MWP

Natura Impact Statement (NIS)

Mill Farm Solar 110kV Substation

Document Reference: 23991-6005-B

Client: Mill Farm Solar Project Ltd.

April 2024

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Summary of Findings

Project Title	Natura Impact Statement (NIS) for the Application for a 110kV Substation at Ricetown, Co. Meath
Project Proponent	Mill Farm Solar Project Ltd.
Project Location	Ricetown, County Meath
Natura Impact Statement	In cases where an Appropriate Assessment is required, a NIS is prepared and includes a report of a scientific examination of evidence and data, carried out by competent persons to identify and classify any implications of a project, individually, or in combination with other plans or projects, for Natura 2000 sites in view of the conservation objectives of the site.
Conclusion	This NIS has been prepared in order to provide a sufficient level of information to the competent authority, on which to base an Appropriate Assessment of the proposed development at the location specified above. The NIS comprises a scientific examination of evidence and data, carried out by competent persons, that identifies and classifies the implications of the proposed development, independently, or in combination with other plans or projects, for Natura 2000 sites in view of the conservation objectives of those sites. Provided that the mitigation measures, identified in **Section 7** are implemented in full, it is concluded, beyond a reasonable scientific doubt, that the proposed development, either individually, or in combination with other plans/projects, will not adversely impact the integrity of the Natura 2000 site, selected for inclusion in this NIS, in light of the conservation objectives of those sites. The sites are: • River Boyne and River Blackwater SAC (Site code: 002299) • River Boyne and River Blackwater SPA (Site code: 004232)

1. Introduction

1.1 Purpose of the Assessment

Mill Farm Solar Project Ltd. (the "applicant") is applying to An Bord Pleanála (ABP) for planning permission for the development of 1 No. 110kV onsite Eirgrid substation with associated electrical plant, 2 No. Over Head Line (OHL) End Mast structures, electrical equipment, security palisade fencing, an IPP building and a transformer (the "proposed development"), associated with an approved Solar PV Development (the "permitted development") at Ricetown Co. Meath (the "proposed development site").

A screening for Appropriate Assessment (AA) Report was produced in order to identify potential impacts on designated Natura 2000 sites present in the Zone of Influence (ZOI) arising from the proposed development. The Screening determined that one number European Site: the River Boyne and River Blackwater SPA (004232) would not be significantly impacted by the proposed works. It was determined that the project, in the absence of specific mitigation measures may impact the qualifying interests of River Boyne and River Blackwater SAC (Site code: 002299), Dundalk Bay SAC (Site code: 000455) and/or Dundalk Bay SPA (Site code: 004232) and that it should proceed to Stage 2 of the Appropriate Assessment process. Refer to Appendix 1 for the full Screening for Appropriate Assessment report.

MWP have prepared of a Natura Impact Statement (NIS) to provide the competent authority with the relevant information to conduct an Appropriate Assessment of the project, with regards to its impact on the conservation objectives of the above site. The adjacent Solar PV development, approved by Meath County Council (MCC) under reference number 22/1044 on 14th February 2023, was also subject to Appropriate Assessment for which a Natura Impact Statement was prepared.

The approved development consists of:

'Permission for a period of 10 years to construct and complete a Solar PV development with a total site area of circa 97.05 hectares, to include solar panels mounted on steel support structures, associated cabling and ducting, 12 No. Transformers, 1 No. Temporary Construction Compound, 1 No. Storage Container, maintenance tracks, perimeter fencing and gates, 61 No. CCTV, 4 No. Weather Stations, 3 No. Bunds associated landscaping and ancillary works, with an operational life of 40 years.'

The Solar Development will have the energy capacity to power approximately 20,000 homes. The proposed 110kV substation, which is the subject of this report, will be connected to the National Grid by looping into 110kV overhead powerlines above the site. The proposed substation will be surrounded on three sides by the solar farm and on the south by the existing 110kV powerline and agricultural lands.

1.2 Statement of Competency

This NIS has been prepared by Roman Puotkalis (MSc, BSc), Environmental Consultant at MWP. Roman has been working in the environmental sector since 2019. He has completed numerous environmental and ecological reports for a range of projects across Ireland including AA Screening Reports, Natura Impact Statements, Construction Environmental Management Plans and environmental compliance monitoring and reporting.

The ecological field surveys were completed by Orla van der Noll (MSc, BSc) Ecologist at MWP. Orla has been working in the ecology sector since March 2021 where she has completed numerous ecological reports for a range of projects across Ireland. In 2020 Orla qualified with a first-class honours Master's degree in Marine Biology from Bangor University, Wales, and a Bachelors (hons) degree in Ecology and Environmental Biology from University College Cork in 2018. Orla is registered with the Chartered Institute of Ecology and Environmental Management (CIEEM) as a Qualifying member.

1.3 Project Overview

The proposed development site comprises agricultural land on a site of approximately 3.6Ha within the townland of Ricetown approximately 12 km north of Navan, Co. Meath.

It is proposed to construct a 110kV loop-in substation and associated works in the townland of Ricetown, County Meath to connect the permitted Mill Farm Solar Project to the National Grid. The proposed site layout drawing (**Figure 3-4**) shows substation infrastructure, internal access tracks and overhead grid connection.

The proposed development will comprise:

- A 110 kilovolt (kV) Air Insulated Switchgear (AIS) loop-in substation with associated compound, including control and operational buildings, electrical plant, equipment, cabling, lighting, CCTV, lightening masts, drainage infrastructure, security palisade fencing, and all associated and ancillary works necessary to facilitate the development.
- Erection of 2 no. overhead line end masts (c. 20m high) and 2 no. lattice gantries (c. 16m high) and associated overhead cabling to enable a loop-in/loop-out grid connection to National grid via the existing the Meath Hill-Gorman 110kV overhead powerlines located above the site.

The works will include site drainage and permanent signage associated with the new construction. The road layout for the proposed project makes use of the existing onsite access road and tracks, associated with the adjacent permitted solar farm development, where possible. The proposed development is compatible and does not in any way impede or alter the permitted Mill Farm Solar Farm.

There will be a requirement to excavate approximately 7,000m^3 of clean, natural topsoil and subsoil. This material will be reused, where feasible, to create berms and used for landscaping on the adjacent permitted solar farm site. Excess clean soil material will be deposited permanently in 2 No. soil deposition areas (1,600m^2) located adjacent to the western boundary of the site.

Where surplus material is to be reused on the adjacent permitted solar farm site as a by-product (not as a waste), this will be done in accordance with Article 27 of the European Communities (Waste Directive) Regulations 2011 (S.I. No. 126 of 2011) (as amended) and having regard for the Circular Economy and Miscellaneous Provisions Act 2022 and any such legislative requirements that may be required later.

1.3.1 Proposed 110kV Substation Compound

The overall substation compound will have an area of c.11,572m^2 divided into two adjoining sections: an EirGrid section (c. 9,262m^2 in area) and an IPP (Independent Power Producer) section (c. 2,310 m^2 in area), each of which are enclosed within a 2.6m high palisade fence. An additional outer concrete post and rail fence (1.4m in height) will be installed around the perimeter of the EirGrid compound.

Each section will contain a control building and an outdoor electrical yard including electrical equipment such as electrical pylons, over and underground ducting & cables, busbars, disconnects, breakers, sealing ends, lightning and lighting masts. The IPP section will also contain 1 No. bunded transformer with a back up emergency diesel generator and associated diesel storage tank also located within the bund. Both buildings will be a block built single story building approximately 6.5m in height, with pitched roof and an external blockwork and plastered finish.

The overall substation compound will consist of a 50mm compound stone finish. The max height of the substation is 8.55m. 10 No. Lightning masts of 18m high will be erected within the compound.

1.3.2 Overhead loop-in Grid Connection

The electrical connection required from the proposed substation development will be facilitated by Overhead 110kV Loop-in Interface Masts. The erection of 2 No. Over Head Line (OHL) End Mast structures (c. 20m high) are required under the existing Meath Hill-Gorman 110kV OHL. There is also a requirement for the installation of 2 No. lattice gantries (c. 16m high).

The existing OHL will be terminated and 2 new towers will be erected to create 2 new OHL circuits. The new interface mast structure locations are to be selected based on ground surveys, ground profiles, allowable angles and ruling span checks. A foundation is excavated for each tower location and the placement of excavation material is temporarily stored in designated deposition areas. Any excess excavation material will be utilised as berms, deposited at the permanent deposition area and for landscaping purposes on the adjacent permitted solar farm. Reinforcing bars are placed into each excavation and the body of each tower assembled adjacent to the excavation. Concrete is poured directly into each excavation and allowed to cure until a preformed metal panel is set in place. The foundations are then backfilled individually. At this stage, the existing OHL is de-energized and construction of the 2 towers take place. An earth mat is laid and is a requirement for the electrical connection of the tower. A hardstand area is made available for the use of a crane to guide and position each section of the towers together. Once all sections of the towers are bolted securely the conductor can be centred and installed. All other associated equipment such as down dropper conductors and shackles are positioned before the electrical circuit can be tested in both directions to confirm OHL is re-energised.

1.3.3 Drainage

Foul sewage from the temporary facilities will be routed to covered precast concrete watertight 5m^3 tanks designed for receiving and storing sewage with no outlet. The tanks will be sized to suit the expected use and will be installed in a location remote from water courses. Contents and residues will be regularly emptied by a competent operator for safe disposal to an approved treatment works.

Surface water runoff from the roofs of the substation buildings, and hard-surfaced areas within the electrical yard, including areas where a risk of a contaminant leak or spill may be present (such as the transformer bund), will be collected in a series of filter drains, roof guttering and downpipes and routed to an underground gravity drainage network. All runoff collected in the stormwater sewer network will pass through an oil/petrol Interceptor prior to discharging to an attenuation unit on the north-eastern side of the compound. The attenuation unit will provide attenuation of the increased volumes of surface water runoff generated from the hard surfaces of the development when compared to the current greenfield condition. The attenuated surface water runoff is then proposed to overflow at a controlled rate equal to the greenfield runoff rate to an existing vegetated land drain on the southern side of the compound.

1.3.4 Construction Compound

A suitably surfaced contractor's temporary construction compound and laydown area will be provided for the duration of the site works on the permitted adjacent Solar Farm. The construction compound will consist of temporary site offices, equipment storage and construction staff welfare facilities, as well as car parking areas for staff and visitors. A potable water supply will be provided by a water tanker.

1.4 Legislative Context

The Habitats Directive (92/43/EEC) seeks to conserve natural habitats of wild fauna and flora by the designation of Special Areas of Conservation (SACs) and the Birds Directive (79/409/EEC) seeks to protect birds of special importance by the designation of Special Protection Areas (SPAs). It is the responsibility of each member state to designate SPAs and SACs, both of which form part of Natura 2000, a network of protected sites throughout the European Community. The Habitats Directive has been transposed into Irish law and the relevant Regulations are the European Communities (Birds and Natural Habitats) Regulations 2011. The requirement for Appropriate Assessment of the implications of plans and projects on the Natura 2000 network of sites comes from the Habitats Directive (Article 6(3)).

Under the European Communities (Birds and Natural Habitats) Regulations 2011, the Competent Authority is required to carry out a screening for Appropriate Assessment of a proposed development prior to issuing consent to assess, in view of best scientific knowledge and the sites conservation objectives, if that project or plan, individually or in combination with other plans or projects, is likely to have a significant effect on a Natura 2000 site. The screening for Appropriate Assessment will determine whether an Appropriate Assessment of the proposed development is required.

If it cannot be excluded, on the basis of the above objective information, that the proposed development will have a significant effect on a Natura 2000 site, then Appropriate Assessment of the proposed development is required and in this case a NIS must be prepared.

The information presented in this NIS will be used by the Competent Authority, in this case ABP, to assist them in undertaking their own screening for Appropriate Assessment of the proposed development.

1.5 Stages of Appropriate Assessment

The Appropriate Assessment process is a four-stage process with issues and tests at each stage. The purpose of the screening assessment is to record in a transparent and reasoned manner the likely effects on Natura 2000 sites of a proposed development. An important aspect of the process is that the outcome at each successive stage determines whether a further stage in the process is required. The stages are set out in Appendix 2. This proposed development has proceeded as far as Stage 2.

2. Methodology

2.1 Appropriate Assessment Guidance

This NIS has been undertaken in accordance with the European Commission Methodological Guidance on the provision of Article 6(3) and 6(4) of the Habitats Directive 92/43/EEC (EC, 2001), the European Commission Guidance '*Managing Natura 2000 Sites*' (EC, 2018), and '*Appropriate Assessment of Plans & Projects - Guidance for Planning Authorities'* prepared by the NPWS (DoEHLG, 2010).

2.2 Desktop Study

In order to complete the NIS certain information on the existing environment is required. A desk study was carried out to collate available information on the proposed development site's natural environment. This comprised a review of the following publications, data and datasets:

- Ordnance Survey Ireland (OSI) Aerial photography and 1:50000 mapping

- National Parks and Wildlife Service (NPWS) on-line datasets and literature
- National Biodiversity Data Centre (NBDC) (on-line mapping)
- BirdWatch Ireland on-line resources
- Teagasc soil area maps (NBDC website)
- Geological Survey Ireland (GSI) area maps
- Environmental Protection Agency (EPA) water quality data and on-line mapping
- Eastern River Basin District (ERBD) datasets (Water Framework Directive)
- Review of requested records from NPWS Rare and Protected Species database
- Meath County Development Plan 2021 - 2027[1]
- Other information sources and reports footnoted in the course of the report
- NIS prepared as part of the planning application for the adjacent permitted solar farm.

2.2.1 Data Requests and Database Searches

The proposed development area lies within the Ordnance Survey Ireland (OSI) National Grid hectad N88. Concise and site-specific information on species records available in this hectad was retrieved from the National Biodiversity Data Centre (NBDC) online database and reviewed.

On the 6th of October 2023, a request was made to NPWS for Sensitive Data Access for hectad N88. Data for species records within the hectad was received from the NPWS on the 11th October 2023 and was used to help inform the impact assessment in relation to the proposed development.

Information received via the NPWS and the NBDC in response to the data requests and database searches was used to help inform the baseline surveys and impact assessment in relation to the proposed development.

2.3 Field Surveys

The desk top study was supplemented by multi-disciplinary ecological walkover survey of the study area. The ecological field survey was undertaken at the proposed development site on the 20th September 2023 by MWP ecologists to establish the site's ecological features and resources, particularly any rare/protected species and habitats occurring within the study area. The survey was carried out to assess the habitat of the study area and identify any ecological features and resources that may potentially be impacted by the proposed development. The study area included all habitats within the site boundary (see **Figure 3-1** below).

Summaries of the field survey methodologies employed are provided in the following sub-sections.

2.3.1 Habitats and Flora

Baseline habitat and flora surveys were carried out as part of the MWP multi-disciplinary ecological walkover surveys (20th September 2023) and were undertaken within the optimum flora survey period. The habitat surveys had regard to '*Best Practice Guidance for Habitat Survey and Mapping*' (Smith *et al*., 2011) and '*A Guide to*

[1] https://www.meath.ie/council/council-services/planning-and-building/development-plans/meath-county-development-plan Accessed: 5th October 2023

Habitats in Ireland' (Fossitt, J. A., 2000). Habitats within the study area were categorised to Level 3 according to Fossitt (2000).

Habitats occurring were assessed for their potential suitability for faunal species such as otter.

2.3.2 Non-native/Invasive Species

The presence of Invasive Alien Plant species (IAPS) including species listed on the Third Schedule of the European Communities (Birds and Natural Habitats) Regulations 2011 (SI 477 of 2011, as amended) was determined within the study area during the initial multi-disciplinary ecological walkover surveys undertaken by MWP.

2.3.3 Otter

Walkover surveys for mammals including otter were undertaken by MWP within the study area on the 20th September 2023. With regard to otter, the survey had a particular focus on any watercourses occurring within or next to the study area, as outlined in 'Monitoring the Otter *Lutra lutra*' (Chanin, 2003).

2.4 Assessment of Potentially Significant Effects

Following the completion of the screening for AA report, (see Appendix 1) it was concluded that the project is likely to have a significant effect, or significant effects cannot be ruled out at Stage 1 on the following Natura 2000 sites:

- River Boyne and River Blackwater SAC (Site code: 002299)
- Dundalk Bay SAC (Site code: 000455)
- Dundalk Bay SPA (Site code: 004232)

Reasons for Conclusion:

- There is an indirect hydrological connection between the proposed development site and two Natura 2000 sites.
- Otter (*Lutra lutra*) are a qualifying feature of the River Boyne and River Blackwater SAC. Otter are a highly mobile species and can hold territories from 2km to 20km. It is therefore likely that otter could potentially be present within the proposed development site. Potential impacts for otter including the loss of habitat, disturbance, fragmentation of habitat and pollution via water quality degradation from the proposed development cannot be ruled out.
- Significant water quality effects on Natura 2000 sites arising as a result of the proposed development are possible due to the topography and the short distance (c. 190m) from the Killary watercourse, there is a potential risk to the watercourse and the two Natura 2000 sites it connects with.

An evaluation was undertaken to determine which of the qualifying interests of the Natura 2000 sites potentially lie within the zone of influence of the project and required further assessment in the NIS (see Section 6.1.4).

The significance of the potential impacts that might arise from the project was identified through the use of key indicators (see Section 6.2):

- Water quality
- Habitat loss and alteration
- Disturbance and/or displacement of species

- Habitat or species fragmentation

The effects of the project on the qualifying interests of the Natura 2000 sites, potentially within the zone of influence of the proposed development, were then assessed against the measures designed to achieve the conservation objectives. This was done to determine whether the project was likely to have a significant effect on the conservation objectives, which in turn could have an adverse effect on the integrity of the Natura 2000 sites (see Section 6.2).

3. Description of Project

3.1 Site Location and Context

The proposed C. 3.6 ha development site is situated in a rural area approximately 12 km north of Navan, Co. Meath within the townland of Ricetown. The proposed development site is agricultural land utilised to grow crops. The site is elevated and the adjoining hinterland is gently undulating farmland (see **Plate 3-1**, below) with a few one-off dwellings nearby. There is a small section of woodland a few metres from the proposed development site to the southwest partially within the redline boundary (see **Plate 3-1**, below). There is a drainage ditch running along the southwest and southeast boundary of the agricultural field the proposed development site is located within. This drainage ditch may convey surface water towards the Killary Stream. A farmyard with cowsheds sits within 50m north of the proposed development site, and a decommissioned sand and gravel extraction pit exists approximately 650m northeast of the proposed development site.

The proposed substation development is located adjacent to the permitted Mill Farm Solar Project site. The neighbouring townlands include Stokesquarter, Painestown, Killary, Ricetown and the nearest small villages are Lobinstown (2km north-east) and Castletown K.P. (2.6km southwest), Co. Meath (see **Figure 3-1**, below). The nearest large towns are Navan (12 km south), Ardee in Co. Louth (12km north-east), Kells (14.5km southwest) and Drogheda (22.5km south-east).

Plate 3-1: View of the small woodland near the proposed development site (left) and a view of the undulating landscape of the adjoining hinterland (right), both as seen from the proposed development site.

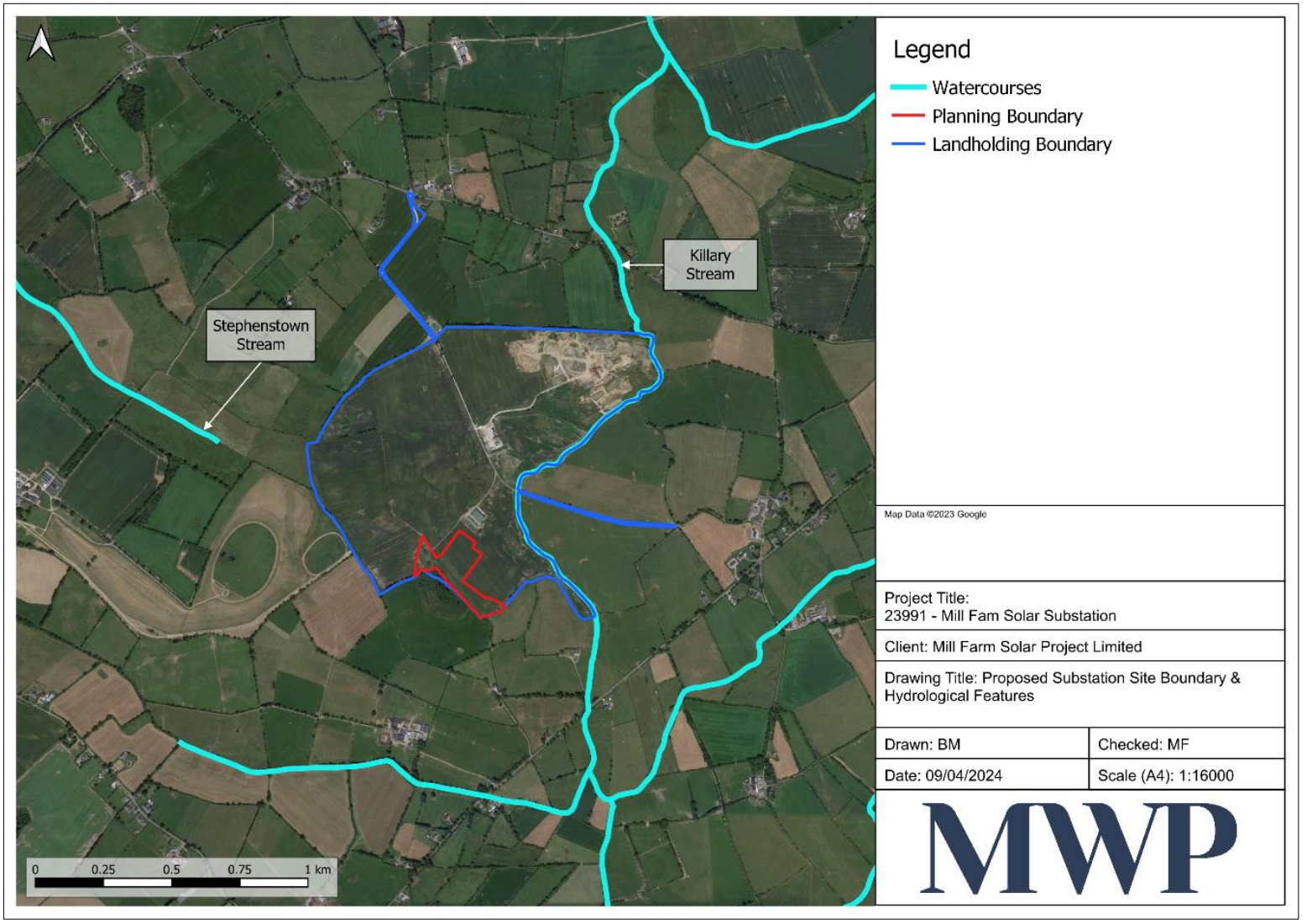

Figure 3-1: Aerial view of the proposed development site outlined in red shown with the permitted solar farm (outlined in blue).

3.2 Brief Project Description

The proposed development will comprise:

- A 110 kV AIS loop-in substation with associated compound, including control and operational buildings, electrical plant, equipment, cabling, lighting, CCTV, lightening masts, drainage infrastructure, security palisade fencing, and all associated and ancillary works necessary to facilitate the development.
- Erection of 2 no. overhead line end masts (c. 20m high) and 2 no. lattice gantries (c. 16m high) and associated overhead cabling to enable a loop-in/loop-out grid connection to National grid via the existing the Meath Hill-Gorman 110kV overhead powerlines located above the site.

The works will include site drainage and permanent signage associated with the new construction. The road layout for the proposed project makes use of the existing onsite access road and tracks, associated with the adjacent permitted solar farm development, where possible. The proposed development is compatible and does not in any way impede or alter the permitted Mill Farm Solar Farm.

There will be a requirement to excavate approximately 7,000m^3 of clean, natural topsoil and subsoil.. This material will be reused, where feasible, to create berms and used for landscaping on the adjacent permitted solar farm site. Excess clean soil material will be deposited permanently in 2 No. soil deposition areas (1,600m^2) located adjacent to the western boundary of the site.

Where surplus material is to be reused on the adjacent permitted solar farm site as a by-product (not as a waste), this will be done in accordance with Article 27 of the European Communities (Waste Directive) Regulations 2011 (S.I. No. 126 of 2011) (as amended) and having regard for the Circular Economy and Miscellaneous Provisions Act 2022 and any such legislative requirements that may be required later.

3.3 Purpose of the Project

The purpose of the proposed project is to develop a 110kV substation with associated electrical plant, electrical equipment, security palisade fencing, an IPP building and a transformer to serve the permitted solar farm development.

3.4 Description of Existing Site

3.4.1 General Site Description

The proposed development site is located within the Electoral Divisions (ED) of '006 Killary'. CSO data indicates that in 2016, '006 Killary' had a total population of 1,248[2] residents.

The CORINE (2018) landcover data series (available on EPA's interactive map viewer) indicates that landcover at the proposed development site is classified as 'Agricultural Areas, Arable Land, and Non-irrigated arable land' (Code: 211).

[2] https://visual.cso.ie/?body=entity/ima/cop/2016&boundary=C03786V04535&guid=2AE19629183F13A3E055000000000001

Plate 3-2: View of the site

According to the Geological Survey Ireland (GSI) online map viewer, the proposed development site is underlain predominantly by calcareous red-mica greywacke of the Clontail Formation.

Soils at the proposed development site are categorised predominantly as 'Fine loamy drift with limestones'. Subsoils at the proposed development site are classified as 'Limestone sands and gravels (Carboniferous)'.

The underlying GSI bedrock aquifer at most part of the site is categorized as 'Poor Aquifer - Bedrock which is Generally Unproductive except for Local Zones'.

The groundwater vulnerability of the aquifer is recorded as 'High Vulnerability'. The GSI define groundwater vulnerability as "a term used to represent the intrinsic geological and hydrogeological characteristics that determine the ease with which groundwater may be contaminated by human activities".

The proposed development site is not located within a Special Area of Conservation (SAC) or Special Protection Area (SPA) collectively known as Natura 2000 sites. SPAs and SACs occurring within the zone of potential influence of the proposed or that are considered to have a connection to the proposed development site are identified in Section 6.1 below.

3.4.2 Hydrology and Hydrogeology

The site lies within the Dee_SC_030 Water Framework Directive (WFD) Sub-Catchment (ID: 06_4) which is within the Newry, Fane, Glyde and Dee WFD Catchment (ID: 06). The EPA records the presence of three River Waterbodies near the proposed development site; 'Killary_Water_20' (European Code: IE_NB_06K010500), 'Killary_Water_10' (European Code: IE_NB_06K010100), and 'DEE_040' (European Code: IE_NB_06D010360) approximately 190m east, 680m south, and 840m northwest of the proposed site respectively (see Figure 3-2, below).

The River Waterbody WFD status of Killary_Water_020 for the 2016-2021 period was classified as 'Moderate' and it's WFD Risk status is categorised as 'At risk'. The River Waterbody WFD status of Killary_Water_010 for the 2016-2021 period was classified as 'Poor' and it's WFD Risk status is categorised as 'At risk'. The River Waterbody WFD status of DEE _040 for the 2016-2021 period was classified as 'Good' and it's WFD Risk status is categorised as 'Not at risk' The WFD River Waterbodies Risk Status represents the risk for each waterbody of failing to meet their Water Framework Directive (WFD) objectives by 2027.

All data relating to water features was obtained from the Environmental Protection Agency (EPA) interactive map viewer.

The nearest EPA river water quality monitoring stations to the proposed development site are the 'Killary Br Upper' and 'Killary Br Lower', both located along the Killary (Water) (segment code: 06_1603). The most recent (2020) evaluation for each station indicates that the watercourse is considered to have biological water quality value, or Q value, of 'Moderate status', indicating that the river condition is unsatisfactory, and slightly polluted. This evaluation is based on the composition and abundance of the invertebrate community in the stream at this location.

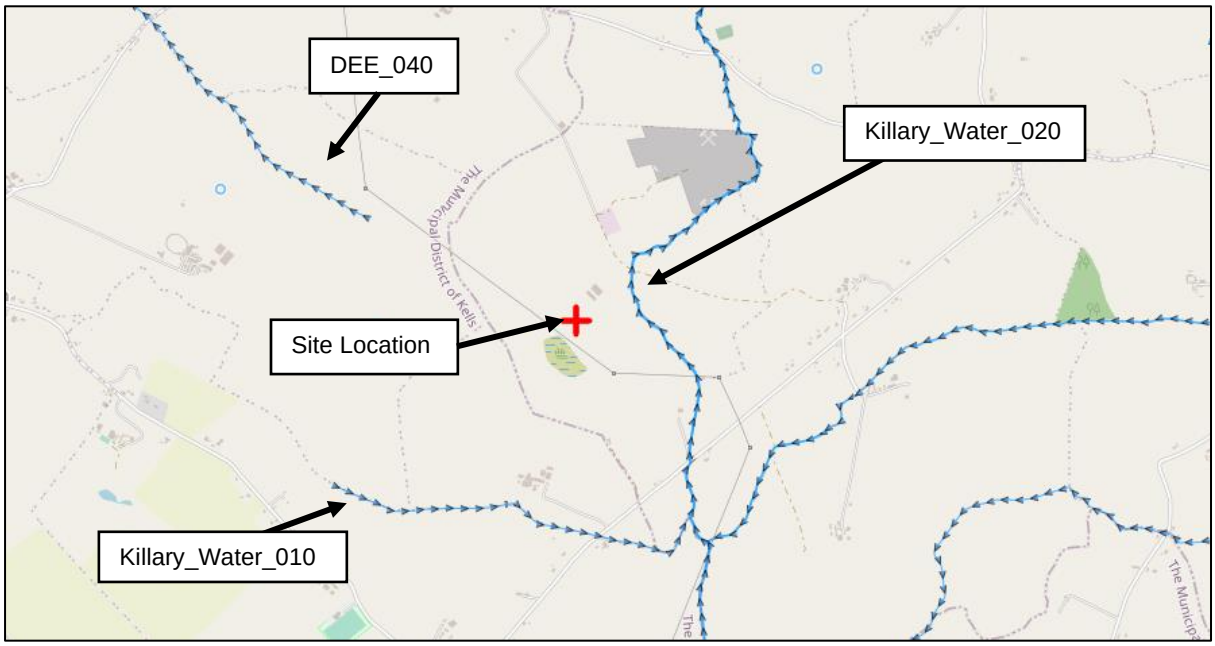

Figure 3-2: Watercourses within the vicinity of the proposed development site (Adapted from EPA map viewer)

3.4.3 Habitats and Flora

The majority of the footprint of the proposed development site is **Arable crops (BC1)**. A **Drainage Ditch (FW4)** and **Wet Willow-Alder-Ash Woodland (WN6)** are partially located within the proposed development site on the southwest, **Hedgerow (WL1)** borders the south of the proposed development, and **Arable crops (BC1)** border the rest of the site boundary. **Buildings and Artificial Surfaces (BL3)**, in the form of farm shed buildings, are found within 50m to the northeast of the site boundary. **Watercourse (FW2)** habitat in the form of the Killary Water occurs to the east (see **Figure 3-3** below).

