Phase
			○ Delivery points and vehicle routes are clearly marked. Emergency procedures will be displayed, and suitably sized spill kits will be available at all delivery points, and staff will be trained in these procedures and the use of spill kits.	
BD11	10.5.3.1.7	Throughout (as required)	**Fuel and Oil Leaks from Vehicles and Plant** The use of vehicles and plant poses similar risks to those posed by storage of liquids. Fuel and oil may leak from such equipment which may enter drains and / or watercourses, as well as contaminating the ground itself. The following mitigation measures will be implemented to reduce this risk: • Vehicles and plant provided for use on-site will be regularly inspected to ensure they are free from leaks and promptly repaired when not in good working order; • Sufficient spill kits will be carried on all vehicles; • Vehicles and plant will not park near or over drains; • Refuelling of vehicles and plant will be carried out on hardstanding, using drip trays to ensure no fuel can contaminate the ground outside of the bunded areas; and • Vehicles and plant will be in good working order to ensure optimum fuel efficiency.	Construction
BD12	10.5.3.1.8	Throughout (as required)	**Concrete** Where concrete is required on-site, the following mitigation measures will be implemented to reduce risks associated with concrete pouring: • Prior to the concrete pour taking place, all mitigation for turbidity and erosion control will be checked to ensures it is fit for purpose; • Established concrete washout management areas will be designated to control the discharge of concrete washout; • An emergency response plan will be developed and communicated to site staff prior to the concrete pouring; • The ECoW and on-site personnel will monitor the concrete pour continuously, ensuring that any spills are promptly addressed and mitigated; • The ECoW will conduct a thorough inspection of the site after the concrete pour to identify any environmental impacts and implement clean-up measures if necessary; • When working in or near surface water and the use of introduced materials (e.g. oil) cannot be avoided, alternative materials such as biodegradable oils will be used; • Placing of concrete in or near watercourses will be only carried out under the supervision of the ECoW; • Wet concrete operations adjacent to water bodies will be avoided, where possible, with a minimum separation distance of 20m, with exception to in-stream pours which will be undertaken within a sealed dry working area. The appointed contractor will ensure that all concrete truck washing / cleaning is undertaken off site, as far as practicable, and remote from water bodies or potential pathways to water bodies; • There will be no hosing of concrete, cement, grout or similar material spills into surface water drains. Such spills shall be contained immediately, and run-off prevented from entering the watercourse; • Concrete waste and wash-down water will be contained and managed on-site to prevent pollution of all surface watercourses; and	Construction

Mitigation Number	EIAR Section Reference	Location	Description of Mitigation or Monitoring Measure	Implementation Phase
			• Washout from concrete lorries will not be permitted on-site and will only take place at the batching plant (or other appropriate facility designated by the manufacturer).	
BD13	10.5.3.1.9	Throughout (as required)	**Breeding Birds** Unless suitable mitigation is adopted, hedgerows, trees and scrub will not be removed within the breeding bird season (1 March to 31 August, inclusive) to avoid impacts on nesting birds. Where this seasonal restriction cannot be adhered to, habitats that need to be removed will be inspected by a ECoW suitably experienced in the identification of nests for the presence of breeding birds prior to clearance. When nesting birds are present, the ecologist will demarcate a suitable buffer around an active nest and clearance within this area will be postponed until the chicks have fledged. A suitable exclusion zone will be established by the ECoW. To reduce the potential of birds to nest, bird deterrents (e.g. flicker tape / compact discs) will be tied to habitat confirmed to be without nests and the habitat will be cleared within three days of the inspection. Otherwise, repeat inspections will be required to confirm the continued absence of nesting birds. If vegetation is to be cleared in the breeding season (under supervision of a suitably qualified ecologist), it will be chipped, removed or covered on the same day to prevent birds from nesting. Reinstated habitat including trees, hedgerows and grassland, will provide suitable habitat for breeding birds recorded in the study area, once established. The locations of trees that will be lost and retained are shown on Figure 18.2 to Figure 18.5 in Volume 4 in this EIAR (with discussion included in Appendix A18.2 in Volume 3 in this EIAR). It may be necessary for temporary lighting to be provided at the proposed TCCs and HDD Compounds for security purposes. However, temporary lighting will be controlled and directed in order to mitigate any potential impacts to birds as advised by the appointed EcoW.	Construction
BD14	10.5.3.1.10	Throughout (as required)	**Bats** Any roosts recorded during the pre-construction surveys, as outlined in Mitigation Item BD2, will be felled under a derogation licence. As part of the licence, mitigation measures such as the provision of bat boxes as alternative roosts will be required. The type and number of bat boxes (if required) will be relative to the species and conservation status of the roost to be impacted. In all instances, bat boxes will be sited in suitable, undisturbed locations, away from works during the Construction Phase, either on third party lands (subject to agreement with landowners) or in the instance of no landowner agreement on ESB-owned lands at Woodland and / or Belcamp Substations. The loss of trees with high potential for roosting bats will be mitigated on a 3-to-1 ratio with bat boxes, and moderate potential trees will be mitigated on a 2-to-1 ratio with bat boxes. A range of models determined by the appointed EcoW will be used, suited to the species recorded within the study area, and for different seasons. The boxes will be erected in a suitable location. It may be necessary for temporary lighting to be provided at the proposed TCCs and HDD Compounds for security purposes. However, temporary lighting will be controlled and directed in order to mitigate any potential impacts to bats as advised by the appointed EcoW.	Construction
BD15	10.5.3.1.11	Throughout (as required)	**Otter** The following general mitigation measures for otter will be implemented during the Construction Phase, after otter pre-construction surveys have been carried out (refer to Mitigation Item BD2): • Any excavations will be covered at night to prevent otter from falling in or becoming trapped;	Construction

Mitigation Number	EIAR Section Reference	Location	Description of Mitigation or Monitoring Measure	Implementation Phase
			• Should any otter be observed within the Planning Application Boundary or should any evidence of otter activity be found during the Construction Phase, works will cease immediately and the ECoW will be contacted for advice; and • Although there are not predicted to be any impacts on otters, if confirmatory surveys identify likely disturbance of otters, further mitigation following the Guidelines for the Treatment of Otters (NRA 2008b) will be implemented by the ECoW to ensure no significant effects on otters arise. Should a non-breeding otter holt or rest site be identified, a buffer zone of 30m will be implemented around the feature. Where a resting place is confirmed to be a natal site, this will increase to 150m. Should works occur in the vicinity of otter holts with breeding females or cubs, screening will occur and working hours will be restricted. When holts are present, no wheeled or tracked vehicles will be used within 20m, and no light work will occur within 15m. Exceptions may be adopted under licence. Appropriate fencing will be set around areas associated with otters, before works commence, to mark the areas that cannot be accessed. Disused and inactive holts will be destroyed, after verified as inactive and after blocking and monitoring the entrances for a five-day period.	
BD16	10.5.3.1.12	Throughout (as required)	**Badger** The following general mitigation measures for badger will be implemented during the Construction Phase to avoid / minimise impacts in accordance with the mitigation hierarchy, following the completion of the badger pre-construction surveys (refer to Mitigation Item BD2): • Ground excavations will be covered at night to prevent badger from falling in or becoming trapped; • Any works within 30m of an active sett will be supervised on-site for the full duration of those works by an ECoW (extended to 50m during the breeding season for a main sett where there is breeding activity); • Breeding setts will not be interfered with or disturbed during the badger breeding season (December to June, inclusive); • Only the use of hand tools will be permitted within 20m of an active sett; • No heavy machinery will be used within 30m of a sett; • During the breeding season, none of the construction works including ground excavation, and use of tools and heavy machines, will be undertaken within 50m of active setts, and blasting (if required) will not be undertaken within 150m of active setts. Should this not be possible, the ECoW will provide advice on how best to proceed. Mitigation measures will include sett screening and restricted working hours. The ECoW will be able to advise on any mitigation options such as sett screening and restricted working hours that may be available relative to the predicted scale and duration of impact (which is informed by the proposed works and sett specifics (i.e., sett type, level of sett activity, tunnel direction, type of substrate, vegetative cover, and topography)). It should be noted that for the HDD platforms, none of the badger signs were within these distances. The nearest badger signs (prints) to the proposed HDD works under the M1 Motorway were approximately 1.15km away. The nearest badger signs (prints) to the proposed HDD works under the M2 Motorway were approximately 0.52km away. The nearest badger signs to the proposed HDD works under the M3 Motorway (a disused sett) was approximately 1.95km away; • Night-time working will be restricted as far as possible within 100m of a sett; • The use of noisy plant and machinery near badger setts will cease before sunset; and • Any spoil heaps will be sited at a minimum distance of 30m from setts.	Construction

Mitigation Number	EIAR Section Reference	Location	Description of Mitigation or Monitoring Measure	Implementation Phase
BD17	10.5.3.1.13	Throughout (as required)	**Red Squirrel** Where pre-construction surveys identify potential dreys at risk from felling, vantage point watches (for individual trees) or transects (for hedgerows / groups of trees) will be conducted to visualise squirrels and identify if the squirrel is grey (invasive) or red (protected). Surveys will be conducted in the early morning, during the summer months. Where visualisations are inconclusive, hair tube surveys may be required, following the best practice guidance (i.e., Guidelines for Assessment of Ecological Impacts of National Road Schemes (NRA 2009)). As grey squirrels are a scheduled invasive species, confirmed grey squirrel dreys can be felled without mitigation. In the event that confirmed or suspected red squirrel dreys require felling, felling will only be carried out from October to January, in consultation with the NPWS, from which a licence may be required, subject to survey findings.	Construction
BD18	10.5.3.1.14	Throughout (as required)	**Other Protected Mammals** Removal and clearance of vegetation may affect small mammal species if present in these habitats. The following mitigation measures will be adhered to in order to minimise impacts to small mammal species: • Any excavations will be covered at night to prevent small mammals from falling in and / or becoming trapped; • Working at night will be prohibited where specific tasks such as vegetation removal and clearance are to be carried out; • Any lights will be turned off after working hours; • Noise levels will not exceed permissible levels for construction works (70 decibels (dB(A)), based on Guidelines for the Treatment of Noise and Vibration in National Road Schemes (NRA 2004); and • With the exception of permanent areas of hardstanding, the site will be re-vegetated at the end of the Construction Phase.	Construction

BD19	10.5.3.1.15	Throughout (as required)	**Reptiles and Amphibians**
			Removal and clearance of vegetation has the potential to affect amphibians or reptiles if present in these habitats. The following mitigation measures will be adhered to, to minimise impacts on amphibians or reptiles:
			• A toolbox talk will be carried out to ensure all site personnel are aware of these protected species and their mitigation requirements;
			• Vegetation will be cleared in the following two stages, during the reptile and amphibian active season, following the completion of the toolbox talk:
			  ○ A hand-search will be undertaken by a licensed ECoW for any animals present within vegetation to be cleared, followed by a first cut of vegetation down to 210mm above ground-level using hand tools; and
			  ○ A second hand-search will be undertaken of vegetation to be cleared by an ECoW for any animals present, followed by the second cut of vegetation to ground-level (or as close as practicable).
			• If any reptiles are found during the pre-construction surveys or during the construction works, they will be captured and translocated by a suitably qualified and experienced ecologist under licence to a previously identified receptor site;
			• Where practicable, in the context of the Construction Phase, water levels will be maintained in any ponds or ditches potentially used by amphibians; and
			• Habitat reinstatement will recreate the former habitats within the Planning Application Boundary (excluding woody vegetation that cannot be planted within the permanent cable easement and other permanent habitat losses).
				Construction

