

# Fieldstown 110kV Substation & Grid Connection

Outline Construction Environmental Management Plan  
(oCEMP)

Energia Solar Holdings

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# 1. Introduction

## 1.1 Background

AECOM Ireland Ltd. have been appointed to undertake an Outline Construction Environmental Management Plan (oCEMP) for Energia Solar Holdings (hereafter referred to as the 'Applicant').

The oCEMP sets out the procedures, standards, work practices and management responsibilities to address potential environmental effects that may arise from the construction of a 110 kilo Volt (kV) Air Insulated Switchgear (AIS) substation, named Fieldstown 110kV Substation (hereafter referred to as the 'Proposed Development') and associated 13.3 kilometers (km) Proposed Grid Connection to Finglas Substation (hereafter referred to collectively as the 'Proposed Development'). The Proposed Development is located within the administrative area of Fingal County Council (FCC).

The primary aim of this oCEMP is to reduce any adverse effects from construction on the environment. The values and information presented herein is subject to change and refinement through the selection of the appointed contractor (hereafter referred to as the Contractor) and the delivery of the Proposed Development.

This oCEMP will form the basis for the Contractors CEMP. Following planning consent, the elements outlined in this report shall be further expanded upon by the Contractor into a full Contractor CEMP, which will be prepared prior to construction and agreed with the local authority. The Contractors CEMP will set out the Contractor's approach to managing environmental issues associated with the construction phase of the Proposed Development and provide a documented account to the implementation of the environmental commitments set out in the Environmental Constraints Report<sup>1</sup> (ECR), any measures stipulated in the planning conditions, and updated or new supplementary environmental reports made available to the Contractor as necessary. The oCEMP remains at all times a live document, subject to amendment including the revision and addition of content throughout the works.

At the end of the construction phase, the Contractor shall prepare a Handover Environmental Management Plan (HEMP) that shall contain essential environmental information needed for the maintenance and operation of the Proposed Development.

In summary the CEMP:

- Acts as a continuous link and reference document for environmental issues between the design, construction, testing and commissioning stages of the Proposed Development.
- Demonstrates how construction activities and supporting design shall properly integrate the requirements of environmental legislation, planning consent conditions, policy, good practice, and those of the environmental regulatory authorities and third parties.
- Records environmental risks and identifies how they will be managed during the construction period.
- Records the objectives, commitments and mitigation measures to be implemented together with programme and date of achievement.
- Identifies key staff structures and responsibilities associated with the delivery of the Proposed Development, and environmental control and communication and training requirements as necessary.
- Describes the Contractor's proposals for ensuring that the requirements of the environmental design are achieved, or are in the process of being achieved, during the contract period.
- Acts as a vehicle for transferring key environmental information at handover to the Applicant. This shall include details of the Proposed Development, short and long-term management requirements, and any monitoring or other environmental commitments.
- Provides a review, monitoring and audit mechanism to determine effectiveness of, and compliance with, environmental control measures and how any necessary corrective action shall take place.

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<sup>1</sup> AECOM (2023), Fieldstown 110kV Substation and Grid Connection Environmental Considerations Report

## 1.2 Targets and Objectives

Project specific targets and objectives will be set by the Contractor and will be included within the Contractors CEMP. This will ensure the construction works are carried out to approved standards, specifications and codes of practice.

The Contractors CEMP may include targets and objectives to:

- Ensure streams and drainage networks are not negatively impacted by construction works and are kept free from obstruction and debris.
- Ensure receptors are not negatively impacted by dust, noise and/or vibration generated by construction works.
- Ensure any impacts to habitats and wildlife are minimised as much as is practicable possible.
- Ensure landscape and visual impacts are minimised as much as is practicable possible.
- Ensure the development is constructed in compliance with mitigation measures outlined within the ECR, NIS, planning documents, planning conditions, and best practice approaches.
- Ensure construction works cause minimal disturbance and impact to the local community and local landowners.
- Ensure all staff receive adequate environmental training.
- Ensure sustainable sources for materials supply.
- Ensure a resource and waste management plan is implemented and adhered to onsite and that good housekeeping is followed.

## 1.3 Scope

The scope of this oCEMP covers the design and construction of the Proposed Development.

The spatial scope of the Proposed Development will cover the:

- Site boundary.
- Any additional working areas.
- Access to and egress from site(s).

This oCEMP considers the following subject areas:

- Environmental Management.
- General Site Management.
- Biodiversity.
- Land and Soils.
- Water.
- Air Quality.
- Cultural Heritage.
- Noise and Vibration.
- Landscape and Visual.
- Traffic Management.
- Waste Management.

## 2. Description of the Proposed Development

The Applicant is proposing a 110kV AIS substation (the Proposed Substation Development) and 13.3km underground cable (to Finglas Substation (Proposed Grid Connection)). The Proposed Development includes:

Proposed Substation Development:

- A 110kV AIS tail-fed substation compound comprising:

- A single storey 110kV AIS substation building [total floor area comprising circa 450m<sup>2</sup>, height approximately 6.3m).
- MV switchgear container and switchboard total floor area comprising circa 60m<sup>2</sup>.
- 110kV grid transformer and two-house transformers within bunded enclosures (height approximately 6m).
- Diversion of existing 38kV overhead line (OHL).
- 160MV transformer positioned within bunded enclosures (height approximately 6m).
- A shunt filter.
- Diesel generator & diesel tank.
- Twelve lightning protection masts (height approximately 20m).
- Two service/maintenance carparking facilities.
- Internal access roads and car parking.
- New site entrance from the R122 regional road.
- Drainage infrastructure.
- 420m of 2.6m high perimeter palisade fencing and post and rail (1.4m high) fencing.
- 200m of internal separation fencing (2.6m high).
- All associated and ancillary site development works including localised alterations to the landscape.

Proposed Grid Connection:

- A 13.3km underground 110kV cable connection to Finglas Substation to facilitate connection to national grid.
- Approximately 20 joint bays primarily within public roadways.
- Trenchless installation in the form of horizontal directional drilling (HDD) will be used at the following locations:
  - Broadmeadow River Bridge before the junction of the R122 and the R125 regional
  - roads. Ward River Bridge on the R122 regional road.
  - Under the N2 prior to entering Finglas Substation.

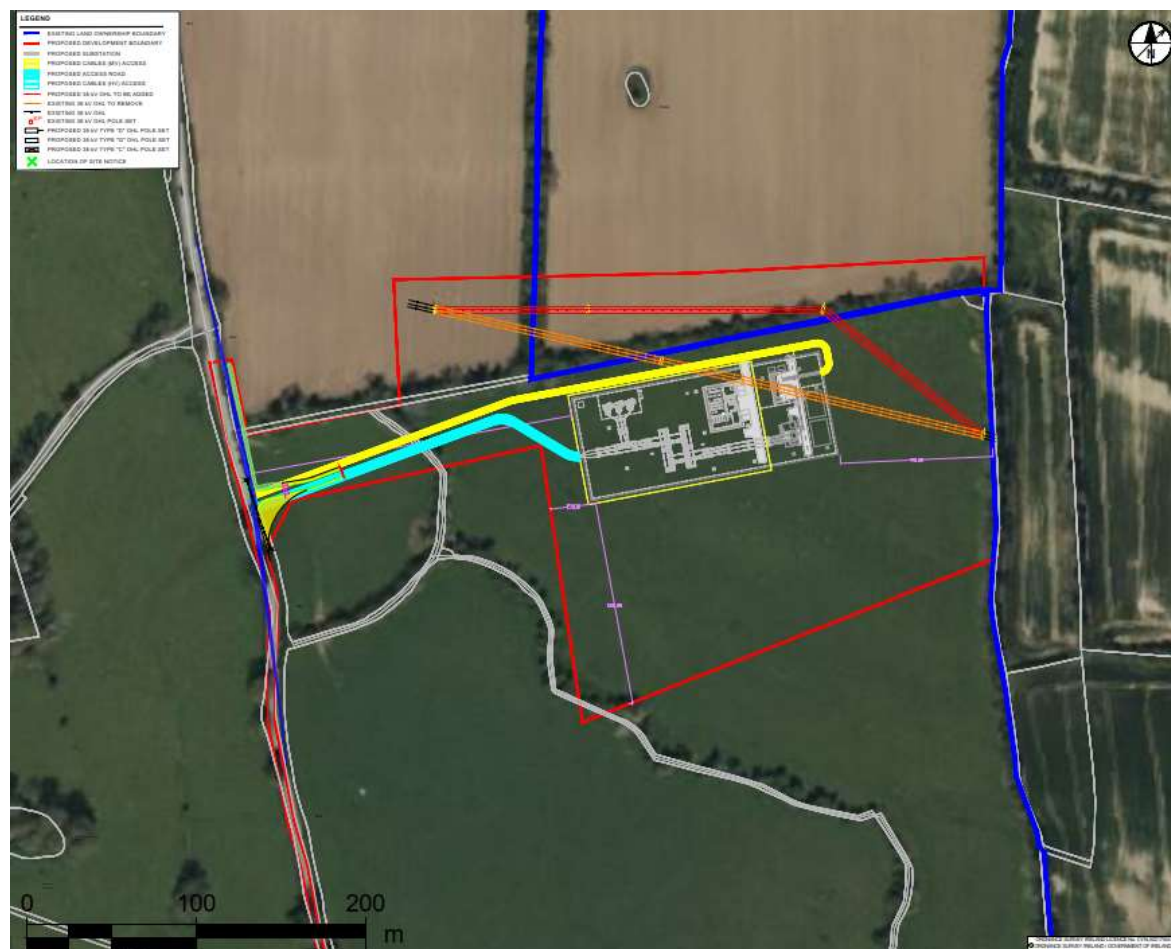
## 2.1 Site Location

### 2.1.1 Proposed Substation Development

The Proposed Substation Development is located within an area of agricultural grassland on lands at Fieldstown East, County Dublin (Irish Transverse Mercator (ITM) coordinates: 711952, 750625). The Proposed Substation Development is bounded by the R122 regional road immediately west and agricultural lands to the east, north and south as shown in Figure 2-1.

The largest nearby towns are Ashbourne, approximately 4.5km east, and Swords, approximately 9.5km to the southeast. Oldtown is located approximately 2.5km directly north, Ballyboghil is approximately 4.5km east, and Rolestown is situated within 1km southeast of the site. There are dispersed one-off housing units located in proximity to the Proposed Substation Development, with the nearest property is located approximately 300m west.

Figure 2-1 Location of Proposed Substation Development and Associated Infrastructure



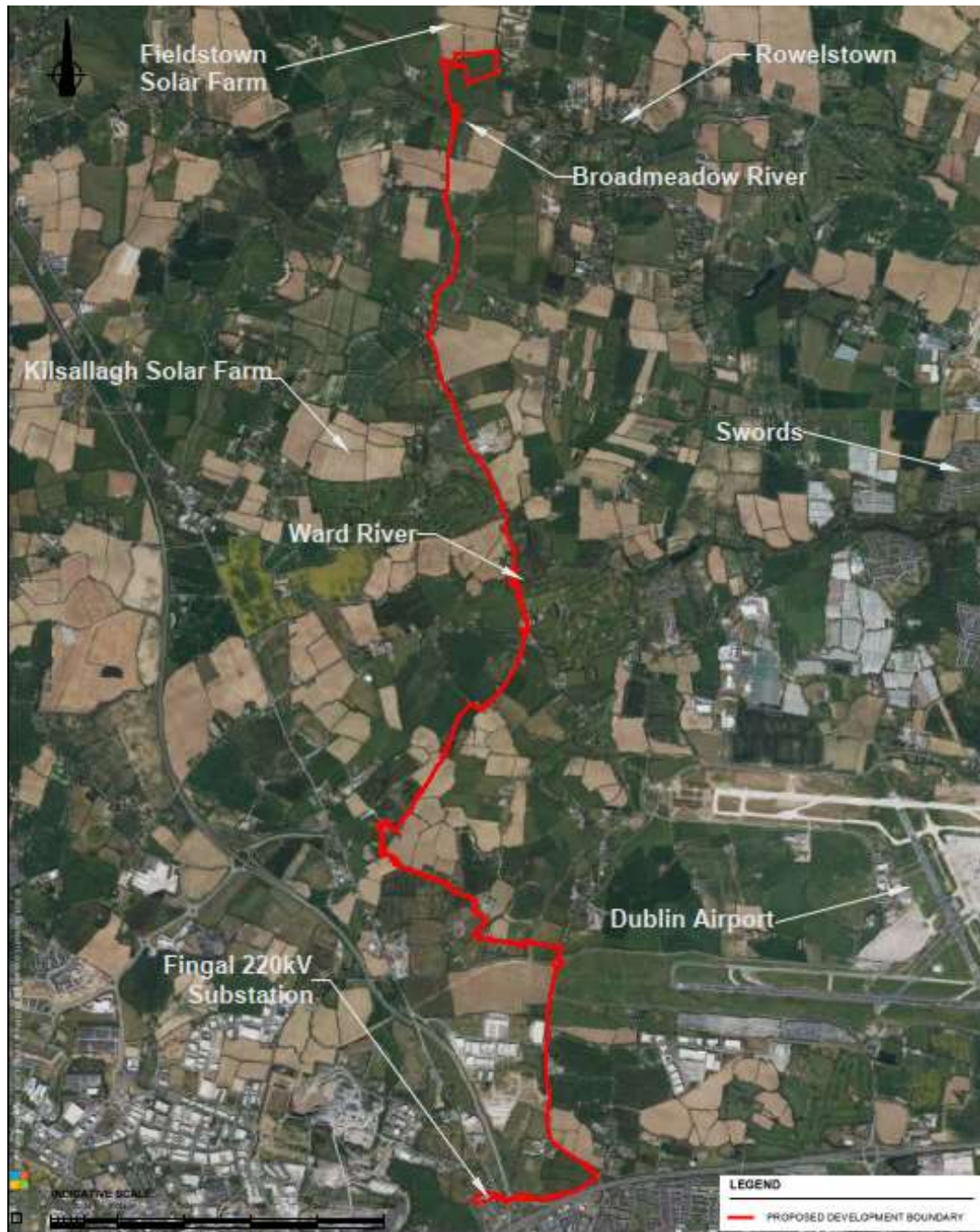
The proposed onsite electrical substation will be served by an access road from the R122 which will allow access for maintenance of the substation by ESB/EirGrid.

