East Meath - North Dublin Grid Upgrade Environmental Impact Assessment Report (EIAR): Volume 5

Water Framework Directive Assessment

EirGrid

March 2024

Contents

1. Introduction

1.1 The Water Framework Directive

Directive 2000/60/EC of the European Parliament and of the Council of 23 October 2000 Establishing a Framework for Community Action in the Field of Water Policy is known as, and hereafter referred to as the Water Framework Directive (WFD).

The WFD requires all water bodies to achieve both good chemical status and good ecological status (GES). For each River Basin District (RBD), a River Basin Management Plan (RBMP) outlines the actions required to enable natural water bodies to achieve this (refer to Table 1). Water bodies that are designated in the RBMP as Heavily Modified Water Bodies (HMWB) or Artificial Water Bodies (AWB) may be prevented from reaching GES by the physical modifications for which they are designated or purpose for which they were constructed (e.g., navigation, flood defence, urbanisation). Instead, they are required to achieve good ecological potential (GEP), through implementation of a series of mitigation measures outlined in the applicable RBMP (and in some cases updated since the publication of the RBMP).

Table 1: WFD Environmental Objectives

Objectives
Member States shall implement the necessary measures to prevent deterioration of the status of all bodies of surface water.
Member States shall protect, enhance and restore all bodies of surface water, subject to the application of subparagraph (iii) for artificial and heavily modified bodies of water, with the aim of achieving good surface water status by 2015.
Member States shall protect and enhance all artificial and heavily modified bodies of water, with the aim of achieving good ecological potential and good surface water chemical status by 2015. Where this is not possible and subject to the criteria set out in the Directive, aim to achieve good status by 2021 or 2027.
Progressively reduce pollution from priority substances and cease or phase out emissions, discharges and losses of priority hazardous substances.
Prevent Deterioration in Status and prevent or limit input of pollutants to groundwater.

The WFD must be considered in the planning of all new activities in the water environment. The Environmental Protection Agency (EPA), as the competent authority in Ireland, is responsible for ensuring the giving of effect to the WFD in Ireland. The WFD was transposed into Irish law through S.I. No. 722 of 2003 - European Communities (Water Policy) Regulations 2003 (as amended) (hereafter referred to as the Water Policy Regulations).

Where there are sites protected under European Union (EU) legislation, the WFD aims for compliance with any relevant standards or objectives for these sites.

The Water Policy Regulations outline the water protection and water management measures required to maintain high status of waters where they exist, prevent any deterioration in existing water status and achieve at least 'Good' status for all waters.

Subsequently, S.I. No. 272/2009 - European Communities Environmental Objectives (Surface Waters) Regulations 2009, as amended (hereafter referred to as the Surface Waters Regulations), and S.I. No. 9/2010 - European Communities Environmental Objectives (Groundwater) Regulations 2010, as amended (hereafter referred to as the Groundwater Regulations), were promulgated to regulate WFD characterisation, monitoring and status assessment programmes, in terms of assigning responsibilities for the monitoring of different water categories, determining the quality elements and undertaking the characterisation and classification assessments.

1.1.1 Article 4.7 of the Water Framework Directive

Member states must meet the conditions of the WFD unless they meet the criteria laid out in Article 4.7 of the WFD. Article 4.7 states:

> *"Member states will not be in breach of this Directive when:*
>
> - *Failure to achieve good groundwater status, good ecological status or, where relevant, good ecological potential or to prevent deterioration in the status of a body of surface water or groundwater is the result of new modifications to the physical characteristics of a surface water body or alterations to the level of bodies of groundwater, or*
> - *Failure to prevent deterioration from high status to good status of a body of surface water is the result of new sustainable human development activities.*
>
> *and all the following conditions are met:*
>
> - *All practicable steps are taken to mitigate the adverse impact on the status of the body of water;*
> - *The reasons for those modifications or alterations are specifically set out and explained in the river basin management plan required under Article 13 and the objectives are reviewed every six years;*
> - *The reasons for those modifications or alterations are of overriding public interest and/or the benefits to the environment and to society of achieving the objectives set out in paragraph 1 are outweighed by the benefits of the new modifications or alterations to human health, to the maintenance of human safety or to sustainable development; and*
> - *The beneficial objectives served by those modifications or alterations of the water body cannot for reasons of technical feasibility or disproportionate cost be achieved by other means, which are a significantly better environmental option."*

1.2 Competent Persons

Rebecca Westlake BSc (hons), MSc, LLM, PhD, CSci, CMarSci, MIMarEST, Jacobs

Rebecca is a Subject Matter Expert (SME) for Water Science and Hydromorphology at Jacobs. She holds an honours bachelor of science degree (BSc) in physical geography from Plymouth University, a master of science (MSc) degree in coastal and marine resource management, an LLM degree in environmental law and practice, and a doctorate (PhD) in geomorphology. Rebecca is chartered with Institute of Marine Engineering, Science and Technology, and has approximately 25 years' relevant experience in water science and environmental assessment. Rebecca is highly experienced in many aspects of legislation and regulation, in addition to specific technical specialism in the WFD, and all stages of the environmental impact assessment (EIA) process, including Development Consent Orders. Rebecca is a technical lead for water chapters for major infrastructure projects including Development Consent Orders for roads, rail and water sectors, often undertakes peer reviewer.