Mitigation Number	EIAR Section Reference	Location	Description of Mitigation or Monitoring Measure	Implementation Phase
BD20	10.5.3.1.16	Throughout (as required)	**Invasive Species** A management plan for those Third Schedule invasive plant species recorded during the survey (refer to Table 10.23 in Chapter 10 (Biodiversity) in Volume 2 of the EIAR) which have the potential to be impacted by the works will be included in the final CEMP for the Proposed Development (this will be adapted from Appendix E of the CEMP included as a standalone document in this planning application pack). The mitigation measures described below follow the recommendations set out in the Guidelines on the Management of Noxious Weeds and Non-Native Invasive Plant Species on National Roads (NRA 2010) and will be implemented during the Construction Phase: • All staff will be informed of the proximity and identification of Giant hogweed and rhododendron and any other invasive species identified through toolbox talks; • Giant hogweed will be controlled chemically or physically; • The most effective chemical control for Giant hogweed is glyphosate. Foliar sprays of glyphosate are suitable for large infestations, and injection into the stem of the plant approximately 30cm above the ground with 5ml of a 5% v/v solution can be used where spot treatment is required. Chemical applications will be adopted before stem-elongation (mid-spring); • Giant hogweed physical control will include eradication of the plant, during the springtime, as follows: o Young plants can be readily pulled out the soil using hand tools; o Where plants are larger than 1.5m, the upper part can be cut back and the lower part used to lever the roots out; o Seed heads on old stems will be removed by individually bagging seed heads and cutting to prevent accidental spread of seeds; o Mowers, strimmers or weed-whackers will not be used; o Periodic removal will be required to control continuous germination of seedlings; o Seed might remain viable up to 15 years, thus control will require continued input over time (at least 5 years), and monitoring will occur between spring and autumn; o Seed can be present in soil within 4m of established plants and it will not be transferred to other parts of a site; o The top 5 cm of soil contains the majority of the seed, and will not be stockpiled within 10m of watercourse to prevents plant spread; and o Giant hogweed material and infected soil will be stored on top of a membrane of fabric in a designated area for appropriate disposal; by a suitably qualified and licensed expert. • Tracked machinery will be limited in the area and will be cleaned when leaving the site; • Rhododendron will be controlled chemically or physically; • Chemical control will be adopted during the active growth of the plant in late spring or summer (June to September). A variety of herbicides have proven effective for chemical control, including 2,4_glyphosate, dicamba and triclopyr. Chemical applications can include foliar spray, wiper applicator or spot treatment, stem-injection or cut-stump. Triclopyr will not be used during drought when temperatures are high; • A range of physical control measures have been developed for rhododendron in response to the sensitivity of the site. These include:	Construction

Mitigation Number	EIAR Section Reference	Location	Description of Mitigation or Monitoring Measure	Implementation Phase
			○ Uprooting by hand: roots are relatively shallow and can be toppled using a hand operated turfer or mechanical winch. Younger plants can be hand-pulled; ○ Chainsaw cutting of root-ball: more effective on larger plants but restricted to soft soil areas. It can be used in combination with winching methods to reduce soil disturbance; and ○ Experimental methods include mulch matting to prevent regrowth following initial clearance and bud rubbing on cut stumps. • Exclusion zones will be established where necessary to prevent the spread of invasive species; • No machinery will be allowed within exclusion zones other than where necessary to undertake treatment measures; • Any plant material and soil-containing plant material will be disposed of by a suitably qualified and licensed expert in accordance with the Guidelines on the Management of Noxious Weeds and Non-Native Invasive Plant Species on National Roads; • Care will be taken near watercourses to ensure that material that contains flower heads, seeds or cuttings of any invasive species will be disposed of correctly and not enter watercourses; • Three-cornered leek and Spanish bluebell will be controlled chemically or physically; • Chemical treatment for three-cornered leak and Spanish bluebell will be made in the spring (when above ground vegetation visible) but before flowering. Multiple applications may be required due to persistence of bulbs and soil seed bank; and • Physical control of small populations of three-cornered leek and Spanish bluebell (as recorded within the Planning Application Boundary) will include hand digging, ensuring that all biomass including bulbs collected. Longer term eradication will also require a number of years of mechanical cutting to exhaust seed / bulb bank in wider subsurface environment.	
BD21	10.5.3.2.1	Throughout (as required)	**European Designated Sites** The AA Screening Report determined that likely significant effects (LSEs) in the absence of mitigation on the following 14 European sites could not be excluded: Malahide Estuary SAC , Baldoyle Bay SAC, Malahide Estuary SPA, Baldoyle Bay SPA, North Bull Island SPA, South Dublin Bay and River Tolka Estuary SPA, North-West Irish Sea SPA, Rogerstown Estuary SPA, Ireland's Eye SPA, Lambay Island SPA, Skerries Islands SPA, River Nanny Estuary and Shore SPA, Boyne Estuary SPA, and Dundalk Bay SPA. Mitigation measures to protect these sites from pollution, mortality and disturbance are described in the Natura Impact Statement (NIS) (included as a standalone document in the planning application pack) and in the site-wide measures (see Mitigation Items BD5 to BD19). These measures will be implemented in full.	Construction
BD22	10.5.3.2.3.1	Throughout (as required)	**Wintering Birds – Disturbance** The following mitigation measures will be implemented to ensure that there will be no disturbance to Qualifying Interest (QI) species within functionally linked habitat during the Construction Phase of the Proposed Development: • A 2m to 3 m high non-transparent visual and noise screening barrier will be erected along the perimeter of the site to block the construction works and the movement of machinery / workforce to minimise disturbance to protected birds in functionally linked habitats. This height will be achieved at the typical working level of plant and personnel and will be raised accordingly, if necessary, to ensure that the screening is of adequate height (i.e., no visual disturbance). Locations	Construction

Mitigation Number	EIAR Section Reference	Location	Description of Mitigation or Monitoring Measure	Implementation Phase
			of the proposed screening are outlined in Table 10.30 in Chapter 10 (Hydrology) in Volume 2 of the EIAR and shown on Figure 10.11 in Volume 4 of this EIAR: ○ This screening barrier will have a mass per unit area exceeding 7 kg/m^2 (kilogrammes per metre squared) in accordance with the recommendations of Part B.4 of BS 5228-1:2009+A1:2014 Code of practice for noise and vibration control on construction and open sites - Noise (BSI 2014a). The fencing will be of adequate height to screen the works area (3m to 4m) or as advised by an experienced ecologist. The appointed ECoW will supervise the erection of the screening (where natural screening cannot be retained) and will provide guidance through a toolbox talk ensuring that these measures are effective. The ECoW will regularly check the screening throughout the works to ensure that it is maintained in good condition and working order; ○ Screening will be installed prior to site clearance, and installation will be monitored by the EcoW. There will be no restrictions on the timing of this installation as the works area will not be directly adjacent to a Special Protection Area (SPA); and ○ This screening will remain in place for the duration of the works and will be moved regularly as work advances. • All plant used during the Construction Phase will be the quietest of its type that is practical for achieving the works, as demonstrated in writing by the appointed contractor to the local authority, with reference to other noisier models; • Noise levels will not exceed permissible levels for construction works (70 decibels (dB(A)), based on Guidelines for the Treatment of Noise and Vibration in National Road Schemes (NRA 2004); • A Noise and Vibration Management Plan will be developed by the appointed contractor; • All plant will be operated in accordance with the manufacturer's recommendations including the use and maintenance of specific noise reduction measures to reduce the impact further: ○ The use of mufflers on pneumatic tools; ○ Effective exhaust silencers; ○ Sound reducing enclosures; ○ Machines in intermittent use will not be left idling and will be switched off during periods where they are not required; and ○ Post construction, semi-natural habitats will be left to re-vegetate naturally from the seed bank within re-instated soils. Commercial seed mixes will only be used to reinstate vegetation on agricultural lands.	
BD23	10.5.3.2.4	Throughout (as required)	**Otter** In line with the mitigation measures set out in the Guidelines for the Treatment of Otters during the Construction of National Road Schemes (NRA 2008b), namely, when holts are present, no wheeled or tracked vehicles will be used within 20m, and no light work will occur within 15m of any holts present. When a non-breeding otter holt or rest site is identified, a buffer zone of 30m will be implemented around the feature. When a breeding otter holt or resting site is identified, the buffer zone will be extended to 150m. Buffer zones will be fenced prior to works commencing. Moreover, should works occur in the vicinity of otter holts with breeding females or cubs, screening will occur and working hours will be restricted. Disused and inactive holts can be destroyed, after being identified as inactive holts and after their entrances have been blocked and monitored for a five-day period. Exceptions can be adopted under licence. The Guidelines for the Treatment of Otters Prior to	Construction

Mitigation Number	EIAR Section Reference	Location	Description of Mitigation or Monitoring Measure	Implementation Phase
			Construction of National Road Schemes (NRA 2008b) state that a licence will be required for any works likely to cause disturbance (e.g., piling and blasting) to active breeding holts when present with 150m of a development. During the field surveys one potential otter holt with a slide was identified approximately 145m from the proposed cable route, one otter slide was identified approximately 173m from the proposed cable route and one otter spraint was identified approximately 26m from the proposed cable route (see Figure 10.7 in Volume 4 of this EIAR). Since the holt showed signs of otter use (a slide was recorded next to it), and due to its location near to a river, there is high potential for use. However, the nearest potential holt was 145m way, close to the 150m threshold, and did not have evidence of breeding otters. Therefore, there is no requirement for monitoring and works will be able to proceed under the supervision of an ECoW.	
BD24	10.5.3.2.5	Throughout (as required)	**Badger** During the baseline surveys, it was identified that 10 badger setts / potential badger setts have the potential to be impacted by the Proposed Development, including two within 50m of the Planning Application Boundary and four between 51m and 150m. Exact locations of setts, are not provided due to persecution of this species. Sensitive information relating to the location of badger setts is provided in a confidential appendix (Appendix A10.1 and Figure 10.10), which are provided to An Bord Pleanála and the National Parks and Wildlife Service (NPWS) separately. The following pre-construction surveys and mitigation measures that follow the recommendations set out in the Guidelines for the Treatment of Badgers during the Construction of National Road Schemes (NRA 2006b) will be implemented: • Affected badger setts will be marked and the extent of bounds prohibited for vehicles will be clearly marked by fencing and signage. When there is the need to proceed with works close to active setts during the breeding season, mitigation measures, such as sett screening and restricted working hours will be adopted, prior expert consultation; • To determine whether a sett is active or inactive, camera traps will be set up prior to the commencement of construction to monitor the entrance to the holes for a minimum of five days. If, after five days, there is no evidence that badgers are using the sett, it is presumed inactive, and no further actions will be required. However, this will only apply if the camera trap monitoring is carried out directly prior to the start of works, meaning that there was no change to the baseline. The use of the sett may change over time, so if there is a delay of more than 12 months prior to the commencement of the works from the date of the final camera monitoring, then a further badger survey will be undertaken to determine the status of the hole; • Disused and inactive sett entrances will be blocked to prevent reoccupation, and the disused or inactive sett will be destroyed using a mechanical digger after five days of monitoring, under the supervision of a suitably experienced and qualified EcoW; and • No heavy machinery will be used within 30m of active badger setts. Lighter machinery (generally wheeled vehicles) will not be used within 20m of a sett entrance. Light work, such as digging by hand or scrub clearance will not take place within 10m of sett entrances. During the breeding season (December to June, inclusive), none of the above works will be undertaken within 50m of active setts, nor blasting or pile driving within 150m of active setts.	Pre-Construction
BD25	10.5.3.2.5	Throughout (as required)	**Badger** Where an active sett is required to be closed, the following mitigation measures presented in the Guidelines for the Treatment of Badgers during the Construction of National Road Schemes (NRA 2006b) will be implemented:	Pre-Construction