### 2.1.2 Proposed Grid Connection

In order to connect the substation to the transmission network, it is proposed to connect the 110kV substation to the Finglas substation by means of a 110kV underground cable. The Proposed Grid Connection is approximately 13.3km. This cable run will exit the substation compound travelling west before heading south and entering the R122 regional road. The proposed cable connection will follow the path of the R122 to the L7325 and L7231 before returning to the R122, before heading west adjacent to the M50, under the N2 to the boundary of Finglas Substation as shown in Figure 2-2.



Figure 2-2 Proposed Grid Connection



The majority of the Proposed Grid Connection is located within the public road with dispersed residential and commercial properties adjacent to the route. The planned tie in for the Proposed Grid Connection to Finglas substation is located to the north of Junction 5 of the M50 motorway, to the west of Junction 1 of the N2.

## 2.2 Construction Phase

Construction activities will include the following elements as shown in Table 2-1.

Table 2-1 Main Construction Elements and Associated Activities

Element	Description of activities
Site Preparation and Enabling Works	Site establishment. Site clearance works. Construction of temporary site drainage. Bulk earthworks including excavation and removal of topsoil/soil. Infilling of material for internal access road, site compound and laydown area. Landscaping/reinstatement.

Element	Description of activities
Underground Cables	Trenching and installation of underground cables, cable joint bays and pulling pits. Installation of the associated above ground infrastructure (cable marker posts, communication boxes and access points). HDD of water and road crossings.
OHL Diversion	The site preparation required for OHL diversion will be limited with minimal site clearance required. Excavation. Pouring of concrete foundations for mast structures. Backfill and tower body installation.
Substation Construction	Pouring of concrete foundations (potentially piling works if required). Erection of steel frame and cladding walls and roofs for any required buildings. Permanent foul and surface water drainage works. Installation of above ground and underground cabling. Electrical installation, commissioning and operation. Other miscellaneous civil works including erection of fencing, provision of site entrance, paving etc.

Consideration should be given at the detailed design stage to ensure coordination between the construction phasing and equipment delivery schedules.

Construction activities will gradually phase out from pre-construction followed by commissioning and testing of the substation and equipment. It is expected that the number of construction workers required throughout the duration of the construction phase will peak at approximately 50 persons (peak during construction). It is anticipated that the construction of the Proposed Development will be completed during normal construction hours, i.e., 07.00 and 19.00 Monday to Friday and 08.00 to 13.00 on Saturday.

The proposed programme for the construction works will be approximately 24 months from initial enablement works through to commissioning. It is expected that the civil works will take approximately 5 to 6 months, with a further 6 months estimated for cable installation, jointing and testing and reinstatement.

Consideration should be given at the detailed design stage to ensure coordination between the construction phasing and equipment delivery schedules.

### 2.2.1 Proposed Substation Development Access

Access to the Proposed Substation Development is currently provided via an existing gated entrance from the R122. It is proposed to move the existing site entrance approximately 20m south to achieve required sightlines. The creation of the new site entrance will require the removal of existing hedgerow but no mature trees in this area. The entrance will be suitably splayed. A 4m wide compacted access track will extend from the entrance to the substation compound. The track will include a geotextile base and filter membrane and 200mm of Clause 804 sub-base.

### 2.2.2 Haulage Route and Construction Traffic

Construction materials will be brought to site by road along the R122 and R125 from the wider environs. Construction materials will be transported in clean vehicles and lorries/trucks will be properly enclosed or covered during transportation of friable construction materials and spoil to prevent escape of material along the public roadway. Materials will be sourced locally where possible to minimise transportation distances and will be scheduled to avoid queues/increased traffic on local routes.

Construction of the site is anticipated to take 18 months additional traffic movements are expected to peak at 80 vehicles per day, with 30 of those movements being Heavy Goods Vehicle (HGV).

A Construction Traffic Management Plan (CTMP) will be implemented by the appointed Contractor, prior to the commencement of construction.

### 2.2.3 Site Preparation and Enabling Works

The preparation phase for the Proposed Development will involve site clearance, excavations and levelling of the Proposed Substation Site to the necessary base level for construction, surveying and setting out for structures and any rerouting of services/connections to services. A combination of bulldozer, excavators, trucks and other soil shifting plant will commence the main site clearance and levelling aspects.

A construction compound of approximately 2,500m<sup>2</sup> will be located adjacent to the Proposed Development boundary. The compound may include:

- Welfare facilities (compliant with appropriate regulations such as Safety, Health and Welfare at Work (Construction) Regulations 2013 - Part 14 Construction Site Welfare Facilities (Construction Site Welfare Facilities)).
- Bunded fuel storage area.
- Potable water supply.
- Contractor lock-up facility.
- Water tanker.
- Diesel generator.
- First aid facilities.

A layer of granular material will be spread and lightly compacted within the compound to provide hardstanding for site offices and storage containers. Areas of the compound may be used as vehicle hardstanding. The compound will be built using a similar technique to the access roads. The temporary construction compounds will be removed on completion of the construction phase.

Temporary access roads will be constructed by stripping surface soils, placing geotextile reinforcement at subgrade level followed by a layer of granular material in accordance with the specification to form a working surface for vehicle. Roadside drains within the temporary works area will be culverted and check dams made from stone or sandbags covered with terram will be inserted upstream and downstream of these culverts to intercept any solids generated during the works.

#### **2.2.4 Levelling/Cut and Fill**

The site preparation phase for the substation will involve site clearance, excavations and levelling of the site to the necessary base level for construction, surveying and setting out for structures and any rerouting of services/connections to services. A combination of bulldozer, excavators, trucks and other soil shifting plant will commence the main site clearance and levelling aspects.

Approximately 10,000m<sup>3</sup> (circa 18,000 tonnes) of clean backfill would be brought to Proposed Substation Development from licensed quarries. All material will undergo validation sampling to confirm suitability from a geotechnical and environmental perspective. In so far as possible, contractors will be required to utilise quarries local to the site.

The Proposed Grid Connection is anticipated to require earthworks associated excavation works for the underground cabling. For the purpose of this assessment, the volume of earthworks is estimated to be in the order of 10,000m<sup>3</sup>, however, excavated spoil will be reused for trench reinstatement purposes, reducing the volume of offsite import and/or disposal.

Any excess spoil not suitable and/or required for reuse on site will be removed offsite for appropriate reuse, recovery and/or disposal as reused.

#### **2.2.5 Foundations and Building Structure**

Following completion of the enabling works and site clearance, all structures will require foundations. Building structures will comprise standard structural steel frames, and it is anticipated that foundations will require moderate scale excavations.

#### **2.2.6 Substation**

The proposed onsite electrical substation will include an EirGrid control building, MV switchgear building and the electrical substation components necessary to consolidate the electrical energy generated by the associated solar farms and export the electricity to the national grid. The layouts of the proposed substation and its compound are shown in Drawing 60657534-ACM-DWG-FT-601 accompanying this planning application. The construction and exact layout of electrical equipment in the onsite electrical substation will be to EirGrid/ESB Network specifications.

The substation will be surrounded by an approximate 2.6m high steel palisade fence and internal fences will also segregate different areas within the main substation compound.

The onsite electrical substation buildings will include staff welfare facilities. Toilet facilities will be installed with a low-flush cistern and low-flow wash basin. Due to the specific nature of the Proposed Development, there will be a very small water requirement for occasional toilet flushing and hand washing and therefore the water

requirement of the Proposed Development will be limited. The Applicant has consulted with Uisce Éireann and proposes to connect to the existing water network, subject to a valid connection agreement being put in place prior to project execution.

It is not proposed to treat wastewater on site. Wastewater from the staff welfare facilities in the control buildings will be managed by means of a sealed storage tank. All wastewater will be removed from site by permitted waste collector to wastewater treatment plants. This is an accepted industry approach and has been adopted as a response to the specific site characteristics.

### **2.2.7 Proposed Grid Connection**

The Proposed Grid Connection will comprise a single circuit connection with three 160mm diameter HDPE power cable ducts and two 125mm diameter High Density Polyethylene (HDPE) communication ducts installed in an excavated trench, typically 600mm wide by 1,250mm deep primarily within public roadways. Existing utility services of varying diameters and depths are located along the route and some will be required to be crossed. Where existing utilities/services are found, the works will be diverted around the service/utility or below them.

Before the junction of the R122 and R125, the Proposed Grid Connection will cross under the Broadmeadow River, before the junction of the R122 and R125 it will cross under the Ward River and will also cross under the N2/M50 prior to entering Finglas Substation. The cables will be installed by HDD at these three locations via entrance and exit pits on either side of the crossings. The underground cabling will cross existing culverts using undercrossing or overcrossing method.

HDD crossings will be installed using specialist equipment along a predetermined route. Two temporary pits (entry and exit) are excavated at each side of the HDD route, locations are selected based on drilling requirements including angle, depth, diameter, curvature, vertical clearance underneath water courses and structures, etc.

Access to the entry and exit pits will be via a newly constructed temporary access or existing access road/track. Works area will be a minimum of 15m back from watercourses and will be levelled where required in accordance with the specification to form access roads and temporary work platform. The depth of the drill below the riverbed will be determined from site investigations. Once the route has been drilled, the ducts will be towed into the bore.

Upon completion, temporary platforms at entry and exit pits will be removed and area reseeded where required.

All works will be carried out in accordance with international best practice and full compliance with health and safety requirements.

### **2.2.8 Materials and Storage**

Key materials will include steel, concrete, composite cladding, piping, electrical cabling, process equipment and finishes. Aggregate materials such as sands and gravels will be loaded directly to vehicles for use within the site of the Proposed Development as appropriate, e.g., as fill material. Liquid materials will be stored within temporary bunded areas, doubled skinned tanks or bunded containers (all bunds will conform to standard bunding specifications – British Standard (BS) EN 1992-3:2006) to prevent spillage.

### **2.2.9 Reinstatement**

Once all construction works are complete, the work areas will be reinstated with excavated soil and either seeded out with native species, allowed to vegetate naturally, or reinstated with excavated grass turves and will be restored to their original condition.

Landscaping consists of native meadow planting surrounding the compound with native hedgerow planting to the north and woodland planting within the visual screening mitigation planting (refer to Drawing 60657534-ACM-DWG-FT-620 submitted as part of this application).

### **2.2.10 Waste Management**

All waste products (general waste, plastic, timber, etc.) arising during the construction phase will be managed and disposed of in accordance with the provisions of the Waste Management Act 1996 and associated amendments and regulations, and a Waste Management Plan (WMP) will be prepared by the appointed Contractor prior to the commencement of construction. All waste material will be disposed of at a fully licensed facility.

## 3. Environmental Management

### 3.1 Overview

The Contractors CEMP shall fully address the particular requirements of the Objectives listed in Section 1.2 of this oCEMP, and any updated or new supplementary environmental reports made available to the Contractor as necessary. The Contractors CEMP shall also comply with the requirements of the relevant authorities/environmental bodies.

The Contractors CEMP shall be prepared by the Contractor and submitted to the Applicant and FCC for approval prior to construction works. It shall be prepared in sufficient detail to describe the framework of the Contractor's proposed management, control and mitigation strategy for each environmental aspect with the consideration of relevant adjacent developments. The Contractors CEMP should include, where required, specific Method Statements for specific works (e.g., working in or near waterbodies) these will be included in a dedicated appendix to the Contractors CEMP.