Mark Johnson BSc (hons), MSc, MCIWEM, Jacobs

Mark Johnson is a Senior Environmental Scientist within Water Science and Hydromorphology at Jacobs. He holds an honours degree (BSc) in Geology from The University of Aberdeen and an MSc. in Integrated Petroleum Geoscience from the same institute. Mark is a member of the is Chartered Institution of Water and Environmental Management and is working towards full Chartership. Mark has 10 years of professional experience, five of which are in water science and environmental assessment. Mark is experienced in aspects of water EIA, regulation and compliance assessment, in addition to specific technical specialism in the WFD, all stages of the EIA process, geomorphology and surface water quality. Mark has originated and coordinated multiple surface water Environmental Impact Assessment (EIAR) chapters for various project types including pipelines, road, rail and utilities.

1.3 Outline of the Proposed Development

The East Meath – North Dublin Grid Upgrade (hereafter referred to as the Proposed Development) includes approximately 37.5 kilometres (km) of new 400 kilovolt (kV) underground cables between the existing Woodland Substation in the townland of Woodland, near Batterstown, County Meath and the existing Belcamp Substation in the townlands of Clonshagh and Belcamp in Fingal, north County Dublin. A new 400kV Gas Insulated Switchgear (GIS) Hall and associated transformers will be required at Belcamp Substation, and the installation of a 400kV feeder bay and associated works will be required at Woodland Substation. Approximately 20.5km of the proposed cable route will be located in County Meath and approximately 17km of the proposed cable route will be located in County Dublin. Approximately 70% of the proposed cable route will be located within public roads and approximately 30% will be located in private lands, to avoid location-specific constraints.

The Proposed Development is required to reinforce the public electricity network between East Meath and North Dublin. Reinforcement of this part of the network is needed to continue to ensure the security of the network feeding the east of Meath and the north of Dublin, between Woodland, Clonee, Corduff, Finglas and Belcamp Substations. The Proposed Development will help meet the growing demand for electricity in the east of the country due to the increased economic activity and population growth in recent years in Kildare, Meath and Dublin. It will also enable further development of renewable energy generation in line with Government policy.

In addition to the above, a culvert or bridge structure may be required to facilitate the proposed permanent access track watercourse crossing to a Joint Bay. The culvert or bridge structure will be designed in accordance with the Inland Fisheries Ireland (IFI) Guidelines on Protection of Fisheries During Construction Works in and Adjacent to Waters (IFI 2016) so that there are no significant environmental impacts.

The design of the Proposed Development has evolved through the application of a comprehensive design iteration process with particular emphasis on minimising the potential for environmental impacts, where practicable, whilst ensuring the objectives of the Proposed Development are maintained. In addition, feedback received from the comprehensive consultation programme undertaken throughout the option selection and outline design development programme have been incorporated, where appropriate.

A full description of the Proposed Development is provided in Chapter 4 (Proposed Development Description) in Volume 2 of this Environmental Impact Assessment Report (EIAR).

1.4 Methodology

1.4.1 Study Area / WFD Screening

This WFD assessment covers only those components of the Proposed Development that could affect water body features. The United Kingdom (UK) Environment Agency's Water Framework Directive assessment: Estuarine and Coastal waters (Clearing the Waters for All) 2016 (updated 2017) (Environment Agency 2017) defines a 2km study area for the protected area quality elements. The remaining quality element study areas are based on professional judgement, taking into account the nature of potential impacts as a result of the Proposed Development.

1.4.2 Relevant Guidelines, Policy and Legislation

1.4.2.1 River Basin Management Plans

River Basin Management Plans (RBMPs) provide the mechanism for implementing and ensuring an integrated approach to the protection, improvement and sustainable management of the water environment and are published every six years.

The second cycle RBMP 2018 – 2021 was published by the Department of Housing, Planning and Local Government (DHPLG) in April 2018 and covers Ireland as a whole (DHPLG 2018). For the second cycle, the original (2009) Eastern, South-Eastern, South-Western, Western and Shannon River Basin Districts were merged to form one national River Basin District (RBD) which covers the whole of Ireland. For those waterbodies 'At Risk' of failing to meet the objectives of WFD, the RBMP 2018 – 2021 identified the most significant pressures impacting them as follows: agriculture (53%), hydromorphology (24%), urban wastewater (20%), forestry (16%), domestic wastewater (11%), urban runoff (9%), peat (8%), extractive industry (7%) and mines and quarries (6%).

In September 2021, the Minister for Housing, Local Government and Heritage, published the draft River Basin Management Plan for Ireland 2022-2027 (Department of Housing, Local Government and Heritage (DHLGH) 2021) for public consultation. The consultation period closed on 31 March 2022. The draft RBMP sets out, at the outset, that it is published in the context of a rapidly changing policy landscape at European and International levels and against a backdrop of "*widespread, rapid and intensifying climate change*". In addition, Ireland is now experiencing a sustained decline in water quality following many years of improvements, and so stronger measures are now required to achieve sustainable water management in order to address and adapt to the impacts of climate change and achieve the desired outcomes for biodiversity.

The draft RBMP sets out a Programme of Measures (PoMs) necessary to deliver the objectives of the WFD in full and to contribute to other environmental priorities.

Until the draft RBMP has been consulted upon and finalised, the existing RBMP has been used as a reference point for this assessment with respect to proposed measures as these have yet to be agreed; however, where waterbodies' 'At Risk' status has already been updated by the EPA online for the third cycle RBMP, this has been used in the assessment.

1.4.3 Data Collection and Collation

The EPA's Data Explorer (EPA 2024a) was used to assess water bodies present within the Proposed Development Study Area, and includes their WFD ID numbers, designation, and classification details. The WFD compliance mapping for groundwater risk (EPA 2024b) and status assessment was also reviewed along with any other supporting data.