Mitigation Number	EIAR Section Reference	Location	Description of Mitigation or Monitoring Measure	Implementation Phase
			• Active entrances will have one-way gates installed (plus proofing around sides of gates) to allow badgers to exit but not to return (inactive entrances will not require gates and may be soft and then hard-blocked as per inactive setts); • The gates will be tied open for three days prior to the sett exclusion and sticks placed in the entrance to monitor sett activity; • Gates will be left installed, with regular inspections, over a minimum period of 21 days (including period with gates tied open) before the sett is deemed inactive. Any activity at all will require the procedures to be repeated or additional measures taken; • Sett destruction will commence immediately following the 21 day exclusion period, provided that all badgers have been excluded and will be conducted under the supervision of a suitably experienced and qualified ECoW; • Sett destruction is usually undertaken with a tracked 12 to 25 tonne 360 excavator, commencing at approximately 25m from the outer sett entrances and working towards the centre of the sett, excavating approximately 0.5m slices in a trench to a depth of 2m; • Exposed tunnels will be checked for recent badger activity, with full attention paid to safety requirements in so doing; • The sett will be destroyed from several directions, in the same manner, until only the central core of the sett remains. Once it is ensured that no badgers remain, the core will then also be destroyed and the entire area back-filled and made safe; and • Sett excavation will, preferably, be concluded within one working day, as badgers may re-enter exposed tunnels and entrances. The NPWS Wildlife Licensing was consulted regarding licensing requirements for works in and around badgers and their setts. Section 23(7)I(iv) of the Wildlife Act outlines that if a licence or permission has been received from another public authority whose actions are directed by a statute or statutory instrument, further permission is not required from the NPWS for works affecting badgers (i.e., a licence will be issued by the relevant local authority if required rather than the NPWS).	
BD26	10.5.3.2.6	Works at watercourses throughout (as required)	**Fish and Aquatic Invertebrates** Mitigation measures regarding pollution control of surface water have been detailed in the site-wide mitigation measures (see Mitigation Item BD6 to BD12). These measures have been developed to protect water bodies, drainage ditches and ponds / lakes and the habitats and species that they support, and will avoid a reduction in water quality during construction. Although white-clawed crayfish were confirmed to be likely absent in 14 of the watercourses, on a precautionary basis, it can be considered that white-clawed crayfish have the potential to be affected by the Proposed Development through watercourse pollution or direct disturbance. The following control measures will be implemented during the Construction Phase in or adjacent to a watercourse: • In-stream works will not be carried out in watercourses frequented by salmon or trout during the Annual Close Season. The duration of the season varies regionally within the period from the beginning of October to the end of February, inclusive (IFI 2016). River and brook lamprey spawn during the period March to April / May. Therefore, translocation (fish rescue) and in-stream works will be undertaken outside of the spawning season. As the spawning season can vary regionally, work will be carried out in watercourses in the period June to September to minimise the impact on fish. This mitigation will also protect white-clawed crayfish. The timing of works will be considered on a site-specific basis by the ECoW and in agreement with IFI;	Construction

Mitigation Number	EIAR Section Reference	Location	Description of Mitigation or Monitoring Measure	Implementation Phase
			• Operation of machinery in-stream will be kept to an absolute minimum. All construction machinery operating in-stream will be mechanically sound to avoid leaks of oils, hydraulic fluid, etc. Machinery will be cleaned and checked prior to commencement of in-stream works; • The design of temporary settlement ponds, the outfalls from these temporary ponds and the construction method statements for their installation will be agreed with IFI prior to construction; • The area of disturbance of the watercourse bed and bank will be the absolute minimum required for the installation of outfalls / culverts; • Any de-watering flows will be directed to the construction drainage system and to the settlement pond (or other) treatment system; • Sediment mats / silt traps or similar will be located immediately downstream of the works within and adjacent to the watercourses. These will be inspected daily, maintained and cleaned regularly by the ECoW during the course of site works. Diversion of water to and from a temporary diversion channel will only take place during the period March to September (IFI 2016) or as agreed with IFI; • Small check dams will be constructed in the cut-off watercourse to trap any sediment, and a sediment trap will be provided immediately downstream of the diversion to the existing watercourse; and • Where in-stream bed material is to be removed, coarse aggregates, if present, will be stockpiled at least 10m away from the watercourse for replacement following reinstatement of a watercourse channel. Watercourse banks affected during construction in / near a watercourse will be reinstated back to pre-construction conditions.	
BD27	10.5.3.2.6	Works at watercourses throughout (as required)	**Fish and Aquatic Invertebrates** Where open trenching is proposed, site restoration works will be carried out following completion of the crossing, in agreement with IFI (see Table 10.29 in Chapter 10 (Biodiversity) in Volume 2 of the EIAR for a list if these watercourses). These works may include riverbank and gravel replacements. In all cases, the site will be restored post-installation. An adverse weather stop work plan will be developed to ensure that activities with the potential to cause pollution are stopped under certain weather conditions (Met Éireann red, amber, yellow warnings will be monitored daily by the ECoW by accessing the Met Éireann website (Met Éireann 2024)). Works will be stopped where a red weather warning is issued. Where an amber warning is issued, works will be monitored by the ECoW and stopped where deemed appropriate based on the site conditions.	Construction
BD28	10.5.3.2.6	Works at watercourses throughout (as required)	**Fish and Aquatic Invertebrates** Additional mitigation measures that will be undertaken to protect fish species are as follows: • Where in-stream trenching is to be carried out, the area will be dewatered to provide a dry works area; • The impermeable barrier will be tailored to the watercourse in question, as per consultation with IFI to-date, and where technically feasible, fluming will be preferred to over pumping techniques to provide the dry working area (refer to Chapter 4 (Proposed Development Description) for details); • Netting, sandbags and / or dumpy-bags filled with rock will be installed upstream to prevent fish travelling downstream into the working area; • Fish will be removed from the working area through electrofishing and moved upstream of the dammed area; and	Construction

Mitigation Number	EIAR Section Reference	Location	Description of Mitigation or Monitoring Measure	Implementation Phase
			• Once construction is completed, the watercourse will be re-wetted under the direction of the ECoW. Water will be released slowly and silt mats, sediment traps and haybales will be used to avoid a sudden influx of sediment to the system. A silt buster will be used where required.	
BD29	10.5.3.2.7.1	Throughout (as required)	**Reinstatement – General Requirements for All Hedgerows** The following mitigation measures will be implemented during the Construction Phase: • All planting will be native (only) and of local provenance, taking account of the vegetation that has been removed and typical species of the local landscape; • A post-consent / pre-construction baseline survey of all hedges to be removed will be carried out to characterise its canopy, understorey and field layer species, and associated features (ditches, earth banks, walls etc.) to inform reinstatement; • Unless otherwise agreed with the Developer (ESB) and the local authority, the appointed contractor will reinstate hedgerows and treelines to a species-rich condition (i.e., five native woody species per 30m (excluding brambles), with no use of commercial seed), comprising only native species. All other sites will be returned as close as possible to their pre-existing condition, using the same woody species removed, under the supervision and direction of the appointed contractor's EcoW; • Hedging / hedgerow plants will be planted as a staggered double row, six plants per metre with 330mm between rows. Suitable individual protection from browsing animals will be provided by tube, spiral or similar held in place with a short cane. Group protection of new planting will be provided by suitable fencing, but individual plant protection of spirals will be provided to protect against browsing animals. Mulch mats or similar weed suppression materials (restricted to a biodegradable specification) will be used to promote successful establishment; • The appointed contractor will make orders by the scientific name to ensure native plants are delivered and not a cultivated variety; • Nurseries prefer to grow trees to order, so the appointed contractor will make the order as soon as possible (up to a year in advance) to ensure that the required species and stock specification can be secured; • Consideration will be given to the procurement of planting so that there are suitable lead-in times to ensure that plants are of the right age / height required for when they are planted; • The appointed contractor will manage the establishment phase of planting (one to two years) in accordance with the Teagasc guidance, How to plant a hedge (Teagasc 2020), to include watering in, weed suppression (using biodegradable mulches), and (where required) protection from browsing animals; and • Thereafter, the Developer (ESB) will manage plantings from years three to five in agreement with the landowner.	Construction
BD30	10.5.3.2.7.2	Throughout (as required)	**Reinstatement – Specific Requirements for Hedgerows and Trees Within the Cable Easement** At the time of writing, the latest EirGrid Functional Specification for Underground Cables (EirGrid 2021) stated: "*The easement area shall be cleared, and kept clear, of trees and other vegetation with deep root systems as these may damage the cable*". Since publishing this specification, EirGrid has identified precedence from Germany and the Netherlands for safely planting certain shrubs over High Voltage (HV) underground cables. EirGrid has engaged closely with the ESB, and relevant Dutch and German	Pre-Construction / Construction

Mitigation Number	EIAR Section Reference	Location	Description of Mitigation or Monitoring Measure	Implementation Phase
			Transmission System Operators across Europe, to understand feasibility of planting over HV underground cables in Ireland. A Draft Over Cable Planting Strategy is in advance development in consultation with ESB, for which the Design Risk Assessment (DRA) was ongoing at time of writing (including calculations to assess a possible cable de-rating). The draft strategy combines the requirement for a minimum cable burial depth of 1m (to top of Cement Bound Granular Mixture in the cable trench), use of a high performing Root Barrier Membrane, and a strictly defined shrub species list with known maximum root depths of less than 1m. It is possible that the DRA may conclude that over cable planting cannot be delivered while guaranteeing cable performance and security. There are also risks that the strictly defined shrub species list is not compatible with landowner farm boundary requirements and / or agricultural farm payments. As such, applying a precautionary principle, offsite compensatory planting is assumed for all permanent losses within the permanent easement (losses are outlined in Table 10.26 in Chapter 10 (Biodiversity) in Volume 2 of the EIAR). Subject to consent, the offsite compensatory planting will commence in advance of, or in parallel with, the Construction Phase of the Proposed Development. EirGrid has identified candidate sites in County Meath and County Dublin in consultation with a charity partner, who provides compensatory planting options on third-party lands. Whether these candidate sites or other sites are used for compensatory planting, there will be no planting in semi-natural habitats of significant ecological value, which will be verified by the suitably qualified ecologist employed the compensation supplier. Offsite compensatory planting will deliver 130% of trees permanently lost within the Planning Application Boundary.	

BD31	10.5.3.2.7.3	Throughout (as required)	**Reinstatement – Specific Requirements for Semi-Natural Grasslands**
			The appointed contractor's ECoW will develop site-specific reinstatement plans for all semi-natural habitats (including dry calcareous grassland, and dry meadows and grassy verges). These plans will be provided to the Developer's Ecologist (ESB), and the Planning and Environmental Unit in EirGrid's Chief Infrastructure Office. In accordance with the All-Ireland Pollinator Plan 2021-2025 (National Biodiversity Council (NBDC 2021)), commercial seed mixes will not be sown with the objective of restoring biodiversity. Seeds of certain plant species, such as wildflowers and certain species included in multi-species mixtures, are not subject to the seed certification schemes as implemented by the European Union Member States and The Organisation for Economic Co-operation and Development OECD-designated authorities in respect of third countries, so there is no guarantee of the species mix or its provenance. Furthermore, even where harmful weed species are not present, seeds of non-local origin (even if the species are native) introduce new genetic strains which may displace or compromise the local, naturally-occurring flora (Dublin Naturalists Field Club 2021).
			As such, in the site-specific habitat reinstatement plans for semi-natural habitats, the appointed contractor's ECoW will adopt the following approach, subject to consultation with the NPWS:
			• Where it is deemed appropriate to allow habitats to re-vegetate naturally (e.g. roadside verges, where similar habitat is contiguous either side of the construction area), there will be no active seeding of re-instated topsoil;
			• In all other areas, the preferred approach to reinstatement will be the use of locally collected seed from similar habitats;
			• Use of commercial seed in semi-natural habitats will only be permitted where local seed is not available, or where local seed establishment has failed, and if both:
			  ○ Certified native by the Department of Agriculture, Food, and the Marine; and
			  ○ With the written agreement of the NPWS.
				Construction