The Contractors CEMP shall be developed/updated as necessary during the course of the design and construction phases and will be reviewed on a regular basis with the Applicant as necessary.

### 3.2 Environmental Aspects and Impacts

The Contractor will prepare a project specific Environmental Risk Assessment (ERA), which will be included in a dedicated appendix to the Contractors CEMP. The Contractor should also include the following:

- Environmental guidelines on how to prepare an ERA.
- The guidelines and procedure on how to prepare/undertake an ERA and to assist in the identification of environmental aspects of the project activities, products and services.
- Monitoring and checklists that shall be implemented to manage the environment.
- Environmentally sensitive area(s) and control measures to be implemented onsite.

### 3.3 Roles & Responsibilities

The Contractor shall employ a suitably experienced and qualified Construction Environmental Management Plan Co-ordinator (CEMPC) to undertake co-ordination of monitoring of the works' impacts and implementation of the Contractor's proposals, in respect of all environmental requirements.

A CEMPC shall be present onsite for the duration of the Proposed Development. The CEMPC shall be the point of contact for dealing with environmental issues for the Contractor's employees, subcontractors, relevant authorities/environmental bodies, and members of the public. The CEMPC will also be responsible for controlling the construction impacts arising from the activities of the Contractor and subcontractors in accordance with the CEMP.

The CEMPC shall prepare, implement, manage, review and revise the CEMP with the sole purpose of ensuring that the environment is safeguarded at all times from anticipated or unexpected adverse impacts during construction.

Within the Contractor's team, the CEMPC shall have the authority to ensure that the CEMP is effectively implemented. The CEMPC must notify the Applicant of any transgressions in respect of the CEMP so that necessary sanctions can be imposed.

In general, the duties of the CEMPC shall include the following:

- Implementation of the CEMP procedures.
- Routine environmental monitoring, recording and reporting.
- Maintaining and auditing the CEMP and documents that underpin it.
- Environmental training including daily toolbox talks to site staff and design staff.
- Liaison with statutory authorities as required.
- Assist in liaison with the relevant authorities/environmental bodies and local community.
- Any other activities that may be necessary in order to protect wildlife and the environment during the works.

In addition, other environmental specialists as listed in Table 3-1 must be available to provide advice on the CEMP during construction. The CEMP shall place environmental responsibilities on the key roles within the Proposed Development as set out in Table 3-1.

**Table 3-1 Key Contractor Team Roles and Responsibilities**

<b>Role</b>	<b>Responsibilities</b>
Contractor's Project Director	<ul style="list-style-type: none"> <li>Assign specific environmental duties to competent members of the Contractor's Team.</li> <li>Identify the environmental training needs of personnel under their control and arrange appropriate training programmes and ensure records are being maintained.</li> <li>Ensure that significant environmental aspects identified for the Proposed Development are managed.</li> <li>Promote the continual improvement of environmental performance.</li> <li>Ensure that all works are completed safely and with minimal environmental risk.</li> <li>Approve and implement the CEMP and supporting environmental documentation and ensure that all environmental standards are achieved during the construction phase of the project.</li> <li>Ensure compliance through audits and management site visits.</li> <li>Ensure timely notification of environmental incidents.</li> <li>Ensure that all construction activities are planned and performed such that minimal risk to the environment is introduced.</li> <li>Take advice from the CEMP Coordinator (CEMPC), etc.</li> </ul>
CEMP Coordinator (CEMPC)	<ul style="list-style-type: none"> <li>Develop, maintain and audit the CEMP (and supporting documents/plans) to ensure all aspects, impacts and statutory requirements etc. are reflected in the CEMP.</li> <li>Develop and implement a programme of regular environmental inspections, monitoring, recording and reporting by the Environmental Site Representative(s) in accordance with procedures set out in the CEMP.</li> <li>Ensure that the works are constructed in line with the CEMP and that arrangements are in place to facilitate site personnel in identifying potential environmental incidents.</li> <li>Liaise with environmental specialists to ensure site visits, audits and inspections are carried out and completed as required (for example by the CEMP and any planning conditions).</li> <li>Attend regular construction meetings to ensure environmental issues are discussed and addressed by the Contractor's Team.</li> <li>Liaise with relevant authorities/environmental bodies and the local community as required and communicate any environmental incidents in a timely manner to relevant regulatory authorities.</li> <li>Comply with duties under relevant legislation and company procedures in relation to environmental incident investigation and reporting.</li> <li>Provide support and training to the workforce with regard to understanding environmental aspects, impacts, regulatory requirements, best practice, constraints and methods of working.</li> <li>Nominate the Environmental Site Representative(s).</li> <li>Appoint environmental specialists as required.</li> <li>Support any investigations of incidents related to potential environmental damage, ensure corrective actions are taken and ensure future preventative measures are put in place.</li> <li>Review non-conformance reports provided by the Environmental Site Representative(s) or similar to identify any underlying issues or patterns to identify suitable ameliorative measures.</li> <li>Generate environmental reports as required to show environmental data trends and incidents and ensure environmental records are maintained throughout the construction period.</li> <li>Prevention of environmental pollution and improvement to existing working methods.</li> <li>Changes in legislation and legal requirements affecting the environment.</li> <li>Suitability and use of plant, equipment, and materials to prevent pollution.</li> <li>Environmentally sound methods of working and systems to identify environmental hazards.</li> </ul>
Contractor's Project Manager	<ul style="list-style-type: none"> <li>Ensure that the CEMP is produced, maintained, implemented and distributed to all relevant parties.</li> <li>Provide a 24 hour on call first point of contact for environmental issues/incidents.</li> <li>Monitor the completion of corrective actions by the Site Manager and act as required to expedite completion.</li> <li>Provide regular reports to the consenting authority on environmental performance, including details of any identified incidents or non-conformances and corrective actions.</li> <li>Ensure that all personnel for whom they are responsible are aware of the CEMP and implement the relevant requirements.</li> <li>Evaluate the competence of all subcontractors and suppliers and ensure that they are made aware of and comply with the CEMP and associated procedures.</li> <li>Establish a consultation and communication system with all relevant stakeholders and interested parties associated with the Proposed Development, including employees, partners, sub-contractors, designers and third parties, etc., where relevant.</li> </ul>
Site Manager	<ul style="list-style-type: none"> <li>Ensure that all personnel undergo suitable and sufficient environmental induction before starting work on the Proposed Development, and periodic refresher environmental awareness training throughout the construction.</li> </ul>

Role	Responsibilities
	<ul style="list-style-type: none"> <li>• Ensure staffs attend the appropriate environmental courses that are organised by the CEMPC. Ensure records of training delivered to site staff are maintained.</li> <li>• Monitor the performance of personnel and activities under their control and ensure arrangements are in place so that all personnel can work in a manner which minimises risks to them and to the environment.</li> <li>• Undertake a programme of regular environmental inspections in liaison with the Environmental Site Representative(s).</li> <li>• Complete any corrective actions identified by the Environmental Site Representative(s) and provide status reports as required to the consenting authority.</li> <li>• Assist and support the CEMPC and statutory bodies in the investigation of any incidents.</li> <li>• Notify the Environmental Site Representative(s) of all environmental issues or incidents arising over the course of operations.</li> </ul>
Environmental Specialists	<ul style="list-style-type: none"> <li>• Review and input to the Contractors CEMP relating to biodiversity measures and mitigation.</li> <li>• Attend site as required to monitor the protection of assets in accordance with the requirements of relevant legislation, the biodiversity aspect of the ECR and mitigation measures outlined within, planning conditions, the construction contract and the CEMP.</li> <li>• Identify potential risks to wildlife and develop suitable control measures.</li> <li>• Provide status reports and updates to the Environmental Site Representative(s).</li> <li>• Provide advice about ecological and environmental and issues during the construction of the Proposed Development including advice on protected species, pollution, surface water management, material management, air quality and noise.</li> </ul>

## 3.4 Emergency Response Procedures and Environmental Training

### 3.4.1 Emergency Response Plan

An Emergency Response Plan (ERP) will be prepared by the Contractor and included within the Contractors CEMP. It will provide details on the procedures to be carried out in the event of an environmental or health and safety incident as well as the responsibilities of all personnel in the event of an emergency. The ERP will identify site specific key personnel and their contact details. The ERP will also include information on spill control measures and the procedure and contact information for the reporting of incidents. Information on all incidents will be recorded on an environmental incident form and will provide information such as the cause, extent, actions, and remedial measures as well as any recommendations made to avoid reoccurrence of the incident.

### 3.4.2 Site Induction

A site induction will be attended by all personnel working on the Proposed Development. Such personnel attending will also complete a site induction record acknowledging attendance and confirming that they understand and agree to comply with the requirements of the site. Furthermore, certificates of competency, licences and other qualifications as deemed necessary by the Contractor will be copied and documented. The environmental induction will run concurrently with safety awareness training. All documentation and records will be made available upon request.

Induction will include the following information:

- Overview of the goals and objectives of the environmental policy and CEMP.
- Overview of site-specific Health and Safety rules to be adhered to, including personal protective equipment (PPE) requirements.
- Awareness in relation to the environmental risk associated with the Proposed Development and methods of avoiding environmental risks as identified within the CEMP, the planning conditions, and any other relevant plans, documents, or reports.
- Awareness of the ERP, it's content and key contact personnel onsite.
- Awareness of roles and individual responsibilities and environmental constraints to specific jobs.
- Location of any sensitive receptors on or adjacent to the site.
- Location of habitats and species to be protected during construction, how activities may affect them and methods necessary to avoid impacts, controls to minimise noise and the importance of pollution prevention measures to protect nearby waterbodies and sensitive receptors.
- All site personnel will be familiar with method statements, risk assessments and traffic management plans.

All personnel will have the appropriate training before accessing site such as a valid Safe Pass, copies will be held on file and will be available for inspection upon request.

### 3.4.3 Daily Pre-Work Briefings, Toolbox Talks and Training

The Contractor will be required to implement appropriate communications including reporting of environmental practice onsite, toolbox talks, daily briefings, an environmental noticeboard (with ecological information, spill/emergency response and refuelling area/procedure) and signage (including ecological exclusion areas).

Daily briefings are required to be carried out at the commencement of each shift by all supervisors to ensure environmental issues specific to the work being performed are being addressed. All personnel involved with site works must be briefed and must sign onto the daily briefing form prior to commencing activities.

Toolbox talks may be conducted prior to the start of specific work elements where there is a substantial environmental risk or when required to reinforce ongoing environmental issues. Any toolbox talk training conducted will ensure that relevant information is communicated to the workforce and that feedback can be provided on issues of interest or concern.

Personnel and sub-contractors working on environmentally sensitive sites will be provided with environmental training to achieve a level of awareness and competence appropriate to their assigned activities. Targeted environmental awareness training may be provided to individuals or groups of workers with a specific authority or responsibility for environmental management or those undertaking an activity with a high risk of environmental impact. Environmental Training will be recorded, and the records will be available for inspection upon request.

Table 3-2 summarises the environmental training that will likely be required to be undertaken as a minimum as part of the Proposed Development.

**Table 3-2 Summary of Training Requirements**

Training	Target	Frequency	Record
Site Induction	All site personnel	Prior to working onsite	Induction Record Form
Daily Pre-working Briefings	All site personnel	Prior to commencing daily works	Briefings Record Form
Toolbox Talk	Personnel relevant to the topic	As required	Toolbox Record Form
Project Management meeting	Project Managers, Engineers and Site Supervisor	Monthly	Meeting Minutes Record
Environmental Training	Personnel relevant to the activity	Quarterly or more frequently as required	Training Attendance Form

## 3.5 Complaints

A Complaints Register for internal communication and for receiving, documenting and responding to environmental complaints from external parties will be established and will be maintained.

The following information must be taken as a minimum when a complaint is received:

- Method of receipt (telephone calls, letters, emails, etc.).
- Date and time of the complaint.
- Name of complainant (if provided).
- Nature of complaint.

A record of and details of the remedial actions carried out will also be documented. All complaints received from external sources and incidents must be reported to the CEMPC and the appropriate site personnel (e.g., Senior Management). Complaints must be dealt with in a timely manner and reported to the Applicant.

## 3.6 Monitoring and Inspections

Environmental focused monitoring and inspection activities will be carried out throughout the lifetime of the Proposed Development. The frequency of these monitoring and inspection activities will be agreed in advance of construction with the Applicant and would be in line with planning conditions and any environmental mitigation requirements outlined within the ECR, NIS or surveys and reports associated with the Proposed Development.



Additional monitoring and inspection will take place outside of the agreed frequency where an incident occurs or where activities that can have a significant environmental impact are occurring.