1.4.4 Appraisal Method

In the absence of WFD assessment guidance in Ireland, the assessment has been carried out using the Water Framework Directive assessment: Estuarine and Coastal waters (Clearing the Waters for All) 2016 (updated 2017) (Environment Agency 2017). No specific guidance exists for freshwater water bodies. However, this guidance was used as the basis of the UK's Planning Inspectorate (PINS) Advisory Note 18 Water Framework Directive (June 2017) (PINS 2017) in which it sets out the stages of an assessment. On this basis, it was considered appropriate to use for the assessment of the Proposed Development. In line with this guidance, a 2km buffer zone was applied for assessing protected areas. For clarity and brevity purposes, the 2km buffer and the full list of identified protected sites (including those which are considered coastal water specific) are maintained for all assessments.

There follows a baseline assessment of the main water bodies, and a scoping assessment of the principal receptors potentially affected by the Proposed Development. This is followed by the impact assessment, which considers the potential impacts of an activity, identifies ways to avoid or minimise impacts, and indicates if an activity may cause deterioration or jeopardise the water body achieving GEP / GES.

There are several stages to this assessment:

- A scoping assessment of the main receptors including protected areas of nature conservation, bathing water etc. (Section 1.5);

- An assessment against quality elements including hydromorphology, biology, water quality, protected areas and invasive species (Section 1.6);
- A cumulative assessment against other Proposed Projects (Section 1.8); and
- Assessment against other EU Directives (Section 1.9).

1.5 Baseline Scoping

1.5.1 Water Body Scoping

Table 2 lists the WFD water bodies within the study area which have been scoped into the assessment (see Chapter 12 (Hydrology) in Volume 2 of this EIAR for more detail of these WFD surface water bodies).

Table 2: Water Body Status

Water Body ID	Name of Water Body in RBMP	Hydromorphological Designation	Current Status/ Potential (2016-2021)	Objective Status / Potential
Surface Water				
IE_EA_09T010600	Tolka_020	Not designated	Moderate	At risk
IE_EA_09D040500	Dunboyne Stream_010	Not designated	Poor	At risk
IE_EA_09R010400	Rye Water_030	Not designated	Poor	At risk
IE_EA_09P020500	Pinkeen_010	Not designated	Moderate	At risk
IE_EA_08W010070	Ward_020	Not designated	Moderate	At risk
IE_EA_08W010050	Ward_010	Not designated	Poor	Review
IE_EA_09P210700	Powerstown (Dublin)_010	Not designated	Poor	At risk
IE_EA_08W010300	Ward_030	Not designated	Moderate	At risk
IE_EA_09S071100	Sluice_010	Not designated	Poor	Review
IE_EA_09M030500	Mayne_010	Not designated	Poor	At risk
Groundwater				
IE_EA_G_031	Dunshaughlin	N/A	Good	Not at risk
IE_EA_G_008	Dublin	N/A	Good	Review

Note: Rye Water and Powerstown (Dublin)_010 are within the Study Area but have been scoped out of the assessment as there is no hydrological connection to the Proposed Development.

1.5.2 Assessment Scoping

1.5.2.1 Protected Areas

The WFD requires that activities are also in compliance with other relevant legislation, as considered below. The following designations within a 2km buffer zone from the Planning Application Boundary were looked at as part of the assessment:

- Nature conservation designations;
- Bathing waters;
- Nutrient Sensitive Areas; and
- Shellfish waters.

1.5.3 Nature Conservations Designations

Nature conservation designations are areas previously designated for the protection of habitats or species where, maintaining or improving the status of water is important for their protection. They comprise the aquatic part of the previously designated Natura 2000 sites (i.e., Special Protection Areas (SPAs) designated under Council Directive 79/409/EEC of 2 April 1979 on the conservation of wild birds (as amended)

(hereafter referred to as the Birds Directive) and Special Areas of Conservation (SACs) designated under Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora (hereafter referred to as the Habitats Directive).

Ramsar sites are wetlands of International importance designated under the Ramsar Convention (adopted in 1971 and came into force in 1975), providing a framework for the conservation and wise use of wetlands and their resources.

The EPA online mapping system (EPA 2024b) was used to identify any nature conservation designations within 2km of the Proposed Application Boundary. There are no designated protected areas within 2km of the Planning Application Boundary. The closest protected area to the Proposed Application Boundary is the Malahide Estuary SAC and SPA which is approximately 3.6km north of where the Proposed Application Boundary crosses the M1 Motorway.

1.5.4 Bathing Waters

Bathing waters are those designated under Council Directive 76/160/EEC of 8 December 1975 concerning the quality of bathing water (hereafter referred to as the BWD), or the later Directive 2006/7/EC of the European Parliament and of the Council concerning the management of bathing water quality and repealing Directive 76/160/EEC (hereafter referred to as the revised BWD). S.I. No. 79/2008 - Bathing Water Quality Regulations 2008 was adopted in March 2008 (following a public consultation) transposing the revised BWD into Irish law. There are no designated bathing waters within 2km of the Planning Application Boundary.

1.5.5 Nutrient Sensitive Areas

Nutrient Sensitive Areas comprise Nitrate Vulnerable Zones and polluted waters designated under Council Directive 91/676/EEC of 12 December 1991 concerning the protection of waters against pollution caused by nitrates from agricultural sources (hereafter referred to as the Nitrates Directive), in addition to areas designated as sensitive areas under Council Directive 91/271/EEC of 21 May 1991 concerning urban wastewater treatment (hereafter referred to as the Urban Wastewater Treatment Directive (UWWTD)). The UWWTD aims to protect the environment from the adverse effects of the collection, treatment and discharge of urban wastewater. Sensitive areas under the UWWTD are water bodies affected by eutrophication associated with elevated nitrate concentrations and act as an indication that action is required to prevent further pollution caused by nutrients.