Mitigation Number	EIAR Section Reference	Location	Description of Mitigation or Monitoring Measure	Implementation Phase
BD32	10.5.3.2.7.4	Throughout (as required)	**Reinstatement – General Requirements for Roadside Verges and Agricultural Areas** The requirements that will be followed for use of seed in grassland reinstatement are: • Commercial seed mixes will only be used on agricultural lands. All other areas will be left to naturally revegetate from the seed bank within reinstated soils; • All seed mixes will be certified native by the Department of Agriculture, Food, and the Marine; and • In agricultural areas, the rate of seeding, time and method of sowing, including the application of fertiliser, will be agreed with an experienced agronomist and will follow the guidance on reseeding – Pocket Manual for Reseeding (Teagasc 2020).	Construction
BD33	10.5.3.2.7.5	Throughout (as required)	**Reporting** All reinstated or indirectly impacted semi-natural vegetation will be inspected at the completion of the Construction Phase, at which time the appointed contractor's ECoW will provide written reports on habitat condition to the Developer's Ecologist (ESB), and EirGrid's Planning and Environmental Unit. At that time, the Developer's Ecologist (ESB) will determine what additional steps are required to assist vegetation growth and establishment. Additional steps will include any of the following; replacement tree planting, additional hedge mulch, protection from browsing animals, or sowing of locally harvested seed for semi-natural grassland, using a green hay approach.	Construction

21.10 Soils, Geology and Hydrogeology Mitigation and Monitoring Measures

Table 21.8: Soils, Geology and Hydrogeology Mitigation and Monitoring Measures

Mitigation Number	EIAR Section Reference	Location	Description of Mitigation or Monitoring Measure	Implementation Phase
LSGH1	11.5.1	Throughout (as required)	The results of further confirmatory ground investigations to be carried out in 2024 will be evaluated and reviewed as part of the detailed design, within the parameters of the planning application.	Detailed Design
LSGH2	11.5.1	Throughout (as required)	The CEMP (included as a standalone document in this planning application pack) which includes good industry working practice and pollution prevention measures, with a particular focus on controlling run off and suspended solids, preventing accidental spillages, excavated material stockpile management, and ensuring safe storage of materials and product in sealed areas will be implemented.	Construction
LSGH3	11.5.1	Joint Bays	Topsoil stripping will be undertaken in some areas of the proposed cable route as part of constructing with the Joint Bays. A Soil Management Plan will be developed for the Proposed Development, which will include measures for segregation of soil types and to maintain soil quality during movement, stockpiling and subsequent placement.	Construction
LSGH4	11.5.1	Throughout (as required)	Risks to workers from ground gas when working within confined spaces will be mitigated through the development and adoption of an appropriate safe system of work, including the use of personal protective equipment (PPE) and Respiratory Protective Equipment (RPE) as a last resort.	Construction
LSGH5	11.5.1	Throughout (as required)	Prior to the Construction Phase commencing, appropriate health and safety and waste management procedures for working with potentially contaminated soils (including asbestos) and water will be established, including the development and adoption of safe systems of work, including the use of PPE as a last resort. With specific regard to asbestos in soils (as identified at one location) a competent asbestos specialist will develop a plan to manage risks taking into account guidance presented in Asbestos-containing Materials (ACMs) in Workplaces – Practical Guidelines on ACM Management and Abatement (Health and Safety Authority (HSA 2013), and Control of Asbestos Regulations 2012: Interpretation for Managing and Working with Asbestos in Soil and Construction & Demolition materials: Industry Guidance (shortened name CAR-SOIL™) (CL:AIRE 2012). The plan will include the use of appropriate PPE and RPE and the carrying out of air monitoring during works at relevant locations. In addition, all staff working with soils potentially containing asbestos will be trained to identify asbestos containing material.	Pre-Construction
LSGH6	11.5.1	Throughout (as required)	To mitigate potential risks from radon migration into excavations and other enclosed spaces during the Construction Phase, an occupational monitoring programme will be implemented by the relevant contractor(s) to identify whether radon migration and build up is occurring in areas where the risk is considered to be present. The monitoring will be undertaken in accordance with the EPA Protocol for the Measurement of Radon in Homes & Workplaces (EPA 2019). If the workplace reference level of 300Bq/m^3 (becquerels per cubic metre of air) is exceeded, mitigation measures will be required during the Construction Phase, such as development of safe systems of work to ensure protection of personnel, potentially including measures such as use of PPE, RPE and working time restrictions.	Construction
LSGH7	11.5.1	Throughout (as required)	A watching brief will be implemented to identify the potential presence of previously unidentified contamination. Personnel appointed by the appointed contractor will be appropriately trained in ground contamination identification (including Asbestos Awareness Training) if involved in earthworks activities. Any such instances of previously unidentified contamination will be recorded, the associated risks assessed, and a remedial strategy developed by the appointed contractor to manage the identified risks as appropriate.	Construction

Mitigation Number	EIAR Section Reference	Location	Description of Mitigation or Monitoring Measure	Implementation Phase
LSGH8	11.5.1	Throughout (as required)	Specifically relating to individual receptors, such as groundwater dependent terrestrial ecosystems (GWDTEs) and groundwater abstractions, the following mitigation measures will be implemented, prior to the commencement of, and throughout the duration of the Construction Phase to limit these impacts: • The CEMP will include good industry working practice and pollution prevention measures, with a particular focus on controlling runoff and suspended solids, preventing accidental spillages, excavated material stockpile management, and ensuring safe storage of materials and product in sealed areas; • Uisce Éireann will be further consulted during the detailed design stage regarding the Dunboyne abstractions. This will include relevant aspects of the CEMP in addition to agreeing a method statement within the final CEMP for the works in the relevant location (potentially including monitoring and reporting requirements); • Where trenching is carried out outside of existing roads, the methodology to backfill trenches will ensure that the backfill is not creating preferential subsurface flow pathway. Soil compaction will be undertaken, and where needed on off road sections, additional clay bunds will be installed within the trench in areas that are adjacent to or in proximity to potential GWDTEs; ○ Clay bunds are proposed to be installed along the proposed cable trench, with an increased frequency between approximate Chainages 2,200 to 2,650, 2,750 to 2,850, 26,200 to 26,250, and around Chainage 12,500 in proximity of the potential GWDTEs to prevent the formation of a drainage pathway. • Should any unknown private supplies be identified in the vicinity of the proposed cable route, the supply will be monitored and, if required, an alternative supply will be provided.	Detailed Design / Pre-Construction / Construction
LSGH9	11.5.2	Throughout (as required)	Risks to maintenance workers from ground gas when working within confined spaces will be mitigated by the development and adoption of safe system of work, including the use of PPE and RPE as a last resort.	Operational
LSGH10	11.5.2	Throughout (as required)	In the event that ground works are required during the Operational Phase (it is currently assumed that no further ground works will be undertaken), appropriate health and safety and waste management procedures for working with potentially contaminated soils (including asbestos) and water will be established by the relevant appointed contractor, prior to such works commencing, such as the development and adoption of safe systems of work including the use of PPE as a last resort.	Operational

21.11 Hydrology Mitigation and Monitoring Measures

Table 21.9: Hydrology Mitigation and Monitoring Measures

Mitigation Number	EIAR Section Reference	Location	Description of Mitigation or Monitoring Measure	Implementation Phase
HY1	12.5.1.1	Throughout (as required)	**General Mitigation** The following mitigation measures will be implemented prior to commencement, and throughout the duration of the Construction Phase: • The CEMP, which is included as a standalone document in the planning application pack), and its associated appendices (Appendix C - Construction Resource Waste Management Plan (CRWMP) and Appendix D SWMP will be implemented in full. General measures to control and manage activities, surface water, drainage and waste at the surface to prevent issues are outlined within Sections 1 to 5 of the SWMP and Sections 1 to 4 of the CEMP. The measures include general mitigation to control accidental spillage or increased runoff as a result of hardstanding or precipitation infiltration into stockpiles, exposed soils and silt; • A full-time on-site Environmental Clerk of Works (EnCoW) will be appointed prior to the commencement of works. The role of the EnCoW will be to monitor and report on compliance with planning consents, environmental permits, legislation and mitigation. The EnCoW will be experienced in the types of construction works that are being carried out; • Works will be carried out in accordance with the Guidelines on Protecting Fisheries During Construction Works in and Adjacent to Waters (Inland Fisheries Ireland (IFI 2016); • Works method statements will be agreed with IFI for all water body crossings, prior to works commencing at each crossing. The works method statement will include details on monitoring requirements for instream concrete pouring works and handheld turbidity monitoring for instream works. The method statements will ensure that: o Prior to the concrete pour taking place, all mitigation for turbidity and erosion control will be checked to Prior to the concrete pour taking place, all mitigation for turbidity and erosion control will be checked to ensures it is fit for purpose; o Established concrete washout management areas will be designated to control the discharge of concrete washout; o An emergency response plan will be developed and communicated to site staff prior to the concrete pouring; o The EnCoW and on-site personnel will monitor the concrete pour continuously, ensuring that any spills are promptly addressed and mitigated; and o The EnCoW will conduct a thorough inspection of the site after the concrete pour to identify any environmental impacts and implement clean-up measures if necessary. • An adverse weather stop work plan will be developed to ensure that activities with the potential to cause pollution are stopped under certain weather conditions. Met Éireann (red, amber, yellow) warnings will be monitored daily by the EnCoW by accessing the Met Éireann website (Met Éireann 2024). Works will be stopped where red weather warning are issued. Where an amber weather warning is issued, works will be monitored by the EnCoW and stopped where deemed appropriate based on the site conditions.	Pre-Construction / Construction
HY2	12.5.1.2	Throughout (as required)	**Surface Water Quality Protection Measures**	Pre-Construction / Construction

Mitigation Number	EIAR Section Reference	Location	Description of Mitigation or Monitoring Measure	Implementation Phase
			The following surface water quality mitigation measures will be implemented prior to commencement, and throughout the duration of the Construction Phase. Works will only be completed outside of any known seasonal restrictions including instream working restrictions which are generally confined to the summer/early autumn season (i.e., June / July / August / September): • Activities will be planned in advance and machinery will be managed to ensure that the number of trips is limited to the minimum required at each location; • A buffer zone of 20m will be maintained between storage and working areas and Water Framework Directive (WFD) designated water bodies (as listed in Table 12.7 in Chapter 12 (Hydrology) in Volume 2 of this EIAR), taking account of the minimum working area required to facilitate the works; • Oil or fuel stored in or adjacent to the works area will be kept in a bunded area (providing 110% capacity of the largest storage unit), at a minimum distance of 20m from any WFD designated water body, or any non-designated water body that appears on a 1:50,000 OS map. This will include all unnamed watercourses as listed in Table 12.7 in Chapter 12 (Hydrology) in Volume 2 of this EIAR; • Tracking beside streams and tracks will be avoided where practicable to avoid damage to the bankside. Where tracking of plant and machinery is necessary, steps will be taken to reduce the impact to channel banks through the provision of track mats to reduce the impacts on the substrate; • Geotextile or timber matting will be used on soft ground unless the EnCoW advises, before or after monitoring, that use of a wide-tracked machine alone, will produce relatively lower siltation risk, than the installation and removal of bog mats; • The time period over which areas of clearance are left open will be reduced insofar as is reasonably practicable; • Re-instatement method statements will be subject to approval by the EnCoW. Species local to the surrounding area will be used in the reinstatement for any vegetation lost during construction, as described in Chapter 10 (Biodiversity) in Volume 2 of this EIAR; • Concrete will be brought to site by covered truck; • Wet concrete operations adjacent to water bodies will be avoided, where possible, with a minimum separation distance of 20m, with exception to in-stream pours which will be undertaken within a sealed dry working area. The appointed contractor will ensure that all concrete truck washing / cleaning is undertaken off site, where possible, and remote from water bodies or potential pathways to water bodies; • In order to reduce the risk of contamination arising as a result of spills or leakages, measures including, but not limited to, the following will be employed: o All collected waste will be managed in accordance with Number 10 of 1996 - Waste Management Act, 1996 (as amended), and all associated Regulations; o Fuels, chemicals, liquid and solid waste will be stored on impermeable surfaces; o All tanks and drums containing potentially polluting materials will be bunded; o Refuelling of plant, equipment and vehicles will be carried out on impermeable surfaces; and o All tanks will be marked with the substances they are carrying. Tanks will not be emptied and refilled with another substance (i.e. emptied of fuel and refilled with water) prior to appropriate cleaning and removal of contaminating substances.	