Plate 3-3: Arable Crops (BC1) habitat (left). Common poppy was abundant throughout the site (right).

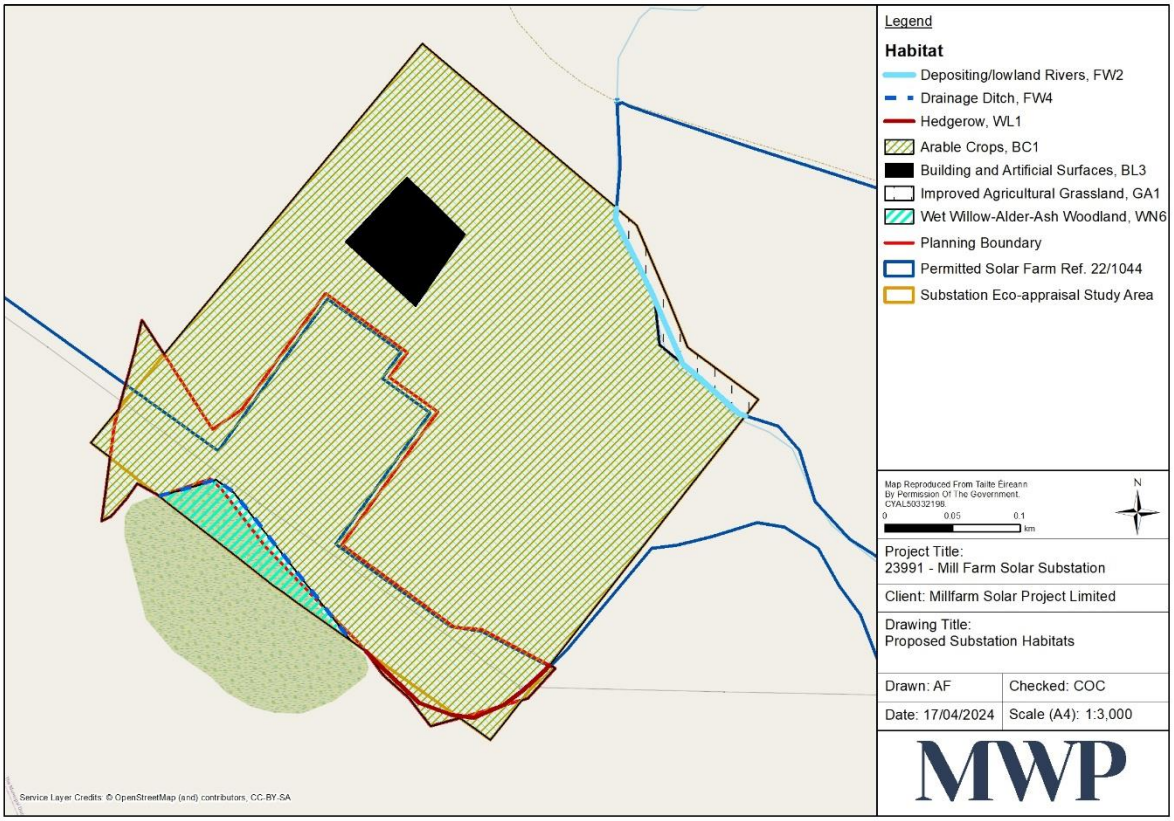

Figure 3-3: Habitat map of the proposed development site and study area

3.4.3.1.1 Arable crops (BC1)

Arable crops (BC1) covers the majority of the footprint of the proposed development site. This habitat is cultivated and managed for the production of arable crops. This land was used to produce cereal crops. This habitat is considered to be of low ecological value. Common poppy (*Papaver rhoeas*), a typical flora species found within the habitat, was abundantly present on site. Horsetail (*Equisetum* spp.) was also present in this habitat indicating the potential presence of Wet grassland (GS4) habitat if the land was not utilised for agriculture.

3.4.3.1.2 Drainage Ditches (FW4)

A drainage ditch was recorded within the southwest and southeast of the proposed development site. This habitat category includes artificially constructed linear water bodies or wet channels. The drainage ditches on site contained stagnant water and were wet enough to support wetland vegetation. In this habitat water levels typically undergo seasonal fluctuations. The drainage ditch within the study area was approx. 1.5m to 2m in width, and approx. 1m to 2m deep. Plant life found in the ditch included wetland species such as horsetail (*Equisetum* spp.), and yellow flag iris (*Iris pseudacorus*).

3.4.3.1.3 Wet Willow-Alder-Ash Woodland (WN6)

This habitat is located partially within the proposed development site boundary to the southeast. The woodland is approximately 2.26Ha. This broad habitat category describes woodlands of permanently waterlogged sites that are dominated by willows (*Salix spp*.), alder (*Alnus glutinosa*) or ash (*Fraxinus excelsior*), or by various combinations of some or all of these trees. The species identified in the woodland near the proposed development site were willows and alder.

3.4.3.1.4 Buildings and Artificial Surfaces (BL3)

This broad category incorporates areas of built land and includes all buildings (domestic, agricultural, industrial and community). It also includes areas of land that are covered with artificial surfaces of tarmac, cement. For the proposed development this habitat represents the agricultural buildings found near the proposed development site. Farm sheds and associated concrete surfaces found near the proposed development site fall under this habitat category.

3.4.3.1.5 Depositing/lowland River (FW2)

The Killary Water occurs within 190m of the proposed development site boundary, and runs through the permitted solar farm development. An existing access road to the proposed development site includes a crossing point at this watercourse (see Plate 3-4, below). This habitat category includes watercourses, or sections of these, where fine sediments are deposited on the riverbed. Depositing conditions are typical of lowland areas where gradients are low and water flow is slow and sluggish. These rivers vary in size but are usually larger and deeper than those above. In a natural state these rivers erode their banks and meander across floodplains. Because of this, most have been modified to some extent to control water flow, facilitate navigation or prevent flooding and erosion. Plant and animal communities are influenced by numerous factors including substratum type, water force, nutrient status, water quality, channel size, water depth, human impact, disturbance and shade.

The Killary Water has been drained as part of an arterial drainage scheme. The Office of Public Works (OPW) are responsible for maintaining drained channel. The OPW reference code for the Killary Water to the east of the proposed development site is C2(28). This reach of the river was found to be of trapezoidal cross section and physically modified, with generally low physical heterogeneity.

Plate 3-4: Depositing/lowland River (FW2) and access road watercourse crossing to the site

3.4.3.1.6 Hedgerows (WL1)

Hedgerows (WL1), of predominantly hawthorn (*Crataegus monogyna*) and bramble (*Rubus fruticosus*), border the proposed development site. Hedgerows are typically composed of linear strips of shrubs, with the occasional tree. Hedgerows typically form boundaries of property or fields. The hedgerow onsite are low in biodiversity and are kept short.

3.4.4 Invasive Species

During MWP multi-disciplinary ecological field surveys of the site, no invasive alien plant species (IAPS) listed under the Third Schedule of the European Communities Regulations 2011 (S.I. 477 of 2015) were recorded.

Documented NBDC records of high/medium impact invasive species listed on the Third Schedule of the European Communities (Birds and Natural Habitats) Regulations 2011 (SI 477 of 2011, as amended) exist within the hectad N88. Hectad records exist for five high-impact species and one medium-impact species. Four of the IAPS are listed on the Third Schedule of the European Communities (Birds and Natural Habitats) Regulations 2011 (SI 477 of 2011, as amended) (see Table 3-1, below).

Table 3-1: Desktop records of non-native/invasive species of flora within hectad N88.

Species Common Name	Scientific name	Closest Species Record to Development Site	Invasiveness NBDC[3]	Listed on Regulation S.I. 477[4]
Canadian Waterweed	*Elodea canadensis*	Approximately 6.2 km north of the proposed development site	High impact	Third Schedule listed
Cherry Laurel	*Prunus laurocerasus*	Approximately 8.1 km northwest of the proposed development site	High impact	No
Giant Hogweed	*Heracleum mantegazzianum*	Approximately 6.8 km north of the proposed development site	High impact	Third Schedule listed
Japanese Knotweed	*Fallopia japonica*	Approximately 3.7 km northwest of the proposed development site	High impact	Third Schedule listed
Rhododendron	*Rhododendron ponticum*	Approximately 8.1 km northwest of the proposed development site	High impact	Third Schedule listed
Sycamore	*Acer pseudoplatanus*	Approximately 3.7 km north of the proposed development site	Medium impact	No

3.4.5 Otter

There are nine documented records held by the NBDC, and nine records held by the NPWS of otter within the hectad N88. None of these records are within the proposed development site. The closest of these otter records is 1.2 km northeast of the proposed site boundary[5].

There were no watercourses or evidence of otter (including breeding or resting sites) recorded within the site boundary of the proposed development site during the ecological field survey. The Killary watercourse that flows past the site is not within the site boundary and at its closest point is approximately 190m from the proposed development site (see **Figure 3-2** in **Section 3.4.2**, above). The habitat within the site is considered to be sub-optimal for otter and is likely to be restricted to commuting otter. The stream and area around the watercourse offers suitable foraging and commuting habitat for otter.

3.5 Characteristics of the Project

Characteristics of the proposed development are provided in **Table 3-2**.

The Site Layout is shown in **Figure 3-4.** Please refer to the Planning Drawings which accompany the application for further details.

[3] Species Profile Browser · Species Profile (biodiversityireland.ie)
[4] Third Schedule of the European Communities (Birds and Natural Habitats) Regulations 2011 (SI 477 of 2011, as amended)
[5] https://maps.biodiversityireland.ie/Map (Accessed 21/07/2023)

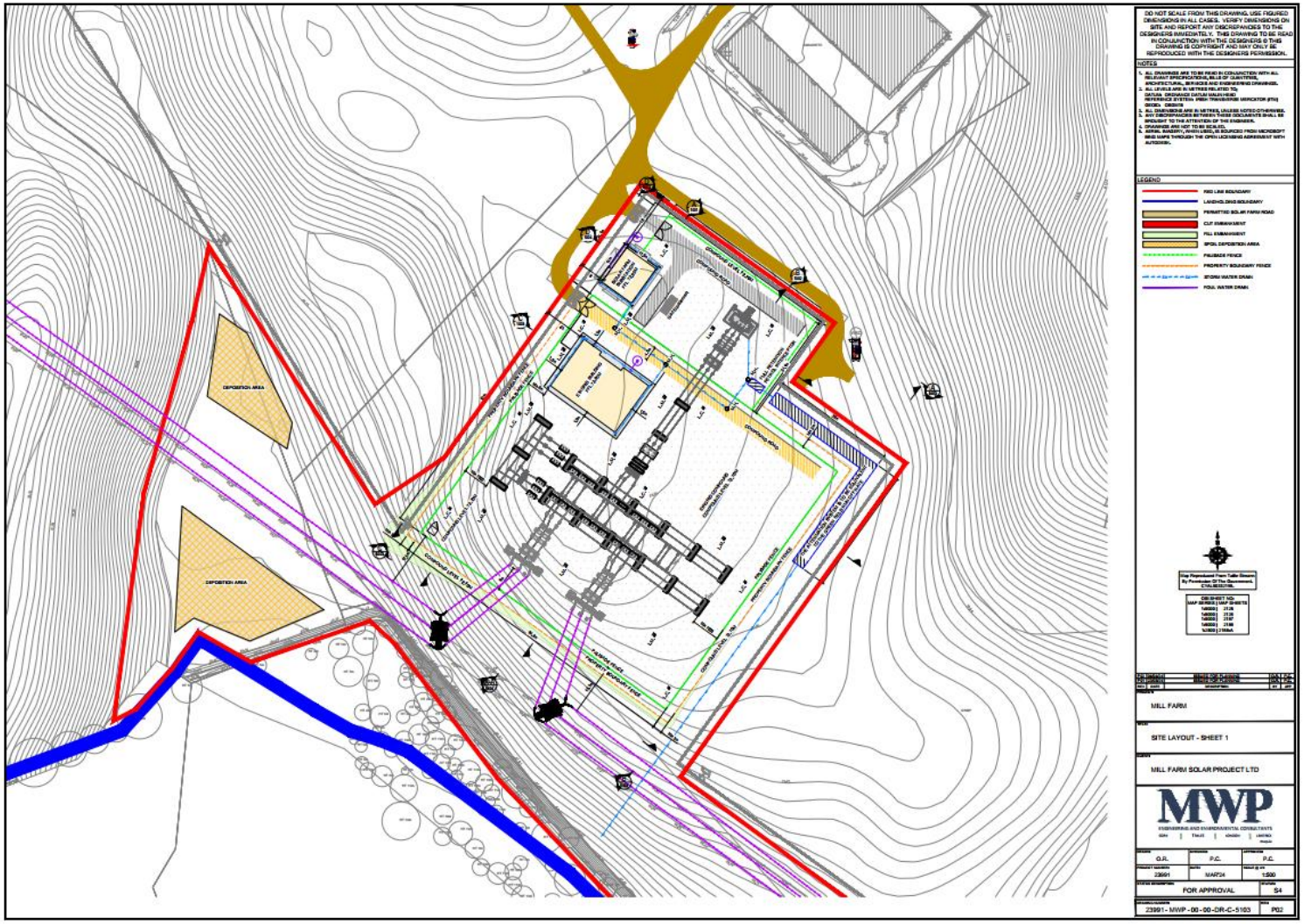

Figure 3-4: Proposed Site Layout

Table 3-2: Characteristics of the proposed development

Size, scale, area, land-take	The compound will consist of 1 No. 110kV onsite Eirgrid substation with associated electrical plant, electrical equipment, security palisade fencing, an IPP building and a transformer. The overall compound will have an area of c.11,572m^2 divided into two adjoining sections: an EirGrid section (c. 9,262m^2 in area) and an IPP (Independent Power Producer) section (c.2,310m^2 in area), each of which are enclosed within a 2.6m high palisade fence. An additional outer concrete post and rail fence (1.4m in height) will be installed around the perimeter of the EirGrid compound. Each section will contain a control building and an outdoor electrical yard including electrical equipment such as electrical pylons, over and underground ducting & cables, busbars, disconnects, breakers, sealing ends, lightning and lighting masts. The IPP section will also contain 1 No. bunded transformer with a back up emergency diesel generator and associated diesel storage tank also located within the bund. Both buildings will be a block built single storey building approximately 6.5m in height, with pitched roof and an external blockwork and plastered finish. The overall substation compound will consist of a 50mm compound stone finish. The max height of the substation is 8.55m. 10 No. Lightning masts of 18m high will be erected within the compound. The electrical connection required from the proposed substation development will be facilitated by Overhead 110kV Loop-in Interface Masts. The erection of 2 No. OHL End Mast structures (c. 20m high) are required under the existing Meath Hill-Gorman 110kV 110kV OHL. There is also a requirement for the installation of 2 No. lattice gantries (c. 16m high). There is no spatial overlap with any Natura 2000 site; therefore, there will be no land take within any Natura 2000 site.
Details of physical changes that will take place during the various stages of implementing the proposal	<u>Preliminary Works</u> • Site investigation and establishment of demarcation works and benchmarks prior to commencement of any physical works. • Completion of detailed ground investigations. • Installation of suitable protection measures (e.g. silt curtain) around the development site boundaries to control and treat any run-off.

	• Track clearing, grubbing and removal of surface vegetation/soil removal (topsoil/sub-soil/shrubs) using excavator and dump-truck. Topsoil will be stripped to agreed depths in conjunction with site specifications and design drawings before careful segregation of the material and transportation to an agreed temporary deposition point. <u>Construction Phase Works – Substation</u> • Use of temporary construction compound within the permitted solar farm site. The compound will include a bunded storage area and an enclosed wastewater management system with a holding tank. • Construction of new entrance and open-graded stone track to facilitate access to the proposed substation site. Construction activities will include vegetation clearing, topsoil stripping, excavation, placement of geogrid/geotextile layer and aggregate, compaction, grading, and landscaping. Topsoil/vegetative removal will be kept to a minimum to minimise silt/sediment runoff during heavy rainfall. • The granular fill to be used for the access track or widening works will be delivered to the required work area and spread out locally with the use of excavators on top of the geogrid/geotextile material. This will be compacted with the use of a roller which will roll the stone aggregate in maximum 250 mm layers to achieve the required design strength. • A drainage system will be installed along all internal site access roads, storage areas, substation hardstand areas and temporary construction compound with the permitted solar farm site to attenuate run-off, guard against soil erosion and safeguard downstream water quality. The system will include check dams, settlement ponds, silt traps, and an attenuation pond adjacent to the temporary compound areas. • Substation compound will be marked out with ranging rods or wooden posts and topsoil stripped and removed to temporary storage area for later use in landscaping. • Bulk excavation of the substation site will be carried out using tracked excavators while dump/tipper trucks will transport excavated material to a designated temporary on-site storage area for future use. Imported stone will be placed over the excavated area and compacted to agreed formation level. • To facilitate installation of the control building, transformer, transformer bund, HV/LV equipment, lighting and ancillary equipment, it will be necessary to construct concrete bases or plinths. This will involve excavation to correct level and use of in-situ reinforced concrete or precast concrete.

	• Earth mats will be installed within the substation compound which will have earth electrodes buried to between approximately 0.6 m and 1 m below finished ground level. • Blockwork walls for the control building will be built up and the floor slab constructed. Roof slabs and timber roof trusses will be lifted into position using an adequately sized mobile crane (or telescopic loader) before the roof trusses are finally felted, battened, tiled and sealed against the weather. Major electrical equipment will then be installed along with palisade fencing around the compound perimeter.
Description of resource requirements for the construction/operation and decommissioning of the proposal (water resources, construction material, human presence etc)	<u>Construction Resources</u> Mechanical machinery and electrical equipment typically used for construction projects will be required to facilitate the proposed development. The following is a non-exhaustive list of plant that is typically heavy civil engineering work and may be used in this proposed development: • 30-50T Excavators; • 15-30T Excavator; • Rubber Tired 15-20T Excavator; • 3-10T Mini Diggers; • Low Ground Pressure Excavators (Bog master); • Mobile Crane for construction; • Telescopic Handler; • Tractors and trailers; • Road grader; • Double contained fuel bowsers; • 12T Rollers; • Diesel powered generators; and

	• Water bowsers. The following is a non-exhaustive list of materials, and approximate quantities, that are expected to be used during the construction phase: <u>Materials</u> • Imported stone for access road; • Concrete; • Reinforced steel. <u>Labour</u> Typically, 20 construction employees will be present on site daily for the duration of the works. This will fluctuate from time to time as different phases of the construction take place and specialist services such as electricians or landscaping are required. A suitably surfaced contractor's temporary construction compound and laydown area will be provided for the duration of the site works on the permitted adjacent Solar Farm. The construction compound will consist of temporary site offices, equipment storage and construction staff welfare facilities, as well as car parking areas for staff and visitors. Container storage units will be provided for holding tools and materials. The compound will be fenced with chain-link fencing on wooden posts and will have a lockable gate. A potable water supply will be provided by a water tanker. Foul sewage from the temporary facilities will be routed to covered precast concrete watertight 5m^3 tanks designed for receiving and storing sewage with no outlet. The tanks will be sized to suit the expected use and will be installed in a location remote from water courses. Contents and residues will be regularly emptied by a competent operator for safe disposal to an approved treatment works.
Description of timescale for the various activities that will take place as a result of implementation (including likely start and finish date)	It is expected that the development will commence upon receipt of planning permission. It is estimated that the duration of the construction works will be approximately 14-18 months. The proposed hours of work on site will be stipulated in the planning conditions attached to the planning grant. Any working hours outside the normal construction working hours will be agreed with the Local Authority.

	Construction working hours will be limited to 7.00am to 7.00pm Monday to Friday and from 8.00am to 2.00pm on Saturdays with no work on Sundays. All traffic movements will be carried out between the hours of 7.00am to 7.00pm Monday to Friday and from 8.00am to 2.00pm on Saturdays . Outside of these times works are limited to: •Commissioning and testing; and •Works required in an emergency where there is the potential of harm or damage to personnel, plant, equipment, or the environment, Deliveries will also be scheduled to avoid peak times where relevant, e.g. avoiding rush hours and after school pick up times. The working day may extend at times when critical elements of work need to be advanced. Longer working days can occur when there is a planned concrete pour etc. In the event that activities outside of normal working time are needed, the Contractor shall prepare a suitable Method Statement and the Contractor will seek the approval of the Local Authority and if required, the directly affected residents/other.
Description of wastes arising and other residues (including quantities) and their disposal	<u>Construction Phase Waste</u> Miscellaneous/incidental waste materials will be generated during construction including concrete, pallets, packaging, spare steel reinforcement, shuttering timber, food waste, unused oil, and building materials. Waste will be collected at regular intervals during the construction phase and taken off site by licenced waste contractor to be reused, recycled and disposed of in accordance with best practice procedures at an approved facility. Plastic waste will be removed for recycling by an approved contractor and disposed or recycled at an approved facility. <u>Spoil</u> There will be a requirement to excavate approximately 7,000m^3 of clean, natural topsoil and subsoil. This material will be reused, where feasible, to create berms and used for landscaping on the adjacent permitted solar farm site. Excess clean soil material will be deposited permanently in 2 No. soil deposition areas (1,600m^2) located adjacent to the western boundary of the site. Vegetation, green waste will be removed by licenced waste contractor to an authorised green waste facility. <u>Effluent</u> The project will utilise an enclosed wastewater management system at the temporary site construction compound located within the permitted solar farm development capable of managing demand during the construction phase.

	Wastewater from on-site welfare facilities will drain to the wastewater holding tanks associated with the toilet units. When required, the stored effluent will be collected by a permitted waste contractor and removed from the site to an appropriately authorised waste facility for treatment and disposal. <u>Other Construction Phase Wastes/Residues</u> Fuels/oils - Waste oil & waste oil drums will be collected and stored in containers on bunded tray at the temporary construction compound with the permitted solar farm sites. <u>Waste Management Plan</u> A Construction and Environmental Management Plan (CEMP) which includes procedures for management of all wastes has been developed and will be implemented for the duration of the works. As part of this, individual waste streams will be identified at source and stored in dedicated skips for subsequent disposal to licensed landfill or to recycling. A Surface Water Management Plan is also included in the CEMP and describes detailed measures for the management of all surface water and run-off on the site, for the protection of watercourses and in particular, sediment and erosion control.
Identification of wastes arising and other residues (including quantities) that may be of particular concern in the context of the Natura 2000 network	• Wastewater and effluent from temporary onsite welfare facilities. • Fuels/oil/lubricants associated with plant and machinery. • Concrete associated with construction and cable laying. • Spoil from excavations
Description of any additional services required to implement the project or plan, their location and means of construction	The temporary construction compound within the permitted solar farm site will be used for construction phase car parking, a secure storage area for construction materials, waste materials and also contain temporary site accommodation units to provide welfare facilities for site personnel. Facilities will include offices, meeting rooms, a canteen and a drying room. A bunded containment area will be provided within the construction compounds for the storage of lubricants, oils and site generators etc. A designated lined concrete wash-out area will be installed within the temporary compounds to facilitate washing of concrete mixer chutes only. Washing of concrete mixer barrels will not be permitted. A self-contained port-a-loo with an integrated waste holding tank will be used on site for toilet facilities. This will be maintained by the Contractor on a regular basis and will be removed from the site on completion of the construction phase. Foul sewage from the temporary

	facilities will be routed to covered precast concrete watertight 5m^3 tanks designed for receiving and storing sewage with no outlet. The tanks will be sized to suit the expected use and will be installed in a location remote from water courses. Contents and residues will be regularly emptied by a competent operator for safe disposal to an approved treatment works. Prior to construction commencing consultation with Meath County Council will take place to discuss and agree measures related to traffic management, waste management and diversions or road closure required to facilitate the works.

4. Identification of Potential Impacts

Potential likely direct, indirect or secondary ecological impacts arising from the proposed development (either alone or in combination with other plans or projects) are identified in Tables 4-1 and 4-2.

Table 4-1: Description of elements of the proposed development likely to give rise to potential ecological impacts

Construction Phase
• Human presence: Sustained increase in human activity (Increased human activity, noise, lighting, dust) during daylight hours for the duration of the works • Increased noise and air emissions associated with construction activity • Site set-up, mobilisation, ground clearance • Excavation works • Construction activity • Temporary surface water flow management systems for specific engineering elements as required at various locations • Importation/Stockpiling of material • Generation of waste/spoil/construction run-off • Use of plant, machinery, tools etc • Use of fuels/oils/lubricants/chemicals/concrete/cementitious material • Temporary storage of excavated spoil • Erection of substation. Introduction of large physical structure in a previously unoccupied space
Operational Phase
• Increased human presence, activity, noise from staff • Operational and maintenance works
Decommissioning Phase
• Increased human activity, increased noise and air emissions. • Permanent disassembly and removal of substation and substation components. • Permanent disposal and storage of excavated materials. • Temporary site compound.

Table 4-2. Direct, indirect or secondary ecological impacts of the construction and operational phases (either alone or in combination with other plans or projects) which have the potential for having significant effects

Describe any likely direct, indirect or secondary ecological impacts of the project (either alone or in combination with other plans or projects) by virtue of: • *Size and scale;* • *Land-take;* • *Distance from Natura 2000 Site or key features of the Site;* • *Resource requirements;* • *Emissions;* • *Excavation requirements;* • *Transportation requirements;* • *Duration of construction, operation etc.; and* • *Other.*	There is no overlap with any Natura 2000 site or direct hydrological connection between the proposed development site and any Natura 2000 site. **Construction Phase** Habitat loss/alteration/fragmentation • There will be direct habitat loss/alteration (low value habitat) within the construction works footprint, but no overlap with Natura 2000 sites (no loss of Annex I qualifying habitat. Water quality Impacts may potentially occur through: • Erosion and run-off of sediment and silt from excavation areas, disturbed ground, plant and machinery etc. into nearby drainage ditch • Use of chemical herbicides for treatment of invasive plant species. • Ingress of fuels/oils, cementitious material, or other such substances to groundwater via leaching. • Use of on-site temporary toilets and washing facilities. Species disturbance/displacement Impacts to habitats and species may potentially occur through: • construction noise/vibration/lighting. • increased human presence. • impacts on prey availability. • loss of and alteration of breeding/resting/foraging/commuting or other required habitat **Operational Phase** Water quality • Increase in stormwater runoff. Species disturbance/displacement Impacts may potentially occur through: • increased human presence/noise. • increased light levels. • indirect alteration of foraging/commuting habitat.

5. Identification of Other Projects or Plans or Activities

5.1 Plans

With regards to the potential for in-combination effects, the Meath County Development Plan (2021-2027) was considered. This Plan was adopted on the 22nd of September 2021 and came into effect on the 3rd of November 2021.

One element of this plan, within Volume 1, Chapter 10 – Climate Change Strategy, indicates a move towards the increase in renewable energy sources. This element is considered to have the potential to interact with the proposal in the context of potential in-combination effects. The objective of this element of the plan is to

encourage the uptake of more renewable energy sources 'by facilitating the development and exploitation of renewable energy sources such as solar, wind, geothermal, hydro and bio-energy at suitable locations within the County where such development does not have a negative impact on the surrounding environment (including water quality), landscape, and biodiversity'[6].

5.2 Permitted and Proposed Developments in the Locality

A search of Meath County Council's online planning enquiry system[7] for granted or on-going planning applications for the townland the proposed development site lies within, was undertaken on the 15th April 2024 (see **Table 5-1**, below). A planning application for a sand and gravel pit located within the permitted development site boundary was finalised in 2003 for sand and gravel processing but is no longer active. A planning application for a solar PV energy development to the southeast of the proposed development site was received by MCC on 27 November 2023.

Table 5-1: List of granted and/or on-going planning applications within the vicinity of townland of Ricetown within the last 5 years.

Application No.	Applicant	Location	Proposed Development	Decision	Grant Date
231082	Highfield Solar Limited	Killary, Lobinstown, Navan, Rathkenny , Navan, Co. Meath	the development will consist of a 10-year permission for the construction of a solar PV energy development within a total site area of approximately 131.93ha, to include solar PV panels ground mounted on steel support structures, electrical transformer/inverter station modules, storage containers, CCTV cameras, access tracks, fencing and associated electrical cabling, ducting and ancillary infrastructure. A Natura Impact Statement accompanies this application	Pending - Further Information Requested on 29/01/2024	n/a
221044	Mill Farm Solar Project Ltd	Stokesquarter, Painestown, Killary, Ricetown, Castletown K.P., Navan, Co. Meath	The development will consist of permission for a period of 10 years to construct and complete a Solar PV development with a total site area of circa 97.05 hectares, to include solar panels mounted on steel support on steel support structures, associated cabling and ducting, 12 No. Transformers, 1 No. Temporary Construction Compound, 1 No. Storage Container, maintenance tracks, perimeter fencing and gates, 61 No. CCTV, 4 No. Weather Stations, 3 No. Bunds associated landscaping and ancillary works, with an operational life of 40 years. The	Conditional	14/02/2023

[6] https://consult.meath.ie/en/consultation/meath-adopted-county-development-plan/chapter/10-climate-change-strategy
[7] https://www.eplanning.ie/MeathCC/SearchTypes

Application No.	Applicant	Location	Proposed Development	Decision	Grant Date
			application is accompanied by a Natura Impact Statement (NIS). Significant further information/revised plans submitted on this application.		
23465	Santrax Ltd	Stokesquarter/Ricetown, Lobinstown, Navan, Co. Meath	The construction of a machinery storage shed along with all ancillary site works.	Conditional	27/03/2024

5.3 EPA Licenced/Registered Facilities

A review of EPA licensed operators within the area located two licenced facilities within 10 km of the proposed development. The closest Industrial Emission Licensed (IEL) premises is 'C&N Oils Limited' (Licence No. P0043-01) at Ardcalf, Slane, Meath. This licenced facility is approximately 7.6 km southeast of the proposed development site. The second is 'College Proteins Unlimited Company' (Licence No. P0037-04) at College Road, Nobber, and is located approximately 9 km northwest of the proposed development site.

The Lobinstown Urban Wastewater Treatment (UWWT) Plant (Active License Number: A0052-01) is situated in Lobinstown, approximately 1.8 km east of the proposed development site. The Castletown UWWT Plant (Active License Number: A0044-01) is situated in Castletown, approximately 2.3 km west of the proposed development site. Neither of the plants have a hydrological connection to the proposed development.

In light of the characteristics of the proposed development site and its surrounds, being located within a rural area surrounded by agricultural land and having no hydrological connection with any EPA licenced/registered facilities, and considering the size and scale of the proposed development, it is not envisaged that the project has any potential for interaction with any EPA licences/registered facilities, which could result in significant in-combination effects on Natura 2000 sites. However, based on the precautionary approach, the potential for in-combination effects as a result of the proposed development will be evaluated in Section 6.2.4 below.