Regular site inspections will be undertaken by the Contractor's CEMPC to monitor compliance with the CEMP and record inspection results. It is anticipated that a daily visual check and a detailed weekly check will be carried out and these records will be available upon request.

During construction phase the following monitoring measures will occur:

- Daily and weekly inspections of construction activities (e.g., concrete pouring, refuelling etc.) and mitigation measures to ensure all controls to prevent environmental impact are being implemented will be undertaken and recorded. Should mitigation measure be identified as ineffective during an inspection, additional mitigation measures will be implemented.
- Regular inspection of surface water runoff and sediments controls.
- Soil sampling to confirm disposal and short-term storage options for excavated soils.
- Dust monitoring and monitoring of dust control measures.
- Noise and vibration monitoring.
- Surface water monitoring (if required) and monitoring of surface water pollution control measures.
- Daily monitoring of general housekeeping onsite.

Only suitably experienced and trained personnel will carry out environmental inspections.

### 3.7 Environmental Auditing

Planned and documented audits (including waste and environmental audits) aimed at evaluating the conformance of the project shall be carried out throughout the construction phase of the Proposed Development. The frequency of the audits will be agreed in advance with the Applicant. As a minimum this would include;

- Weekly site walkover with results presented at the Contractors' regular meetings with the Applicant.
- Dedicated waste audits will be carried out at a frequency agreed in advance with the consenting authority. All waste types and records would be available for review upon request.
- The Contractors CEMP will be reviewed and audited every four months and updated in line with current guidance and legislation. In addition, a review or amendment to the Contractors CEMP may be prompted by:
  - A need to improve mitigation measures.
  - As a result of changes in environmental legislation and guidance.
  - Where the result of an audit establishes change is required.
  - If a construction methodology changes due to high environmental risk.
  - An incident or complaint that requires additional mitigation or an amendment of mitigation.
- Only suitably experienced and trained personnel will carry out environmental inspections.
- Environmental audits will be conducted at planned intervals to determine whether the Contractors CEMP is being properly implemented and maintained.
- All audit results will be made available upon request.

### 3.8 Consents and Licences

All statutory consents and licences required to commence onsite construction activities will be obtained ahead of works commencing, allowing for the appropriate notice period. It will be the responsibility of the Contractor to ensure all consents and licences required are in place prior to the start of construction.

These will include, but are not limited to:

- Site notices.
- Construction commencement notices.
- Licence to connect to existing utilities (inc. water) and mains sewers, where required.
- Abstraction and/or discharge licenses.

- Road opening/closure licences.

## 4. Environmental Management - Procedures and Plans

### 4.1 General Site Management

An example list of relevant legislation and guidance will be prepared by the appointed Contractor and included in the CEMP. This will be updated by the Contractor when finalising the CEMP and the legislation and guidance will be adhered to at all times during the construction phase. It is the Contractors responsibility to ensure all the relevant legislation and guidance is adhered to during construction.

#### 4.1.1 Working Hours

Site working hours are to be updated by the Contractor in line with FCC requirements and any planning conditions that may relate to working hours.

Onsite construction works are likely to take place between during normal construction hours i.e., 07.00 to 19.00, Monday to Friday and 08.00 to 13.00 on Saturday or as directed by FCC. Working outside these hours will only take place in exceptional circumstances unless agreed in advance with FCC.

No works shall take place on Sundays or Bank Holidays. In exceptional cases, FCC may permit works to proceed outside the above times/days. This will be subject to the written agreement of the FCC prior to such works proceeding. Locations of works that are anticipated to be outside normal working hours will be defined and confirmed.

The proposed programme for the construction works will be approximately 24 months from initial enablement works through to commissioning. It is expected that the civil works will take approximately 5 to 6 months, with a further 6 months estimated for cable installation, jointing and testing and reinstatement.

Consideration should be given at the detailed design stage to ensure coordination between the construction phasing and equipment delivery schedules.

#### 4.1.2 Site Housekeeping

Good housekeeping is an important part of good environmental practice and helps to maintain a more efficient and safer site. The Site should be tidy, secure, and have clear access routes that are well signposted. The appearance of a tidy, well-managed site can reduce the likelihood of theft, vandalism, complaints and/or specific hazards that could affect the safe operation of the other businesses in the area, such as bird hazards and wind-blown litter.

As outlined in the fourth edition of CIRIA's '*Environmental good practice on site guide*' (C741), when considering good housekeeping, the appointed Contractor will implement the following steps:

- Adequately plan the Site with designated areas of materials and waste storage.
- Segregate and label different types of waste as it is produced and arrange frequent removal.
- Keep the Site tidy and clean.
- Ensure that no wind-blown litter or debris leaves the site, use covered skips to prevent wind-blown litter.
- Keep hoarding tidy - repair and repaint when necessary, removing any fly posting or graffiti.
- Frequently brush-clean wheel washing facilities and keep haul routes clean from site derived materials.
- Keep roads free from mud by using a road sweeper.
- Ensure the Site is secure.

#### 4.1.3 Control of Concrete and Lime

Mitigation and monitoring measures to limit potential impacts associated with the use of natural resources throughout the course of the Proposed Development are as follows:

- Ready-mixed concrete will be brought to the site by truck. A suitable risk assessment for wet concreting will be completed prior to works being carried out which will include measures to prevent discharge of alkaline wastewaters or contaminated water (for example storm water) to the underlying subsoil and groundwater.

- The pouring of concrete will take place within a designated area protected (for example by a geosynthetic material) to prevent concrete runoff into the soil/groundwater media.
- Any use of concrete in proximity to watercourses will be carefully controlled to avoid spillage. No onsite batching should occur. Washout from mixing will be carried out only in a designated contained impermeable area.
- Wash down and washout of concrete transporting vehicles will take place at an appropriate designated area (offsite) and direct discharge of wash water to ground or surface waters will be strictly prohibited. Alternatively, where washout takes place onsite, it will be carried out in a designated, carefully managed onsite washout area.
- Wastewater from washing of concrete lorry chutes will be directed into a concrete washout container, lined with an impermeable membrane. The container should be of good condition, should not overflow or leak and should be easily accessible to vehicles. The containers must be checked and emptied at a frequency equivalent to the volume of concrete being used and no runoff should leave the washout location. The area must be clearly marked and must be located away from storm drain inlets, open drainage facilities, water courses and ditches.

#### 4.1.4 Site Drainage (Construction Phase Only)

Pre-earthworks drainage will be required during the construction phase. It will be the appointed Contractors responsibility to ensure site drainage is in place for the duration of the construction phase. The protection of waterbodies within the site, surrounding the site, and the protection of downstream catchments that waterbodies feed is of great importance in considering and deciding upon the most appropriate drainage.

Interceptor drainage and access track drainage will be provided along all access tracks and hard-standings areas and designed to ensure that during construction and for the permanent works runoff is mitigated or controlled in order to protect waterbodies. A drainage plan will be produced at the detailed design phase in advance of any works.

Site drainage may include (for example purposes only and to be finalised within the Contractors CEMP):

- Interceptor Drains: These would be installed upgradient of work areas to collect surface runoff and prevent it reaching construction areas where runoff could pick up silt, sediment or other contaminants. The drains would divert upslope runoff away from works areas and to a location where it can be redistributed.
- Check Dams: These would restrict flow velocity, reducing erosion and gulying a channel and allowing sediments to settle. Should any check dams be used onsite they would be inspected and maintained regularly and any excess sediment would then be removed.
- Settlement Ponds: These would be used to attenuate runoff from work areas during the construction phase, they would intercept silt laden runoff and would reduce the amount of sediment leaving an area by reducing runoff velocity, allowing larger particles to settle to the bottom of the pond.

#### 4.1.5 Cable Trenching

Standard mitigation measures for cable trenching works include but are not limited to the below. It will be the responsibility of the Contractor to update the below in line with the construction methodology produced for the Proposed Development and should take into consideration all mitigation measures outlined herein and within the ECR as well as any conditions set by the consenting authority.

- Soil management: For all trenching along the road, all surplus excavated material will be taken offsite in trucks and disposed of, under license as applicable from FCC, thus preventing any contaminated runoff to roadside drains during heavy rainfall. In off road areas where topsoil will be set aside within the wayleave/corridor for later reinstatement, these stockpiles will be stored at a height not exceeding 2m high on level ground with a silt fence inserted. A 10m setback from hedgerows and treelines, 20m setback from streams and at least a 15m setback from all other drains and required setbacks from any badger setts will be implemented.
- Trench de-watering: Ground water and surface water accumulating in the base of trenches will not be pumped directly to roadside drains or streams. Sediment contaminated water will be discharged to a designated percolation area. In the case of contamination and/or heavy sedimentation, the water will either be tankered offsite for disposal in a licensed facility or pumped to a portable onsite settlement tank for treatment and tested to confirm suitability for discharge to existing drains. These operations will be monitored by a designated competent member of the construction team on a regular basis to ensure that they are working effectively.

Careful consideration should be given to works in relation to works near waterbodies and within flood plain areas.

- Temporary storage of concrete for cable trench works will only occur on hardstand areas within a designated, flat, contained concrete area where there is no direct drainage to surface waters and where the allocated area has been bunded. A 10m setback from hedgerows and treelines, 20m setback from streams and at least a 15m setback from all other drains and required setbacks from any badger setts will be implemented. The Contractor shall provide test certificates confirming that the thermal resistivity of the concrete is maximum 1K.m/W.
- A Contractors CEMP including all safety and approved Risk Assessments and Method Statements (RAMS) shall be developed by the Contractors appointed Project Supervisor Construction Stage (PSCP) for all key works activities and agreed with the designers PSDP in advance of all relevant construction works as part of the Contractors Construction Stage Safety and Health Plan.
- All construction RAMS will be prepared and agreed with the relevant stakeholders and local authority requirements in advance of any works. Risks can be further minimised by intrusive surveys such as slit trenches, structural assessments, trial holes and bore holes as required along the cable route, and at the preferred locations for joint bays.
- All off road temporary haul roads stone materials surplus to the permanent access tracks arrangement shall be removed offsite, with all lands, boundaries reinstated as agreed with relevant stakeholders.

## 4.2 Biodiversity

Potential impacts during construction can include habitat loss, habitat deterioration, disturbance (i.e., visual, vibration and noise, temporary barriers to connectivity, etc.) and the potential for the release of pollutants and contaminants (i.e., suspended solids, oils, fuels, paints, concrete, lime, etc.) to receiving watercourses.

A range of factors influence the potential significance of effects including vulnerability of individual receptors (e.g., condition of vegetation, or fitness of faunal populations), time of year and lifecycle stage of a species impacted, and the potential for unforeseen events such as extreme weather (including flooding of working areas), or introduction of invasive species to exacerbate predicted impacts.

### 4.2.1 Environmental Mitigation and Control Measures and Proposals

For each of the potential sources of an environmental impact on the existing environment, the appointed Contractor will identify the control and protection measures to be implemented. The following general control and mitigation measures should be followed as a minimum to ensure no significant adverse direct and indirect effects on the environment arise from the Proposed Development.

The oCEMP should be read in conjunction with the mitigation measures outlined in the Ecological Impact Assessment (EclA) report<sup>2</sup>. All mitigation measures from the EclA and ECR as well as any planning consent conditions (should the Proposed Development be granted planning permission) or mitigation measure identified during pre-construction surveys will be included within the Contractors CEMP by the contractor. The appointed Contractor will review all planning documents and all pre-construction surveys when preparing the Contractors CEMP.

#### 4.2.1.1 Mitigation Measures

The following measures will be implemented to protect biodiversity:

- Fencing to ensure habitat is not damaged during construction activities, minimum of 10m stand-off  
Implementation of pollution control measures as part of the CEMP.
- Fencing to ensure habitat is not damaged during construction activities, minimum of 10m stand-off implemented from the watercourses.
- At the watercourse crossings for the Proposed Grid Connection there will be trenchless installation in the form of HDD.
- Like for like replacement planting of scrub, hedgerow and trees lost within the Site.