Mitigation Number	EIAR Section Reference	Location	Description of Mitigation or Monitoring Measure	Implementation Phase
			• Spill kits will be provided at all compound locations and carried by all crews during underground cable installation works. Spill kits will be of adequate size for the volume of substances being carried; • The Emergency Incident Response Plan and environmental control and mitigation measures described in the CEMP will be agreed prior to construction with IFI; and • Water pumped from the dry works areas and dewatering will be treated using settlement tanks to remove sediment prior to discharge onto grass and allowed to filter back to water body.	
HY3	12.5.1.3	Throughout (as required)	**Silt Control Measures** The following mitigation measures will be implemented during the Construction Phase: • Silt control measures will be used to control silt generated from activities on-site and prevent it gaining access to surface drainage which could convey silt to larger streams and water bodies; • Silt traps will be located in small drains where flow is small and silt fences will be located where runoff from large areas needs to be controlled; • Silt fences will be installed in the working areas and not at the water body; • Where distances between the works and water body allow, a minimum setback distance of 20m from the water body will be maintained; • Proposed construction access routes will be delineated, such that an appropriate set back distance from water bodies is maintained; • Where an appropriate set back distance cannot be maintained, and works are to be undertaken adjacent to water bodies, the setback distance will be delineated and monitored by the EnCoW on-site; • Where the site is constrained, the best available set back distance will be determined by the EnCoW, taking account of the minimum working area required to facilitate the works; • Clearing and stripping of topsoil or existing roads and footpaths that expose underlying granular layers at each phase of works will be delayed as long as possible, and will be carried out shortly before construction begins; and • Cut-off ditches, berms or diversion channels will be utilised around working area boundaries, where possible, to limit surface water entering the excavated areas and silty water running off the site into surface water drains or watercourses.	Construction
HY4	12.5.1.3.1	Throughout (as required)	**Silt Control Measures - Silt Traps** The following requirements will apply during the Construction Phase: • Silt traps will be placed in drains downstream of working areas where the volume of water flow is expected to be low and will be identified on-site by the EnCoW; • Silt traps will be made of terram, not mesh; • The silt trap will be staked into the banks of the drain / water body, such that no water can flow around the sides; • The material will be bedded into the drain bed / water body to prevent water flowing beneath it; • The height of the trap will be lower than the bank heights. The upper edge will be fixed to a timber cross piece. This will allow water to overtop the silt trap and not burst through or around it; • Inspections will be carried out daily during the proposed Construction Phase works by the EnCoW, and after heavy rains and / or strong winds; weekly on completion of the works for at least one month, and monthly thereafter until bare areas have developed new growth; • Any build-up of solids will be carefully removed without removing any vegetation growing on the bottom;	Construction

Mitigation Number	EIAR Section Reference	Location	Description of Mitigation or Monitoring Measure	Implementation Phase
			• The silt trap will not be pulled from the ground but cutaway at ground level and posts removed; and • A record of when it was installed, inspected and removed will be maintained by the EnCoW as part of the site works package.	
HY5	12.5.1.3.2	Throughout (as required)	**Silt Control Measures - Silt Fences** The following measures will be implemented in relation to silt fences during the Construction Phase: • Silt fences will be installed prior to the commencement of works and will be inspected daily by the site team and EnCoW to inform adaptive management, as required. The locations of the same will be determined by the EnCoW; • Site restoration post-works will be carried out, in agreement with IFI. These works will include riverbank stabilisation, gravel replacements, bank profiling and planting where required. In all cases, the site will be restored post-installation; • Silt fences will be installed downslope of the area where silt is being generated; • The silt fence will contain the area where silt is generated and will terminate on high ground (i.e., an elevated area not adjacent to any watercourse); • The base of the silt fence will be bedded at least 15cm to 30 cm into the ground at 2m intervals. The manufacturer's installation instructions will be followed during installation to ensure that the silt fence is appropriately installed; • Once installed, the silt fence will be inspected regularly by the EnCoW, daily during the proposed Construction Phase works, and regularly on completion of the works until bare areas have developed new growth, but particularly after heavy rains and / or strong winds. Any defects will be rectified immediately; • Two lines of silt curtain / fence will be installed for the receptors outlined in Table 12.7 in Chapter 12 (Hydrology) in Volume 2 of the EIAR, unless otherwise agreed by the EnCoW; • Any build-up of sediment along the fence boundary will be removed daily; • Silt fences will be maintained until vegetation on the disturbed ground has re-established; • The silt fencing will be left in place until the works are completed (which includes removal of any temporary ground treatment) and will remain in place until bare areas have developed new growth; • Silt fences will not be removed during heavy rainfall; • The silt fence will not be pulled from the ground but cutaway at ground level and posts removed; and • A record of when it was installed, inspected and removed will be maintained by the EnCoW as part of the site works package.	Construction
HY6	12.5.1.4	TCCs and HDD Compounds	**Construction Compounds / Laydown Areas** The following measures will be implemented during the Construction Phase: • All proposed TCCs and HDD Compounds will be secured with hoarding / fencing around the compound perimeters, as appropriate; • Where temporary construction areas are required and existing hardstanding is not available, engineered stone fill will be laid, 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; • Temporary facilities will be provided at the TCCs / HDD Compounds, including Construction Phase car parking and welfare facilities and temporary material storage areas, as necessary;	Construction

Mitigation Number	EIAR Section Reference	Location	Description of Mitigation or Monitoring Measure	Implementation Phase
			• Where a construction access route 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; • All construction workers will be required to use the designated access / egress routes only. Storage of fuel and refuelling will be undertaken within bunded areas; • Any discharges from temporary welfare facilities will be connected to either the existing sewage network (where available) or to a sealed holding tank to be emptied and disposed of off site by a licensed contractor to an approved licensed facility; • Storage of fuel and refuelling will be undertaken within bunded hardstanding areas. Water will be brought to site via tankers, as required; and • Where a potential flood event is forecast, plant and materials vulnerable to flooding in any 'at risk' compounds areas will be relocated to parts of the compound that are considered to be not at risk of flooding.	
HY7	12.5.1.5	Watercourse crossings	**Open Trench Water Crossings** The following measures will be implemented during the Pre-Construction / Construction Phase: • As with all construction works proposed, no works on water bodies will be allowed to commence until the relevant Risk Assessment Method Statements (RAMS) and pertinent Health and Safety documents are received from the specialist appointed contractor and are reviewed and agreed by the Client's representative; • The appointed contractor documents will include method statements, open trenching risk assessments and environmental management plans specific to the area where the trenching is to take place. These plans will be submitted by the appointed contractor to the Employer's Representative on-site for review and comment, prior to commencing open trench operations; • In addition to this, for the in-channel crossings, the appointed contractor will be required to prepare detailed construction method statements. Such method statements will be provided to IFI for approval; • All open trenched water body crossings will take place during the June to September period in order to avoid the period of salmon and trout spawning, unless otherwise agreed with IFI. Consultation to-date with IFI indicates that for the crossings of the Tolka_020 (WB06), as a minimum, instream timing restrictions will apply as per the Guidelines on Protecting Fisheries During Construction Works in and Adjacent to Waters (IFI 2016); and • The ground preparation works (such as soil stripping and hardstand formation) adjacent to the water body crossing will be carried out in the same manner as that for other works activities. All clean coarse surface material (gravel, cobbles and boulders) on the riverbed or stream to a depth of 30cm will be removed. Where a depth of 30cm is not present, the full depth of the layer will be removed to where the substrate is mainly clay or sand. Any natural bed substrate removed from water bodies will be stored separately to other stockpiled material and covered with suitable waterproofing (geotextile base and cover) to prevent the washing out of fines such that they can be reinstated upon completion of the works.	Pre-Construction / Construction
HY8	12.5.1.5	Watercourse crossings	**Open Trench Water Crossings (continued)** The following measures will be implemented during the Pre-Construction / Construction Phase: • Where sites can be flumed, the diameter of the flume pipe will be chosen to accommodate flows at the time, with spare capacity to cover that predicted over the period that the works are expected to last. A clay material will be used around	Detailed Design / Pre-Construction / Construction

Mitigation Number	EIAR Section Reference	Location	Description of Mitigation or Monitoring Measure	Implementation Phase
			the flume pipe to create a seal and prevent leakage and loss of flow volumes. Image 4.21 in Chapter 4 (Proposed Development Description) in Volume 2 of this EIAR includes an example graphic of a typical flume pipe crossing; • Where fluming cannot be achieved, and damming and pumping methods are to be used for open trenching, sandbags will be used with an impermeable barrier. Material excavated from the trench (and an upstream pump sump, if required) will be placed on terram on level ground as far back from the water body edge, as is practicable, and surrounded on its downslope side by a silt fence and / or impermeable berm to prevent material re-entering the water body. This material, if deemed suitable, can be used to partially backfill the trench. However, a significant amount of material will be in excess and will be removed from site by a suitably licensed handler to a suitably licensed facility. All pumps will be monitored on a daily basis, and if failure occurs, pumps will be repaired or replaced as soon as possible; • Dewatering of the excavation will be treated on-site, and where necessary, pumps will be used to remove excess water from excavations. De-watering volumes will be treated using settlement tanks before the settled water is returned to the water body. A second tank in series with the first will be used if the first is not sufficient to remove enough solids. Pumped over water will be directed to a splash plate to prevent erosion of the riverbed / bank at the downstream outlet; • The natural bed material removed which was set aside will be used to reinstate the stream bed after the ducts have been installed and the flume pipe has been removed, as well as all the damming materials. The stream bed will be reinstated at the same level and grade as it was prior to the works to ensure that there are no changes in channel bed gradient; • All bank surfaces will be reinstated using biodegradable stabilising materials (e.g. coir matting), which will be allowed to degrade and revegetate naturally from wind-blown seed. A silt fence will be placed along the riverbank where the works were undertaken to prevent solids washed off during heavy rainfall from entering the stream while the surface re-vegetates. This measure will be particularly important at sites which slope to the edge of the water body. Visual monitoring, supported by visual turbidity monitoring of receiving waters, will be conducted by appointed contractor's EnCoW for the duration of the works. Post-reinstatement, weekly monitoring will also be undertaken until vegetation is established; • Where temporary culverts are required, they will be designed with input from a fluvial geomorphologist during the detailed design phase. At a minimum they will: o Not lead to changes in channel gradient upstream, through and downstream of the structure; o Have buried inverts and be embedded with material removed from the channel during construction. This will aid in maintaining fluvial process and ecological connectivity; and o For the detailed design of the crossing structure, climate change will be considered to ensure the culvert is adequately sized.	
HY9	12.5.2	Dunboyne_010 water body crossing	An options appraisal will be undertaken at the detailed design stage to outline the most appropriate crossing methodology for the proposed permanent access track crossing of the Dunboyne_010 water body.	Detailed Design
HY10	12.5.2.1	Dunboyne_010 water body crossing	**Permanent Culvert Crossing** If the preferred option for the crossing of the Dunboyne_010 water body is a culvert, the detailed design stage will consider the following: • The culvert will be positioned on the straightest part of the water body and aligned with the water body bed in this location;	Detailed Design