5.4 Existing Land-use and On-going Activities

Existing land-use within the proposed development site is agricultural. Due to the nature, scale and location of the project, significant in-combination effects with existing land-use and on-going activities are not anticipated. An assessment of the potential for significant in-combination effects is discussed further in Section 6.2.5 below.

6. Natura Impact Statement

6.1 Natura 2000 Sites within the zone of potential impact influence

It has been concluded in Stage 1 of the Appropriate Assessment that the construction of the proposed development at Ricetown, Co. Meath is likely to have a significant effect, or significant effects cannot be ruled out at this stage, on the three Natura 2000 sites listed in Table 6-1, below. The locations of these designated sites in relation to the proposed development site are shown on a map in Figure 6-1 below.

Table 6-1: Natura 2000 Sites rationale for inclusion in assessment

Designated Site	Site Code	Proximity of Designated Site to Nearest Point of Proposed development site	Rationale for inclusion in assessment
River Boyne and River Blackwater SAC	002299	10.2 km south	- Plausible impact pathways for otter have been identified as the proposed development site may be used by commuting otter
Dundalk Bay SAC	000455	24.5 km northeast	- An indirect hydrological connection to the proposed development site could exist that can impact qualifying features of this SAC. Also, there is potential for species displacement impacts via indirect impacts on water quality during the construction and operational phases.
Dundalk Bay SPA	004026	24.5 km northeast	- An indirect hydrological connection to the proposed development site could exist that can impact qualifying features of this SPA

Identifying a risk that could, in theory, cause an impact does not automatically mean that the risk event will occur or that it will cause or create an adverse impact. However, identification of the risk does mean that there is a latent possibility of ecological or environmental damage occurring, with the level and significance of the impact depending upon the nature of the risk, the extent of the exposure to the risk and the characteristics of the receptor. Therefore, bearing in mind the scope, scale, nature and size of the project, its location relative to the distribution of the species and habitats listed, and the degree of connectedness that exists between the proposed development and potential receptors, it is considered that not all are within the zone of potential impact of the proposed development.

An evaluation based on these factors to determine which species and habitats are the plausible ecological receptors for potential impacts of the unmitigated proposed development has been conducted below, for the proposed development. This evaluation determined the specific qualifying features of the Natura 2000 sites (listed below in Table 6-2), that should be selected for further assessment as plausible ecological receptors.

Table 6-2: Qualifying features of conservation interest of Natura 2000 sites included in this assessment

Designated Site	Site Code	Qualifying features of conservation interest
River Boyne and River Blackwater SAC	002299	• Alkaline fens [7230] • Alluvial forests with Alnus glutinosa and Fraxinus excelsior (Alno-Padion, Alnion incanae, Salicion albae) [91E0] • *Lampetra fluviatilis* (River Lamprey) [1099] • *Salmo salar* (Salmon) [1106] • *Lutra lutra* (Otter) [1355]
Dundalk Bay SAC	000455	• Estuaries [1130] • Mudflats and sandflats not covered by seawater at low tide [1140] • Perennial vegetation of stony banks [1220] • Salicornia and other annuals colonising mud and sand [1310] • Atlantic salt meadows (Glauco-Puccinellietalia maritimae) [1330] • Mediterranean salt meadows (Juncetalia maritimi) [1410]
Dundalk Bay SPA	004026	• Great Crested Grebe (*Podiceps cristatus*) [A005] • Greylag Goose (*Anser anser*) [A043] • Light-bellied Brent Goose (*Branta bernicla hrota*) [A046] • Shelduck (*Tadorna tadorna*) [A048] • Teal (*Anas crecca*) [A052] • Mallard (*Anas platyrhynchos*) [A053] • Pintail (*Anas acuta*) [A054] • Common Scoter (*Melanitta nigra*) [A065] • Red-breasted Merganser (*Mergus serrator*) [A069] • Oystercatcher (*Haematopus ostralegus*) [A130] • Ringed Plover (*Charadrius hiaticula*) [A137] • Golden Plover (*Pluvialis apricaria*) [A140] • Grey Plover (*Pluvialis squatarola*) [A141] • Lapwing (*Vanellus vanellus*) [A142] • Knot (*Calidris canutus*) [A143] • Dunlin (*Calidris alpina*) [A149] • Black-tailed Godwit (*Limosa limosa*) [A156] • Bar-tailed Godwit (*Limosa lapponica*) [A157] • Curlew (*Numenius arquata*) [A160] • Redshank (*Tringa totanus*) [A162] • Black-headed Gull (*Chroicocephalus ridibundus*) [A179] • Common Gull (*Larus canus*) [A182] • Herring Gull (*Larus argentatus*) [A184] • Wetland and Waterbirds [A999]

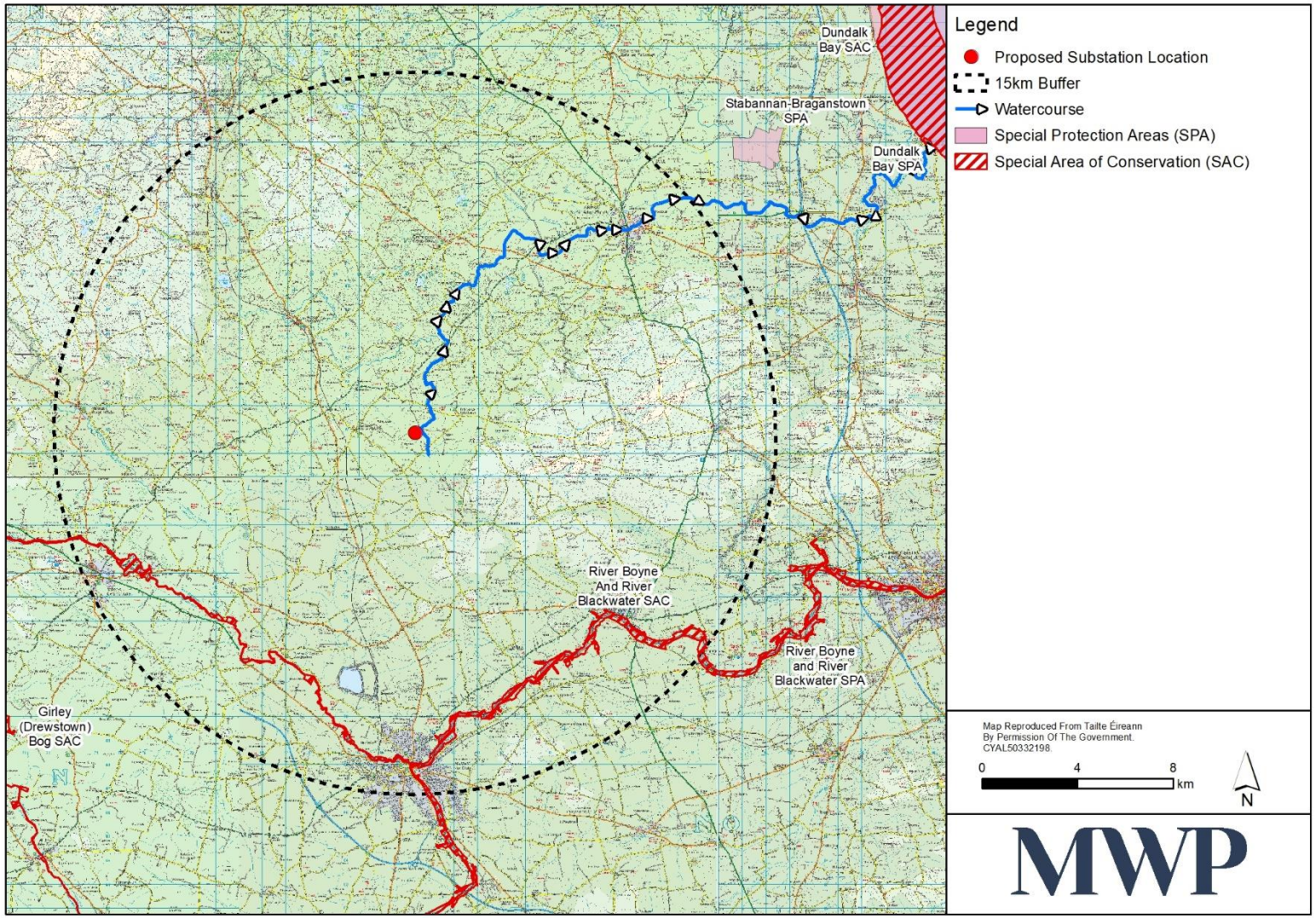

Figure 6-1: Natura 2000 sites within the ZOI of the proposed development site

6.2 River Boyne and River Blackwater SAC (002299)

River Boyne and Blackwater SAC is designated for the Annex I habitats outlined in Table 6-2.

6.2.1 Conservation Objectives for The River Boyne and Blackwater SAC

The overall objective is to maintain or restore the favourable conservation condition of the Annex I habitats for which the SAC has been selected (please refer to Table 6-2).

As outlined in the Conservation Objectives (2021) document:

'Favourable conservation status of a habitat is achieved when:

- Its natural range, and area it covers within that range, are stable or increasing, and;
- the specific structure and functions which are necessary for its long-term maintenance exist and are likely to continue to exist for the foreseeable future, and;
- the conservation status of its typical species is favourable.'

6.2.2 Character of the Qualifying Interests of River Boyne and Blackwater SAC

Table 6-3 outlines the qualifying interests of The River Boyne and Blackwater SAC and identifies the percentage of various habitat types within the SAC.

Table 6-3: Habitats present in River Boyne and Blackwater SAC

Habitat Code	Habitats of River Boyne and Blackwater SAC	Extent (%)
N10	Humid grassland, Mesophile grassland	10
N12	Extensive cereal cultures (including rotation cultures with regular fallowing)	8
N14	Improved grassland	22
N02	Tidal rivers, estuaries, mud flats, sand flats, lagoons (including saltwork basins)	1
N16	Broad-leaved deciduous woodland	2
N07	Bog, marshes, water fringed vegetation, fens	12
N08	Heath, scrub, maquis and garrigue, phygrana	4
N23	Other land (including towns, villages, roads, waste places, mines, industrial sites)	1
N12	Extensive cereal cultures (including rotation cultures with regular fallowing)	1
N20	Artificial forest monoculture (e.g. Plantations of poplar or exotic trees)	1
N09	Dry grassland, steppes	1
N19	Mixed woodland	7
N06	Inland water bodies (Standing water, running water)	30

6.2.3 Threats and Pressures on River Boyne and Blackwater SAC

The Natura 2000 form for River Boyne and Blackwater SAC outlines the following pressures and activities impacting the SAC:

Table 6-4: Threats, pressures and activities impacting the River Boyne and River Blackwater SAC

Code	Threats and Pressures	Rank	+/-	Inside/Outside
J02.11	Siltation rate changes, dumping, depositing of dredged deposits	M	-	I
C01.01	Sand and gravel extraction	M	-	I
A10.01	Removal of hedges and copses of scrub	M	-	I
EO2	Industrial and commercial areas	H	-	I
G05.06	Tree surgery felling for public safety, removal of roadside trees	L	-	I
A05.02	Stock feeding	M	-	O
A10.01	Removal of hedges and copses of scrub	M	-	I
E05	Storage of materials	M	-	I
J02.15	Other human induced changes in hydraulic conditions	H	-	I
I01	Invasive non-native species	H	-	I
D01.02	Roads, motorways	M	-	I
G02.10	Other sport/leisure complexes	M	-	I
A01	Cultivation	M	-	I
J02	Human induced changes in hydraulic conditions	M	-	I
B01.02	Artificial planting on open ground (non-native trees)	M	-	I

Code	Threats and Pressures	Rank	+/-	Inside/Outside
E03.02	Disposal of industrial waste	M	-	I
A07	Use of biocides, hormones and chemicals	M	-	I
E03.04	Other discharges	H	-	I
H01	Pollution to surface waters (limnic, terrestrial, marine and brackish)	H	-	I
G01	Outdoor sports and leisure activities, recreational activities	L	-	I
E01.04	Other patterns of habitation	M	-	I
D01.05	Bridge, viaduct	L	-	I
G05	Other human intrusions or disturbances	L	-	I
J02.10	Management of aquatic and bank vegetation for drainage purposes	M	-	I
A08	Fertilisation	M	-	I
J02.05.02	Modifying structures of inland water courses	H	+	I
A03	Mowing/cutting of grassland	M	+	I

6.2.4 Assessment of Likely Impacts Affecting River Boyne and River Blackwater SAC

The proposed development site is located approximately 10.2 km from the River Boyne and River Blackwater SAC, which has been designated for a number of important Annex I habitats and Annex II species (see Table 6-2 above). Ecological connectivity exists between this SAC and the proposed development site.

Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* and alkaline fens are both qualifying features of the River Boyne and River Blackwater SAC. Theses habitats are not found within the proposed development site boundary, and there is no hydrological pathway between the proposed development site and the SAC. There will be no loss or contamination of any of the qualifying habitats of the SAC from the proposed development. The proposed development will not result in significant adverse effects for qualifying habitat features of the SAC.

River lamprey (*Lampetra fluviatilis*) and Atlantic salmon (*Salmo salar*) are species confined to the aquatic environment. As the proposed development site has no direct hydrological connected to the SAC, the proposed development will not result in significant adverse effects for these two qualifying features of the SAC.

Otter (*Lutra lutra*) are a qualifying feature of the River Boyne and River Blackwater SAC. Otter are a highly mobile species and can hold territories from 2km to 20km. Most habitats within the proposed development site are considered to be sub-optimal for otter, as these are predominantly agricultural grassland, bound by hedgerows and treelines. Therefore, use of the proposed development site is likely to be restricted to commuting otter. The Killary stream offers suitable habitat for otter. Potential impacts for otter include the loss of habitat, disturbance, fragmentation of habitat and pollution.

Loss of habitat directly under the proposed development footprint will be low, and will mainly comprise agricultural grassland, which is of low value for otter.

Mitigation measures have been included for the proposed development to prevent pollution entering the aquatic environment. These are outlined in Section 7 below.

6.2.5 In-combination Effects

As well as singular effects, the potential for in-combination effects also need to be considered. A cumulative impact arises from incremental changes caused by other past, present or reasonably foreseeable future actions together with the proposed development. The proposal was considered in combination with other relevant plans, projects and activities in the area, identified in Section 5.2 above.

No significant cumulative impacts are predicted with the Meath County Development Plan as the plan has a range of environmental and natural heritage policy safeguards in place. These safeguards that protect the natural environment and Natura 2000 Sites will also apply to the proposal described in this report.

The majority of planning applications within the area of the proposal are small residential or agricultural developments. The planning developments listed in Table 5-1, in Section 5.2, above include the permitted development and another proposed solar farm (Killary Solar Farm) which both have mitigation measures in place to ensure no impacts to the connected designated sites occur. Planning permission for the permitted development has been granted on the basis that it will not cause harm to any designated sites. Planning permission for the Killary Solar Farm is pending following a Further Information Request. The application included a NIS which concluded that no likely significant cumulative effects of any Natura 2000 sites are expected as a result of the development.

Potential in-combination effects are considered possible as a result of interaction between the proposed development and the permitted solar development.

No other in-combinations effects between the proposed

6.3 Dundalk Bay SAC (000455) and Dundalk Bay SPA (004026)

The Killary stream, which flows 190m east of the proposed development, enters the wider river network and eventually (after travelling approximately 34km) flows into the Dundalk Bay.

Dundalk Bay is comprised of estuary and intertidal sand and mud flat habitats. The site is of high importance for wintering waterfowl. An indirect hydrological connection to the proposed development site could exist that can impact qualifying features of this SAC. Also, there is potential for species displacement impacts through indirect impacts on water quality of Dundalk Bay.

As outlined above, measures have been included within the proposed development design to prevent pollution entering the aquatic environment. Considering these measures, the substantial distance of the proposed development from the Dundalk Bay and the dilution factor (outlined below in Section 7), it is considered that there is no significant risk of hydrological contamination.

Therefore, the proposed Development will not result in significant adverse effects to the integrity of the Dundalk Bay SAC and SPA.

7. Mitigation

7.1 Construction Environmental Management Plan (CEMP)

A Construction and Environmental Management Plan (CEMP) has been prepared (see Appendix 4) for the site. It will be updated throughout pre-construction and construction and will be implemented on site to reduce the risk of pollution and improve the sustainable management of resources. The CEMP will outline construction practices and environmental management measures which will be implemented during the construction phase to ensure that the entire development is constructed in accordance with best practice with minimum impact on the surrounding environment.

The CEMP will provide for systematic waste management identifying types and quantities of wastes arising, their management, documentation, treatment/disposal, and the parties responsible, at all stages of the project. The implementation of the proposed and agreed mitigation measures, monitoring and follow-up arrangements and management of impacts, can be managed through the CEMP. The CEMP will ensure that the proposed development will be carried out in accordance with any planning conditions applicable and within the agreed schedule.

The construction works will be strictly managed in line with the Contractor's CEMP, which will include measures for the management of fuel, concrete, stockpiles, run-off, spills and the provision of emergency procedures. The CEMP and associated pollution control measures have been devised with reference to the following:

- *Control of water pollution from linear construction projects. Technical guidance (C648)* (Murnane *et al.* 2006)
- *Control of water pollution from construction sites. Guidance for consultants and contractors* (Masters-Williams, 2001)
- *The Management of Noxious Weeds and Non-native Invasive Plant Species on National Roads* (NRA, 2010)

The CEMP will include, but is not limited to, the following environmental controls:

- Water Quality/Sediment and Erosion Control
- Noise and Dust Control
- Management of Construction Waste
- Fuel and Oils Management
- Management of Concrete
- Emergency Response Plan

The CEMP will be submitted to the planning authority for agreement and approval prior to the commencement of any construction activity.

7.2 Environmental Officer

A competent Environmental Manager will be appointed for the duration of the works and will report to the Project Manager. The Construction Manager will communicate regularly with the Environmental Manager to ensure mitigation measures are applied to specific works. The Environmental Manager will carry out tasks as required, including installation and maintenance of sediment control measures, and implementing and maintaining approved waste management control measures. The use of dedicated staff under the direction of the Environmental Manager will ensure the environmental controls are *in situ* ahead of the works on site.

7.3 Measures for Protection of Water Quality

7.3.1 Watercourse (General Measures)

The potential for ingress of sediment or accidental fuel or oil spillages discharging to watercourses during construction presents the main risk to water quality of local watercourses. Sediments can be released during excavation and construction works.

The following measures will be incorporated into the finalised CEMP so as to ensure no significant negative water quality impacts occur:

- Raw or uncured waste concrete/cementitious material will be disposed of by removal from the development area.
- Suitable excavated soil will be re-used as backfill and landscaping. Temporary stockpiles of soils will not be located near drainage ditches and will be bunded on the downgradient edges with a silt curtain or other suitable materials to reduce risk of silt run-off to watercourses and drains.
- Construction pollutants such as oil or fuel will be stored in secure bunded impermeable construction compound with the permitted solar farm sites away from drains and open water and inspected regularly for leaks or signs of damage.
- Fuelling and lubrication of construction machinery and vehicles will be carried out by fully trained personnel under controlled conditions in designated refuelling areas using a prescribed re-fuelling procedure.
- Prior to any work, it will be ensured that all construction equipment is mechanically sound to avoid leaks of oil, fuel, hydraulic fluids and grease. Only mechanically sound plant will be permitted to gain access to the site.

- Controls will be regularly inspected and maintained. Regular cleaning and servicing of bunds, gullies, pipe work, oil interceptors will be carried out to ensure this system is operating at its optimum.
- Procedures and contingency plans will be set up to deal with emergency accidents or spills. An emergency spill kit with oil boom and absorbers will be kept on site in the event of an accidental spill. The contents of the spill kit will be replenished if used and they will be checked on a scheduled basis during environmental inspections and audits. All crews will be trained in the use of spill kit equipment.
- All emergency procedures and equipment will be in place prior to the commencement of any works.
- Any spillage of fuels, lubricants or hydraulic oils will be immediately contained using oil spill kits stored onsite. Any nearby dirty water drain outlets will be blocked with an oil absorbent boom until the fuel/oil spill has been cleaned up and contaminated soil removed from the site for proper disposal.
- Waste oils and hydraulic fluids will be collected in leak-proof containers, stored on a bunded tray and removed from the site for disposal or recycling.
- Drainage within the temporary site compound will be directed to an oil interceptor to prevent pollution should any spillage occurs.
- Temporary toilet facilities will be managed by the appointed Contractor during the construction phase.
- Surface water runoff from the roofs of the substation buildings, and hard-surfaced areas within the electrical yard, including areas where a risk of a contaminant leak or spill may be present (such as the transformer bund), will be collected in a series of filter drains, roof guttering and downpipes and routed to an underground gravity drainage network. All runoff collected in the stormwater sewer network will pass through an oil/petrol Interceptor prior to discharging to an attenuation unit on the north-eastern side of the compound. The attenuation unit will provide attenuation of the increased volumes of surface water runoff generated from the hard surfaces of the development when compared to the current greenfield condition. The attenuated surface water runoff is then proposed to overflow at a controlled rate equal to the greenfield runoff rate to an existing vegetated land drain on the southern side of the compound.

7.3.2 Management of Concrete

There shall be the requirement for some concrete works at the site. It is important to prevent concrete from entering surface water drains within or around the site. Wet concrete is silty and very alkaline (high pH) and can have a serious effect on watercourses and aquatic life if ingress occurs. Refer to the CEMP in **Appendix 4** for further details.

The following measures will be implemented during concrete works at the site:

- A designated trained operator, experienced in working with concrete, will be employed during the concrete-pouring phase and pouring will be supervised by the Construction Manager, a suitably qualified Engineer and/or the Environmental Manager.
- There shall be no pouring of concrete during extreme/prolonged rainfall or forecasted heavy rainfall.
- The use of concrete close to drainage features will be carefully controlled to avoid spillage.

- To reduce the volume of cementitious water, only concrete truck chutes will be washed down on site. The concrete trucks will wash down their chutes at a designated chute wash down area in the site compound. The wash down area will consist of a polythene lined bunded area.
- Temporary storage of cement bound granular mixtures will be on hardcore areas. Cement products are hazardous and should always be stored in a COSHH store or similar (shipping container), and only be in the open when in use.
- Any small volumes of incidental wash generated from cleaning hand tools, cement mixers or other plant, as required, will be trapped on-site to allow sediment to settle out and reach neutral pH before clarified water is released to the surface water drains or allowed to percolate to ground. Settled solids will need to be appropriately disposed of off-site.

7.4 Noise and Vibration

7.4.1 Noise

Operating plant noise will be kept within the standards and time periods dictated for the site. Any non complying plant will be stopped and stood down until it can be rectified or removed from the site.

- The British Standard which gives guidance on noise from construction and mineral working sites is BS 5228. This document does not specify absolute noise limits relating to construction activities; however, it does provide detailed guidance on the steps that can be taken to minimise potential noise & vibration effects. Reasonable mitigating measures are as follows: vehicles and machinery will be switched off when not in use.
- Operation of plant, including fitting and proper maintenance of silencers and/or enclosures, avoiding excessive and unnecessary revving of engines and parking of equipment in locations which avoid possible effects on residential properties.
- Traffic movement limited to:
    - 7.00am to 7.00pm Monday to Friday.
    - 7.00am to 2.00pm Saturdays.
    - Public holidays will be observed unless otherwise agreed with the local planning authority.
    - When loading and unloading material, attempts shall be made not to drop material from a height.

Any noise complaints shall immediately be directed to the site agent. Depending on the nature of the complaint, the initial response could be to immediately cease the activity until suitable mitigation measures have been put in place and agreed with the affected individual.

7.4.2 Dust

In order to control, prevent and minimise dirt on the access route and emissions of dust and other airborne contaminants during the construction works, the following measures will be implemented:

- Wheel washing equipment will be available and used on-site, as required to prevent the transfer of dirt and stones onto the public highway. All drivers will be required to check that their vehicle is free of dirt, stones and dust prior to departing from the site. Wheel washing will likely be a water bowser and power

spray. It will not have any cleaning additives and will drain into the temporary drainage feature at the site compound within the permitted solar farm site.

- During windy conditions, any dust generating activities will be avoided or minimised, where practical.
- Any soil stockpiles will be covered when left for extended periods of time.
- Driving practices which minimise dust generation will be adopted.
- Loads into and out of the site will be covered where required.

7.5 Resource & Waste Management

A Construction Resource & Waste Management Plan (RWMP) will be developed to control all site-generated construction waste and the storage and disposal of same. The Contractor's RWMP will be incorporated into the CEMP (refer to **Appendix 3** for full details). Any introduced semi-natural (building materials) or artificial (PVC piping, cement materials, electrical wiring) materials will be taken off site at the end of the construction phase. Any accidental spillage of solid state introduced materials will be removed from the site by the appropriate means.

A specific segregation area within the temporary site construction compound in the permitted solar farm site will be identified where the separation of materials will take place during both the construction and decommissioning phases. This area will allow for the separation of materials into those which can be reused, recycled or disposed.

All waste containers should be appropriate to the nature of the substances stored and should be secure to ensure no waste can escape. In addition, all waste containers should be appropriately labelled to ensure that it is clear to all construction staff what types of waste can be stored in each container. These containers should be located appropriately to reduce any potential hazards and to ensure no waste is released into the external environment.

Relevant waste and resource management procedures will be communicated to all construction operatives during the initial site induction, which is mandatory for all staff working on site. This will include instruction on the segregation, handling, re-use and return methods to be used by all parties at all appropriate stages of development. Where possible, waste will be eliminated, re-used or recycled as per the requirements of the waste hierarchy.

7.6 Storage of Fuels and Chemicals

As per Best Practice Guidance (BPGCS005) all fuels, oils and chemicals on site will have a secondary containment system of 110% capacity and be located more than 20m from any watercourse (i.e. outside of the water course buffer).

A bunded diesel bowser will be located inside a fenced off area in the temporary construction compound with the permitted solar farm site. Any other chemicals will be stored within a storage container with an accompanying Control of Substances Hazardous to Health ("COSHH") Datasheet in accordance with health and safety regulations. If generators are used on site, these shall be bunded (the bund shall be capable of containing 110% of the fuel tank's capacity). The bund shall be kept empty of water.

Where chemicals are required on site, they must be placed in an appropriate bund to prevent ground contamination. All chemicals must be stored in a correctly marked container clearly identifying the contents. Where labels are worn off, they must have a new label placed on them or the contents transferred to a correctly marked container. All safety data sheets for all chemicals should be filed on site as part of the CEMP.

Spill kits will be on site and, for ease of access, located in the site office. Contingency plans will be in place for dealing with a spillage should a spillage occur.

7.6.1 Refuelling

During construction, fuel and oil deliveries shall take place within the designated refuelling area in the Temporary Construction compound for the permitted solar farm site, the location of this area falls outside the watercourse buffers (discussed subsequently). The Contractor shall supervise site deliveries to ensure that the correct amount of material is delivered to the correct tank and the level is checked prior to refilling to avoid spillage.

Where refuelling of vehicles on site is necessary, the following guidelines will be strictly adhered to:

- Mobile plant will be filled in a designated area, on an impermeable surface well away from any drains or watercourses;
- A spill kit will be stored (and clearly marked) near refuelling areas;
- A bunded tank / bowser will be used with capacity of the bund to be 110% of the fuel storage capacity;
- Vehicles will never be left unattended during refuelling and drip trays should be located under all static plant vehicles;
- Hoses and valves will be checked regularly for signs of wear, and will be turned off and securely locked when not in use;
- Vehicles will not be left running unnecessarily and low emission fuels will be used where possible; and
- Diesel pumps and similar equipment will be checked regularly and any accumulated oil removed for appropriate disposal.

7.7 Excavations

An Excavation Works Management Plan will be developed and incorporated into the finalised CEMP (refer to Appendix 4).

The earthworks required are relatively minor and localised, and the following mitigation measures will be implemented for the construction phase:

- All excavation and earthworks will be carried out in accordance with BS6031:2009 Code of Practice for Earthworks.
- Soil handling, extraction and management will be undertaken with regard to best practice guidelines such as Guidance on the Waste Management (Management of Waste from the Extractive Industries) Regulations 2012.
- All site excavations and construction should be supervised by a suitably qualified and experienced engineer. The Contractor's method statements for each element of work should be reviewed and approved by the engineer prior to site operations.
- Drainage will be constructed in parallel with the permitted solar farm development where feasible. This approach will be used in combination with installation of other drainage protection measures in advance of construction, such as the installation of silt fencing.
- Prior to excavation, drains should be established to effectively intercept overland flow prior to earthworks. The existing network of drainage within the site should be used whenever possible.

- All temporary cuts/excavations will be carried out such that they are stable or adequately supported. Where appropriate and necessary, cuts and excavations will be protected against ingress of water or erosion by the use of field drains around the excavation works. Temporary works will be such that they do not adversely interfere with existing drainage channels/regimes.
- Plant and materials will be stored in approved locations only (such as the proposed site compound) and will not be positioned or trafficked in a manner that would surcharge existing or newly formed slopes.
- Excavated topsoil and subsoil will be stored onsite for reuse or removed off site to an appropriate facility. Temporary stockpiles of soils will not be permitted within 50 metres of any watercourse.
- Bulk excavations will be done during periods of dry weather to avoid run off from exposed excavation areas. Weather will be monitored during the project and no excavation works will be allowed during severe or heavy rainfall events.
- Vehicular movements will be restricted to the footprint of the proposed development, particularly with respect to the newly constructed access roads. This implies that machinery must be restricted to use on existing roads/hardstands/yard areas and, aside from advancing excavations, will not move onto areas that are not permitted for the development.
- Although unlikely, if any contaminated earth is uncovered, this will be stored separately and disposed of accordingly once the contaminant has been identified.
- Efforts will be made to ensure that water does not accumulate in excavated areas.
- All topsoil and subsoil will be stored separately, and care will be given to ensure the structure and quality of the soil is not damaged.
- The amount of exposed ground and soil stockpiles will be kept to a minimum and any stockpiles in place for an extended period of time will be allowed to re-vegetate naturally.
- Earthworks shall not occur during unsuitable weather conditions, including when soils are waterlogged or very dry.
- Any excavated soil which is not re-used or dispersed across the site shall be stored on the impermeable surface at the construction compound within the permitted solar farm site and covered to prevent silt runoff and dust creation.
- Surface water runoff from the roofs of the substation buildings, and hard-surfaced areas within the electrical yard, including areas where a risk of a contaminant leak or spill may be present (such as the transformer bund), will be collected in a series of filter drains, roof guttering and downpipes and routed to an underground gravity drainage network. All runoff collected in the stormwater sewer network will pass through an oil/petrol Interceptor prior to discharging to an attenuation unit on the north-eastern side of the compound. The attenuation unit will provide attenuation of the increased volumes of surface water runoff generated from the hard surfaces of the development when compared to the current greenfield condition. The attenuated surface water runoff is then proposed to overflow at a controlled rate equal to the greenfield runoff rate to an existing vegetated land drain on the southern side of the compound.

