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Appropriate Assessment Screening Report and Natura Impact Statement

Rathcoon Solar Farm, Co.
Meath



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DOCUMENT DETAILS

Client: **Circal Oak Solar Limited**

Project Title: **Rathcoon Solar Farm, Co. Meath**

Project Number: **250403**

Document Title: **Appropriate Assessment Screening Report and Natura Impact Statement**

Document File Name: **AASR NIS F1 - 250403-c - 2025.09.12**

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Rev	Status	Date	Author(s)	Approved By
01	Draft	19/08/2025	SC	PD
02	Final	03/09/2025	SC	PD/CC
03	Final 1	12/09/2025	SC	PD

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Appendix 3	Plans and Projects

1.

INTRODUCTION

1.1

Background

MKO has been appointed to provide the information necessary to allow the competent authority to conduct an Article 6(3) Appropriate Assessment of a proposed solar farm project in County Meath.

Screening for Appropriate Assessment is required under Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora (the Habitats Directive). Where it cannot be excluded on the basis of a preliminary assessment and objective criteria that a project or plan, either alone or in combination with other projects or plans, would have a significant effect on a European Site then same shall be subject to an appropriate assessment of its implications for the site in view of the site's conservation objectives. The Proposed Development is not directly connected with, or necessary for, the management of any European Site. Consequently, the project has been subject to the Appropriate Assessment Screening process.

This combined Appropriate Assessment Screening Report (AASR) and Natura Impact Statement (NIS) has been prepared in accordance with:

- European Commission's Assessment of Plans and Projects Significantly affecting Natura 2000 Sites. Methodological Guidance on the provisions of Article 6(3) and 6(4) of the Habitats Directive 92/43/EEC (EC, 2021)
- Managing Natura 2000 Sites: the provisions of Article 6 of the 'Habitats' Directive 92/43/EEC (EC, 2018)
- Department of the Environment's Appropriate Assessment of Plans and Projects in Ireland - Guidance for Planning Authorities (DoEHLG, 2010)
- Appropriate Assessment Screening for Development Management. Office of the Planning Regulator, Dublin 7, Ireland OPR (2021).

This AASR/NIS assesses the construction, operation and decommissioning of the Proposed Development, as well as integral elements of the wider project infrastructure, comprising the construction and operation of a 110kV substation compound, control building, 110kV transformer, 110kV cabling, joint bays, future grid connection and associated works (located in the townlands of Rathcoon, Kilberry, Castletown Kilberry, and Silloge), all of which are essential infrastructure associated with the operation of the Proposed Development and will be the subject of a separate, future SID planning application to the relevant consenting authority.

1.2

Statement of Authority

Baseline ecological surveys were undertaken in April 2025 by Nathan Finn (B.Sc., M.Sc.), Ciara Hackett (B.Sc.), and David Mesarcik (B.Sc., M.Sc.) of MKO. Aquatic assessments were undertaken by David Mesarcik. Breeding Bird Surveys were undertaken between April and July 2025 by Franck Le Moënner and Enda Flynn. The ecological surveyors possess the relevant academic qualifications and are competent in undertaking the ecological surveys in which they were involved. The bird surveyors are competent experts for the purposes of undertaking ornithological field work.

Stephanie Corkery (B.Sc., M.Sc.) has prepared this NIS, which has been reviewed by Pádraig Desmond (B.Sc.).

Stephanie Corkery

Stephanie is an Ecologist with MKO with over 3 years of experience in professional ecological consultancy. Stephanie holds a BSc. in Ecology and Environmental Biology, an MSc. in Marine Biology, and a HDip in Sustainability in Enterprise, all from University College Cork. Since joining

MKO as a graduate in March 2022, Stephanie has worked on a wide variety of projects including wind farms, large scale residential developments, and County Council projects. Stephanie's key strengths include organising and carrying out both terrestrial and marine mammal surveys, as well as general ecological walkover surveys and bat surveys. She is also experienced in GIS, acoustic data analysis for bat species, and in preparing Appropriate Assessment Screening Reports (AASR), Natura Impact Statements (NIS), Ecological Impact Assessments (EcIA), Biodiversity Chapters, and Bat Reports. Stephanie is also a JNCC Certified Marine Mammal Observer and has completed the ACCOBAMS Course for Highly Qualified Marine Mammal Observers (MMO) and Passive Acoustic Monitoring operators (PAM).

Pádraig Desmond

Pádraig is a Project Ecologist with MKO with 5 years post graduate ecological experience and over 4 years of which have been in ecological consultancy. Pádraig holds a BSc (Hons) in Ecology and Environmental Biology from University College Cork. Pádraig took up his position with MKO in December 2021, prior to which he worked as a Junior Ecologist with Envirico. Through these consultancy roles Pádraig has gained excellent experience in producing ecological reports such as Natura Impact Statements, Ecological Impact Assessments, Biodiversity chapters, Invasive Species Management Plans, and Constraints Reports for a wide range of projects including small private developments to housing developments and renewable energy projects such as solar and wind farms. Prior to the above roles, Pádraig worked as a field ecologist for the Department of Conservation in New Zealand, where he developed a strong field-based skill set.

Pádraig's key strengths and areas of expertise are in terrestrial ecology, including vegetation surveys, habitat identification, invasive species surveys, mammal surveys, Appropriate Assessment and Ecological Impact Assessment. Pádraig is also skilled in GIS.

1.3 Methodology

1.3.1 Appropriate Assessment Process

Screening - The purpose of the screening stage is to determine, on the basis of a preliminary assessment and objective criteria, whether a plan or project, either alone or in combination with other plans or projects, is likely to have significant effects on a European site in view of the site's conservation objectives.

There is no necessity to establish such an effect; it is merely necessary for the competent authority to determine that there may be such an effect. The need to apply the precautionary principle in making any key decisions in relation to the tests of Appropriate Assessment has been confirmed by the case law of the Court of Justice of the European Union (CJEU). Plans or projects that have no appreciable effect on a European site may be excluded. The threshold at this first stage is a very low one and operates as a trigger in order to determine whether Appropriate Assessment of a project is required. Therefore, where significant effects are likely, uncertain or unknown at screening stage, an AA of the project will be required.

Appropriate Assessment - This stage of the process is a focused and detailed examination, analysis and evaluation by the competent authority of the implications of the plan or project, either alone or in combination with other plans and projects, on the integrity of a European site in view of that site's conservation objectives. Case law has established that such an Appropriate Assessment, to be lawfully conducted must:

- (i) identify, in the light of the best scientific knowledge in the field, all aspects of the Proposed Development which may, by itself or in-combination with other plans or projects, affect the conservation objectives of the European site;

(ii) contain complete, precise and definitive findings and conclusions and may not have lacunae or gaps; and

(iii) may only include a determination that the Proposed Development will not adversely affect the integrity of any relevant European site where the competent authority decides (on the basis of complete, precise and definitive findings and conclusions) that no reasonable scientific doubt remains as to the absence of potential adverse effects. If adverse impacts can be satisfactorily avoided or successfully mitigated at this stage, so that no reasonable doubt remains as to the absence of the identified potential effects, then the process is complete. If the assessment is negative, i.e. adverse effects on the integrity of a site cannot be excluded, then the process must proceed to stage three (assessment of alternative) and, if necessary, stage four (IROPI¹).

The AA Screening was informed by the multidisciplinary walkover survey and desktop study. Ecological surveys that were undertaken to inform this NIS are outlined in Section 1.3.2.

1.3.2 Ecological Survey Methodologies

1.3.2.1 Ecological Multidisciplinary Walkover Survey

Assessing the impacts of any project and associated activities requires an understanding of the ecological baseline conditions prior to and at the time of the project proceeding. Ecological baseline conditions are those existing in the absence of proposed activities (CIEEM 2018).

Multidisciplinary walkover surveys of the Proposed Development site were conducted on various dates in April 2025 by Nathan Finn, Ciara Hackett, and David Mesarcik of MKO in line with NRA (2009) guidelines (Ecological Surveying Techniques for Protected Flora and Fauna during the Planning of National Road Schemes). Habitats were identified in accordance with the Heritage Council's 'Guide to Habitats in Ireland' (Fossitt, 2000). Plant nomenclature for vascular plants follows 'New Flora of the British Isles' (Stace, 2010).

During the multidisciplinary walkover surveys, a search for non-native invasive species was undertaken. The survey focused on the identification of invasive species listed under the Third Schedule of the European Communities Regulations 2011 (S.I. 477 of 2015) and the First Schedule of the European Union (Invasive Alien Species) Regulations 2024 (S.I. No 374 of 2024). Where recorded, the extent and location of infestations was recorded along with photographs.

1.3.2.2 Bird Surveys

Agricultural grassland and arable crop habitat, which dominates the Proposed Development site and is abundant in the wider landscape, provides potential suitable supporting habitat for protected birds. All bird species heard or seen during the multidisciplinary walkover surveys and targeted bird surveys were recorded.

The site of the Proposed Development lies approximately 5.7 km upstream of the River Boyne and River Blackwater SPA (004232) which has been designated for Kingfisher (*Alcedo atthis*). Therefore, on a precautionary basis, breeding kingfisher surveys were undertaken within the Proposed Development site, which are fully detailed in **Appendix 1**.

1.3.2.3 Aquatic Surveys

Dedicated aquatic baseline surveys were undertaken. The baseline assessment focused on aquatic ecology including fisheries and biological water quality, as well as protected aquatic species and

¹ IROPI - 'imperative reasons of overriding public interest', the test found in Article 6(4) of the Habitats Directive.

habitats in the vicinity of the Proposed Development. The baseline surveys focused on the detection of freshwater habitats and species of high conservation value, and the potential for watercourses within and adjacent to the site to support protected species. This holistic approach informed the overall aquatic ecological evaluation of each site in context of the Proposed Development and ensured that any habitats and species of high conservation value would be detected.

1.3.2.4 Otter Surveys

As per the Otter Threat Response Plan NPWS (2009), Otters occupy exclusive home ranges averaging 7.5 ± 1.5 km from breeding sites. As the Proposed Development is located approximately 5.7 km upstream of the River Boyne and River Blackwater SAC, which is designated for this species, there is potential for populations of otter associated with this SAC to utilise watercourses within and adjacent to the Proposed Development site.

As part of the multidisciplinary walkover survey and aquatic surveys, a search for signs of otter was carried out. This search was conducted in order to determine the presence or absence of otter within the Proposed Development site. This involved a search for all potential indications of otter, as per NRA (2008) (spraint, tracks, couches, holts). The otter survey was conducted as per TII (2009) guidelines (Ecological Surveying Techniques for Protected Flora and Fauna during the Planning of National Road Schemes). Following the results of the multidisciplinary surveys, no requirement for further, more detailed surveys for otter was identified.

1.3.3 Desk Study

The desk study undertaken for this assessment included a thorough review of the available ecological data associated with the screened-in European Sites within the Likely Zone of Influence of the Proposed Development. Sources of data consisted of the following:

- Review of NPWS Conservation Objectives supporting documents, site synopsis, standard data forms and supporting documents for European Designated Sites,
- Review of online web-mappers: National Parks and Wildlife Service (NPWS), Environmental Protection Agency (EPA)²,
- Review of the publicly available National Biodiversity Data Centre (NBDC) web-mapper,³
- Review of NPWS Article 17 metadata and GIS database⁴

² <https://gis.epa.ie/EPAMaps/> Accessed 31st of July 2025

³ <https://maps.biodiversityireland.ie/Map> Accessed 31st of July 2025

⁴ <https://www.npws.ie/maps-and-data/habitat-and-species-data/article-17-gis-and-metadata-downloads> Accessed 31st of July 2025

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2. DESCRIPTION OF PROPOSED DEVELOPMENT

2.1 Site Location

The Proposed Development site measures approximately 149 ha and is distributed in three separate locations across the townlands of Rathcoon, Chamberstown, Scottstown, Shalvanstown, Mullaghroe and Corballis, Co. Meath. For the purpose of this AASR and NIS, these separate locations are referred to as Areas 1, 2, and 3, and are indicated in Figure 2-1.

The Proposed Development site is primarily used for arable crop production.

The approximate centre of the site lies 4.5 km north of Navan, Co. Meath and 1.2 km east of Kells, Co. Meath (Grid Ref: N 89210 76196). Each location of the Proposed Development site is accessed via local roads and farm tracks.

The location of the Proposed Development site is provided as Figure 2-1.

2.2 Characteristics of the Proposed Development

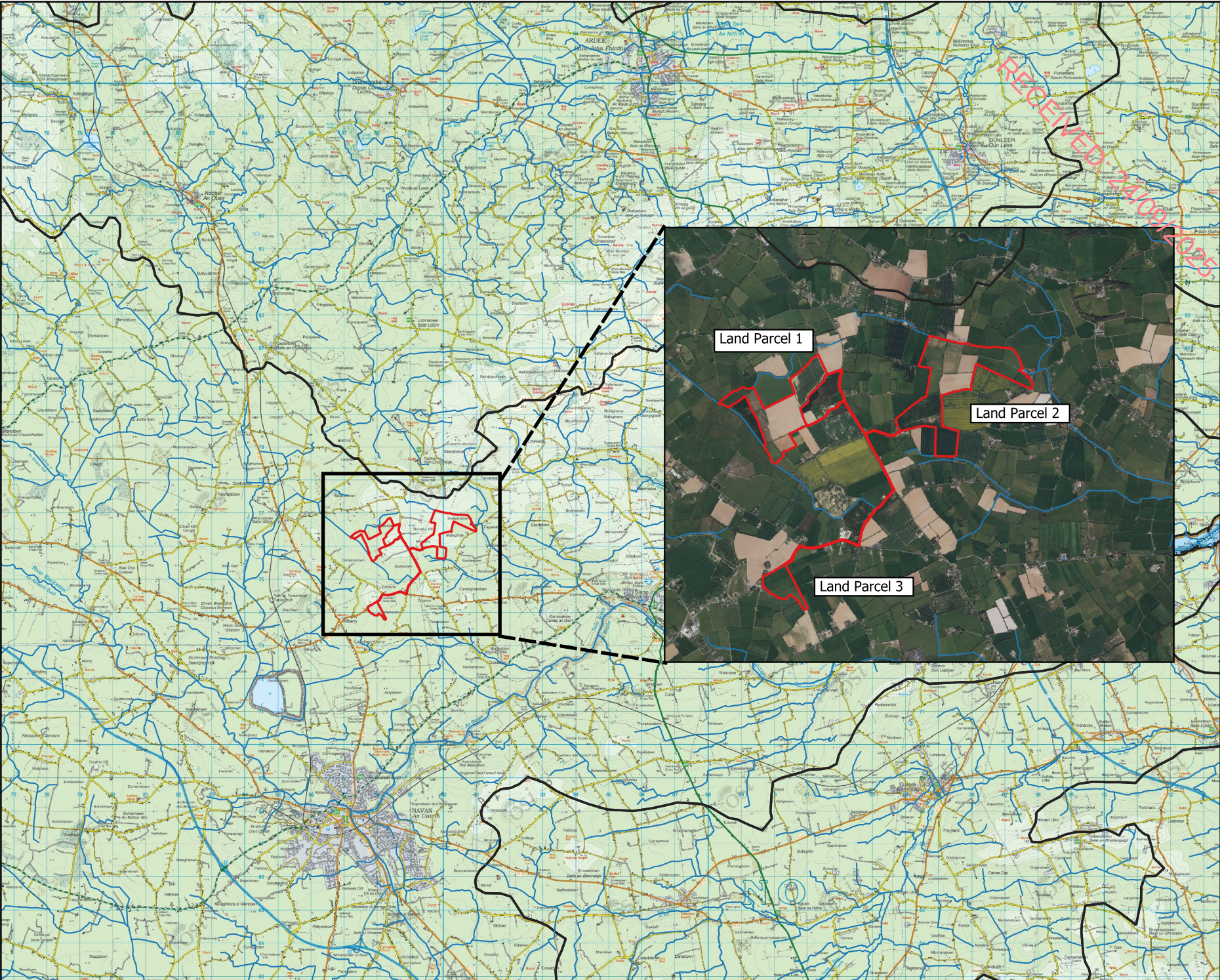
The Proposed Development comprises the following –

- Construction and operation of up to 559,033 sqm of solar PV arrays on ground-mounted metal frames, with a maximum overall height of up to 2.96 metres.
- Internal underground trenching, electrical cabling and ducting between the solar PV arrays and electrical inverter / transformer skid units.
- Up to 21 no. electrical inverter / transformer skid units.
- Construction and operational access to the site by 3 no. site entrances using 2 no. existing field access points 1 no. new access point.
- 3 no. temporary construction compound and ancillary facilities for the duration of the construction phase of the project.
- Provision of single storey substation control building of 217 sqm and associated works.
- 33kV collector cable network, joint bays and associated works.
- Internal access tracks, site landscaping and drainage works, security fencing, CCTV and all associated ancillary site development works.
- The decommissioning and reinstatement of the solar farm at the end of its operational life.

A 10-year planning permission and a 40-year operational life from the date of commissioning of the entire solar farm is being sought.

As stated in Section 1.1, this AASR and NIS assesses both the construction and operation of the Proposed Development, as well as integral elements of the wider project infrastructure, comprising the construction and operation of a 110kV substation compound, control building, 110kV transformer, 110kV cabling, joint bays, future grid connection and associated works (located in the townlands of Rathcoon, Kilberry, Castletown Kilberry, and Silloge), all of which are essential infrastructure associated with the operation of the Proposed Development and will be the subject of a separate, future SID planning application to the relevant consenting authority.

A full description of the Proposed Development is provided in the following sections. The layout of the Proposed Development is detailed in Figure 2-2.



Map Legend

- Site Boundary
- WFD Watercourses
- WFD Catchments



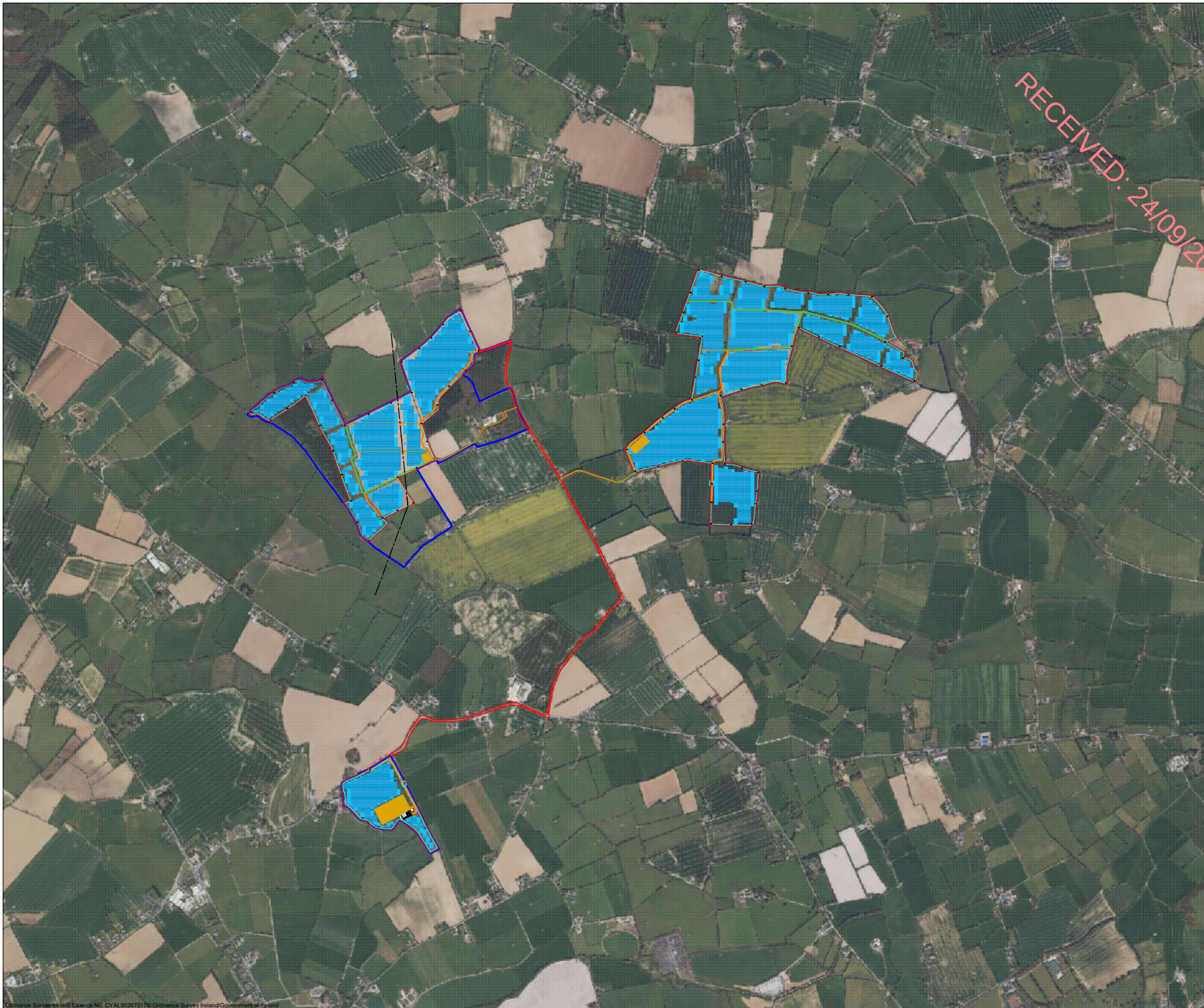
Drawing Title

Site Location

Project Title
Rathcoon Solar Farm, Co. Meath

Drawn By SC	Checked By PD
Project No. 250403	Drawing No. Figure 2-1
Scale 1:150,000	Date 02.09.2025

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Drawing Notes

All dimensions are in millimeters, unless noted otherwise.

All dimensions to be checked on site and any discrepancy to be reported to the engineer.

Drawing Legend

- Planning Application Boundary
- Landowners Boundary
- Existing Track To be Upgraded
- Proposed Track
- Inverter/Transformer Stations
- Solar Array
- CCTV
- Proposed Fence
- Temporary Construction Compound
- 110kV power line
- Site Entrance Gate



PROJECT TITLE:

Rathcoon Solar Farm

DRAWING TITLE:

**Site Layout
Orthographical View**

PROJECT No.: 250403	DRAWING No.: 250403 - 03	SCALE: 1:20,000 @ A3
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DRAWN BY: GO	CHECKED BY: DG	DATE: 08.09.2025	REVISION: D03
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OS SHEET No.:
2249, 2250, 2251, 2313, 2314, 2315, 2376, 2377, 2378



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2.3

Description of the Proposed Development

The Proposed Development will consist of approximately 559,033 sqm of solar panels on ground mounted steel frames, with a maximum overall height of 2.96 metres, within an overall site area of 149 hectares. The solar panels will be installed on pre-erected galvanized steel mounting frames arranged into a series of rows approximately 3-7 meters apart. Appropriate separation distances are maintained between rows to avoid overshadowing and allow maintenance of the grassland. The rows will be arranged in an east-west alignment across the site and positioned south at an angle of 15°-25° in order to maximise solar irradiance. Panel designs will vary depending on the optimal layout for energy production and the selected manufacturer; however, designs have been over engineered, and therefore the total structure height and boundaries will not exceed that indicated in the accompanying planning drawings. The proposed Development will have an installed capacity of up to 130 MWp. Planning permission is sought for a period of 10 years with an operational life of 40 years from the date of commissioning.

Ancillary equipment and other site development works and services associated with the proposed Rathcoon Solar Farm will include up to 21 no. inverter/transformer skid units, internal underground electrical cabling and ducting, a temporary construction compound, security fencing and CCTV, new internal access tracks, site drainage, landscaping and all ancillary works. Construction and operational access to the site by 3 no. site entrances using 2 no. existing field access points 1 no. new access point.

2.4

Design Flexibility

The Applicant would like to respectfully advise Meath County Council that some minor details set out in the plans for the Proposed Development are indicative at this stage and will be confirmed at condition compliance stage in detail should the scheme receive planning permission. Given the ever-evolving nature of technological advancements, The Applicant respectfully requests a degree of flexibility from Meath County Council within the parameters of the planning permission. As innovation continues to influence design, construction methods, and operational requirements, it is essential that the development can adapt accordingly. To accommodate these minor potential changes without compromising the overall intent and integrity of the scheme, we request flexibility is provided through appropriately worded planning conditions, which will allow for final layouts/details to be agreed prior to commencement of development. Accordingly, the applicant would welcome a planning condition to facilitate some flexibility in siting the solar infrastructure be permitted under a planning condition, whereby a micro siting tolerance can be accommodated for all principal components be allowed as long as there is no additional impact arising and no infringement of other rights to the land and its surrounds. All recommended buffer zones and setbacks will be fully maintained. This will enable, at the final, pre-commencement design stage, any improvements to the layout and output of the scheme that may be brought about by any improvements in solar technology in upcoming years.

There is precedent for the facilitation of a level of flexibility in the siting of elements of commercial scale solar schemes both Meath and elsewhere. We respectfully draw your attention to the following relevant case examples:

Pl. Ref. 2460134 granted by **Meath County Council** on the 6th of June 2024 and Condition 11 in particular:

'11. The exact detail of the transformers / inverters and other ancillary units and structures shall be submitted to the Planning Authority prior to commencement of development for written agreement.'

Pl. Ref. No: 2460288 granted by **Meath County Council** on the 29th of July 2024 and Condition No. 10 in particular. This condition states that:

'10. The exact detail of the MV power stations (transformers /inverters and MV switchgear) and other ancillary units and structures shall be submitted to the Planning Authority prior to commencement of development for written agreement.'

Pl. Ref. No: 23576 granted by **Meath County Council** on the 14th of November 2024 and Condition No. 11 in particular. This condition states that:

'11. The exact detail of the transformers /inverters and other ancillary units and structures shall be submitted to the Planning Authority prior to commencement of development for written agreement.'

Pl. Ref. No: 2460979 granted by **Meath County Council** on the 9th of June 2025 and Condition No. 17 in particular. This condition states that:

'17. The exact detail of the transformers /inverters and other ancillary units and structures shall be submitted to the Planning Authority prior to commencement of development for written agreement.'

Pl. Ref. No: 2460338 granted by **Offaly County Council** on the 3rd of March 2025 and Condition No. 6 in particular. This condition states that:

'6. Prior to commencement of the development the developer shall submit for the written agreement and consent of the Planning Authority details of final placement and design and material finishes of all principal components of the solar farm development within the site.'

We respectfully request that, in the event of a grant of permission, that a similar condition could be attached to any grant of permission.

2.5

Solar PV Panels and Racking System

Solar Photovoltaic (PV) technology collects and converts solar radiation directly into electricity. The panels are composed of photovoltaic cells as part of the PV system and are designed to maximise the absorbency of the sun's rays. A solar PV system consists of solar cells and other associated infrastructure such as inverters, transformer, cabling, and mounting frames.

The proposed solar PV panels are arranged into rows which are spaced and oriented to maximise sunlight exposure. The panel's surface materials will comprise of toughened glass, with design consideration of both capturing maximum sunlight and minimisation of reflectance.

The individual panels proposed are 1.31 x 2.39 in size and the indicative solar panel design is illustrated in Solar Panel Plan & Elevations Drawing No. 250403-09 enclosed with this Planning Application. Each solar panel will be mounted 0.9m above the ground at the lowest edge, and up to 2.96m above the ground at the highest point (the rearmost edge of the panel).

The solar panels will be arranged in rows approximately 3-7 meters apart to best suit the topography of the site and to maximised electrical generation potential. Rows will be set out in an east-west orientation, facing south, and have a fixed position throughout the year.

Each solar cell will be erected on a galvanised steel support structure/ frame. The frame support structures will consist of aluminium cross bars and steel uprights. The precise nature and type of support structure to be used will be determined during the pre-construction detailed design phase of the development and will largely depend upon site characteristics determined following detailed geophysical and geotechnical investigations and the Archaeological, Architectural and Cultural Heritage Impact Assessment. Civil works associated with the installation of the steel mounting frames

will be minor with minimal ground disturbance. Depending on soil conditions, the frames will be anchored using earth screws or rammed profiles to a depth of up to 1.5m depending on site-specific ground conditions. However, it is proposed to use pre-cast concrete blocks or slabs ('concrete feet') as ground anchors for solar panels within the specified archaeological mitigation zones. Please refer to the accompanying CEMP, as prepared by MKO, for further information on this.

The characteristics of particular solar PC modules will vary between manufacturers in terms of appearance and dimensions, or alternatively, new solar PV models or variants may be available that were not on the market at the pre-planning stage which would better suit the application site and fit within the proposed size envelope. Another important consideration underpinning the detailed design process is that some areas of the application site may ultimately be excluded from construction due to unforeseen ground conditions or to further minimise environmental impact. As such, some PV panels may be removed and/or the positioning of solar arrays and other infrastructure (site tracks, fencing, and CCTV) may be relocated. This requires a certain amount of flexibility to facilitate minor amendments in layouts and dimensions.

Should a similar scenario to the above arise, the specific parameters of the finalised PV modules will comply with the criteria set out and considered in this planning and environmental report and appendices, the relevant guidance in place at the time, and all conditions that may be attached to a favourable grant of planning permission.

The solar panel height allows for the area to be grazed by small grazing animals, such as sheep should the landowner so wish.

It is proposed to install 21 no. transformer/transformer skid units on the subject site. Transformers are used to transfer electric energy from a number of low voltage AC circuits (or combine) to the onsite substation for export to one or more other circuits, either increasing (stepping up) or reducing (stepping down) the voltage.

Inverters convert Direct Current (DC) (electricity generated by the solar PV panels) to Alternating Current (AC) for the transport of the electricity. String inverters are an alternative to combined inverter/transformer skid units, whereby the small inverter units are mounted on the support structures to the rear of the solar panels at the end of each row of panels.

2.5.1 Internal Cabling and Ducting & Collector Cables

Underground cables and cabling ducts will be laid across the site and will link the solar panel arrays and inverter/transformer skid units to the proposed 110 kV substation (the 110 kV substation will be the subject of a separate future planning application as discussed in Section 3.6). Specifically, solar arrays will be interconnected via low-voltage (LV) electrical internal cabling and associated junction boxes up to the inverter/transformer skid units. From each skid unit, the electricity will then be stepped up and transferred via 33 kV underground collector cables, which will facilitate the transmission of power to the 110 kV substation and ultimately to the electrical transmission system. Where possible, underground electrical and communications cabling will run alongside the internal site access tracks to minimise trenching through the solar panel areas.

The proposed collector network consists of three 33kV cables, UGC1 single circuit and UGC2 double circuit, in a single trench travelling initially north within solar farmlands from the proposed substation for 300m. The collector cables turn northeast onto the public road network (R163). The proposed cables travel northeast within the carriageway of this regional road, R163 for approximately 400m before turning east on the L-34101.

At Scottstown, the collector network turns northeast onto the L-74162 for 800m before turning north west onto the L-7416. At Mullagha, UGC2 turns east along a local access path to Area 2. UGC1 continues

northwest along the L-7416 for 900m. At Chamberstown UGC1 turns west on a local access road to Area 1.

The 33kV UGC collector network route, UGC1 is approximately 4.2km in length and traverses in a northeastern direction from the proposed substation location to the northwestern Area 1 in Chamberstown, Co Meath utilising solar farmlands and access track and public roads. The 33kV UGC collector network route, UGC2 is approximately 4.8km in length and traverses in a northeastern direction from the proposed substation location to the northern eastern solar parcel in Mullagha, Co Meath utilising solar farmlands and access track and public roads. Please refer to the Outline Construction Methodology, as prepared by TLI for further detail on the matters above.

The exact location of the 33kV UGC within the curtilage of solar farmlands and access track and public roads may be subject to minor modification following confirmatory site investigations to be undertaken prior to construction. The cable location will take into consideration Meath County Council and all other relevant stakeholders' requirements. Installation of the cable will consider all environmental protection measures forming part of the planning application for the Proposed Development and accompanying technical reports.

Table 2-1: Ratchoon Solar Farm 33kV Collector Network Route Location Summary

Underground Cable (UGC)	Solar Farm Lands	Public Road
UGC1	700m	3500m
UGC 2	1700m	3100m

The depth of the cables will meet all safety requirements with suitable marking tape laid between the cables and the finished surface. The excavated material will be laid alongside the trench for use in reinstatement following the laying of the cables. Vegetated turves will be stockpiled separately from subsoil for reinstatement. Trenches will be backfilled with subsoil and topsoil, and vegetated topsoil turves will be reinstated.