Mitigation Number	EIAR Section Reference	Location	Description of Mitigation or Monitoring Measure	Implementation Phase
			• The culvert will be positioned on the straightest part of the water body and aligned with the water body bed in this location; • Culvert lengths will be the minimum required to facilitate the crossing; • Bottomless or clear span culverts will be favoured during the detailed design stage with respect to closed pipe culverts; • All new proposed culverts and proposed culvert upgrades will be suitably sized for the expected peak flows in the watercourse (and will be agreed with IFI during the detailed design stage); • Where possible, pre-cast elements for culverts and concrete works will be used; • Culverts will be installed such that, where practicable, they align with the existing channel gradient and maintain existing channel width. This will help to ensure adequate water depth and velocity for fish passage; • The natural riverbed level and slope will be maintained, by burying the culvert invert below the natural bed level. The culvert invert will be embedded to a minimum depth of 300mm (millimetres), or as agreed with IFI during the detailed design stage; • All guidance / mitigation measures proposed by the Office of Public Works (OPW) or the IFI will be incorporated into the detailed design of the proposed culvert; • A sediment retention system (e.g. baffles) will be installed within culverts, where required, based on channel gradient and likely flow conditions; • A low flow channel will be considered during the detailed design stage to account for periods of low flow during summer months. The low flow channel will be designed in conjunction with the hydraulics of the culvert with input from an experienced fluvial geomorphologist; and • Energy dissipation at culvert outlets (where deemed necessary, based on hydraulic analysis during the detailed design stage) will be designed with reference to appropriate guidance and technical standards guidance.	
HY11	12.5.2.2	Dunboyne_010 water body crossing	**Permanent Bridge Structure** If the preferred option for the crossing of the Dunboyne_010 water body is a bridge structure, the detailed design stage will consider the following: • Abutments will be set back from the river channel and banks to allow the continuation of the riparian corridor underneath the structure. This will help to minimise or prevent the need for bed and bank reinforcement, reduce the risk of creating a barrier to fish passage and will allow mammal passage under the bridge structure; • The distance between the bridge abutments will be designed to be as wide as possible to maintain the bank habitat, maximising the riparian corridor and allowing the water body some space to move; • The natural channel width will be maintained; • The foundations (of abutments) will be buried deep enough to minimise or prevent the need for bed or bank reinforcement or bridge weirs or aprons. This will maintain the natural bed material and bed levels, protecting habitat and allowing fish passage; • The foundations will be buried deep enough to allow for scour during high flows. A suitably qualified engineer or geomorphologist will be consulted to advise on an appropriate depth; • The structure will be designed to facilitate the passage of woody debris; • The requirements for bed and bank reinforcement will be considered, only if the risk of erosion cannot reasonably be eliminated through the above measures;	Detailed Design

Mitigation Number	EIAR Section Reference	Location	Description of Mitigation or Monitoring Measure	Implementation Phase
			• The length of bed and bank protection will be restricted and green bank protection measures will be implemented, where applicable; • Bridge piers / abutments will be designed to minimise impacts on morphological processes such that abutments are set back on the floodplain. In-channel structures will not be favoured as part of the detailed design; • The crossing location will be identified with input from an experience geomorphologist to identify preferential crossing locations within the Planning Application Boundary in relation to channel alignment; and • Post-construction management and maintenance will be carried out and will include sediment and debris clearance, riparian vegetation management, and structure repair or maintenance.	
HY12	12.5.3.1	Dunboyne_010 water body crossing	Regardless of the crossing type selected and designed for the proposed permanent crossing of the Dunboyne_010 water body, post-construction management and maintenance will be carried out and will include sediment and debris clearance, riparian vegetation management, and structure repair or maintenance as and when required by regular inspection.	Operational

21.12 Archaeology, Architectural Heritage and Cultural Heritage Mitigation and Monitoring Measures

Table 21.10: Archaeology, Architectural Heritage, and Cultural Heritage Mitigation and Monitoring Measures

Mitigation Number	EIAR Section Reference	Location	Description of Mitigation or Monitoring Measure	Implementation Phase
AACH1	13.5	Throughout (as required)	Mitigation for archaeology, architectural heritage and cultural heritage will be undertaken within the framework provided by with the Code of Practice between the Department of the Environment, Heritage and Local Government and EirGrid (Department of the Environment, Heritage and Local Government and EirGrid 2009).	Construction Phase
AACH2	13.5	Throughout (as required)	Where preservation in situ is feasible, a methodology for this will be agreed with National Monuments Service (NMS).	Construction Phase
AACH3	13.5	Throughout (as required)	All mitigation will be carried out under the supervision of a suitably qualified archaeologist under Licence (where required) granted by the Minister for Housing, Local Government and Heritage, and in accordance with the provisions of the National Monuments Acts 1930–2004 (as amended). Written reports on the results of all mitigation undertaken will be prepared in accordance with the requirements of the Licence(s) granted by the NMS	Construction Phase
AACH4	13.5	Throughout (as required)	The appointed contractor will allow sufficient time in their programme to allow the mitigation to be completed in the areas in which such mitigation is required.	Pre-Construction

AACH5	13.5.1	In the location of the various archaeological, architectural heritage and cultural heritage assets receptors identified	Mitigation measures for known archaeological, architectural heritage and cultural heritage assets, that will be undertaken post-consent but in advance of the Construction Phase, will comprise the following:
			• Topographical survey of the upstanding remains of LI_08;
			• A photographic and written record of the elements of GDLs DL_04, DL_05, DL_15 and DL_16 impacted by the Proposed Development;
			• Townland boundary surveys comprising a detailed written and photographic survey, and test trenching of TB_01, TB_04, TB_38, TB_39, TB_44, TB_51, TB_52, TB_54, TB_57, TB_67, TB_76, TB_78, TB_82, TB_85, TB_86, TB_87, TB_96 and TB_97;
			• Palaeoenvironmental assessment and analysis of LI_24, LI_36 and LI_58;
			• Archaeological excavation of AY_47, CH_32, CH_59, CH_62, CH_67, CH_75, CH_78, LI_05, LI_08, LI_09, LI_11, LI_24, LI_36, LI_40 and LI_58, informed by archaeological geophysical survey and archaeological test excavation, where preservation in-situ is not feasible;
			• Underwater assessment comprising wade and metal detecting survey of:
			  ○ Dunboyne Stream (WCP01);
			  ○ Pinkeen River (WCP05); and
			  ○ Two unnamed streams (UNWC 34 and WCP16).
			• An archaeological metal detecting survey will be undertaken of the banks of UNWC 1, UNWC 2, UNWC 3, WCP04, WCP07, WCP08, UNWC 28, UNWC 29, WCP12, WCP13, UNWC 31 (1), UNWC 33 (2), UNWC 33A and UNWC 35).
				Pre-Construction

AACH6	13.5.1	Throughout (as required)	Archaeological geophysical survey and archaeological test excavation will be undertaken post consent but pre-construction in all off-road sections required for construction, including land required for the proposed access tracks, Passing Bays and Joint Bays, and HDD Compounds and TCCs. Where preservation in situ is not feasible, the results of the archaeological geophysical survey and archaeological test excavation will inform the design of archaeological excavation required to mitigate the impact on any unknown archaeological remains identified.	Pre-Construction

Mitigation Number	EIAR Section Reference	Location	Description of Mitigation or Monitoring Measure	Implementation Phase
AACH7	13.5.2	In the location of the various archaeological, architectural heritage and cultural heritage assets receptors identified	During construction, the following mitigation will be undertaken: • Archaeological monitoring of on-road construction works within the Zones of Notification of Recorded Monuments (AY_18, AY_23, AY_24, AY_25, AY_29, AY_41 and AY_43) and for assets CH_34, CH_53, CH_68, CH_80, CH_81, CH_82, CH_83, LI_37, LI_57 and LI_60 will be undertaken; and • AY_24, CH_15 and CH_63 will be clearly demarcated with temporary fencing within the Planning Application Boundary to avoid accidental damage.	Construction
AACH8	13.5.2	Throughout (as required)	If archaeological remains are identified during the archaeological monitoring, and preservation in-situ is not feasible, archaeological excavation will be undertaken under an excavation licence granted by the Minister for Housing, Local Government and Heritage and in accordance with the provisions of the National Monuments Acts 1930–2004 (as amended).	Construction

21.13 Traffic and Transport Mitigation and Monitoring Measures

Table 21.11: Traffic and Transport Mitigation and Monitoring Measures

Mitigation Number	EIAR Section Reference	Location	Description of Mitigation or Monitoring Measure	Implementation Phase
TT1	14.5.1.1	Throughout (as required)	The temporary impacts that construction will have on traffic and movement through the study area will be mitigated through the adoption of a regulated and approved CTMP. The CTMP is included as Appendix B of the CEMP (which is a standalone document in the planning application pack). It should be noted that in this regard both the CTMP and CEMP are included herewith for the purposes of this application and assessment. However, they will comprise 'live' documents insofar as they are subject to ongoing future refinement by the appointed contractor in collaboration and agreement with the Roads Authorities. However, all such refinement will occur in the context of the CTMP (and CEMP) included in this planning application pack for approval, and therefore, the subject of the assessment of the consenting authority. The CTMP will document measures to promote the efficient transportation of components and materials to site, whilst reducing congestion and disruption which might impact negatively on local communities or general traffic and in particular emergency services.	Pre-Construction / Construction
TT2	14.5.1.1	Throughout (as required)	The appointed contractor will agree temporary traffic measures, and will then adopt and monitor an appropriate way of working, in consultation with Meath County Council, Fingal County Council, daa, Transport Infrastructure Ireland (TII) and / or their agents, and An Garda Síochána, as appropriate.	Pre-Construction / Construction
TT3	14.5.1.1	Throughout (as required)	Construction activity generated vehicles will travel on predefined construction access routes to and from the relevant working areas to reduce the effects on local traffic.	Construction
TT4	14.5.1.1	Throughout (as required)	Signed diversion routes will be provided to mitigate journey disruption and to minimise potential driver delay. These are outlined in Chapter 14 (Traffic and Transport) in Volume 2 of the EIAR but will be subject to final agreement with the Roads Authorities. Where practically achievable, diversion routes will not apply outside of the working area hours of operation.	Construction
TT5	14.5.1.1	Throughout (as required)	Signage will be installed to warn road and recreational route users to the presence of the works access and the associated likely presence of large or slow-moving construction traffic.	Construction
TT6	14.5.1.1	TCCs	To minimise inconvenience to the local community in terms of obstructive parking, adequate car parking for permanent site personnel, visitors and deliveries will be provided within the TCCs. Adequate vehicle parking is available on-site at either substation, and car parking will not be permitted on any of the public road network that bounds the respective TCC or work site, so that sight lines will be maintained and to minimise the potential for obstruction and delay for other road users.	Construction
TT7	14.5.1.1	Throughout (as required)	Only vehicles essentially required to facilitate construction will be permitted to attend proposed cable route worksites. Car sharing will be promoted to construction personnel by the appointed contractor during the induction process.	Construction
TT8	14.5.1.1	Throughout (as required)	The appointed contractor will nominate a person to be responsible for the co-ordination of all elements of traffic and transport during the construction process (liaison officer). This person will liaise with the local community so that the community has a direct point of contact within the contractor organisation who they can contact for information purposes or to discuss matters pertaining to the traffic management.	Construction
TT9	14.5.1.2	M3 Parkway railway line HDD works	**Railway Monitoring** The following monitoring measures will be implemented for the HDD works at the M3 Parkway: • The appointed contractor that will undertake the HDD at the M3 Parkway railway will use track monitoring equipment; and	Construction

Mitigation Number	EIAR Section Reference	Location	Description of Mitigation or Monitoring Measure	Implementation Phase
			• A detailed methodology will be determined by the appointed contractor in consultation with Irish Rail. However, it is anticipated that rail track monitoring will involve the use of survey equipment and target sights before, during and immediately following HDD operations to monitor any movements accurately.	
TT10	14.5.1.3	Throughout (as required)	**Construction Access Arrangements** The following mitigation measures will be implemented during the Construction Phase: • Transportation, including deliveries to and from the Construction Phase working areas, will be on the existing public road network with access to off-road locations gained through both existing and constructed accesses and haul roads; • The proposed programme of working area locations will be confirmed by the appointed contractor as an integral part of their adopted CTMP; • All construction vehicle drivers will be instructed to access their destination worksite via an approved construction access route; and • A wheel wash facility and road sweeper will be provided to minimise any mud and debris on the surrounding public road network and to prevent the introduction and spread of non-native or invasive plant material onto the site.	Construction
TT11	14.5.2	Throughout (as required)	The following mitigation measures will be implemented during the Operational Phase: • To minimise inconvenience to the local community in terms of obstructive parking, adequate vehicle parking space is available on-site at Woodland and Belcamp Substations; • For cable inspection, car parking will not be permitted on any part of the public road network for inspection of link boxes at each Joint Bay location, for example; and • Any localised, temporary traffic management will be devised by the contractor that carries out the inspection in consultation with the road authorities with consideration that sight lines will be maintained and to minimise the potential for obstruction and delay for other road users.	Operational