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<sup>2</sup> AECOM (2023) Fieldstown 110kV Substation and Grid Connection Ecological Impact Assessment

- A Contractor CEMP and/or relevant method statements must be produced by the appointed Contractor describing how loss or damage to the retained hedgerows and treelines will be avoided. Such mitigation must be implemented in full. Root protection zones should be implemented.
- Invasive non-native species (INNS) should be avoided during the works where possible. If not possible in any areas, a Biosecurity Management Plan (BMP) will be prepared. The BMP will set out measures to prevent spread of INNS, and include actions for avoiding disturbance of INNS, cleaning of equipment and Personal Protective Equipment (PPE) used in the vicinity of INNS, and careful management of any arisings (including potentially contaminated substrate). Note that it is best practice, more sustainable and more cost effective, where feasible, for INNS arisings to be left in the existing INNS area, rather than removing INNS material off-Site, and removal to landfill is the least sustainable and often the most expensive option.
- To prevent injury/death to mammal species during construction, excavations will be covered overnight to prevent animals from falling in and provided with a means of escape (means of escape includes battering of slopes sufficient to allow mammals to escape).
- Construction works must be restricted to the hours of daylight. Should artificial lighting be required for construction, this must be directional and illuminate the intended working area only, with light spill onto adjacent habitats managed with the use of cowls etc. The treelines and hedgerows should be protected from light spill.
- Should artificial lighting be required for construction, this must be directional and illuminate the intended working area only, with light spill onto adjacent habitats managed with the use of cowls etc. The treeline and hedgerow should be protected from light spill.
- Any additional lighting required for the Proposed Development should be designed to prevent light spill onto the adjacent habitats. This light spill should be no higher than 1 lux. The mitigation described must be detailed in the appointed Contractor's method statement.
- Trees with bat roost suitability to be retained and protected from damage.
- Pre-construction checks for the presence of badgers are required, this must be undertaken no more than six months prior to construction. Should the presence of a badger sett be identified within the Proposed Development then appropriate mitigation will be implemented as described below and detailed within the Contractor CEMP/ method statement.
- To prevent injury/death to badger during construction, excavations will be covered overnight to prevent animals from falling in and provided with a means of escape (means of escape includes battering of slopes sufficient to allow badger or other mammals to escape).
- The badger sett will be clearly marked/fenced with a 30m stand-off to ensure that badger are not disturbed/harmed during construction activities.
- Vegetation removal required to facilitate works for the Proposed Development should be carried out outside the bird nesting season (taken to be from March to August, inclusive).
- Where there is no alternative but to clear vegetation in the bird breeding season, a suitably experienced ecologist must check for active bird nests prior to the clearance taking place. Where active nest(s) are found, the ecologist will establish exclusion zone(s) of appropriate size from which machinery, personnel and materials will be excluded until the nesting attempt(s) have finished. Note that it is difficult to locate all bird nests in extensive habitat, therefore checking for nests will be treated as a last resort, and vegetation clearance in the period September to February is preferred.
- Preparation of Method Statement detailing measures to ensure identified species are not killed/injured and habitats that may support these species are retained and protected during construction activities.

#### 4.2.1.2 Enhancement Measures

Enhancement of the drainage ditch, treelines and hedgerows with native species (that are appropriate to the locality and landscape character) of local provenance could be actioned. Non-native species should not be included.

Given the limited availability of bat roosting opportunities present, the provision of bat boxes within the Site could be considered. These would have to be of appropriate specification for the species likely to be present and suitably located, specifically not within areas which may be lit as a result of the Proposed Development.

Bird nest boxes could also be installed as inexpensive, simple but valuable enhancement.

#### 4.2.1.3 Monitoring

No specific ecological monitoring is recommended.

Pre-construction surveys may be required, especially if survey data becomes more than 18 months old.

### 4.3 Land and Soils

The risk of potential negative impacts on the land and soils environment occurring during the construction phase of the Proposed Development (in the absence of adequate management and mitigation measures) can arise from several activities, for example, weathering and erosion of the surface soils, increased silt levels or pollutants from the construction processes, accidental spills and impacted runoff.

#### 4.3.1 Potential Impacts

Potential construction phase impacts would be associated with the following:

- Excavation and stockpiling of soils, which could lead to soil erosion.
- Potential accidental spills/release of fuels, chemicals, concrete, drilling fluids and lime to ground.
- Soil compaction due to traffic and storage or excessively high stockpiles of soil, and silt laden run off in heavy rain or wheel-washing activities.
- Depletion of natural resources, through use of quarried material as fill.
- Potential for overburden collapse at the proposed HDD locations crossings.

#### 4.3.2 Environmental Mitigation and Control Measures and Proposals

##### 4.3.2.1 Management of Excavated Materials

Temporary storage of soil will be carefully managed in such a way as to prevent potential negative impact on the receiving environment and the soil material will be stored away from any surface water drains. It will be necessary to designate areas within the site where stockpiles will be established in order to facilitate the efficient transfer of material within the site. In order to minimise the potential environmental impact from excavations and stockpiles, it will be necessary to adopt the following mitigation measures:

- Store excavated topsoil for reuse in stockpiles less than 2m high to prevent damage to the soil structure. Other excavated materials of lower engineering quality can be stored in higher stockpiles.
- Segregate different grades of soil where they arise.
- Excavations in made ground will be monitored by an appropriately qualified person to ensure that any contaminated material is identified, segregated and disposed of appropriately. Any material from identified localised areas of contamination shall be segregated and stored in an area where there is no possibility of runoff generation or infiltration to ground or surface water drainage.
- Minimise movements of materials within the stockpiles in order to reduce the degradation of the soil structure.
- On completion of the works, the ground surface disturbed during the site preparation works and at the entry and exit pits for HDD will be carefully reinstated and reseeded at the soonest opportunity to prevent soil erosion.

In order to minimise the impact of the Proposed Development on local geology, where possible, excavated material will be reused on site and imported material including fill and hard standing will be obtained from local sources.

##### 4.3.2.2 Fuel and Chemical Handling/Accidental Release

The following mitigation measures will be implemented to reduce the potential for accidental spills and leaks during the construction phase:

- Designate a bunded storage area at the contractor's compound(s) and away from open ground and surface water gullies or drains for oils, solvents and paints used during construction. The fuel storage tanks shall be bunded to a volume of 110% of the capacity of the largest tank/container within the bunded area or 25% of the total capacity of all the tanks within the bund, whichever is the greater.
- Drainage from the bunded area shall be diverted for collection and safe disposal. All containers within the storage area will be clearly labelled, so that appropriate remedial action can be taken in the event of a spillage.

When moving drums from the bunded storage area to locations within the site plot, a suitably sized spill pallet will be used for containing any spillages during transit.

- Refuelling of construction vehicles and the addition of hydraulic oils or lubricants to vehicles, will take place in designated impermeable refuelling areas isolated from surface water drains.
- Where mobile fuel bowsers are used on the site, in the event of a machine requiring refuelling outside of the designated area, fuel will be transported in a mobile double skinned tank.
- Adequate stocks of hydrocarbon absorbent materials (e.g., spill-kits and/or booms) shall be held onsite in order to facilitate response to accidental spills. Spill response materials shall also be stored on all construction vehicles.
- Any bentonite (or similar HDD drilling head lubrication material) will be handled and removed by the drilling contractor.
- The drilling fluid/bentonite will be non-toxic and naturally biodegradable.
- HDD will be a closed system, with drilling fluid recirculated, the drill cuttings recovered, and drilling fluid reused. Pneumatic leak testing shall be carried out to confirm the integrity of the return line.
- Spent drilling fluids including separated drill materials shall be contained in secure bunded areas for offsite disposal at a licensed disposal facility.

#### **4.3.2.3 Control of Concrete and Lime**

All ready-mixed concrete will be brought to site by truck. Wash down and washout of concrete transporting vehicles will take place at an appropriate designated area and direct discharge of wash water to ground or surface waters will be strictly prohibited.

#### **4.3.2.4 Earthworks Haulage**

The following mitigation measures will be implemented to reduce the soil compaction during the construction phase:

- Earthworks haulage will be along predetermined routes within the proposed development and any deliveries to site will be along existing national, regional and local routes for importation and exportation of materials.
- Haulage with the Proposed Substation Development will be along internal haul roads/access tracks, where practicable.
- Where compaction occurs due to truck movements and other construction activities on unfinished surfaces, remediation works will be undertaken to reinstate the ground to its original condition. Where practicable, compaction of any soil or subsoil which is to remain in situ along the sites will be avoided.

#### **4.3.2.5 Sources of Aggregates and Clean Fill for the Project**

The source of aggregate and fill material will be carefully selected and vetted in order to ensure that it is of a reputable origin and that it is 'clean' (i.e., will not contaminate the environment). The project contract and procurement procedures will be developed to ensure that aggregates are sourced from reputable sources. All potential suppliers will be vetted for the following criteria:

- Environmental management status.
- Regulatory and legal compliance status.

Only suppliers that comply with the planning requirements will be considered for inclusion in the project. Likewise, 'clean' fill material will only be sourced from suppliers who comply with the above requirements.

The use of quarried material would lead to the depletion of a non-renewable natural resource. However, quantities of fill material required to be imported to site are likely to be extremely small, when compared to the national demand for aggregates.

#### **4.3.2.6 Overburden Collapse (HDD)**

The following mitigation measures will be implemented to reduce the potential for overburden collapse during the construction phase:

- Detailed subsurface investigations will be carried out at the proposed HDD locations prior to construction.
- Limits will be placed on drilling fluid pressures in the annular space of the bore to prevent inadvertent drilling fluid returns to the ground surface and maintain bore stability.
- A minimum soil cover depth of 3m will be maintained under existing roads and watercourses.

- Ground settlement, horizontal movement and vibration monitoring will be implemented during construction activities to ensure that the construction does not exceed the design limitations.

## 4.4 Water

Development works by their nature have the potential to impact watercourses and groundwater by way of pollution.

### 4.4.1 Potential Impacts

The main potential impacts associated with the construction of the Proposed Development include:

- Vegetation removal, site stripping and bulk earthworks as part of the construction would leave deposits exposed to erosion by wind or rain and this could potentially lead to increases in sediment loading of the surface water network.
- Contamination of surface water from suspended sediments may also be caused by runoff from material stockpiles, excavation dewatering and dirt from vehicles.
- Potential accidental spills/release of fuels, chemicals, concrete, drilling fluids and lime to ground.
- Excavation and removal of contaminated made ground has the potential to release contaminants via runoff to surface water bodies.
- Migration of pollutants associated with the HDD to enter the surface water environment as a result of a frack out.

### 4.4.2 Environmental Mitigation and Control Measures and Proposals

#### 4.4.2.1 Sedimentation (Suspended Solids)

The following mitigation measures would be implemented to reduce the potential for sedimentation during the construction phase:

- Instream works are not required at any watercourse crossing along the Proposed Grid Connection. There will be no tracking of machinery within watercourses.
- There will be no storage of material/equipment or overnight parking of machinery inside the 15m buffer zone to the watercourse.
- Before any ground works are undertaken, double silt fencing will be placed upslope of the watercourse channel along the 15m buffer zone boundary.
- Drainage channels and streams will be clearly identified on site and shown on method statements and site plans.
- During the construction activities there will be a requirement for diverting rainwater away from the construction areas, into nearby drainage channels and streams.
- Visual inspections of roads and wheel washing at site entry/exit points will be undertaken to prevent the accumulation of dirt.
- Excavations will only remain open for limited time periods to reduce groundwater and surface water ingress and water containing silt will be passed through a settlement tank or adequate filtration system prior to discharge. A discharge consent will be obtained as necessary for disposal of dewatering water and groundwater arising from pumping (if any) or such water may be disposed of as construction site run off where appropriate.
- Dewatering, where required, will incorporate the use of filter media. there will be no direct discharges into the watercourses.
- Spoil and temporary stockpiles including stone stockpile areas will be positioned in locations which are distant from drainage systems and retained drainage channels, away from areas subject to flooding.
- Runoff from spoil heaps will be prevented from entering watercourses by diverting it through onsite settlement ponds and removing material as soon as possible to designated storage areas.
- Silt traps will be placed across the works boundary in any areas adjacent to watercourses to avoid siltation of watercourses. These will be maintained and cleaned regularly throughout the construction phase. Attention will also be paid to preventing the build-up of dirt on road surfaces, caused by trucks and other plant entering and exiting the Proposed Development site.



#### 4.4.2.2 Fuel and Chemical Handling/Accidental Release

The following mitigation measures would be implemented to reduce the potential for accidental spills and leaks during the construction phase:

- There will be no tracking of machinery within watercourses.
- There will be no storage of material/equipment or overnight parking of machinery inside the 15m buffer zone to the watercourse.
- Before any ground works are undertaken, double silt fencing will be placed upslope of the watercourse channel along the 15m buffer zone boundary.
- Designate a bunded storage area at the contractor's compound(s) and away from surface water gullies or drains for oils, solvents and paints used during construction. The fuel storage tanks shall be bunded to a volume of 110% of the capacity of the largest tank/container within the bunded area or 25% of the total capacity of all the tanks within the bund, whichever is the greater.
- Drainage from the bunded area shall be diverted for collection and safe disposal. All containers within the storage area will be clearly labelled, so that appropriate remedial action can be taken in the event of a spillage. When moving drums from the bunded storage area to locations within the site plot, a suitably sized spill pallet will be used for containing any spillages during transit.
- Refuelling of construction vehicles and the addition of hydraulic oils or lubricants to vehicles, will take place in designated impermeable refuelling areas isolated from surface water drains.
- There will be no refuelling allowed within 100m of the watercourse crossing.
- Where mobile fuel bowsers are used on the site, in the event of a machine requiring refuelling outside of the designated area, fuel will be transported in a mobile double skinned tank.
- Adequate stocks of hydrocarbon absorbent materials (e.g., spill-kits and/or booms) shall be held onsite in order to facilitate response to accidental spills. Spill response materials shall also be stored on all construction vehicles.
- Any bentonite (or similar HDD drilling head lubrication material) will be handled and removed by the drilling contractor. Typically, bentonite is used, which comprises 95% water and 5% bentonite clay which is a non-toxic, natural substance. HDD will be a closed system, with drilling fluid recirculated, the drill cuttings recovered, and drilling fluid reused. Pneumatic leak testing shall be carried out to confirm the integrity of the return line.
- Spent drilling fluids including separated drill materials shall be contained in secure bunded areas for offsite disposal at a licensed disposal facility.