2.6

Security Infrastructure

2.6.1

Perimeter Fencing

The proposed security fencing is a deer fence constructed to a height of up to 2.0m using high pressure treated timber posts and high tensile galvanised wire. High tensile tension wire will be fitted on top with tensioner and tension springs. Timber fence posts will have a minimum spacing of 3m. Additionally, the fence will include a minimum of a 200mm gap at ground level to facilitate continued uninterrupted mammal access throughout the site.

A more secure palisade fence type will be used for short sections requiring additional security. Temporary palisade security fencing may also be erected around the temporary construction compound and decommissioned after the construction stage.

Controlled access points in the form of site entrances will be kept locked outside of normal working hours. Appropriate signage will be provided at the site to alert pedestrians to the construction activities and related traffic at the site. The contractor will be required to undertake the following:

- Operate a site induction process for all site staff.
- Ensure all site staff shall have current 'Safe Pass' cards.
- Maintain site security staff at all times.
- Install access security in the form of gates for staff.
- Ensure restricted access is maintained to the works.

Please refer to Site Layout Orthographical View Drawing No: 250403-03 of the accompanying planning pack for detail in respect of the layout of the proposed fencing extent and Typical Stock Fence Detail, Elevation & Indicative Images Drawing No: 250403-11 for fencing specifications.

2.6.2 Closed Circuit Television

The Proposed Development will be unmanned and remotely monitored using closed circuit television cameras (CCTV). The CCTV system, which will be installed at various locations around the site, will be erected on dedicated stands at a height of up to 4 metres above ground level as detailed on the submitted planning drawings (refer to Typical CCTV Detail Plan & Elevations Drawing number 250403-10).

The cameras will only be orientated toward the interior of the solar farm and will not point towards any external landowners or dwellings. The CCTV system will include detection control and recording and will be connected to a remote alert centre where security footage will be monitored. The cameras will be monitored on a continual basis using infrared lighting as the facility will be unlit at night-time.

2.7 Temporary Construction Compound

Temporary construction compounds will be created during the construction phase for the duration of the site works. The location of the main compound is along the eastern boundary of Area 3 of the subject site, with two smaller compounds in Areas 1 and 2 also. These are identified in Site Layout Orthographical View Drawing No: 250403-03 of the accompanying planning pack.

The main temporary construction compound will be located in the Area 3 of the site, nearby the site entrance location of the future 110kV substation area. There will be two further satellite temporary compounds in each of the other two parcels. The main temporary construction compound will consist of temporary site offices, staff facilities and welfare, storage areas and car-parking areas for staff and visitors. The satellite temporary compounds will contain similar equipment and facilities as the main compound but at a reduced scale.

Following the completion of construction works, these temporary compounds will be decommissioned: all site offices, containers, machinery and equipment shall be removed and covered over with soil to allow for revegetation.

2.8 Site Development Works

2.8.1 Site Entrance and Access

It is proposed that construction and operational access to the site by 3 no. site entrances using 2 no. existing field access points (Area 1 & 2), and 1 no. new access point (at Area 3). The proposed site entrances will function as the sole entry points to the application site during both the construction and operational phases of development with access managed by the Applicant, as required.

During the 12-month construction programme, daily traffic volumes will vary according to the works scheduled for each month. On average, the development is expected to generate approximately 7 HGVs (1-way) and 89 cars/LGVs per day. The peak traffic demand is forecast for Month 4, when up to 16 HGVs (1-way) – equivalent to 32 HGV movements – will be required for the delivery of materials such as mounting frames, solar panels, hard-core, and substation components, in addition to 80 daily car/LGV associated with construction staff. In lower-activity months, HGV traffic may reduce to as few as 2 movements per day.

The new site entrances will be constructed as a steel double gate entrance as shown in Typical Site Entrance Gate Detail Drawing No. 250403-07 of the accompanying planning pack.

Once constructed and operational, the proposed solar farm will be monitored remotely, there will be regular visits in the region of once a month by security and/or maintenance personnel. There will also be occasional site visits required to undertake repairs to plant / equipment over the lifetime of the project. These predicted traffic movements are envisaged to have a negligible impact on local traffic.

2.8.2 Internal Access Tracks

The existing track serving the application site is currently used to provide agricultural access. It is proposed to construct new sections of access track to provide construction and maintenance access to the full extent of the application site. The typical detail of new access tracks is identified in Typical Access Tracks Cross Section - Standard Detail (Drawing No. 250403-08). The new on-site tracks will typically be 3500mm wide, at a minimum.

Typical access tracks are excavated to a depth of 200mm, a permeable geogrid membrane will be placed along the excavated track and the road will be constructed on top of the geogrid membrane using stone and gravel. The access tracks will be finished with 40mm of dust crushed stone (Refer to Drawing No. 250403-08 of the accompanying planning pack).

2.8.3 Landscaping

The Proposed Development site currently benefits from significant and robust landscaping in the form of hedgerows and natural vegetation along both its perimeter and internal agricultural fields. The Proposed Development has been designed to minimise the loss of treeline and hedgerow habitats and to retain this network connection of these throughout the site.

Where existing landscaping is required to be removed (e.g. for access to fields and the new security fencing locations) or is damaged over the lifetime of the solar farm, infill landscaping, e.g. hedgerows, will be planted where needed. In areas where vegetation is scarce or gaps occur, additional native screening planting in the form of native species characteristic of the local area. Once the solar farm is operational, the hedgerows and landscaped areas will be maintained on an ongoing basis by landscaping/agricultural contractors. Please refer to the dedicated Landscape Mitigation Plan (Appendix 9) for more details.

2.9 Electrical Substation

As noted previously, it is proposed to construct a 110 kV electrical substation to the southwest of and adjacent to the Proposed Development. All 110kV electrical elements will come forward under a future planning application made directly to An Coimisiún Pleanála under section 182 of the Planning and Development Act 2000, as amended. The subject planning application includes for the provision of a substation control building within the substation compound. As these elements have formed part of the wider assessment undertakings, they are detailed here at Section 3.6 of this PER. The substation building will be 217 sqm, secured by a 2m fence.

The 110kV substation will be accessed via the internal access tracks from the Proposed Development, while the boundary of the 110kV substation will be gated and fenced off. This substation will connect via underground cable (UGC) circuits to accommodate a grid connection from Navan 110kV Substation. These works will form part of a separate, future planning application to An Coimisiún Pleanála in due course.

Substations are an integral part of the power system and serve as an important link between the generating stations, transmission systems, distribution systems and load points. Switchgear systems are used to control the power flow within the grid as well to ensure that system failures and malfunctions are contained within a specified area and specified technical limit which guarantees overall network stability. The proposed 110kV electrical substation has been designed to EirGrid's specifications, it will be supplied with power

from the Proposed Development via underground cabling to be exported onto the national grid, by connecting into the existing 110kV overhead line.

2.9.1 Potable Water Supply

Given the low operational occupancy / usage, the substation control buildings will require a minimal potable water supply for domestic use. Water usage within the site will be low as well as the proposed substation will be typically unmanned and operated remotely. Drinking water demand for the control buildings will be supplied via cooler systems which is proposed to be sourced from contracted water suppliers. Rainwater harvesting is proposed to accommodate operational water demand (e.g. toilet cisterns).

2.9.2 Foul Wastewater

A shared foul wastewater drainage network is proposed within the substation compound to cater for the wastewater generated in the welfare facilities of the control buildings. The drainage system will consist of an underground pipe network, foul manhole and a foul water holding tank. The wastewater storage tank alarm will be monitored remotely as part of the overall SCADA system installed on-site. Only waste collectors holding valid waste collection permits under the Waste Management (Collection Permit) Regulations, 2007 (as amended), will be employed to transport wastewater off-site to permitted wastewater treatment plants.

2.10 Development Timeframe

Planning permission for the Proposed Development is sought for a period of 10 years. The duration of this permission had been identified with regard to the given variabilities in relation to electricity grid connection. The Applicant is engaging with EirGrid, the Transmission System Operator (TSO), via the Electricity Generation Policy – Generation and System Services (ECP-GSS) process which will determine a timeline for connecting to the grid following a grant of permission.

Planning permission for the Proposed Development is being sought for a 40-year operational period commencing from the date of full operational commissioning.

2.10.1 Construction Phase Activities

Employment created by the Proposed Development will come primarily during the construction phase of development. It is the objective of the Applicant to employ local people, where possible, with local contractors to carry out civil works as well as to source materials and plant hire locally.

2.10.1.1 Construction Phase Description and Duration

It is estimated that the construction phase of the Proposed Development will take approximately 12-months, from commencing enabling works on site to the commissioning of the solar farm, 110 kV substation and grid connection. Construction works will include the following activities:

- Erection of fences & gates;
- Preparation of on-site tracks and laydown areas;
- Temporary construction compound;
- Delivery of panels, frames, centralised MP power stations;
- Installation of frames and panels;
- Construction of substation building;
- Cable trenching and cable laying;
- Erection of security CCTV stands;

- > Inverter/transformer skid units;
- > Commissioning of the panels and grid connection;
- > Site reinstatement; and
- > Demobilisation from site.

These works will be undertaken without significant and permanent alteration to the existing landform. During the final stage of the construction programme, all construction debris, materials and equipment will be removed from the site.

The construction and installation programme may potentially be affected by weather conditions and the availability of plant and materials, but it is anticipated that the overall construction period will last approximately 12 months. The final programme will be developed in consultation with the Project Supervisor Construction Stage, based on availability of plant, materials and projected delivery dates. In the event of favourable consideration, the Applicant is committed to a prompt delivery of the project, however, these outside variables may require the construction programme for the solar farm to be delayed, hence the request for a ten-year permission. A Construction and Environmental Management Plan has been submitted with this Planning Application and will be implemented in full.

During the 12-month construction programme, daily traffic volumes will vary according to the works scheduled for each month. On average, the development is expected to generate approximately 7 HGVs (1-way) and 89 cars/LGVs per day. The peak traffic demand is forecast for Month 4, when up to 16 HGVs (1-way) – equivalent to 32 HGV movements – will be required for the delivery of materials such as mounting frames, solar panels, hard-core, and substation components, in addition to 80 daily car/LGV associated with construction staff. In lower-activity months, HGV traffic may reduce to as few as 2 movements per day.

Site development and building works during the construction phase of development will be carried out only between the normal working hours of 07:00 and 19:00 from Monday to Friday (inclusive) and 07:00 to 14:00 Saturday, and not on Sundays. Public holidays will be observed unless otherwise agreed with the Planning Authority. During certain stages of the construction phase, it is expected that some work will have to be carried out outside of normal working hours, however, this will be kept to a minimum.

2.11

Construction and Environmental Management Plan

A CEMP has been prepared as part of the planning application for the Proposed Development and will provide the environmental management framework to be adhered to during the pre-commencement and construction phases of the Proposed Development and it incorporates the mitigating principles to ensure that the work is carried out in a way that minimises the potential for environmental impacts to occur. The CEMP has been informed by and takes account of the accompanying documents which have been prepared for the Proposed Development.

All measures identified in this CEMP, which will be finalised subsequent to any permission granted and updated prior to construction will include all mitigation measures identified and to be adhered to during the pre-commencement and construction phases of the Proposed Development.

The CEMP to be prepared by the appointed contractor will be a single, amalgamated document that can be used during the construction phase of the project, as a single consolidated point of reference relating to all construction, environmental and drainage requirements for the Planning Authority, developer and contractors alike. The CEMP may evolve over further iterations as the construction works progress, but at all times must meet or exceed the standards and requirements set out in this document. It will be the contractor's current version of the CEMP, which at any point in time, will guide the construction activities on site and the implementation of which will be audited during construction.

The final detailed design will be informed by a series of key targets and objectives, with particular consideration given to the buildability of the emerging designs. Adopt a sustainable approach to construction and, ensure sustainable sources for materials supply where possible. Correct fuel storage and refuelling procedures to be followed, Construction Methods and designs will be altered where it is found there is an adverse effect on the environment, good waste management and housekeeping to be implemented, using recycled materials, if possible, e.g., excavated stone, soil and subsoil material, avoidance of vandalism, air and noise pollution prevention to be implemented, monitoring of the works and any adverse effects that it may have on the environment and provide adequate environmental training and awareness for all project personnel.

The CEMP, as prepared by MKO is included as Appendix 2 of this NIS.

2.12

Operational Phase Activities

The Proposed Development is expected to have a lifespan of approximately 40 years. During the operational period, on a day-to-day basis, the solar farm will operate automatically, responding by means of control systems to changes in sunlight.

Photovoltaic panels contain no moving parts, hence the maintenance requirement of a PV system is very low. During the operational period, the routine operation and monitoring will be carried out with the assistance of a remote computerised control system. The SCADA System allows for continuous off-site monitoring via telephone/broadband connection. This avoids the need for staffing the solar farm except during planned maintenance visits. These site visits are expected to be a quarterly with annual servicing, except in the unlikely event of malfunction or breakdown. Maintenance traffic will consist of four-wheel drive vehicles or vans.

2.13

Decommissioning Phase Activities

The decommissioning of the site will involve the removal of all solar panels and associated fencing, storage and operational facilities, with the exclusion of the substation which will be retained. The site is proposed to be fully restored.

Existing hedgerow field boundaries will have been maintained and reinforced with additional planting during the construction and operational phases, will remain intact following the decommissioning and restoration phases.

An experienced main contractor will be appointed to undertake the decommissioning of the site. The main contractor will comply with the Decommissioning and Restoration Plan (DRP) prepared for the decommissioning and restoration phase.

Prior to any works being undertaken on solar panels, they will be disconnected from the grid by the site operator in conjunction with ESB Networks. The dismantling and removal of the solar panels and their associated structures is a specialist operation which will be undertaken by the solar panel supplier or competent subcontractor. Solar panel and associated support structures dismantling will be undertaken in reverse order to methodology employed during their construction.

The necessary plant and equipment will be brought back to site to assist in the dismantling of the support structures/frames. The dismantling of the solar panels and their associated support structures will be bound by the same health and safety considerations as will be the case during construction. The panels and their associated support structures will be removed from site in a similar manner to how they will be transported to the site and sent for recovery. In the event of favourable consideration, any future decommissioning works could be made subject to an appropriate condition.

The above programme of decommissioning will be carried out in a safe manner and all materials plant and equipment contained on or in the site will be removed in a manner in accordance with the prevailing

statutory provisions and requirements to ensure environmental impact is minimised and pollution does not arise.

2.13.1

Flood Risk Assessment

A flood risk assessment (FRA) was prepared by Langan Consultant Engineers and accompanies the planning application.

The vast majority of the Proposed Development lands are in Flood Zone C. Small portions of lands at the westerly extents of Area 1, and to the northerly and southerly extents of Area 2, are located in Flood Zones A/B.

Flood Zone C - where the probability of flooding from rivers and the sea is low (less than 1 in 1000-year for both river and coastal flooding). Development in this zone is appropriate from a flood risk perspective

Flood Zone B - where the probability of flooding from rivers and the sea is moderate (between 1 in 1000-year and 1 in 100-year for river flooding and between 1 in 1000-year and 200-year for coastal flooding). Less vulnerable development, such as retail, commercial and industrial uses, site used for short-let for caravans and camping and secondary strategic transport and utilities infrastructure, and water-compatible development might be considered appropriate in this zone.

Flood Zone A - where the probability of flooding from rivers and the sea is highest (greater than 1 in 100-year for river flooding and 1 in 200-year for coastal flooding). Only water-compatible development, such as docks and marinas, dockside activities that require a waterside location, amenity open space, outdoor sports, and recreation, would be considered appropriate in this zone.

All utility units, essential infrastructure, and access and egress routes within the Proposed Development are located within Flood Zone C. The vast majority of solar panels are located in Flood Zone C, with some in Flood Zone A/B. Development of essential infrastructure within Flood Zones A/B require a Site-Specific Flood Risk Assessment and to satisfy the requirements of the Justification Test as outlined in the OPW 2009 Flood Guidance. The FRA prepared details measures to reduce any risks of flooding, as a result of the Proposed Development.

The Proposed Development, as described in this report, will have negligible impact on the current flood risk and will not increase the existing risk of flooding elsewhere.

3.

CHARACTERISTICS OF THE RECEIVING ENVIRONMENT

3.1

Hydrological Desk Study

The EPA web-mapper (<https://gis.epa.ie/EPAMaps/>) was consulted on the 08th of August 2025 regarding the water quality and status of waterbodies that are located downstream of the site of the Proposed Development.

The Proposed Development site is located entirely within the Newry, Fane, Glyde and Dee catchment and partially within the Boyne_SC_100 and Boyne_SC_120 sub-catchments.

Mapping shows that Area 1 of the proposed solar farm site is drained by the Demailestown Order 1 stream [EPA Code: 07D49] which runs along the western site boundary, and to the north by the Chamberstown Order 1 stream [EPA Code: 07C10].

Both the Demailestown and Chamberstown streams that border the site of the Proposed Development have a Water Framework Directive (WFD) status of 'Poor' from the latest round of monitoring, 2016 – 2021, with the risk status for both streams being under review.

Area 2 of the Proposed Development site is bordered to the north by the Castleparks07 Order 1 stream [EPA Code: 07C03] and to the south by the Mullaghroe 07 [EPA Code: 07M45] Order 1 stream. These discharge into the River Boyne approximately 5.7 km downstream. These streams that border the site of the Proposed Development have a Water Framework Directive (WFD) status of 'Poor' from the latest round of monitoring, 2016 – 2021, with the risk status of all three streams being under review.

No mapped watercourses traverse Area 3 of the Proposed Development site.

The Proposed Development site is located within the Wilkinstown ground water catchment. This catchment has a ground water WFD Status (2016-2021) of 'Poor' and has a risk status of 'At Risk'. The Biotic Index of Water Quality (BIWQ) was developed in Ireland by the Environmental Protection Agency (EPA). Q-values are assigned using a combination of habitat characteristics and structure of the macro-invertebrate community within the waterbody. Individual macro-invertebrate families are classified according to their sensitivity to organic pollution and the Q-value is assessed based primarily on their relative abundance within a sample. The EPA sampling station result provides a baseline against which any water quality changes occurring in the future can be measured.

The closest available Q value downstream from the Proposed Development site is from the Slane Br (RS07B042100) monitoring station which lies approximately 7.2 km downstream of Area 2 in the River Boyne. This was sampled in 2024 and had a Q value of 4, Good.

3.2

Results of Baseline Ecological Surveys

As discussed previously, the Proposed Development site is spread across three separate land holdings, as indicated in Figure 2-1. The sections below describe the habitats and associated flora recorded within each Area of the Proposed Development.

3.2.1

Area 1

Area 1 of the Proposed Development site predominantly consisted of agricultural fields. These included areas of **Improved agricultural grassland (GA1)** (Plate 3-1) and **Arable crops (BC1)** of oats (Plate 3-2). The western extent of this Area 3 comprised areas of **Recently felled woodland (WS5)**.

The improved grassland areas were species poor and almost exclusively perennial ryegrass (*Lolium perenne*) with occasional Yorkshire fog (*Holcus lanatus*) and creeping buttercup (*Ranunculus repens*). Areas of arable crops presented as intensive monocultures of oats, with very little other vegetation recorded. Areas of recently felled woodland presented as an area where conifer species had been felled, and some scrub species, such as willow (*Salix* spp.) and bramble (*Rubus fruticosus* agg.) had established, but had again been cut back.

It is within these agricultural fields and areas of felled woodland that the Proposed Development will be located.

Fields were delineated by a combination of **Hedgerows (WL1)** (Plate 3-4), **Treelines (WL2)** (**Error! Reference source not found.** 3-5), **Earth banks (BL2)**, and areas of **Scrub (WS1)**. Hedgerows typically comprised of hawthorn (*Crataegus monogyna*), blackthorn (*Prunus spinosa*), elder (*Sambucus nigra*), holly (*Ilex aquifolium*), gorse (*Ulex europaeus*), bramble (*Rubus fruticosus* agg.), honeysuckle (*Lonicera* sp.), and ivy (*Hedera helix*). Ground flora under hedgerows and bordering field boundaries cover included primrose (*Primula* sp.), and nettles (*Urtica dioica*). Common species contained within treeline habitat included hawthorn (*Crataegus monogyna*), conifers which included Sitka spruce (*Picea sitchensis*) and occasional Scots Pine (*Pinus sylvestris*), ash (*Fraxinus excelsior*), and birch (*Betula pendula*).

The Chamberstown and Demalestown Order 1 mapped WFD watercourses traverse Area 1 to the north and east, respectively. These were classified as **Eroding/upland rivers (FW1)**. Additionally, **Drainage ditches (FW4)** were recorded adjacent to the majority of field boundaries within the Proposed Development site (Plate 3-6). These contained ditches that were wet and dry at the time of survey. Farm roads within Area 1 were classified as **Spoil and bare ground (ED2)** (Plate 3-7) and were typically recorded adjacent to linear features such as hedgerows and treelines.

No Third Schedule of the European Communities Regulations 2011 (S.I. 477 of 2015) or under the First Schedule of the European Union (Invasive Alien Species) Regulations 2024 (S.I. No 374 of 2024) nor any other invasive species, were recorded within Area 1 of the study site.

No habitats listed under Annex I, nor significant supporting habitat for species listed under II of the EU Habitats Directive were recorded within Area 1 of the Proposed Development site.



Plate 3-1 Improved agricultural grassland (GA1) habitat in Area 1.



Plate 3-2 Example of Arable crops (BC1) habitat in Area 1.



Plate 3-3 Example of Recently felled woodland (WS5) habitat in Area 1.



Plate 3-4 Example of Hedgerow (WL1) habitat within Area 1.



Plate 3-5 example of Treeline (WL2) habitat within Area 1.



Plate 3-6 Example of Drainage ditches (FW4) delineating the site in Area 1.



Plate 3-7 Farm tracks classified as Spoil and bare ground (ED2)

3.2.2 Area 2

Much like Area 1, Area 2 of the Proposed Development site predominantly consisted of agricultural fields. These included fields of **Arable crops (BC1)** (Plate 3-8), **Improved agricultural grassland (GA1)** (Plate 3-9), and **Wet grassland (GS4)** (Plate 3-10). The improved grassland areas were again dominated by species including perennial ryegrass (*Lolium perenne*), Yorkshire fog (*Holcus lanatus*), and creeping buttercup (*Ranunculus repens*).

Field boundaries were delineated by **Hedgerows (WL1)** (Plate 3-11) and **Treelines (WL2)** (Plate 3-12) which were composed of a combination of hawthorn (*Crataegus monogyna*), beech (*Fagus sylvatica*), blackthorn (*Prunus spinosa*), elder (*Sambucus nigra*), holly (*Ilex aquifolium*), gorse (*Ulex europaeus*), bramble (*Rubus fruticosus* agg.), honeysuckle (*Lonicera* sp.), and ivy (*Hedera helix*). Ground flora within these habitats recorded in Area 2 included ivy (*Hedera helix*), nettle (*Urtica dioica*), cleavers (*Galium aparine*), lesser celandine (*Ficaria verna*), broad-leaved dock (*Rumex obtusifolius*), soft shield fern (*Polystichum setiferum*). Areas of **Dry meadows and grassy verges (GS2)** were recorded adjacent to field boundaries. Species contained within these verges included perennial ryegrass (*Lolium perenne*), Yorkshire fog (*Holcus lanatus*), cock's-foot (*Dactylis glomerata*), Marsh foxtail (*Alopecurus geniculatus*), with dandelion (*Taraxacum officinale* agg.), Creeping buttercup (*Ranunculus repens*), White clover (*Trifolium repens*), and Common mouse-ear (*Cerastium fontanum*). Occasional stone wall habitat classified as **Stone walls and other stonework (BL1)** was also present within Area 2, and presented as a mosaic with hedgerows forming field boundaries.

The Castlepark mapped Order 1 stream borders the northern extent Area 2, while and Mullaghroe and Mullagha Order 1 streams border the south. These were classified as a **Lowland depositing stream (FW2)** and an **Eroding/upland rivers (FW1)** (Plate 3-13), respectively. These watercourses are further discussed in Section 3.2.4. **Drainage ditches (FW4)** were also recorded adjacent to several field boundaries within Area 2 of the Proposed Development site (Plate 3-14). A small area of standing water was also recorded along a field at the western boundary of Area 2 (Plate 3-15). As this was fed by field drains, this is best classified as a drainage ditch. Water vegetation recorded here included Fool's watercress (*Apium nodiflorum*) and *Ranunculus* spp.

No Third Schedule of the European Communities Regulations 2011 (S.I. 477 of 2015) or under the First Schedule of the European Union (Invasive Alien Species) Regulations 2024 (S.I. No 374 of 2024) nor any other invasive species, were recorded within Area 2 of the study site.

No habitats listed under Annex I, nor significant supporting habitat for species listed under II of the EU Habitats Directive were recorded within Area 1 of the Proposed Development site.



Plate 3-8 Example of Arable crops (BC1) within Area 2.



Plate 3-9 Example of Improved agricultural grassland (GA1) habitat within Area 2.



Plate 3-10 Example of Wet grassland (GS4) habitat within Area 2.



Plate 3-11 Example of Hedgerow (WL1) habitat within Area 2.



Plate 3-12 Treeline (WL2) habitat within Area 2.



Plate 3-13 Example of Eroding/upland river habitat within Area 2.



Plate 3-14 Example of drainage ditches (FW4) within Area 2.



Plate 3-15 Large area of drainage ditch habitat recorded within Area 2.

3.2.3

Area 3

Area 3 of the Proposed Development site consists of a single field of **Improved agricultural grassland (GA1)** (Plate 3-16). This portion of the site is species poor and is largely composed of perennial ryegrass (*Lolium perenne*), Yorkshire fog (*Holcus lanatus*), creeping buttercup (*Ranunculus repens*), and cuckooflower (*Cardamine pratensis*). This area is surrounded by **Hedgerows (WL1)** dominated by hawthorn (*Crataegus monogyna*) and blackthorn (*Prunus spinosa*) with elder (*Sambucus nigra*), and ash (*Fraxinus excelsior*) (Plate 3-17), as well as **Drainage ditches (FW4)** also being recorded along the field boundary. Ground flora under hedgerows and bordering field boundaries cover included ivy (*Hedera helix*), Yorkshire fog (*Holcus lanatus*), and nettles (*Urtica dioica*).

No Third Schedule of the European Communities Regulations 2011 (S.I. 477 of 2015) or under the First Schedule of the European Union (Invasive Alien Species) Regulations 2024 (S.I. No 374 of 2024) nor any other invasive species, were recorded within Area 3 of the study area.

No mapped watercourses are located within or adjacent to Area 3 of the Proposed Development site.

No habitats listed under Annex I, nor significant supporting habitat for species listed under II of the EU Habitats Directive were recorded within Area 1 of the Proposed Development site.



Plate 3-16 Improved agricultural grassland (GA1) of Area 3.



Plate 3-17 Hedgerow (WL1) habitat example within Area 3.

3.2.4

Aquatic Assessments

Watercourses within and adjacent to the Proposed Development site comprised small low flowing streams and comprised a combination of Upland eroding streams (FW1) and Lowland depositing streams (FW2). All watercourses were recorded forming field boundaries, often as a mosaic with hedgerow, treelines, and/or woodlands.

Upland eroding streams (FW1)

These watercourses were characterised by moderate to fast flows of water and with gravel/cobble substrates and were recorded forming field boundaries within Area 1 and Area 2 of the Proposed Development site. They were absent from Area 3.

Typically, these watercourses were small and were considered as first order streams. They presented with little depth, ranging from 3-7 cm, and were generally narrow and channelled, with relatively high/steep banks. The maximum bank width of these watercourses was approx. 1.5m, and a wet width of approx. 1.0m.

In stream vegetation was limited, but occurrences of hemlock water dropwort (*Oenanthe crocata*) were recorded in slower, shallower sections of this watercourse type. Bank vegetation varied between differing riparian habitats, including areas of scrub, treelines, woodland hedgerows, and grassy verges. Shading was typically high, given these watercourses small size and tall bank vegetation. As previously discussed, hedgerows and treelines which were often recorded with these watercourses, were dominated by hawthorn, ash and alder.

Examples of these watercourses are provided in Plate 3-18, Plate 3-19, and Plate 3-20.

No significant barrier to connectivity was recorded within any watercourse within the Proposed Development site, and despite their small and modified nature, these watercourses presented some fisheries value. Pool, glide, riffle systems were rare, but where they did occur, these presented potential fisheries value for small aquatic species, particularly for nursery ground for young trout.



Plate 3-18 Example of a shallow fast flowing eroding stream within a field boundary of Area 1.

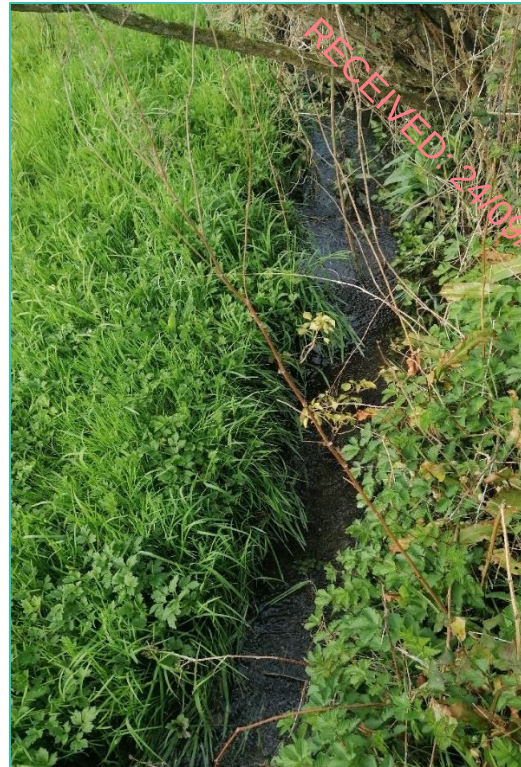


Plate 3-19 Example of eroding stream with vegetated banks in Area 1.



Plate 3-20 Slower moving eroding stream recorded within Area 2.

Lowland depositing streams (FW2)

These watercourses were characterised by low flows of water or standing water and with silty substrates. These were recorded forming northern field boundaries within Area 2 of the Proposed Development site. They were absent from Area 1 and Area 3.

Typically, these watercourses were wider than the upland eroding stream and held more water. They presented with depth off at least 0.4m, and were generally wide and channelled, with relatively high/steep banks. The maximum bank width of these watercourses was approx. 2.5m, and a maximum wet width of approx. 1.5m.

In stream vegetation was abundant, with species such as hemlock water dropwort (*Oenanthe crocata*), reed canary grass (*Phalaris arundinaceae*), pondweeds (*Potamogeton* spp.), yellow Iris (*Iris pseudacorus*) and water smartweed (*Persicaria amphibia*) recorded.

Bank vegetation varied between differing riparian habitats, including areas of gorse (*Ulex europaeus*) scrub, ash and hawthorn treelines/hedgerows, and grassy verges which contained several species including Yorkshire fog, meadow sweet (*Filipendula ulmaria*), cuckoo flower (*Cardamine pratensis*), hemlock water dropwort, cocks foot (*Dactylis glomerata*), and nettle (*Urtica dioica*). Shading was typically lower than that of the eroding stream as hedgerow and treelines were less prevalent.

No significant barrier to connectivity was recorded within any watercourse within the Proposed Development site. These watercourses presented some fisheries value and the silt substrates and vegetated water columns presented potential fisheries value for small aquatic species.



Plate 3-21 Example of a low land deposit stream recorded within Area 2 of the Proposed Development site.

3.2.5 Otter

No signs of otter in the form of prints, spraints, holts or couches were recorded at any of the watercourses surveyed over the course of the study period.

3.2.6 Invasive Species

No invasive species listed under the Third Schedule of the European Communities Regulations 2011 (S.I. 477 of 2015) or under the First Schedule of the European Union (Invasive Alien Species) Regulations 2024 (S.I. No 374 of 2024) were recorded within the Proposed Development site.

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4.