21.14 Agronomy and Equine Mitigation and Monitoring Measures

Table 21.12: Agronomy and Equine Mitigation and Monitoring Measures

Mitigation Number	EIAR Section Reference	Location	Description of Mitigation or Monitoring Measure	Implementation Phase
AE1	15.5.1	Off-Road Sections (as required)	The appointed contractor will be required to maintain close liaison with local community representatives and landowners and farmers to provide them with adequate progress information and advance notice of works. This will ensure that construction activities are planned around the reasonable access needs of the landowner, so that access is maintained when required by the landowner for farming activities, such as for example, forage and crop harvesting, fertiliser spreading, slurry spreading, and herding of livestock etc. Scheduling of works will be agreed with each landowner to facilitate the operation of the farm and minimise disturbance. Where it is necessary to move livestock along public roads or across the working area, this will be facilitated by the appointed contractor.	Construction
AE2	15.5.1	Off-Road Sections (as required)	Landowners with lands adjoining sites, if rock breaking is required to take place, will be notified in advance of these activities.	Construction
AE3 (see TT1 to TT11 (as applicable))	15.5.1	Off-Road Sections (as required)	Traffic mitigation measures outlined in Chapter 14 (Traffic and Transport) in Volume 2 of this EIAR and in Table 21.11 of this Chapter, and any associated traffic management plans will be implemented to ensure that farmers and agri-business owners have adequate access to farmyards and land so that the transport of farm inputs and produce is not significantly affected.	Construction
AE4 (see AQ1 to AQ9)	15.5.1	Off-Road Sections (as required)	Mitigation measures for the control of dust, as set out in Chapter 7 (Air Quality) in Volume 2 of this EIAR and in Table 21.4 of this Chapter will be implemented by the appointed contractor.	Construction
AE5 (see NV1 to NV22)	15.5.1	Off-Road Sections (as required)	Mitigation measures for the control and monitoring of noise and vibration as set out in Chapter 9 (Noise and Vibration) in Volume 2 of this EIAR and in Table 21.6 of this Chapter will be implemented by the appointed contractor.	Construction
AE6 (see HY1 to HY8)	15.5.1	Off-Road Sections (as required)	Mitigation measures for the control and monitoring of water quality, as set out in Chapter 12 (Hydrology) in Volume 2 of this EIAR and in Table 21.9 of this Chapter will be implemented by the appointed contractor.	Construction
AE7	15.5.1	Off-Road Sections (as required)	The appointed contractor will comply with any regulations pertaining to the control of farm diseases as specified by the Department of Agriculture, Food and the Marine and will employ reasonable precautions against spreading any such farm disease. The appointed contractor will operate a biosecurity plan where machinery and personnel that are moving between farms will have adequate available disinfection facilities and equipment to ensure that disinfection can take place as required. The ESB and / or its appointed contractor will also take due notice and consideration of reasonable concerns expressed by landowners or occupiers prior to entry.	Construction
AE8	15.5.1	Off-Road Sections (as required)	Where field boundaries are to be affected, replanting and fencing will be used to ensure that the boundaries are maintained between landowners and within existing field systems. Therefore, no permanent restructuring will occur. Hedgerows will be replanted with species-rich varieties and with suitable fit for purpose fencing in-line with Teagasc and the Department of Agriculture, Food and the Marine guidelines. However, technical considerations may limit planting above the proposed underground cable circuit. Where replanting is not feasible, suitable fit for purpose stockproof fencing will be provided with	Construction

Mitigation Number	EIAR Section Reference	Location	Description of Mitigation or Monitoring Measure	Implementation Phase
			standard agricultural gates provided where required. Access between landowners will not be provided except where required on the joint bay access tracks (e.g. between Chainage 700 and 3,400 for the permanent access track to Joint Bay 1 to 4). Double gates will be provided at field boundaries between landowners on these permanent access tracks. The gates will be locked and maintained by ESB with no access provided to the landowner. Double fencing will be provided between separate landowners to maintain biosecurity between adjoining farms.	
AE9	15.5.1	Off-Road Sections (as required)	Where the working area severs land access or access to farmyards, the appointed contractor will ensure that there is adequate access provided to facilitate the farmer to effectively farm severed land.	Construction
AE10	15.5.1	Throughout (as required)	The appointed contractor will adhere to the mitigation specified in this Chapter of the EIAR, and the CEMP which is included as a standalone document in this planning application pack	Construction
AE11	15.5.1	Off-Road Sections (as required)	The appointed contractor will: • Maintain pre-entry records; • Erect fit for purpose livestock proof fencing to prevent straying livestock; • Maintain and repair existing field drainage systems to restore the drainage of land to the condition that prevailed before the proposed works; • Store soil separate from the works traffic ensuring minimum amount of damage and disturbance to excavated soil material; • Reinstate the land so that it is level and surface is free of stones and weeds; and • Treat soil compaction by breaking up the soil to the required depth to address such compaction.	Construction
AE12	15.5.1	Off-Road Sections (as required)	The drainage reinstatement will not impede the drainage of surrounding agricultural lands, and where land drains have been intersected or blocked during construction, these will be reconnected or diverted to a suitable outflow.	Construction
AE13	15.5.1	Off-Road Sections (as required)	Field boundaries (hedgerows and fencing) removed during the Construction Phase will be replaced with fit for purpose stock proof fencing and hedgerows. However, hedgerows will not be replaced directly along the easement where they are permanently removed.	Construction
AE14	15.5.2	Off-Road Sections (as required)	The loss of agricultural land due to the construction of the Proposed Development will be a permanent loss which cannot be mitigated, except through compensation. Restriction of Common Agricultural Policy (CAP) payments, farmyard building, commercial forestry and commercial tree planting will be addressed by compensation, where applicable.	Operational
AE15	15.5.2	Off-Road Sections (as required)	Routine maintenance and inspection of cable infrastructure will be notified in advance to minimise disturbance to livestock and farm enterprises, where possible. If faults occur, excavation of soil may be required, resulting in disturbance and crop loss. The risk of such faults is low, and therefore, the frequency of this type of disturbance is very low.	Operational

21.15 Waste Mitigation and Monitoring Measures

Table 21.13: Waste Mitigation and Monitoring Measures

Mitigation Number	EIAR Section Reference	Location	Description of Mitigation or Monitoring Measure	Implementation Phase
W1	16.5.1.1	Throughout (as required)	A CRWMP has been prepared (included as Appendix C to the CEMP included as a standalone document in this planning application). The appointed contractor will implement and update this document (as necessary) in accordance with best practice as described in Best Practice Guidelines on the Preparation of Waste Management Plans for Construction and Demolition Projects (EPA 2021). The appointed contractor(s) will be responsible for reviewing and updating the CRWMP prior to the commencement of construction and will undertake periodic reviews, updating as necessary throughout the Construction Phase in agreement with the planning authorities. The CRWMP outlines how waste arising during the C&D Phases of the Proposed Development will be managed in a way that ensures compliance with the provisions of the Waste Management Act 1996 (as amended).	Construction
W2	16.5.1.1	Throughout (as required)	All operations will be managed and programmed in such a manner as to prevent / minimise waste production. All waste material will be managed in accordance with the waste hierarchy outlined in Image 6.2 in Chapter 16 (Waste) in Volume 2 of this EIAR, with an emphasis on reuse, recycling and recovery of material over disposal where feasible.	Construction
W3	16.5.1.1	Throughout (as required)	In order to minimise the creation of waste, opportunities for reuse of excavated material within the Proposed Development (e.g. as fill) will be sought. Where possible, excavated materials will be re-used for backfill subject to the results of testing, whereby representative samples will be retrieved from each material type (allow one per $100m^3$ (cubic metres)) submitted for laboratory analysis and the results of analysis assessed to assess whether it is inert. If material is not inert, it will be disposed of at a suitable facility in line with waste management legislation and guidance.	Construction
W4	16.5.1.1	Throughout (as required)	Where there is no reuse potential within the Proposed Development of such material, either due to the material being unsuitable or due to the quantity being in excess of requirements, the potential for reuse as a by-product in accordance with Article 27 will be investigated by the appointed contractor(s). Where this option is technically / economically feasible, the appointed contractor(s) will be responsible for the EPA Article 27 notification and the associated requirements. Any material which is to be managed as a by-product will be appropriately stored on-site and will be kept separate from any waste storage to avoid cross contamination.	Construction
W5	16.5.1.1	Throughout (as required)	Where waste is created it will be managed on-site in accordance with good practice and applicable waste legislation as follows: • Waste excavated material will be appropriately stockpiled; • Waste will be segregated at source to prevent cross contamination; • Where relevant (e.g. excavated fill material), wastes will be sampled and tested to allow classification prior to disposal; • Waste receptacles will be appropriate to the waste streams using them, and covered or netted where practicable to prevent wind-blown debris emanating from them; • Any hazardous wastes will be stored in segregated waste containers which are appropriately labelled; • All waste will be collected by a suitable contractor in possession of a valid and appropriate Waste Collection Permit, and will only be transported to suitably licensed or permitted waste facilities (i.e. facilities in possession of a valid EPA Licence, Waste Facility Permit or Certificate of Registration); • Regular site inspections and cleaning will be done in order to minimise the potential for litter in the surrounding area; • Waste records will be maintained throughout the Construction Phase of the Proposed Development; and • Waste auditing against the CRWMP will be carried out.	Construction

Mitigation Number	EIAR Section Reference	Location	Description of Mitigation or Monitoring Measure	Implementation Phase
W6	16.5.1.1	Throughout (as required)	The quantity and type of waste and materials leaving site during the Construction Phase will be recorded by the appointed contractor. The name, address and authorisation details of all facilities and locations which waste and materials will be delivered to will be recorded along with the quantity for each facility. Records will show which material is recovered, which is recycled and which is disposed of.	Construction
W7	16.5.1.1	Throughout (as required)	Any off site interim storage or waste management facilities for excavated material will have the appropriate EPA Licence, Waste Facility Permit or Certificate of Registration, as appropriate, in place.	Construction
W8	16.5.1.1	Throughout (as required)	Excavated materials from within roadways (e.g. capping, subbase and bituminous materials) will be reused or recycled in line with TII specifications where reasonably practicable: • Capping, subbase, bituminous and concrete materials could be reused or recycled in fill and capping materials providing they comply with the Specification for Road Works Series 600 – Earthworks (CC-SPW-00600) (TII 2013a); • Subbase, bituminous and concrete materials could be reused or recycled in subbase or base materials providing they comply with the Specification for Road Works Series 800 – Unbound and Cement Bound Mixtures (CC-SPW-00800) (TII 2013b); and • Subbase and bituminous materials could be recycled in base or binder materials providing they comply with Road Pavements – Bituminous Materials (CC-SPW-00900) (TII 2015).	Construction
W9	16.5.1.1	Throughout (as required)	With respect to the potential to encounter coal tar within road planings, this will be managed in alignment with TII's The Use of Road Tar in Ireland and Research Treatment Protocols (TII 2023). The contractor will test all road planings for the presence of coal tar to ensure accurate classification of all arisings prior to disposal, thus minimising the quantity being disposed of as hazardous waste. Furthermore, the contractor will seek recycling options for any coal tar to divert it from landfill.	Construction
W10	16.5.1.2	Throughout (as required)	**Imported Materials** The following mitigation measures in relation to imported materials will be implemented during the Construction Phase of the Proposed Development: • Excavated materials will be re-used for backfill subject to the results of testing (as outlined in Section 16.5.1.1 of Chapter 16 (Waste) in Volume 2 of the EIAR); • Consideration will be given by the appointed contractor to the sustainability of material being sourced for the construction of the Proposed Development. As far as is reasonably practicable, materials required for the construction of the Proposed Development will be sourced locally to reduce the amount of travelling required to get the material to the site. Key issues to be considered when sourcing materials for the Construction Phase will include the source, the material specification, production and transport costs, and the availability of the material. For quarried material sourced within the State, only quarries which are included in local authority quarry registers will be used by the appointed contractor to source any quarried material; and • Construction materials will be managed on-site by the appointed contractor in such a way to prevent overordering and waste. Materials will be stored in appropriate storage areas or receptacles to reduce the potential for damage requiring replacement. 'Just-In-Time' ordering principles will be implemented by the appointed contractor, where practicable, to reduce the potential for over-ordering.	Construction