There are no designated nutrient sensitive areas within 2km of the Planning Application Boundary. Additionally, (specifically in relation to nutrient loading), there is no activity during construction or operation of the Proposed Development which will result in the discharge of nutrients to any surface water system or water body.

1.5.6 Shellfish Waters

Directive 2006/113/EC of the European Parliament and of the Council of 12 December 2006 on the quality required of shellfish waters (hereafter referred to as the Shellfish Waters Directive) aims to protect or improve shellfish waters in order to support shellfish life and growth. It is designed to protect the aquatic habitat of bivalve and gastropod molluscs, which include oysters, mussels, cockles, scallops and clams. The Shellfish Waters Directive requires Member States to designate waters that need protection in order to support shellfish life and growth. It is implemented in Ireland by S.I. No. 268/2006 - European Communities (Quality of Shellfish Waters) Regulations 2006. The Shellfish Waters Directive also provides for the establishment of pollution reduction programmes for the designated waters.

There are no shellfish waters within 2km of the Planning Application Boundary.

1.6 Waterbody Assessment Against Quality Elements

This Section details a site-specific assessment of the Proposed Development against quality elements for biology, physico-chemical and hydromorphological elements for the in-scope riverine water bodies following the Water Framework Directive assessment: Estuarine and Coastal waters (Clearing the Waters for All) 2016 (updated 2017) (Environmental Agency 2016).

1.6.1 Hydromorphology

This Section provides a summary of the known existing hydromorphology risk issues for the transitional water bodies (refer to Table 3).

Table 3: Hydromorphology Scoping Summary

WFD Assessment Questions	Tolka_020	Dunboyne Stream_010	Pinkeen _010	Ward_020	Ward_010	Ward_030	Sluice_010	Mayne_ 010
Consider if your activity could impact on the hydromorphology (for example morphology or water flow) of a water body at high status?	No. Not High status.							
Consider if your activity could significantly impact the hydromorphology of any water body?	**Construction** – Yes each of the in-scope water bodies will be crossed by the Proposed Development via open cut trenching. Therefore, there is potential for temporary impacts to hydromorphology during the construction period. See Section 1.6.1.1 for the impact assessment. **Operation** – No, the Proposed Development will be entirely below ground within the vicinity and at the crossing locations of the in-scope water bodies and will therefore not interact with them. As such no operational impacts on hydromorphology are anticipated.							
Consider if your activity is in a water body that is heavily modified for the same use as your activity?	No. Not a HMWB.							
Consider if your activity is in a water body that is heavily modified for the same use as your activity?	No – None of the water bodies are designated as HMWB.							

1.6.1.1 Hydromorphology Impact Assessment

There will be a need to cross the in-scope water bodies during the construction of the Proposed Development. Crossing techniques will involve open cut trenching, and as such, provision of a dry working area will be required. The techniques employed to provide a dry working area will be subject to design by the appointed contractor but will likely consist of either temporary channel realignment, fluming or over pumping. Additionally, there will be a requirement for a temporary culvert crossing of Dunboyne Stream_010 to facilitate construction access. It is anticipated that this temporary culvert will also form a permanent water body crossing during the Operational Phase of the Proposed Development, to facilitate the access track extending north from the R156 Regional Road to a permanent Joint Bay. Works to construct water body crossings and proposed temporary construction access routes will be required adjacent to the water bodies to facilitate construction.

Working adjacent to water bodies along the bank tops has the potential to indirectly alter the structure and substrate of the bed via increased silty runoff which could smother any morphological features. The provision

of a dry working area will temporarily remove flow from the channel, preventing downstream transport of sediment and removing any morphological features over the works footprint.

The impacts associated with the proposed construction access tracks and working adjacent to water bodies will be temporary and localised to the working footprint and are not anticipated to impact at the water body scale. Additionally, a Surface Water Management Plan (SWMP) is included as Appendix D to the Construction Environmental Management Plan (CEMP) within this planning application pack. This SWMP, and the mitigation measures outlined in the CEMP, will be implemented for construction management and sediment control measures respectively (refer to Section 1.4 to Section 5 of the SWMP). The only operational above-ground structure that will interact with surface water bodies will be the new culvert or bridge on Dunboyne Stream_010. At this stage of the design process, limited design information is available on the crossing, including the crossing type. This, alongside other pertinent design information, will be subject to detailed design, which will include the limitations outlined in Chapter 12 (Hydrology) in Volume 2 of the EIAR (specifically Section 12.5.2.1 and Section 12.5.2.2).

1.6.2 Biology

1.6.2.1 Habitats

Table 4 presents a summary of biology (habitat) considerations and associated risk issues for the works for the transitional water body.

Table 4: Biology (Habitat) Scoping Summary

WFD Assessment Questions	Tolka_020	Dunboyne Stream_010	Pinkeen_010	Ward_020	Ward_010	Ward_030	Sluice_010	Mayne_010
Is the footprint of the activity 0.5 km^2 or larger?	No – Not at crossing locations.							
Is the footprint of the activity 1% or more of the water body's area?	No – Not at crossing locations.							
Is the footprint of the activity within 500m of any higher sensitivity habitat?	No. The Proposed Development is primarily contained within the current road boundary, and hardstanding areas (see Chapter 10 (Biodiversity) in Volume 2 of the EIAR for further detail on habitats).							
Is the footprint of the activity 1% or more of any lower sensitivity habitat?	No. The Proposed Development is primarily contained within the current road boundary, and hardstanding areas (see Chapter 10 (Biodiversity) in Volume 2 of the EIAR for further detail on habitats).							