APPROPRIATE ASSESSMENT SCREENING

4.1

Identification of Relevant European Sites

The following methodology was used to establish any European Sites upon which there is a potential for a likely significant effect to occur either individually or in combination with other plans and projects as a result of the proposed development:

- Initially the most up to date GIS spatial datasets for European designated sites and water catchments were downloaded from the NPWS website (www.npws.ie) and the EPA website (www.epa.ie).
- All European Sites that could potentially be affected were identified using a source-pathway - receptor model. To provide context for the assessment, European Sites surrounding the Proposed Development are shown on Figure 4-1. Information on these sites according to the site-specific conservation objectives is provided in Table 4-1.
- The catchment mapping was used to establish or discount potential hydrological connectivity between the site of the proposed development and any European Sites. The hydrological catchments are also shown in Figure 4-1.
- In relation to Special Protection Areas, in the absence of any specific European or Irish guidance in relation to such sites, the Scottish Natural Heritage (SNH) Guidance, '*Assessing Connectivity with Special Protection Areas (SPA)*' (2016) was consulted. This document provides guidance in relation to the identification of connectivity between proposed development and Special Protection Areas. The guidance takes into consideration the distances species may travel beyond the boundary of their SPAs and provides information on dispersal and foraging ranges of bird species which are frequently encountered when considering plans and projects.
- Table 4-1, provides details of all relevant European Sites as identified in the preceding steps and assesses the potential for likely significant effects on each.
- The assessment considers any likely direct or indirect impacts of the Proposed Development, both alone and in combination with other plans and projects, on European Sites by virtue of criteria including the following: size and scale, land-take, distance from the European Site or key features of the site, resource requirements, emissions, excavation requirements, transportation requirements and duration of construction, operation and decommissioning were considered in this assessment.
- The site synopses and conservation objectives of these sites, as per the NPWS website (www.npws.ie), were consulted and reviewed at the time of preparing this report.
- Where potential pathways for Likely Significant Effect are identified, the site is included within the Likely Zone of Influence and further assessment is required within the NIS.
- The potential for the Proposed Development to result in cumulative impacts on any European Sites in combination with other plans and projects was considered in the assessment that is presented in Table 4-1. Plans and projects considered include those that are listed in **Appendix 3**.



Map Legend

- Site Boundary
- Special Area of Conservation (SAC)
- Special Protection Area (SPA)
- WFD Watercourses
- WFD Catchments



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Drawing Title
European Designated sites Surrounding
the Proposed Development

Project Title
Rathcoon Solar Farm, Co.
Meath

Drawn By	Checked By
SC	PD
Project No. 250403	Drawing No. Figure 4-1
Scale 1:140,000	Date 02.09.2025



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Table 4-1 Identification of European Sites within the Likely Zone of Influence

European Sites and distance from Proposed Development	Qualifying Interests/Special Conservation Interests for which the European site has been designated (Sourced from NPWS online Conservation Objectives, www.npws.ie ⁵)	Conservation Objectives	Identification of Source-Pathway-Receptor chain	Potential for Likely Significant Effects (LSEs)
Special Areas of Conservation (SAC)				
River Boyne and River Blackwater SAC [002299] Distance: 3.7 km Hydrological Distance: 5.7 km	> [7230] Alkaline fens > [91E0] Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i> (<i>Alno-Padion</i>, <i>Alnion incanae</i>, <i>Salicion albae</i>)* > [1099] River Lamprey (<i>Lampetra fluviatilis</i>) > [1106] Salmon (<i>Salmo salar</i>) > [1355] Otter (<i>Lutra lutra</i>)	Site-specific Conservation Objectives (SSCOs) for this site, (Version 1, December 2021), were reviewed as part of the assessment and are available at www.npws.ie	There will be no direct effects within this SAC as the Proposed Development is located entirely outside of this designated site. Whilst the Proposed Development site is located within the forging range of otter, no significant supporting habitat nor indications of this species was recorded during the surveys undertaken. Therefore, there is no potential for direct effects on this QI species, as a result of <i>ex-situ</i> disturbance, during any phase of the Proposed Development. The potential for indirect effects was also considered. There is hydrological connectivity between the site of the Proposed Development and this SAC via five Order 1 streams that traverse the Proposed Development site. These subsequently discharge into this SAC approximately 5.7 km downstream from the Proposed Development site at its closest point. Therefore, a potential pathway for significant indirect effects on aquatic QIs of this SAC was identified. There is potential for the deterioration of water quality within the SAC via the runoff or percolation of pollutants into upstream surface water systems during the construction, operational, and decommissioning phases of the Proposed Development. A complete source-pathway-receptor chain was identified and in the absence of mitigation, there is potential for the Proposed Development to result in	Yes

⁵ Accessed at <<https://www.npws.ie/protected-sites/conservation-management-planning/conservation-objectives>>

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European Sites and distance from Proposed Development	Qualifying Interests/Special Conservation Interests for which the European site has been designated (Sourced from NPWS online Conservation Objectives, www.npws.ie ⁵)	Conservation Objectives	Identification of Source-Pathway-Receptor chain	Potential for Likely Significant Effects (LSEs)
			likely significant effects on this European Site. The European Site is considered to be within the Likely Zone of Influence of the Proposed Development and further assessment is required.	
Boyne Coast and Estuary SAC [001957] Distance: 20.8 km Hydrological Distance: 29 km	> [1130] Estuaries > [1140] Mudflats and sandflats not covered by seawater at low tide > [1310] Salicornia and other annuals colonizing mud and sand > [1330] Atlantic salt meadows (<i>Glauco-Puccinellietalia maritima</i>) > [1410] Mediterranean salt meadows (<i>Juncetalia maritimi</i>) > [2110] Embryonic shifting dunes > [2120] Shifting dunes along the shoreline with <i>Ammophila arenaria</i> ('white dunes') > [2130] *Fixed coastal dunes with herbaceous vegetation ('grey dunes')	Site-specific Conservation Objectives (SSCOs) for this site, (Version 1, October 2012), were reviewed as part of the assessment and are available at www.npws.ie	There will be no direct effects as the Proposed Development is located entirely outside of this designated site. The potential for indirect effects was also considered. There is hydrological connectivity between the site of the Proposed Development and this SAC via five Order 1 streams that traverse the Proposed Development site. These subsequently discharge into this SAC approximately 29 km downstream from the Proposed Development site at its closest point. That said, given the nature of the Proposed Development which does not pose significant risks to water quality during any phase, the associated hydrological distance (29 km) and intervening waterbodies between the Proposed Development, and this designated site, no significant potential for indirect effects was identified. No pathway for likely significant effect on this European Site was identified, when considered in the absence of any mitigation, individually or cumulatively with other plans or projects. This site is not within the Likely Zone of Influence of the Proposed Development. Therefore, it is not considered further in this assessment.	No
Special Protection Area (SPA)				
River Boyne and River Blackwater SPA [004232]	> [A229] Kingfisher (<i>Alcedo atthis</i>)	Site-specific Conservation Objectives (SSCOs)	There will be no direct effects within this SPA as the Proposed Development is located entirely outside of this designated site.	Yes

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European Sites and distance from Proposed Development	Qualifying Interests/Special Conservation Interests for which the European site has been designated (Sourced from NPWS online Conservation Objectives, www.npws.ie ⁵)	Conservation Objectives	Identification of Source-Pathway-Receptor chain	Potential for Likely Significant Effects (LSEs)
Distance: 3.8 km Hydrological Distance: 6.1 km		for this site, (Version 1, July 2024), were reviewed as part of the assessment and are available at www.npws.ie	The Proposed Development site is located outside the foraging range (1 km) of populations of kingfisher associated with this SPA (NRA, 2009). Therefore, there is no potential for direct effects on this SCI species, as a result of <i>ex-situ</i> disturbance, during any phase of the Proposed Development. The potential for indirect effects was also considered. There is hydrological connectivity between the site of the Proposed Development and this SAC via five Order 1 streams that traverse the Proposed Development site. These subsequently discharge into this SPA approximately 6.1 km downstream from the Proposed Development site at its closest point. Therefore, a potential pathway for significant indirect effects supporting habitat for the single SCI species of this SPA was identified. There is potential for the deterioration of water quality within the SPA via the runoff or percolation of pollutants into upstream surface water systems during the construction, operational, and decommissioning phases of the Proposed Development. A complete source pathway receptor chain was identified and in the absence of mitigation, there is potential for the Proposed Development to result in likely significant effects on this European Site. The European Site is considered to be within the Likely Zone of Influence of the Proposed Development and further assessment is required.	
Boyne Estuary SPA [004080] Distance: 19.7 km	➤ [A048] Shelduck (<i>Tadorna tadorna</i>) ➤ [A130] Oystercatcher (<i>Haematopus ostralegus</i>)	Site-specific Conservation Objectives (SSCOs) for this site, (Version 1, July	There will be no direct effects as the Proposed Development is located entirely outside of this designated site. The potential for indirect effects was also considered. The site of the Proposed Development does not lie within the core foraging ranges of the associated SCI species of this SPA. Therefore, no potential	No

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European Sites and distance from Proposed Development	Qualifying Interests/Special Conservation Interests for which the European site has been designated (Sourced from NPWS online Conservation Objectives, www.npws.ie ⁵)	Conservation Objectives	Identification of Source-Pathway-Receptor chain	Potential for Likely Significant Effects (LSEs)
Hydrological Distance: 28.8 km	> [A140] Golden Plover (<i>Pluvialis apricaria</i>) > [A141] Grey Plover (<i>Pluvialis squatarola</i>) > [A142] Lapwing (<i>Vanellus vanellus</i>) > [A143] Knot (<i>Calidris canutus</i>) > [A144] Sanderling (<i>Calidris alba</i>) > [A156] Black-tailed Godwit (<i>Limosa limosa</i>) > [A162] Redshank (<i>Tringa tetanus</i>) > [A169] Turnstone (<i>Arenaria interpres</i>) > [A195] Little Tern (<i>Sterna albifrons</i>) > [A999] Wetlands and waterbirds	2024), were reviewed as part of the assessment and are available at www.npws.ie	exists for <i>ex-situ</i> disturbance or habitat loss for these species as a result of the Proposed Development. There is hydrological connectivity between the site of the Proposed Development and this SAC via five Order 1 streams that traverse the Proposed Development site. These subsequently discharge into the SPA located approximately 28.8 km downstream. However, given the nature of the Proposed Development which does not pose significant risks to water quality during any phase, the associated hydrological distance (28.8 km), and intervening waterbodies between the Proposed Development and this designated site, no potential for significant indirect effects on the wetland habitat of this SPA was identified. No pathway for likely significant effect on this European Site was identified, when considered in the absence of any mitigation, individually or cumulatively with other plans or projects. This site is not within the Likely Zone of Influence of the Proposed Development. Therefore, it is not considered further in this assessment.	
North-West Irish Sea SPA [004236] Distance: 25 km Hydrological Distance: 33 km	> [A001] Red-throated Diver (<i>Gavia stellata</i>) > [A003] Great Northern Diver (<i>Gavia immer</i>) > [A009] Fulmar (<i>Fulmarus glacialis</i>) > [A013] Manx Shearwater (<i>Puffinus puffinus</i>)	Site-specific Conservation Objectives (SSCOs) for this site, (Version 1, September 2023), were reviewed as	There will be no direct effects as the Proposed Development is located entirely outside of this designated site. The site of the Proposed Development does not lie within the core foraging ranges of the associated SCI species of this SPA (SNH, 2016)⁶. Therefore, no potential exists for disturbance for these species as a result of the Proposed Development.	No

⁶ <https://www.nature.scot/sites/default/files/2022-12/Assessing%20connectivity%20with%20special%20protection%20areas.pdf> [Accessed 05th of September 2025]

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European Sites and distance from Proposed Development	Qualifying Interests/Special Conservation Interests for which the European site has been designated (Sourced from NPWS online Conservation Objectives, www.npws.ie ⁵)	Conservation Objectives	Identification of Source-Pathway-Receptor chain	Potential for Likely Significant Effects (LSEs)
	> [A017] Cormorant (<i>Phalacrocorax carbo</i>) > [A018] Shag (<i>Phalacrocorax aristotelis</i>) > [A065] Common Scoter (<i>Melanitta nigra</i>) > [A179] Black-headed Gull (<i>Chroicocephalus ridibundus</i>) > [A182] Common Gull (<i>Larus canus</i>) > [A183] Lesser Black-backed Gull (<i>Larus fuscus</i>) > [A184] Herring Gull (<i>Larus argentatus</i>) > [A187] Great Black-backed Gull (<i>Larus marinus</i>) > [A188] Kittiwake (<i>Rissa tridactyla</i>) > [A192] Roseate Tern (<i>Sterna dougallii</i>) > [A193] Common Tern (<i>Sterna hirundo</i>) > [A194] Arctic Tern (<i>Sterna paradisaea</i>) > [A195] Little Tern (<i>Sterna albigrons</i>) > [A199] Guillemot (<i>Uria aalge</i>) > [A200] Razorbill (<i>Alca torda</i>) > [A204] Puffin (<i>Fratercula arctica</i>) > [A862] Little Gull (<i>Hydrocoloeus minutus</i>)	part of the assessment and are available at www.npws.ie	The potential for indirect effects was also considered. There is hydrological connectivity between the site of the Proposed Development and this SAC via two Order 1 streams that traverse the eastern portion of the Proposed Development site. These subsequently discharge into the SPA located > 30 km downstream. However, given the associated hydrological distance and intervening waterbodies between the Proposed Development and this designated site, no potential for indirect effects this SPA was identified. No pathway for likely significant effect on this European Site was identified, when considered in the absence of any mitigation, individually or cumulatively with other plans or projects. This site is not within the Likely Zone of Influence of the Proposed Development. Therefore, it is not considered further in this assessment.	

4.2

Appropriate Assessment Screening Conclusion

It cannot be excluded beyond reasonable scientific doubt, in view of best scientific knowledge, on the basis of objective information and in light of the conservation objectives of the relevant European sites, that the Proposed Development, individually or in combination with other plans and projects, would be likely to have a significant effect on the following European Sites:

- > River Boyne and River Blackwater SAC
- > River Boyne and River Blackwater SPA

As a result, an Appropriate Assessment (AA) of the Proposed Development is required. Information to enable the competent authority to carry out an AA of the Proposed Development is presented in Sections 5 to 9 of this report.

5.

INFORMATION TO INFORM APPROPRIATE ASSESSMENT

The potential for likely significant effects on the following European Sites in the absence of any mitigation, individually or cumulatively with other plans or projects, was identified in the preceding section:

- > River Boyne and River Blackwater SAC [002299]
- > River Boyne and River Blackwater SPA [004232]

The following sections consider each European Site individually to:

1. Determine which individual qualifying features have the potential to be adversely affected by the Proposed Development.
2. Provide information with regard to the Conservation Objectives and site-specific pressures and threats for those qualifying features that have the potential to be adversely affected.
3. Site Specific Conservation Objectives for both sites are available at www.npws.ie

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5.1

Identification of relevant Qualifying Features and Desk Study

5.1.1

River Boyne and River Blackwater SAC [002299]

The potential for likely significant effects on this SAC were identified in Table 4-1 in Section 4 above. The identified pathways for effect consist of the following:

- There is a potential pathway for likely significant indirect effects on the aquatic QI habitats and aquatic QI species of this SAC, via the deterioration of water quality arising from run-off or percolation of pollutants to surface and/or ground water during the construction, operational, and decommissioning phases of the Proposed Development.
- Taking a precautionary approach, given that the Proposed Development is within the foraging range of populations of otter associated with this SAC, there is a potential pathway for likely significant indirect effects on this QI species of this SAC, via disturbance during construction operational, and decommissioning phases.

The Site-Specific Conservation Objectives (SSCOs) document and Natura 2000 Data Form for this European Site were reviewed during this assessment and can be found at the following online locations:

SSCOs: https://www.npws.ie/sites/default/files/protected_sites/conservation_objectives/CO002299.pdf

- **Natura 2000 Data Form:** <https://natura2000.eea.europa.eu/Natura2000/sdf/#/sdf?site=IE0002299&release=55>

Table 5-1 below lists the qualifying features of this European Site and determines, in the light of their Conservation Objectives, whether there is any complete source-pathway-receptor chain, by which adverse effects may occur as a result of the Proposed Development.

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5.1.1.1 Identification of Individual Qualifying Features with the Potential to be Affected

Table 5-1 Assessment of Qualifying features potentially affected

Qualifying feature	Conservation Objective (NPWS, Version 1, December 2021 ⁷)	Rationale	Potential for Adverse Effects Yes/No
[7230] Alkaline fens	To maintain the favourable conservation condition of Alkaline fens in River Boyne and River Blackwater SAC.	The Proposed Development is located outside of the SAC, as such there is no potential for direct effects on this QI habitat. As per the SSCOs of this SAC, this QI habitat has not been mapped in detail. This habitat, however, was not recorded within the site of the Proposed Development and therefore no potential for direct effects exists. However, water quality is a key attribute of the conservation objectives of this QI. The site of the Proposed Development is located approximately 5.7 km upstream of the SAC. Therefore, taking a precautionary approach, there is potential for adverse effects on this QI habitat as a result of the Proposed Development, via deterioration of water quality. There is potential for a deterioration in water quality as a result of the run-off of pollutants to surface waters during the construction, operational, and decommissioning phases of the Proposed Development. A complete source-pathway-receptor chain for adverse effects on this habitat was identified and therefore, this habitat is considered further in the assessment.	Yes
[91E0] Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i> (<i>Alno-Padion</i> ,	To restore the favourable conservation condition of Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i> (<i>Alno-Padion</i> ,	The Proposed Development is located outside of the SAC, as such there is no potential for direct effects on this QI habitat.	No

⁷ River Boyne and River Blackwater SAC 002299 conservation Objective Series, Version 1, December 2021.

Qualifying feature	Conservation Objective (NPWS, Version 1, December 2021 ⁷)	Rationale	Potential for Adverse Effects Yes/No
<i>Alnion incanae</i> , <i>Salicion albae</i>)*	<i>Alnion incanae</i> , <i>Salicion albae</i>)* in River Boyne and River Blackwater SAC.	On review of the SSCOs for this QI habitat, no potential to undermine the conservation objectives for this QI habitat was identified. Whilst this QI is influenced by hydrological regimes and is downstream of the Proposed Development site, as per the SSCOs, water quality is not a key attribute of this QI. Therefore, there is no potential for adverse effects on this QI habitat. No complete source- pathway- receptor chain for any effect on this habitat as a result of the Proposed Development was identified. No further assessment is required.	
[1099] River lamprey (<i>Lampetra fluviatilis</i>)	To restore the favourable conservation condition of River Lamprey (<i>Lampetra fluviatilis</i>) in River Boyne and River Blackwater SAC.	The Proposed Development is located outside of the SAC, as such there is no potential for direct effects on this QI species. There is potential for these species to occur downstream of the Proposed Development site within the River Boyne and River Blackwater SAC. Therefore, following the precautionary principle, a potential pathway for adverse effects on these QI species was identified via the deterioration of water quality within the SAC arising from the runoff or percolation of pollutants into surface water systems during the construction, operational, and decommissioning phases of the Proposed Development. A complete source-pathway-receptor chain for adverse effects on these species was identified and therefore, these species are considered further in the assessment.	Yes
[1106] Salmon (<i>Salmo salar</i>)	To restore the favourable conservation condition of Atlantic Salmon (<i>Salmo salar</i>) in River Boyne and River Blackwater SAC.		Yes
[1355] Otter (<i>Lutra lutra</i>)	To maintain the favourable conservation condition of Otter (<i>Lutra lutra</i>) in River Boyne and River Blackwater SAC.	The Proposed Development is located outside of the SAC, as such there is no potential for direct effects on this QI species. The Proposed Development will not result in any barriers to connectivity for species commuting outside of the SAC. Whilst the Proposed Development site is located within the foraging range of otter, no breeding or resting sites, nor any other signs of this species, were identified during the surveys undertaken. Therefore, there is no potential for adverse effects on	Yes

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Qualifying feature	Conservation Objective (NPWS, Version 1, December 2021 ⁷)	Rationale	Potential for Adverse Effects Yes/No
		this QI species, as a result of <i>ex-situ</i> disturbance, during any phase of the Proposed Development. However, otter is considered to be within the Zone of Influence of the Proposed Development. There is potential for construction works to result in the run-off of pollutants and materials into watercourses downstream of the Proposed Development site. This has the potential to impact on the conservation objectives for this species in particular in relation to fish biomass availability, for example a degradation in water quality could impact on prey resource for otter. Therefore, taking a precautionary approach, there is potential for adverse effects on supporting foraging habitat for this species, as a result of a deterioration in water quality. A complete source-pathway-receptor chain for adverse effects on this species was identified and, as such, this species is considered further in the assessment.	

5.1.1.2 Site Specific Pressures and Threats

As per the Natura 2000 Data Form, the site-specific threats, pressures and activities with potential to impact on the European Site were reviewed and considered in relation to the Proposed Development. These are provided in Table 5-2.

Table 5-2 Site-specific threats, pressures and activities

Negative Impacts			
Rank	Threats and Pressures		Inside/Outside
High	E02	Industrial or commercial areas	Inside
High	E03.04	Other discharges	Inside
High	H01	Pollution to surface waters (limnic, terrestrial, marine & brackish)	Inside
High	I01	Invasive non-native species	Inside
High	J02.15	Other human induced changes in hydraulic conditions	Inside
Low	D01.05	Bridge, viaduct	Inside
Low	G01	Outdoor sports and leisure activities, recreational activities	Inside
Low	G05	Other human intrusions and disturbances	Inside
Low	G05.06	Tree surgery, felling for public safety, removal of roadside trees	Inside
Medium	A01	Cultivation	Inside
Medium	A05.02	Stock feeding	Outside
Medium	A07	Use of biocides, hormones and chemicals	Inside
Medium	A08	Fertilisation	Inside
Medium	A10.01	Removal of hedges and copses or scrub	Inside
Medium	A10.01	Removal of hedges and copses or scrub	Inside
Medium	B01.02	Artificial planting on open ground (non-native trees)	Inside
Medium	C01.01	Sand and gravel extraction	Inside
Medium	D01.02	Roads, motorways	Inside
Medium	E01.04	Other patterns of habitation	Inside
Medium	E03.02	Disposal of industrial waste	Inside
Medium	E05	Storage of materials	Inside
Medium	G02.10	Other sport / leisure complexes	Inside

Medium	J02	Human induced changes in hydraulic conditions	Inside
Medium	J02.10	Management of aquatic and bank vegetation for drainage purposes	Inside
Medium	J02.11	Siltation rate changes, dumping, depositing of dredged deposits	Inside

Potential pathways for effect with regard to site-specific threats, pressures and activities have been identified in relation to potential for pollution to surface waters in addition to other discharges entering surface waters as a result of the Proposed Development. This has the potential to contribute to the known threats and pressures on the SAC specifically with H01: Pollution to surface waters (limnic, terrestrial, marine & brackish).

5.1.1.3 Qualifying Interest (QI) Specific Information

5.1.1.3.1 [7230] Alkaline Fens

Description from SSCO document

The conservation objective for this QI is:

'To maintain the favourable conservation condition of Alkaline Fens in River Boyne and River Blackwater SAC, which is defined by the following list of attributes and target.'

According to the SSCO (NPWS, 2021), the extent of this habitat within this SAC has not been quantified.

According to the Article 17 Report (NPWS 2019), the overall Conservation Status for this QI species is 'Inadequate' with a stable trend, unchanged since the 2013 assessment.

The targets and attributes for this species are provided in Table 5-3 below.

Targets and Attributes

Table 5-3 Targets and Attributes associated with nominated site-specific conservation objectives for Alkaline Fens in River Boyne and River Blackwater SAC.

Attribute	Target	Potential for Proposed Development to Undermine Conservation Objective Target in the Absence of Mitigation
Habitat area	Area stable or increasing, subject to natural processes	No (The habitat area of this QI will not be impacted by a deterioration in water quality as a result of the Proposed Development).
Habitat distribution	No decline, subject to natural processes	No (The habitat distribution of this QI will not be impacted by a deterioration in water quality as a result of the Proposed Development).

Ecosystem function: soil nutrients	Maintain soil pH and nutrient status within natural ranges	Yes - deterioration in water quality and habitat degradation could impact soil pH and nutrient status.
Ecosystem function: peat formation	Maintain active peat formation, where appropriate	No (Peat formation within this QI habitat will not be impacted by a deterioration in water quality as a result of the Proposed Development).
Ecosystem function: hydrology - groundwater levels	Maintain, or where necessary restore, appropriate natural hydrological regimes necessary to support the natural structure and functioning of the habitat	No (Groundwater levels within this QI habitat will not be impacted by a deterioration in water quality as a result of the Proposed Development).
Ecosystem function: hydrology - surface water flow	Maintain, or where necessary restore, as close as possible to natural or semi-natural, drainage conditions	No (The surface water flow of this QI habitat will not be impacted by a deterioration in water quality as a result of the Proposed Development).
Ecosystem function: water quality	Maintain appropriate water quality, particularly pH and nutrient levels, to support the natural structure and functioning of the habitat	Yes - deterioration in water quality and habitat degradation could impact the pH and nutrient levels of alkaline fens.
Vegetation composition: community diversity	Maintain variety of vegetation communities, subject to natural processes	Yes - deterioration in water quality and habitat degradation could impact on the variety of vegetation.
Vegetation composition: typical brown mosses	Maintain adequate cover of typical brown moss species	Yes - deterioration in water quality and habitat degradation could impact on the cover of brown moss species.
Vegetation composition: typical vascular plants	Maintain adequate cover of typical vascular plant species	Yes - deterioration in water quality and habitat degradation could impact on vegetation composition of this QI habitat.
Vegetation composition: native negative indicator species	Cover of native negative indicator species at insignificant levels	Yes - deterioration in water quality and habitat degradation could impact on the cover of native negative indicator species.
Vegetation composition: non-native species	Cover of non-native species less than 1%	No (Vegetation composition within this QI habitat will not be impacted by a deterioration in water quality as a result of the Proposed Development).
Vegetation composition: native trees and shrubs	Cover of scattered native trees and shrubs less than 10%	No (Vegetation composition within this QI habitat will not be impacted by a deterioration in water quality as a result of the Proposed Development).

Vegetation composition: algal cover	Cover of algae less than 2%	No (Vegetation composition within this QI habitat will not be impacted by a deterioration in water quality as a result of the Proposed Development).
Vegetation structure: vegetation height	At least 50% of the live leaves/flowering shoots are more than either 5cm or 15cm above ground surface depending on community type	No (Vegetation structure within this QI habitat will not be impacted by a deterioration in water quality as a result of the Proposed Development).
Physical structure: disturbed bare ground	Cover of disturbed bare ground not more than 10%	No (The cover of disturbed bare ground within this QI habitat will not be impacted by a deterioration in water quality as a result of the Proposed Development).
Physical structure: tufa formations	Disturbed proportion of vegetation cover where tufa is present is less than 1%	Yes - deterioration in water quality and habitat degradation could impact tufa formations.
Indicators of local distinctiveness	No decline in distribution or population sizes of rare, threatened or scarce species associated with the habitat; maintain features of local distinctiveness, subject to natural processes	Yes - deterioration in water quality and habitat degradation could impact on the cover of rare, threatened, or scarce indicator species.
Transitional areas between fen and adjacent habitats	Maintain adequate transitional areas to support/protect the alkaline fen ecosystem and the services it provides	Yes - deterioration in water quality and habitat degradation could impact the transitional wetland surrounding fen habitat.

5.1.1.3.2 [1099] River Lamprey (*Lampetra fluviatilis*)

Description from SSCO document

The conservation objective for this QI is:

*‘To restore the favourable conservation condition of River Lamprey (*Lampetra fluviatilis*) in River Boyne and River Blackwater SAC, which is defined by the following list of attributes and targets:’*

According to the SSCO (NPWS, 2021), the extent of this species within this SAC has not been quantified.

According to the Article 17 Report (NPWS 2019), the overall Conservation Status for this QI species is ‘Unknown’.

The targets and attributes for this species are provided in Table 5-4 below.

Targets and Attributes

Table 5-4 Targets and Attributes associated with nominated site-specific conservation objectives for River Lamprey (*Lampetra fluviatilis*) in River Boyne and River Blackwater SAC.

Attribute	Target	Potential for Proposed Development to Undermine Conservation Objective Target in the Absence of Mitigation
Distribution	Restore access to all water courses down to first order streams	Yes - deterioration in water quality and habitat degradation could impact on host fish species, resulting in reduction in overall distribution.
Distribution of larvae	Not less than 50% of sample sites with suitable habitat positive for larval brook/river lamprey	Yes - deterioration in water quality and habitat degradation could impact on the distribution of larvae.
Population structure of larvae	At least three age/size classes of larval brook/river lamprey present	Yes - deterioration in water quality and habitat degradation could impact the population structure of larvae.
Larval lamprey density in fine sediment	Mean density of brook/river larval lamprey in sites with suitable habitat more than 5/m ²	Yes - deterioration in water quality and habitat degradation could impact lamprey density.
Extent and distribution of spawning nursery habitat	No decline in extent and distribution of spawning and nursery beds	Yes - deterioration in water quality and habitat degradation could result in a reduction in the overall distribution of spawning nursery habitat.

5.1.1.3.3 [1106] Salmon (*Salmo salar*)

Description from SSCO document

The conservation objective for this QI is:

*‘To restore the favourable conservation condition of Atlantic Salmon (*Salmo salar*) in River Boyne and River Blackwater SAC, which is defined by the following list of attributes and targets:’*

According to the SSCO (NPWS, 2021), the extent of this species within this SAC has not been quantified.

According to the Article 17 Report (NPWS 2019), the overall Conservation Status for this QI species is ‘Inadequate’ with a stable trend.

The targets and attributes for this species are provided in Table 5-5 below.

Targets and Attributes

Table 5-5 Targets and Attributes associated with nominated site-specific conservation objectives for Atlantic Salmon (*Salmo salar*) in River Boyne and River Blackwater SAC.

Attribute	Target	Potential for Proposed Development to Undermine Conservation Objective Target in the Absence of Mitigation
Distribution: extent of anadromy	100% of river channels down to second order accessible from estuary	Yes - deterioration in water quality could impact on host fish species, resulting in reduction in overall distribution.
Adult spawning fish	Conservation limit (CL) for each system consistently exceeded	Yes - deterioration in water quality could impact on adult spawning fish.
Salmon fry abundance	Maintain or exceed 0+ fry mean catchment-wide abundance threshold value. Currently set at 17 salmon fry/5 minutes sampling	Yes - deterioration in water quality could impact on salmon fry abundance.
Out-migrating smolt abundance	No significant decline	Yes - deterioration in water quality could impact on the out-migrating smolt abundance.
Number and distribution of redds	No decline in number and distribution of spawning redds due to anthropogenic causes	No – the number and distribution of redds will not be impacted by a deterioration in water quality as a result of the Proposed Development.
Water quality	At least Q4 at all sites sampled by EPA	Yes - deterioration in water quality could impact on host fish species, resulting in reduction in overall population and distribution.

5.1.1.3.4 [1355] Otter (*Lutra lutra*)

Description from SSCO document

The conservation objective for this QI is:

*To maintain the favourable conservation condition of Otter (*Lutra lutra*) in River Boyne and River Blackwater SAC, which is defined by the following list of attributes and targets’.*

According to the SSCO (NPWS, 2021), the current range of otter is estimated at 93.6% (Reid et al., 2013).

According to the Article 17 Report (NPWS 2019), the overall Conservation Status for this QI species is ‘Favourable’.

The targets and attributes for this species are provided in Table 5-6 below.

Targets and Attributes

Table 5-6 Targets and Attributes associated with nominated site-specific conservation objectives for Otter (*Lutra lutra*) in River Boyne and River Blackwater SAC

Attribute	Target	Potential for Proposed Development to Undermine Conservation Objective Target in the Absence of Mitigation
Distribution	No significant decline	Yes - deterioration in water quality could impact on distribution otter due to reduced prey from deterioration of water quality.
Extent of terrestrial habitat	No significant decline. Area mapped and calculated as 447.6ha along river banks/ lake shoreline/around ponds	No (impacts will not occur as a result of the Proposed Development as there will be no loss to the extent of otter terrestrial habitat due to a deterioration in water quality).
Extent of freshwater (river) habitat	No significant decline. Length mapped and calculated as 263.3km	No (impacts will not occur as a result of the Proposed Development as there will be no loss of freshwater (river) habitat due to a deterioration in water quality).
Extent of freshwater (lake) habitat	No significant decline. Area mapped and calculated as 31.6ha	No (impacts will not occur as a result of the Proposed Development as there will be no loss of freshwater (lake) habitat due to a deterioration in water quality).
Couching sites and holts	No significant decline	No (impacts will not occur as a result of the Proposed Development as there will be no loss of couching sites and holts due to a deterioration in water quality).
Fish biomass available	No significant decline	Yes - deterioration in water quality could impact on prey distribution for otter.
Barriers to connectivity	No significant increase	No (impacts will not occur as a result of the Proposed Development as there will be no barriers to connectivity created due to a deterioration in water quality).