7.7.1 Run-off and Sediment Control

Potential impacts on surface water flow during the construction phase are mitigated against via a site-specific drainage system designed to attenuate run-off, guard against soil erosion and safeguard downstream water quality. The drainage system will be implemented along all internal site access roads, storage areas, substation hardstand areas and site construction temporary compounds.

It is important that surface water/ground water is controlled during the construction phase of the proposed development to prevent heavy silting/contamination to the Killary Water and other surrounding watercourses. As outlined within the Risk & Drainage Impact Assessment for the permitted solar development, SuDS will be installed prior to the construction of the permitted and proposed developments. This SuDS feature will take the form of soakaways which will treat and attenuate surface water runoff before infiltrating into the soils below, or to discharge into the existing field drainage system.

Mitigation measures will be implemented to ensure that pollutants and sediment are not transferred to receiving watercourses via surface water and run-off on the site. The Surface Water Management Plan is described in full in the CEMP in Appendix 4 and is summarised in the following points:

- Implementation of erosion control to prevent runoff flowing across exposed ground and becoming laden with sediments.
- To avoid cross-contamination of clean water and soiled water, interception and diversion of clean water runoff away from construction site should be ensured.
- Implement sediment control to slow down runoff allowing suspended sediments to settle *in situ* particularly on roads.
- Minimise area of exposed ground by maintaining existing vegetation that would otherwise be subject to erosion in the vicinity of the compound and keeping excavated areas to a minimum.
- Avoid working near drains during or after prolonged rainfall or an intense rainfall event and cease work entirely near drains when it is evident that pollution is occurring.
- Install a series of silt fences or other appropriate silt retention measure where there is a risk of erosion runoff to watercourses from construction related activity particularly if working during prolonged wet weather period or if working during intense rainfall event
- Install and maintain appropriate silt control measures such as silt-traps, check dams and sedimentation ponds and implement sediment control measures that includes prevention of runoff from adjacent intact ground that is for the separation of clean and ‘dirty’ water.
- Provide recommendations for public road cleaning where needed particularly in the vicinity of drains
- Controls need to be regularly inspected and maintained otherwise a failure may result, such as a build-up of silt or tear in a fence, which will lead to water pollution so controls must work well until the vegetation has re-established; inspection and maintenance is critical after prolonged or intense rainfall.
- Where feasible, clean water (e.g. water that has yet to come into contact with any disturbed construction or working areas), will be kept separate from the watershed or intercepted by the solar farm construction drainage.
- Up-gradient cut-off ditches and water diversion measures will be installed, if required, in order to intercept and divert clean water around construction compound within the permitted solar farm

site area. These measures will be installed ahead of the main construction works. This will reduce or prevent the amount of potential silt-laden or polluted water that might require treatment.

- Clean runoff that has been diverted around an area of working should be discharged into an area of vegetation for dispersion or infiltration, in accordance with SuDS techniques.
- Sediment control measures, such as silt traps, gravel, sand bags, anchored straw bales or silt fencing might be required at the discharge point to prevent erosion at the outlet and aid dispersion of the diverted water.
- Silt-laden runoff should be expected from any areas of recently exposed soil or rock. There is also potential for pollution to occur from machinery used in the solar farm construction.
- Any introduced or artificial materials required (e.g. silt fencing, straw bales, sand bags etc.) that might need to be deployed onsite, will be removed on completion of the works.
- Discharge from the silt control measures will be discharged into an area of vegetation for dispersion or infiltration, in accordance with SuDS techniques or discharged into the existing drainage network within the proposed development site.

7.7.2 Storage and Stockpiles – Protection of Water Quality

The storage of materials, containers, stockpiles and waste, however temporary, will follow best practice at all times and be stored at designated areas. Material stockpiles should be kept to a minimum size and should be stored on an impermeable base. Drainage and siltation control measures will be put in place in all spoil storage areas. This will include a dedicated drainage network, temporary silt fences and settlement ponds designed to cater for the size of each storage area.

The plan outlined in the CEMP (see Appendix 4) will have regard to the following elements:

- Storage of excessive material will be avoided. Site management should include the checking of equipment, materials storage and transfer areas, drainage structures and their attenuation ability on a regular basis during the construction phase of the project. The purpose of this management control is to ensure that the measures in place are operating effectively, prevent accidental leakages, and identify potential breaches in the protective retention and attenuation network during earthworks operations.
- Materials required for construction should be handled and stored in a manner which reduces unnecessary wasting. Stone and any other quarry materials should be imported from local quarries where possible and stored neatly in segregated areas.
- No permanent waste or stockpiles will be left on site, other than those materials required for designed landscaping and construction generally. All excavated materials will be re-used on the adjacent permitted solar farm site as fill or for landscaping where feasible subject to relevant legislation. Excavated material that is not reused on site for landscaping will be removed from site by the appropriate permitted contractors and taken to an authorised facility.
- A traffic management plan has been developed as part of the CEMP. This will be updated by the appointed contractor. This is to manage and control vehicular movement onsite. Measures include the scheduling of HGVs during the construction phase to reduce the number of vehicles move in, through and off site. This in turn will reduce the impact of soil compaction and erosion. Unscheduled vehicles will not have access to the site.

7.8 Emergency Plans and Risk of Accidents

Given the temporary nature of the construction stage and the scale of the proposed project, as well as the environmental controls that will be implemented from the outset, the risk of disasters (typically considered to be natural catastrophes e.g. very severe weather event) or accidents (e.g. fuel spill, traffic accident) is considered low. To minimise environmental risk, no concrete pours will take place during severe weather events such as during flooding or heavy rainfall (10 mm/hr).

Best construction practice, including that for Health and Safety, will be employed to minimise the risk of any accidents occurring. All work on site will be carried out in compliance with the Health and Safety Act 2005, the Health and Safety (Construction) Regulations 2013, and all relevant Legislation and Work Practice to ensure that the construction areas, site environs and public roads remain safe for all users. The contingency plan in place during construction and displayed at appropriate locations. An emergency spill kit with oil boom and absorbers is to be kept on site in the event of an accidental spill.

7.9 Protection of Otter

The presence of otter is expected to be constrained to areas adjacent to the Killary Water as the other habitat types associated with the proposed development site are not optimal for otter and are likely to be restricted to commuting.

There is potential for any commuting otters using the site during the construction phase to become trapped in trenches excavated during works. In line with construction best practice, all excavations during the construction phase of the proposed development will be covered securely to prevent the accidental trapping of otters. In addition, it is suggested that a pre-commencement survey be carried out for the presence of otters prior to construction.

7.10 General Protection of other Fauna/Habitats

- The extent of construction works area within the development site boundary is to be clearly marked out using temporary stakes and high-visibility tape/bunting such that the construction zone, including extent of access for all construction plant and machinery, site compound and materials storage areas, is defined and is clearly visible to all contractor staff and machine operators.
- Movement of construction plant/construction vehicles is to be restricted as much as is practicably possible to within the extent of works footprint within the development site boundary.
- Disturbance of fauna will be limited by controlling the movement of construction vehicles and personnel. Construction vehicles and personnel will not encroach onto habitats beyond the proposed development footprint.
- Construction materials and wastes are to be kept in designated areas to reduce risk of accidental injury/entrapment of any wildlife on-site.
- Removal of vegetation will only be undertaken outside the bird breeding and nesting season which encompasses March 1st to August 31st inclusive, in accordance with Section 40 of the Wildlife Acts.
- Vegetation removal is to be minimised within the proposed development site.
- All temporary construction lighting is to be turned off outside daylight hours.
- Should any resting or breeding place of any protected species be discovered within the site during construction works, works will cease immediately, the area will be cordoned off and the advice of NPWS sought.

7.11 Operational Phase Mitigation Measures

At the proposed substation, the surface water drainage system will be managed and appropriately maintained during the operational phase. By effectively managing the drainage system and conducting regular inspections, the proposed project ensures that the quality and quantity of any runoff generated is controlled. This will help prevent erosion patterns from developing, which could lead to sediment discharge through the drainage network and to the Killary Stream.

During the operational phase, the project is not considered to have noise impact on the surrounding ecology and species and ensures that noise levels will remain within acceptable limits.

7.12 Decommissioning Phase Mitigation measures

At the end of the estimated 40-year lifespan of the proposed development, the applicant will decide if to decommission the substation. The specific decommissioning activities will depend on the future use of the site, as determined by the project owner at the time of closure. However, any future development plans for the site, during or after this period, will require a new planning permission application. If no planning permission is sought after the proposed development reaches the end of its lifespan, the site will be fully decommissioned.

Potential impacts during the decommissioning phase will be similar to those of the construction phase however, decommissioning will be of a significantly lesser scale, as large-scale excavations will not be required.

Mitigation measures for the decommissioning phase will be similar to those of the construction phase:

- Implement habitat restoration measures within the decommissioned area to promote the re-establishment of native vegetation and support the recovery of local wildlife populations. This may include replanting native tree species and creating wildlife-friendly features such as nesting boxes or bat roosts in the vicinity of the site.
- If required, works would be undertaken outside the bird breeding season (March-August) to mitigate for impacts to nesting and breeding birds.
- If required, an appropriate buffer around trees with bat roost potential or identified bat roosts during decommissioning works will be implemented.
- Ensure proper soil stabilization measures are employed during decommissioning to prevent erosion, sediment runoff, and adverse impacts on water quality. Appropriate silt control measures such as silt fences will be installed on the existing drainage systems and other best management practices followed to protect sensitive resources and control erosion.
- Best practices will be incorporated into the safe handling and storage of materials, including containment measures, bunding, drip trays installed as part of plant and machinery used to ensure no risks to water quality.
- Spill kits will be readily available on-site where oils or liquids are handled, and all staff will be trained on their location and proper use in case of emergencies.
- Standards of good practice for noise and vibration will be followed to minimise noise and vibration impacts from activities and vehicles.
- Standards of good practice for air quality, as set out in the Institute of Air Quality Management (IAQM) 'Guidance on the Assessment of Dust from Demolition and Construction', or relevant guidance will be followed during decommissioning to minimise dust from activities and vehicles.
- A waste management plan will be developed to handle the disposal of materials and equipment associated with decommissioning. This will include proper handling, recycling, or disposal of hazardous materials, in accordance with relevant regulations and guidelines.

- Implement a monitoring program to assess the effectiveness of decommissioning mitigation measures and the recovery of the impacted environment. Regular reporting should be conducted to provide updates on the progress of habitat restoration and the overall success of decommissioning efforts.
- An invasive species management plan will be developed for the decommissioning phase of the grid route. Prior to decommissioning, a survey will be conducted to identify any invasive species present along the grid route. locations and extent of invasive species infestations will be documented. If any future infestations of invasive non-native species are identified prior to any decommissioning works, exclusion zones will be established around them, and the Ecological Clerk of Works (ECoW) contacted for advice as required.
- Best practice measures will be followed for cleaning and decontaminating equipment and vehicles to prevent the accidental transfer of invasive species.
- Lighting, if required will be deployed in accordance with the following recommendations to prevent or reduce the impact on ecological receptors:
    - The use of lighting will be minimised to that required for safe site operations;
    - Lighting will utilise directional fittings to minimise outward light spill and glare (e.g. via the use of light hoods/cowls)
    - Lighting will be directed towards the interior of the site limits rather than towards the boundaries.

These measures should be tailored to the specific characteristics of the substation and grid route project, taking into account the regulatory requirements.

8. Residual Impact

It has been concluded that, in the absence of mitigation, the proposed development has potential for significant water quality and/or di19rect/indirect species disturbance/displacement impacts within the River Boyne and River Blackwater SAC (Site code: 002299), Dundalk Bay SAC (Site code: 000455), Dundalk Bay SPA (Site code: 004232) or at least cannot be ruled out, in combination with other activities.

Detailed mitigation measures have been prescribed with regards to the protection of water quality, aquatic habitats and water-dependant species during the construction phase.

With the implementation of the recommended mitigation measures, as outlined in Section 7, above, it is objectively concluded that significant adverse residual impacts on the Conservation Objectives of any of the identified European sites evaluated herein, namely the River Boyne and River Blackwater SAC (Site code: 002299), Dundalk Bay SAC (Site code: 000455), Dundalk Bay SPA (Site code: 004232), are not likely to occur as a result of the proposed development, either independently or in combination with other plans or projects.

9. Conclusion

It has been objectively concluded, following an examination, analysis and evaluation of the relevant information, including in particular the nature of the predicted impacts from the proposed development and with the implementation of the mitigation measures proposed, that the proposed development will not adversely affect (either directly or indirectly) the integrity of any European site, either alone or in combination with other plans or projects, and there is no reasonable scientific doubt in relation to this conclusion. These sites are:

- River Boyne and River Blackwater SAC (Site code: 002299)

- Dundalk Bay SAC (Site code: 000455)
- Dundalk Bay SPA (Site code: 004232)

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Appendix 1

Screening for Appropriate Assessment Report

Appendix 2

Stages of Appropriate Assessment

Stage 1 - Screening

This is the first stage of the Appropriate Assessment process and that undertaken to determine the likelihood of significant impacts as a result of a proposed project or plan. It determines need for a full Appropriate Assessment.

If it can be concluded that no significant impacts to Natura 2000 Sites are likely then the assessment can stop here. If not, it must proceed to Stage 2 for furthermore detailed assessment.

Stage 2 - Natura Impact Statement (NIS)

The second stage of the Appropriate Assessment process assesses the impact of the proposed development (either alone or in combination with other projects or plans) on the integrity of the Natura 2000 Site with respect to the conservation objectives of the site and its ecological structure and function. This is a much more detailed assessment than Stage 1. A Natura Impact Statement containing a professional scientific examination of the proposed development is required and includes any mitigation measure to avoid, reduce or offset negative impacts.

If the outcome of Stage 2 is negative i.e. adverse impacts to the sites cannot be scientifically ruled out, despite mitigation, the plan or project should proceed to Stage 3 or be abandoned.

Stage 3 - Assessment of alternative solutions

A detailed assessment must be undertaken to determine whether alternative ways of achieving the objective of the project/plan exists.

Where no alternatives exist the project/plan must proceed to Stage 4.

Stage 4 - Assessment where no alternative solutions exist and where adverse impacts remain

The final stage is the main derogation process examining whether there are imperative reasons of overriding public interest (IROPI) for allowing a plan or project to adversely affect a Natura 2000 Site where no less damaging solution exists.

Appendix 3
Site Synopses

SITE SYNOPSIS

Site Name: Dundalk Bay SAC

Site Code: 000455

Dundalk Bay, Co. Louth, is a very large open, shallow sea bay with extensive saltmarshes and intertidal sand/mudflats, extending some 16 km from Castletown River on the Cooley Peninsula in the north, to Annagassan/Salterstown in the south. The bay encompasses the mouths and estuaries of the Rivers Dee, Glyde, Fane, Castletown and Flurry.

The site is a Special Area of Conservation (SAC) selected for the following habitats and/or species listed on Annex I / II of the E.U. Habitats Directive (* = priority; numbers in brackets are Natura 2000 codes):

[1130] Estuaries
[1140] Tidal Mudflats and Sandflats
[1220] Perennial Vegetation of Stony Banks
[1310] *Salicornia* Mud
[1330] Atlantic Salt Meadows
[1410] Mediterranean Salt Meadows

Saltmarsh vegetation occurs in four main areas: at Lurgangreen, Marsh South, Dundalk Harbour and Bellurgan. Two types are represented – Atlantic and Mediterranean salt meadows. The Atlantic salt meadows are commonest and are characterised by Sea-purslane (*Halimione portulacoides*) (often as a dominant band), along with Common Saltmarsh-grass (*Puccinellia maritima*), Thrift (*Armeria maritima*), Red Fescue (*Festuca rubra*), Common Scurvygrass (*Cochlearia officinalis*), Sea Plantain (*Plantago maritima*) and Sea Rush (*Juncus gerardi*). Common Cord-grass (*Spartina anglica*) is frequent and often dominant over substantial areas. Glassworts (*Salicornia* spp.) occur on the lower zones of the saltmarshes, and in places extend out onto the sandflats. Mediterranean salt meadows are mostly confined to the upper levels of the saltmarshes or along stream sides where they merge with grassland habitats (though the transitional zone is now absent in many places). The habitat contains Sea Rush (*Juncus maritimus*), Sea Arrowgrass (*Triglochin maritima*) and Sea Aster (*Aster tripolium*). The saltmarshes at Lurgangreen and Marsh South are partially fenced and grazed by sheep.

Shingle beaches are particularly well represented in Dundalk Bay, occurring more or less continuously from Salterstown to Lurgan White House in the south bay, and from Jenkinstown to east of Giles Quay in the north bay. The shingle is mostly stable, occurring on post-glacial raised beaches. The shingle often occurs in association with intertidal shingle, saltmarsh and or shingle-based grassland. The shingle supports

species such as Spear-leaved Orache (*Atriplex prostrata*), Sea Mayweed (*Matricaria maritima*), Sea Beet (*Beta vulgaris* subsp. *maritima*), Sea Rocket (*Cakile maritima*), Wild Carrot (*Daucus carota*), Sea-holly (*Eryngium maritimum*), Sea Sandwort (*Honkenya peploides*) and Sea Radish (*Raphanus raphanistrum* subsp. *maritimus*). Yellow Horned-poppy (*Glaucium flavum*) and Lyme-grass (*Leymus arenarius*) occur here at their most northern locality on the east coast, while the Red Data Book species Sea-kale (*Crambe maritima*) has recently been recorded.

The extensive sandflats and mudflats (over 4,000 ha) occur and are comprised of ecological communities such as muddy fine sand communities and fine sand community complexes. In the centre of Dundalk Bay there is a gravel community dominated by polychaetes. These habitats host a rich fauna of bivalves molluscs, marine worms and crustaceans and are the main food resource of the tens of thousands of waterfowl (including waders and gulls) which feed in the intertidal area of Dundalk Bay. The saltmarshes are used as high-tide roosts by all of these species, while the grazing birds (notably Brent Goose and Wigeon) feed on the saltmarsh grasses, areas of *Zostera* and other grassland vegetation. Brent Goose also feed on the mats of green algae on the mudflats. At night the wintering Greylag and Greenland White-fronted Goose, and Whooper Swans, from Stabannan/Braganstown (inland from Castlebellingham) roost in Dundalk Bay.

The site is internationally important for waterfowl (numbers in brackets refers to the average maximum over the period 1994/95 to 1997/98) because it regularly holds over 20,000 birds (up to 57,000 have been recorded) and supports over 1% of the North-West European/East Atlantic Flyway populations of Brent Goose (366), Bar-tailed Godwit (2,312) and Knot (11,948). Additionally, it is nationally important for Golden Plover (4,266), Great Crested Grebe (193), Greylag Goose (312), Shelduck (463), Mallard (657), Pintail (100), Red-breasted Merganser (148), Oystercatcher (6,940), Grey Plover (218), Ringed Plover (133), Wigeon (565), Dunlin (9,112), Black-tailed Godwit (754), Curlew (1,593), Lapwing (4,822), Greenshank (20) and Redshank (1,455). Both Golden Plover and Bar-tailed Godwit are Annex I species. The site has been designated a Special Protection Area (SPA) under the E.U. Birds Directive and it is also a designated Ramsar site.

This is a site of significant conservation value because it supports good examples of a range of coastal habitats listed on Annex I of the E.U. Habitats Directive, as well as large numbers of bird species, some of which are listed in the Birds Directive.

SITE SYNOPSIS

Site Name: River Boyne and River Blackwater SAC

Site Code: 002299

This site comprises the freshwater element of the River Boyne as far as the Boyne Aqueduct, the Blackwater as far as Lough Ramor and the Boyne tributaries including the Deel, Stoneyford and Tremblestown Rivers. These riverine stretches drain a considerable area of Meath and Westmeath, and smaller areas of Cavan and Louth. The underlying geology is Carboniferous Limestone for the most part, with areas of Upper, Lower and Middle well represented. In the vicinity of Kells Silurian Quartzite is present while close to Trim are Carboniferous Shales and Sandstones. There are many large towns adjacent to but not within the site, including Slane, Navan, Kells, Trim, Athboy and Ballivor.

The site is a Special Area of Conservation (SAC) selected for the following habitats and/or species listed on Annex I / II of the E.U. Habitats Directive (* = priority; numbers in brackets are Natura 2000 codes):

[7230] Alkaline Fens
[91E0] Alluvial Forests*
[1099] River Lamprey (*Lampetra fluviatilis*)
[1106] Atlantic Salmon (*Salmo salar*)
[1355] Otter (*Lutra lutra*)

The main areas of alkaline fen in this site are concentrated in the vicinity of Lough Shesk, Freehan Lough and Newtown Lough. The hummocky nature of the local terrain produces frequent springs and seepages which are rich in lime. A series of base-rich marshes have developed in the poorly-drained hollows, generally linked with these three lakes. Open water is usually fringed by Bulrush (*Typha latifolia*), Common Club-rush (*Scirpus lacustris*) or Common Reed (*Phragmites australis*), and this last species also extends shorewards where a dense stand of Great Fen-sedge (*Cladium mariscus*) frequently occurs. This in turn grades into a sedge and grass community (*Carex* spp. and Purple Moor-grass, *Molinia caerulea*), or one dominated by Black Bog-rush (*Schoenus nigricans*). An alternative aquatic/terrestrial transition is a floating layer of vegetation. This is normally based on Bogbean (*Menyanthes trifoliata*) and Marsh Cinquefoil (*Potentilla palustris*). Other species gradually become established on this cover, especially plants tolerant of low nutrient status e.g. bog mosses (*Sphagnum* spp.). Diversity of plant and animal life is high in the fen and the flora includes many rarities. Plants of interest include Narrow-leaved Marsh-orchid (*Dactylorhiza traunsteineri*), Fen Bedstraw (*Galium uliginosum*), Cowbane (*Cicuta virosa*), Frogbit (*Hydrocharis morsus-ranae*) and Least Bur-reed (*Sparganium minimum*). These species tend to be restricted in their distribution in Ireland. Also notable is the

abundance of aquatic stoneworts (*Chara* spp.) which are characteristic of calcareous wetlands.

The rare plant Round-leaved Wintergreen (*Pyrola rotundifolia*) occurs around Newtown Lough. This species is listed in the Red Data Book and this site represents its only occurrence in Co. Meath.

Wet woodland fringes many stretches of the Boyne. The Boyne River Islands are a small chain of three islands situated 2.5 km west of Drogheda. The islands were formed by the build-up of alluvial sediment in this part of the river where water movement is sluggish. All of the islands are covered by dense thickets of wet, willow (*Salix* spp.) woodland, with the following species occurring: Osier (*S. viminalis*), Crack Willow (*S. fragilis*), White Willow (*S. alba*), Purple Willow (*Salix purpurea*) and Rusty Willow (*S. cinerea* subsp. *oleifolia*). A small area of Alder (*Alnus glutinosa*) woodland is found on soft ground at the edge of the canal in the north-western section of the islands. Along other stretches of the rivers of the site Rusty Willow scrub and pockets of wet woodland dominated by Alder have become established, particularly at the river edge of mature deciduous woodland. Ash (*Fraxinus excelsior*) and Downy Birch (*Betula pubescens*) are common in the latter, and the ground flora is typical of wet woodland with Meadowsweet (*Filipendula ulmaria*), Wild Angelica (*Angelica sylvestris*), Yellow Iris (*Iris pseudacorus*), horsetails (*Equisetum* spp.) and occasional tussocks of Greater Tussock-sedge (*Carex paniculata*).

The dominant habitat along the edges of the river is freshwater marsh, and the following plant species occur commonly in these areas: Yellow Iris, Creeping Bent (*Agrostis stolonifera*), Canary Reed-grass (*Phalaris arundinacea*), Marsh Bedstraw (Galium palustre), Water Mint (*Mentha aquatica*) and Water Forget-me-not (*Myosotis scorpioides*). In the wetter areas Common Meadow-rue (*Thalictrum flavum*) is found. In the vicinity of Dowth, Fen Bedstraw (*Galium uliginosum*), a scarce species mainly confined to marshy areas in the midlands, is common in this vegetation. Swamp Meadow-grass (*Poa palustris*) is an introduced plant which has spread into the wild (naturalised) along the Boyne approximately 5 km south-west of Slane. It is a rare species which is listed in the Red Data Book and has been recorded among freshwater marsh vegetation on the banks of the Boyne in this site. The only other record for this species in the Republic of Ireland is from a site in Co. Monaghan.

The secondary habitat associated with the marsh is wet grassland and species such as Tall Fescue (*Festuca arundinacea*), Silverweed (*Potentilla anserina*), Creeping Buttercup (*Ranunculus repens*), Meadowsweet and Meadow Vetchling (*Lathyrus pratensis*) are well represented. Strawberry Clover (*Trifolium fragiferum*), a plant generally restricted to coastal locations in Ireland, has been recorded from wet grassland vegetation at Trim. At Rossnaree river bank on the River Boyne, Round-Fruited Rush (*Juncus compressus*) is found in alluvial pasture, which is generally periodically flooded during the winter months. This rare plant is only found in three counties in Ireland.

Along much of the Boyne and along tributary stretches are found areas of mature deciduous woodland on the steeper slopes above the floodplain marsh or wet woodland vegetation. Many of these are planted in origin. However the steeper areas of King Williams Glen and Townley Hall wood have been left unmanaged and now have a more natural character. East of Curley Hole the woodland has a natural appearance with few conifers. Broadleaved species include oaks (*Quercus* spp.), Ash, willows, Hazel (*Corylus avellana*), Sycamore (*Acer pseudoplatanus*), Holly (*Ilex aquifolium*), Horse-chestnut (*Aesculus hipposcastanum*) and the shrubs Hawthorn (*Crataegus monogyna*), Blackthorn (*Prunus spinosa*) and Elder (*Sambucus nigra*). South-west of Slane and in Dowth, some more exotic tree species such as Beech (*Fagus sylvatica*), and occasionally Lime (*Tilia cordata*), are seen. The coniferous trees Larch (*Larix* sp.) and Scots Pine (*Pinus sylvestris*) also occur. The woodland ground flora includes Barren Strawberry (*Potentilla sterilis*), Enchanter's-nightshade (*Circaea lutetiana*) and Ground-ivy (*Glechoma hederacea*), along with a range of ferns. Variation occurs in the composition of the canopy - for example, in wet patches alongside the river, White Willow and Alder form the canopy.

Other habitats present along the Boyne and Blackwater include lowland dry grassland, improved grassland, reedswamp, weedy waste ground, scrub, hedge, drainage ditch and canal. In the vicinity of Lough Shesk, the dry slopes of the morainic hummocks support grassland vegetation which, in some places, is partially colonised by Gorse (*Ulex europaeus*) scrub. Those grasslands which remain unimproved for pasture are species-rich, with Common Knapweed (*Centaurea nigra*), Creeping Thistle (*Cirsium arvense*) and Ribwort Plantain (*Plantago lanceolata*) commonly present. Fringing the canal alongside the Boyne south-west of Slane are areas with Reed Sweet-grass (*Glyceria maxima*), Great Willowherb (*Epilobium hirsutum*) and Meadowsweet.

The Boyne and its tributaries form one of Ireland's premier game fisheries and the area offers a wide range of angling, from fishing for spring salmon and grilse to seatrout fishing and extensive brown trout fishing. Atlantic Salmon (*Salmo salar*) use the tributaries and headwaters as spawning grounds. Although this species is still fished commercially in Ireland, it is considered to be endangered or locally threatened elsewhere in Europe and is listed on Annex II of the Habitats Directive. Atlantic Salmon run the Boyne almost every month of the year. The Boyne is most important as it represents an eastern river which holds large three-sea-winter fish from 20-30 lb. These fish generally arrive in February, with smaller spring fish (10 lb) arriving in April/May. The grilse come in July, water permitting. The river gets a further run of fish in late August and this run would appear to last well after the fishing season. The salmon fishing season lasts from 1st March to 30th September.

The Blackwater is a medium sized limestone river which is still recovering from the effects of the arterial drainage scheme of the 1970s. Salmon stocks have not recovered to the numbers that existed pre-drainage. The Deel, Riverstown, Stoneyford and Tremblestown Rivers are all spring-fed, with a continuous high volume of water. They are difficult to fish because some areas are overgrown, while others have been affected by drainage with resultant high banks.

This site is also important for the populations of two other species listed on Annex II of the E.U. Habitats Directive which it supports, namely River Lamprey (*Lampetra fluviatilis*), which is present in the lower reaches of the Boyne River, and Otter (*Lutra lutra*), which can be found throughout the site. In addition, the site also supports many more of the mammal species occurring in Ireland. Those which are listed in the Irish Red Data Book include Pine Marten, Badger and Irish Hare. Common Frog, another Red Data Book species, also occurs within the site. All of these animals, with the addition of the Stoat and Red Squirrel, which also occur within the site, are protected under the Wildlife Act, 1976.

Whooper Swans winter regularly at several locations along the Boyne and Blackwater Rivers. Known sites are at Newgrange (approx. 20 in recent winters), near Slane (20+ in recent winters), Wilkinstown (several records of 100+) and River Blackwater from Kells to Navan (104 at Kells in winter 1996/97, 182 at Headfort in winter 1997/98, 200-300 in winter 1999/00). The available information indicates that there is a regular wintering population of Whooper Swans based along the Boyne and Blackwater River valleys. The birds use a range of feeding sites but roosting sites are not well known. The population is substantial, certainly of national, and at times international, importance. Numbers are probably in the low hundreds.

Intensive agriculture is the main land use along the site. Much of the grassland is in very large fields and is improved. Silage harvesting is carried out. The spreading of slurry and fertiliser poses a threat to the water quality of this salmonid river and to the lakes. In the more extensive agricultural areas sheep grazing is carried out.

Fishing is a main tourist attraction on the Boyne and Blackwater and there are a number of Angler Associations, some with a number of beats. Fishing stands and styles have been erected in places. The Eastern Regional Fishery Board have erected fencing along selected stretches of the river as part of their salmonid enhancement programme. Parts of the river system have been arterially dredged. In 1969 an arterial dredging scheme commenced and disrupted angling for 18 years. The dredging altered the character of the river completely and resulted in many areas in very high banks. The main channel from Drogheda upstream to Navan was left untouched, as were a few stretches on the Blackwater. Ongoing maintenance dredging is carried out along stretches of the river system where the gradient is low. This is extremely destructive to salmonid habitat in the area. Drainage of the adjacent river systems also impacts on the many small wetland areas throughout the site. The River Boyne is a designated Salmonid Water under the E.U. Freshwater Fish Directive.