Risks to water bodies under the WFD include loss of habitat, loss of protected species and prey species. The potential for these impacts is not considered to be significant given that the construction impacts are considered to be temporary and short term and not at the water body scale. The WFD assessment primarily considers the operation of a development. However, for biological elements, potential construction impacts are often considered as they have the potential for long-term change if a potential impact is considered to be significant. Therefore, it is important to also note here that a CEMP and SWMP (which are included as standalone documents in the planning application pack) will be implemented for construction management and sediment control measures, respectively.

At this current design stage, it is unknown the form of which the permanent crossing of Dunboyne Stream_010 will take. This will be subject to options appraisal during detailed design. During construction there will be a removal of habitat under the proposed water body crossing footprint (should a culvert be identified as the preferred crossing method) which will also then be absent during the Operational Phase. This will be a permanent impact at the local scale. Mitigation measures outlined in Chapter 12 (Hydrology) in Volume 2 of the EIAR (specifically Section 12.5.2.1 and Section 12.5.2.2) will be implemented to offset this impact. Therefore, it is not anticipated to impact at the water body scale.

1.6.2.2 Fish

Activities occurring within an inshore environment could impact on normal fish behaviour such as movement, migration or spawning. Table 5 presents a summary of biology (fish) considerations and associated risk issues for the proposed works. As at least one biology (fish) consideration indicates that a risk could be associated with the proposed works, this receptor has been scoped into the impact assessment for the transitional water body.

Table 5: Biology (Fish) Scoping Summary

WFD Assessment Questions	Tolka_020	Dunboyne Stream_010	Pinkeen_010	Ward_020	Ward_010	Ward_030	Sluice_010	Mayne_ 010
Consider if your activity is in an estuary and could affect fish in the estuary, outside the estuary but could delay or prevent fish entering it or could affect fish migrating through the estuary?	No - not in estuarine or transitional waters.							
Consider if your activity could impact on normal fish behaviour like movement, migration or spawning (for example creating a physical barrier, noise, chemical change or a change in depth or flow)?	**Construction** – Yes: Open cut trenching to cross the in-scope waterbodies will require prevision of a dry working area. See Section 1.6.2.2.1 for further details. **Operation** –Yes: The majority of the Proposed Development will be operated below ground level and will not therefore interact with surface water features. However, there is a requirement for a yet to be determined water body crossing on the Dunboyne Stream_010 which has the potential to impact on normal fish behaviour (see Section 1.6.2.2.1 for further details)							
Consider if your activity could cause entrainment or impingement of fish?								

1.6.2.2.1 Biology (fish) Impact Assessment

The risks to the receptor are due to noise from construction of the open cut trenches across the water bodies, and also the potential release of suspended sediment concentrations and the creation of plumes as a result. Additionally, the provision of dry working areas and temporary culverts (in the case of Dunboyne Stream_010) at the crossing locations could lead to the entrapment of fish and would prevent them from migrating past the works footprint.

These impacts will be temporary and localised during the period of construction. Suspended sediment concentrations released as a result of works, and due to disturbance of the water body bed and banks from construction plant, will be temporary and localised and will be minimised by mitigation contained within the CEMP and SWMP, which are included as standalone documents in the planning application pack.

Once the dry working areas are constructed, they will be sealed from additional runoff and any water that enters the area will be pumped to treatment prior to being discharged back to the water body downstream of the works.

Additionally, given the scale of the proposed crossings in relation to the overall water body scale, combined with the temporary and localised impacts during construction, there is not anticipated to be impacts at the water body scale. Therefore, residual impacts are predicted to be Imperceptible. However, if over-pumping methods are utilised to provide a dry working area all pumps will be fish friendly.

At the current design stage, it is unknown the form of which the permanent crossing of Dunboyne Stream_010 will take. This will be subject to options appraisal during detailed design.

Impacts associated with the water body crossing will be permanent and local to the crossing footprint. However, they could migrate upstream / downstream as a result of unsympathetic design. The design of the crossing will therefore adhere to the mitigation measures outlined in Chapter 12 (Hydrology) in Volume 2 of the EIAR (specifically Section 12.5.2.1 and/or Section 12.5.2.2, depending on the crossing type selected at detailed design). This will reduce and offset the localised impacts such that no impacts at the water body scale are anticipated.

1.6.3 Water Quality

Consideration is also given as to whether phytoplankton status and harmful algae could be affected by the Proposed Development, as well as identifying the potential risks of using, releasing or disturbing chemicals. Table 6 presents a summary of water quality considerations and associated risk issues of the Proposed Development works for the transitional water body.

Table 6: Water Quality Scoping Summary

Assessment Questions	Tolka_020	Dunboyne Stream_010	Pinkeen_010	Ward_020	Ward_010	Ward_030	Sluice_010	Mayne_010
Consider if your activity could affect water clarity, temperature, salinity, oxygen levels, nutrients or microbial patterns continuously for longer than a spring neap tidal cycle (about 14 days)?	**Construction** – Yes: Potential for increased silty runoff and sediment during construction as a result of open cut trenching crossing techniques. Dry working areas or temporary diversions (as described in Chapter 12 (Hydrology) in Volume 2 of this EIAR) will be installed to reduce potential impacts to imperceptible. Operation – No: The cable and associated infrastructure at water body crossings will operate below ground and will not interact with the surface water environment.							
Consider if your activity is in a water body with a phytoplankton status of moderate, poor or bad?	Waterbody does not have a phytoplankton status of moderate, poor or bad							
Consider if your activity is in a water body with a history of harmful algae?	No history of harmful algae							
If your activity uses or releases chemicals (for example through sediment disturbance or building works) consider if the chemicals are on the Environmental Quality Standards Directive (EQSD) list?	**Construction** – No: Sediment disturbance will occur in the construction of the open cut trench crossings, joint bays and passing bays within the existing road infrastructure. Excavation of road material has the potential to contain substances contained within the EQSD list. The pathway to the receptor will d be via runoff. However, the watercourses will be sealed from outside runoff at the crossing location by the dry working area. Any runoff from the road would be contained within roadside drains which will be maintained, and where it is required. Where required temporary drainage will be provided to ensure appropriate runoff from the new road surface. Additionally, sediment control measures will be implemented as outlined in Section 12.5 of Chapter 12 (Hydrology) in Volume 2 of this EIAR to reduce the likelihood of silt runoff entering watercourses.							