5.1.2

River Boyne and River Blackwater SPA [004232]

The potential for likely significant effects on this SAC were identified in Table 4-1 in Section 4 above. The identified pathways for effect consist of the following:

There is a potential pathway for likely significant indirect effects on the SCI species of this SPA, via the deterioration of water quality arising from run-off or percolation of pollutants to surface and/or ground water during the construction, operational, and decommissioning phases of the Proposed Development.

The Site-Specific Conservation Objectives (SSCOs) document and Natura 2000 Data Form for this designated site were reviewed during this assessment and can be found at the following online locations:

- > **SSCOs:**
https://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO004232.pdf
- > **Natura 2000 Data Form:**
<https://natura2000.eea.europa.eu/Natura2000/sdf/#/sdf?site=IE0004232&release=55>

Table 5-7 below lists the qualifying features of this European Site and determines, in the light of their Conservation Objectives, whether there is any complete source-pathway-receptor chain, by which adverse effects may occur as a result of the Proposed Development.

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5.1.2.1 Identification of Individual Qualifying Features with the Potential to be Affected

Table 5-7 Assessment of Qualifying features potentially affected

Qualifying feature	Conservation Objective (NPWS, Version 1, July 2024 ⁸)	Rationale	Potential for Adverse Effects Yes/No
[A229] Kingfisher (<i>Alcedo atthis</i>)	To maintain the Favourable conservation condition of Kingfisher in River Boyne and River Blackwater SPA.	The site of the Proposed Development is located approximately 6.4 km from the SPA and does not provide significant suitable supporting habitat for this SCI species. Whilst watercourses were recorded within and adjacent to the Proposed Development site, they did not provide significant fisheries value or suitable breeding habitat for this species. No indications of this species, including suitable breeding sites, were recorded within the Proposed Development site during the dedicated surveys undertaken, as per Appendix 1. Therefore, there is no potential for adverse effects on this QI species, as a result of <i>ex-situ</i> disturbance, during any phase of the Proposed Development. However, as SPA is downstream from the Proposed Development site, the potential for adverse effects on this SCI exists via the deterioration of supporting habitat, as a result of reduced water quality. A complete source-pathway-receptor chain for adverse effects on this SCI species was identified and therefore, is considered further in the assessment.	Yes

⁸ River Boyne and River Blackwater SPA 004232 conservation Objective Series, Version 1, July 2024.

5.1.2.2 Site Specific Pressures and Threats

As per the Natura 2000 Data Form, the site-specific threats, pressures and activities with potential to impact on the European Site were reviewed and considered in relation to the Proposed Development. These are provided in Table 5-8.

Table 5-8 Site-specific threats, pressures and activities

Negative Impacts			
Rank	Threats and Pressures		Inside/Outside
High	D01.02	Roads, motorways	Both
Medium	J02	Human induced changes in hydraulic conditions	Inside
High	E01.03	Dispersed habitation	Outside
High	E01	Urbanised areas, human habitation	Outside

The Proposed Development will not contribute to any of these threats and pressures.

5.1.2.3 SCI Species Specific Information

[A229] Kingfisher (*Alcedo atthis*)

The conservation objective for this SCI is:

‘To maintain the Favourable conservation condition of Kingfisher in River Boyne and River Blackwater SPA’

The attributes and targets for this species are provided in Table 5-9 below.

Table 5-9 Targets and attributes associated with nominated site-specific conservation objectives for Kingfisher in River Boyne and River Blackwater SPA.

Attribute	Target	Potential for Proposed Development to Undermine Conservation Objective Target in the Absence of Mitigation
Population size	No significant decline in the long term	Yes , reduction in water quality can reduce prey availability, potentially impacting on populations of kingfisher within the SPA
Productivity rate	Sufficient productivity to maintain the population trend as stable or increasing	Yes , reduction in water quality can reduce breeding success due to reduced prey availability, potentially impacting on productivity rates of kingfisher within the SPA
Spatial distribution of territories	No significant loss of distribution in the long term, other than that occurring due to natural patterns of variation	No (The Proposed Development will not result in a significant loss of distribution as a result of a deterioration in water quality).

Attribute	Target	Potential for Proposed Development to Undermine Conservation Objective Target in the Absence of Mitigation
Extent and quality of nesting banks and other suitable nesting features	Sufficient area of high quality nesting habitat to support the population target	No (The Proposed Development will not result in a decline in the extent and quality of nesting habitat as a result of a deterioration in water quality).
Forage spatial distribution, extent, abundance and availability	Sufficient number of locations, area of suitable forage habitat and available forage biomass to support the population target	Yes - deterioration in water quality could impact on prey distribution for kingfisher.
Water quality	Both biotic (i.e. Q-value) and abiotic indices reflect overall good-high quality status	Yes – the Proposed Development has the potential to impact on water quality.
Barriers to connectivity	No significant increase	No (direct impacts will not occur as a result of the Proposed Development as no barriers to connectivity for kingfisher will be created).
Disturbance to breeding sites	Disturbance occurs at levels that do not significantly impact upon breeding Kingfisher	No (The Proposed Development will not result in disturbance to breeding sites).

6.

ASSESSMENT OF POTENTIAL EFFECTS & ASSOCIATED MITIGATION

This section of the NIS assesses the potential effects of the Proposed Development on the identified relevant Qualifying Interests/Special Conservation Interests. This assessment is undertaken in the absence of any mitigation and in respect of the conservation objectives of the European Sites. The Conservation Objectives each of the European Sites assessed were reviewed on the 16th of July 2025. The Conservation Objectives for these sites are available at the following locations:

- River Boyne and River Blackwater SAC [002299]:
https://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO002299.pdf
- River Boyne and River Blackwater SPA [004232]:
https://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO004232.pdf

Following the initial impact assessment, mitigation is prescribed where necessary to avoid adverse effects on the Conservation Objectives of the relevant QIs/SCIs.

6.1

Potential for Direct Effects on European Sites

The Proposed Development site is located entirely outside the boundary of any European Site. Therefore, there is no potential for direct effects within any European Site as result of habitat loss/deterioration.

6.1.1

Ex-situ Disturbance/ displacement

Otter and Kingfisher

The Proposed Development is located within the foraging ranges of otter, but outside the core and maximum foraging ranges for Kingfisher (1 km) (NRA, 2009). No significant supporting habitat either species was recorded within the Proposed Development and therefore, there is no potential for direct *ex-situ* disturbance/displacement as a result of the construction, operational, and decommissioning phases of the Proposed Development.

No mitigation required.

6.2

Potential for Indirect Effects on European Sites

6.2.1

Deterioration of Water Quality

The Proposed Development site is delineated by several EPA mapped Order 1 watercourses which flow into the River Boyne downstream, which drain into the screened European Sites.

Taking a precautionary approach and in the absence of best practice and mitigation, a potential pathway for indirect effects on the following aquatic QIs/SCIs was identified via the deterioration of water quality arising from run-off of pollutants to surface water during the construction and operational phases of the Proposed Development:

River Boyne and River Blackwater SAC [002299]

- [7230] Alkaline fens
- [1099] River Lamprey (*Lampetra fluviatilis*)

- > [1106] Salmon (*Salmo salar*)
- > [1355] Otter (*Lutra lutra*)

River Boyne and River Blackwater SPA [004232]

- > [A229] Kingfisher (*Alcedo atthis*)

6.2.1.1 Construction Phase

The construction of the Proposed Development will involve minor excavations and earth moving, primarily to accommodate the laying of cabling within the solar farm site, creating the potential for pollution in various forms, i.e. the generation of suspended solids and the potential for spillage of fuels associated with the refueling of excavation machinery. There is also a risk of surface water runoff from bare soil and soil storage areas during construction and landscaping works.

Taking a precautionary approach, the release of suspended solids or spillage of fuels during construction activities could potentially affect the downstream water quality within the screened in European Sites.

Mitigation

As a pathway for potential significant impacts was identified via deterioration of water quality, the sections below set out the environmental management framework to be adhered to during the proposed works and incorporate the mitigations to ensure there is no adverse effect on the integrity of European Sites, as a result of deterioration of water quality. These include comprehensive detail regarding site set up, pollution prevention including environmental monitoring, hydrocarbon management, waste management and wastewater disposal. These are further detailed in the development CEMP, which is included in **Appendix 2** of this report.

Environmental Monitoring

- > The contractor will assign a member of the site staff as the environmental officer with the responsibility for ensuring the environmental measures prescribed in this NIS are adhered to. Any environmental incidents or non-compliance issues will immediately be reported to the project team.
- > In addition, a suitably qualified ecologist will be appointed at the beginning of works to provide a Toolbox talk to all site staff on the sensitivity of the site, and to ensure the below mitigations are in place.

Site Set up

- > The appointed contractor will be fully briefed by the appointed ecologist as to the sensitive nature of the site and the required mitigation measures.
- > Prior to the commencement of earthworks, silt fencing will be installed along the mapped EPA watercourses where they border or traverse the site. Silt fences will be embedded into the ground and will be left in place throughout construction until all exposed soil has revegetated.
- > A site compound will be established within the Proposed Development site. The exact location of the site compound will be established by the contractor and will be located a minimum of 50m from any watercourses or waterbodies. The compound will be used for storage of material, machinery, fuel, and workers facilities. The location of the construction compound will be agreed upon by the appointed qualified ecologist and will be located within an area of low ecological value.
- > All construction materials and substances will be stored in the site compound.

Pollution Prevention

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- Excavated spoil (if any) will be stockpiled and contained entirely within the confines of the site boundaries, a minimum of 50m from any watercourse or drain.
- During earthwork activities, the following mitigations will be adhered to:
 - Material that is not re-used will be transported off site to a designated waste facility.
 - Suitable stone material will be imported to the site to be used as backfill.
 - Stockpiling of soil during construction, should it be required, will take place in designated areas within the site boundary away from any watercourses or waterbodies.
 - A silt fence will be erected around any stockpiling of material to prevent any sediment-laden run-off occurring.
- All diesel or petrol pumps required onsite will be operated within bunded units.
- Exposed surfaces will be re-vegetated as soon as possible following construction.
- The minimum number of soil/subsoils and bedrock material will be removed from site. Soil may be reused for landscaping elsewhere on the site.
- Where possible, earthworks will not be carried out during periods of heavy rainfall.
- As construction advances there may be a requirement to collect and treat surface water within the Proposed Development site. This will be completed using perimeter swales at low points around the construction areas, and if required water will be pumped from the swales into sediment bags prior to overland discharge allowing water to percolate naturally to ground;
- If ground water is encountered during excavations, waters will be pumped from excavation and discharged through a pipe with a silt bag attached on to an area of overland vegetation within the site boundary.
- Discharge to ground will be via a silt bag which will filter any remaining sediment from the pumped water;
- Daily monitoring and inspections of site drainage during construction will be completed by the appointed environmental officer;
- The Construction Industry Research and Information Association (CIRIA) provide guidance on the control and management of water pollution from construction sites ('Control of Water Pollution from Construction Sites, guidance for consultants and contractors', CIRIA, 2001), which provides information on these issues. This guidance will be complied with in full and will ensure that surface water arising during the course of construction activities will contain minimum sediment.

Cement Based Products

- No batching of wet-cement products will occur on site.
- Ready-mixed supply of wet concrete products and where possible, emplacement of pre-cast elements, will take place.
- No washing out of any plant used in concrete transport or concreting operations will be allowed on-site.
- Where concrete is delivered on site, only chute cleaning will be permitted, using the smallest volume of water possible, a minimum of 50m from any watercourse.
- No discharge of cement contaminated waters to the construction phase drainage system or directly to any artificial drain or watercourse will be allowed.
- Concrete pouring will only be carried out on dry days, which will be planned in advance based on weather forecasting.
- Ensure pour site is free of standing water and plastic covers will be ready in case of sudden rainfall event.

Hydrocarbon Management

- All oils and solvents used during the construction phase will be stored within specially constructed, dedicated, bunded areas within the temporary site compound.

- Refuelling of construction vehicles and the addition of hydraulic oils to vehicles, will take place in a designated area in the temporary site compound, away from drainage ditches or other features that may transmit pollutants to surface waters.
- Spill kits and hydrocarbon adsorbent packs will be stored in the refuelling area and operators will be fully trained in the use of this equipment.

Sediments and siltation management

- Site, surface drainage and silt control measures will be established prior to commencing earthworks, as per site set up above.
- Working practices will be controlled by , minimising land take, avoiding repetitive handling of soils, minimising vehicle movements off-road and limiting the size of stockpiles to reduce the compaction and erosion of material.
- Soils will be reinstated to their original locations where possible.
- A buffer zone of 10 m or more will be established to protect any surface water channels, including drainage ditches, from disturbance from construction work.
- Working near watercourses during intense rainfall events (>5 mm /hour) will be avoided and work will cease entirely near watercourses when it is evident that there is a threat of pollution occurring. This will be determined by the appointed qualified ecologist.
- Where possible, all excavated material will be removed to suitable stockpile areas. The volume of material to be managed is anticipated to be minor due to the nature and extent of works.
- Stockpiling will be limited to areas where the ground is stable and well drained. Stockpiles will be located where the risk of soil erosion and water quality deterioration is minimal and will also have an adequate buffer (>10 m) from aquatic zones.
- Any water discharge from the stockpiles will be monitored. Runoff water will be prevented from flowing into a nearby excavation area or directly into nearby watercourses. Silt fences will be placed as required around stored excavated soils and other materials.

Waste Management

- All waste will be collected in skips and the site will be kept tidy and free of debris at all times.
- Waste oils and hydraulic fluids will be collected in leak-proof containers and removed from the site for disposal or recycling.
All construction waste materials will be stored within the confines of the site, prior to removal from the site to a permitted waste facility.

Wastewater Disposal

- A self-contained port-a-loo with an integrated waste holding tank will be used at the site compounds, maintained by the providing contractor, and removed from site on completion of the construction works; No foul water will be discharged on-site during the construction.

Applicable guidance to be followed

- Good practice guidelines on the control of water pollution from construction sites developed by the Construction Industry Research and Information Association (CIRIA) in particular;
- C532 Control of water pollution from construction sites: guidance for consultants and contractors (Masters-Williams et al, 2001).

With the implementation of the preventive measures described above, there is no potential for adverse effects on any European Site due to deterioration of water quality during the construction phase of the

Proposed Development. The measures ensure that the proposed works do not prevent or obstruct any of the QIs/SCIs from reaching favourable conservation status as per Article 1 of the EU Habitats Directive.

6.2.1.2 Operational Phase

The operational phase of the Proposed Development will result in the production of foul water from the substation and surface water runoff from roofs and hardstanding areas of the substation. If not properly treated, a potential pathway for indirect effects on water quality exists from the operational phase of the Proposed Development.

6.2.1.2.1 Surface water run-off

The Proposed Development will result in increased hard surfaces within the proposed substation site which has the potential to result in impacts on aquatic ecological receptors as a result of deterioration in water quality arising from the run-off or percolation of pollutants, if surface water run-off is not adequately treated, during the operational phase of the Proposed Development.

However, given the small size of the proposed substation, no significant increase in surface water is anticipated, and it is not located in proximity to any watercourse. Therefore, no potential for adverse on any European Site is anticipated, as a result of surface water runoff from the Proposed Development.

6.2.1.2.2 Production of Foul Sewage

The operational phase of the Proposed Development will result in the production of foul sewage. If not adequately treated, there is potential for indirect impacts on surface and ground water quality.

As described in Section 2.9.2, a shared foul wastewater drainage network is proposed within the substation compound to cater for the wastewater generated in the welfare facilities of both the control buildings. The drainage system will consist of an underground pipe network, foul manhole and full retention foul wastewater storage tank. The wastewater storage tank alarm will be monitored remotely as part of the overall SCADA system installed on-site. Only waste collectors holding valid waste collection permits under the Waste Management (Collection Permit) Regulations, 2007 (as amended), will be employed to transport wastewater off-site to permitted wastewater treatment plants.

Given the proposed management of foul water, significant negative effects on water quality are not anticipated as a result of foul water production. Therefore, no potential for adverse on any European Site is anticipated, as a result of foul water production from the Proposed Development.

6.2.1.3 Decommissioning Phase

The proposed decommissioning plan of the Proposed Development is detailed in Section 2.13 of this report. As this work will include the dismantling of the development, using machinery, potential for impacts on water quality in adjacent watercourses exists.

As the Proposed Development site is located upstream of the screened in European Sites, there is potential for adverse effects on aquatic QIs/SCIs of these designated sites, as result of deterioration of water quality.

The mitigations proposed in Section 6.2.1.1 during construction will be applied during decommissioning. With the implementation of the preventive measures described, there is no potential for adverse effects on any European Site due to deterioration of water quality during the decommissioning phase of the Proposed Development. The measures ensure that the proposed works do not prevent or obstruct any of the QIs/SCIs from reaching favourable conservation status as per Article 1 of the EU Habitats Directive.

7.

ASSESSMENT OF RESIDUAL ADVERSE EFFECTS

The potential for residual adverse effects on each of the individual relevant Qualifying Features of the Screened In European Sites following the implementation of mitigation, is assessed in this section of the report.

Based on the above, in view of best scientific knowledge, on the basis of objective information, there is no potential for adverse effect on the identified QIs/SCIs and their associated targets and attributes, or on any European Site. Potential pathways for effect have been robustly blocked through measures to avoid impacts and the incorporation of best practice/mitigation measures into the project design.

Taking cognisance of measures to avoid impacts and best practice/mitigation measures incorporated into the project design which are considered in the preceding section, the Proposed Development will not have an adverse effect on the integrity of any European Site.

The Proposed Development will not prevent the QIs/SCIs of European Sites from achieving/maintaining favourable conservation status in the future as defined in Article 1 of the EU Habitats Directive. A definition of Favourable Conservation Status is provided below:

‘conservation status of a species means the sum of the influences acting on the species concerned that may affect the long-term distribution and abundance of its populations within the territory referred to in Article 2; The conservation status will be taken as ‘favourable’ when:

- *Population dynamics data on the species concerned indicate that it is maintaining itself on a long-term basis as a viable component of its natural habitats, and*
- *The natural range of the species is neither being reduced nor is likely to be reduced for the foreseeable future, and*
- *There is, and will probably continue to be, a sufficiently large habitat to maintain its populations on a long-term basis.’*

Based on the above, it can be concluded in view of best scientific knowledge, on the basis of objective information that the Proposed Development will not adversely affect the Qualifying Interests/Special Conservation Interests associated with any European Site.

8.

ASSESSMENT OF IN COMBINATION EFFECTS

A search and review in relation to plans and projects that may have the potential to result in cumulative and/or in-combination impacts on European Sites was conducted. This assessment focuses on the potential for cumulative in-combination effects on the European Sites where potential for adverse effects was identified in Section 4 of this report. This included a review of online Planning Registers, Development Plans and other available information and served to identify past and future plans and projects, their activities and their predicted environmental effects. A list of the plans and projects considered is provided in **Appendix 3**.

8.1

Plans

The following Development Plans have been reviewed and taken into consideration as part of this assessment:

- Meath County Development Plan 2021-2027
- 4th National Biodiversity Action Plan 2023-2027
- County Meath Biodiversity Action Plan 2015-2020
- Regional Spatial and Economic Strategy, Eastern and Midland Regional Assembly 2019-2031

A review of the objectives of the Plans relating to European Designated Sites has been carried out and is provided in **Appendix 3**. No potential for cumulative effects when considered in-combination with the Proposed Development has been identified, and the Proposed Development is in compliance with the relevant objectives of the Plans.

In addition, the Appropriate Assessments carried out for these Plans have been reviewed. Relevant available reports for these plans, where available, can be found at the following links:

- Meath County Development Plan 2021-2027 Natura Impact Report:
<https://consult.meath.ie/en/system/files/materials/7447/Natura%20Impact%20Report.pdfn>
- County Meath Biodiversity Action Plan 2015-2020 Screening for Appropriate Assessment:
<https://www.meath.ie/system/files/media/fileuploads/201906/Meath%20Biodiversity%20Action%20Plan%2020152020%20Appropriate%20Assessment%20Screening.pdf>
- Regional Spatial and Economic Strategy, Eastern and Midland Regional Assembly 2019-2031 Natura Impact Report:
<https://www.emra.ie/rses-download/EMRA-RSES-Natura-Impact-Report.pdf>

The Appropriate Assessment carried out for these plans have concluded that there is no potential for Residual Adverse Effect as a result of implementation of the Plan. Therefore, there is no potential for cumulative effect as a result of the Proposed Development in-combination with the Plan.

8.2

Assessment of Projects

Assessment material for this in-combination impact assessment was compiled on the relevant developments within the vicinity of the Proposed Development. The material was gathered through a search of relevant online Planning Registers, reviews of relevant documents, planning application details and planning drawings, and served to identify past and future projects, their activities and their environmental impacts. All relevant projects were considered in relation to the potential for in-combination effects. All relevant data was reviewed (e.g. individual EISs/EIARs, NISs, layouts, drawings etc.) for all relevant projects where available.

The plans and projects considered include those listed in **Appendix 3**. The residual construction, operational and decommissioning impacts of the Proposed Project are considered cumulatively with other plans and projects. Particular focus has been placed on those plans and projects that are in closest proximity to the Proposed Development and those that could potentially result in impacts on surface water.

A full list of projects considered are provided in **Appendix 3**, with key project also discussed below.

- Planning permission for a period of 10 years to construct and complete a solar PV development. (ABP Case ID: 309401).
- Construction of a rockfill and earthen reinforcement buttress to sections of the extant embankment wall of the Tailings Storage Facility. An Environmental Report and a Natura Impact Statement (NIS) were received with this application (ABP Case ID: 315173).

The potential for significant effects on European Sites as a result of the Proposed Development was identified as a result of the following pathways:

- Deterioration of water quality during construction and operation.

Given the mitigations and the design of the Proposed Development, pathways for significant effect have been robustly blocked. Additionally, on review of the relevant plans and projects undertaken in this assessment, where potential for adverse effects were identified on the River Boyne and River Blackwater SAC or on the River Boyne and River Blackwater SPA, these were robustly blocked in the associated NISs, where provided. Therefore, there is no potential for the Proposed Development to result in cumulative effects on European Sites, with other plans and projects in the area.

8.3

Conclusion of Assessment of Cumulative Effects

Following the detailed assessment provided in the preceding sections, it is concluded that, the Proposed Development will not adversely affect the integrity of any relevant European site in view of that site's conservation objectives when considered on its own. There is therefore no potential for the Proposed Development to contribute to any cumulative adverse effects on any European Site when considered in combination with other plans and projects.

In the review of the projects that was undertaken, no connection or pathway, that could potentially result in additional or cumulative impacts was identified. Neither was any potential for different (new) impacts resulting from the combination of the various projects and plans in association with the Proposed Development.

Taking into consideration the reported residual impacts from other plans and projects in the area and the predicted impacts with the current proposal for the reasons set out in detail above, in the light of the best scientific knowledge in the field, it has been concluded that the Proposed Development, by itself, or in combination with other plans or projects, will not adversely affect the integrity of any relevant European site in view of that site's Conservation Objectives.

9.

CONCLUDING STATEMENT

This NIS has provided an assessment of all potential direct or indirect adverse effects on European Sites which may arise as a result of the Proposed Development. It has also assessed the potential for in-combination effects on European site with other plans and projects.

Where the potential for any adverse effect on any European Site has been identified, the pathway by which any such effect may occur has been robustly blocked through the use of avoidance, appropriate design and mitigation measures as set out within this report and its appendices. The measures ensure that the construction and operation of the Proposed Development does not adversely affect the integrity of European sites.

Therefore, it can be objectively concluded in the light of the best scientific knowledge in the field that the Proposed Development, individually or in-combination with other plans or projects, will not adversely affect the integrity of any European Site in view of that site's Conservation Objectives.

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APPENDIX 1

ORNITHOLOGY REPORT



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ORNITHOLOGY REPORT

APRIL 2025 – JULY 2025

Site name	Rathcoon Solar Farm
Project number	250403-g
Client	Circal
Completed by	CC
Approved by	TR

Introduction

MKO was appointed to carry out ornithological surveys at the proposed Rathcoon Solar Farm site at Kilberry, Co. Meath for the 2025 breeding season. This report describes the survey methods for the period from April 2025 to July 2025 inclusive. Both vantage point and breeding walkover surveys were conducted during this period, below is a summary of target species recorded during that time and the findings of these surveys.

Methods

Vantage Point Surveys

Vantage point surveys record the distribution and abundance of flight activity. Vantage point surveys were undertaken in accordance with NatureScot formerly SNH (2017) to monitor flight activity at and within 500m of the Proposed Development Site. Surveys were conducted from 2 fixed point vantage points which provided comprehensive coverage of the site.

The surveyor collected data on bird observations and flight activity from a scanning arc of 180° to a 2km radius at the fixed vantage point locations for two 3-hour watches separated by a minimum 30-minute break (i.e., 6 hours total) per month. Surveys are ongoing as of April 2025 and are scheduled to provide a minimum of 36 hours for the breeding season and spread over the full daylight period, including dawn and dusk watches, to coincide with the highest periods of bird activity. Flight activity of target species was mapped and recorded as per defined flight height bands.



Breeding Walkover Surveys

Breeding walkover surveys were undertaken to determine possible, probable or confirmed breeding bird activity within and to a 500m radius of the Proposed Development Site. The methodology was based on O'Brien and Smith (1992) and Gilbert *et al.* (1998). Transect routes were walked across different habitat complexes. Using binoculars, the surveyor regularly scanned the surroundings of each transect for target species. All target species were mapped and breeding status was assigned following British Trust for Ornithology (BTO) breeding status codes (<https://www.bto.org/our-science/projects/birdatlas/methods/breeding-evidence>). In addition, the presence of any non-target species was recorded to inform the evaluation of supporting habitat.

Breeding walkover surveys were conducted at dawn over four visits during the core breeding season months April to July. No access limitations were encountered during surveys.

Breeding Kingfisher Surveys

Breeding Kingfisher Surveys took place in tandem with the breeding walkover surveys. The surveys were undertaken within a 500m radius of the site. The survey aimed to identify breeding kingfisher territories within the survey area by locating kingfishers or signs of nesting along river courses. Survey methodology follows Cummins *et al.* (2010): the surveyor walked along watercourses within 500m of the Proposed Development Site, where accessible, searched for kingfishers, nest holes or suitable nesting banks during daylight hours. All such observations were recorded and mapped. To date surveys were carried out once per month during the breeding season April – July 2025.

Species Records

The following bird species were observed during surveys. These include species listed on **Annex I** of the EU Birds Directive (2009/147/EC), species listed on the **Red List** of Birds of Conservation Concern in Ireland (Gilbert *et al.*, 2021), species that are a Special Conservation Interest (SCI) of a Special Protection Area (SPA) designated under the EU Birds and Habitats Directives (92/43/EEC) Natura 2000 network within 15km of the proposed development site¹ and **Raptor** species with the potential for habitat loss.

Bird Species	Conservation Status	Observation	Remarks
Peregrine	Annex I & Raptor	There was one observation of a juvenile peregrine recorded travelling over the site.	The presence of a juvenile could indicate successful breeding in the area. However, given the low number of observations, no specific constraints were identified.
Red Kite	Annex I, BoCCI Red Listed (Breeding Population) & Raptor	There was one observation of an individual bird recorded travelling over site being mobbed by other birds in flight.	Given the low number of observations, no specific constraints were identified.
Grey Wagtail	BoCCI Red Listed (Breeding Population)	There were two observations of between one and two birds recorded flying on site and	Given the low number of observations, no specific constraints were identified.

¹ It is noted that a determination will be made on whether there is connectivity between SPAs and the proposed development site at the Appropriate Assessment stage.



Bird Species	Conservation Status	Observation	Remarks
		within 600m of the site. One of the observations was of an individual carrying food, indicating successful breeding on site.	
Stock Dove	BoCCI Red Listed (Breeding Population)	There were two observations of individual birds recorded travelling and in song within the site and up to 300m from the site.	Given the low number of observations, no specific constraints were identified.
Yellowhammer	BoCCI Red Listed (Breeding population)	There were 68 observations of between one and three birds recorded flying, singing, calling or perched on-site and up to 500m from site. There was one observation of an adult carrying food and three observations of a juvenile birds, indicating successful breeding on site.	There is a potential for displacement/disturbance and habitat loss for this species however no constraints have been identified.
Buzzard	Raptor	There were 26 observations of between one and two birds recorded on-site and up to 1.4km from the site boundary. All observations were recorded travelling, circling, calling, gliding or hovering.	There is a potential for displacement/disturbance and habitat loss for this species however no constraints have been identified.
Sparrowhawk	Raptor	There were two observations of an individual bird recorded travelling and perched approximately 500m from the site.	Given the low number of observations, no specific constraints were identified.

Discussion

The key observations during surveys include records of Peregrine and Red Kite, as well as Yellowhammer, Grey Wagtail, and Stock Dove. Raptors such as Buzzard and Sparrowhawk were also observed.

A juvenile Peregrine was recorded travelling over the site, indicating possible nearby breeding activity. However, given the low number of observations, no specific constraints were identified. Similarly, Red Kite was observed once, with no confirmed breeding evidence.

Buzzard and Yellowhammer were the most frequently recorded species. Yellowhammer showed signs of successful breeding on-site, with 68 observations including three observations of juveniles and one observation of adults carrying food. Grey Wagtail and Stock Dove were also observed in low numbers, with breeding behaviour noted.

There were no observations of kingfisher during surveys carried out.



Key impacts resulting from the proposed development for local avian receptors could include habitat loss, disturbance and/or displacement. However, these impacts are unlikely to be significant given that the habitat that will be impacted is small relative to its availability, nor is it unique or rare locally.

To date, no specific ornithological constraints have been identified during the surveys.

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- Map Legend
- Site Boundary
 - 500m Survey Radius
 - VP Locations
 - BWO Transects



Drawing Title

Survey Locations

Project Title

Cirral Rathcon

Drawn By	TR	Checked By	PC
Project No.	250403-g	Drawing No.	Fig. 1
Scale	1:25,000	Date	11.09.2025



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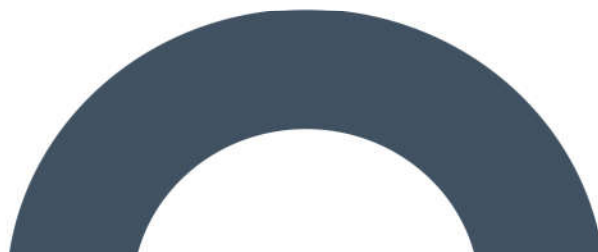
APPENDIX 2

CONSTRUCTION AND ENVIRONMENTAL MANAGEMENT PLAN (CEMP)

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Construction and Environmental Management Plan

Rathcoon Solar Farm, Co.
Meath



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DOCUMENT DETAILS

Client: **Circa Oak Solar Ltd**

Project Title: **Rathcoon Solar Farm, Co. Meath**

Project Number: **250403**

Document Title: **Construction and Environmental Management Plan**

Document File Name: **Circa Oak - Rathcoon Solar Farm - CEMP - F - 10.09.2025 - 250403**

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Rev	Status	Date	Author(s)	Approved By
01	Draft	31/08/2025	KMG	TM
02	Draft	05/09/2025	KMG	TM/VKS
03	Draft	09/09/2025	KMG	TM/VKS
04	Final	10/09/2025	KMG	TM/VK

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1.

INTRODUCTION

This Construction & Environmental Management Plan (CEMP) has been prepared, by MKO on behalf of Circal Oak Solar Ltd ('the Applicant'), to accompany a planning application to be submitted to Meath County Council (MCC) ('the Planning Authority') for the Proposed Development in the townlands of Chamberstown, Scottstown, Shalvanstown, Mullagha, Rathcoon and Corballis in Co. Meath. A description of the Rathcoon Solar Farm, hereafter referred to as the "Proposed Development", is included in Section 2 below.

This CEMP has been prepared as part of the planning application for the Proposed Development and will provide the environmental management framework to be adhered to during the pre-commencement and construction phases of the Proposed Development and it incorporates the mitigating principles to ensure that the work is carried out in a way that minimises the potential for environmental impacts to occur. The CEMP has been informed by and takes account of the accompanying documents which have been prepared for the Proposed Development.

All measures identified in this CEMP, which will be finalised subsequent to any permission granted and updated prior to construction will include all mitigation measures identified and to be adhered to during the pre-commencement and construction phases of the Proposed Development.

The CEMP to be prepared by the appointed contractor will be a single, amalgamated document that can be used during the construction phase of the project, as a single consolidated point of reference relating to all construction, environmental and drainage requirements for the Planning Authority, developer and contractors alike. The CEMP may evolve over further iterations as the construction works progress, but at all times must meet or exceed the standards and requirements set out in this document. It will be the contractor's current version of the CEMP, which at any point in time, will guide the construction activities on site and the implementation of which will be audited during construction.