#### 4.4.2.3 Control of Concrete and Lime

All ready-mixed concrete will be brought to site by truck. Wash down and washout of concrete transporting vehicles will take place at an appropriate designated area and direct discharge of wash water to surface waters will be strictly prohibited.

#### 4.4.2.4 Management of Excavated Materials

Temporary storage of soil will be carefully managed in such a way as to prevent potential negative impact on the receiving environment and the soil material will be stored away from any surface water drains. It will be necessary to designate areas within the site where stockpiles will be established in order to facilitate the efficient transfer of material within the site. In order to minimise the potential environmental impact from stockpiles, it will be necessary to adopt the following mitigation measures:

- Store excavated topsoil for reuse in stockpiles less than 2m high to prevent damage to the soil structure. Other excavated materials of lower engineering quality can be stored in higher stockpiles.
- Segregate different grades of soil where they arise.
- Excavations in made ground will be monitored by an appropriately qualified person to ensure that any contaminated material is identified, segregated and disposed of appropriately. Any material from identified localised areas of contamination shall be segregated and stored in an area where there is no possibility of runoff generation or infiltration to ground or surface water drainage.
- Minimise movements of materials within the stockpiles in order to reduce the degradation of the soil structure.

#### 4.4.2.5 Migration of Drilling Fluids

The following mitigation measures would be implemented to reduce the potential for HDD drilling fluid migration during the construction phase:

- Detailed subsurface investigations will be carried out at the proposed HDD locations prior construction.
- The drilling fluid/bentonite will be non-toxic and naturally biodegradable.
- Limits will be placed on drilling fluid pressures in the annular space of the bore to prevent inadvertent drilling fluid returns to the ground surface and maintain bore stability.
- A minimum soil cover depth of 2m will be maintained under existing roads and watercourses.
- The area around the bentonite batching, pumping and recycling plant will be bunded using terram (as it will clog) and sandbags in order to contain any spillages.
- Drilling fluid returns will be contained within a sealed system to prevent migration from the works area.
- Spills of drilling fluid will be clean up immediately and stored in an adequately sized skip before been taken offsite.

### 4.5 Air Quality

Negative air quality impacts can come from many sources during construction. Emissions from the construction phase are transient in nature and will include emissions from vehicles, and dust-raising activities from earthworks and construction processes. Dust and air pollution, including odours, can cause disruption to properties and the public adjacent to the construction works, and can also have adverse impacts upon other environmental receptors, including watercourses and ecologically designated sites.

#### 4.5.1 Potential Impacts

Mitigation and general control measures shall be required so that construction works are carried out in such a manner that emissions of dust and other pollutants are limited, and that best practicable means are employed to minimise disruption, risks to human health, and to avoid unnecessary impacts on sensitive ecological habitats.

The construction dust and particulate matter assessment follows the step-by-step approach set out in relevant IAQM guidance (2014).

#### 4.5.2 Environmental Mitigation, Control Measures and Proposals

IAQM recommended dust (and particulate matter) mitigation measures for Low-risk sites are as follows:

- Display the name and contact details of person(s) accountable for air quality and dust issues on the site boundary.
- Display the head or regional office contact information.
- Develop and implement a Dust Management Plan (DMP).
- Record all dust and air quality complaints, identify cause(s), take appropriate measures to reduce emissions in a timely manner, and record the measures taken.
- Make the complaints log available to the local authority when asked.
- Record any exceptional incidents that cause dust and/or air emissions, either on- or Offsite, and the action taken to resolve the situation in the logbook.
- Undertake daily onsite and offsite inspection, where receptors (including roads) are nearby, to monitor dust, record inspection results, and make the log available to the local authority when asked.
- Carry out regular site inspections to monitor compliance with the DMP, record inspection results.
- Increase the frequency of site inspections by the person accountable for air quality and dust issues onsite when activities with a high potential to produce dust are being carried out and during prolonged dry or windy conditions.
- Plan site layout so that machinery and dust causing activities are located away from receptors, as far as is possible.
- Erect solid screens/barriers or enclose site or specific operations where there is a high potential for dust production and the site is active for an extensive period.

- Fully enclose site or specific operations where there is a high potential for dust production and the site is active for an extensive period.
- Avoid site runoff of water or mud.
- Keep site fencing, barriers and scaffolding clean using wet methods.
- Remove materials that have a potential to produce dust from site as soon as possible, unless being re-used on site. If they are being re-used onsite cover as described below.
- Cover, seed or fence long-term stockpiles to prevent wind whipping.
- Ensure all vehicles switch off engines when stationary - no idling vehicles.
- Avoid the use of diesel- or petrol-powered generators and use mains electricity or battery powered equipment where practicable.
- Impose and signpost maximum-speed-limits on surfaced and unsurfaced haul roads and work areas.
- Only use cutting, grinding or sawing equipment fitted or in conjunction with suitable dust suppression technique.
- Ensure an adequate water supply on the site for effective dust/particulate matter suppression/mitigation.
- Use enclosed chutes and conveyors and covered skips.
- Minimise drop heights from conveyors, loading shovels, hoppers and other loading or handling equipment and use fine water sprays on such equipment if it is fitted.
- Ensure equipment is readily available onsite to clean any dry spillages and clean up spillages as soon as reasonably practicable after the event using wet cleaning methods.
- Avoid bonfires and burning of waste materials.
- Avoid scabbling (roughening of concrete surfaces) if possible.
- Ensure sand and other aggregates are stored in bunded areas and are not allowed to dry out.
- Use water-assisted dust sweeper(s) on the access and local roads, to remove, as necessary, any material tracked out of the site.
- Avoid dry sweeping of large areas.
- Ensure vehicles entering and leaving sites are covered to prevent escape of materials during transport.
- Record all inspections of haul routes and any subsequent action in a site logbook.
- Implement a wheel washing system (with rumble grids to dislodge accumulated dust and mud prior to leaving the site where reasonably practicable). Ensuring that there is an adequate area of hard surfaced road between the wheel wash facility and the site exit, wherever site size and layout permits.

## 4.6 Climate

### 4.6.1 Potential Impacts

The greatest contribution to construction emissions is from worker travel, accounting for 35% of construction emissions.

The operational GHG footprint is considered to reflect a robust worst-case as the calculations have been carried out using current emissions factors. Embodied carbon and emissions associated with energy and fuel use are anticipated to be lower in the future as a result of grid decarbonisation and machinery and vehicle electrification in line with Ireland's net zero carbon emissions target for 2050.

### 4.6.2 Environmental Mitigation, Control Measures and Proposals

It is recommended that the following climate mitigation measures are implemented:

- Specification of locally sourced materials with lower embodied carbon content where feasible, in line with circular economy principles.
- Turning off machinery engines when not in use.
- Ensuring regular maintenance of construction machinery.

- Handling materials efficiently on site to minimise the waiting time for loading and unloading, thereby reducing potential emissions.
- A requirement for the Contractor to implement an Energy Management System for the duration of the works.
- Substation to be constructed at a level above any potential flooding.
- Have a policy in place for flood defence which is reviewed on a regular basis. For example, portable flood defence equipment deployed at strategic locations (e.g., aqua sack, barriers, high speed pumps).
- Substation equipment (e.g., cables) to be specified for use in higher temperatures projected in the future.
- Maximise the use of natural ventilation to keep internal temperatures within plant and equipment operating within their optimum parameters.

## 4.7 Noise and Vibration

### 4.7.1 Potential Impacts

Noise and vibration impacts may arise from a wide variety of sources during construction and to varying degrees during the course of the works, depending upon the stage of construction (i.e., ground works, HDD, etc.).

Once constructed, the Proposed Development will incorporate some sound generating elements, in particular a 110MV transformer. Potential noise impacts associated with these sources are discussed further below. Due to the nature of the proposed development, once constructed, no significant increase in road traffic is expected on the existing road network.

### 4.7.2 Noise Limits

Noise limits for construction works are provided by the NRA Guidelines and BS 5228. The NRA Guidelines provide fixed limits, whereas BS 5228 provides limits which vary depending on the ambient sound levels at the receptors.

As the ambient sound levels at the receptors are unknown at the time of this assessment the lowest noise limit provided by the 'ABC' method in BS 5228 (Category A threshold values) should be used. Where the NRA guidelines and BS 5228 differ, the most stringent criteria will be used.

Category A threshold values from BS 5228 and the maximum permissible sound levels from the NRA guideline have been compared and the most stringent criteria chosen. For different times of day these are outlined below in Table 3-2.

**Table 4.1 Construction Noise Limit at Receptors**

Period	Noise limit $L_{Aeq, T}$
Weekday Daytime (07:00 to 19:00)	65
Weekday Evening (19:00 to 23:00)	55
Saturday Mornings (07:00 to 13:00)	65
Saturday Afternoons and Evenings (13:00-23:00)	55
Sundays and Bank Holidays Daytime (08:00 to 16:30)	55
Night-time (23:00-07:00)	45

### 4.7.3 Environmental Mitigation and Control Measures and Proposals

All plant items used during the construction phase of the Proposed Development should comply with standards outlined in Construction Plant and Equipment Permissible Noise Levels Regulations<sup>3</sup>.

Reference is made to BS 5228, which offers detailed guidance on the control of noise from construction activities.

The following various practices should be adopted during construction, including:

- Limiting the hours during which noisy site activities occur to 07.00-19.00.
- Appointing a site representative responsible for matters relating to noise.

<sup>3</sup> European Communities (1998), Construction Plant and Equipment) (Permissible Noise Levels) Regulations

- Establishing channels of communication between the contractor/applicant, FCC and residents.

Furthermore, it is envisaged that a variety of practicable noise control measures will be employed. These include:

- Selection of construction plant with low inherent potential for generation of noise and/or vibration.
- Erection of temporary barriers around items such as construction generators or high duty compressors. For maximum effectiveness, the barrier will be positioned as close as possible to either the noise source or receiver. The barrier will be constructed of material with a mass of  $> 7\text{kg/m}^2$  and have no gaps or joints in the barrier material. As a rough guide, the length of a barrier will be five times greater than its height. A shorter barrier would be bent around the noise source, so no part of the noise source is visible from the receiving location.
- Siting of noisy construction plant as far away from sensitive properties as permitted by site constraints.

## 4.8 Material Assets

### 4.8.1 Potential Impacts

There is potential for disruption to utility services during construction works.

### 4.8.2 Environmental Mitigation, Control Measures and Proposals

- All reasonable measures will be taken to avoid unplanned disruptions to any services during the proposed works. This will include thorough investigations to identify and reconfirm the location of all utility infrastructure within the works areas.
- Service disruptions impacting the surrounding residential, social and commercial properties will be kept to a minimum, only occurring where unavoidable. Prior notification of disruptions will be given to all impacted properties. This will include information on when disruptions are scheduled to occur and the duration of the disruption. Consultation with relevant neighbouring parties will be undertaken prior to any proposed disruptions.
- The excavation of trenches within the vicinity of existing utilities will be carried out in consultation with ESB Networks, Gas Networks Ireland, Uisce Eireann, local authorities and other relevant entities to ensure that there is no impact on existing users. Once the construction of the Proposed Development is completed.

## 4.9 Cultural Heritage

### 4.9.1 Potential Impacts

There is the possibility that the Proposed Substation Development may have been utilised in the past for settlement or other activities before becoming agricultural land. Evidence of such activity would exist, as yet previously undiscovered archaeological sites and features. Any such sites and features would likely be of local interest and low importance although the archaeological interest and importance of as yet unrecorded assets can only be confirmed upon identification.

Overall, much of the Proposed Grid Connection footprint runs along existing roads where the existing ground has been disturbed by road construction and the laying of services. This activity would have severely impacted or destroyed any archaeological features which may have existed. However, if unexpected remains are found during construction, the potential impacts upon such archaeological sites and features would consist of the destruction of sites, features or deposits during construction and impacts upon sites, features or deposits to gain site access.