The site supports populations of several species listed on Annex II of the E.U. Habitats Directive, and habitats listed on Annex I of this Directive, as well as examples of other important habitat types. Although the wet woodland areas appear small there are few similar examples of this type of alluvial wet woodland remaining in the country, particularly in the north-east. The semi-natural habitats, particularly the strips of woodland which extend along the river banks, and the marsh and wet

grasslands, increase the overall habitat diversity and add to the ecological value of the site, as does the presence of a range of Red Data Book plant and animal species and the presence of nationally rare plant species.

SITE SYNOPSIS

SITE NAME: DUNDALK BAY SPA

SITE CODE: 004026

Dundalk Bay is a large open shallow sea bay with extensive saltmarshes and intertidal sand/mudflats, extending some 16 km from Castletown River on the Cooley Peninsula, in the north, to Annagassan/Salterstown in the south.

The extensive sand flats and mud flats have a rich fauna of bivalves, molluscs, marine worms and crustaceans which provides the food resource for most of the wintering waterfowl. The outer part of the bay provides excellent shallow-water habitat for divers, grebes and sea duck. In summer, it is thought to be a major feeding area for auks from the Dublin breeding colonies. The bay is used at night for roosting by wintering flocks of Greylag Goose, Greenland White-fronted Goose and Whooper Swan from Stabannan/Braganstown (inland of Castlebelligham) and other inland sites.

The site is a Special Protection Area (SPA) under the E.U. Birds Directive, of special conservation interest for the following species: Great Crested Grebe, Greylag Goose, Light-bellied Brent Goose, Shelduck, Teal, Mallard, Pintail, Common Scoter, Red-breasted Merganser, Oystercatcher, Ringed Plover, Golden Plover, Grey Plover, Lapwing, Knot, Dunlin, Black-tailed Godwit, Bar-tailed Godwit, Curlew, Redshank, Black-headed Gull, Common Gull and Herring Gull. The E.U. Birds Directive pays particular attention to wetlands and, as these form part of this SPA, the site and its associated waterbirds are of special conservation interest for Wetland & Waterbirds.

The site is of international importance because it regularly supports an assemblage of over 20,000 wintering waterbirds. It also qualifies as a site of international importance for supporting populations of Light-bellied Brent Goose (370), Knot (9,710), Black-tailed Godwit (1,100) and Bar-tailed Godwit (1,950) - all figures, unless stated otherwise, are five year mean peaks for the period 1995/96 to 1999/2000. A variety of other species occur in numbers of national importance, i.e. Great Crested Grebe (303), Greylag Goose (435), Shelduck (522), Teal (538), Mallard (765), Pintail (117), Common Scoter (581 - five year mean peak for the period 2000/01 to 2004/05), Red-breasted Merganser (121), Oystercatcher (8,746), Ringed Plover (151), Golden Plover (5,967), Grey Plover (204), Lapwing (4,892), Dunlin (11,518), Curlew (1,264) and Redshank (1,659). Other wintering species which occur include Red-throated Diver, Great Northern Diver, Cormorant, Grey Heron, Little Egret, Mute Swan, Wigeon, Goldeneye, Greenshank and Turnstone.

The site also supports nationally important populations of three wintering gull species - Black-headed Gull (6,643), Common Gull (551) and Herring Gull (754).

In spring and autumn the site attracts a range of passage migrants, including Little Stint, Curlew Sandpiper and Ruff.

Dundalk Bay SPA is one of the most important wintering waterfowl sites in the country and one of the few that regularly supports more than 20,000 waterbirds. Four species occur in numbers of international importance and a further 19 species in numbers of national importance. The regular occurrence of Golden Plover, Bar-tailed Godwit, Red-throated Diver, Great Northern Diver and Little Egret is of particular note as these species are listed on Annex I of the E.U. Birds Directive. Dundalk Bay is a Ramsar Convention site and parts of Dundalk Bay SPA are designated as Wildfowl Sanctuaries.

7.7.2014

SITE SYNOPSIS

SITE NAME: RIVER BOYNE AND RIVER BLACKWATER SPA

SITE CODE: 004232

The River Boyne and River Blackwater SPA is a long, linear site that comprises stretches of the River Boyne and several of its tributaries; most of the site is in Co. Meath, but it extends also into Cos Cavan, Louth and Westmeath. It includes the following river sections: the River Boyne from the M1 motorway bridge, west of Drogheda, to the junction with the Royal Canal, west of Longwood, Co Meath; the River Blackwater from its junction with the River Boyne in Navan to the junction with Lough Ramor in Co. Cavan; the Tremblestown River/Athboy River from the junction with the River Boyne at Kilnagross Bridge west of Trim to the bridge in Athboy, Co. Meath; the Stoneyford River from its junction with the River Boyne to Stonestown Bridge in Co. Westmeath; the River Deel from its junction with the River Boyne to Cummer Bridge, Co. Westmeath. The site includes the river channel and marginal vegetation.

Most of the site is underlain by Carboniferous limestone but Silurian quartzite also occurs in the vicinity of Kells and Carboniferous shales and sandstones close to Trim.

The site is a Special Protection Area (SPA) under the E.U. Birds Directive of special conservation interest for the following species: Kingfisher.

A survey in 2010 recorded 19 pairs of Kingfisher (based on 15 probable and 4 possible territories) in the River Boyne and River Blackwater SPA. A survey conducted in 2008 recorded 20-22 Kingfisher territories within the SPA. Other species which occur within the site include Mute Swan (90), Teal (166), Mallard (219), Cormorant (36), Grey Heron (44), Moorhen (84), Snipe (32) and Sand Martin (553) – all figures are peak counts recorded during the 2010 survey.

The River Boyne and River Blackwater Special Protection Area is of high ornithological importance as it supports a nationally important population of Kingfisher, a species that is listed on Annex I of the E.U. Birds Directive.

25.11.2010

Appendix 4
Construction Environmental Management Plan (CEMP)

MWP

Construction Environmental Management Plan (CEMP)

Mill Farm Solar 110kV Substation

Document Reference: 23991-6001-B

Client: Mill Farm Solar Project Ltd.

April 2024

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Appendices

Project No.	Doc. No.	Rev.	Date	Prepared By	Checked By	Approved By	Status
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1. Introduction

Mill Farm Solar Project Ltd. (the "applicant") is applying to An Bord Pleanála (ABP) for planning permission for the development of 1 No. 110kV onsite Eirgrid substation with associated electrical plant, 2 No. Over Head Line (OHL) End Mast structures, electrical equipment, security palisade fencing, an IPP building and a transformer (the "proposed development"), associated with an approved Solar PV Development (the "permitted development") at Ricetown Co. Meath (the "proposed development site").

The proposed development site comprises agricultural land on a site of approximately 3.6 Ha within the townland of Ricetown, approximately 12 km north of Navan, Co. Meath.

The proposed development will comprise:

- A 110 kilovolt (kV) Air Insulated Switchgear (AIS) loop-in substation with associated compound, including control and operational buildings, electrical plant, equipment, cabling, lighting, CCTV, lightening masts, drainage infrastructure, security palisade fencing, and all associated and ancillary works necessary to facilitate the development.
- Erection of 2 no. OHL end masts (c. 20m high) and 2 no. lattice gantries (c. 16m high) and associated overhead cabling to enable a loop-in/loop-out grid connection to National grid via the existing Meath Hill-Gorman 110kV overhead powerlines located above the site.

The works will include site drainage and permanent signage associated with the new construction. The road layout for the proposed project makes use of the existing onsite access road and tracks, associated with the adjacent permitted solar farm development, where possible. The proposed development is compatible and does not in any way impede or alter the permitted Mill Farm Solar Farm.

There will be a requirement to excavate approximately 7,000m^3 of clean, natural topsoil and subsoil. This material will be reused, where feasible, to create berms and used for landscaping on the adjacent permitted solar farm site. Excess clean soil material will be deposited permanently in 2 No. soil deposition areas (1,600m^2) located adjacent to the western boundary of the site.

Where surplus material is to be reused on the adjacent permitted solar farm site as a by-product (not as a waste), this will be done in accordance with Article 27 of the European Communities (Waste Directive) Regulations 2011 (S.I. No. 126 of 2011) (as amended) and having regard for the Circular Economy and Miscellaneous Provisions Act 2022 and any such legislative requirements that may be required later.

The Solar PV development was approved by Meath County Council (MCC) under reference number 22/1044 on 14th February 2023. The approved development consists of:

'Permission for a period of 10 years to construct and complete a Solar PV development with a total site area of circa 97.05 hectares, to include solar panels mounted on steel support structures, associated cabling and ducting, 12 No. Transformers, 1 No. Temporary Construction Compound, 1 No. Storage Container, maintenance tracks, perimeter fencing and gates, 61 No. CCTV, 4 No. Weather Stations, 3 No. Bunds associated landscaping and ancillary works, with an operational life of 40 years.'

The Solar Development will have the energy capacity to power approximately 20,000 homes. The proposed 110kV substation, which is the subject of this report, will be connected to the National Grid by looping into the Meath Hill-Gorman 110kV overhead powerlines above the site.

This Construction and Environmental Management Plan (CEMP), prepared by MWP on behalf of Mill Farm Solar Project Ltd., outlines construction practices and environmental management measures which are to be implemented during the construction phase to ensure the Project is constructed in accordance with best practice and with the minimum impact on the surrounding environment.

This CEMP has been produced to accompany the planning application. It is intended that this will be updated to include more site specific information, once the Contractor's and Construction Management Team (CMT) is appointed.

This CEMP should be read in conjunction with the Outline CEMP prepared by Neo Environmental Ltd. for the permitted development as the construction of the proposed development will take place simultaneously with the construction of the permitted solar farm.

1.1 CEMP Purpose and Objectives

All construction projects require the preparation of a site specific CEMP in order to ensure that the project is constructed in accordance with Best Practice, with the minimum impact on the surrounding environment.

The purpose of a CEMP is to outline how the Contractor(s) will implement a Site Construction Management System to meet the specified requirements which include contractual, regulatory and statutory requirements, environmental mitigation measures and planning conditions.

In essence this CEMP is to provide the Client and the Main Project Contractor with a practical guide to ensure compliance by all parties with Planning and Environmental requirements.

The CEMP achieves this by providing the environmental management framework to be adhered to during the pre-commencement, construction phase of the Project. It outlines the work practices, construction management procedures, management responsibilities, general control and mitigation measures, as well as monitoring proposals that are required to be adhered to in order to construct the works in an appropriate manner.

All site personnel will be required to be familiar with the plan's requirements as related to their role on-site.

There is a requirement on the Appointed Contractor(s), that details of this Preliminary CEMP are updated with progress, including the roles and responsibilities of those appointed on the site for the construction of the project, if their respective roles change during the currency of the project.

The CEMP will be reviewed by the Appointed Contractor prior to commencement of the works and submitted to Mill Farm Solar Project Ltd., ABP and/or Meath County Council for agreement. The document will be revised, if required, during the works and retained by the Appointed Contractor on file for inspection along with any associated records.

1.2 Scope

This CEMP defines the approach to environmental management at the site during the construction phase. Compliance with the CEMP, the procedures, work practices and controls will be mandatory and must be adhered to by all personnel and contractors employed during the construction phase of the project.

This CEMP seeks to:

- Promote best environmental on-site practices for the duration of the construction phase; and
- Comply with any planning conditions that may apply.

1.3 Live Document

The CEMP is considered a 'live' document, and as such, should be reviewed on a regular basis. Updates to the CEMP may be necessary due to any changes in environmental management practices and/or contractors. As explained in more detail in the later sections, the procedures agreed in this CEMP will be audited regularly throughout the construction phase to ensure compliance.

2. Site Context

The proposed development site is located adjacent to the permitted Mill Farm Solar Project site (see **Figure 2-2**). The neighbouring townlands include Stokesquarter, Painestown, Killary, Ricetown and the nearest small villages are Lobinstown (2km north-east) and Castletown K.P. (2.6km southwest), in Co. Meath. The nearest large towns are Navan, Co. Meath, Ardee in Co. Louth (12km north-east), Kells (14.5km southwest), and Drogheda (22.5km south-east) (**see Figure 2-1**). Access to the proposed development site is from an existing access point via the L1604, which connects to the N52, approximately 1km the northwest. The Killary Stream (EPA River Waterbody Code: IE_NB_06K010500) is located approximately 190m to the east of the proposed development site. Water runoff from the site most likely drains into the Killary watercourse as the land slopes towards the watercourse. There is a drainage ditch running along the southwest and south east boundary of the agricultural field the proposed development site is located within. This drainage ditch may convey surface water towards the Killary Stream.

The receiving environment is a rural area consisting of small villages, isolated farmsteads and houses and ribbon residential development along the main roads. The permitted solar farm also includes the site of a former quarry, now reinstated.

Various industrial features are also evident with a number of quarries located in the wider vicinity and electricity pylons running throughout the area.

The majority of habitat within the site boundary was classified as cultivated land - Arable Crops BC1 (wheat cereal) and the topography is relatively flat with surface water draining to lower lying drainage areas to the northeast and south. Refer to the **Ecological Appraisal Report** submitted with this planning application for further details on the habitats on the proposed development site.

The proposed substation is located adjacent to an existing 110 kV overhead powerline which runs along the southern boundary and will connect directly to this powerline.

There are no Special Areas of Conservation (SACs), Special Protection Areas (SPAs), Natural Heritage Areas (NHAs) or proposed NHAs (pNHAs) within or directly adjacent to the site. There are four designated Natura 2000 sites located within the zone of influence (ZoI) of the proposed development site; two SACs and two SPAs which include the River Boyne and River Blackwater SAC, the River Boyne and River Blackwater SPA, Dundalk Bay SAC and Dundalk Bay SPA. Refer to the **Natura Impact Statement (NIS)** submitted with this application for further details.

See **Figures 2-1** and **2-2** for the proposed development site location and **Figure 2-3** for the proposed site layout.

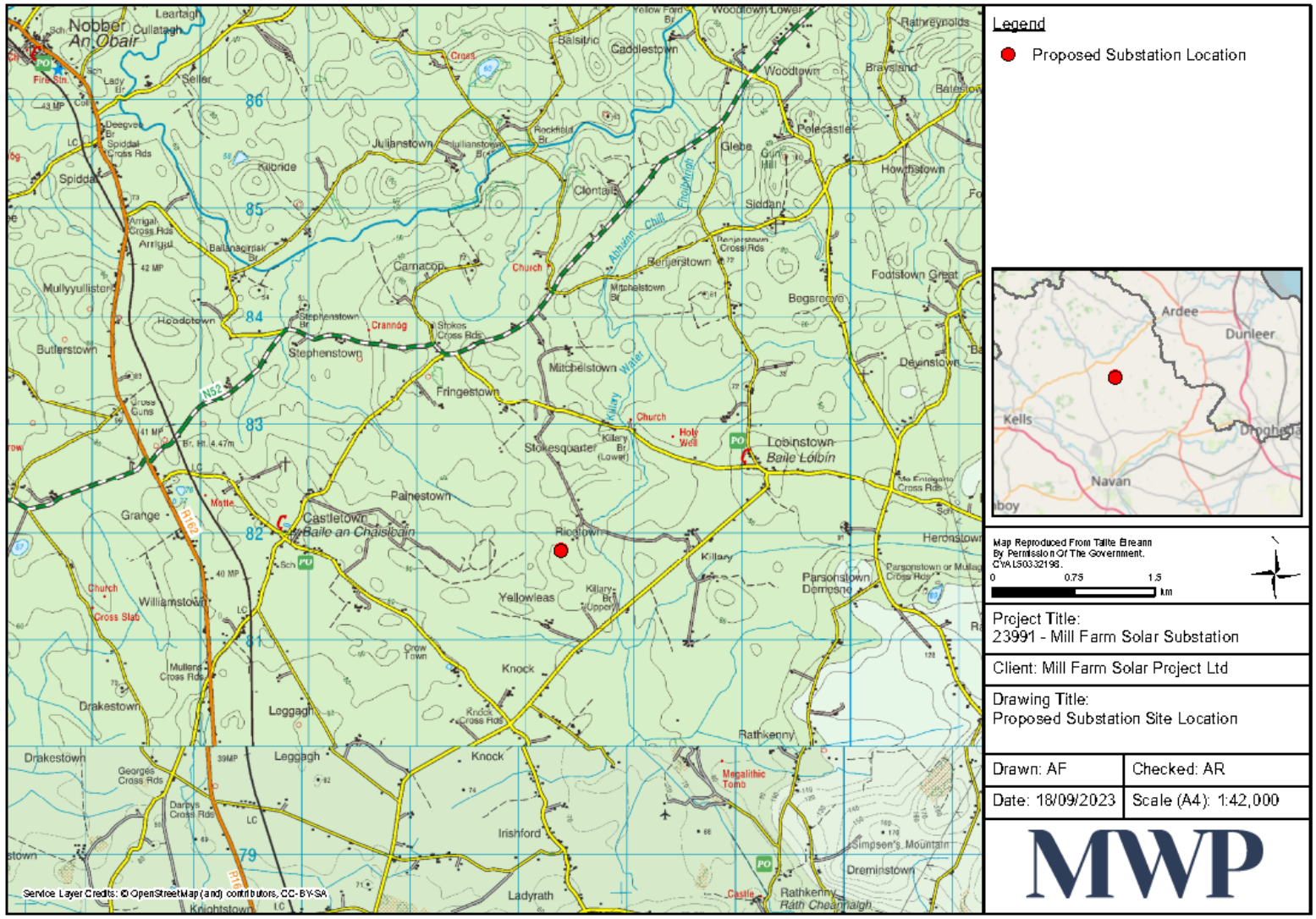


Figure 2-1: Proposed Development Site Location in context of greater area

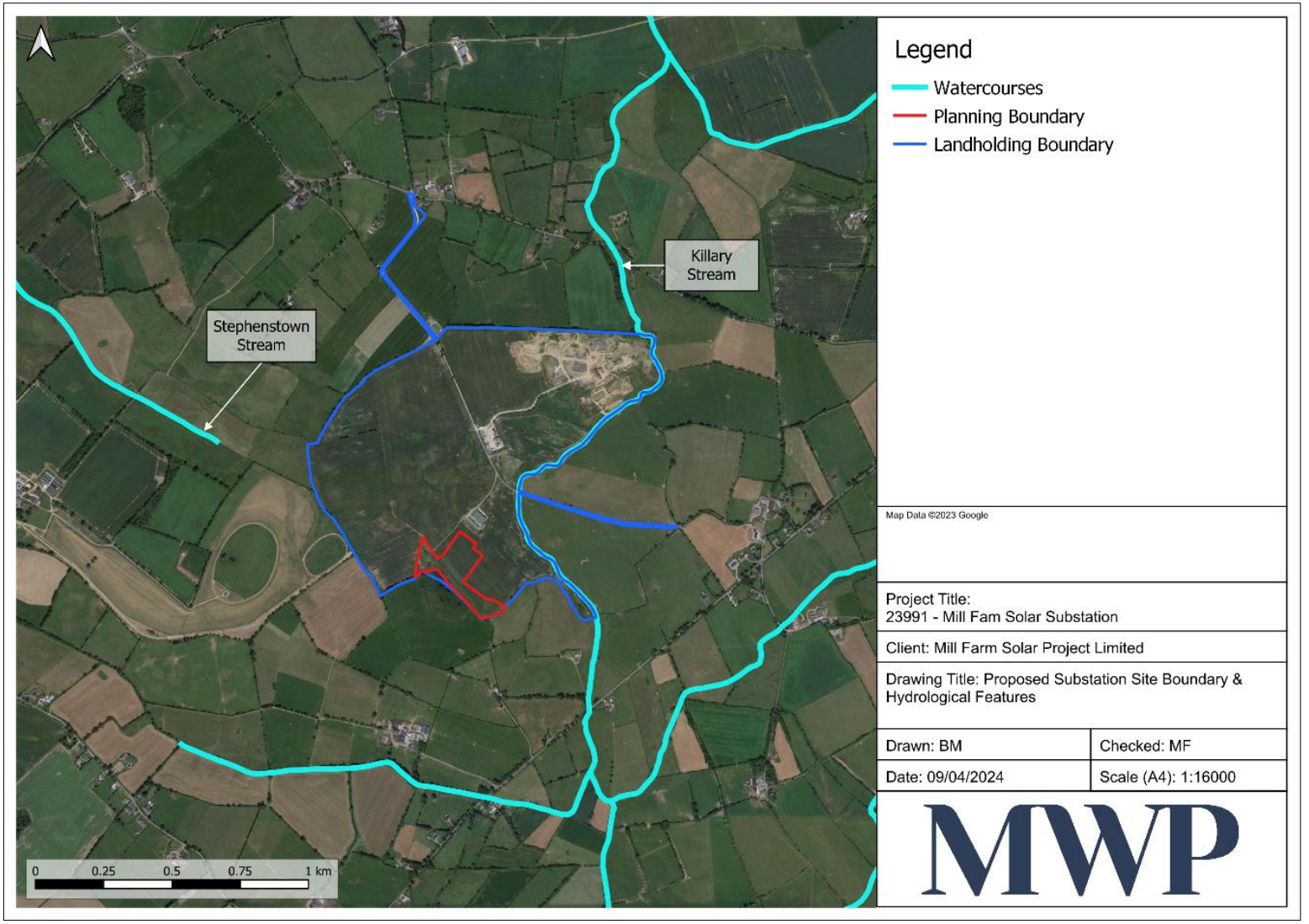


Figure 2-2: Proposed Development Site Location with red line boundary and permitted solar farm boundary

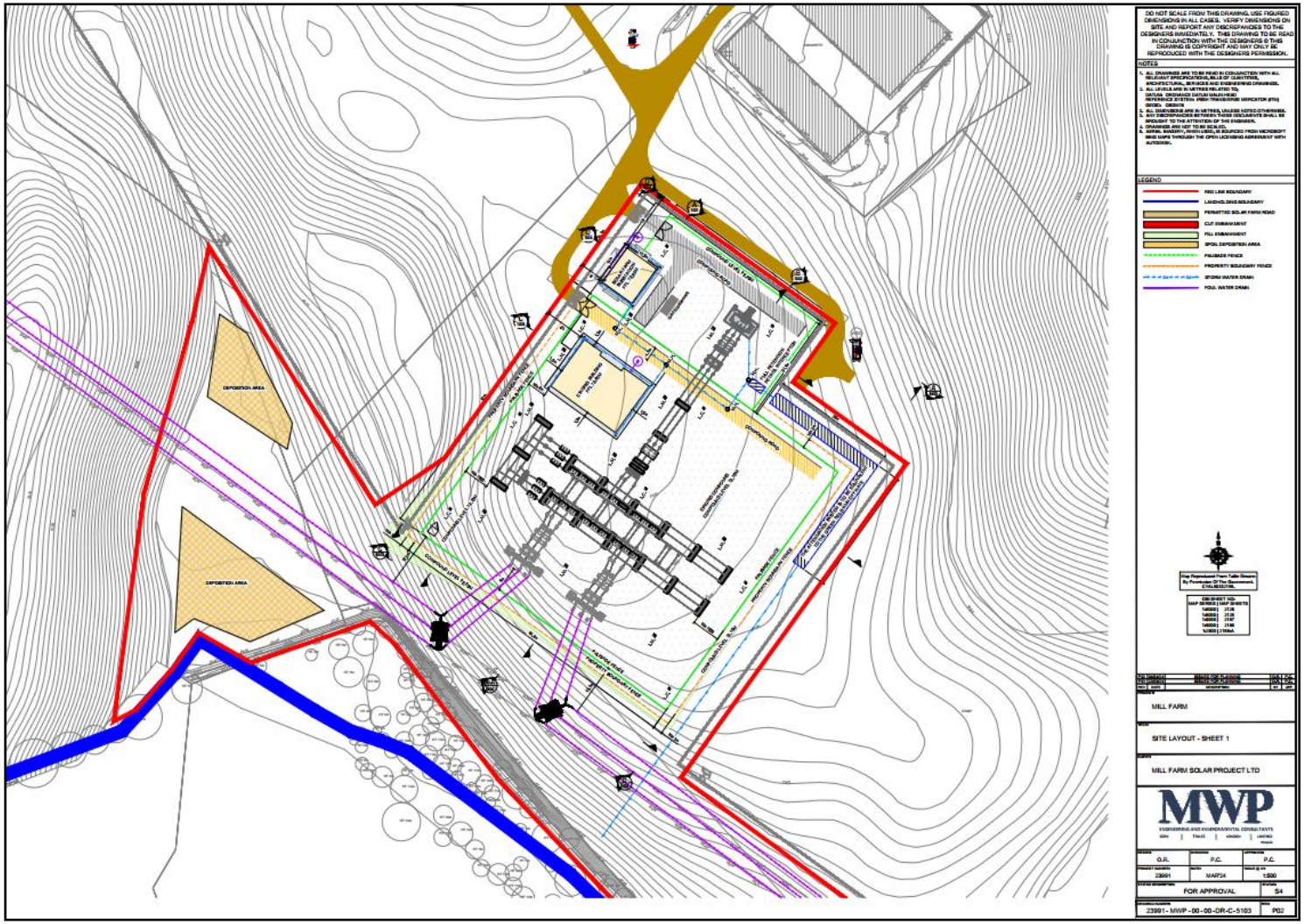


Figure 2-3: Proposed Site Layout

3. Construction Works

The Applicant is proposing to construct a 110kV loop-in substation and associated works in the townland of Ricetown, County Meath to connect the permitted Mill Farm Solar Project located at Stokesquarter, Painestown, Killary, Ricetown, Castletown K.P., Navan, Co. Meath to the National Grid.

Key elements of the civil works and activities associated with the construction phase of the development are as follows and are discussed in the following subsections:

- Pre-commencement activities including site investigation work and pre-construction surveys.
- Site preparation and installation of drainage systems.
- Bulk earthworks for formation of substation compound base.
- Substation compound base and equipment foundations.
- Cable trenching and cable laying.
- Construction of control building and installation of equipment within compound.
- Complete site works: security fencing, gates, signage, lighting.
- Demobilise offices and tidy up site.

Mechanical machinery and electrical equipment typically used for construction projects will be required to facilitate the proposed development. The following is a non-exhaustive list of plant that is typically heavy civil engineering work and may be used in this proposed development:

- 30-50T Excavators;
- 15-30T Excavator;
- Rubber Tired 15-20T Excavator;
- 3-10T Mini Diggers;
- Low Ground Pressure Excavators (Bog master);
- Mobile Crane for construction;
- Telescopic Handler;
- Tractors and trailers;
- Road grader;
- Double contained fuel bowsers;
- 12T Rollers;
- Diesel powered generators; and
- Water bowsers.

3.1 Working Hours

Construction working hours will be limited to 7.00am to 7.00pm Monday to Friday and from 08.00am to 2.00pm on Saturdays with no work on Sundays.

All traffic movements will be carried out between the hours of 7.00am to 7.00pm on Monday to Friday and 8.00am to 2.00pm on Saturdays. Outside of these times works are limited to:

- Commissioning and testing; and
- Works required in an emergency where there is the potential of harm or damage to personnel, plant, equipment, or the environment, Deliveries will also be scheduled to avoid peak times where relevant, e.g. avoiding rush hours and after school pick up times.

The working day may extend at times when critical elements of work need to be advanced. Longer working days can occur when there is a planned concrete pour, etc.

In the event that activities outside of normal working time are needed, the Contractor shall prepare a suitable Method Statement and the Contractor will seek the approval of the Local Authority and if required, the directly affected residents/other.

The construction phase of the proposed development is anticipated to cover a period of between 14-18 months. During this period, there will be a combination of HGVs for the component deliveries and cars/vans for construction staff. HGV movements are expected to be most intense throughout the stage of construction, tailing off towards the final weeks. Car/van movements are expected to be constant throughout.

3.2 Construction Personnel

The following personnel will be required during the duration of the construction phase:

- 1 no. Project Manager
- 1 no. Construction Manager
- 1 no. Environmental Manager
- Health and Safety Personnel
- Approx 15 no. Construction Personnel

It is forecast that there will be a maximum of 20 staff on site at any one time during the construction phase, although this will vary subject to the overall programme of works.

3.3 Substation Components

3.3.1 Proposed 110kV Substation Compound

The overall substation compound will have an area of c.11,572m^2 divided into two adjoining sections: an EirGrid section (c. 9,262m2 in area) and an IPP (Independent Power Producer) section (c.2,310 m^2 in area), each of which are enclosed within a 2.6m high palisade fence. An additional outer concrete post and rail fence (1.4m in height) will be installed around the perimeter of the EirGrid compound.

Each section will contain a control building and an outdoor electrical yard including electrical equipment such as electrical pylons, over and underground ducting & cables, busbars, disconnects, breakers, sealing ends, lightning

and lighting masts. The IPP section will also contain 1 No. bunded transformer with a back up emergency diesel generator and associated diesel storage tank also located within the bund. Both buildings will be a block built single storey building approximately 6.5m in height, with pitched roof and an external blockwork and plastered finish.

The overall substation compound will consist of a 50mm compound stone finish. The max height of the substation is 8.55m. 10 No. Lightning masts of 18m high will be erected within the compound.

3.3.2 Overhead loop-in Grid Connection

The electrical connection required from the proposed substation development will be facilitated by Overhead 110kV Loop-in Interface Masts. The erection of 2 No. Over Head Line (OHL) End Mast structures (c. 20m high) are required under the existing Meath Hill-Gorman 110kV OHL. There is also a requirement for the installation of 2 No. lattice gantries (c. 16m high).

The existing OHL will be terminated and 2 new towers will be erected to create 2 new OHL circuits. The new interface mast structure locations are to be selected based on ground surveys, ground profiles, allowable angles and ruling span checks. A foundation is excavated for each tower location and the placement of excavation material is temporarily stored in designated deposition areas. Any excess excavation material will be utilised as berms, deposited at the permanent deposition area and for landscaping purposes on the adjacent permitted solar farm. Reinforcing bars are placed into each excavation and the body of each tower assembled adjacent to the excavation. Concrete is poured directly into each excavation and allowed to cure until a preformed metal panel is set in place. The foundations are then backfilled individually. At this stage, the existing OHL is de-energized and construction of the 2 towers take place. An earth mat is laid and is a requirement for the electrical connection of the tower. A hardstand area is made available for the use of a crane to guide and position each section of the towers together. Once all sections of the towers are bolted securely the conductor can be centred and installed. All other associated equipment such as down dropper conductors and shackles are positioned before the electrical circuit can be tested in both directions to confirm OHL is re-energised.

Drainage

Foul sewage from the temporary facilities will be routed to covered precast concrete watertight 5m^3 tanks designed for receiving and storing sewage with no outlet. The tanks will be sized to suit the expected use and will be installed in a location remote from water courses. Contents and residues will be regularly emptied by a competent operator for safe disposal to an approved treatment works.