1.1

Scope of the Construction and Environmental Management Plan

This report is presented as a guidance document for the management of construction activities and waste materials generated during the works and following completion. It clearly outlines the mitigation measures that are required to be adhered to in order to manage activities and waste materials in an appropriate manner.

The report is divided into nine sections as outlined below:

- **Section 1** provides a brief introduction as to the scope of the report detailing the targets and objectives of the CEMP.
- **Section 2** outlines the site and project details, along with providing an overview of construction methodologies that will be adopted throughout the project.
- **Section 3** sets out details of the environmental controls on site which looks at noise and dust controls, site drainage measures, as well as a waste management plan.
- **Section 4** sets out a detailed implementation plan for the environmental management of the project outlining the roles and responsibilities of the project team.
- **Section 5** sets out the Emergency Response Plan to be adopted in the event of an emergency in terms of site health and safety and environmental protection is also included in this section.
- **Section 6** consists of a summary table of all mitigation proposals to be adhered to during the project.

- **Section 7** consists of a summary table of all monitoring proposals to be adhered to during the project.
- **Section 8** sets out a programme for the timing of the works.
- **Section 9** outlines the proposals for reviewing compliance with the provisions of this report.

1.2

Targets and Objectives

The following key targets and objectives will inform the final detailed design including consideration of the buildability of the designs that emerge:

- Adopt a sustainable approach to construction and, ensure sustainable sources for materials supply where possible.
- Follow correct fuel storage and refuelling procedures at all times.
- Modify construction methods and designs where potential adverse effects on the environment are identified.
- Implement effective waste management and maintain high standards of site housekeeping.
- Utilise recycled materials where possible (e.g., excavated stone, soil and subsoil).
- Prevent vandalism through appropriate site security and management measures.
- Apply measures to prevent air and noise pollution during the construction phase.
- Monitor construction works for any adverse environmental effects.
- Provide comprehensive environmental training and awareness programmes for all project personnel.

The key site objectives are as follows.

- Ensure construction works and activities have minimal impact on the local environment and wildlife.
- Ensure all construction works comply with relevant planning conditions associated with the development.
- Ensure construction works and activities cause minimal impact or disturbance to local landowners and the local community.

2.

SITE AND PROJECT DETAILS

2.1

Site Location

The subject site is located in the townlands of Rathcoon, Chamberstown, Scottstown, Shalvanstown, Mullagha and Corballis approximately 8 kilometres (km) northwest of Slane, 9 km north of Navan, and 15 km east of Kells, Co. Meath. The subject site is accessed via the local roads L-56297 and L-7416, which connects to the regional road R163. The R153, in turn, joins the national road N51. The subject site extends to approximately 149 hectares (ha) and is currently used for agricultural purposes. The surrounding landscape comprises a mix of agricultural land, forestry, and dispersed one-off residential properties.

For the purposes of this report, the three areas which make up the Proposed Development site will be referred to as Areas 1, Area 2, and Area 3. Each area is primarily accessed via local roads and farm tracks.

The site location of the Proposed Development is shown in Figure 2-1.

2.2

Site Description

2.2.1

Land Use

The Proposed Development site is comprised of 3 separate areas: Area 1, Area 2 and Area 3.

- Area 1 is composed predominantly of agricultural fields currently used for tillage.
- Area 2 is predominantly composed of agricultural fields currently used for tillage, with some areas of wet grassland.
- Area 3 consists of a single agricultural field.

The site boundaries of Areas 1 and 2 are defined primarily by hedgerows, with some mature treelines and areas of scrub. Area 3 is delineated by hedgerows and drainage ditches.

The total area of the site extends to approximately 149 ha.

The subject site layout of the Proposed Development is shown in Figure 2-2.

The closest National Heritage Area (NHA) to the Proposed Development is the Jamestown Bog NHA [001324], which is approximately 19.1 km southwest of the site. The closest proposed National Heritage Area (pNHA) is Boyne Woods [001592], located approximately 6.8 km southeast of the site.

The closest Special Areas of Conservation (SAC) is the River Boyne and River Blackwater SAC [002299], which is located approximately 6.3 km southeast of the Proposed Development site. The closest Special Protection Area (SPA) is the River Boyne and River Blackwater SPA [004232], which is located approximately 6.4 km southeast of the site.

2.2.2

Hydrology

Hydrological mapping indicates that Area 1 of the Proposed Development site is drained by the Demailestown Order 1 stream [EPA Code: 07D49], which runs along the western site boundary, and by the Chamberstown Order 1 stream [EPA Code: 07C10], located to the north.

Area 2 is bordered to the north by the Castlepark07 Order 1 stream [EPA Code: 07C03], and to the south by the Mullaghroe 07 [EPA Code: 07M45] and Mullagha [EPA Code: 07M46] Order 1 streams. These southern streams discharge into the River Boyne, approximately 5.7 km downstream of the site.

2.2.3 Cultural Heritage

According to the Archaeological, Architectural and Cultural Heritage Impact Assessment (AACHIA) Report prepared by Rubicon Archaeology, which accompanies this application to MCC, there are 110 known or suspected monuments within a 3 km radius of the Proposed Development site.

Within this area, the following cultural heritage features have been identified:

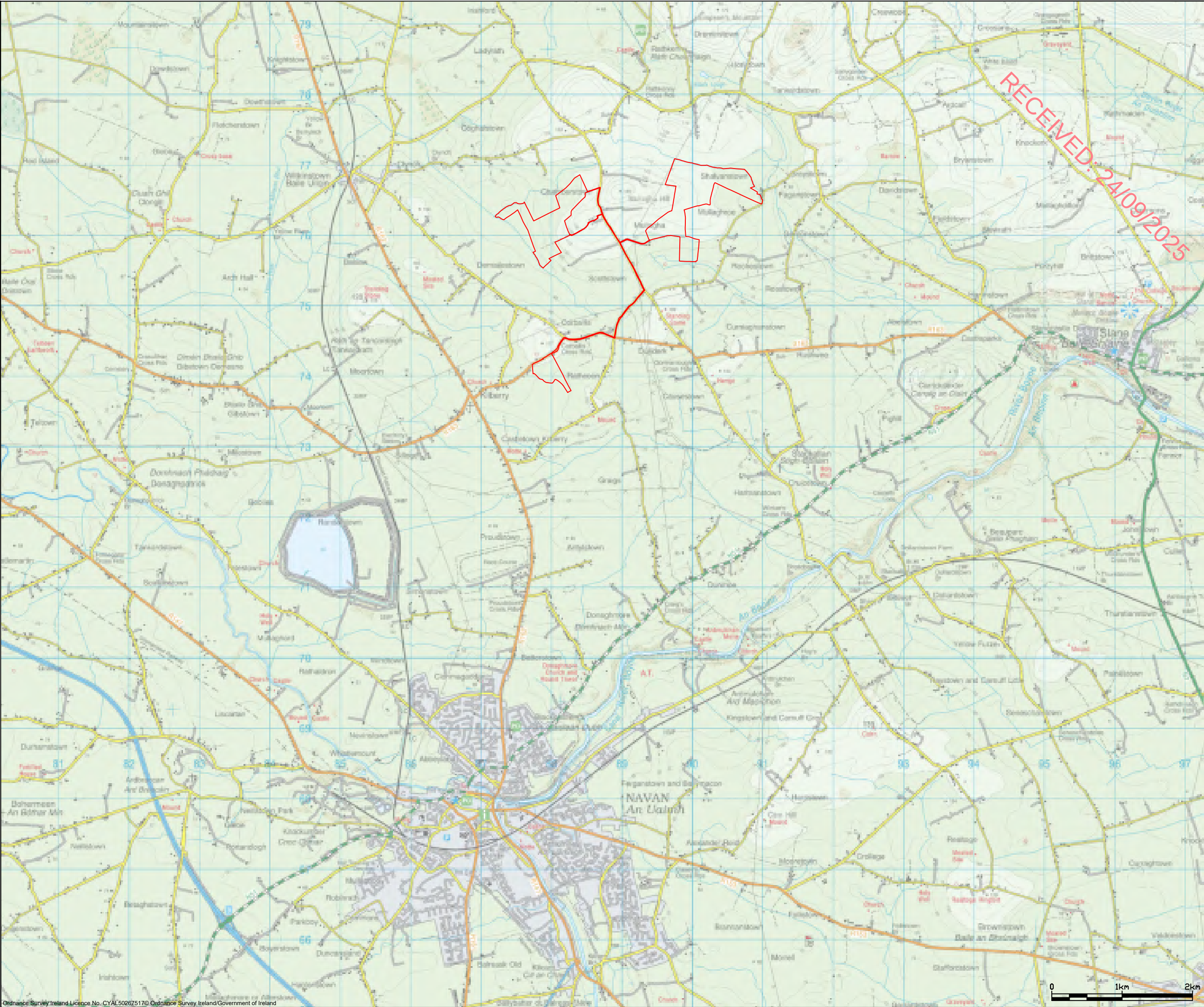
6 National Inventory of Architectural Heritage (NIAH) registrations, all of which are listed as protected structures.

- 4 Undesignated Cultural Heritage (UCH) sites.
- 2 Areas of Archaeological Potential (AAPs).
- 2 Sites and Monuments Records (SMRs) located within the Proposed Development boundary:
 - ME018-056: an oval enclosure.
 - within ME018-058: a larger rectangular enclosure encompassing ME018-056.

2.3 Proposed Development

The Proposed Development comprises the following:

- Construction and operation of up to 559,033 m² of solar photovoltaics (PV) arrays on ground-mounted metal frames, with a maximum overall height of up to 2.96 metres (m).
- Internal underground trenching, electrical cabling and ducting between the solar PV arrays and electrical inverter/transformer skid units.
- Up to 21 no. electrical inverter/transformer units.
- Construction and operational access to the site by 3 no. site entrances using 2 no. existing field access points 1 no. new access point.
- 3 no. temporary construction compound and ancillary facilities for the duration of the construction phase of the project.
- Provision of single storey substation control building of 217 m² and associated works.
- 33kV collector cable network, joint bays, and associated works.
- Internal access tracks, site landscaping and drainage works, security fencing, CCTV and all associated ancillary site development works.
- The decommissioning and reinstatement of the solar farm at the end of its operational life.



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Drawing Notes

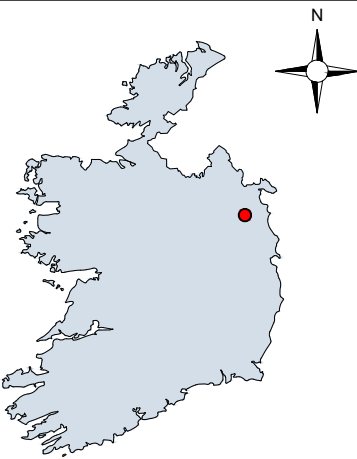
All dimensions are in millimeters, unless noted otherwise.

All dimensions to be checked on site and any discrepancy to be reported to the engineer.

Drawing Legend

— Planning Application Boundary

Legend:
● Site Location



Map - N.T.S

PROJECT TITLE:

Rathcoon Solar Farm

DRAWING TITLE:

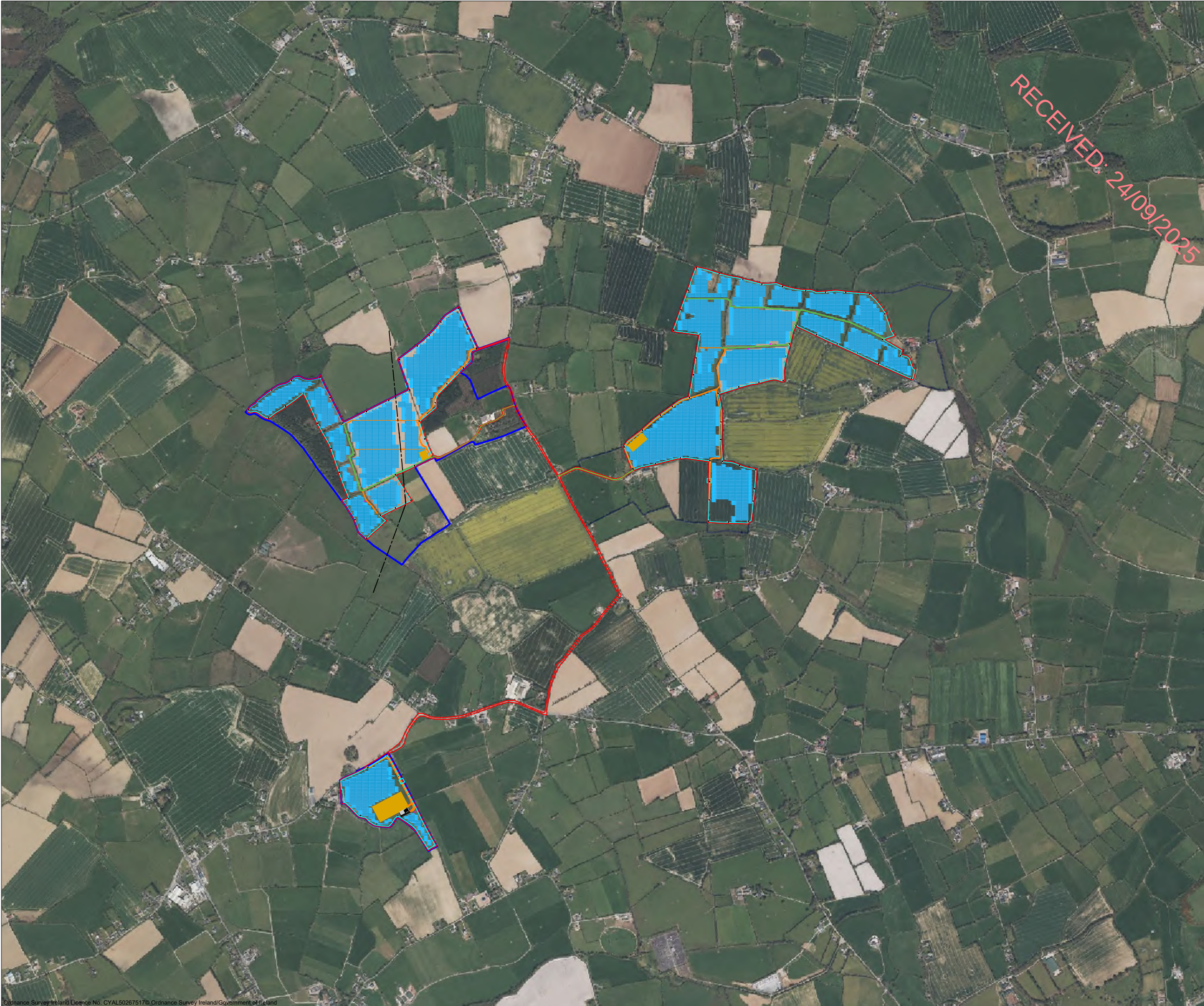
Location Context Map

PROJECT No.:	DRAWING No.:	SCALE:
250403	250403 - 01	1:50,000 @ A3
DRAWN BY:	CHECKED BY:	DATE:
GO	DG	08.09.2025
REVISION:		
P01		

OS SHEET No.: OS2826, OS2828



Email: info@www.mkoireland.ie /Website: www.mkoireland.ie



RECEIVED: 24/09/2025

Drawing Notes

All dimensions are in millimeters, unless noted otherwise.
All dimensions to be checked on site and any discrepancy to be reported to the engineer.

Drawing Legend

- Planning Application Boundary
- Landowners Boundary
- Existing Track To be Upgraded
- Proposed Track
- Inverter/Transformer Stations
- Solar Array
- CCTV
- Proposed Fence
- Temporary Construction Compound
- 110kV power line
- Site Entrance Gate



PROJECT TITLE:			
Rathcoon Solar Farm			
DRAWING TITLE:			
Site Layout Orthographical View			
PROJECT No.: 250403	DRAWING No.: 250403 - 03	SCALE: 1:20,000 @ A3	
DRAWN BY: GO	CHECKED BY: DG	DATE: 08.09.2025	REVISION: D03
OS SHEET No.: 2249, 2250, 2251, 2313, 2314, 2315, 2376, 2377, 2378			



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2.4 Construction Management

2.4.1 Introduction

The appointed contractors for the construction of the Proposed Development will be required to comply with this CEMP and any revisions made to this document throughout the construction phase. An overview of the anticipated construction methodologies is provided below.

2.4.2 Overview of Proposed Construction Methodology

The proposed anticipated construction methodology is summarised under the following main headings:

- > Site Establishment;
- > Temporary Construction Compound
- > Erection of security fencing;
- > Site drainage works;
- > Creation of new internal access tracks;
- > Solar PV panels and ground-mounted support structures;
- > Internal low voltage site cabling and ducting;
- > Internal Electrical Substation;
- > Inverter/Transformer skid units;
- > CCTV infrastructure;
- > Reinstatement and Landscaping.

2.4.3 Site Establishment

The site is located adjacent to local roads from which it is intended to access the site via existing agricultural field entrances and one new site entrance. Area 1 will be accessed off the L32061 Ladyrath local road. Area 2 will be accessed off a private farmyard lane that has connectivity to the L32061 Ladyrath road. Area 3 will be accessed off the R163 regional road.

Prior to the commencement of any construction, the entrance to the Proposed Development site will need to be fully established with appropriate security gates.

Furthermore, it is proposed to remove some existing hedgerow and boundary wall in the field opposite the existing farm entrance to provide for sufficient sightlines. The hedgerow will be reinstated at a setback distance of 4 m from the roadside to maintain the necessary sightlines for road safety. These works will involve the use of construction plant and machinery to undertake activities such as excavation and earthworks.

2.4.4 Temporary Construction Compound

The primary temporary construction compound will be located within the Area 3 site, in proximity to the proposed 110kV substation location. Two additional satellite temporary compounds will be established within the other two parcels. The main temporary compound will accommodate temporary site offices, staff welfare facilities, designated storage areas, and car-parking areas for staff and visitors. The satellite temporary compounds will be equipped with similar equipment and facilities, albeit scaled down according to necessity.

The temporary construction compounds will be typically established as follows:

- > The compound footprint will be delineated using ranging rods or timber posts at each corner to define the working area.

- A layer of well-graded unbound granular material will be spread and lightly compacted to provide a stable hardstanding suitable for temporary site offices and storage containers.
- If necessary, the compound will be temporarily fenced and secured with locked gates. Fencing will only be installed where significant risk of third-party interference or vandalism is anticipated.
- During the construction phase, each compound will be equipped with a self-contained toilet unit with an integrated waste holding tank. These units will be serviced by the providing contractor and removed upon completion of the construction works. Wastewater will be collected and disposed of by a licensed and registered waste carrier to an appropriately licensed facility.
- Upon completion of construction activities, the site compound area will be decommissioned with all stone material removed and the area restored to its original condition.

2.4.5 Security Fencing

The proposed security fencing is a deer fence constructed to a height of approximately 2 m using high-pressure treated timber posts and high tensile galvanised wire (typical timber and wire deer fencing is shown below in Plate 2-1 for reference). Timber fence posts will typically have a minimum spacing of 5 m. To facilitate continued, unobstructed movement of small to medium-sized mammals across the site, the fence design will incorporate a minimum ground-level clearance of 200 mm. Please refer to Drawing 250403–11 for further details on the proposed fencing..

A more secure palisade fence type will be used for short sections requiring additional security. Temporary palisade security fencing may also be erected around the temporary construction compound and decommissioned after the construction stage.

Controlled access points in the form of site entrances will be kept locked outside of normal working hours. Appropriate signage will be provided at the site to alert pedestrians to the construction activities and related traffic at the site. The contractor will be required to undertake the following:

- Operate a site induction process for all site staff.
- Ensure all site staff shall have current 'Safe Pass' cards.
- Maintain site security at all times.
- Install access security in the form of gates for staff.
- Ensure restricted access is maintained to the works.



Plate 2-1 Examples of typical timber and wire deer fencing

2.4.6 Drainage

Surface water generated within the Proposed Development site will be managed via a dedicated stormwater drainage system designed to limit discharge rates from the site to surrounding greenfield areas.

The site-specific drainage design incorporates hydrocarbon interceptors, road gullies, and soakaways, all located within the site boundary. The proposed drainage network will follow the natural topography of the subject site.

2.4.7 Internal Access Tracks

It is proposed to construct approximately 5,094m of new internal access tracks as part of the Proposed Development. These tracks will allow access for the construction phase activities and operational stage maintenance activities of the Proposed Development. It is also proposed to carry out upgrades on a number of existing tracks within the Proposed Development site. The length of tracks which will be upgraded is 1,787 m.

The depth of the proposed tracks will be between 250 mm-1000 mm as per soil conditions on site. A permeable geogrid membrane will be placed along the excavated track and the track will be constructed on top of the geogrid membrane using Clause 616 aggregate for base material and Clause 804 aggregate material or similar dust crushed stone material for finished surface. Please refer to Drawing 250403-08 for further details on access track construction.

2.4.8 Solar PV Panels/Modules and Ground-mounted Support Structures

The proposed solar PV modules will be arranged into rows which are spaced to optimise sunlight capture. The front facing surface of the modules comprise of toughened glass, designed to capture sunlight and minimize reflectance. Please refer to Drawing 250403-09 for specification on the proposed solar panels.

The rows will be arranged in an east to west alignment across the site and positioned to face south at a vertical tilt angle of up to 25°. Each solar panel will be mounted up to 0.9 m above the ground at the lowest edge, rising to a maximum overall height of 2.96 m at the highest point (the rearmost edge). The solar panels will be positioned in either a landscape or portrait arrangement with appropriate gaps between arrays implemented as to minimise the number of tables required and to reduce inter-row shading.

Rows will be set out in an east-west orientation, facing south, and have a fixed position throughout the year.

Each solar cell will be erected on a galvanised steel support structure/frame. The frame support structures will consist of aluminium cross bars and steel uprights. The precise nature and type of support structure to be used will be determined during the pre-construction detailed design phase of the development and will largely depend upon site characteristics determined following detailed geophysical and geotechnical investigations and the Archaeological, Architectural and Cultural Heritage Impact Assessment. Civil works associated with the installation of the steel mounting frames will be minor with minimal ground disturbance. Depending on soil conditions, the frames will be anchored using earth screws or rammed profiles to a depth of up to 1.5 m depending on site-specific ground conditions. However, it is proposed to use pre-cast concrete blocks or slabs ('concrete feet') as ground anchors for solar panels within the specified archaeological mitigation zones. Above ground cabling may also be installed in these areas, if deemed necessary.

The solar panel height allows for the area to be grazed by small grazing animals, such as sheep should the landowner so wish.

As per the Building Research Establishment (BRE) *Planning Guidance for the Development of Large-scale Solar Ground Mounted Solar PV Systems* (2013)¹, a minimum 10 m buffer between arrays and existing hedgerows will be implemented to safeguard onsite ecological receptors.

Final details, including design, materials, and location of mounting frames and solar panels are to be submitted to the Planning Authority prior to commencement of development.



Plate 2-2 Example of a solar PV support structure.

2.4.9 Underground Cable Construction Methodologies

2.4.9.1 33kV Collector Network UGC Construction Methodology

The following methodology has been provided by the TLI Construction Methodology Statement. This document can be found in Appendix 1.

The 33kV collector network UGC will consist of 3 No. 125 mm diameter HDPE power cable ducts, 1 No. 110 mm diameter HDPE communications duct and 1 No. 110 mm diameter earth continuity duct to be installed in an excavated trench, typically 450 mm wide by 1250 mm deep, with variations on this design to adapt to watercourse crossings and service crossings, etc. The power cable ducts will accommodate 1 No. power cables per duct. Sections of this collector network will require a double circuit UGC. This UGC typically will consist of 6 No. 125 mm diameter HDPE power cable ducts, 2 No. 110 mm diameter HDPE communications duct and 2 No. 110 mm diameter earth continuity duct to be installed in an excavated trench, typically 1000 mm wide by 1250 mm deep, with variations on this design to adapt to watercourse crossings and service crossings, etc.

Ducts installation and trench reinstatement will be undertaken in accordance with the specifications set out by the Roads Section of Meath County Council where works are located within public roadways. In areas situated on private lands, reinstatement will be carried out in accordance with the specific requirements of respective landowners. Once all are satisfied, then the electrical cabling/fibre cable is pulled through the installed ducts in approximately 1000/1200 m sections. Construction method

¹ **Building Research Establishment (BRE)(2013)** *Planning Guidance for the Development of Large-scale Solar Ground Mounted Solar PV Systems*

statements and templates will be implemented to ensure that the UGC is installed in accordance with the correct requirements, materials, and specifications.

The following trenching methodology will be utilised for the installation of 33kv UGC.

- The Contractor, and their appointed Site Manager, will prepare a targeted Method Statement concisely outlining the construction methodology and incorporating all mitigation and control measures included within the planning application and accompanying reports and as required by planning conditions where relevant;
- All existing underground services shall be identified on site prior to the commencement of construction works;
- Where the ducting routes intersect with culverts, the culvert will remain in place (where possible) and the ducting will be installed either above or below the culvert to provide minimum separation distances in accordance with Irish Water specifications;
- In the event that culverts require removal for ducting installation, it is proposed that a suitable method of damming the water source and pumping the water around the work area would be set out in a method statement and agreed with the relevant stakeholders. Once the ducts are installed the culvert will be reinstated to match existing levels and dimensions. If works of this nature are required, the contractor will liaise with Inland Fisheries Ireland in advance of works;
- Traffic management measures will be implemented in accordance with those included in the Traffic Management Report, and a detailed Traffic Management Plan will be prepared and agreed with Meath County Council;
- Excavated material will be temporarily stockpiled onsite for re-use during reinstatement. Stockpiles will be restricted to less than 2 m in height. Stockpiles will be located a minimum of 15 m from surface water features and all stockpiling locations will be subject to approval by the Site Manager and Project Ecological Clerk of Works (ECOW);
- Excavated material shall be employed to backfill the trench where appropriate and any surplus material will be transported off site and disposed of at a fully authorised soil recovery site;
- Any earthen (sod) banks to be excavated will be carefully opened with the surface sods being stored separately and maintained for use during reinstatement;
- The excavated trench will be dewatered if required, from a sump installed within the low section of the opened trench. Where dewatering is required, dirty water will be fully and appropriately attenuated, through silt bags, before being appropriately discharged to vegetation or surface water drainage feature;
- Where required, grass will be reinstated by either seeding or by replacing with grass turves;
- No more than a 100 m section of trench will be opened at any one time. The second 100 m will only be excavated once the majority of reinstatement has been completed on the first;
- The excavation, installation and reinstatement process will take on average of 1 no. day to complete a 100 m section;
- Where the ducting is being installed in a roadway, temporary reinstatement may be provided to allow larger sections of road to be permanently reinstated together;

2.4.10 Internal Site Collector Cabling and Ducting

Underground low voltage AC and DC cabling, earthing, communications, and 33kV electrical cabling ducts or Underground Cabling (UGC) will be laid across the Proposed Development site. Where possible, underground electrical and communications cabling will run alongside the internal site access tracks to minimise trenching through the solar panel areas. Cables can also be stacked within a trench provided there is sufficient separation to maintain cable rating. The methodology, which is outlined in the report provided by TLI, is as follows:

- The trench floor will be graded, smoothed and trimmed when the required depth and width have been obtained.
- A bedding layer of thermal sand material will be placed in the trench and compacted as per the drawings.
- The bottom row of ducts will be laid down as detailed on design drawings. A secure cap/bung will be fitted to the end of each duct run to prevent the ingress of dirt or water.
- Ducts will be surrounded and covered with thermal sand in accordance with the design drawings and thoroughly compact without damaging ducts.
- The top row of ducts will be laid onto the freshly compacted thermal sand above the bottom row of ducts. A secure cap will be placed at the end of each duct to prevent the ingress of dirt or water.
- Ducts will be surrounded and covered with thermal sand in accordance with the design drawings and thoroughly compact without damaging ducts.
- A red protection strip will be placed on top of compacted thermal sand over the top row of ducts.
- Thoroughly compacted Clause 804 backfill or soil backfill will be used to reinstate the trench to surface ground level.
- For concrete and asphalt/bitmac road sections, permanent reinstatement works will be carried out in accordance with the specification of MCC and/or private landowners, unless otherwise agreed with local authorities.
- Ducts will be cleaned and tested by pulling through a brush and mandrel. 12mm polypropylene draw rope will be installed in each duct and all ducts will be sealed using robust duct end seals fitted with rope attachment eyes.
- The depth of the cables will meet all safety requirements with suitable marking tape laid between the cables and the finished surface. The ducts will be installed and the trenches reinstated in accordance with the specifications of the roads section within MCC where installed in public roads.

2.4.11 Internal Substation

The Proposed Development includes for the construction of an internal electrical substation of concrete block construction. The substation compound facility will be secured with fencing to full EirGrid specification. The following methodology will be adhered to when installing foundations for the substation at the Proposed Development site:

- Prior to the pouring of the concrete, some clearance works in the form of excavations may be required,
- Hardcore will be introduced after clearance works have been carried out. This material would then be compacted and levelled to ensure that the concrete is being poured onto a firm stable surface.
- The area of the foundation will be accurately measured and delineated using marking lines and positioning posts. Casing/formwork will then be installed into which the wet concrete will be poured.
- Once pouted, the concrete will be promptly levelled and allowed to cure for the appropriate duration prior to the installation of overlying respective components.
- The blockwork will then be installed along with wall plates and rafters. Slates will then be installed to complete the roof and close in the structure.
- The excavated material will be stockpiled for later use during reinstatement works. A layer of geotextile material will be laid over the footprint of the compound.
- It should be noted that no mixing of concrete will be carried out at the Proposed Development site. All concrete will be delivered and poured from ready mix trucks.

Invertor/Transformer Units

It is proposed to install 21 no. transformer/invertor units on the subject site. Transformers are used to transfer electric energy from a number of low voltage AC circuits (or combine) to the onsite substation for export to one or more other circuits, either increasing (stepping up) or reducing (stepping down) the voltage.

Invertors convert Direct Current (DC) (electricity generated by the solar PV panels) to Alternating Current (AC) for the transport of the electricity. String inverters are an alternative to combined invertor/transformer skid units, whereby the small invertor units are mounted on the support structures to the rear of the solar panels at the end of each row of panels.

Drawing No. 250403-06 of the planning application pack shows typical transformer specifications. The indicative location of the inverter units is identified on the Site Layout drawings which are included in the Planning Drawing Pack.

The invertor/transformer skid units are small container type structures, which enclose the inverter, transformer and MV switchgear, and will have an approximate height of approximately 3 m and a footprint of approximately 14.5 m². The power stations will be prefabricated and installed on concrete plinths (up to approximately 300 mm) placed on compacted gravel beds.

The construction of the concrete plinths will comprise:

- Stripping of grass using a mechanical excavator.
- Introduction of gravel/stone for a base.
- Installation of shuttering and pouring of concrete to the appropriate level.
- Concrete will be left to cure for an appropriate duration, as per engineering specifications before installing MV power stations on it.

The power stations will be clad dark green or as otherwise agreed with the Planning Authority prior to construction.

As an alternative to the above electrical design incorporating centralised invertor/transformer skid units, a decentralised system would utilise small-scale inverters ('string inverters') affixed to individual solar PV arrays. In this arrangement, the power stations would be similar small container type structures containing a transformer and MV switchgear. The smaller decentralised inverters would be installed on the same vertical steel uprights used to mount the solar panels and would be fully screened within the solar arrays.

Installation of CCTV Infrastructure

Once operational, the Proposed Development will be unmanned and remotely monitored using CCTV. The CCTV system will be erected on dedicated stands at a height of approximately 4 m above ground level and will have a green colour finish to blend into the surrounding environment. The camera stands will be either set in concrete or anchor bolted to a concrete base. Please refer to Drawing 250403-10 of the Planning Application Drawing pack for details on proposed CCTV.

The cameras will only be orientated toward the interior of the solar PV farm and will not point towards any external landowners or dwellings. The CCTV system will include detection control and recording and will be connected to a remote alert centre where security footage will be monitored. The cameras will be monitored on a continual basis using infrared lighting as the facility will be unlit at night-time.

3.

ENVIRONMENTAL MANAGEMENT

3.1

Existing Water Quality

The EPA web-mapper (<https://gis.epa.ie/EPAMaps/>) was consulted on the 12th of May 2025 regarding the status of waterbodies that are located downstream of the site of the Proposed Development.