The construction of the Proposed Development will also introduce additional traffic and noise to the areas of the Protected Structures and assets recorded on the National Inventory of Architectural Heritage (NIAH). While these have the potential to impact upon the settings of these assets, this will be a temporary impact limited to the construction phase.

### 4.9.2 Environmental Mitigation, Control Measures and Proposals

#### 4.9.2.1 Proposed Substation Development

Archaeological testing will be carried out at the pre-construction phase in areas identified in the construction impacts section above where the proposed development has the potential to impact upon archaeological remains. All archaeological works (which will be agreed by the Archaeological Consultant and the NMS) will be

carried out in compliance with the National Monuments Acts and Policy and Guidelines on Archaeological Excavation<sup>4</sup>.

A suitably qualified and licensed Archaeological contractor will be appointed to carry out the archaeological fieldwork. Relevant licenses will be acquired from the DHLGH and the National Museum of Ireland (NMI) for all archaeological works, which will be carried out in accordance with an Overarching Method Statement for Archaeological Works prepared by the Archaeological Consultant and agreed with the NMS. It is anticipated that all archaeological works will be completed pre-construction.

The programme of pre-development archaeological testing would likely consist of the mechanical excavation of test trenches down to sterile glacial tills and bedrock by means of a smooth toothless bucket at specified locations within the Proposed Development site but in particular within areas where construction will require sub-surface excavation works. The appointed archaeologist will undertake full-time monitoring of the excavation of the test trenches and where appropriate, carry out archaeological investigation.

Should archaeological material/features be encountered during the archaeological testing, the use of machinery shall cease, and further archaeological investigation (by hand) shall be carried out to determine the nature and extent of archaeological remains. Archaeological deposits shall not be removed as part of the assessment process.

The testing should be undertaken in advance of construction to allow adequate time to evaluate, record and where necessary mitigate any archaeological features that may be revealed. In the event that any archaeological features are uncovered the NMS will be consulted to determine the appropriate mitigation measures which may include preservation *in situ*, preservation in record through systematic archaeological excavation and/or monitoring of specific construction activities during the construction phase.

Archaeological issues will be resolved where possible, at the pre-construction stage of the development. If unexpected archaeological remains or artefacts are discovered during construction work, work in that area will cease and the area will be protected. An unexpected finds procedure will be included in the Overarching Method Statement for Archaeological Works. The Archaeological Consultant and NMS will be notified, and the unexpected find protocol will be implemented.

#### 4.9.2.2 Proposed Grid Connection

The Contractor will submit a notification of proposed works within the Zones of Notification around the recorded monuments to the National Monuments Service at least two months prior to commencement of construction works. The appointed Archaeologist will undertake constant archaeological monitoring of cable laying works within the Greenfield sections of the Proposed Development and the sections of road encompassed by the Zones of Notification associated with the recorded monuments. During this watching brief, the Archaeologist will be delegated authority by the Contractor's engineer to:

- Halt trenching work by the Contractor in a specified area where it is necessary to examine any potential archaeological material encountered.
- Undertake any archaeological procedure necessary for the recording and removal of archaeological objects or features before work by the Contractor can resume within a specified area.
- Instruct the Contractor as to the measures required to be taken to protect archaeological remains to be left in situ, should circumstance arise.

The Contractor will agree with the Engineer and the Archaeologist:

- A programme to ensure that excavation of deposits that are of archaeological interest, is carried out under the supervision of the Archaeologist.
- A method statement describing how trenching will be excavated and what excavation machinery will be used in the stripping and removal of the topsoil and underlying deposits.
- Arrangements to allow the Archaeologist sufficient time to examine, record and remove, if necessary, the revealed and discovered archaeological remains.
- Arrangements to protect archaeological remains to be left in-situ.

Any recommendations contained in this report are subject to the ratification of the National Monuments Section, Department of Tourism, Culture, Arts, Gaeltacht, Sport and Media.

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<sup>4</sup> Department of Arts, Heritage Gaeltacht and the Islands (1999), Policy and Guidelines on Archaeological Excavation

## 4.10 Landscape and Visual

### 4.10.1 Potential Impacts

The following potential visual effects, direct and indirect landscape effects, as well as the duration and nature of effects arising from the Proposed Development, have been identified.

### 4.10.2 Construction Phase

#### 4.10.2.1 Proposed Substation Development

Areas experiencing landscape and visual effects during the construction stage will be experienced locally from the adjacent local road network. The sensitivity of views on residential receptors is considered high, particularly for the residents located along the local road to the west of the Proposed Substation Development boundary, however the vegetation present within the field boundaries and roadside will be a mitigating factor given the level of vegetation within the immediate context. It is considered that there will be some available views of construction works from within the wider area due to the nature of the development, containing many vertical elements.

Construction effects will result in:

- Potential effects to landscape character or visual amenity within the locality or the wider study area as a result of the visibility of construction activities such as ground works and associated construction machinery.
- Effects of temporary site infrastructure such as site traffic and construction compounds especially those located in areas adjacent to sensitive landscape and visual receptors.
- Potential physical effects arising from construction of the development and in particular on the landscape resource within the site area.

Landscape and visual effects and their significance during construction works will be temporary. They will be highest within the immediate vicinity of the site. However, the vegetation within the immediate field boundaries will screen the majority of the construction works. The majority of significant views of construction works will likely be experienced within a radius of approximately 200m to either side of the construction site and can range up to 600m radius, particularly for properties located east and south of the Proposed Substation Development. The nearest property is located approximately 200m to the southeast of the Proposed Substation Development boundary. Given the vegetation providing screening, especially along the 'Broad Meadow River' corridor, the potential for views of construction works from this route is reduced significantly. The magnitude of visual effects is considered Moderate to High in available close distance views. Their significance is considered Moderate-Significant Adverse.

The visibility of construction works within the wider study area will be related to vehicular construction traffic along 'Roletown Drive' to the east of the site and along the R122 to the east and R125 south of the site. The landscape and visual effects and their significance at construction stage will be temporary, adverse and range from Low/Negligible in the wider study area (approximately 200m to 600m and beyond) to Medium/High (within approximately 200m of the site boundary). The significance will range from Slight/Not Significant Neutral in the wider study area to Moderate/Significant Adverse within approximately 200m radius from the boundary of the Proposed Substation Development.

#### 4.10.2.2 Proposed Grid Connection

The proposed Grid Connection will comprise underground cables within the existing road network and occasionally underground through private farmland (at the Broadmeadow River, Ward River and adjacent to the intersection of the N2 and M50). Open cut trenching will be required to lay the cables during the construction phase generating temporary and transient effects. Stream crossings will be achieved using HDD. The prevailing surface (generally road) will be fully reinstated following construction. The majority of significant views of construction works will likely be experienced within a radius of approximately 200m to either side of the construction site and can range up to 600m radius. The magnitude of visual effects is considered Moderate to High in available close distance views. Their significance is considered Moderate-Significant Adverse.

The landscape and visual effects and their significance at construction stage will be temporary, adverse and range from Low/Negligible in the wider study area (approximately 200m to 600m and beyond) to Medium/High (within approximately 200m of the site boundary). The significance will range from Slight/Not Significant Neutral in the wider study area to Moderate/Significant Adverse within approximately 200m radius from the boundary of the Proposed Development.

### 4.10.3 Environmental Mitigation, Control Measures and Proposals

The embedded landscape mitigation measures will maximise the retention of existing vegetation, where possible, particularly along the proposed access road to the Proposed Substation Development. The Proposed Substation Development will be planted with a mix of native shrubs and woodland, native hedgerow and wildflower planting (refer Drawings 60657534-ACM-DWG-FT-620 and 60657534-ACM-DWG-FT-621) to increase screening from external areas. The selection of planting will be in coordination with the need for clearance beneath overhead transmission lines. The retention of existing vegetation, where possible, as well as the addition of raised shrub and woodland planting will retain existing screening from the east and increase screening effects in views from the northeast of the site.

As all mitigation is embedded in the Proposed Development and there is no additional mitigation required.

## 4.11 Traffic Management

### 4.11.1 Potential Impacts

Construction of the site is anticipated to take 18 months additional traffic movements are expected to peak at 80 vehicles per day, with 30 of those movements being HGV. Potential construction phase impacts would be associated with the following:

- Additional temporary construction traffic flows to and from the Proposed Development.
- Temporary disruption associated with in-road works during the construction of the Proposed Grid Connection.
- Increased emissions associated with increased construction traffic (refer to Section 4.5).
- Increased noise associated with construction traffic (refer to Section 4.7).
- Pedestrian and other vulnerable road users may be affected by the works.
- HGVs have the potential to transport mud, stones or other debris from the Proposed Development to the public road network resulting in nuisance to local road users or damage to vehicles from loose debris.

### 4.11.2 Environmental Mitigation, Control Measures and Proposals

#### 4.11.2.1 Outline Mobility Management Plan

The environmental impacts created from traffic congestion due to road transport have led to increasing the priority of more sustainable modes of transport. The aim of an Outline Mobility Management Plan (OMMP) is to encourage modes of travel other than the car, whilst recognising that some staff relating to the Proposed Development would still need to use the car and the guidance suggested is to be undertaken where applicable to the Proposed Development. This OMMP is intended for the short-term construction traffic related to the Proposed Development.

This section will present an overview of the mobility management measures for the Proposed Development as a development plan objective in the FDP 2023-2029. Under Policy CMP5 – Mobility Management and travel Planning. The policy states there to be the promotion of best practice mobility management and travel planning through the requirement for proactive mobility strategies for developments focussed on prioritising sustainable modes of travel including walking, cycling and public transport.

Subject to receipt of grant of the application for the Proposed Development, a detailed MMP will be prepared by the contractor for the development primarily intended for the construction period with reference to the smaller operational scale of the Site. The plan will encourage the use of sustainable modes of transport during the construction period such as potential car share initiatives over single private vehicle trips.

Throughout this OMMP where suggestions have been stated, it has been considered for these suggestions to be undertaken only 'where applicable' within either the construction or the operation of the Site. The OMMP details the mobility management measures and targets that will be outlined as part of the planning application. The MMP will collate these outlines and form a binding MMP set out by the contractor for the staff of the site to aim for as the development impacts can be more closely assessed.

#### Monitoring

A critical part of any MMP is monitoring during the peak staff travel period for this site being the construction period. It is proposed that an initial evaluation of the transport operation of the plan will take place at the beginning of the construction period.



Campaigns and promotions would be run throughout the construction period to maintain public awareness of modes of travel other than single car use focussing car sharing where possible and the benefits accrued to both the individual and the environment.

### Measures

This section presents a 'Toolkit' of measures, identifying several 'hard' and 'soft' measures that could be promoted and delivered where possible, to ensure that the theme of sustainability is considered within the Proposed Development.

This section identifies key individuals and groups that will be responsible for the managing the delivery of the MMP. These are:

- A member of the local Garda Siochana.
- Site developer.
- MMP advisor (engineer).

A 'Toolkit' contains a range of 'soft' and 'hard' options, to encourage sustainable travel and achieve the aims of the plans during the construction period. Example of 'softer' measures include, promoting sustainable travel via marketing material via staff correspondence whilst examples of 'harder' measures include setting up a car sharing scheme. Table 4-2 presents a list of sustainable travel planning initiatives for the Proposed Development.

**Table 4-2 Recommended Mobility Management Measures and Actions During Construction Phase**

Initiatives	Responsibility/Ownership	Timescale
<b>Public Transport</b>		
Display a local area map with public transport stops/route numbers marked. Due to the nature of the Site public transport may be part of a combined trip.	Designated Member of staff	To be commenced prior to construction
Provide good quality walking routes to the existing public transport infrastructure where possible.		
<b>Car Sharing</b>		
Encouragement of staff and visitors of the Proposed Development to use other modes of travel other than single use private car.	Designated Member of staff	To be commenced prior to construction
Where it is necessary for car use to travel to and from work, staff should be made aware of other people who are either within close proximity of their homes or on their route into work		
<b>Construction Phase</b>		
Provide a preliminary Construction Traffic Management Plan to provide detailed mitigation of construction traffic associated with the Proposed Development.	The Contractor /FCC Roads & Traffic Department	To be commenced prior to construction

#### 4.11.2.2 Outline Construction Traffic Management Plan

Subject to receipt of grant of the application for the Proposed Development, a detailed CTMP will be prepared by an appointed contractor. The appointed contractor will be responsible for preparing and seeking agreement with FCC ensuring that FCC's requirements are met, prior to undertaking the works on Site.

Due to the nature of the Site, temporary access tracks may be required. These tracks will be placed on the consented land in order to access the Site from the road network, in accordance with the CTMP.