Surface water runoff from the roofs of the substation buildings, and hard-surfaced areas within the electrical yard, including areas where a risk of a contaminant leak or spill may be present (such as the transformer bund), will be collected in a series of filter drains, roof guttering and downpipes and routed to an underground gravity drainage network. All runoff collected in the stormwater sewer network will pass through an oil/petrol Interceptor prior to discharging to an attenuation unit on the north-eastern side of the compound. The attenuation unit will provide attenuation of the increased volumes of surface water runoff generated from the hard surfaces of the development when compared to the current greenfield condition. The attenuated surface water runoff is then proposed to overflow at a controlled rate equal to the greenfield runoff rate to an existing vegetated land drain on the southern side of the compound.

3.3.3 Construction Compound

A suitably surfaced contractor's temporary construction compound and laydown area will be provided for the duration of the site works on the permitted adjacent Solar Farm. The construction compound will consist of

temporary site offices, equipment storage and construction staff welfare facilities, as well as car parking areas for staff and visitors. A potable water supply will be provided by a water tanker.

3.4 Construction Traffic and Haul Route

Access to the Site is from an existing access point off the L1604. It is anticipated the haul route will likely be from the N52, which is located to the northwest of the site. Vehicles will exit the N52 onto the L1604 in a southwest direction from approximately 1km, before turning right into the site access point.

A detailed Construction Traffic Management Plan (CTMP) will be prepared for the proposed development by the appointed contractor(s) prior to construction.

Access on this existing road will be maintained. The volume of traffic generated by the transportation requirements will be minimal.

Throughout the construction phase of the project access will need to be maintained to the following areas:

- Local road network including L1604
- Site access roads

Construction traffic will include:

- HGVs importing construction materials including concrete and piping
- HGVs exporting waste/spoil materials
- HGVs delivering plant and fuel
- Traffic associated with on-site construction personal

Further details on how traffic will be managed during construction is provided in **Appendix 2, EMP 6: Construction Traffic Management**.

3.5 Construction Methodology

3.5.1 Site Preparation

Prior to the commencement of construction activities, the area for development will be fenced off.

The site boundary will be clearly marked with high visibility tape and the appointed contractor will not be permitted to use any areas outside the identified site boundary for any activity relating to construction.

3.5.1.1 Temporary Site Construction Compound

A suitably surfaced contractor's temporary construction compound and laydown area will be provided for the duration of the site works on the permitted adjacent Solar Farm. The construction compound will consist of temporary site offices, equipment storage and construction staff welfare facilities, as well as car parking areas for staff and visitors.

Container storage units will be provided for holding tools and materials. The compound will be fenced with chain-link fencing on wooden posts and will have a lockable gate.

A potable water supply will be provided by a water tanker. Foul sewage from the temporary facilities will be routed to covered precast concrete watertight 5m^3 tanks designed for receiving and storing sewage with no outlet. The

tanks will be sized to suit the expected use and will be installed in a location remote from water courses. Contents and residues will be regularly emptied by a competent operator for safe disposal to an approved treatment works.

The temporary compound will be used as a secure storage area for construction materials, waste materials and also contain temporary site accommodation units to provide welfare facilities for site personnel. Facilities will include offices, meeting rooms, a canteen and a drying room.

The temporary compound will be constructed early in the project in order to provide site offices and accommodation for staff and for the delivery of materials. Any surface water management, bunding, waste management measures etc will also be put in place at the outset. The compound will be in place for the duration of the construction phase and will be removed once commissioning is complete.

The temporary construction compound will typically be constructed as follows:

- The area to be used as the compound will be marked out at the corners using ranging rods or timber posts;
- The compound will be established using a similar technique as the construction of the excavated site road;
- A bunded containment area will be provided within the compound for the storage of lubricants, oils and site generators etc;
- If necessary, the compound will be fenced and secured with locked gates; and
- The compound will include an enclosed wastewater management system (holding tank) capable of handling the demand during the construction phase when as many as 20 people will be working on site. These will be emptied as required by a licensed contractor.

See Figure 3-1 for an example temporary construction compound. Materials and waste handling and storage will be within the confines of the site(s). Adequate warning signs will be on display to illustrate the required PPE and risks associated when entering the construction areas.

Figure 3-1: Typical temporary site construction compound

4. Construction & Environmental Management

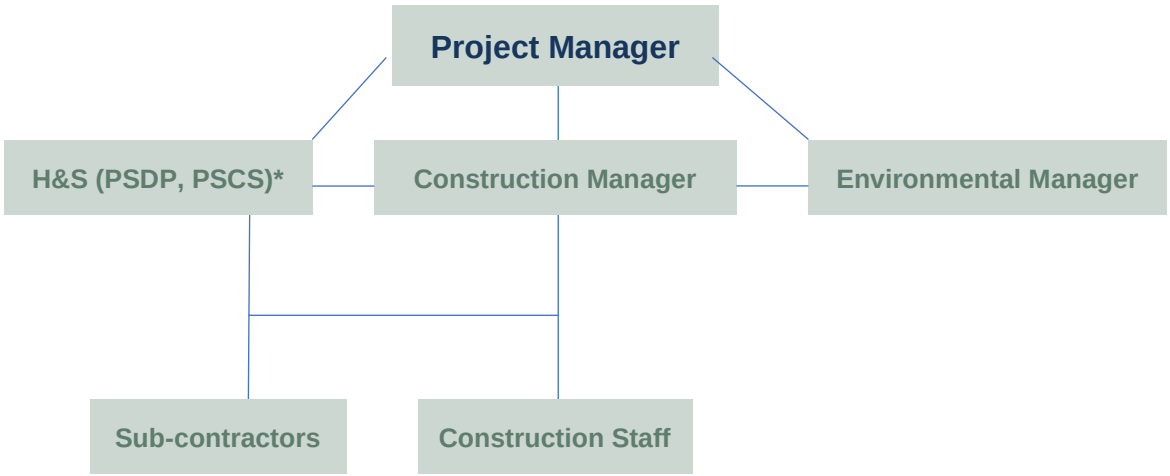
4.1 Overview

A number of outline environmental management plans (EMPs) have been prepared for managing the impacts of Construction Activities associated with the proposed development. See Table 5-1 below. Prior to commencement of construction these plans are to be updated and implemented by the Appointed Project Manager and/or Project Contractor as relevant.

Once appointed, it is the Contractor's responsibility to update and add (where required) project specific control measures relevant to the environmental management plans and procedures. The Contractor will ensure that plans/procedures are communicated to all site staff, including sub-contractors, through induction, training and at relevant meetings.

4.2 On-site Organisational Structure and Responsibility

The Organisational Structure for the Contractor's Project Team is included below. This structure is defined by the Contractor and includes the names of the assigned personnel with the appropriate responsibility and reporting structure reflected.



*H&S – Health and Safety

*PSDP – Project Supervisor Design Process

PSCS – Project Supervisor Construction Stage

The Contractor will select the Project Team for the construction of the Project. The Contractor's Project Team will include an overall Project Manager, whose duties will stretch beyond the day-to-day works to budgetary, procurement and scheduling matters. The selected Construction Manager will have overall responsibility for the construction-site personnel carrying out the works and the Construction Manager will report to the Project Manager.

A competent Environmental Manager will be appointed for the duration of the works and will report to the Project Manager. The Construction Manager will communicate regularly with the Environmental Manager to ensure mitigation measures are applied to specific works. The Environmental Manager will carry out tasks as required, including ensuring that installation and maintenance of sediment control measures are implemented and maintaining approved waste management control measures. The use of dedicated staff, under the direction of the Environmental Manager, will ensure the environmental controls are in situ ahead of the works on-site.

4.3 Duties and Responsibilities

The general role of key people on-site implementing the CEMP will be:

- The Project Manager - liaises with the Project Team in assigning duties and responsibilities in relation to the CEMP to individual members of the main contractor(s)'s project team.
- The Construction Manager - liaises with the Environmental Manager when preparing site works where there is a risk of environmental damage and manages the construction personnel and general works.
- The Environmental Manager - ensures that the CEMP is developed, implemented and maintained. The Environmental Manager's tasks at the construction-site are described below at Section 4.3.3. To ensure adequate cover of environmental tasks, waste management tasks and responsibilities, dedicated construction staff will be assigned to the Environmental Manager to implement and maintain the Sediment and Erosion Plan and any other measures required.

Other roles include:

- Health and Safety (PSDP and PSCS);
- Specialist environmental contractors (if required).

4.3.1 Project Manager

Name: TBC

A Project Manager is to be appointed on behalf of the main Contractor(s) to manage and oversee the entire project. The Project Manager is responsible for:

- Implementing of the Construction and Environmental Management Plan (CEMP);
- Implementing the Health and Safety Plan;
- Management of the construction project;
- Liaison with the client/developer;
- Liaison with the Project Team;
- Assigning duties and responsibilities in relation to the CEMP;
- Production of construction schedule;
- Materials procurement; and
- Maintaining a site project diary.

4.3.2 Construction Manager

Name: TBC

The Construction Manager manages all the works to construct the project, on behalf of the Contractor. The Construction Manager reports to the Project Manager. In relation to the CEMP, the Construction Manager is responsible for:

Site-Specific Method Statements

- Liaising with the Environmental Manager in preparing site-specific Method Statements for all Works activities where there is a risk of environmental damage, by incorporating relevant Environmental Control Measures and referring to relevant Environmental Control Measure Sheets;
- Liaising with the Environmental Manager in reviewing and updating site-specific Method Statements for all Works activities where Environmental, Resource & Waste Management Control Measures and Environmental Control Sheets have been altered; and
- Liaising with the Environmental Manager where third party agreement is required in relation to site-specific Method Statements, Environmental, Resource & Waste Management Control Measures and/or Environmental Control Measure Sheets.

General

- Being aware of all project Environmental Commitments and Requirements;
- Ensuring that all relevant information on project programming, timing, construction methodology, etc., is communicated from the Project Manager, to the Environmental Manager in a timely and efficient manner in order to allow pre-emptive actions relating to the environment to be taken where required;
- Programming and planning of excavation works and communicating this schedule to the Environmental Manager;
- Ensuring that adequate resources are provided to design and install any environmental interventions;
- Liaising with the Project Team in assigning duties and responsibilities in relation to the CEMP to individual members of the Contractor's project staff;
- Ensuring that the Environmental Manager performs regular and frequent environmental site inspections; and
- Reviewing and approving all waste management control measures ensuring compliance with National and International Waste legislation and best practice.

4.3.3 Environmental Manager

Name: TBC

The Environmental Manager is responsible for:

General

- Being familiar with the project environmental commitments and requirements;
- Being familiar with baseline data gathered for the various environmental assessments and during pre-construction surveys;
- Assisting the Construction Manager with the provision of the information on environmental management during the course of the construction phase;

- Liaising with the Project Team in assigning duties and responsibilities in relation to the CEMP to individual members of the Contractor's project staff;
- Implementing the environmental procedures of the CEMP;
- Liaising with the Construction Manager to ensure that the control measures set out in the Schedule of Environmental Mitigation are implemented;
- Liaising with the client/developer in relation to environmental issues; and
- Auditing the construction works from an environmental viewpoint.

Site-Specific Method Statements

- Liaising with the Construction Manager in preparing site-specific Method Statements for all Works activities where there is a risk of environmental damage. These site-specific Method statements should incorporate relevant Environmental Control Measures and take account of relevant Environmental Control Measure Sheets;
- Liaising with the Construction Manager in reviewing and updating site-specific Method Statements for all Works activities where Environmental Control Measure and Environmental Control Sheets have been altered; and
- Liaising with the Construction Manager where third party agreement is required in relation to site-specific Method Statements, Environmental Control Measures and/or Environmental Control Measure Sheets.

Third Party Consultations

- Overseeing, ensuring coordination and playing a lead role in third party consultations required statutorily, contractually and in order to fulfil best practice requirements;
- Ensuring that the minutes of meetings, action lists, formal communications, etc., are well documented and that the consultation certificates are issued as required;
- Liaising with all prescribed bodies during site visits, inspections and consultations;
- Where new Environmental Control Measures are agreed as a result of third party consultation, ensuring that the CEMP is amended accordingly;
- Where new Environmental Control Measures are agreed as a result of third party consultation, the Environmental Manager should liaise with the Construction Manager in updating relevant site-specific Method Statements; and
- Where required, liaising with the Construction Manager in agreeing site-specific Method Statements with third parties.

Licensing

- Ensuring that all relevant works have (and are being carried out in accordance with) the required permits, licences, certificates, planning permissions, etc,;
- Liaising with the designated licence holders with respect to licences granted pursuant to the Wildlife Act, 1976, as amended (if required); and
- Bringing to the attention of the Project, Design and Construction Team any timing and legal constraints that may be imposed on the carrying out of certain tasks.

Resource & Waste Management Documentation

- Holding copies of all permits and licences provided by waste contractors;
- Ensuring that any operations or activities that require certificates of registration, waste collection permits, waste permits, waste licences, etc., have appropriate authorisation; and
- Gathering and holding documentation with the respect to waste disposal.

Legislation

- Keeping up to date with changes in environmental legislation that may affect environmental management during the construction phase;
- Advising the Construction Manager of these changes; and
- Reviewing and amending the CEMP in light of these changes and bringing the changes to the attention of the Contractor's senior management and subcontractors.

Specialist Environmental Contractors

- Identifying requirements for specialist environmental contractors (including ecologists, asbestos, waste contractors and spill clean-up specialists) before commencement of the Project;
- Procuring the services of specialist environmental contractors and liaising with them with respect to site access and report production;
- Ensuring that the specialist environmental contractors are competent and have sufficient expertise to co-ordinate and manage environmental issues; and
- Co-ordinating the activities of all specialist environmental contractors on environmental matters arising out of the contract.

Environmental Induction Training and Environmental Toolbox Talks

- Ensuring that Environmental Induction Training is carried out for all the Contractor's site personnel. The induction training may be carried out in conjunction with Safety Induction Training;
- Providing toolbox talks on Environmental Control Measures associated with Site-specific Method Statements to those who will undertake the work;

Environmental Incidents/Spillages

- Prepare and be in readiness to implement at all times an Emergency Response Plan;
- Notifying the relevant statutory authority of environmental incidents;
- Carrying out an investigation and producing a report regarding environmental incidents. The report of the incident and details of remedial actions taken should be made available to the relevant authority, and the Construction Manager;
- The Site Environmental Manager shall notify the Client of any complaints or environmental incidents within 24 hours of occurrence. Where significant incidents occur requiring the involvement of statutory authorities or emergency services or where any pollution events occur, the Client shall be notified within 1 hour; and
- In the event of encountering a spillage or contaminated land/buried waste being encountered the Environmental Manager will contact MWP - Engineering and Environmental Consultants who have at their disposal Environmental Engineers and Scientists with experience in addressing spillage or contaminated

land/buried waste. MWP have personnel based in three offices in Ireland and will be available to dispatch suitably qualified and experienced personnel at short notice in the event of an Environmental Incident.

Site Environmental Inspections and Auditing

- Carrying out regular documented inspections of the Site to ensure that work is being carried out in accordance with the Environmental Control Measures and relevant site-specific Method Statements, etc.,
- Carrying out inspections of the site drainage system;
- Appending copies of the inspection reports to the CEMP;
- Liaising with the Construction Manager to organise any repairs or maintenance required following the daily inspection of the Site;
- Accommodate audits by the Employer and/or independent auditing consultants during the Project;
- Accommodate third party environmental auditing when required;
- During audits, the Environmental Site Manager shall make the necessary staff available during each audit and provide access to all documentation and site areas (and provide necessary induction and training to allow access where required);
- If there are any adverse findings arising from the environmental audits, the Environmental Site Manager shall be required to take prompt mitigation actions and provide written reports to the Employer detailing such mitigation; and
- The Environmental Site Manager shall notify the Employer of any complaints or environmental incidents within 24 hours of occurrence. Where significant incidents occur requiring the involvement of statutory authorities or emergency services or where any pollution events occur, the Employer shall be notified within 1 hour.

Note: Communication in respect of the project to regulatory or statutory bodies shall be undertaken by the Employer, unless otherwise agreed, except in the case of incident notification.

Environmental Records

- The Construction Environmental Manager shall provide all CEMP documentation to the Client on completion of the site works. Reports arising during the site works, such as verification reports or waste disposal records shall be provided to the Client within one month of completion of the activity and may be subject to review.

4.3.4 Site Personnel

All Contractors, and other site personnel, on the project will adhere to the following principal duties and responsibilities:

- To co-operate fully with the CMT and the Project Manager/Environmental Manager in the implementation and development of the CEMP at the site;
- Adhering to the relevant Environmental Control Measures and relevant site-specific Method Statements
- To conduct all their activities in a manner consistent with regulatory and best environmental practice;
- To participate fully in the environmental training programme and provide management with any necessary feedback to ensure effective environmental management at the site; and
- Adhere fully to the requirements of the site environmental rules.

- Adhering to the Health and Safety Plan;
- Reporting immediately to the Environmental Manager and Construction Manager any incidents where there has been a breach of agreed procedures including:
    - a spillage of a potentially environmentally harmful substance;
    - an unauthorised discharge to ground, water or air etc.

4.3.5 Other Roles

4.3.5.1 Health and Safety Personnel

The Health and Safety personnel for the construction project is appointed by the Contractor in line with the Construction Regulations:

- Carrying out duty of Project Supervisor Construction Stage (PSCS);
- Responsible for safety induction of all staff and personnel on-site;
- Implementing the Health and Safety Plan;
- Auditing and updating the Health & Safety Plan; and
- All other required legal duties.

4.3.5.2 Specialist environmental contractors

- Identifying requirements for specialist environmental contractors (including ecologists, asbestos/waste contractors and spill clean-up specialists) before commencement of the project;
- Procuring the services of specialist environmental contractors and liaising with them with respect to site access and report production;
- Ensuring that the specialist environmental contractors are competent and have sufficient expertise to co-ordinate and manage environmental issues, and
- Co-ordinating the activities of all specialist environmental contractors on environmental matters arising out of the contract.

4.4 Contacts

4.4.1 Main Contractor Contacts

Table 4-1: Main Contractor Contacts

Position Title	Name	Phone	Email
Main Contractor	TBC		
Project Manager	TBC		
Construction Manager	TBC		
Environmental Manager*	TBC		

Position Title	Name	Phone	Email
Safety (PSCS)*	TBC		
Safety Manager*	TBC		
Site Emergency Number*	TBC		
Resource & Waste Management Coordinator	TBC		
Overall Project PSDP	TBC		

**24 hour contact details required*

4.4.2 Employer Contacts

Table 4-2 Employer Contacts

Position Title	Organisation	Name	Phone	Email
Employer	Mill Farm Solar Project Ltd.	Jane O'Connor	(057) 936 1540 / (087) 429 6496	enquiries@millfarmsolar.ie
Employer's Representative	MWP	Olivia Holmes	(021) 453 6400	olivia.holmes@mwp.ie

4.4.3 Third Party Contacts

Table 4-3: Third Party Contacts

Organisation:	Position:	Name/Address	Phone:	Email Address:
Inland Fisheries Ireland	Dublin Office	Inland Fisheries Ireland 3044 Lake Drive Citywest Business Campus Dublin D24 CK66 Ireland	(01) 884 2693	dublin@fisheriesireland.ie
National Parks and Wildlife Service	District Conservation Manager (North Eastern Division - Kildare, North & East Offaly, Dublin, Meath & Louth)	National Parks & Wildlife Service 90 King Street North Dublin 7 D07 N7CV IRELAND	(01) 539 3175 / (01) 539 3230	nature.conservation@chg.gov.ie
Environmental Protection Agency (EPA)	EPA Dublin - Regional inspectorate	EPA Dublin McCumiskey House Richview Clonskeagh Road Dublin 14 D14 YR62	(01) 268 0100	info@epa.ie
Local Authority	Meath County Council	Meath County Council, Planning Department, Buvinda House, Dublin Road, Navan, County Meath, C15 Y291	(046) 9097000	planning@meathcoco.ie
Health and Safety Authority	HSA Contact Centre	HSA Contact Centre Health and Safety Authority Metropolitan Building	0818 289 389	contactus@hsa.ie

		James Joyce Street Dublin 1		
Emergency Services	An Garda Síochána Navan Garda Station	Navan Garda Station Abbey Road, Navan, Co. Meath C15 FW77	(046) 903 6100	
Emergency Services	Ambulance and Fire Service	Ambulance and Fire Service	999 or 112	

4.5 Auditing, Monitoring and Response

The Environmental Monitoring Schedule (Table 4-4) for construction will provide for the checking of equipment, materials storage and transfer areas and specific environmental controls.

The Contractor will assign an Environmental Manager who will visit the site regularly to monitor the construction activities on a day to day basis. The duties will include completing the required checklists (sample checklist included below) and coordinating with the relevant personnel as required ensuring all environmental monitoring is carried out.

Table 4-4: Example of Environmental Monitoring Schedule

Aspect	Area of Inspection	Monitoring Required	Note/Checks	Frequency	Responsibility
Surface Water Run-off Controls	Weather Forecast	Met Éireann download	• Pre-determined rainfall trigger levels (e.g. 1 in 5 year storm event or heavy rainfall at >25mm/hr)	Regular/daily/weekly during the construction phase as well as during and after significant rainfall events	Environmental Manager
	Discharges from on-site sediment and erosion controls	Visual inspection	• Colour, presence of silts	Weekly	Environmental Manager
Water quality monitoring	Discharges from on-site sediment and erosion controls Internal site road Site Entrance	Visual inspection	• Unacceptable level of sediment/silt on the road surface • Presence of waste	Weekly	Environmental Manager
		Visual inspection	• Unacceptable level of sediment/silt on the road surface • Presence of waste • Surface Condition	Daily	Project Manager
Roads	Fuel & Oil Storage areas	Visual inspection	• Damage to containers or ancillary equipment • Leakages • Unlocked storage container • Fuels stored within bunded area	Daily	Project Manager
	Construction Materials Storage Areas	Visual inspection	• Damage • Untidiness	Daily	Environmental Manager
Temporary Site Compound Area	Waste Collection Areas	Visual inspection	• Damage • Untidiness • Full skips	Daily early/weekly	Environmental Manager
	Mobile wheel wash	Visual inspection	• Build-up of sediment	Daily	Environmental Manager
	Wastewater facilities	Visual inspection	• Holding tank requiring emptying	Weekly	Project Manager
Operation Control	Concrete pours	Visual inspection	• Run-off / spills	Weekly	Project Manager
	Dust generation	Visual Inspection	• Cleanliness of roads and compound area • Dust at stockpiles • Dust from delivery vehicles	To be scheduled with pours	Project Manager

4.6 Environmental Performance Indicators

The Contractor will outline the key performance indicators (KPIs) for the Site in gauging successful site management in the prevention of pollution and the protection of the environment.

Environmental performance indicators will include:

- Number of environmental accidents/incidents logged;
- Breach of procedure and corrective actions;
- Number of environmental complaints received;
- Results of monthly water quality monitoring if required;
- Results of noise and vibration monitoring, and
- Results of site audits.

The performance indicators will be communicated to all relevant personnel and sub-contractors. The review periods for analysing site performance indicators must also be specified.

4.6.1 Response Procedure/ Corrective Action

In the event of an environmental incident, or breach of procedure, or where a complaint is received, or in the event of encountering buried waste or contaminated soils/groundwater, the contributing factors are to be investigated and remedial action taken as necessary. The Contractor will ensure that the following response actions will take place:

1. The Project Manager must be informed of any incident, breach of procedure and/or complaint received and details must be recorded in the incident/complaint register
2. The Project Manager is to conduct/co-ordinate an investigation to determine the potential influence that could have led to the non-compliance.
3. The Project Manager is to notify and liaise with the appropriate site personnel where required, e.g. Site Environmental Manager.
4. The Project Manager shall notify the Client of any complaints or environmental incidents within 24 hours of occurrence. Where significant incidents occur requiring the involvement of statutory authorities or emergency services or where any pollution events occur, the Client shall be notified within 1 hour.
5. If necessary, the Project Manager will inform the appropriate regulatory authority. The appropriate regulatory authority will depend on the nature of the incident.
6. The details of the incident will be recorded on an Incident / Complaints Form which is to record information such as the cause, extent, actions and remedial measures used following the incident/complaint. The form will also include any recommendations made to avoid reoccurrence of the incident.
7. The Project Manager will be responsible for any corrective actions required as a result of the incident e.g. an investigative report, formulation of alternative construction methods or environmental sampling, and will advise the Designer and Client as appropriate.
8. The Project Manager is to ensure that the relevant environmental management plans/procedures are revised and updated as necessary.

5. Environmental Management Plans

A number of environmental management plans (EMP) have been prepared for managing the impacts of Construction Activities associated with the Project. See Table 5-1 and refer to Appendix 2. These plans are to be implemented by the Appointed Project Manager and/or Project Contractor(s) as relevant.

Once appointed, it is the Contractor's responsibility, to update and add (where required) project specific control measures relevant to the environmental management plans and procedures. The Contractor will ensure that plans/procedures are communicated to all site staff, including sub-contractors, through induction, training and at relevant meetings.

Table 5-1: Plans for Managing Impacts of Construction Activities

Ref:	Procedure:
EMP 1	Surface Water Runoff and Excavation Management
EMP 2	Fuels and Oils Management
EMP 3	Management of Concrete
EMP 4	Construction Noise Management
EMP 5	Construction Resource & Waste Management
EMP 6	Construction Traffic Management
EMP 7	Construction Dust Management
EMP 8	Ecological Management Plan Protection of Habitats and Fauna
EMP 9	Emergency Response
EMP 10	Site Environmental Training and Awareness
EMP 11	Monitoring and Auditing
EMP 12	Environmental Accidents, Incidents and Corrective Actions
EMP 13	Environmental Complaints

Appendix 1

Contractor Method Statements

(Contractor Input Required at Construction Stage)

Appendix 2

Environmental Management Plans

EMP 1: Surface Water Runoff and Excavation Management

Purpose

There will be a requirement to excavate approximately 7,000m^3 of clean, natural topsoil and subsoil. This material will be reused, where feasible, to create berms and used for landscaping on the adjacent permitted solar farm site. Excess clean soil material will be deposited permanently in 2 No. soil deposition areas (1,600m^2) located adjacent to the western boundary of the site.

Where surplus material is to be reused on the adjacent permitted solar farm site as a by-product (not as a waste), this will be done in accordance with Article 27 of the European Communities (Waste Directive) Regulations 2011 (S.I. No. 126 of 2011) (as amended) and having regard for the Circular Economy and Miscellaneous Provisions Act 2022 and any such legislative requirements that may be required later.

Potential negative effects include (in the absence of adequate management) weathering and erosion of the surface soils, increased dust levels or pollutants from the construction processes, and accidental spills and impacted runoff resulting in adverse water quality effects.

According to the Environmental Protection Agency (EPA) Map the proposed development site and the surrounding area lies within Hydrometric Area No.06, Newry, Fane, Glyde and Dee (Water Framework Directive) Catchment Area and within the Dee sub catchment 'SC_010' and 'SC_030'.

The Killary Stream (EPA River Waterbody Code: IE_NB_06K010500) is located a short distance (190m) to the east of the proposed development site. Water runoff from the site most likely drains into the Killary watercourse as the land slopes towards the watercourse. There is a drainage ditch running along the southwest and south east boundary of the agricultural field the proposed development site is located within. This drainage ditch may convey surface water towards the Killary Stream.

The purpose of this plan is to describe measures for the management of excavations, the management of all surface water and run-off on the site, and in particular, sediment and erosion control.

Management of Surface Water during Earthworks

It is important that surface water/ground water is controlled during the construction phase of the proposed development to prevent heavy silting/contamination to the drainage ditch on the proposed development site, the Killary Stream and other surrounding watercourses. As outlined within the Risk & Drainage Impact Assessment for the permitted solar development, SuDS will be installed prior to the construction of the permitted and proposed developments. This SuDS feature will take the form of soakaways which will treat and attenuate surface water runoff before infiltrating into the soils below, or to discharge into the existing field drainage system.

Surface water/ground water run off using the following methods:

- Erosion controls are required to be implemented to prevent runoff flowing across exposed ground and become polluted by sediments. These measures include:
    - Monitoring of the weather forecast prior to planning excavation works;
    - Minimising the area of exposed ground and ensuring excavation will not proceed faster than the rate of construction;
    - Stripped pavement/soil material will be temporarily stockpiled more than 10m away from any drain or watercourse or taken off-site.
    - Stockpiles will be in a dry zone that is not subject to ponding.

  - Providing bunds or other diversions to keep run off from entering the stockpile area where required.
  - Providing impermeable mats (plastic sheeting) as covers to mounded excavated material and open excavations during periods of heavy rainfall.
- Earth movement activities will be suspended during periods of prolonged rainfall events;
- The earthworks material will be placed and compacted in layers to prevent water ingress and degradation of the material;
- Drainage and associated pollution control measures will be implemented on site before the main body of construction activity commences;
- Runoff of surface water from construction areas will be controlled;
- During construction, surface water management controls will be in place to prevent entry of silted run-off into the existing site stormwater network. The existing site drains directly to ground (i.e. storm water is not collected).
- Silt-laden runoff should be expected from any areas of recently exposed soil or rock. There is also potential for pollution to occur from machinery used in the substation construction.
- Any introduced or artificial materials required (e.g. silt fencing, straw bales, sand bags, etc.) that might need to be deployed onsite, will be removed on completion of the works.
- Discharge from the silt control measures will be discharged into an area of vegetation for dispersion or infiltration, in accordance with SuDS techniques or discharged into the existing drainage network within the proposed development site.
- Water abstraction will not be required as part of the proposed project.
- Additional drainage measures will be implemented to help attenuate the increase in surface water flows, if surface water is observed discharging from the construction compound.
- Runoff from this area is anticipated to have high silt loading due to mobilised soils from excavated surfaces, fines from track aggregate and sludge due to traffic.
- Hardstanding runoff will be directed to a temporary swale on the lower boundary of the construction compound. This drainage scheme will be removed at the end of the construction stage and the area reinstated.
- Surface water runoff from the roofs of the substation buildings, and hard-surfaced areas within the electrical yard, including areas where a risk of a contaminant leak or spill may be present (such as the transformer bund), will be collected in a series of filter drains, roof guttering and downpipes and routed to an underground gravity drainage network. All runoff collected in the stormwater sewer network will pass through an oil/petrol Interceptor prior to discharging to an attenuation unit on the north-eastern side of the compound. The attenuation unit will provide attenuation of the increased volumes of surface water runoff generated from the hard surfaces of the development when compared to the current greenfield condition. The attenuated surface water runoff is then proposed to overflow at a controlled

rate equal to the greenfield runoff rate to an existing vegetated land drain on the southern side of the compound.