The Proposed Development site is located entirely within the Newry, Fane, Glyde and Dee catchment and partially within the Boyne_SC_100 and Boyne_SC_120 sub-catchments. As outlined in the Flood Risk Assessment (FRA) prepared by Langan Consulting Engineers, the Proposed Development locations are within the Boyne River Basin District and all watercourses within the vicinity of the Proposed Development locations discharge into the Boyne river approximately 1.5 km south of Area 3.

Mapping shows that Area 1 of the proposed solar farm site is drained by the Demailestown Order 1 stream [EPA Code: 07D49], which runs along the western site boundary, and to the north by the Chamberstown Order 1 stream [EPA Code: 07C10].

Both the Demailestown and Chamberstown streams that border the site of the Proposed Development have a Water Framework Directive (WFD) status (2016-2021) of 'Poor' with the risk status for both streams being under review.

Area 2 of the Proposed Development site is bordered to the north by the Castlepark07 Order 1 stream [EPA Code: 07C03], and to the south by the Mullaghroe 07 [EPA Code: 07M45] and Mullagha [EPA Code: 07M46] Order 1 streams. These discharge into the River Boyne approximately 5.7 km downstream. These streams that border the site of the Proposed Development have a Water Framework Directive (WFD) status (2016-2021) of 'Poor' with the risk status all three streams being under review.

No mapped watercourses traverse or are immediately adjacent to Area 3 of the Proposed Development site.

The Proposed Development site is located within the Wilkinstown ground water catchment. This catchment has a groundwater WFD Status (2016-2021) of 'Poor' and has a risk status of 'At Risk'.

As outlined in the FRA prepared by Langan Consulting Engineers, the vast majority of the Proposed Development Locations are in Flood Zone C (1 in >1000-year flood event). Small portions of lands at the westerly extents of Area 1, and to the northerly and southerly extents of Area 2, are located in Flood Zones A/B (1 in <100-year/1 in 100–1000-year flood events). It is not expected that the Proposed Development will have any impact on the existing greenfield run-off rate, and therefore, there is no potential for the Proposed Development to contribute to flooding outside of the site boundary.

3.2

Protecting Water Quality

Mitigation measures are proposed in order to ensure no negative effects on the wider environment. In the interests of environmental best practice during construction, measures are set out in Section 3.2.1 below. These mitigation measures are also outlined in the Natura Impact Statement (NIS) and Ecological Impact Assessment (EcIA), which were prepared by MKO and accompany this application to MCC.

Prior to the commencement of any construction activities, best practice measures will be put in place to ensure that no silt laden water runoff generated at the site will flow to nearby watercourses or drains thus ensuring the protection of surface water during the works. This will include proper site management during construction to ensure that all necessary measures are implemented to prevent sediment run-off and other pollutants from entering any watercourse in the vicinity. The contractor will

assign a member of the site staff as the environmental officer with the responsibility for ensuring the environmental measures prescribed in this document are adhered to. Any environmental incidents or non-compliance issues will immediately be reported to the project team.

Particular emphasis will also be placed on hazardous materials entering the surface water management system as well as spill or leaks of fuel oils. Section 5 provides an Emergency Response Plan for dealing with spillages which may result in adverse environmental effects.

3.2.1 Prevention Pollution Control Measures

The following measures will be put in place to prevent the transportation of silt laden water or pollutants from entering the wider environments.

- Site-specific surface water drainage and silt control measures will be implemented prior to commencing earthworks.
- Silt fencing will be installed along the mapped EPA watercourses as well as any drains where they border or traverse the site. Silt fences will be embedded into the ground and will be left in place throughout construction until all exposed soil has revegetated. The contractor shall ensure that silt fencing is regularly inspected and maintained during the construction phase.
- All diesel or petrol pumps required onsite will be operated within bunded units.
- A site compound will be established within the Proposed Development site. The exact location of the site compound will be established by the contractor and will be located a minimum of 50 m from any watercourses or waterbodies. The compound will be used for storage of material, machinery, fuel, and workers facilities. All construction materials and substances will be stored in the site compound.
- During earthwork activities, the following mitigations will be adhered to:
 - Material that is not re-used will be transported off site to a designated waste facility.
 - Suitable stone material will be imported to the site to be used as backfill.
 - Excavated spoil (if any) will be stockpiled and contained entirely within the confines of the site boundaries, a minimum of 50 m away from any watercourse or drain.
 - Where possible, all excavated material will be removed to suitable stockpile areas. The volume of material to be managed is minor due to the nature and extent of the works.
 - Stockpiling will be limited to areas where the ground is stable and well drained. Stockpiles will be located where the risk of soil erosion and water quality deterioration is minimal and will also have an adequate buffer (>10m) from nearby drains.
 - Any water discharge from the stockpiles will be monitored. Runoff water will be prevented from flowing into a nearby excavation area or directly into nearby watercourses. Stockpiles will be covered with a sheet of plastic to prevent runoff during precipitation events. Furthermore, silt fences will be installed, if required around stockpiles of excavated materials.
 - The area of bare soil will be kept to a minimum by limiting the number of excavated areas present within the site at any one time and also maintaining where possible existing vegetation. Excavations will be left open for minimal periods.
 - Exposed surfaces will be re-vegetated as soon as possible following construction.
 - The minimum number of soil/subsoils and bedrock material will be removed from site. Soil may be reused for landscaping elsewhere on the site. Soils will be reinstated to their original locations where possible.

- Where possible, earthworks will not be carried out during periods of heavy rainfall.
- Entry by plant equipment, machinery, vehicles and construction personnel into watercourses or wet drainage ditches shall not be permitted. All routes used for construction traffic shall be protected against migration of soil or wastewater into watercourses;
- If very wet ground must be accessed during works, bog mats/aluminium panel tracks will be used to enable access to these areas by machinery.
- Working practices will be controlled by, for example, minimising land take, avoiding repetitive handling of soils, minimising vehicle movements off-road and limiting the size of stockpiles to reduce the compaction and erosion of material.
- As construction advances there may be a requirement to collect and treat surface water within the Proposed Development site. This will be completed using perimeter swales at low points around the construction areas, and if required water will be pumped from the swales into sediment bags prior to overland discharge allowing water to percolate naturally to ground;
- The contractor will carry out visual examinations of local watercourses from the works during the construction phase to ensure that sediment is not above baseline conditions. In the event of water quality concerns, the Environmental Manager and Ecological Clerk of Works (ECoW) will be consulted.
- If ground water is encountered during excavations, waters will be pumped from excavation and discharged through a pipe with a silt bag attached on to an area of overland vegetation within the site boundary.
- Discharge to ground will be via a silt bag which will filter any remaining sediment from the pumped water.
- Daily monitoring and inspections of site drainage during construction will be completed by the appointed environmental officer.
- A buffer zone of 10 m or more will be established to protect any surface water channels, including drainage ditches, from disturbance from construction work.
- Working near watercourses during intense rainfall events (>5 mm/hour) will be avoided and work will cease entirely near drains when it is evident that there is a threat of pollution occurring.
- Good construction practices such wheel washers and dust suppression on site roads, and regular plant maintenance will ensure minimal risk. The Construction Industry Research and Information Association (CIRIA) provide guidance on the control and management of water pollution from construction sites ('Control of Water Pollution from Construction Sites, guidance for consultants and contractors', CIRIA, 2001)², which provides information on these issues. This will ensure that surface water arising during the course of construction activities will contain minimum sediment.

Details of control measures which will be implemented at the site, if required, are included in the Plates below.

² CIRIA, (2001) *Control of Water Pollution from Construction Sites, guidance for consultants and contractors*



Plate 3-1 Silt Bag with water being pumped through.



Plate 3-2 Silt Bag under inspection



Plate 3-3 Inductive Silt Fence surrounding discharge from Silt Bag



Plate 3-4 Embedded Silt Fence

The silt fence will remain in place until such time that all ground, civil and site restoration works have been completed.

3.3

Cement Based Products Control Measures

The complete washing out of concrete trucks will not be permitted at the site. Suppliers will be directed back to their own facility to complete the washout process. However, a washout area for chute cleaning only will be provided at a specified location in close proximity to the concrete pour locations.

The following mitigation measures are proposed to avoid release of cement leachate from the site:

- No batching of wet-cement products will occur on site.
- Ready-mixed supply of wet concrete products and where possible, emplacement of pre-cast elements, will take place.
- Where possible, pre-cast elements for concrete works will be used.
- When cast in place concrete is required, such as structural foundations at the MV power stations, all work will be carried out in the dry and effectively isolated from any flowing water (or water that may enter streams and rivers) for a period sufficient to ensure no leachate from concrete.
- Designated impermeable cement washout areas will be provided for washing of concrete truck chutes only using the smallest volume of water possible. All approved washing areas will be documented with training provided for site workers. Wash down and washout of concrete transporting vehicles will take place at an appropriate facility offsite or at the location where concrete was sourced
- No washing out of any plant used in concrete transport or concreting operations will be allowed on-site.
- No discharge of cement contaminated waters to the construction phase drainage system or directly to any artificial drain or watercourse will be allowed.
- Use weather forecasting to plan dry days for pouring concrete.
- Ensure pour site is free of standing water and plastic covers will be ready in case of sudden rainfall event.
- Ensure that the temporary construction compound is located more than 10m from any drainage ditch, river or stream.

3.4

Refuelling, Fuel and Hazardous Materials Storage

The following measures are proposed to avoid release of hydrocarbons at the site:

- All oils and solvents used during the construction phase will be stored within specially constructed, dedicated, bunded areas within the temporary site compound.
- Refuelling of construction vehicles and the addition of hydraulic oils to vehicles, will take place in a designated area in the temporary site compounds, away from drainage ditches or other features that may transmit pollutants to surface waters.
- Spill kits and hydrocarbon adsorbent packs will be stored in the refuelling area and operators will be fully trained in the use of this equipment.
- Fuels, lubricants and hydraulic fluids for equipment used on the site will be carefully handled to avoid spillage, properly secured against unauthorised access or vandalism, and provided with spill containment.
- Vehicles will never be left unattended during refuelling. Only dedicated, trained and competent personnel will carry out refuelling operations and plant refuelling procedures shall be detailed in the contractor's method statements.
- All site plant will be inspected at the beginning of each day prior to use. Defective plant shall not be used until the defect is satisfactorily fixed. All major repair and maintenance operations will take place off site.

Dust Control

Dust can be generated from many on-site activities. The extent of dust generation will depend on the type of activity undertaken, the location, the nature of the dust, i.e., soil, sand, etc., and the weather. In addition, dust dispersion is influenced by external factors such as wind speed and direction, and/or periods of dry weather. Construction traffic movements also have the potential to generate dust as they travel along the public road. The measures below will also prevent construction debris arising on the public road network.

Proposed measures to control dust include:

- Any site entrances with the potential to give rise to dust will be regularly watered, if required, during dry and/or windy conditions.
- The designated public roads outside the site and along the main transport routes to the site will be regularly inspected by Site Management for cleanliness and cleaned as necessary.
- Material handling systems and material storage areas, if required will be designed and laid out to minimise exposure to wind.
- Water misting will be utilised on-site as required to mitigate dust in dry weather conditions.
- The transport of soils, aggregates, or other material, which has significant potential to generate dust, will be undertaken in tarpaulin-covered vehicles where necessary.
- Daily inspection of construction sites to examine dust measures and their effectiveness.
- All vehicles leaving the construction areas of the site will rinse their wheels at a designated wheel wash area prior to entering the local road network.
- All construction related traffic will have speed restrictions on un-surfaced areas within the site.

Noise Control

The Noise & Vibration Impact Assessment prepared by MKO states that predicted noise levels from onsite construction activities will remain below the TII threshold of 70 dB at all receptors. Furthermore, with the exception of two receptors, noise levels are also predicted to be lower than the 65 dB BS 5228-1:2009 criterion, specific mitigation measures are not warranted in most cases.

Nonetheless, to ensure compliance with best practice and the relevant guidance documents including, British Standard BS 5228-1:2009+A1:2014 *Code of Practice for Noise and Vibration Control on Construction and Open Sites – Part 1: Noise (2014)*³ and the TII publication *Good Practice Guidance for the Treatment of Noise during the Planning of National Road Schemes (2014)*⁴, the following mitigation measures will be implemented at the site during the construction phase.

- All plant will be maintained in satisfactory condition, and in accordance with manufacturer requirements. Maintenance and lubrication of bearings and other moving parts will be undertaken as specified by the manufacturer.
- Exhaust and silencer systems on plant will be maintained in a satisfactory condition and operating correctly at all times. Defective silencers will be immediately replaced.
- Plant and machinery with low inherent potential for generation of noise and/or vibration will be selected.

³ British Standard BS 5228-1:2009+A1:2014 *Code of Practice for Noise and Vibration Control on Construction and Open Sites – Part 1: Noise*

⁴ Transport Infrastructure Ireland (2014) *Good Practice Guidance for the Treatment of Noise during the Planning of National Road Schemes*⁴

- Where practical, separation distances to receptors will be maximised through appropriate onsite positioning of plant. Plant will also be sited so as to maximise screening provided by intervening topographical features, structures and barriers.
- The requirement to house continuously operating plant in sound-attenuating enclosures or casings will be assessed onsite.
- Equipment not in active use will be shut down.
- Use of horns will be prohibited onsite. Communication between operators (e.g. between excavator and dumper operators) will be by visual methods only.
- Onsite tracks and roadways used regularly by heavy goods vehicles (HGVs) will be maintained in reasonable condition, and free of potholes and defects which may give rise to rattling of empty HGV bodies.
- Training will be provided by the Site Management to drivers to ensure smooth machinery operation/driving, and to minimise unnecessary noise generation. HGV drivers will be instructed to extend care and courtesy to other road users, and to avoid unnecessary revving of engines.
- Offsite queuing of HGVs will be prohibited.
- All construction plant used onsite will be required to comply with maximum sound power levels set out in Directive 2000/14/EC of the European Parliament and of the Council of 8 May 2000 on the approximation of the laws of the Member States relating to the noise emission in the environment by equipment for use outdoors, implemented in Ireland by the European Communities (Noise Emission by Equipment For Use Outdoors) Regulations, 2001 (S.I. 632 of 2001), as amended by the European Communities (Noise Emission by Equipment for Use Outdoors) (Amendment) Regulations, 2006 (S.I. 241 of 2006).
- A site representative will be appointed as a liaison officer with the local community.
- Any complaints of noise received during the construction phase will be logged in a register and investigated immediately. Details of follow-up action will be included in the register.

All complaints of noise received during the construction phase will be logged in a register and investigated immediately. Details of follow-up action will be included in the register.

The hours of working should be planned, and account should be taken of the effects of noise upon persons in areas surrounding site operations and upon persons working on site, taking into account the nature of land use in the areas concerned, the duration of work and the likely consequence of any lengthening of work periods.

The proposed construction working hours will be 07:00 to 19:00 Monday to Friday and 07:00 to 14:00 on Saturdays. Any works outside these hours, if required, will be limited to quieter operations, and will be agreed in advance with the planning authority. Construction will not take place at the site on Sundays or public holidays. Deviation from these times will only be allowed in exceptional circumstances where written approval has been received from the planning authority and when other relevant third parties i.e., nearby homeowners and property owners have been notified and have agreed to works taking place during such time periods.

Vibration Control

Vibration standards can be considered in two varieties: those dealing with human comfort and those dealing with cosmetic or structural damage to buildings. For example, vibration is perceptible at around 0.5 mm/s in the case of road traffic, however at higher magnitudes, this vibration may become an annoyance. Guidance relevant to the protection of building structures is contained in the following documents:

- British Standard BS 7385: 1993: *Evaluation and Measurement for Vibration in Buildings Part 2: Guide to Damage Levels from Ground Borne Vibration*.⁵
- British Standard BS 5228: 2009+A1 2014: *Code of Practice for Noise and Vibration Control on Construction and Open Sites – Part 2: Vibration*.⁶

Vibration can be more difficult to control than noise, and there are few generalisations which can be made about its control. It should be borne in mind that vibration can cause disturbance by causing structures to vibrate and radiate noise in addition to perceptible movement. The following mitigation measures will be implemented at the site during the demolition and construction phase to control vibration levels:

- The hours of working will be planned, and account will be taken of the effects of vibration upon persons in areas surrounding site operations and upon persons working on site, taking into account the nature of land use in the areas concerned and the duration of work.
- Where reasonably practicable, low vibration working methods will be employed. Consideration should be given to use of the most suitable plant, reasonable hours of working for operations which might give rise to perceptible vibrations, and economy and speed of operations.
- Vibration will be controlled at source and the spread of vibration should be limited.
- Where reasonably practicable, plant and/or methods of work causing significant levels of vibration at sensitive premises will be replaced by other less intrusive plant and/or methods of working.
- Vibration from stationary plant (e.g. generators, pumps, compressors) can, in some instances, prove disturbing when located close to sensitive premises or when operating on connected structures. In these instances, equipment will be relocated or isolated using resilient mountings.
- Where processes could potentially give rise to significant levels of vibration, on-site vibration levels will be monitored regularly by a suitably qualified person appointed specifically for the purpose, particularly if changes in machinery or project designs are introduced. A method of vibration measurement will be agreed prior to commencement of site works.
- On those parts of a site where high levels of vibration are likely to be a hazard to persons working on the site, prominent warning notices will be displayed.
- Offsite fabrication - In method statement/risk assessment the contractor will highlight any activity that may cause significant vibration levels and include measures in helping to mitigate these emission levels.
- Equipment is to be task specific.
- Best practice vibration control measures will be employed by the contractor.
- A designated member of staff will be appointed as the point of contact for any queries or complaints from nearby local residents.

3.8

Cultural Heritage

The following mitigation measures, as set out in the Archaeological, Architectural and Cultural Heritage Impact Assessment (AACHIA) report prepared by Rubicon Archaeology, will be adhered to during the construction of the Proposed Development.

- As part of an advance works programme prior to construction, a combination of advance geophysical survey and advance archaeological test trenching should be

⁵ **British Standard BS 7385: (1993)** *Evaluation and Measurement for Vibration in Buildings Part 2: Guide to Damage Levels from Ground Borne Vibration*

⁶ **British Standard BS 5228: (2009+A1 2014):** *Code of Practice for Noise and Vibration Control on Construction and Open Sites – Part 2: Vibration*

carried out by a suitably qualified archaeologist under licence from the National Monuments Service, Department of Housing, Local Government and Heritage (DOHLGH). The trench layout should be informed by the preceding geophysical survey to target the areas of archaeological potential identified (see Section 6.3 for note on time of the programme).

- Should archaeological features or deposits be discovered during archaeological testing, the extent of such features/deposits will be determined, a GPS location of the site will be established and works at this location will cease. A strategy will be proposed to the Local Authority and National Monuments Service to preserve the site *in situ*, where possible. Where preservation *in situ* cannot be achieved, either in whole or in part, then a programme of full archaeological excavation will be proposed, to ensure the preservation by record of the portion of the site that will be directly impacted upon. This work should be carried out by a suitably qualified archaeologist under license and in accordance with the provisions of the National Monuments Acts 1930-2014. The results of any archaeological test testing, surveys and/or excavation will be submitted in a report to the Local Authority, the Heritage and Planning Division, Department of Housing, Local Government and Heritage and the National Museum of Ireland.
- On review of the preceding geophysical survey and test trenching, appropriate buffer zones inside which no excavation should take place will be incorporated into the proposed layout of the solar farm to protect newly discovered archaeological deposits and also applied to the identified extents of all RMP/SMRs located within or immediately adjacent to the application boundary. Where no extents could be identified, the buffer zone respects the present SMR Zone. All buffer zones shall be maintained during construction, operation and decommissioning of the development.
- Subject to the agreement of the Local Authority and the National Monument Service, only non-invasive development, including non-invasive ground solar panel supports and ground mounted cable boxes. will be undertaken within these buffer zones. No other sub-surface works should be undertaken within these zones. Protective matting should be put in place during installation to prevent machine rutting.
 - As part of this, a construction methodology, including engineering drawings, for the non-invasive development which does not affect any underlying archaeological deposits, should be agreed between the Local Authority, the National Monuments Service and the developer prior to construction. This construction methodology should detail the specifications and installation methodology for the of the non-invasive development.
- A suitably qualified archaeological consultant under license to the National Monuments Service Section of the Department of Housing, Local Government and Heritage, will monitor:
 - Any sub-surface groundworks undertaken in proximity to RMPs. These areas shall include entirely (but not be limited to) the statutory zone of notification for the monument and shall be inspected and established by the consultant archaeologist prior to the commencement of works in the vicinity of the recorded monument.
 - All groundworks including but not limited to those related to access tracks, cables, surface water drainage and water services and temporary compounds
 - Should any archaeological material be encountered, works will cease, and the Local Authority and National Monuments Service shall be notified. A strategy will be proposed to the Local Authority and National Monuments Service to suitably record any archaeological material identified, and preserve any archaeological material in situ, where possible. Where preservation in situ cannot be achieved, either in whole or in part, then a programme of archaeological excavation will be proposed, to ensure the preservation by record of the area of the development that will be directly impacted upon. Further work will then only be carried out following consultations with the Local Authority and the National Monuments Service.

- Direct drilling should not take place in the vicinity of recorded monuments, and all excavations in these areas should comprise open cut trenching. These areas shall include entirely (but not be limited to) the statutory zone of notification for the monument, and shall be inspected and established by the consultant archaeologist prior to the commencement of works in the vicinity of the recorded monument.
- Appropriate screening should be planted along the border to reduce the visual effect of the proposed development site.
- Where a section of an upstanding townland boundary must be removed a representative cross-section of the feature will be investigated and recorded by a suitably qualified archaeologist prior to removal.
- The resulting archaeological report will be submitted to the Local Authority and to the National Monuments Service Section of the DOHLGH.

These recommendations are subject to the agreement of the National Monuments Service, the National Museum of Ireland, the Meath County Council Heritage Officer, MCC and/or An Bord Pleanála.

3.9

Traffic Management Proposals

The proposed traffic management measures to be adopted during the construction works are summarised below. Please note that this is not an exhaustive list, and it will be updated accordingly by the appointed contractor in consultation with the local authority.

- A site-specific Construction Traffic Management Plan will be agreed upon with MCC prior to works starting.
- A suitably qualified Traffic Management Coordinator will be appointed for the duration of the construction works. This person is to serve as the primary point of contact for all traffic management-related matters.
- Local residents are to be informed of any upcoming traffic-related matters, such as partial lane closures (e.g. for Site Entrance tie-in to public road), through letter drops and posters displayed in public areas. This communication is to include the contact details of the Contract Project Coordinator, who will be the primary point of contact for any inquiries from the public or local authorities during regular working hours. An emergency contact number is also to be provided for after-hours issues.
- A pre-construction survey of the roads related to the development is recommended to assess their condition before construction begins. Following the completion of the Prospective Development, a post-construction survey could also be carried out. The type, extent and timing of these surveys is to be agreed with MCC's Roads Division.
- All traffic movements will be planned to occur between 07:00 and 18:00 on weekdays and 08:00 to 14:00 on Saturdays. Public holidays are to be observed, unless otherwise arranged with MCC. Additionally, a start-up and close-down period of up to one hour before and after core working hours is to be implemented; this will not include the operation of equipment or machinery that could cause disturbances.
- Parking of site vehicles will be managed and will not be permitted on public road, unless proposed within a designated area that is subject to traffic management measures and agreed with MCC.
- A travel plan will be prepared and implemented for construction staff.
- Construction and delivery vehicles will be instructed to use only the approved and agreed means of access; and movement of construction vehicles will be restricted to these designated routes.
- Warning signs/Advanced warning signs will be installed at appropriate locations in advance of the construction site access locations.
- A road sweeper will be employed, if necessary, to clean the public roads of any residual debris that may be deposited on the public roads leading away from the construction works.

- On site wheel washing will be undertaken for construction vehicles to remove any debris prior to leaving the site.
- Works that require the use of multiple vehicles, such as concrete pours, will be planned to ensure there will be no queuing on the public roadways surrounding the site.
- All vehicles will be suitably serviced and maintained to avoid any leaks or spillage of oil, petrol or diesel. All scheduled maintenance will not be carried out on the public highway.
- Co-ordinated delivery of bulk materials (hardcore, concrete, solar panels) to minimise peak traffic generation.
- Scheduling where possible HGV delivery to avoid peak morning/evening traffic on the receiving road, and also to not coincide with Large Goods Vehicle (LGV) arrival to site.

3.10

Invasive Species Management

The treatment and control of invasive alien species will be carried out in accordance with the most recent guidelines issued by Transport Infrastructure Ireland (TII), including:

- **GE-ENV-01104** – The Management of Invasive Alien Plant Species on National Roads – Standard (TII, December 2020)
- **GE-ENV-01105** – *The Management of Invasive Alien Plant Species on National Roads – Technical Guidance* (TII, December 2020)

Where Japanese Knotweed is present, management will also follow the principles outlined in the Environment Agency's *Knotweed Code of Practice: Managing Japanese Knotweed on Development Sites* (Version 3, amended 2013) ⁷.

During several surveys carried out by MKO, a search for Invasive Alien Species (IAS) was conducted by a suitably qualified ecologist. No invasive species listed under the Third Schedule of the European Communities (Birds and Natural Habitats) Regulations 2011 (S.I. No. 477 of 2011), nor any other invasive species were recorded in any area of the Proposed Development site. However, in the event that an invasive species is encountered, an invasive species management plan will be prepared, and the following measures will be adopted. Careful preparation of the site and planning of the works is crucial to successful prevention of introduction of invasive species. The following list of guidelines, which is not exhaustive, shall be followed by all on-site personnel. Only those who have been inducted into biosecurity measures onsite may enter the contaminated zones within the works areas.

3.10.1

Establishing Good Site Hygiene

- A risk assessment and method statement must be provided by the Contractor prior to commencing works.
- Fences will be erected around areas of infestation, as confirmed by test pits, and warning signs shall be erected.
- A designated wash-down area will be created, where power-washed material from machinery can be contained, collected and disposed of with other contaminated material. This area will contain a washable membrane or hard surface.
- Stockpile areas will be chosen to minimise movement of contaminated soil.
- Stockpiles will be marked and isolated.
- Contaminated areas which will not be excavated will be protected by a root barrier membrane if they are likely to be disturbed by machinery. Root barrier membranes

⁷ Environment Agency (2013) *The Knotweed Code of Practice: Managing Japanese Knotweed on Development Sites*

will be protected by a layer of sand above and below and topped with a layer of hardcore.

- The use of vehicles with caterpillar tracks within contaminated areas will be avoided to minimise the risk of spreading contaminated material.
- Any material that is imported onto any site will be verified by a suitably qualified ecologist to be free from any invasive species listed on the 'Third Schedule' of Regulations 49 & 50 of the European Communities (Birds and Natural Habitats) Regulations 2011 (S.I 477 of 2011). This will be carried out by searching for rhizomes and plant material.
- Any soils or subsoils contaminated with invasive species will be sent for disposal to an authorized waste facility.
- A suitably qualified ecologist will be on site to monitor and oversee the implementation of invasive species remedial works.

Plant and equipment which is operated within an area for the management of materials in contaminated areas will be decontaminated prior to relocating to a different works area. The decontamination procedures will take account of the following:

- Personnel may only clean down if they are familiar with the plant and rhizome material and can readily identify it.
- Decontamination will only occur within designated wash-down areas.
- Vehicles will be cleaned using stiff-haired brush and pressure washers, paying special attention to any areas that might retain rhizomes e.g., wheel treads and arches.
- All run-offs will be isolated and treated as contaminated material. This will be disposed of in already contaminated areas.

3.11

Resource Waste Management Plan

The generation of waste as a result of construction related activity will provide the majority of onsite wastes which will need to be managed under guidelines set out in this document. This section of the CEMP provides a Resource Waste Management Plan (RWMP) which outlines the best practice procedures during the construction phase of the project. This plan has been compiled based on The Department of the Environment document entitled, '*Best Practice Guidelines for the preparation of resource & waste management plans for construction & demolition projects*' (2021)⁸.

The plan is based on the European waste hierarchy which sets out the most to least preferred options for waste management. Waste prevention and re-use are viewed as the most desirable options for managing wastes with the least desirable option considered being disposal to a licensed landfill.

This plan has a number of key objectives as outlined below:

- To set out management prescriptions that adhere to the waste management hierarchy.
- To outline the roles and responsibilities of the appointed Waste Manager.

3.11.1

Legislation

The Waste Management Acts 1996 (Act) as amended provide for measures to improve performance in relation to waste management, recycling and recovery. The Act also provides a regulatory framework for meeting higher environmental standards set out by other national and EU legislation.

⁸ **The Department of the Environment (2021)** *Best Practice Guidelines for the preparation of resource & waste management plans for construction & demolition projects*

The Act requires that any waste related activity has to have all necessary licenses and authorisations. It will be the duty of the Waste Manager on the site of the Proposed Development to ensure that all contractors hired to remove waste from the site have valid Waste Collection Permits. It will then be necessary to ensure that the waste is delivered to a licensed or permitted waste facility. The hired waste contractors and subsequent receiving facilities must adhere to the conditions set out in their respective permits and authorisations.

3.11.2 Waste Management Hierarchy

The waste management hierarchy sets out the most efficient way of managing in the following order:

Prevention and Minimisation:

The primary aim of the RWMP will be to prevent and thereby reduce the amount of waste generated at each stage of the project. The prevention and minimisation of waste of this development will be developed by implementing effective on-site materials management in terms of both material acquisition and storage on site.

Reuse of Waste:

Reusing as much of the waste generated on site as possible will reduce the quantities of waste that will have to be transported off site to waste recovery facilities or landfill. Site management will be required to encourage the appropriate reuse of materials where possible as well as identify re-use opportunities to achieve ultimate goal of waste reduction.

Recycling of Waste:

There are a number of established markets available for the beneficial use of construction waste such as using waste concrete as fill for new roads. A designated Waste Storage Area (WSA) will be maintained on site which will cater for segregation and recycling of various waste streams.

At all times during the implementation of the RWMP, disposal of waste to landfill will be considered only as a last resort.

3.11.3 Construction Waste Management

The first significant quantity of waste to be generated during the construction phase of the project will be the soil stripping for the access track. This will generate a minor quantity of soil and subsoil material as a result of the excavation. It is anticipated that a quantity of this material will be exported off site by a licenced haulier to an authorised waste recovery facility.

Waste generated post excavation on site will be managed in the WSA where the various waste components will be segregated into a number of waste categories in accordance with a general waste segregation policy and placed into individual skips. The categories for segregation will include timber, metal, cardboard and plastics. This material will be removed by authorised waste collection contractors for recycling and recovery at appropriately licensed facilities. The remaining volume of waste material which cannot be allocated to any of these four waste streams will be disposed of in a general waste skip. This waste material will be transferred to a materials recovery facility (MRF) by a fully licensed waste contractor where the waste will be further sorted into individual waste streams for recycling, recovery or disposal. This general waste will be subject to constant monitoring by site management to ensure that potential reusable and recyclable material is not being disposed of therein. Other waste mitigation measures which will be implemented at the site are as follows:

- All waste will be collected in skips and the site will be kept tidy and free of debris at all times.
- Waste oils and hydraulic fluids will be collected in leak proof containers and removed from the site for disposal or recycling. It is also essential that all empty oil containers and other hazardous wastes should be disposed of in accordance with the requirements of the Waste Management Act, 1996 as amended.
- All construction waste materials will be stored within the confines of the site, prior to removal from the site to an appropriately licensed waste facility.
- A self-contained port-a-loo with an integrated waste holding tank will be used within the confines of the site. This unit will be maintained by the providing contractor and removed from site upon completion of the construction works.
- No wastewater will be discharged on-site during the construction phase.

The expected wastes arising from the works including the individual European List of Waste codes are outlined in Table 3-1.

Table 3-1 Expected waste types arising from the Construction Phase

Materials	Example	LoW Code
Cables	Electrical wiring	17 04 11
Concrete	Concrete pads for MV Power Stations	17 01 01
Metals	Rebar, Steel, Aluminium	17 04 07
Mixture of inert material	Sand, stones, plaster, brick, rock	17 01 07
Plastic	PVC frames, electrical fittings	17 02 03
Soil & Stones	Overburden, soil, subsoil	17 05 04
Wood	Shuttering	17 02 01
Canteen Waste	Miscellaneous waste from site staff	20 01 08

The potential for re-use of materials on the site during the works will be minimal however clean inert concrete, rubble and stones may have a re-use potential.

It is also essential that all waste oils, empty oil containers and other hazardous wastes should be disposed of in accordance with the requirements of the Waste Management act, 1996 as amended.