Assessment Questions	Tolka_020	Dunboyne Stream_010	Pinkeen_010	Ward_020	Ward_010	Ward_030	Sluice_010	Mayne_010
If your activity has a mixing zone (like a discharge pipeline or outfall) consider if the chemicals released are on the Environmental Quality Standards Directive (EQSD) list?	No mixing zones anticipated.							
Consider if ancillary sources of discharge contribute to water quality status (e.g., Urban Waste Water Treatment Plant (UWWTP), Surface Water Overflow (SWO), Combined Sewer Overflow (CSO) etc.)	Yes. The study area is known to contain sources of known pressures including UWWTP SWOs and CSOs and several Industrial Licensed Emissions. However, the Proposed Development does not include any new discharge points and will not impact the flow or volume of current surface water drainage.							

1.6.3.1 Water Quality Impact Assessment

Risk to receptors occurs as result of silty runoff entering the water bodies, leading to a decrease in overall water quality as a result of increased turbidity, a reduction in dissolved oxygen, changes in pH and decreased water clarity. However, these impacts will be temporary (over the length of the Construction Phase at each water body crossing location) and localised. Additionally, any impacts can be mitigated using provisions to decrease and prevent silty runoff entering water bodies by applying construction best practices. These mitigation measures are outlined in the CEMP and SWMP (which are included as standalone documents in the planning application pack). Therefore, there are no significant overall changes to water quality elements assessed.

1.6.4 Protected Areas

Consideration should be made regarding whether WFD protected areas are at risk from a proposed activity. As the protected areas considerations indicate that a risk could be associated with the works, this receptor has been scoped into the impact assessment. Table 7 presents a summary of protected area considerations and associated risk issues of the works.

Table 7: Protected Areas Scoping Summary

WFD Assessment Questions	Nature Conservation Designations	Bathing Waters	Nutrient Sensitive Areas	Shellfish Waters
Consider if your activity is within 2km of any WFD protected area?	There are no designated sites within 2km of the Proposed Development	There are no bathing water sites within 2km of the Proposed Development.	The Liffey Estuary is designated a nutrient sensitive area and it is directly impacted by the Proposed Development. There are no other designated nutrient sensitive areas within 2km of the Proposed Development.	There are no shellfish waters within 2km of the Proposed Development

There are no WFD protected areas within 2km of the Proposed Development. However, downstream protected areas are potentially exposed to risk if there were to be a pollution incident (i.e., releasing hydrocarbons or sediment) in rivers adjacent to or crossed by the Proposed Development.

Dry working areas at the crossing locations will seal the water bodies off from their downstream elements. Any water pumped out of the dry working area will be treated to acceptable levels prior to discharge. Any runoff from the road crossings and Passing Bay locations will be captured by the existing or temporary drainage networks. Silty runoff prevention methods will be employed to minimise the risk of increased sediment loadings entering water bodies. Any sediment or potential contaminants will be significantly diluted prior to reaching protected areas that area located more than 2km downstream of the proposed works areas. Based on the above, no impacts to hydrologically connected downstream protected areas are anticipated during construction.

In addition, the Natura Impact Statement (NIS) (included as a standalone document in the planning application pack) for the Proposed Development concludes:

> *"Based on the best available scientific information and professional judgement, it is considered that with the mitigation measures detailed in the NIS, there will be no adverse effects on the integrity of those European sites, alone or in-combination with other plans or projects in light of those European sites' conservation objectives."*

During operation, the majority of the Proposed Development will operate below-ground with the exception of the upgrades at both Woodland and Belcamp Substations (refer to Chapter 4 (Proposed Development Description) in Volume 2 of the EIAR for further details on these locations). Additionally, there will be no new outfalls as part of the Proposed Development. Therefore, no operational impacts on downstream protected areas are anticipated.

1.6.5 Invasive Species

Consideration has been given to whether there is a risk that the Proposed Development could introduce or spread invasive species. Risks of introducing or spreading Invasive Non-Native Species (INNS) include materials or equipment that have come from, had use in, or travelled through other water bodies, as well as activities that help spread existing INNS, either within the immediate water body or other water bodies. Table 8 presents a summary of INNS considerations and associated risk issues of the Proposed Development.

Table 8: Invasive Species Scoping Summary

WFD Assessment Questions	Tolka_020	Dunboyne Stream_010	Pinkeen_010	Ward_020	Ward_010	Ward_030	Sluice_010	Mayne_010
Introduction or spread of IS.	No. No existing INNS identified. All plant will be subject to biological controls.				Yes – See Section 1.6.5.1 below this table for further details.			No. No existing INNS identified. All plant will be subject to biological controls.

1.6.5.1 Ward 20, Ward 30 and Sluice_010

The above water bodies contain INNS which were identified within 150m of the Proposed Development during ecological site walkover surveys. Further details on the identified species are provided in Table 9.