Clean Water Diversion

- Where feasible, clean water (e.g. water that has yet to come into contact with any disturbed construction or working areas), will be kept separate from the watershed or intercepted by the construction drainage.
- Up-gradient cut-off ditches and water diversion measures will be installed, if required, in order to intercept and divert clean water around the temporary construction compound area. These measures will be installed ahead of the main construction works. This will reduce or prevent the amount of potential silt-laden or polluted water that might require treatment.
- Clean runoff that has been diverted around an area of working should be discharged into an area of vegetation for dispersion or infiltration, in accordance with SuDS techniques.
- Sediment control measures, such as silt traps, gravel, sand bags, anchored straw bales or silt fencing might be required at the discharge point to prevent erosion at the outlet and aid dispersion of the diverted water.

Stockpile Control Measures:

- All construction waste within the site shall be removed from the site and disposed of/recovered at a suitably authorised waste facility.
- Excavation and stockpiling activities will be minimized during wet weather periods.
- Soil and/or subsoil will be left undisturbed in situ for as long as possible prior to excavation.
- Stockpiles of excavated soil and/or subsoil will be graded so as to shed water.
- Repeated handling of soil will be avoided and ideally all soil stockpiles will remain undisturbed until otherwise required.

Excavation and Earthworks

- All excavation and earthworks will be carried out in accordance with BS6031:2009 Code of Practice for Earthworks. Soil handling, extraction and management will be undertaken with regard to best practice guidelines such as Guidance on the Waste Management (Management of Waste from the Extractive Industries) Regulations 2012.
- The following practices will be followed in relation to the excavation of cable trenches, topsoil stripping and any other earthworks:
- Excavated material will be stored and re-used to infill excavations on site where possible. Where the soil is to be re-used, this will be side casted. All side casted soil to be kept a minimum of 20m from any watercourse.
- There will be a requirement to excavate approximately 7,000m^3 of clean, natural topsoil and subsoil all subject to a detailed site investigation report. This material will be reused, where feasible, to create berms and used for landscaping on the adjacent permitted solar farm site. Excess clean soil material will be deposited permanently in 2 No. soil deposition areas (1,600m^2) located adjacent to the western boundary of the site.

- Although unlikely, if any contaminated earth is uncovered, this will be stored separately and disposed of accordingly once the contaminant has been identified.
- Efforts will be made to ensure that water does not accumulate in excavated areas.
- All topsoil and subsoil will be stored separately, and care will be given to ensure the structure and quality of the soil is not damaged.
- The amount of exposed ground and soil stockpiles will be kept to a minimum and any stockpiles in place for an extended period of time will be allowed to re-vegetate naturally.
- Earthworks shall not occur during unsuitable weather conditions, including when soils are waterlogged or very dry.

Silt Control

- Silt-laden runoff should be expected from any areas of recently exposed soil or rock. There is also potential for pollution to occur from machinery used in construction of the proposed development.
- Any introduced or artificial materials required (e.g. silt fencing, straw bales, sand bags, etc.) that might need to be deployed onsite, will be removed on completion of the works.
- Discharge from the silt control measures will be discharged into an area of vegetation for dispersion or infiltration, in accordance with SuDS techniques or discharged into the existing drainage network within the proposed development site.

Monitoring

- Controls will be regularly inspected and maintained.
- The Environmental Manager will regularly inspect the site. Any damage will be repaired or cleared promptly.
- Weather forecasts will be regularly monitored during the construction phase. The 24 hour advance meteorological forecasting service from Met Éireann will be used.
- Water Inspection Programme to include visual monitoring of Sediment and Erosion Control measures.

Responsibility

The Environmental Manager is responsible for ensuring that appropriate water pollution prevention measures are put in place and that water inspection is carried out if required. Where standards are breached and remedial action is taken, an investigation must be carried out in conjunction with the Construction Manager, and further samples must be taken to verify that the situation has returned to normal.

The Environmental Manager is responsible for ensuring spill kits are readily available in vulnerable locations.

The Construction Manager (or a designate) is responsible for ensuring the spill kits are adequately stocked and should inform the Environmental Manager when items have been used.

EMP 2: Fuel and Oils Management

Purpose

Construction machinery and associated equipment will be the principal sources of pollutants such as oil, lubricants, fuel and hydrocarbons. The accidental release of fuel, oil spills or harmful chemicals which could result in adverse water quality impacts.

The purpose of this plan is to describe measures for the management of all fuel and oils on-site for the protection of watercourses from any spills.

Procedure

Construction machinery and vehicles:

- The potential for hydrocarbons getting into the existing drains and local watercourses will be mitigated by only refueling construction machinery and vehicles in designated refueling areas using a prescribed re-fueling procedure;
- Fuel tanks, drums and mobile bowsers will have a secondary containment such as a double skinned tank. 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;
- Refueling will be carried out using 110% capacity double bunded mobile bowsers. The refueling bowser will be operated by trained personnel. The bowser will have spill containment equipment which the operators will be fully trained in using;
- Refueling of vehicles and plant will be carried out on hard standing, using drip trays to ensure that no fuel can contaminate the ground outside of the bunded areas;
- Storage areas will be covered, wherever possible, to prevent rainwater filling the bunded areas;
- Storage areas will be kept secure to prevent acts of vandalism that could result in leaks or spills;
- All containers of any size will be correctly labelled indicating their contents and any hazard warning signs.
- All oil and diesel storage facilities will be at least 30m from any watercourse including surface water drains;
- Fuel fill pipes will not extend beyond the bund wall and will have a lockable cap secured with a chain;
- Suitable precautions will be taken to prevent spillages from equipment containing small quantities of hazardous substances (i.e. 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 in a firm level surface.
- Plant nappies or absorbent mats to be placed under refueling point during all refueling to absorb drips. Plant nappies to be provided beneath small mobile plant (e.g. small generators, pumps, etc.);
- Mobile bowsers, tanks and drums should be stored in secure, impermeable storage area, away from drains and open water;

- No tanks or pipework containing liquids such as fuel, oils or chemicals will be stored below ground;
- To reduce the potential for oil leaks, only vehicles and machinery will be allowed onto the site that are mechanically sound. An up-to-date service record will be required from the main contractor;
- For deliveries and dispensing activities, it will be ensured that:
    - Site specific procedures are in place for bulk deliveries;
    - Delivery points and vehicle routes are clearly marked; and
    - Emergency procedures are displayed and a suitably sized spill kit is available at all delivery points, and staff are trained in these procedures and the use of spill kits.
- Potential leaks from delivery vehicles will be reduced by visually inspecting all delivery vehicles for major leaks. Contractors supplying concrete and crushed stone to the site will be contractually required to supply their products using roadworthy vehicles;
- Vehicles and plant will not park near or over drains and will be washed in accordance with the commitments set out above;
- Should there be an oil leak or spill, the leak or spill will be contained immediately using oil spill kits; the nearby dirty water drain outlet will be blocked with an oil absorbent boom until the fuel/oil spill has been cleaned up and all oil and any contaminated material removed from the area. This contaminated material will be properly disposed of in a licensed facility;
- The Environmental Manager will be immediately informed of the oil leak/spill and will assess the cause and the management of the clean-up of the leak or spill. They will inspect nearby drains for the presence of oil, and initiate the clean-up if necessary;
- Immediate action will be facilitated by easy access to oil spill kits. An oil spill kit that includes absorbing pads and socks will be kept at the site compound and also in site vehicles and machinery;
- Correct action in the event of a leak or spill will be facilitated by training all vehicle/machinery operators in the use of the spill kits and the correct containment and cleaning up of oil spills or leaks. This training will be provided by the Environmental Manager at site induction; and
- In the event of a major oil spill, a company who provide a rapid response emergency service for major fuel spills will be immediately called for assistance, their contact details will be kept in the site office and in the spill kits kept in site vehicles and machinery.

Oil storage during the construction phase

- Only the required volume of oil will be stored for the works taking place at the time.
- A secure bunded containment area will be provided within the site for the storage of lubricants, oils and site generators, etc. Emergency procedures and contingency plans, including emergency spill kit with oil boom, will be set up to deal with accidental spillages.
- Fuel containers must be stored within a secondary containment system e.g. bund for static tanks or a drip tray for mobile stores;

- Access to oil stores will be controlled by the storage of oils within a locked steel container within the site compound. The site compound will be surrounded by a palisade fence and locked when there are no site personnel present.
- Collision with oil stores will be prevented by locating oils within a steel container in a designated area of the site compound away from vehicle movements.
- Leakages of oil from oil stores will be prevented by storing these oils in bunded tanks which have a capacity of 110% of the total volume of the stored oil. Ancillary equipment such as hoses and pipes will be contained within the bunded storage container. Taps, nozzles or valves will be fitted with a lock system.
- The volume of leakages will be prevented through monitoring oil storage tanks/drums for leaks and signs of damage. This will be carried out daily by the Environmental Manager and
- Long term storage of waste oils will not be allowed on site. These waste oils will be collected in leak-proof containers and removed from the site for disposal or re-cycling by an approved service provider.

Responsibilities

The Construction Manager and Environmental Manager are responsible for ensuring Fuel and Oils are managed in line with this procedure.

Reference

Best Practice Guidelines BPGCS005 – Oil Storage Guidelines (Enterprise Ireland).

EMP 3: Management of Concrete

Purpose

There is potential for pollutants to enter storm drains negatively impacting on water quality from the use of cementitious material.

The purpose of this plan is to describe measures for the management of concrete on-site for the protection of watercourses from any spillages.

Procedure

Supervision of concrete pours:

- To reduce the potential for cementitious material entering watercourses, concrete pours will be supervised by the Construction Manager, a suitably qualified Engineer and the Environmental Manager;
- The Construction Manager will ensure that the area of the pour is completely drained of water before a pour commences and;
- Incidental rainfall from light showers during the period of a pour is typically absorbed into the concrete matrix but heavier showers can result in some run off from the top surface of the concrete pour. If run-off is encountered the Environmental Manager will block the outflow from the drains to retain or treat the run-off until the pH is neutral before discharge to the drainage network.

Concrete Water

- Pours will not take place during heavy rainfall;
- To reduce the volume of cementitious water, washout of concrete trucks will not take place on site. Concrete trucks will be washed out off site at the source quarry;
- To reduce the volume of cementitious water, only concrete truck chutes will be washed down on site. The concrete trucks shall wash down their chutes at a designated chute wash down area within the temporary Construction Compound (away from the works area). The wash down area shall consist of a polythene lined bunded area of about 10m^3 capacity. The collected washdown water will be disposed of using a registered contractor;
- No disposal of concrete remnants will be permitted on site;
- Breaking of concrete (associated with structure demolition) has the potential to emit alkaline dust into the receiving environment. Where necessary a barrier between the dust source and the sensitive receptor (the water body in this case) will be erected to limit the possibility of dust contacting the receptor.
- The use of wet concrete and cement in or close to any water body will be carefully controlled so as to minimise the risk of any material entering the water;
- Where possible, a specific fast-setting mix (by having either a higher than normal fines content, a higher cement content or the use of ecologically-appropriate chemical admixtures, will be used to minimize risk of ecological impacts.
- Concrete will not be allowed to enter watercourses under any circumstances, and drainage from excavations in which concrete is being poured will not be discharged directly into existing watercourses without

appropriate treatment and consent from the relevant authority. Delivery trucks, tools and equipment will be cleaned at the wheel wash facility located at the temporary site compound.

Responsibilities

- All concrete pours will be supervised by suitable personnel;
- The Environmental Manager is responsible for ensuring that appropriate water pollution prevention measures are put in place and that water sampling is carried out where required. Where standards are breached he/she should carry out an investigation and in conjunction with the Construction Manager, he/she should ensure remedial action is taken and further samples taken to verify that the situation has returned to normal;
- The Environmental Manager is responsible for ensuring spill kits are readily available in vulnerable locations.

EMP 4: Construction Noise Management

Purpose

The construction phase of the Project has the potential to increase noise levels at noise sensitive locations surrounding the site. Potential noise impacts from the construction phase will depend on the number and type of equipment employed during the works. The primary emissions expected from the proposed development are fugitive emissions of noise from the use of machinery and equipment and the increase in human activity for the duration of the works. A Noise Impact Assessment Report (NIAR) was completed for the proposed development and is included with the application documents. The NIAR outlined mitigation measures for the construction stage.

Construction works will be carried out in accordance with best practice and in line with recommendations contained within BS 5228-1:2009+A1:2014.

The purpose of this plan is to describe measures for the management of impacts from construction noise.

Procedure

Control of Noise at Source

- Plant will be properly and regularly maintained.
- Compressors, if needed, will be 'sound related' models fitted with properly lined and sealed acoustic covers which will be kept closed whenever machines are in use.
- All vehicles and mechanical plant will be fitted with effective exhaust silencers.
- All traffic movements will be carried out between the hours of 7:00am – 7:00pm (Monday – Friday inclusive and 8:00am – 2:00pm (Saturday) . Outside of these times works are limited to:
    - Commissioning and testing; and
    - Works required in an emergency where there is the potential of harm or damage to personnel, plant, equipment, or the environment, Deliveries will also be scheduled to avoid peak times where relevant, e.g. avoiding rush hours and after school pick up times.
- The working day may extend at times when critical elements of work need to be advanced. Longer working days can occur when there is a planned concrete pour etc.
- In the event that activities outside of normal working time are needed, the Contractor shall prepare a suitable Method Statement and the Contractor will seek the approval of the Local Authority and if required, the directly affected residents/other.

Construction Phase

Best practice in the form of BS5228 –1&2:2009 + A1 2014, *Code of Practice for the Control of Noise and Vibration on Construction and Open Sites* will be adopted during the construction phase in order to minimise the noise generated by construction activities and nuisance to neighbours.

- A pre-construction commitment to managing nuisance noise will be agreed through notification and consultation with affected parties, if deemed necessary.
- Operators of all mobile equipment will be instructed to avoid unnecessary revving of machinery (Clause 8.2.1 General).

- Use of appropriate plant and equipment where possible with low noise level generation where possible (Clause 8.2.2 Specification and substitution).
- All construction plant to be used on site should have effective well-maintained silencers (Clause 8.2.3 Modification of existing plant and equipment).
- Noise generating equipment will be located as far as possible away from local noise sensitive areas identified (Clause 8.2.5 Use and siting of equipment); and,
- Regular and effective maintenance of site machinery including a full maintenance schedule to ensure that all pieces of equipment are in good working order. With efficient use of well-maintained mobile equipment, considerably lower noise levels than those predicted can be attained (clause 8.2.6 Maintenance).
- All plant and equipment for use will comply with the Construction Plant and Equipment Permissible Noise Levels Regulations 1996 (SI 359/1996) and other relevant legislation.

In addition, the following best practice measures are proposed:

- Training of site staff in the proper use and maintenance of tools and equipment.
- Avoidance of unnecessary noise when carrying out manual operations and when operating plant and equipment.
- Machines that could be in intermittent use will be shut down between work periods or will be throttled down to a minimum.
- Plant start-up will be sequential rather than all together.
- Internal access tracks to be well maintained.
- Plant known to emit noise strongly in one direction will, when possible, be orientated so that the noise is directed away from noise-sensitive locations and;
- Drop heights for materials such as gravels will be minimised whenever practicable.

Responsibility

- The Construction Manager will be familiar with the noise sensitive receptors and alert the Environmental Manager in good time prior to work commencing in the areas closest to any noise sensitive receptors.
- Any noise complaints shall immediately be directed to the site agent. Depending on the nature of the complaint remedial action may need to be undertaken.
- The Environmental Manager will review any relevant planning conditions in updating this plan.

References

BS5228 –1&2:2009, Code of Practice for the Control of Noise and Vibration on Construction and Open Sites

IOA GPG Supplementary Guidance Note 5: *Post Completion Measurements* (July 2014).

Details of management of noise on the site to be finalised by Appointed Contractor

EMP 5: Construction Resource & Waste Management

Purpose

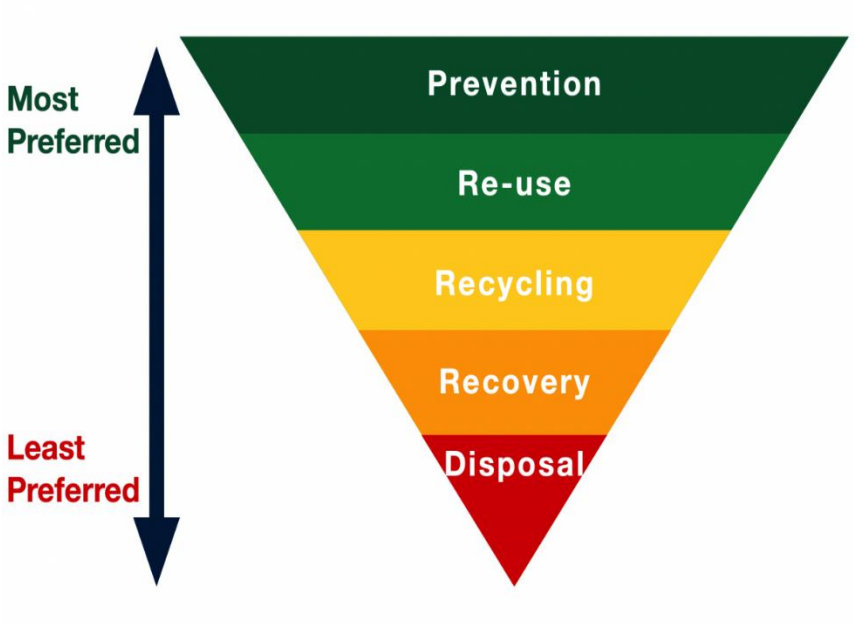
During construction excavated material comprising coarse and fine grained soil material will be removed to a suitably permitted/licensed facility by licensed waste contractors for recycling, disposal or where appropriate used as a by-product to create a berm on the adjacent and permitted solar farm site. Where the material is to be reused on another site as a by-product (not as a waste), this will be done in accordance with Article 27 of the European Communities (Waste Directive) Regulations 2011 (S.I. No. 126 of 2011) (as amended) and having regard for the Circular Economy and Miscellaneous Provisions Act 2022 and any such legislative requirements that may be required later.

The purpose of the plan is to describe measures for the management of all wastes associated with the construction works. There will be limited waste generated during the construction phase of the Proposed Development.

Procedure

Resource & Waste Management Plan

- The Waste Management Hierarchy (illustrated below) will form the basis of the Plan and will incorporate the principles outlined in '*A Waste Action Plan for a Circular Economy*' (WAPCE) and the guidance provided in EPA '*Best Practice Guidelines for the Preparation of Resource & Waste Management Plans for Construction & Demolition Projects*', 2021;
- The Construction Resource & Waste Management Plan will address the following aspects of the Project:
    - Analysis of the waste arising/material surpluses;
    - Specific waste management objectives for the project;
    - Methods proposed for prevention, reuse and recycling of wastes, and
    - Material handling procedures.



Construction

Contractors working on site during the works will be responsible for the collection, control and disposal of all waste generated by the works. Construction phase waste may consist of hardcore, stone, concrete, steel reinforcement, shuttering timber, food waste from the canteen and unused oil, diesel and building materials. This waste will be collected at the end of the construction phase and taken off site to be reused, recycled and disposed of in accordance with best practice procedures at an approved facility. Domestic wastewater from the on-site holding tank will be collected on a regular basis by approved contractors and disposed of in an authorised facility in accordance with best practice. Plastic waste will be taken for recycling by an approved contractor(s) and disposed or recycled at an approved facility.

General Resource & Waste Management on Site

To manage waste effectively, focus on the following:

- Ordering the correct amount of materials to be delivered when needed;
- Ensuring materials are not delivered to site damaged and unusable;
- Reducing the amount of packaging used by suppliers;
- Where possible, establish a 'take back' system with suppliers;
- Ensuring wastes are handled and stored correctly; and
- Limiting the amount waste going to landfill by reusing and recycling where possible.

Temporary Construction Compound

Construction compound / waste storage area will be created for storage of waste materials, plant, and equipment and for site offices, and welfare facilities.

Wastes Generation

Best practice procedures in general will minimise waste generated on-site. Measures including good site management will be taken to limit the quantity of waste generated during construction phase.

Miscellaneous/incidental waste materials will be generated during construction including concrete, pallets, packaging, spare steel reinforcement, shuttering timber, food waste, unused oil, and building materials. Waste will be collected at regular intervals during the construction phase and taken off site by licenced waste contractor to be reused, recycled and disposed of in accordance with best practice procedures at an approved facility.

Plastic waste will be removed for recycling by an approved contractor and disposed or recycled at an approved facility.

Surplus materials will include materials generated by the excavation works during construction works, mainly comprising excavated soil and subsoil. There will be a requirement to excavate approximately 7,000m^3 of clean, natural topsoil and subsoil. This material will be reused, where feasible, to create berms and used for landscaping on the adjacent permitted solar farm site. Excess clean soil material will be deposited permanently in 2 No. soil deposition areas (1,600m^2) located adjacent to the western boundary of the site.

Waste streams will include wastes generated by plant, machinery and construction workers over the period of the works, for example waste oils, sewage, refuse (paper, carton, plastic etc), wooden pallets, waste batteries, fluorescent tubes etc.

Minimisation, Reuse, Recycling, and Management of Construction Waste

The primary aim of this Resource & Waste Management Plan is to ensure that wastes generated during the course of the project are managed in a systematic manner in accordance with Waste Management Legislation and the principles of the waste Hierarchy, i.e. Prevention, Minimisation, Reuse, Recovery, and Recycling.

Wastes generated during the construction phase will be identified and segregated according to their category as described by the European Waste Catalogue (EWC). In order to affect this designated waste storage areas will be created at the site temporary construction compound, other suitable locations, for storage and segregation of wastes prior to transport for recovery/disposal at suitably licensed/permitted facilities. Suitably sized containers for each waste stream will be provided and will be supervised by the Waste Management Coordinator (WMC). The WMC will be responsible for the management of wastes during the entire project. The numbers and sizing of the containers will be agreed with the Waste Contractors/Hauliers in advance of the commencement of the construction works. Source segregation of the wastes generated will result in cost savings, in addition to providing an environmentally sound route for the management of all the Construction and Demolition Waste.

Under Waste Management Regulations 2007 a waste collection permit, for appropriate waste codes and destinations is required by the waste haulier, to transport the waste from one site to another. The contractor will ensure the movement of all wastes are carried out in compliance with relevant waste regulations.

Wastes will only be treated or disposed of at waste facilities to carry out a specific activity (i.e. chemical treatment, landfill, incineration etc.) for the specific waste types. Records of all waste movements and associated documentation will be held on site. It is planned that all waste activities at the site will comprise of;

- source,
- segregation,
- storage, and
- collection

In order to prevent/minimise the generation of wastes, the Contractor will ensure that raw materials are ordered so that the timing of the delivery/quantity delivered, and the storage is not conducive to the creation of unnecessary waste.

The Contractor will continuously seek to improve the Resource & Waste Management process on the site during all stages of the construction phase and maximise opportunities for reuse/recycling where ever they exist. For example in relation to waste packaging, the Contractor will seek to negotiate take back of as much packaging waste as possible at source, to ensure maximum recycling. The Construction Resource & Waste Management Plan will be included in the team weekly meetings. In addition the plan will be communicated to the whole construction team regularly on site, including any updates form earlier revisions of the plan.

An overview of the methods to manage the primary waste streams is presented in the following sections;

Soils and Spoil

There will be a requirement to excavate approximately 7,000m^3 of clean, natural topsoil and subsoil. This material will be reused, where feasible, to create berms and used for landscaping on the adjacent permitted solar farm site. Excess clean soil material will be deposited permanently in 2 No. soil deposition areas (1,600m^2) located adjacent to the western boundary of the site. As a precautionary measure, it is recommended that an "Unexpected Contamination Finds Protocol" is developed prior to the commencement of works, which will enable the contractor to safely manage any potential contamination on the site should it be encountered during planned excavation works.

Should contaminated soil be encountered during excavations works the Contractor shall cease excavation works in the area where contaminated soil has been uncovered. The Contractor shall engage the services of a Consultant who specialises in Contaminated Land and arrange a site visit for the inspection of the contaminated soil. The Contaminated Land Consultant shall provide guidance on appropriate soil sampling and chemical testing and classification of the waste. Once the test results are available the Contaminated Land Consultant will issue a report.

Concrete

Concrete waste will occur. Excess concrete will be returned to the supplier for reuse. Concrete trucks will be washed out off site at the source quarry. To reduce the volume of cementitious water, only concrete truck chutes will be washed down on site. The concrete trucks will wash down their chutes at a designated chute wash down area in the site compound. The wash down area will consist of a polythene lined bunded area with a capacity of about 10m³. No disposal of concrete remnants will be permitted on site. Concrete management procedures are detailed in **EMP 3: Management of Concrete**.

The Environmental Officer will monitor the pH of the water in the chute wash down bund(s) and can dose with CO_2 or acidic water from the drains until the wash out water achieves neutrality before discharge if deemed necessary.

Waste-Water Treatment / Effluent disposal

During the construction phase, staff facilities will be provided at the site compound/other suitable locations. A cabin comprising a canteen, washroom and toilets will be provided. This cabin will contain three integrated holding tanks; one for clean water, one for waste water and the third for sewage. The waste water tank and sewage tank will be emptied as required by a vacuum tanker and removed from site to a licensed facility. These staff facilities will be removed at the end of the construction phase. Foul sewage from the temporary facilities will be routed to covered precast concrete watertight 5m^3 tanks designed for receiving and storing sewage with no outlet. The tanks will be sized to suit the expected use and will be installed in a location remote from water courses. Contents and residues will be regularly emptied by a competent operator for safe disposal to an approved treatment works.

Hazardous and Other Waste

The following Table lists some of the waste types that may be generated during the construction works. Although some waste types may be generated in locations other than the temporary construction compound (for example if absorbent filters are required at foundation/track locations etc.), such waste materials will be stored within the temporary construction compound only. Waste materials outlined below, generated outside the temporary construction compound, will be taken to the temporary construction compound on a daily basis and placed in appropriate waste receptacles.

Common Construction Wastes					
Concrete	Wood	Cables	Ducting	Metallic packaging/tins	Cardboard Packaging
Paper packaging	Plastic packaging	Wooden packaging	Office paper	Non-hazardous detergent	Plastic containers
Plastic bottles	Mixed waste	Ferrous metal	Non-hazardous waste electrical(s)		

Hazardous Waste, as categorised by the European Waste Catalogue	
13 01 10: Used mineral hydraulic oil (non-chlorinated)	13 02 08: Other waste engine, gear or lube oil
13 02 05: Waste engine, gear or lube oil (non-chlorinated)	13 02 08: Other waste engine, gear or lube oil
16 01 07: Oil filters	20 01 23: Discarded equipment containing CFCs
16 06 01: Lead batteries	16 07 08: Oily waste from transport and storage tanks

16 10 01: Hazardous liquid wastes to be treated off-site	20 01 21: Fluorescent tubes and other mercury-containing waste
20 01 33: Hazardous batteries and accumulators that are collected separately	15 02 02: Absorbents, filter materials, wiping cloths, clothing contaminated by dangerous substances

If hazardous waste / contaminated ground is encountered, then appropriate handling, storage, transportation, and disposal will be carried out. Works to the area where the hazardous waste/contaminated ground is encountered will stop. The ground will be assessed by an Environmental Engineer. Prior to being removed from the site, the waste will undergo a comprehensive waste assessment and classification by suitably trained/qualified person(s), in accordance with the EWC hazardous waste list. If non-hazardous waste becomes contaminated with hazardous waste, the entire load will be considered hazardous. At the site every effort will be made to segregate waste, and properly segregate hazardous waste from non-hazardous and inert waste arising. Hazard wastes will be identified, removed and kept separate from other wastes in order to avoid cross contamination. Specific method statement detailing the necessary mitigation measures during the excavation/handling, transportation, and disposal of hazardous materials encountered at the site will be prepared as required.

Oils, paints, adhesives and chemicals will be kept in a separate contained secured storage area. Lids will be kept on containers to avoid spillage/evaporation. Waste oils, adhesives etc will be handled, and disposed of appropriately. Every effort will be made at the site for no long term storage of hazardous materials/fuels/oils/chemicals, etc. There shall be no long term storage of waste oils etc. at the site.

Gravel/Stone/Asphalt/ Bituminous Materials

These materials will be delivered to site if required, with excess returned to supplier.

Metals

It is now common practice to segregate metals for reuse and recycling, however there are still sites where waste metal is thrown away in the general rubbish. One of primary sources of metal on sites is rebar. Waste of rebar will be reduced by ordering 'made to measure' from the source and detailed scheduling of all reinforced concrete structural elements.

Packaging/Plastic

Double handling will be avoided by segregating packaging wastes immediately after un-wrapping. Waste packaging will be segregated and in separate containers, at storage area for collection by the waste contractor for disposal to licensed facility.

Mixed Waste

- This waste stream will arise from waste packaging of piping components;
- A 40 m^3 open skip will be put in place to collect mixed waste within a designated waste area at the temporary site construction compound;
- This skip will accept plastic packaging, plastic piping, cardboard and other waste;
- Special care will be taken to ensure that no green waste or food waste will be disposed of in this skip. The purpose of this arrangement is to stop birds scattering food items across the site and therefore prevent vermin infestation;
- This material will be collected by contracted and licensed non-hazardous waste collectors.

Mixed Waste/Canteen Waste

Staff canteens have the potential to generate food waste and packaging waste. Designated receptacles will be provided at the canteen(s) to allow for segregation, and storage of individual waste streams. These will include receptacles for food waste, dry recyclables, and residual bin. All offices and canteens will be equipped with black plastic refuse bags and wheelie bins for the purpose of collecting and delivering this waste stream to the compactor. This material will be collected by the contracted waste management company/transported to licensed facility.

Dry recyclable collection from welfare facilities

- All offices and canteens will be equipped with clear plastic bags and wheelie bins for the purpose of collecting dry recyclables. This will be strictly managed to prevent any food waste entering the dry recyclable stream;
- Recycling wheelie bins will be located at all welfare facilities and offices associated with the project; and
- This material will be collected by the contracted and licensed non-hazardous waste collectors.

Other waste

Other wastes which may be generated may include residual non-recyclable waste such as paper, cloth, some cardboards, or plastics. Others may include fibreglass and geotextiles, and polystyrene. These types of materials will be stored in a dedicated container at the site compound. All residual wastes will be dispatched to suitably licensed facility for disposal. Other construction and demolition waste will be collected and disposed of appropriately.

Management of General Waste

- Access to materials will be controlled. A dedicated storage area will be provided in the site temporary construction compound for building materials such as cables, plastic piling for the settlement ponds, geotextile matting, blocks, tools and equipment, fence posts and wire, booms, pipes etc.
- Access to stored materials will be restricted; the site compound will be securely fenced from the outset and will be locked when there are no site personnel present.
- To contain and manage construction phase waste, multiple skips will be provided at the temporary site construction compound; one for recyclable waste and others for various construction waste. These skips will be emptied when required by a licensed waste management company. Waste oil and waste oil drums will be collected and stored in containers and on a bunded tray within the storage container.
- At the end the works, the completed works areas will be tidied of any unused material or waste; this material will be brought to the site compound for storage and reuse or placed in the appropriate skip for disposal.