3.11.3.1 Waste Arisings and Proposals for Minimisation, Reuse and Recycling of Construction Waste

Construction waste will arise on the project mainly from excavation and unavoidable construction waste including material surpluses and damaged materials and packaging waste.

Appropriate measures should be taken to ensure excess waste is not generated during construction, including:

- Ordering of materials will be on an 'as needed' basis to prevent over supply to site. Co-ordination is required with suppliers enabling them to take/buy back surplus stock.
- Purchase of materials pre-cut to length to avoid excess scrap waste generated on site.
- Request that suppliers use least amount of packaging possible on materials delivered to the site.
- Ensuring correct storage and handling of goods to avoid unnecessary damage that would result in their disposal.
- Ensuring correct sequencing of operations.
- Use reclaimed materials in the construction works.

Hazardous waste, if it arises will be kept separate from all other construction waste to prevent contamination and removed appropriately.

3.11.3.2 **Wastes Arising from Construction Activities**

All waste generated on site will be contained in waste skips at a waste storage area on site. This waste storage area will be kept tidy with skips clearly labelled to indicate the allowable material to be disposed of therein.

Any packaging waste generated from the delivery of materials will be deposited into the on-site skips and subsequently transferred to the MRF.

Site personnel will be instructed at induction that, under no circumstances, can waste be brought to site for disposal in the on-site waste skip. It will also be made clear that the burning of waste material on site is forbidden.

3.11.4 **Implementation**

3.11.4.1 **Roles and Responsibilities for Waste Management**

Prior to the commencement of the Proposed Development, a Waste Manager will be appointed by the project team. The role of Waste Manager is likely to be fulfilled by the Environmental Manager given the scale of the development and will be responsible for the implementation of the objectives of this plan, ensuring that all hired waste contractors have the necessary authorisations and that the waste management hierarchy is adhered to. The person nominated must have sufficient authority so that they can ensure everyone working on the Proposed Development adheres to the management plan. The waste manager will also be required to conduct regular waste audits in the WSA and throughout the site to ensure that the waste management plan is operating effectively.

3.11.4.2 **Training**

It is important for the Waste Manager to communicate effectively with colleagues in relation to the aims and objectives of the waste management plan. All employees working on site during the construction phase of the project will be trained in materials management and thereby, should be able to:

- Distinguish reusable materials from those suitable for recycling.
- Ensure maximum segregation at source.
- Co-operate with site manager on the best locations for stockpiling reusable materials.
- Separate materials for recovery.
- Identify and liaise with waste contractors and waste facility operators.

3.11.4.3 Record Keeping

The RWMP will provide systems that will enable all arisings, movements and treatments of waste to be recorded. This system will enable the contractor to measure and record the quantity of waste being generated. It will highlight the areas from which most waste occurs and allows the measurement of arisings against performance targets. The RWMP can then be adapted with changes that are seen through record keeping.

The fully licensed waste contractor employed to remove waste from the site will be required to provide documented records for all waste dispatches leaving the site. Each record will contain the following:

- > Consignment Reference Number
- > Material Type(s) and List of Waste (LOW) Code(s)
- > Company Name and Address of Site of Origin
- > Trade Name and Collection Permit Ref. of Waste Carrier
- > Trade Name and Licence Ref. of Destination Facility
- > Date and Time of Waste Dispatch
- > Registration no. of waste transport vehicle
- > Weight of Material
- > Signature of Confirmation of Dispatch detail
- > Date and Time of Waste Arrival at Destination
- > Site Address of Destination Facility

3.11.5 Waste Management Plan Conclusion

The RWMP will be correctly implemented and adhered to by all staff involved in the project which will be outlined within the induction process for all site personnel. The waste hierarchy will always be employed to ensure that the least possible amount of waste is produced during the construction phase. Reuse of certain types of construction wastes will cut down on the cost and requirement of raw materials therefore further minimising waste levels.

4.

ENVIRONMENTAL MANAGEMENT IMPLEMENTATION AND EMERGENCY RESPONSE

4.1

Ecological Clerk of Works

The main contractor appointed to carry out the works on site will be required to provide a level of supervision on site in the form of an Environmental Manager/ Ecological Clerk of Works. Due to the scale of activity proposed for the site, this role can be adopted by a Site Manager/Foreman as part of their duties. In general, this Environmental Manager will maintain responsibility for monitoring the works and Contractors/Sub-contractors from an environmental perspective. The Environmental Manager will act as the regulatory interface on environmental matters by reporting directly to the client and liaising with MCC and other statutory bodies as required. The duties of the appointed Environmental Manager are summarised as follows:

- Maintain and update as required the Construction Phase CEMP and supporting environmental documentation and review/approval of contractor method statements.
- Undertake inspections and reviews to ensure the works are carried out in compliance with the CEMP.
- Monitor the implementation of the CEMP, particularly all proposed/required Environmental Monitoring.
- Generate environmental reports as required to show environmental data trends and incidents and ensure environmental records are maintained throughout the construction period.
- Advise site management/contractor/sub-contractors on:
 - Prevention of environmental pollution and improvement to existing working methods.
 - Changes in legislation and legal requirements affecting the environment.
 - Suitability and use of plant, equipment and materials to prevent pollution.
 - Environmentally sound methods of working and systems to identify environmental hazards.
- Ensure proper mitigation measures are initiated and adhered to during the construction phase.
- Liaise with Project Team and present the findings of site audits/inspections that are completed.
- Ensure adequate arrangements are in place for site personnel to identify potential environmental incidents.
- Ensure that details of environmental incidents are communicated in a timely manner to the relevant regulatory authorities, initially by phone and followed up as soon as is practicable by email.
- Support the investigation of incidents of significant, potential or actual environmental damage, and ensure corrective actions are carried out, recommend means to prevent recurrence and communicate incident findings to relevant parties.
- Identify environmental training requirements and arrange relevant training for all levels of site-based staff/workers;
- Fulfil the role of Waste Manager and implement the objectives of the RWMP as set out in Section 3.11 above.

4.2

Project Archaeologist

The Project Archaeologist will have overall responsibility for the organisation and execution of all related archaeological monitoring, in accordance with regulatory and project archaeology requirements,

as set out in the Archaeological Impact Assessment Report (prepared by Rubicon). The duties and responsibilities of the Project Archaeologist will include:

- Conduct archaeological monitoring, under licence from the National Monuments Service (who will be notified at least two months prior to the commencement of the proposed works), of all site preparation works, topsoil removal, and subsurface works in areas of the site.
- Compile a report on the monitoring on completion of the works which will be submitted to the relevant authorities.
- Should any archaeological finds or features be uncovered during the course of the monitoring, the National Monuments Service shall be informed of such findings and further mitigation in the form of preservation in situ or preservation by record (excavation) may be required.
- Fulfil the role of Project Archaeologist and conduct monitoring as set out in the Archaeological Impact Assessment report.
- Section 3.8 above lists the full suite of archaeological mitigation measures which will be implemented at the site prior to and during the construction phase.

4.3

Traffic Management Coordinator

A suitably qualified Traffic Management Coordinator will be appointed for the duration of the construction works. This person will be appointed by the main contractor prior to the inception of construction works.

5.

EMERGENCY RESPONSE PLAN

5.1

Emergency Response

The Emergency Response Plan (ERP) is presented in this section of the CEMP. It provides details of procedures to be adopted in the event of an emergency in terms of site health and safety and environmental protection. The site ERP includes details on the response required and the responsibilities of all personnel in the event of an emergency. The ERP will require updating and submissions from the contractor/ Project Supervisor Construction Stage (PSCS) and suppliers as the proposed project progresses. Where sub-contractors that are contracted on site are governed by their own emergency response procedure a bridging arrangement will be adopted to allow for inclusion of the sub-contractor's ERP within this document.

This is a working document that requires updating throughout the various stages of the project.

5.2

Roles and Responsibilities

The chain of command during an emergency response sets out who is responsible for coordinating the response. The Site Manager will lead the emergency response which makes him responsible for activating and coordinating the emergency response procedure. The other site personnel who can be identified at this time who will be delegated responsibilities during the emergency response are presented in Figure 5-1. In a situation where the Site Manager is unavailable or incapable of coordinating the emergency response, the responsibility will be transferred to the next person in the chain of command outlined in Figure 5-1. This will be updated throughout the various stages of the project.

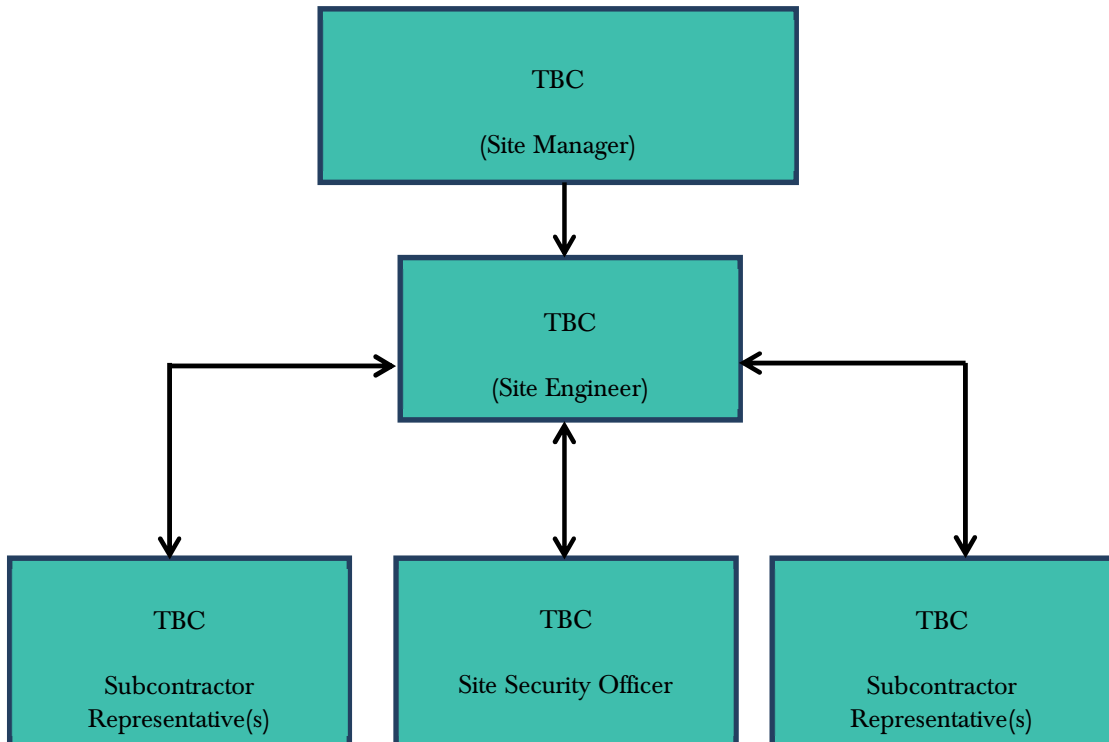


Figure 5-1 Emergency Response Procedure Chain of Command.

5.2.1 Initial Steps

In order to establish the type and scale of potential emergencies that may occur, the following hazards have been identified as being potential situations that may require an emergency response in the event of an occurrence.

Table 5-1 Hazard Associated with Potential Emergency Situations

Hazard	Emergency Situation
Construction Vehicles: Dump trucks, tractors, excavators, cranes etc.	Collision or overturn which has resulted in operator or third-party injury.
Abrasive wheels/Portable Tools.	Entanglement, amputation or electrical shock associated with portable tools.
Contact with services.	Electrical shock or gas leak associated with an accidental breach of underground services.
Fire	Injury to operative through exposure to fire.
Falls from heights including falls from scaffold towers, scissor lifts, ladders and roofs.	Injury to operative after a fall from a height.
Sickness	Illness unrelated to site activities of an operative e.g., heart attack, loss of consciousness, seizure.

In the event of an emergency situation associated with, but not restricted to, the hazards outlined in Table 5-1 the Site Manager will carry out the following:

- Establish the scale of the emergency situation and identify the number of personnel, if any, have been injured or are at risk of injury.
- Where necessary, sound the emergency siren/foghorn that activates an emergency evacuation on the site.
- Make safe the area if possible and ensure that there no identifiable risk exists with regard to dealing with the situation e.g., if a machine has turned over, ensure that it is in a safe position so as not to endanger others before assisting the injured.
- Contact the required emergency services or delegate the task to someone if he is unable to do so. If delegating the task, ensure that they follow the procedures for contacting the emergency services as set out in Section 5.2.4.
- Take any further steps that are deemed necessary to make safe or contain the emergency incident e.g., cordon off an area where an incident associated with electrical issues has occurred.
- Contact any regulatory body or service provider as required e.g., ESB Networks the numbers for which as provided in Section 5.2.4.
- Contact the next of kin of any injured personnel where appropriate. The procedure for this is outlined in Section 5.2.4.

5.2.2

Site Evacuation/Fire Drill

A site evacuation/fire drill procedure will provide basis for carrying out the immediate evacuation of all site personnel in the event of an emergency. The following steps will be taken:

- Notification of the emergency situation. Provision of a siren or foghorn to notify all personnel of an emergency situation.
- An assembly point will be designated in the construction compound area and will be marked with a sign. All site personnel will assemble at this point.
- A roll call will be carried out by the Site Security Officer to account for all personnel on site.
- The Site Security Officer will inform the Site Manager when all personnel have been accounted for. At this time the Site Manager will decide the next course of action which will be determined by the situation that exists at that time. The Site Manager will advise all personnel accordingly.

All personnel will be made aware of the evacuation procedure during site induction. The Fire Services Acts of 1981 and 2003 require the holding of fire safety evacuation drills at specified intervals and the keeping of records of such drills.

5.2.3

Environmental Emergency Response Procedure

5.2.3.1

Spill Control Measures

Every effort will be made to prevent an environmental incident during the construction phase of the proposed project. Oil/Fuel spillages are one of the main environmental risks that will exist on the proposed site which will require an emergency response procedure. The importance of a swift and effective response in the event of such an incident occurring cannot be over emphasised. The following steps provide the procedure to be followed in the event of such an incident.

- Stop the source of the spill and raise the alarm to alert people working in the vicinity of any potential dangers.
- If applicable, eliminate any sources of ignition in the immediate vicinity of the incident.
- Contain the spill using the spill control materials, track mats or other material as required. Do not spread or flush away the spill.
- If possible, cover or bund off any vulnerable areas where appropriate such as drains, watercourses or sensitive habitats.
- If possible, clean up as much as possible using the spill control materials.
- Contain any used spill control material and dispose of used materials appropriately using a fully licensed waste contractor with the appropriate permits so that further contamination is limited.
- Notify the Environmental Manager immediately giving information on the location, type and extent of the spill so that they can take appropriate action.
- The Environmental Manager will inspect the site and will assist by providing any advice possible to ensure the necessary measures are in place to contain and clean up the spill and prevent further spillage from occurring.
- The Construction Manager will notify the appropriate regulatory body such as MCC and EPA etc. if deemed necessary.

Environmental incidents are not limited to just fuel spillages. Therefore, any environmental incident must be investigated in accordance with the following steps.

- The Environmental Manager must be immediately notified.

- If necessary, the Environmental Manager will inform the appropriate regulatory authority. The appropriate regulatory authority will depend on the nature of the incident.
- The details of the incident will be recorded on an Environmental Incident Form which will provide information such as the cause, extent, actions and remedial measures that were used following the incident. The form will also include any recommendations made to avoid reoccurrence of the incident.
- If the incident has impacted on an ecologically sensitive receptor, such as a sensitive habitat, protected species or designated conservation site, (SPA or SAC), the Environmental Manager will liaise with an Ecologist.
- A record of all environmental incidents will be kept on file by the Environmental Manager and the Main Contractor. These records will be made available to the relevant authorities such as MCC and the EPA if required.

The Environmental 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 Main Contractor as appropriate.

5.2.4 Contacting the Emergency Services

5.2.4.1 Emergency Communication Procedure

In the event of requiring the assistance of the emergency services the following steps will be taken:

- Stay calm. It is important to take a deep breath and not get excited. Any situation that requires 999/112 is, by definition, an emergency. The dispatcher or call-taker knows that and will try to move things along quickly, but under control.
- Know the location of the emergency and the number you are calling from. This may be asked and answered a couple of times but do not get frustrated. Even though many emergencies call centres have enhanced capabilities meaning they are able to see your location on the computer screen they are still required to confirm the information. If for some reason you are disconnected, at least emergency crews will know where to go and how to call you back.
- Wait for the call-taker to ask questions, then answer clearly and calmly. If you are in danger of assault, the dispatcher or call-taker will still need you to answer quietly, mostly "yes" and "no" questions.
- If you reach a recording, listen to what it says. If the recording says your call cannot be completed, hang up and try again. If the recording says all call takers are busy, WAIT. When the next call-taker or dispatcher is available to take the call, it will transfer you.
- Let the call-taker guide the conversation. He or she is typing the information into a computer and may seem to be taking forever. There is a good chance, however, that emergency services are already being sent while you are still on the line.
- Follow all directions. In some cases, the call-taker will give you directions. Listen carefully, follow each step exactly, and ask for clarification if you do not understand.
- Keep your eyes open. You may be asked to describe victims, suspects, vehicles, or other parts of the scene.
- Do not hang up the call until directed to do so by the call taker.

All staff members will know the address and location of the site as it may be necessary to liaise with the emergency services on the ground in terms of locating the site. This may involve providing an escort from a designated meeting point that may be located more easily by the emergency services.

5.2.4.2 Contact Details

Table 5-2 Emergency Contacts

Hazard	Emergency Situation
Emergency Services – Ambulance, Fire, Gardaí	999/112
Doctor –Dr. Sean McGrath, Blackcastle, Navan	087 6866416
Hospital –Our Lady’s Hospital, Navan	046 9078500
ESB Emergency Services	1850 372 999
Bórd Gais Emergency	1850 20 50 50
Gardaí –Slane Garda Station	041 9824202
Health and Safety Coordinator - Health & Safety Services	TBC
Health and Safety Authority	1890 289 389
Project Supervisor Construction Stage (PSCS): TBC	TBC
Project Supervisor Design Process (PSDP):	TBC
Client – Circal	353 1 5789171

5.2.4.3 Procedure for Personnel Tracking

All operatives on site without any exception will have to undergo a site induction where they will be required to provide personal contact details which will include contact information for the next of kin.

In the event of a site operative becoming involved in an emergency situation where serious injury has occurred, and hospitalisation has taken place, it will be the responsibility of the Site Manager or next in command if unavailable to contact the next of kin to inform them of the situation that exists.

5.2.4.4 Induction Checklist

Table 5-3 provides a list of items highlighted in this ERP which must be included or obtained during the mandatory site induction of all personnel that will work on the site. This will be updated throughout the various stages of the project.

Table 5-3 Emergency Response Plan Items Applicable to the Site Induction Process

ERP Items to be included in Site Induction	Status
All personnel will be made aware of the evacuation procedure during site induction.	
Due to the location and layout of the site, it may be necessary to liaise with and assist the emergency services on the ground in terms of locating the site. This may involve providing an escort from a designated meeting point that may be located more easily by the emergency services. This should form part of the site induction to make new personnel and sub-contractors aware of any such arrangement or requirement if applicable.	
All operatives on site without any exception will have undergone a site induction where they will be required to provide personal contact details which will include contact information for the next of kin.	

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6.

MITIGATION PROPOSALS

The Mitigation Measures which will be implemented are presented in the NIS that accompanies this application to MCC, along with this section of the CEMP. The CEMP will be finalised subsequent to any permission granted by MCC and will be updated prior to construction to include, inter alia, any additional requirements pursuant to relevant planning conditions imposed.

By presenting the mitigation proposals in the below format, it is intended to provide an easy to audit list that can be reviewed and reported on during the future phases of the project.

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Table 6-1 Mitigation measures for the Pre-commencement and Construction phases

Mitigation Measure	Reference Location	Mitigation Measure	Audit Result	Action Required
Pre-Commencement Phase				
1	CEMP Section 1	All measures identified in this CEMP, which will be finalised subsequent to any permission granted and updated prior to construction will include all mitigation measures identified to be adhered to during the pre-commencement and construction phases of the Proposed Development.		
2	CEMP Section 4 AACHIA Section	Environmental Manager to monitor all site works and to ensure that methodologies and mitigation are followed throughout construction to avoid negatively impacting on the receiving environment. The Project Archaeologist will have overall responsibility for the organisation and execution of all related archaeological monitoring, in accordance with regulatory and project archaeology requirements, as set out in the Archaeological Impact Assessment Report.		
3	CEMP Section 2.4.5	The proposed security fencing is a deer fence constructed to a height of approximately 1.8m using high pressure treated timber posts and high tensile galvanised wire. Timber fence posts will typically have a minimum spacing of 5m. Additionally, the fence will include a minimum of a 200mm gap at ground level to facilitate continued uninterrupted mammal access throughout the site. Please refer to Drawing 250403 – 11 for details on the proposed fencing. A more secure palisade fence type will be used for short sections requiring additional security. Temporary palisade security fencing may also be erected around the temporary construction compound and decommissioned after the construction stage.		

Mitigation Measure	Reference Location	Mitigation Measure	Audit Result	Action Required
		Controlled access points in the form of site entrances will be kept locked outside of normal working hours. Appropriate signage will be provided at the site to alert pedestrians to the construction activities and related traffic at the site. The contractor will be required to undertake the following: ➤ Operate a site induction process for all site staff. ➤ Ensure all site staff shall have current 'Safe Pass' cards. ➤ Maintain site security at all times. ➤ Install access security in the form of gates for staff. ➤ Ensure restricted access is maintained to the works.		
Construction Phase				
Cement Based Products Control Measures				
4	CEMP Section 3.3 Section 6 of the NIS	The following mitigation measures are proposed to avoid release of cement leachate from the site: ➤ No batching of wet-cement products will occur on site. ➤ Ready-mixed supply of wet concrete products and where possible, emplacement of pre-cast elements, will take place. ➤ Where possible, pre-cast elements for concrete works will be used. ➤ When cast in place concrete is required, such as structural foundations at the MV power stations, all work will be carried out in the dry and effectively isolated from any flowing water (or		

Mitigation Measure	Reference Location	Mitigation Measure	Audit Result	Action Required
		water that may enter streams and rivers) for a period sufficient to ensure no leachate from concrete. ➤ Designated impermeable cement washout areas will be provided for washing of <u>concrete truck chutes only using the smallest volume of water possible</u>. All approved washing areas will be documented with training provided for site workers. Wash down and washout of concrete transporting vehicles will take place at an appropriate facility offsite or at the location where concrete was sourced ➤ No washing out of any plant used in concrete transport or concreting operations will be allowed on-site. ➤ No discharge of cement contaminated waters to the construction phase drainage system or directly to any artificial drain or watercourse will be allowed. ➤ Use weather forecasting to plan dry days for pouring concrete. ➤ Ensure pour site is free of standing water and plastic covers will be ready in case of sudden rainfall event. ➤ Ensure that the temporary construction compound is located more than 10m from any drainage ditch, river or stream.		
Fuel and Oil Control				
5	CEMP Section 3.4 Section 6 of the NIS	The following measures are proposed to avoid release of hydrocarbons at the site: ➤ All oils and solvents used during the construction phase will be stored within specially constructed, dedicated, bunded areas within the temporary site compound. ➤ Refuelling of construction vehicles and the addition of hydraulic oils to vehicles, will take place in a designated area in the		

Mitigation Measure	Reference Location	Mitigation Measure	Audit Result	Action Required
		temporary site compounds, away from drainage ditches or other features that may transmit pollutants to surface waters. ➤ Spill kits and hydrocarbon adsorbent packs will be stored in the refuelling area and operators will be fully trained in the use of this equipment. ➤ Fuels, lubricants and hydraulic fluids for equipment used on the site will be carefully handled to avoid spillage, properly secured against unauthorised access or vandalism, and provided with spill containment. ➤ Vehicles will never be left unattended during refuelling. Only dedicated, trained and competent personnel will carry out refuelling operations and plant refuelling procedures shall be detailed in the contractor's method statements. ➤ All site plant will be inspected at the beginning of each day prior to use. Defective plant shall not be used until the defect is satisfactorily fixed. All major repair and maintenance operations will take place off site.		
6	CEMP Section 5.2.3.1	➤ Stop the source of the spill and raise the alarm to alert people working in the vicinity of any potential dangers. ➤ If applicable, eliminate any sources of ignition in the immediate vicinity of the incident. ➤ Contain the spill using the spill control materials, track mats or other material as required. Do not spread or flush away the spill. ➤ If possible, cover or bund off any vulnerable areas where appropriate such as drains or watercourses. ➤ If possible, clean up as much as possible using the spill control materials. ➤ Contain any used spill control material and dispose of used materials appropriately using a fully licensed waste contractor with the appropriate permits so that further contamination is limited.		

Mitigation Measure	Reference Location	Mitigation Measure	Audit Result	Action Required
		> Notify the applicant immediately giving information on the location, type and extent of the spill so that they can take appropriate action and further investigate the incident to ensure it has been contained adequately. > External consultants will inspect the site and ensure the necessary measures are in place to contain and clean up the spill and prevent further spillage from occurring. > The applicant will notify the appropriate regulatory body such as MCC if deemed necessary.		
Prevention Pollution Control Measures				
7	CEMP Section 3.2.1 Section 6 of the NIS	The following measures will be put in place to prevent the transportation of silt laden water or pollutants from entering the wider environments. > Site, surface drainage and silt control measures will be established prior to commencing earthworks. > Silt fencing will be installed along the mapped EPA watercourses where they border or traverse the site. Silt fences will be embedded into the ground and will be left in place throughout construction until all exposed soil has revegetated. The contractor shall ensure that silt fencing is regularly inspected and maintained during the construction phase. > All diesel or petrol pumps required onsite will be operated within bunded units. > A site compound will be established within the Proposed Development site. The exact location of the site compound will be established by the contractor and will be located a minimum of 50m from any watercourses or waterbodies. The compound will be used for storage of material, machinery, fuel, and workers		

Mitigation Measure	Reference Location	Mitigation Measure	Audit Result	Action Required
		facilities. All construction materials and substances will be stored in the site compound. ➤ During earthwork activities, the following mitigations will be adhered to: ○ Material that is not re-used will be transported off site to a designated waste facility. ○ Suitable stone material will be imported to the site to be used as backfill. ○ Excavated spoil (if any) will be stockpiled and contained entirely within the confines of the site boundaries, a minimum of 50m away from any watercourse or drain. ○ Where possible, all excavated material will be removed to suitable stockpile areas. The volume of material to be managed is minor due to the nature and extent of the works. ○ Stockpiling will be limited to areas where the ground is stable and well drained. Stockpiles will be located where the risk of soil erosion and water quality deterioration is minimal and will also have an adequate buffer (>10m) from nearby drains. ○ Any water discharge from the stockpiles will be monitored. Runoff water will be prevented from flowing into a nearby excavation area or directly into nearby watercourses. Stockpiles will be covered with a sheet of plastic to prevent runoff during precipitation events. Furthermore, silt fences will be installed, if required around stockpiles of excavated materials. ○ The area of bare soil will be kept to a minimum by limiting the number of excavated areas present within the site at any one time and also maintaining where		

Mitigation Measure	Reference Location	Mitigation Measure	Audit Result	Action Required
		possible existing vegetation. Excavations will be left open for minimal periods. ○ Exposed surfaces will be re-vegetated as soon as possible following construction. ○ The minimum number of soil/subsoils and bedrock material will be removed from site. Soil may be reused for landscaping elsewhere on the site. Soils will be reinstated to their original locations where possible. ○ Where possible, earthworks will not be carried out during periods of heavy rainfall. ○ Entry by plant equipment, machinery, vehicles and construction personnel into watercourses or wet drainage ditches shall not be permitted. All routes used for construction traffic shall be protected against migration of soil or wastewater into watercourses; ○ If very wet ground must be accessed during works, bog mats/ aluminium panel tracks will be used to enable access to these areas by machinery. ○ Working practices will be controlled by, for example, minimising land take, avoiding repetitive handling of soils, minimising vehicle movements off-road and limiting the size of stockpiles to reduce the compaction and erosion of material. ○ As construction advances there may be a requirement to collect and treat surface water within the Proposed Development site. This will be completed using perimeter swales at low points around the construction areas, and if required water will be pumped from the swales into sediment bags prior to overland discharge allowing water to percolate naturally to ground;		

Mitigation Measure	Reference Location	Mitigation Measure	Audit Result	Action Required
		- The contractor will carry out visual examinations of local watercourses from the works during the construction phase to ensure that sediment is not above baseline conditions. In the event of water quality concerns, the Environmental Manager and Ecological Clerk of Works (ECoW) will be consulted. - If ground water is encountered during excavations, waters will be pumped from excavation and discharged through a pipe with a silt bag attached on to an area of overland vegetation within the site boundary. - Discharge to ground will be via a silt bag which will filter any remaining sediment from the pumped water. - Daily monitoring and inspections of site drainage during construction will be completed by the appointed environmental officer. - A buffer zone of 10m or more will be established to protect any surface water channels, including drainage ditches, from disturbance from construction work. - Working near watercourses during intense rainfall events (>5 mm /hour) will be avoided and work will cease entirely near drains when it is evident that there is a threat of pollution occurring. ➤ Good construction practices such as wheel washers and dust suppression on site roads, and regular plant maintenance will ensure minimal risk. The Construction Industry Research and Information Association (CIRIA) provide guidance on the control and management of water pollution from construction sites ('Control of Water Pollution from Construction Sites,		

Mitigation Measure	Reference Location	Mitigation Measure	Audit Result	Action Required
		guidance for consultants and contractors', CIRIA, 2001) ⁹ , which provides information on these issues. This will ensure that surface water arising during the course of construction activities will contain minimum sediment.		
Dust Control/Air Quality				
8	CEMP Section 3.5	➤ Any site entrances with the potential to give rise to dust will be regularly watered, if required, during dry and/or windy conditions. ➤ The designated public roads outside the site and along the main transport routes to the site will be regularly inspected by Site Management for cleanliness and cleaned as necessary. ➤ Material handling systems and material storage areas, if required will be designed and laid out to minimise exposure to wind. ➤ Water misting will be utilised on-site as required to mitigate dust in dry weather conditions. ➤ The transport of soils, aggregates, or other material, which has significant potential to generate dust, will be undertaken in tarpaulin-covered vehicles where necessary. ➤ Daily inspection of construction sites to examine dust measures and their effectiveness. ➤ All vehicles leaving the construction areas of the site will rinse their wheels at a designated wheel wash area prior to entering the local road network. ➤ All construction related traffic will have speed restrictions on un-surfaced areas within the site.		
Noise Control				

⁹ CIRIA, (2001) *Control of Water Pollution from Construction Sites, guidance for consultants and contractors*

Mitigation Measure	Reference Location	Mitigation Measure	Audit Result	Action Required
9	CEMP Section 3.6	➤ All plant will be maintained in satisfactory condition, and in accordance with manufacturer requirements. Maintenance and lubrication of bearings and other moving parts will be undertaken as specified by the manufacturer. ➤ Exhaust and silencer systems on plant will be maintained in a satisfactory condition and operating correctly at all times. Defective silencers will be immediately replaced. ➤ Plant and machinery with low inherent potential for generation of noise and/or vibration will be selected. ➤ Where practical, separation distances to receptors will be maximised through appropriate onsite positioning of plant. Plant will also be sited so as to maximise screening provided by intervening topographical features, structures and barriers. ➤ The requirement to house continuously operating plant in sound-attenuating enclosures or casings will be assessed onsite. ➤ Equipment not in active use will be shut down. ➤ Use of horns will be prohibited onsite. Communication between operators (e.g. between excavator and dumper operators) will be by visual methods only. ➤ Onsite tracks and roadways used regularly by heavy goods vehicles (HGVs) will be maintained in reasonable condition, and free of potholes and defects which may give rise to rattling of empty HGV bodies. ➤ Training will be provided by the Site Management to drivers to ensure smooth machinery operation/driving, and to minimise unnecessary noise generation. HGV drivers will be instructed to extend care and courtesy to other road users, and to avoid unnecessary revving of engines. ➤ Offsite queuing of HGVs will be prohibited. ➤ All construction plant used onsite will be required to comply with maximum sound power levels set out in Directive 2000/14/EC of the European Parliament and of the Council of 8 May 2000 on the approximation of the laws		

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Mitigation Measure	Reference Location	Mitigation Measure	Audit Result	Action Required
		of the Member States relating to the noise emission in the environment by equipment for use outdoors, implemented in Ireland by the European Communities (Noise Emission by Equipment For Use Outdoors) Regulations, 2001 (S.I. 632 of 2001), as amended by the European Communities (Noise Emission by Equipment for Use Outdoors) (Amendment) Regulations, 2006 (S.I. 241 of 2006).		
Vibration Control				
10	CEMP Section 3.7	➤ The hours of working will be planned, and account will be taken of the effects of vibration upon persons in areas surrounding site operations and upon persons working on site, taking into account the nature of land use in the areas concerned and the duration of work. ➤ Where reasonably practicable, low vibration working methods will be employed. Consideration should be given to use of the most suitable plant, reasonable hours of working for operations which might give rise to perceptible vibrations, and economy and speed of operations. ➤ Vibration will be controlled at source and the spread of vibration should be limited. ➤ Where reasonably practicable, plant and/or methods of work causing significant levels of vibration at sensitive premises will be replaced by other less intrusive plant and/or methods of working. ➤ Vibration from stationary plant (e.g. generators, pumps, compressors) can, in some instances, prove disturbing when located close to sensitive premises or when operating on connected structures. In these instances, equipment will be relocated or isolated using resilient mountings. ➤ Where processes could potentially give rise to significant levels of vibration, on-site vibration levels will be monitored regularly by a suitably qualified person appointed specifically for the purpose, particularly if changes in		

Mitigation Measure	Reference Location	Mitigation Measure	Audit Result	Action Required
		machinery or project designs are introduced. A method of vibration measurement will be agreed prior to commencement of site works. ➤ On those parts of a site where high levels of vibration are likely to be a hazard to persons working on the site, prominent warning notices will be displayed. ➤ Offsite fabrication - In method statement/risk assessment the contractor will highlight any activity that may cause significant vibration levels and include measures in helping to mitigate these emission levels. ➤ Equipment is to be task specific. ➤ Best practice vibration control measures will be employed by the contractor. ➤ A designated member of staff will be appointed as the point of contact for any queries or complaints from nearby local residents.		
Traffic Management				
11	CEMP Section 3.9	➤ A site-specific Construction Traffic Management Plan will be agreed upon with the MCC prior to works starting. ➤ A suitably qualified Traffic Management Coordinator will be appointed for the duration of the construction works. This person is to serve as the primary point of contact for all traffic management-related matters. ➤ Local residents are to be informed of any upcoming traffic-related matters, such as partial lane closures (e.g. for Site Entrance tie-in to public road), through letter drops and posters displayed in public areas. This communication is to include the contact details of the Contract Project Coordinator, who will be the primary point of contact for any inquiries from the public or local authorities during regular working hours. An emergency contact number is also to be provided for after-hours issues. ➤ A pre-construction survey of the roads related to the development is recommended to assess their condition before construction begins. Following the completion of the Prospective Development, a post-construction survey		

Mitigation Measure	Reference Location	Mitigation Measure	Audit Result	Action Required
		could also be carried out. The type, extent and timing of these surveys is to be agreed with MCC's Roads Division. ➤ All traffic movements will be planned to occur between 08:00 and 18:00 on weekdays and 08:00 to 16:00 on Saturdays. Public holidays are to be observed, unless otherwise arranged with MCC. Additionally, a start-up and close-down period of up to one hour before and after core working hours is to be implemented; this will not include the operation of equipment or machinery that could cause disturbances. ➤ Parking of site vehicles will be managed and will not be permitted on public road, unless proposed within a designated area that is subject to traffic management measures and agreed with MCC. ➤ A travel plan will be prepared and implemented for construction staff. ➤ Construction and delivery vehicles will be instructed to use only the approved and agreed means of access; and movement of construction vehicles will be restricted to these designated routes. ➤ Warning signs/Advanced warning signs will be installed at appropriate locations in advance of the construction site access locations. ➤ A road sweeper will be employed, if necessary, to clean the public roads of any residual debris that may be deposited on the public roads leading away from the construction works. ➤ On site wheel washing will be undertaken for construction vehicles to remove any debris prior to leaving the site, ➤ Works that require the use of multiple vehicles, such as concrete pours, will be planned to ensure there will be no queuing on the public roadways surrounding the site. ➤ All vehicles will be suitably serviced and maintained to avoid any leaks or spillage of oil, petrol or diesel. All scheduled maintenance will not be carried out on the public highway. ➤ Co-ordinated delivery of bulk materials (hardcore, concrete, solar panels) to minimise peak traffic generation.		