Table 9: Identified Invasive Species Locations

Common Name	Scientific Name	Location (GR)	Description	Associated Water Body
Giant Hogweed	*Heracleum mantegazzianum*	O 12480 45878	Mature 5x1m stand in a refuse pile.	Ward_030
		O 12516 45903	Juvenile individuals scattered throughout refuse pile.	
Japanese knotweed	*Reynoutria japonica*	O 02047 43698	Signposted area for Japanese Knotweed.	None – opposite side of the road from the Tolka_020 and therefore would not interact with the Proposed Development
		O 16226 44571	Mature 30x3m stand in a private landowner's back garden.	Sluice_010
Rhododendron	*Rhododendron ponticum*	O 05661 45435	1x1m individual growing over a river.	Ward-020
Spanish bluebell	*Hyacinthoides hispanica*	O 13457 44625	Scattered along a road verge.	Ward_030
		O 13256 44709	Scattered along a road verge.	
Three-cornered leek	*Allium triquetrum*	N 95657 44458	Stands scattered along road verge underneath a mature treeline.	Not associated with a WFD designated waterbody

The above INNS identified in Table 9 are located in areas where works are unlikely to disturb them. Additionally, biological controls for all plant and machinery will be in place and adhered to, as outlined in the CEMP and the Invasive Species Management Plan, which is included as Appendix E to the CEMP, and both are included as standalone documents in the planning application pack. Therefore, the risk of spreading INNS is assessed as Imperceptible.

1.6.6 Assessment Summary

The site-specific impacts of the Proposed Development on the biological, physico-chemical and hydromorphological quality elements of the water bodies are shown in the assessments in the sections above and summarised in Table 10.

Table 10: Scoping Summary

Receptor	Potential Risk to Receptor?	Note the Risk Issue(s) for Impact Assessment
Hydromorphology	Yes. Reduced to no following mitigation.	Temporary localised risks as a result of silty runoff from construction entering water bodies and open cut trench crossings of water bodies. Permanent localised risk during operation as a result of a new water body crossing on Dunboyne Stream_010. See Section 1.6.3.
Biology: habitats	Yes	Potential for localised permanent habitat loss under Dunboyne Stream_010 water body crossing footprint (dependant on crossing type selected) . See Section 1.6.2
Biology: fish	Yes. Reduced to no following mitigation.	Construction works sedimentation, temporary culverting. See Section 1.6.2.
Water quality	Yes. Reduced to no following mitigation.	Construction works and sedimentation, release of contaminated sediments. N/A. See Section 1.6.3.
Protected areas	No	N/A. See Section 1.6.4.
Invasive species	No	N/A. See Section 1.6.5.

1.7 Assessment of Programmes and Measures

There is a list of measures, or environmental improvements, which have been identified by the draft RBMP (DHLGH 2021) (known as the Programme of Measures (PoMs)), which need to be implemented in order to improve the ecology of water bodies by a specified date in order for Ireland to meet the target date set by the WFD. Part of the WFD compliance assessment is to consider these PoMs and assess whether the Proposed Development can contribute to them or prevent any of them from being delivered.

The PoMs refers to a set of actions and initiatives outlined to achieve and maintain good water status. These measures are designed to address any pressures or challenges identified in the river basin and promote sustainable water management. Broadly, the PoMs fall into one of the following categories:

- Water Quality Management: Implementing strategies to monitor and improve water quality, addressing issues such as pollution from various sources;
- Habitat Restoration: Initiatives focused on restoring and protecting natural habitats within the river basin, contributing to overall ecosystem health;
- Flow Management: Ensuring sustainable water flow regimes to support aquatic ecosystems and maintain ecological balance;
- Land Use Planning: Integrating water management considerations into land use planning to minimise negative impacts on water resources;
- Community Engagement: Involving local communities and stakeholders in water management efforts, raising awareness and encouraging sustainable practices;
- Infrastructure Upgrades: Implementing improvements to existing infrastructure to enhance water management and reduce negative environmental impacts;
- Climate Change Adaptation: Developing measures to address the potential impacts of climate change on water resources and ecosystems; and
- Monitoring and Assessment: Establishing robust monitoring systems to continually assess the effectiveness of implemented measures and adjust strategies accordingly.

The Proposed Development will not contribute to achieving any of the above PoMs, nor will it hinder their implementation.

1.8 Cumulative Assessment

All water bodies within the study area have been assessed for direct impacts. In addition, the Proposed Development has been assessed for the potential for cumulative impacts with other Proposed Projects, either individually, or in combination with the Proposed Development, within 1km of the Planning Application

Boundary (refer to Chapter 20 (Cumulative Impacts and Environmental Interactions) in Volume 2 of the EIAR for full details of this assessment).

This concludes that the Proposed Development will not compromise the achievement of the objectives of the WFD for any water body, in-combination with other proposed developments, following the implementation of mitigation measures outlined within this EIAR (refer to Chapter 21 (Summary of Mitigation and Monitoring Measures) and the CEMP, which is included as a standalone document in this planning application pack.

1.9 Assessment of the Proposed Development Against WFD Objectives: and Other EU Legislation

Taking into consideration the anticipated impacts of the Proposed Development on the biological, physico-chemical and hydromorphological quality elements, following the implementation of design and mitigation measures, it is concluded that it will not compromise progress towards achieving GES, or cause a deterioration of the overall GEP, of any of the water bodies that are in scope (refer to Table 11).