21.16 Material Assets Mitigation and Monitoring Measures

Table 21.14: Material Assets Mitigation and Monitoring Measures

Mitigation Number	EIAR Section Reference	Location	Description of Mitigation or Monitoring Measure	Implementation Phase
MA1	17.5.1	Throughout (as required)	Where there are interfaces with existing utility infrastructure, protection in place or diversion as necessary is proposed to prevent long-term interruption to the provision of the affected services, which will be based on applicable minimum safety clearances and design standards.	Construction
MA2	17.5.1	Throughout (as required)	Prior to excavation works commencing, localised confirmatory surveys will be undertaken by the appointed contractor to verify the results of the pre-construction assessments undertaken and reported in this EIAR and to ensure any unknown utilities are identified. Where works are required in and around known utility infrastructure, precautions will be implemented by the appointed contractor to protect the infrastructure from damage. Protection measures during construction will include warning signs and markings indicating the location of utility infrastructure, safe digging techniques in the vicinity of known utilities, and in certain circumstances, where possible, isolation of the section of infrastructure during works in the immediate vicinity.	Pre-Construction
MA3	17.5.1	Throughout (as required)	All utility companies for which diversions are potentially required will continue to be consulted when designing any diversions to ensure that the proposed diversions conform to the utility provider's requirements and to ensure that service interruptions are kept to a minimum.	Pre-Construction / Construction
MA4	17.5.1	Throughout (as required)	Where diversion, or modifications, are required to utility infrastructure, service interruptions and disturbance to the surrounding residential, commercial and / or community property may be unavoidable. Where this is the case, it will be planned in advance by the appointed contractor. Required service interruptions will generally only occur for a set period of time per day (a set number of hours not exceeding eight hours where reasonably practicable) and generally will not be continuous for a full day at a time. Prior notification of disruptions will be given to all impacted properties. This notification will include information on when interruptions and works are scheduled to occur and the duration of such interruptions. Any required works will be carefully planned by the appointed contractor to ensure that the duration of the interruptions is minimised, in as far as possible. Consultation with relevant neighbouring parties will be undertaken prior to any proposed disruptions.	Construction
MA5	17.5.2	Throughout (as required)	Should maintenance measures necessitate it, service disruptions impacting the surrounding residential, social and commercial properties will be kept to a minimum only occurring where unavoidable. Prior notification of disruptions will be given to all impacted properties. This will include information on when disruptions are scheduled to occur and the duration of the disruption. Consultation with relevant neighbouring parties will be undertaken prior to any proposed disruption.	Operational

21.17 Landscape and Visual Mitigation and Monitoring Measures

Table 21.15: Landscape and Visual Mitigation and Monitoring Measures

Mitigation Number	EIAR Section Reference	Location	Description of Mitigation or Monitoring Measure	Implementation Phase
LV1	18.5.1	Throughout (as required)	The following mitigation measures will be implemented during the detailed design stage: • A Project Arboriculturalist will be appointed by the ESB to provide relevant additional input to be addressed at appropriate points; • The Generic Arboricultural Method Statement (AMS) (included in Appendix C of Appendix A18.2 in Volume 3 of this EIAR) will be reviewed and updated into a site-specific AMS to provide appointed contractors with details on how specific operations need to be performed to protect trees, including the use of exclusion zones and ground protection; and • A Tree Protection Plan will be produced providing schematic details of how protective fencing will be installed and any other pre-planned targeted tree protection measures.	Detailed Design
LV2	18.5.1	Woodland Corridor	At detailed design stage, a locally reduced separation between adjacent cable circuits (CP0966 development, under An Bord Pleanála planning reference number 316372, and the Proposed Development) will be considered at the following key locations to reduce the potential impact on adjacent trees: • Chainage 950 to Chainage 1,100; • Chainage 1,450 to Chainage 1,650; • Chainage 2,350 to Chainage 2,500; and • Chainage 3,050 to Chainage 3,150. This will allow a greater setback between the Proposed Development cable circuit and the adjacent field boundary. Areas of land between the Proposed Development cable circuit and field boundary will also be fenced off and will not be trafficked by heavy plant or machinery.	Detailed Design
LV3	18.5.1	Throughout (as required)	The site-specific AMS and Tree Protection Plan produced during the detailed design stage will be implemented as soon as works begin on-site.	Construction
LV4	18.5.1	Throughout (as required)	As far is reasonably practicable, all cable installation works, particularly in the existing road surfaces will adhere to Volume 4 of the Guidance for The Planning, Installation and Maintenance of Utility Apparatus in Proximity to Trees is a widely adopted document within the utilities sector (National Joint Utilities Group (NJUG) 2007).	Construction
LV5	18.5.1	Throughout (as required)	The Project Arboriculturalist will be retained to advise and resolve any unforeseen tree related issue which might occur during the Construction Phase and to provide general tree related advice.	Construction
LV6	18.5.1	Throughout (as required)	On-site monitoring will be undertaken at agreed intervals before and during the Construction Phase (this will be achieved through a combined effort between the ESB and the appointed contractor) to ensure protection measures and the site-specific AMS produced during the detailed design stage are being implemented correctly.	Pre-Construction / Construction
LV7	18.5.1	Throughout (as required)	Once construction is complete, the road surface / agricultural grassland will be reinstated along the proposed underground cable route for all temporary works areas.	Construction
LV8	18.5.1	Throughout (as required)	Hedgerows removed for temporary works within the Planning Application Boundary will be replanted with a new species-rich hedgerow which is estimated to reach similar maturity in 30 years and is likely to be more ecologically diverse than what was removed.	Construction

Mitigation Number	EIAR Section Reference	Location	Description of Mitigation or Monitoring Measure	Implementation Phase
LV9	18.5.1	Throughout (as required)	Where applicable, vegetation removed during the Construction Phase at temporary Passing Bays will be reinstated along the original alignment and will also be replanted with species-rich hedgerows, albeit immediately above the proposed underground cable route will remain absent of woody species to aid periodic maintenance.	Construction
LV10	18.5.1	Throughout (as required)	The avoidance measures outlined in the Generic Arboricultural Method Statement (refer to Appendix C of Appendix A18.2 in Volume 3 of this EIAR) will be adopted in full and will help limit the impacts on the landscape and for visual receptors.	Construction

21.18 Risk of Major Accidents and / or Disasters Mitigation and Monitoring Measures

Table 21.16: Risk of Major Accidents and / or Disasters Mitigation and Monitoring Measures

Mitigation Number	EIAR Section Reference	Location	Description of Mitigation or Monitoring Measure	Implementation Phase
N/A	N/A	N/A	No additional mitigation or monitoring measures are considered necessary beyond those already identified in other environmental assessments and the CEMP and its associated appendices (which are included as standalone documents in the planning application pack).	N/A

21.19 Cumulative Impacts and Environmental Interactions Mitigation and Monitoring Measures

Table 21.17: Cumulative Impacts and Environmental Interactions Mitigation and Monitoring Measures

Mitigation Number	EIAR Section Reference	Location	Description of Mitigation or Monitoring Measure	Implementation Phase
CIEI1	20.4	Overlaps with the CP0966 Development in the vicinity of Woodland Substation / Woodland Corridor	The following mitigation measures will be implemented in the event that Construction Phases for the Proposed Development and the CP0966 Kildare Meath Grid Upgrade (Planning Ref No. 316372) occur at the same time, due to the spatial overlap between the two developments in the 'Woodland Corridor' (refer to Figure 20.2 in Volume 4 of the EIAR), which extends from Woodland Substation southwards to the R156 Regional Road: • Air Quality: Liaison meetings with the CP0966 construction management team / appointed contractor will be held to ensure plans in the Woodland Corridor are coordinated, in order to reduce cumulative dust and particulate matter emissions. As part of this liaison process, the appointed contractors will be required to determine the interactions of the offsite transport / deliveries which might be using the same strategic road network routes; • Hydrology: Given the proximity of the two development crossings of the Dunboyne Stream_010 water body, coordination of the construction programmes for the two developments will be required between the respective appointed contractors to ensure that, where possible, works to cross the water body are undertaken at the same time, and as such, minimising disruption; • Traffic: Coordination of the construction programmes for the two developments will be required to ensure that there are no conflicting road closures from either development at the same time; • Traffic: Cumulative construction traffic will also be timed to avoid peaks in construction programmes, where possible; and • Material Assets: Coordination / consultation between the appointed contractors for the two developments will be required in the event that there are overlapping works within the Woodland Corridor area. Any future utility work identified as being required during the Construction Phase will be undertaken in consultation with the relevant utility companies.	Pre-Construction / Construction

21.20 References

BSI (2014a). BS 5228-1:2009+A1:2014 Code of practice for noise and vibration control on construction and open sites - Noise

BSI (2014b). BS 5228-2:2009+A1:2014 Code of practice for noise and vibration control on construction and open sites – Vibration

BSI (2015). BS EN 14388:2015 – Road traffic noise reducing devices. Specifications

Charles and Edwards (2015). CIRIA C741 Environmental Good Practice on Site

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Department of the Environment, Heritage and Local Government and EirGrid (2009). Code of Practice between the Department of the Environment, Heritage and Local Government and EirGrid

EPA (2019). Protocol for the Measurement of Radon in Homes & Workplaces

EPA (2021). Best Practice Guidelines on the Preparation of Waste Management Plans for Construction and Demolition Projects

HSA (2013). Asbestos-containing Materials (ACMs) in Workplaces – Practical Guidelines on ACM Management and Abatement

IAQM (2023). Guidance on the Assessment of Dust from Demolition and Construction (Version 2.1)

IFI (2016). Guidelines on Protecting Fisheries During Construction Works in and Adjacent to Waters

Marnell, F., Kelleher, C., and Mullen, E (2022). Bat Mitigation Guidelines for Ireland – version 2. Irish Wildlife Manuals, Number 134. National Parks and Wildlife Service, Department of Housing, Local Government and Heritage, Ireland.

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Murnane et al. (2006a). CIRIA C648 Control of Water Pollution from Linear Construction Projects: Technical Guide

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NJUG (2007). Guidance for The Planning, Installation and Maintenance of Utility Apparatus in Proximity to Trees is a widely adopted document within the utilities sector

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NRA (2005). Guidelines for the Crossing of Watercourses during the Construction of National Road Schemes

NRA (2006a). Best Practice Guidelines for the Conservation of Bats in the Planning of National Road Schemes

NRA (2006b). Guidelines for the Treatment of Badgers during the Construction of National Road Schemes

NRA (2008b). Guidelines for the Treatment of Otters

NRA (2009). Guidelines for Assessment of Ecological Impacts of National Road Schemes

NRA (2010). Guidelines on the Management of Noxious Weeds and Non-Native Invasive Plant Species on National Roads

Teagasc (2020). How to plant a hedge. Available online at https://www.teagasc.ie/news--events/daily/environment/how-to-plant-a-hedge.php

TII (2013a). Specification for Road Works Series 600 – Earthworks (CC-SPW-00600)

TII (2013b). Works Series 800 – Unbound and Cement Bound Mixtures (CC-SPW-00800)

TII (2015). Road Pavements – Bituminous Materials (CC-SPW-00900)

TII (2023). The Use of Road Tar in Ireland and Research Treatment Protocols

Directives and Legislation

Arterial Drainage Act 1945 and 1995 (as amended)

National Monuments Acts 1930–2004 (as amended)

Number 10 of 1996 - Waste Management Act, 1996 (as amended)

Number 39 of 1976 – Wildlife Act, 1976 (as amended)

S.I. No. 113/2022 - (European Union (Good Agricultural Practice for Protection of Waters) (Amended Regulations).

Water Pollution Acts 1977 and 1990 (as amended)