Mitigation Measure	Reference Location	Mitigation Measure	Audit Result	Action Required
		➤ Scheduling where possible Heavy Goods Vehicle (HGV) delivery to avoid peak morning/evening traffic on the receiving road, and also to not coincide with Large Goods Vehicle (LGV) arrival to site.		
Cultural Heritage Mitigation Measures				
12	CEMP Section 3.8	The following mitigation measures, as set out in the Archaeological, Architectural and Cultural Heritage Impact Assessment (AACHIA) report prepared by Rubicon Archaeology, will be adhered to during the construction of the Proposed Development. ➤ As part of an advance works programme prior to construction, a combination of advance geophysical survey and advance archaeological test trenching should be carried out by a suitably qualified archaeologist under licence from the National Monuments Service, Department of Housing, Local Government and Heritage (DOHLGH). The trench layout should be informed by the preceding geophysical survey to target the areas of archaeological potential identified (see Section 6.3 for note on time of the programme). ➤ Should archaeological features or deposits be discovered during archaeological testing, the extent of such features/deposits will be determined, a GPS location of the site will be established and works at this location will cease. A strategy will be proposed to the Local Authority and National Monuments Service to preserve the site <i>in situ</i>, where possible. Where preservation <i>in situ</i> cannot be achieved, either in whole or in part, then a programme of full archaeological excavation will be proposed, to ensure the preservation by record of the portion of the site that will be directly impacted upon. This work should be carried out by a		

Mitigation Measure	Reference Location	Mitigation Measure	Audit Result	Action Required
		suitably qualified archaeologist under license and in accordance with the provisions of the National Monuments Acts 1930-2014. The results of any archaeological test testing, surveys and/or excavation will be submitted in a report to the Local Authority, the Heritage and Planning Division, Department of Housing, Local Government and Heritage and the National Museum of Ireland. ➤ On review of the preceding geophysical survey and test trenching, appropriate buffer zones inside which no excavation should take place will be incorporated into the proposed layout of the solar farm to protect newly discovered archaeological deposits and also applied to the identified extents of all RMP/SMRs located within or immediately adjacent to the application boundary. Where no extents could be identified, the buffer zone respects the present SMR Zone. All buffer zones shall be maintained during construction, operation and decommissioning of the development. ➤ Subject to the agreement of the Local Authority and the National Monument Service, only non-invasive development, including non-invasive ground solar panel supports and ground mounted cable boxes. will be undertaken within these buffer zones. No other sub-surface works should be undertaken within these zones. Protective matting should be put in place during installation to prevent machine rutting. ○ As part of this, a construction methodology, including engineering drawings, for the non-invasive development which does not affect any underlying archaeological deposits, should be agreed between the Local Authority, the National Monuments Service and the developer prior to construction. This construction methodology		

Mitigation Measure	Reference Location	Mitigation Measure	Audit Result	Action Required
		should detail the specifications and installation methodology for the of the non-invasive development. ➤ A suitably qualified archaeological consultant under license to the National Monuments Service Section of the Department of Housing, Local Government and Heritage, will monitor: ○ Any sub-surface groundworks undertaken in proximity to RMPs. These areas shall include entirely (but not be limited to) the statutory zone of notification for the monument and shall be inspected and established by the consultant archaeologist prior to the commencement of works in the vicinity of the recorded monument. ○ All groundworks including but not limited to those related to access tracks, cables, surface water drainage and water services and temporary compounds ○ Should any archaeological material be encountered, works will cease, and the Local Authority and National Monuments Service shall be notified. A strategy will be proposed to the Local Authority and National Monuments Service to suitably record any archaeological material identified, and preserve any archaeological material in situ, where possible. Where preservation in situ cannot be achieved, either in whole or in part, then a programme of archaeological excavation will be proposed, to ensure the preservation by record of the area of the development that will be directly impacted upon. Further work will then only be carried out following consultations with the Local Authority and the National Monuments Service. ➤ Direct drilling should not take place in the vicinity of recorded monuments, and all excavations in these areas should comprise		

Mitigation Measure	Reference Location	Mitigation Measure	Audit Result	Action Required
		open cut trenching. These areas shall include entirely (but not be limited to) the statutory zone of notification for the monument, and shall be inspected and established by the consultant archaeologist prior to the commencement of works in the vicinity of the recorded monument. ➤ Appropriate screening should be planted along the border to reduce the visual effect of the proposed development site. ➤ Where a section of an upstanding townland boundary must be removed a representative cross-section of the feature will be investigated and recorded by a suitably qualified archaeologist prior to removal. ➤ The resulting archaeological report will be submitted to the Local Authority and to the National Monuments Service Section of the DOHLGH. ➤ These recommendations are subject to the agreement of the National Monuments Service, the National Museum of Ireland, the Meath County Council Heritage Officer, MCC and/or An Bord Pleanála		
Invasive Species Management				
13	CEMP Section 3.10	➤ A risk assessment and method statement must be provided by the Contractor prior to commencing works. ➤ Fences will be erected around areas of infestation, as confirmed by test pits, and warning signs shall be erected. ➤ A designated wash-down area will be created, where power-washed material from machinery can be contained, collected and disposed of with other contaminated material. This area will contain a washable membrane or hard surface. ➤ Stockpile areas will be chosen to minimise movement of contaminated soil.		

Mitigation Measure	Reference Location	Mitigation Measure	Audit Result	Action Required
		➤ Stockpiles will be marked and isolated. ➤ Contaminated areas which will not be excavated will be protected by a root barrier membrane if they are likely to be disturbed by machinery. Root barrier membranes will be protected by a layer of sand above and below and topped with a layer of hardcore. ➤ The use of vehicles with caterpillar tracks within contaminated areas will be avoided to minimise the risk of spreading contaminated material. ➤ Any material that is imported onto any site will be verified by a suitably qualified ecologist to be free from any invasive species listed on the 'Third Schedule' of Regulations 49 & 50 of the European Communities (Birds and Natural Habitats) Regulations 2011 (S.I 477 of 2011). This will be carried out by searching for rhizomes and plant material. ➤ Any soils or subsoils contaminated with invasive species will be sent for disposal to an authorized waste facility. ➤ A suitably qualified ecologist will be on site to monitor and oversee the implementation of invasive species remedial works		
14	CEMP Section 3.10.1	Plant and equipment which is operated within an area for the management of materials in contaminated areas will be decontaminated prior to relocating to a different works area. The decontamination procedures will take account of the following: ➤ Personnel may only clean down if they are familiar with the plant and rhizome material and can readily identify it. ➤ Decontamination will only occur within designated wash-down areas. ➤ Vehicles will be cleaned using stiff-haired brush and pressure washers, paying special attention to any areas that might retain rhizomes e.g., wheel treads and arches. ➤ All run-offs will be isolated and treated as contaminated material. This will be disposed of in already contaminated areas.		

Mitigation Measure	Reference Location	Mitigation Measure	Audit Result	Action Required
Waste Management				
15	CEMP Section 3.11 NIS Section 6.3	➤ All waste will be collected in skips and the site will be kept tidy and free of debris at all times. ➤ Waste oils and hydraulic fluids will be collected in leak proof containers and removed from the site for disposal or recycling. It is also essential that all empty oil containers and other hazardous wastes should be disposed of in accordance with the requirements of the Waste Management Act, 1996. ➤ All construction waste materials will be stored within the confines of the site, prior to removal from the site to a licensed waste facility. ➤ A self-contained port-a-loo with an integrated waste holding tank will be used at the site compounds, maintained by the providing contractor, and removed from site upon completion of construction works. ➤ No wastewater will be discharged on-site during the construction phase.		

7.

MONITORING PROPOSALS

The monitoring measures which will be implemented are presented in this section of the CEMP. The CEMP will be finalised subsequent to any permission granted by MCC and will be updated prior to construction to include, inter alia, any additional requirements pursuant to relevant planning conditions imposed.

By presenting the monitoring proposals in the below format, it is intended to provide an easy to audit list that can be reviewed and reported on during the future phases of the project.

Table 7-1 Monitoring Measures for the Construction Phase

Monitoring Measure	Reference Location	Monitoring Measure	Audit Result	Action Required
Construction Management				
Archaeology				
2	CEMP Section 4.1.3	The applicant will engage the services of a suitably qualified archaeologist to monitor under licence from the NMS all topsoil removal/ ground disturbance associated with the development, including ground works associated with the construction of the compound, substation, access road and cable routes and the removal of field boundaries.		
Surface Water				
3	CEMP Section 3.1.4	Any watercourses or drains adjacent to works area will be visually inspected on a daily basis by a designated member of staff to ensure that there is no silt/sediment runoff from works area. A record of this monitoring will be maintained on site. Works will be limited or suspended if there is evidence of silt/sediment being present in the drains.		

8.

PROGRAMME OF WORKS

8.1

Construction Programme

The construction phase will take approximately 12 months to complete. This is typically broken down into a number of stages. An example of the programme of works is outlined in figure 8-1 below. The construction programme will be finalised on appointment of a contractor before commencement of the development.

Figure 8-1 Phasing Scope of Works

Construction Stages	Period works begin (Month no.)	Period works end (Month no.)	Duration (Month no.)
Track Construction	1	2	1
Construction Compound	1	2	1
Temporary Construction Setup	1	2	1
Fencing	2	3	1
Array Assembly	3	6	3
Solar Panel Assembly	6	9	3
DC Cabling & junction boxes	7	9	2
AC internal low voltage cabling	8	10	2
MV Power Station	8	11	3
Inverters	8	10	2
Misc	9	12	3

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9.

COMPLIANCE AND REVIEW

9.1

Site Inspections and Environmental Audits

Routine inspections of activities will be carried out on a daily and weekly basis by the Site Environmental Manager/Construction Manager as appointed by the applicant to ensure all controls to prevent environmental impact, relevant to the construction activities taking place at the time, are in place.

Environmental inspections will ensure that the works are undertaken in compliance with this CEMP. Environmental site inspections will be carried out by suitably trained staff.

9.2

Environmental Compliance

The following definitions shall apply in relation to the classification of Environmental Occurrences during the infilling works:

Environmental Near Miss

An occurrence which if not controlled or due to its nature could lead to an Environmental Incident.

Environmental Incident

Any occurrence which has potential, due to its scale and nature, to migrate from source and have an environmental impact beyond the site boundary.

Environmental Non-Compliance

Non-fulfilment of a requirement and includes any deviations from established procedures, programs and other arrangements related to the CEMP.

9.3

Corrective Action Procedure

A corrective action is implemented to rectify an environmental issue on-site. Corrective actions will be implemented by the Construction Manager, as advised by the Site Environmental manager. Corrective actions may be required as a result of the following.

- > Environmental Audits.
- > Environmental Inspections and Reviews.
- > Environmental Incidents; and,
- > Environmental Complaints.

A Corrective Action Notice will be used to communicate the details of the action required to the main contractor. A Corrective Action Notice is a form that describes the cause and effect of an environmental problem on site and the recommended corrective action that is required. The Corrective Action Notice, when completed, will include details of close out and follow up actions.

If an environmental problem occurs on site that requires immediate attention direct communications between the Construction Manager and the Site Environmental manager will be conducted. This in turn will be passed down to the site staff involved. A Corrective Action Notice will be completed at a later date.

BIBLIOGRAPHY

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The Department of the Environment (2021) Best Practice Guidelines for the preparation of resource & waste management plans for construction & demolition projects'

(NRA 2010) The Management of Noxious Weeds and Non-native Invasive Plant Species on National Roads

Environment Agency (2013) The Knotweed Code of Practice: Managing Japanese Knotweed on Development Sites

British Standard BS 5228: (2009+A1 2014): Code of Practice for Noise and Vibration Control on Construction and Open Sites – Part 2: Vibration

British Standard BS 7385: (1993) Evaluation and Measurement for Vibration in Buildings Part 2: Guide to Damage Levels from Ground Borne Vibration

CIRIA, (2001) Control of Water Pollution from Construction Sites, guidance for consultants and contractors

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APPENDIX 3

PLANS AND PROJECTS

1. ASSESSMENT OF CUMULATIVE EFFECTS

1.1 Plans

The following plans been reviewed and taken into consideration as part of this assessment:

- Meath County Development Plan 2021-2027
- 4th National Biodiversity Action Plan 2023-2027
- County Meath Biodiversity Action Plan 2015-2020
- Regional Spatial and Economic Strategy, Eastern and Midland Regional Assembly 2019-2031

The review focused on policies and objectives that relate to Natura 2000 sites and natural heritage. Policies and objectives relating to sustainable land use were also reviewed

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Table 8.1 Review of plans

Plans	Key Policies/Issues/Objectives Directly Related to European Sites, Biodiversity and Sustainable Development in the Zone of Influence	Assessment of development compliance with policy
Meath County Development Plan 2021-2027	Policies and Objectives: Biodiversity HER POL 27 ➤ To protect, conserve and enhance the County's biodiversity where appropriate HER POL 28 ➤ To integrate in the development management process the protection and enhancement of biodiversity and landscape features wherever possible, by minimising adverse impacts on existing habitats (whether designated or not) and by including mitigation and/or compensation measures, as appropriate. HER POL 31 ➤ To ensure that the ecological impact of all development proposals on habitats and species are appropriately assessed by suitably qualified professional(s) in accordance with best practice guidelines – e.g. the preparation of an Ecological Impact Assessment (EcIA), Screening Statement for Appropriate Assessment, Environmental Impact Assessment, Natura Impact Statement (NIS), species surveys etc. (as appropriate). HER OBJ 30 ➤ To implement, in partnership with the Department of Culture, Heritage and the Gaeltacht, relevant	The Development plan was comprehensively reviewed, with particular reference to Policies and Objectives that relate to biodiversity, protected species and designated sites. There will be no significant negative effects on biodiversity as a result of the Proposed Development. The Proposed Development has been designed to avoid, in so far as possible, the most sensitive habitats within the site. A range of mitigation measures are in place to ensure that there will be no significant negative effects on any habitats, species, protected sites or water quality and a Biodiversity Enhancement Management Plan has been prepared, providing for the bolstering and enhancement of approximately 16104.6 m of linear habitat within the Proposed Development Site. The Proposed Development is not considered to be in contravention of the policies and objectives within the development plan. No potential for negative cumulative impacts when considered in combination with the current proposal were identified.

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	stakeholders and the community, the objectives and actions of Ireland's National Biodiversity Action Plan 2017 – 2021 which relate to the remit and functions of Meath County Council. HER OBJ 31 ➤ To implement, in partnership with the Department of Culture, Heritage and the Gaeltacht, relevant stakeholders and the community, the objectives and actions of the County Meath Biodiversity Plan 2015-2020 and any revisions thereof HER OBJ 32 ➤ To actively support the implementation of the All Ireland Pollinator Plan 2021-2025 and any revisions thereof. Policies and Objectives : Sites Designated for Nature Conservation HER POL 32 ➤ To permit development on or adjacent to designated Special Areas of Conservation, Special Protection Areas, Natural Heritage Areas, Statutory Nature Reserves or those proposed to be designated over the period of the Plan, only where the development has been subject to the outcome of the Appropriate Assessment process and has been carried out to the satisfaction of the Planning Authority, in consultation with National Parks and Wildlife. HER POL 33	
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	➤ To have regard to the views and guidance of the National Parks and Wildlife Service in respect of Proposed Development where there is a possibility that such development may have an impact on a designated European or National site or a site proposed for such designation. HER POL 34 To undertake appropriate surveys and collect data to provide an evidence-base to assist the Council in meeting its obligations under Article 6 of the Habitats Directives (92/43/EEC) as transposed into Irish Law, subject to available resources. HER OBJ 33 ➤ To ensure an Appropriate Assessment in accordance with Article 6(3) and Article 6(4) of the Habitats Directives (92/43/EEC) and in accordance with the Department of Environment, Heritage and Local Government Appropriate Assessment of Plans and Projects in Ireland – Guidance for Planning Authorities, 2009 and relevant EPA and European Commission guidance documents, is Meath County Development Plan 2021-2027 Chapter 8 carried out in respect of any plan or project not directly connected with or necessary for the management of the site but likely to have a significant effect on a Natura 2000 site(s), either individually or in-combination with other plans or projects, in view of the site's conservation objectives. HER OBJ 34	
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	➤ To protect and conserve the conservation value of candidate Special Areas of Conservation, Special Protection Areas, Natural Heritage Areas and proposed Natural Heritage Areas as identified by the Minister for the Department of Culture, Heritage and the Gaeltacht and any other sites that may be proposed for designation during the lifetime of this Plan in accordance with the provisions of the Habitats and Birds Directives and to permit development in or affecting same only in accordance with the provisions of those Directives as transposed into Irish Law. Policies and Objectives : Non-Designated Sites HER POL 35 ➤ To ensure, where appropriate, the protection and conservation of areas, sites, species and ecological/networks of biodiversity value outside designated sites and to require an appropriate level of ecological assessment by suitably qualified professional(s) to accompany development proposals likely to impact on such areas or species. Policies and Objectives: Protected Species HER POL 36 ➤ To consult with the National Parks and Wildlife Service and take account of their views and any licensing requirements, when undertaking, approving or authorising development which is likely to affect plant, animal or bird species protected by law. HER OBJ 35	
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	➤ To ensure that development does not have a significant adverse impact, incapable of satisfactory avoidance or mitigation, on plant, animal or bird species protected by law. Policies and Objectives: Peatlands HER POL 45 ➤ To ensure that peatland areas which are designated (or proposed for designation) as NHAs, SACs or SPAs are conserved for their ecological, climate regulation, archaeological, cultural and educational significance. HER OBJ 39 ➤ To work in partnership with relevant stakeholders on a suitable peatland site(s) to demonstrate best practice in sustainable peatland conservation, management and restoration techniques and to promote their heritage and educational value subject to Ecological Impact Assessment and Appropriate Assessment Screening, as appropriate, having regard to local and residential amenities.	
Ireland's 4th National Biodiversity Action Plan 2023-2030	➤ Objective 1: Adopt a Whole-of Government, Whole of Society Approach to Biodiversity. Proposed actions include capacity and resource reviews across Government; determining responsibilities for the expanding biodiversity agenda providing support for communities, citizen scientists and business; and mechanisms for the governance and review of this National Biodiversity Action Plan.	The plans were comprehensively reviewed, with particular reference to Policies and Objectives that relate to biodiversity, protected species and designated sites. There will be no significant negative effects on biodiversity as a result of the Proposed Development. The Proposed Development has been designed to avoid, in so far as possible, the most sensitive habitats within the site. A range

	➤ Objective 2: Meet Urgent Conservation and Restoration Needs. Supporting actions will build on existing conservation measures. Efforts to tackle Invasive Alien Species will be elevated. The protected area network will be expanded to include the Marine Protected Areas. The ambition of the EU Biodiversity Strategy will be considered as part of an evolving work programme across Government. ➤ Objective 3: Secure Nature's Contribution to People. Actions highlight the relationship between nature and people in Ireland. These include recognising the tangible and intangible values of biodiversity, promoting nature's importance to our culture and heritage and recognising how biodiversity supports our society and our economy. ➤ Objective 4: Enhance the Evidence Base for Action on Biodiversity. This objective focuses on biodiversity research needs, as well as the development and strengthening of long-term monitoring programmes that will underpin and strengthen future decision-making. Action will also focus on collaboration to advance ecosystem accounting that will contribute towards natural capital accounts. ➤ Objective 5: Strengthen Ireland's Contribution to International Biodiversity Initiatives.. Collaboration with other countries and across the island of Ireland will play a key role in the realisation of this Objective. Ireland will strengthen its contribution to international biodiversity initiatives and international governance processes, such as the United Nations Convention on Biological Diversity.	of mitigation measures are in place to ensure that there will be no significant negative effects on any habitats, species, protected sites or water quality and a Biodiversity Enhancement and Management Plan has been prepared, providing for the bolstering and enhancement of approximately 16104.6 m of linear habitat within the Proposed Development Site. The Proposed Development is not considered to be in contravention of the policies and objectives within the plan. No potential for negative cumulative impacts when considered in combination with the current proposal were identified.
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County Meath Biodiversity Action Plan 2015-2020	➤ Objective 1: To raise awareness of biodiversity in Meath, its value and the issues facing it ➤ Objective 2: To better understand the biodiversity of Meath ➤ Objective 3: To conserve and enhance habitats and species in Meath, taking account of national and local priorities ➤ Objective 4: To foster active participation to help biodiversity in Meath, encouraging a partnership approach to help our species and habitats • The specific actions in relation to the above listed biodiversity objectives set out in Section 8 of the plan were reviewed and taken into consideration in this assessment.	
Regional Spatial and Economic Strategy, Eastern and Midland Regional Assembly 2019-2021	Biodiversity and Natural Heritage Regional Policy Objective (RPO) 7.16: ➤ Support the implementation of the Habitats Directives in achieving an improvement in the conservation status of protected species and habitats in the Region and to ensure alignment between the core objectives of the EU Birds and Habitats Directives and local authority development plans ➤ RPO 7.17: Facilitate cross boundary co-ordination between local authorities and the relevant agencies in the Region to provide clear governance arrangements and coordination mechanisms to support the development of ecological networks and enhanced	The plan was comprehensively reviewed, with particular reference to Policies and Objectives that relate to biodiversity, protected species and designated sites. There will be no significant negative effects on biodiversity as a result of the Proposed Development. The Proposed Development has been designed to avoid, in so far as possible, the most sensitive habitats within the site. A range of mitigation measures are in place to ensure that there will be no significant negative effects on any habitats, species, protected sites or water quality and a Biodiversity Enhancement Management Plan has been prepared, providing for the bolstering and enhancement of approximately 16104.6 m of linear habitat within the Proposed Development Site.

	connectivity between protected sites whilst also addressing the need for management of alien invasive species and the conservation of native species. Water Quality ➤ RPO 7.10: Support the implementation of the Water Framework Directive in achieving and maintaining at least good environmental status for all water bodies in the Region and to ensure alignment between the core objectives of the Water Framework Directive and other relevant Directives, River Basin Management plans and local authority land use plans. ➤ RPO 7.11: For water bodies with 'high ecological status' objectives in the Region, local authorities shall incorporate measures for both their continued protection and to restore those water bodies that have fallen below high ecological status and areas 'At Risk' into the development of local planning policy and decision making any measures for the continued protection of areas with high ecological status in the Region and for mitigation of threats to waterbodies identified as 'At Risk' as part of a catchment based approach in consultation with the relevant agencies. This shall include recognition of the need to deliver efficient wastewater facilities with sufficient capacity and thus contribute to improved water quality in the Region.	The Proposed Development is not considered to be in contravention of the policies and objectives within the plan. No potential for negative cumulative impacts when considered in combination with the current proposal were identified.
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Other Projects

Assessment material for this in-combination impact assessment was compiled on the relevant developments within the vicinity of the Proposed Development and was verified on the 02/09/2025. The material was gathered through a search of relevant online Planning Registers which included Meath County Council and An Coimisiún Pleanála, reviews of relevant documents, planning application details and planning drawings, and served to identify past and future projects, their activities, and their environmental impacts. All relevant projects were considered in relation to the potential for in-combination effects. All relevant data was reviewed (e.g., individual EISs/EIARs, layouts, drawings etc.) for all relevant projects where available. The projects considered include those listed below. These consisted mainly of small-scale domestic and agricultural developments and upgrades, with some renewable energy projects within the past five years.

- DART + Coastal North Railway Order 2024 - Northern Line between Dublin City Centre and Drogheda including the Howth Branch (ACP Case reference: NA29N.320164).
- A ten year development comprising of the demolition of existing structures on site and the construction of the first phase of a new sustainably powered enterprise campus and all associated site works. This application includes an EIAR and NIS. (ACP Case reference: PL15.323134).
- Construction of the Boyne Greenway, pedestrian and cycleway linking Drogheda Town in Co. Louth to Mornington Village in Co. Meath (ACP Case reference: JP17.307652).
- Upgrade of Gorman to Platin 110 kV overhead line (OHL) (19.76 km long and comprising 109 supporting structures) along with all associated site works. NIS lodged with application (ACP Case reference: PL17.317568).
- A proposed Road Development comprising of the N2 Slane By-Pass and Public Realm Enhancement Scheme (ACP Case reference: HA17.318573).
- Planning permission for a period of 10 years to construct and complete a solar PV development. (ABP Case ID: 309401).
- Construction of a rockfill and earthen reinforcement buttress to sections of the extant embankment wall of the Tailings Storage Facility. An Environmental Report and a Natura Impact Statement (NIS) were received with this application (ABP Case ID: 315173).
- Permission to install a 24m multi-user lattice type telecommunications support structure, carrying antenna and dishes enclosed within a 2.4 metre high pallisade fenced compound together with associated ground equipment cabinets and associated site works, including a new access track on lands (ABP Case ID: 318234).
- Permission for the conversion of an existing shed to be converted into a dining area and the construction of a storey and a half extension to the side and rear of the existing dwelling, with a proposed secondary treatment system and soil polishing filter, and all associated site works and landscaping (pl ref: 23700).
- Permission for a change of house type from the two-storey dwelling house previously approved under planning permission reference 23/60300 to a part two-storey, part single-storey dwelling house at Wilkinstown, Navan, County Meath. (pl ref: 2461135).
- Permission for the construction of a single storey extension to the rear & side of existing dwelling, also the addition of a new porch to the front of existing dwelling together with a proposed Tertiary Treatment System and Infiltration/Treatment area and all associated site works and landscaping. Significant further information/revised plans submitted on this application (pl ref: 24286).
- Permission to form a new public car park (40 No. spaces) along with a public footpath, associated public lighting & landscaping. Permission is also sought to form new entrance from the public road and an entrance only from adjoining filling station site to the proposed car park together with all associated site works. The proposed facility is to provide parking and access to the new Boyne Valley Greenway under construction to the rear of the site (pl ref: 23370).
- Permission for renovation works to existing dwelling, demolition of existing extension to rear, a single storey extension to side, upgrade and relocation of existing entrance, waste water treatment system and all associated site works (pl ref: 2560037).

- Permission for the construction of a two storey dwelling utilising an existing entrance, detached domestic garage, agricultural shed, a domestic wastewater disposal system along with all associated site works. Significant further information/revised plans submitted on this application (pl ref: 2460959).
- Permission to construct a single storey dwelling house, detached garage, new wastewater treatment system and percolation area, new well, new entrance onto public road and all associated site development works (pl ref: 2461122).
- Permission for a bungalow, secondary treatment system & soil polishing filter to EPA Standards, water well, domestic entrance and driveway and all ancillary site development works (pl ref: 2534\0).
- Permission for a bungalow, secondary treatment system & soil polishing filter to EPA standards, domestic entrance and drive way and all ancillary site development works. Significant further information/revised plans submitted on this application (pl ref: 231134).
- Permission to construct proposed private residence and detached domestic garage/home office/home gym, install proposed wastewater treatment system and percolation area, construct new entrance onto main road, including all ancillary site works. Significant further information/revised plans submitted on this application (pl ref: KA200209).
- Permission to renovate & extend existing dwelling comprising of (a) Alterations to existing dwelling, namely revised window sizes, construct new single storey extension to the front & provision of natural stone to facades, (b) Raise the rear wall plate of existing dwelling to form a dormer extension at first floor level, (c) Construct a part single storey/part storey & a half extension to the rear of dwelling, (d) Demolition of existing domestic garage & construct new replacement domestic garage, (e) Upgrade existing septic tank & percolation area together with all associated site works (pl ref: 23112).
- Extension Of Duration of Planning Permission Ka/190153 - (a) Construction of agricultural cubicle shed with underground slatted slurry storage tanks and (b) Construction of an over-ground circular slurry store and all associated siteworks. Significant further information/revised plans submitted on this application (pl ref: 24322).

The dominant land uses in the area were also considered in the assessment, these included tillage and pastoral agriculture. No potential cumulative impacts as a result of these activities are anticipated as they are long established activities and form part of the environmental baseline of the wider area.

The potential for significant effects on European Sites as a result of the Proposed Development was identified as a result of the following pathways:

- Deterioration of water quality during construction and operation.

Given the mitigations and the design of the Proposed Development, pathways for significant effect have been robustly blocked. Additionally, on review of the documentation for the Projects considered in this cumulative assessment, where potential for likely significant effect was identified via the same pathways as the Proposed Development, mitigations and best practice measures have been applied, to ensure no adverse effects on any European Site will arise. Therefore, there is no potential for the Proposed Development to result in cumulative effects on biodiversity, with other plans and projects in the area.

RECEIVED: 24/09/2025