Construction Phase General Waste

- Construction waste (timber, steel, concrete etc) elements will be segregated and stored in dedicated bins on site for recycling;
- All waste steel reinforcing will be stockpiled and at the end of each work unit, it will be collected for recycling by Licensed Facility;
- Plastics and packaging will be segregated and stored in dedicated bins on site for recycling;
- Waste oil stored on site will be stored in labelled containers and will be collected by licensed facility/licensed oil-recycling contractor as necessary. Records will be maintained on the volumes of waste oil generated.

- Paper / cardboard, this material will be recycled; and
- Wastewater from office and welfare facilities. These facilities will be regularly emptied by licensed/suitable contractors.

Training

Copies of the Resource & Waste Management Plan will be available to all site personnel. All site personnel and sub-contractors will be instructed about the objectives of the Resource & Waste Management Plan for the site, and informed of the responsibilities which fall upon them as a consequence of its provisions. This will be carried out during the site induction process for all site personnel. Where source segregation and materials reuse techniques apply, each member of the construction team will be given instructions on how to comply with the Resource & Waste Management Plan for the site. Site notices will be designed to reinforce the key messages of the Resource & Waste Management plan and will be displayed prominently for the benefit for all on site personnel.

Waste Records

All details of wastes (arising/generated/movement, etc) will be recorded during the project. Each consignment of waste removed from the site will be documented in the form of a waste management movement record form which will ensure full traceability of the material to its final destination. All records will be retained at a designated location at the site office/temporary construction compound and made available for auditing of the Resource & Waste Management plan.

Responsibility

The Environmental Manager will be responsible for adherence to correct waste management procedures. They will also identify a waste contractor to remove waste that can be recycled or re-used.

The Environmental Manager will keep records provided by waste contractors of all waste being removed from site. The Environmental Manager will record waste removed from site regularly. This information will be recorded in a standard format. It will be the construction manager's responsibility to organise the removal of skips from their area when they are full.

The Environmental Manager will inspect waste segregation and temporary soil/rock storage stockpiles during his regular site visits.

References

EPA 'Best Practice Guidelines for the Preparation of Resource & Waste Management Plans for Construction & Demolition Projects', 2021

Design Out Waste: A design team guide to waste reduction in construction and demolition projects (EPA, 2015)

EMP 6: Construction Traffic Management

Purpose:

During the construction phase there will be additional traffic on the existing road network. Possible negative effects include additional traffic volumes on the local road network and impacts on residential amenity by construction traffic vehicles.

The purpose of this plan is to describe measures for the management of all traffic, including construction traffic, for the minimization of disturbance and nuisance to the local community.

A detailed CTMP will be prepared for the proposed development by the appointed contractor(s) prior to construction.

Procedure

General

A CTMP will be prepared for the proposed development by the Appointed Contractor. This Plan will be finalised in agreement with Meath County Council.

The plan will include provision for:

- Communicating with the community, An Garda Síochána and Meath County Council.
- Details of site access and any site traffic rules, including security, parking, loading and unloading, required speed or other relevant details.
- Programme of maintenance and upkeep of public roads.
- Site operating hours (including delivery) to be outlined.
- Access to the Site is from an existing access point off the L1604. It is anticipated the haul route will likely be from the N52, which is located to the northwest of the site. Vehicles will exit the N52 onto the L1604 in a southwest direction from approximately 1km, before turning right into the site access point.
- Access on this existing road will be maintained. The volume of traffic generated by the transportation requirements will be minimal.

Public Roads

- In order to mitigate from a significant impact during peak traffic hours, the majority of staff will either arrive on-site before or after the peak morning traffic and finish work before or after the evening peak traffic hours.
- The condition of the public roads will be monitored on an on-going basis and a road sweeper provided to clean the public roads if required.

Site Entrance

- There will be no parking of any vehicles on the public road near the site entrance.
- Adequate parking will be provided on-site for both employees and visitors.
- The condition of the site entrance will be monitored on an on-going basis and a road sweeper provided to clean the public road if required.

Responsibility

- Project Manager
- Construction Manager

- Construction personnel
- Sub-contractors as appropriate
- Delivery personnel

EMP 7: Construction Dust Management

Purpose

The main air quality impacts will be associated with dust generation during construction works. The purpose of this plan is to describe the measures for the management of nuisance impacts on air quality from construction generated dust.

Procedure

The potential for dust to be emitted depends on the type of construction activity being carried out in conjunction with environmental factors including levels of rainfall, wind speeds and wind direction. The potential for impact from dust depends on the distance to potentially sensitive locations and whether the wind can carry the dust to these locations. The majority of any dust produced will be deposited close to the potential source and any impacts from dust deposition will typically be within several hundred metres of the construction area.

It is not envisaged that a dust monitoring nor a sampling programme is required for this site. Ongoing good practice measure for the management of dust on-site is to implemented as set out below. Ongoing visual monitoring of dust by Site Management.

In order to control, prevent and minimise dirt on the access route and emissions of dust and other airborne contaminants during the construction works, the following measures will be implemented:

- Wheel washing equipment will be available and used on-site, as required to prevent the transfer of dirt and stones onto the public highway. All drivers will be required to check that their vehicle is free of dirt, stones and dust prior to departing from the site. Wheel washing will likely be a water bowser and power spray. It will not have any cleaning additives and will drain into the temporary drainage feature at the site compound.
- During windy conditions, any dust generating activities will be avoided or minimised, where practical.
- Any soil stockpiles will be covered when left for extended periods of time.
- Driving practices which minimise dust generation will be adopted.
- Loads into and out of the site will be covered where required.
- Site road and compounds will be regularly cleaned and maintained as appropriate;
- Hard surface roads will be swept to remove mud and aggregate materials from their surface;
- Furthermore, any road that has the potential to give rise to fugitive dust will be regularly watered, as appropriate, during dry and/or windy conditions;
- Speeds will be restricted on hard surfaced roads as site management dictates;
- The relevant Site Speed Limit shall be adhered to at all times to ensure low vehicle speeds;
- Public roads in the vicinity of the site will be regularly inspected for cleanliness and cleaned as necessary;
- Loads of materials leaving the Site will be evaluated and covered if considered necessary to minimise potential dust impacts during transportation;
- The transportation contractor shall take all reasonable measures while transporting waste or any other materials likely to cause fugitive loses from a vehicle during transportation to and from site, including but not limited to:
    - Covering of all waste or material with suitably secured tarpaulin / covers to prevent loss;
    - Utilisation of enclosed units to prevent loss.

Responsibility

- The Environmental Manager is responsible for reviewing the site Dust Minimisation Plan.
- The Construction Manager is responsible for:
    - Organising dust suppression through use of bowsers and cleaners;
    - Plan site layout so that machinery and dust causing activities are located away from receptors as far as possible;
    - Keep site fencing, barriers and scaffolding clean using wet methods;
    - Remove materials that have the potential to produce dust from sit as soon as possible;
    - Cover seed of fence stockpiles to prevent wind whipping;
    - Ensure all vehicles switch off their engines when stationary – no idling vehicles; and
    - Use enclosed chutes and covered skips.
- The Project Manager is responsible for:
    - Recording all dust and air quality complaints, identify causes and take appropriate measures to reduce emissions in a timely manner;
    - Make a compliant log available to Meath County Council when requested; and
    - Record any exceptional incidents that cause dust or air emissions.

References

Guidelines for the Treatment of Air Quality during the Planning and Construction of National Road Schemes (Consultation Draft, National Roads Authority, October 2006).

Control of Dust from Construction and Demolition Activities (BRE, 2003).

EMP 8: Ecological Management Plan for the Protection of Habitats and Fauna

Purpose

To describe measures for the management and protection of habitats and fauna on the site.

Procedure

Ensuring implementation of ecological protection measures outlined below.

Ecological Protection Measures

The proposed development site does not lie within or directly adjacent to any statutory or non-statutory designated environmental sites. Within the Zone of Influence (ZoI) of the proposed development site boundary there are two Special Areas of Conservation (SACs) and two Special Protection Areas (SPAs). Within 5km of the proposed development site there are no Natural Heritage Areas (NHAs) or Proposed Natural Heritage areas (pNHAs). Natura 2000 sites within the ZoI of the proposed development site boundary included the River Boyne and Blackwater SAC, River Boyne and Blackwater SAC, River Boyne and Blackwater SPA and Dundalk Bay SPA.

Arable Crops (BC1), was identified as the primary habitat within the proposed development site during the site walkover completed by MWP and is considered to be of low ecological value. Drainage Ditch (FW4) and Wet Willow-Alder-Ash Woodland (WN6) are partially located within the proposed development site on the southwest, and Arable crops (BC1) borders the rest of the site boundary.

No rare or protected flora species were recorded within the proposed construction footprint during the ecological survey of the proposed development site.

Measures recommended within the Ecological Appraisal and Natura Impact Statement prepared by MWP for the proposed development and within the Ecology Assessment for the permitted Solar Farm Development prepared by Neo Environmental Ltd. Will also be implemented for the proposed development. These measures include:

- Best practice pollution prevention measures implemented prior to and throughout the construction phase to prevent contaminants entering the aquatic environment;
- Pre-commencement badger survey;
- Pre-commencement otter survey;
- Pre-construction breeding bird survey (if works are to commence between March and August inclusive);
- All excavations to be securely covered, or a suitable means of escape provided (ramp at 450) at the end of each working day to prevent accidental trapping of otter and badger;
- Security fencing to have mammal gates at base to allow free movement of mammals through the site.

General Habitats

- Habitat degradation will be limited by controlling the movement of construction vehicles and machinery. Construction vehicles and machinery will not encroach onto habitats beyond the proposed development footprint and will be required to travel via the constructed roads when moving between works areas. To emphasise this requirement, the boundaries of the footprint of the development will be fenced off with post and wire. The Environmental Officer will also monitor vehicle movements;
- Mitigation measures set out in Ecology Assessment for the permitted Solar Farm Development prepared by Neo Environmental Ltd. For the protection of habitats, ecology and fauna during construction will be adhered to.

Management and Treatment of Invasive Alien Plant Species (IAPS)_ On-site

All management and control measures implemented on-site during the construction phase are to be carried out strictly in accordance with best practice guidance as set out in '*The Management of Noxious Weeds and Non-native Invasive Species on National Roads*' (NRA, 2010) and best practice management guidelines for various species published by Invasive Species Ireland[1].

Prior to being brought onto the site, all plant and equipment will be cleaned and free of soil/mud/debris or any attached plant or animal material. Prior to entering the site, all plant/equipment will be visually inspected by the Environmental Officer to ensure all adherent material and debris has been removed. A pre-construction survey for IAPS is to be carried out by a suitably qualified ecologist prior to any works commencing. If IAPS occur within the works footprint, the appointed Contractor is to develop and implement an appropriate method statement regarding the management of IAPS on-site.

All footwear/waders and all equipment that will be placed within the water will be treated to prevent foreign flora/fauna entering the water and after use to prevent the spread to other catchments. Non-native species control will be practised according to '*IFI Biosecurity Protocol for Field Survey Work*' (IFI, 2010) noting that some works components are located at/near watercourses.

- Pre-construction site surveys are to take place during the growing period to identify any new stands which emerge and survey for any viable knotweed or other IAPS material.
- Where any IAPS is identified within the works footprint, the appointed contractor is to develop and implement an appropriate method statement with regard to managing IAPS on-site. Fencing and/or advisory signage is to be erected. Where stands are small, comprising individual plants, the use of signage may suffice.
- No ground maintenance, opening up or any other ground disturbance should take place within IAPS fenced areas, without prior consultation with, and the direction of the appointed invasive specialist, and then only under strict supervision.
- If access to the infested areas is necessary, and particularly if any essential work has to be carried out within the fenced locations, then this must only be done following formal approval in advance, and after the preparation and agreement of a "task specific" method statement.
- Where there will be encroachment into IAPS infested areas as part of the development, site-specific soil remediation plans are to be developed and implemented to provide for the safe and bio-secure removal and disposal of IAPS infested soil. These plans should include for the provision of vertical and horizontal root barrier membranes, as and where appropriate, and all other measures necessary to ensure bio security compliance.
- Under no circumstances is any IAPS plant or rhizome material to be cut, dug out or in any other way disturbed without the advice, direction and supervision of the appointed invasive specialist.
- Where necessary, the off-site removal of Japanese knotweed, its variants, soil infested with knotweed material, and other IAPS is to be carried out according to the relevant NPWS licence and any conditions attached. This licence is to be procured in advance of any removal of IAPS material off-site and in accordance with the European Communities (Birds and Natural Habitats) Regulations 2011 (SI 477).
- Large areas of disturbed/bare soil should be mulched, where appropriate, and seeded/planted at the earliest opportunity with native species to stabilise the soil and deter subsequent reinvasion. Planting

[1] Resources - Invasives.ie Accessed: 1st November 2023

should be carried out with regard to '*Horticulture Code of Good Practice: To prevent the introduction and spread of invasive non-native species* (Kelly, 2012).

- Where application of herbicides is required to treat IAPS on-site, the proximity of ecological receptors is to be taken into account. Herbicide use is to be minimised as much as possible and targeted to the specific IAPS. Where use of herbicides is required, non-residual, aquatic approved herbicides are to be used.
- Herbicides are not to be used in windy or foggy weather, during or preceding rainfall or where rainfall is forecast within 12 hours or during particularly cold weather to reduce risk of spray drift, run-off or poor plant uptake.
- All herbicides are to be pre-mixed in a designated secure area. Only the volumes of herbicide necessary for each treatment area are to be prepared.
- Herbicide will be applied to target species only and great care taken to avoid affecting surrounding vegetation by run-off or drift.
- Herbicides are to be applied strictly in accordance with the manufacturer's recommendations and by competent, experienced and licenced personnel registered as Professional Pesticides User, and fully in compliance with the European Communities (Sustainable Use of Pesticides) Regulations, 2012, (S.I. 155 of 2012) and Good Plant Protection Practice as prescribed in the European Communities (Authorization, Placing on the Market, Use and Control of Plant Protection Products) Regulations, 2003 (S.I. No. 83 of 2003). The herbicide selected must be used in compliance with the Pesticide Product Label and any conditions set out in it.
- All management and control measures implemented on-site during the construction phase are to be carried out strictly in accordance with best practice guidance as set out in '*The Management of Noxious Weeds and Non-native Invasive Species on National Roads*' NRA (2010) and '*Horticulture Code of Good Practice: To prevent the introduction and spread of invasive non-native species* (Kelly, 2012) and in accordance with the site-specific IAPS Management Plan, which will be updated accordingly as the project progresses.
- Physical remediation post-construction, if required, is to be managed and undertaken as per the IAPS Management Plan which is to be updated continually over the course of the multi-annual management approach to IAPs within the site.

Protection of Bats

Buffers

During the construction phase, buffer zones have been included as part of the design of the proposed development. This will minimise disturbance to commuting and foraging routes for bat species within the area of the Proposed Development, and include the following:

- a 5m buffer from trees (dependent on tree height)
- a 2m buffer from all field drains

Landscape Recommendations

Only native tree, shrub and plant species will be utilised during landscaping.

Construction Phase Lighting

Lighting associated with the site works could cause disturbance/displacement of bats. During the site works, lighting will follow mitigation measures outlined by Bat Conservation Ireland in Bats & Lighting Guidance Notes

for: Planners, engineers, architects and developers (2010), BCT Lighting Guidelines (BCT, 2018), Bats and lighting: Overview of current evidence and mitigation guidance (Stone, 2013) and Bat Mitigation Guidelines for Ireland. Irish Wildlife Manuals, No. 25 (Kelleher & Marnell, 2006); and

The following measures will be applied in relation to site lighting:

- Lighting will be provided with the minimum luminosity sufficient for safety and security purposes.
- Where possible, construction lights will be switched off when not in use.
- Lighting will be positioned and directed so that it does not to unnecessarily intrude on adjacent ecological receptors. There will be no directional lighting focused towards the boundary habitats respectively and cowling and focusing lights downwards will minimise light spillage.
- Works will primarily take place during hours of daylight to minimise disturbance to any nocturnal mammal species.

Protection of Badger

A pre-construction survey for badger will be undertaken prior to the commencement of any works as per NRA (2005) guidance in order to identify any changes within the site. The pre-construction survey will be undertaken no more than 10-12 months in advance of construction commencement. The survey will be supplemented by an additional survey immediately prior to site works commencing if a sufficient time period has elapsed since the pre-construction survey.

In the event of a badger sett(s) being identified within or in proximity of the development site, all construction activity and site works will be undertaken in accordance with relevant best-practice guidance set out in NRA (2005) in relation to construction works and badger and any specific mitigation, where required, will be carried out under relevant license from NPWS.

All excavations will be securely covered at the end of each working day to prevent accidental trapping of badger, otter or other small mammals and to reduce the negative impact construction could have on mammals within the area of the Proposed development site.

Protection of Otter

The presence of otter is expected to be constrained to areas adjacent to the Killary Water as the other habitat types associated with the proposed development site are not optimal for otter and are likely to be restricted to commuting.

There is potential for any commuting otters using the site during the construction phase to become trapped in trenches excavated during works. In line with construction best practice, all excavations during the construction phase of the proposed development will be covered securely to prevent the accidental trapping of otters. In addition, it is a pre-commencement survey will be carried out for the presence of otters prior to construction.

General Protection of other Fauna/Habitats

- The extent of construction works area within the development site boundary will be clearly marked out using temporary stakes and high-visibility tape/bunting such that the construction zone, including extent of access for all construction plant and machinery, site compound and materials storage areas, is defined and is clearly visible to all contractor staff and machine operators.
- Movement of construction plant/construction vehicles will be restricted as much as is practicably possible to within the extent of works footprint within the development site boundary.
- Disturbance of fauna will be limited by controlling the movement of construction vehicles and personnel. Construction vehicles and personnel will not encroach onto habitats beyond the proposed development footprint.

- Construction materials and wastes will be kept in designated areas to reduce risk of accidental injury/entrapment of any wildlife on-site.
- Removal of vegetation will only be undertaken outside the bird breeding and nesting season which encompasses March 1st to August 31st inclusive, in accordance with Section 40 of the Wildlife Acts.
- Vegetation removal will be minimised within the proposed development site.
- All temporary construction lighting will be turned off outside daylight hours.
- Should any resting or breeding place of any protected species be discovered within the site during construction works, works will cease immediately, the area will be cordoned off and the advice of NPWS sought.

Decommissioning Phase Mitigation measures

At the end of the estimated 40-year lifespan of the proposed development, the Developer will decide if to decommission the substation. The specific decommissioning activities will depend on the future use of the site, as determined by the project owner at the time of closure. However, any future development plans for the site, during or after this period, will require a new planning permission application. If no planning permission is sought after the proposed development reaches the end of its lifespan, the site will be fully decommissioned.

Potential impacts during the decommissioning phase will be similar to those of the construction phase however, decommissioning will be of a significantly lesser scale, as large-scale excavations will not be required.

Mitigation measures for the decommissioning phase will be similar to those of the construction phase.

- Implement habitat restoration measures within the decommissioned area to promote the re-establishment of native vegetation and support the recovery of local wildlife populations. This may include allowing native tree, scrub and other flora species to naturally regenerate, and creating wildlife-friendly features such as nesting boxes and bat roosts in the vicinity of the site.
- If required, works will be undertaken outside the bird breeding season (March-August) to mitigate for impacts to ground nesting and breeding birds.
- Ensure proper soil stabilization measures are employed during decommissioning to prevent erosion, sediment runoff, and adverse impacts on water quality. Appropriate silt control measures such as silt fences will be installed on the existing drainage systems and other best management practices followed to protect sensitive resources and control erosion.
- Best practices will be incorporated into the safe handling and storage of materials, including containment measures, bunding, drip trays installed as part of plant and machinery used to ensure no risks to water quality.
- Spill kits will be readily available on-site where oils or liquids are handled, and all staff will be trained on their location and proper use in case of emergencies.
- Standards of good practice for noise and vibration will be followed to minimise noise and vibration impacts from activities and vehicles.
- Standards of good practice for air quality, as set out in the Institute of Air Quality Management (IAQM) 'Guidance on the Assessment of Dust from Demolition and Construction', or relevant guidance will be followed during decommissioning to minimise dust from activities and vehicles.
- A waste management plan will be developed to handle the disposal of materials and equipment associated with decommissioning. This will include proper handling, recycling, or disposal of hazardous materials, in accordance with relevant regulations and guidelines.
- Implement a monitoring program to assess the effectiveness of decommissioning mitigation measures and the recovery of the impacted environment. Regular reporting should be conducted to provide updates on the progress of habitat restoration and the overall success of decommissioning efforts.

- An invasive species management plan will be developed for the decommissioning phase of the grid route. Prior to decommissioning, a survey will be conducted to identify any invasive species present along the grid route. Locations and extent of invasive species infestations will be documented. If any future infestations of invasive non-native species are identified prior to any decommissioning works, exclusion zones will be established around them, and the Ecological Clerk of Works (EcoW) contacted for advice as required.
- Best practice measures will be followed for cleaning and decontaminating equipment and vehicles to prevent the accidental transfer of invasive species.
- Lighting, if required will be deployed in accordance with the following recommendations to prevent or reduce the impact on ecological receptors:
- The use of lighting will be minimised to that required for safe site operations;
- Lighting will utilise directional fittings to minimise outward light spill and glare (e.g. via the use of light hoods/cowls)
- Lighting will be directed towards the interior of the site limits rather than towards the boundaries.

These measures should be tailored to the specific characteristics of the proposed development, taking into account the regulatory requirements.

Monitoring

In the unlikely event that protected faunal species are found actively using the Site for breeding/roosting during the construction phase, works will cease immediately, and the area will be cordoned off until advice is sought from a suitable qualified expert / NPWS.

Responsibility

- Environmental Manager; and
- Construction Manager.

EMP 9: Emergency Response

Purpose

To describe measures for the prevention of an environmental accident or incident and the response required to minimise the impact of such an event.

Procedure

In the event of an environmental emergency, all personnel will react quickly and adhere to this procedure.

All site personnel will be inducted in the provisions of the Emergency Response Plan.

The following outlines some of the information, on the types of emergency, which must be communicated to site staff:

- Release of hazardous substance – Fuel and oil spill;
- Concrete spill or release of concrete or silt;
- Flood event – extreme rainfall event;
- Environmental buffers and exclusion zones breach;
- Housekeeping of materials and waste storage areas breach;
- Stop works order due to environmental issue or concern (threat to archaeological or ecological feature); and
- Fire on-site.

If any of the above situations occur; the Emergency Response Plan is activated. The Environmental Manager will most likely be responsible for overseeing the Emergency Response Plan (to be confirmed by the Appointed Contractor(s)) and will be prepared and ready to implement the plan at all times. The Environmental Manager will be immediately informed and report to the scene. He / she must be aware of the:

- Nature of the situation – brief description of what has happened;
- Location of the incident;
- Whether any spill has been released; and
- Whether the situation is under control.

Oil Spillages

The following list outlines issues likely to be appropriate for inclusion the plan:

- Site staff will report the spillage immediately to the Environmental Manager or Construction Manager;
- Where relevant, the Environmental Manager will report the spillage to Inland Fisheries Ireland and Meath County Council;
- Where possible, the source of pollution will be identified;
- Switch off all sources of ignition;
- Stop the spillage spreading:
- Use absorbent materials from the spill kit to mop up the spill (sand or absorbent materials should be used rather than detergents);

- Do not wash spillage into drainage system. Washing will only make the situation worse and extend the pollution to other water bodies/drainage systems;
- If the spill has already reached drains, block the inlet of the dirty water cross pipes in the nearby drainage outflow points on the roadside drains with oil absorbent booms, which will prevent oils flowing into the existing drains;
- Shovel contaminated sand/earth/absorbent granules into sacks or skips; and
- A specialist oil removal company should remove pooled oil.

Concrete Spillages

The following list outlines issues likely to be appropriate for inclusion in such a plan:

- Site staff will report the concrete spillage immediately to the Environmental Manager or Construction Manager;
- Where relevant, the Environmental Manager will report the spillage to Inland Fisheries Ireland and Meath County Council;
- If there is a risk of concrete spreading into the drainage system, the inlet of the dirty water cross pipes in the nearby drainage outflow points on the roadside drains will be blocked using the absorbent booms, which will prevent concrete flowing into the existing drains;
- Do not wash spillage into drainage system. Washing will only make the situation worse and extend the pollution to other water bodies/drainage systems;
- If the spill has already reached drains, acid may be added to the drains by the Environmental Manager to neutralise the alkalinity of the concrete; and
- Shovel contaminated concrete granules into sacks or skips for treatment in the Roadside Concrete Wash unit.

Contacts

As an Environmental Control Measure, the Environmental Manager will append the relevant contact details to the Emergency Response Plan document. Examples of such contact details include:

- Environmental Manager;
- Specialist oil removal company ;
- Meath County Council;
- Inland Fisheries Ireland; and
- National Parks and Wildlife Service.

Location of Emergency Spill Kits

- A map indicating the location of all emergency spill kits will be attached to the Emergency Response Plan document; and
- Emergency oil spill kits will also be carried in all site vehicles and machinery and in the site office.

Responsibility

- The Environmental Manager will prepare and finalise an Emergency Response Plan to be ready to respond to any incident;

- All site personnel will report any spillages of oil or chemicals to the Environmental Manager and Construction Manager immediately; and
- As appropriate, the Environmental Manager will report the spillage to the Inland Fisheries Ireland, Meath County Council and any other relevant authority.

EMP 10: Site Environmental Training Awareness

Purpose

To describe measures for informing the public of restricted access to the construction-site and the training of all site personnel in the protection of the environment and the relevant controls.

Scope

Notification to the public of restricted access to the Site. All site personnel and construction teams which may influence environmental impacts.

Procedure

Site signage will be provided at the entrance to the site to inform the public that access to the site is restricted to those directly involved in the construction works.

An initial site environmental induction and ongoing training will be provided to communicate the main provisions of the CEMP including this EMP to all site personnel. Two-way communication will be encouraged to promote a culture of environmental protection.

The following outlines some of the information which will be communicated to site staff:

- Environmental procedures of the CEMP;
- Housekeeping of materials and waste storage areas; and
- Environmental Emergency Response Plan.

Housekeeping and Storage of Hazardous Materials

- Hazardous materials marked with the following symbols will only be stored in a secure storage container in the temporary site construction compound.

- Sub-contractors will provide a copy of the Material Safety Data Sheets for all hazardous substances brought on-site.

All finalised CEMP policies will be adhered to, in the management of fuels and oils, concrete, and installation of sediment and erosion controls and drainage features. All finalised details will be communicated with site personnel. Environmental Training including spill kit training, installation of silt fence training is to be provided by the Appointed Contractor(s). Environmental training records will be retained in the site office.

Responsibility

- Construction Manager;
- Environmental Manager; and
- All site personnel.

EMP 11: Monitoring and Auditing

Purpose

To describe measures for environmental monitoring during the construction works and audit of control measures to ensure environmental protection.

Procedure

All mitigation measures, any planning conditions and relevant construction methods will be monitored on-site. The Contractor will nominate an Environmental Manager for the works. The Environmental Manager will provide Audit Checklists to ensure regular checks of the Site's control measures for the ongoing protection of the environment.

Monitoring will be carried to ensure adherence with the following;

- EMP 1: Surface Water Runoff and Excavation Management
- EMP 2: Fuels and Oils Management
- EMP 3: Management of Concrete
- EMP 4: Construction Noise Management
- EMP 5:Construction Resource & Waste Management
- EMP 6: Construction Traffic Management
- EMP 7: Construction Dust Management
- EMP 8: Ecological Management Plan Protection of Habitats and Fauna
- EMP 9: Emergency Response
- EMP 10: Site Environmental Training and Awareness
- EMP 11: Monitoring and Auditing
- EMP 12: Environmental Accidents, Incidents and Corrective Actions
- EMP 13: Environmental Complaints

Checklists for daily, weekly or monthly site audits will be finalised by the Environmental Manager and the relevant personnel informed of their duties. Checklists will include (but are not limited to) confirmation that fuel is stored appropriately, resource & waste management rules are adhered to, all environmental buffers are maintained, Surface water and run-off control measures of the are in place and functioning, and concrete chute wash-out procedure is being followed. Checklists will be finalised with the Contractor's EOP.

All environmental records, including completed checklists, will be retained at the site office.

Responsibility

- Project Manager;
- Environmental Manager; and
- Construction Manager.

EMP 12: Environmental Accidents, Incidents and Corrective Actions

Purpose

To describe measures for the recording, investigating and close-out of any environmental accidents or incidents on the Site.

Procedure

- The Environmental Manager or Construction Manager will be contacted as soon as possible where there is any incident that carries the possibility of negative environmental consequences (e.g. minor oil leakage or blockage of drainage pipe);
- The Emergency Response Plan and standard emergency procedures will be applied to get the incident under control and prevent injury or loss of life in the first instance;
- Work in the area will be halted and the Environmental Manager will be called to the scene to assess the situation and to decide on initial responses and remedial measures;
- Once the situation is under control, the environmental accident or incident will be recorded and the cause investigated;
- Any remedial action required will be taken to mitigate any damage and prevent a reoccurrence; and
- Corrective actions will be communicated to personnel and sub-contractors where relevant – particularly where it results to a change in procedure.

Example list of environmental accidents & incidents:

- Accidents involving large spill of fuel or concrete from delivery truck (emergency response required)
- Spills of fuel and oil (minor);
- Waste or rubbish left around the Site (not in dedicated waste areas);
- Breach of any buffers (archaeological, ecological, watercourse);
- Failure of any control measures (silt fences collapsed in a storm);
- Concrete chute wash out in a non-dedicated area;
- Unplanned vehicle movement off the access tracks; and
- Unplanned vehicle movement within a buffer zone.

Responsibility

- Site staff will contact the Environmental Manager or Construction Manager as soon as possible where there is any incident that carries the possibility of negative environmental consequences; and
- The Environmental Manager is responsible for alerting the relevant authorities.

EMP 13: Environmental Complaints

Purpose

To describe measures for the recording and resolving complaints by third parties, including local residents or members of the public.

Procedure

Any environmental complaints received, whether internal or external, will be recorded and investigated. It is recommended that immediate action is taken as relevant to resolve environmental complaints to avoid any nuisance to the local community or any environmental damage.

This procedure includes:

- Recording of any complaints to a Site Log;
- Follow up by the relevant site representative – Environmental Manager;
- Remedial measures where required;
- Ongoing communication with complainant to confirm resolution; and
- Any required training or communication with site personnel and sub-contractors as a result.

The out of hours contact number for the Site is: TBC

Responsibility

- Project Manager;
- Environmental Manager; and
- Construction Manager.