Table 11: Compliance of the Proposed Development with the Environmental Objectives of the WFD

Environmental Objective	Proposed Development	Compliance with the WFD Directive
No changes affecting high status sites.	There are no waterbodies with high status in the study area.	Yes
No changes that will cause failure to meet surface water good ecological status or potential or result in a deterioration of surface water ecological status or potential.	After consideration as part of the detailed compliance assessment, the Proposed Development will not cause deterioration in the status of the water bodies during construction following the implementation of mitigation measures; during operation, no significant impacts are predicted.	Yes
No changes which will permanently prevent or compromise the Environmental Objectives being met in other water bodies.	The Proposed Development will not cause a permanent exclusion or compromise achieving the WFD objectives in any other bodies of water within the River Basin District.	Yes
No changes that will cause failure to meet good groundwater status or result in a deterioration groundwater status.	The Proposed Development will not cause deterioration in the status of the groundwater bodies.	Yes

The WFD also requires consideration of how a new development might impact on other water bodies and other EU legislation. This is covered in Articles 4.8 and 4.9 of the WFD.

Article 4.8 states:

> *"a Member State shall ensure that the application does not permanently exclude or compromise the achievement of the objectives of this Directive in other bodies of water within the same river basin district and is consistent with the implementation of other Community environmental legislation."*

All water bodies within the study area have been assessed for direct impacts. The Proposed Development will not compromise achievement of the objectives of the WFD for any water body in the study area. In addition, the Proposed Development has been assessed for the potential for cumulative impacts with other Proposed Projects, either individually, or in combination with the Proposed Development, within 1km of the Planning Application Boundary (refer to Chapter 20 (Cumulative Impacts and Environmental Interactions) in Volume 2 of the EIAR for full details of this assessment). This concludes that the Proposed Development will not compromise the achievement of the objectives of the WFD for any water body, in-combination with other proposed developments, following the implementation of mitigation measures outlined within this EIAR (refer to Chapter 21 (Summary of Mitigation and Monitoring Measures) and the CEMP, which is included as a standalone document in this planning application pack. Therefore, the Proposed Development complies with Article 4.8.

The Habitats Directive promotes the maintenance of biodiversity by requiring Member States to take measures to maintain or restore natural habitats and wild species listed on the Annexes to the Habitats Directive at a favourable conservation status, introducing robust protection for those habitats and species of European importance. There are European designated sites in the vicinity of the Proposed Development which have been assessed and are presented in the NIS (included as a standalone document in the planning application pack). It concludes that the Proposed Development will not, by itself or in combination with any other plan or project, result in an adverse effect on the integrity of any European site. The Proposed Development is not considered to be a risk to designated habitats, and therefore, is compliant with the Habitats Directive.

The Nitrates Directive aims to protect water quality by preventing nitrates from agricultural sources polluting ground and surface waters and by promoting the use of good farming practices. The Proposed Development will not influence or moderate agricultural land use or land management.

The revised BWD was adopted in 2006, updating the microbiological and physico-chemical standards set by the original BWD and the process used to measure / monitor water quality at identified bathing waters. The revised BWD focuses on fewer microbiological indicators, whilst setting higher standards, compared to those of the BWD. Bathing waters under the revised BWD are classified as excellent, good, sufficient or poor according to the levels of certain types of bacteria (*intestinal enterococci* and *Escherichia coli*) in samples obtained during the bathing season (May to September). The Proposed Development will not impact any designated bathing waters, as there are none located within the study area, and is therefore compliant with the revised BWD.

1.10 Conclusion

Taking into consideration the impacts of the Proposed Development on the biological, physico-chemical and hydromorphological quality elements, it is concluded that with design and mitigation measures implemented, the Proposed Development will not compromise progress towards achieving GES or GEP or cause a deterioration of the overall status of the water bodies that are in scope. It will not compromise the qualifying features of protected areas and is compliant with other relevant Directives. In addition, there are no cumulative impacts with other proposed plans or projects. It can therefore be concluded that the Proposed Development is fully complaint with WFD and does not require assessment under Article 4.7 of the WFD.

1.11 References

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Directives and Legislation

Council Directive (76/160/EEC) Bathing Water and revised (2006/7/EC).

Council Directive 91/676/EEC concerning the protection of waters against pollution caused by nitrates from agricultural sources (Nitrates Directive).

Council Directive 91/271/EEC of 21 May 1991 concerning urban waste-water treatment.

Council Directive 91/271/EEC of 21 May 1991 concerning urban waste-water treatment.

Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora.

Council Directive 98/83/EC of 3 November 1998 on the quality of water intended for human consumption.

Directive 2000/60/EC of the European Parliament and of the Council establishing a framework for the Community action in the field of water policy.

Directive 2009/147/EC of the European Parliament and of the Council of 30 November 2009 on the conservation of wild birds.

Directive 2014/52/EU of the European Parliament and of the Council of 16 April 2014, amending Directive 2011/92/EU of the European Parliament and the Council of 13 December 2011 on the assessment of the impacts of certain public and private projects on the environment.

S.I. No. 722/2003 – European Communities (Water Policy) Regulations 2003.

S.I. No. 268/2006 - European Communities (Quality of Shellfish Waters) Regulations 2006.

S.I. No. 9/2010 - European Communities Environmental Objectives (Groundwater) Regulations 2010.

S.I. No. 272/2009 - European Communities Environmental Objectives (Surface Waters) Regulations 2009.

S.I. No. 350/2014 - European Union (Water Policy) Regulations 2014.

S.I. No. 351/2011 - Bathing Water Quality (Amendment) Regulations 2011.

S.I. No. 477/2011 - European Communities (Birds and Natural Habitats) Regulations 2011.