### Policy Guidance

Guidance for the temporary control of traffic at road works to facilitate the safety of the public during the works is provided below:

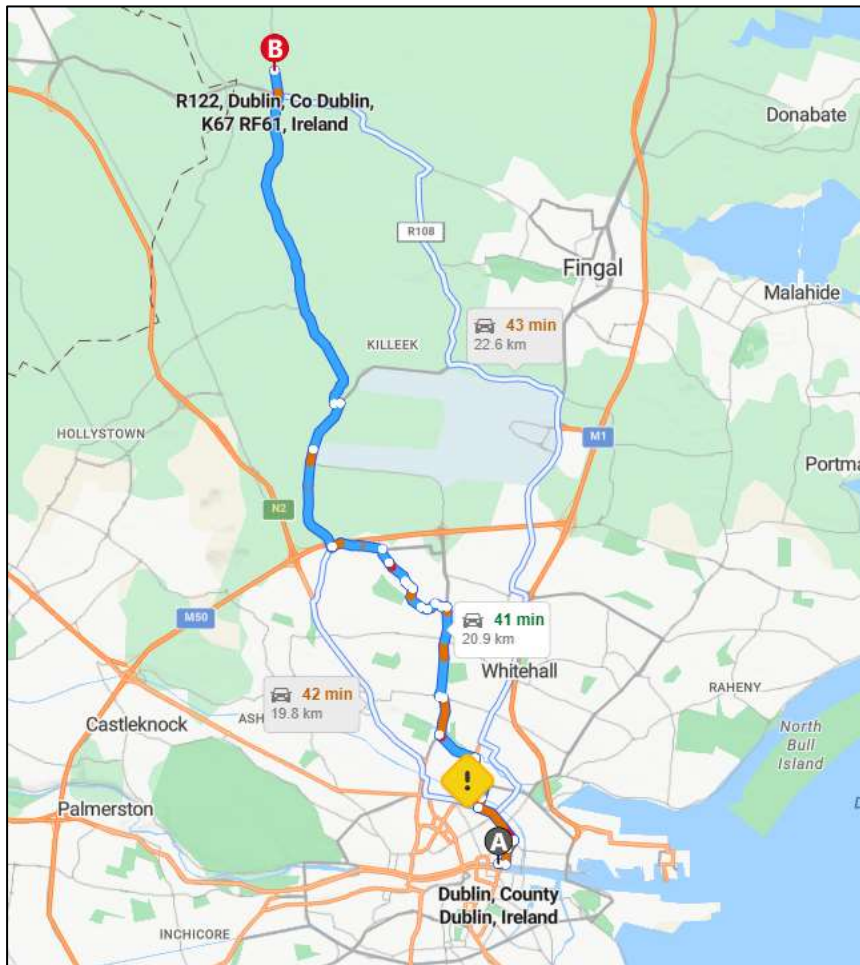
- Traffic Signs Manual Chapter 8 Temporary Traffic Measures and Sign for Roadworks (2019).
- Traffic Management Guidelines, Department of Transport (2003).
- Requirements of FCC.

### Haulage Route

For construction traffic originating from Dublin Port the following route is suggested to minimise construction impacts upon the surrounding road network. It is recommended that all construction traffic access the site from the R122.

It is recommended that all construction traffic from Dublin take the R122 north to the site. The route distance is approximately 20km from Dublin City. This routing has been illustrated in Figure 4-1.

**Figure 4-1 Proposed Construction Routing from Dublin (Source Bing Maps)**



### Parking

All contractors' vehicles will park within the Site compound, it is recommended that as part of the CTMP, the contractor designates an area within the confines of the Site dedicated to operative car parking. There will be no parking permitted on the surrounding road network by the contractor or site operatives.

### Construction Traffic Management Measures

The proposed works will create additional traffic upon the local road network. The presence of slow-moving construction plant on the road network may cause some short-term congestion, however the impacts are envisaged to be temporary, short term and minor.

To address the potential impacts from construction traffic, the appointed contractor will be required to prepare a CTMP which would include mitigation measures.

Below is a list of the proposed traffic management measures to be adopted during the construction works. Please note that this is not an exhaustive list, and that it will be the appointed contractor's responsibility to prepare a detailed construction traffic management plan.

- An Abnormal Load Assessment (ALA) for any abnormal loads including horizontal swept path analysis and mitigation measures, if required, for any identified pinch points on the delivery route. The assessment will also consider escort arrangements and relevant signage.
- Prior to delivery of abnormal loads, the Applicant or their representatives, will consult with An Garda Síochána and FCC to discuss the requirement for a Garda escort. The Applicant will also outline the intended timescale for deliveries and efforts can be made to avoid peak times such as school drop off times, church services, peak traffic times where it is considered this may lead to unnecessary disruption, and abnormal loads may travel at night and outside the normal construction times as may be required by An

Garda Síochána. Local residents at sensitive locations along the affected route will be notified of the timescale for abnormal load deliveries.

- A survey of the agreed route will be undertaken to identify if any overhead lines will need to be lifted along the route to allow abnormal loads to be delivered.
- All works on the public road network shall be carried out under a road opening licence and an approved traffic management plan. The location of works shall be signposted in accordance with the Traffic Signs Manual. Works shall be carried out within a dedicated work zone and fenced to prevent unauthorised access.
- Access for emergency services shall be provided at all times through the works within the public road network.
- Safe and secure pedestrian facilities are to be provided where construction works obscure any existing pedestrian footways. Alternative pedestrian facilities will be provided in these instances, supported by physical barriers to segregate traffic and pedestrian movements, and to be identified by appropriate signage. Pedestrian facilities will cater for vulnerable users including mobility impaired persons.
- The contractor shall appoint a liaison officer who will inform the public of the location and expected duration of works on the public road network.
- Works on the public road will be carried out during normal working hours in order to minimise disruption from noise and vibration. Dust and debris resulting from construction activities shall be controlled by wetting down and street sweeping.
- Warning signs/advanced warning signs will be installed at appropriate locations in advance of the construction access locations.
- 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.
- Appropriate vehicles will be used to minimise environmental impacts from transporting construction material, for example the use of dust covers on trucks carrying dust producing material.
- Speed limits of construction vehicles to be managed by appropriate signage, to promote low vehicular speeds.
- Parking of site vehicles will be managed and will not be permitted on public roads.
- A road sweeper will be employed to clean the public roads adjacent to the Site of any residual debris that may be deposited on the public roads leading away from the construction works.
- Onsite wheel washing will be undertaken for construction trucks and vehicles to remove any debris prior to leaving the Site, to remove any potential debris on the local roads.
- All vehicles will be suitably serviced and maintained to avoid any leaks or spillage of oil, petrol or diesel. Spill kits will be available on Site. All scheduled maintenance carried out offsite will not be carried out on the public highway.

## 4.12 Waste Management

### 4.12.1 Potential Impacts

During the construction phase a range of waste materials will be generated. It is not envisaged that there will be a need to remove large quantities of excavated material from within the Site. It is therefore considered that there will not be a significant amount of waste generated from the construction of the Proposed Development.

### 4.12.2 Environmental Mitigation, Control Measures and Proposals

This section outlines the measures that will be undertaken to minimise the quantity of waste produced at the site and the measures to handle the waste in such a manner as to minimise the effects on the environment.

For each of the potential sources of an environmental impact on the existing environment, the appointed Contractor will identify the control and protection measures to be implemented. The following mitigation and general control measures should be followed as a minimum to ensure no significant adverse direct and indirect effects on the environment arise from the Proposed Development.

#### 4.12.2.1 Waste Management Plan (WMP)

A site-specific construction Waste Management Plan (WMP) will be prepared by the appointed Contractor for the Proposed Development and will be employed to ensure sustainable and effective waste management throughout the excavation and construction phases of the Proposed Development.

The WMP shall apply to all works carried out by the appointed Contractor and any subcontractors under its control. In preparing the plan, the Contractor shall consider the relevant waste management acts and regulations, litter pollution acts, and the Eastern-Midlands Region Waste Management Plan 2015-2021. The EPA Best practice guidelines for the preparation of resource and waste management plans for construction and demolition projects should be considered when producing the WMP for the Proposed Development. In developing the WMP, the appointed Contractor shall also consider the reuse of materials where practicable, where permitted under the relevant waste legislation, and where the material meets the engineering requirements.

#### 4.12.2.2 Waste Management Strategy

The appointed Contractor shall establish a system for the management of wastes in accordance with the Waste Management Hierarchy.

- Prevention.
- Minimisation.
- Reuse.
- Recycling.
- Disposal.

This hierarchy outlines that waste prevention and minimisation are the first priority in managing wastes, followed by waste reuse and recycling. Disposal of waste shall only be considered as a last resort.

The management of all hazardous waste materials, if they occur, will be coordinated in liaison with Health and Safety Management.

#### 4.12.2.3 Waste Storage

A dedicated and secure area will be located within the Site compound. The area will contain bins, and/or skips, and storage areas, into which all waste materials generated by construction site activities are to be stored.

Waste materials generated will be segregated at the site compound, where it is practical. Where the onsite segregation of certain waste types is not practical, offsite segregation will be carried out. There will be skips and receptacles provided to facilitate segregation at source. All waste receptacles leaving site will be covered or enclosed.

The Site Construction Manager will ensure that all staff are informed of the requirements for segregation of waste materials by means of clear signage and verbal instruction.

#### 4.12.2.4 Waste Identification and Classification

The appointed Contractor shall establish a procedure to identify and classify all waste arising at the site in accordance with the List of Waste (LoW) Code. The appointed Contractor shall ensure that the waste materials generated during the works are clearly identified as either hazardous or non-hazardous wastes, with reference to the guidance from the EPA (e.g. Procedure for the Identification of the Hazardous Components of Waste (2001) where required and shall establish designated waste storage areas for the different types of waste that may arise.

For each waste stream identified by the appointed Contractor, and for each additional waste stream that may arise during the course of the works, the appointed Contractor shall identify the following:

- The appropriate low Code.
- A suitable Waste Collection Contractor in possession of a valid Waste Collection Permit for the collection of the particular waste within County Meath.
- The waste recovery or disposal site, including the transfer station where the waste may be transferred to upon leaving the site in possession of a valid Waste Facility Permit or Waste License, as appropriate.
- The recovery or disposal method for the waste.

Only Contractors in possession of a valid Waste Collection Permit shall collect wastes from the Site. The appointed Contractor responsible for the waste shall ensure that the Waste Collection Contractor:

- Is permitted to collect the particular waste.
- Is permitted to collect waste within County Meath.
- Uses a waste collection vehicle identified on the waste collection permit.
- Transfers the waste to a licenced waste facility identified on the waste collection permit.

The appointed Contractor shall ensure the following information is provided and available upon request:

- Transfer notes for controlled waste and consignment notes for hazardous waste must include an accurate description of the type, quantity and containment of waste. Standard industrial classification. The low code. Details of the waste carrier, who must be licensed.
- Sufficient information must be provided to ensure that the waste disposal operator is aware of the potential hazards of the substance.
- The appointed contractor should also ensure that returns for consignment notes are collected and retained.
- All documentation must be retained for a minimum of two years for transfer notes and three years for consignment notes and be available for inspection.

The appointed Contractor and all Trade Contractors removing waste directly from Site must provide the following documentation:

- Waste forecast.
- Licence documentation for all waste carriers removing waste and for all waste destinations receiving waste (to be approved before use).
- Recycling rates from facilities being used.
- Waste consignment notes (for a minimum of three years) for all hazardous waste. These must include the following:
  - Consignment note code.
  - Details of the site that the hazardous waste is removed from.
  - Details of waste disposal site.
  - Waste producer details if different to site details.
  - Description of the waste (written description, low code and sic number).
  - Details of process that has generated this waste.
  - Specific details of the waste- quantity, chemical/biological components, physical form and hazardous properties any special handling requirements.
  - Signature of consignor once completed.
- Waste transfer notes (for a minimum of two years) for all non-hazardous waste. These must include the following and should be reported:
  - Accurate description of the waste type (written description, low code and sic number).
  - Quantity and containment of waste.
  - Location, time and date of the waste transfer.
  - Names of both persons involved in the waste transfer.
  - Details of the waste carrier and facility, both must be licensed.
  - Waste carrier's registration number.

The appointed Contractor shall advise FCC or its representatives in advance if it proposes to act as the Waste Collection Contractor, subject to agreement. In the event that the appointed Contractor acts as the Waste Collection Contractor, it shall ensure that it has the relevant Waste Collection Permit(s) in place prior to commencement of the Proposed Development.

#### **4.12.2.5 Documentation of Waste**

The appointed Contractor shall develop a Waste Documentation System within the overall documentation system for the works. The documentation to be maintained in relation to wastes includes the following (where applicable):

- The names of the agent(s) and the transporter(s) of the wastes.
- The name(s) of the person(s) responsible for the ultimate recovery or disposal of the wastes.

- The ultimate destination(s) of the wastes.
- Written confirmation of the acceptance and recovery or disposal of any hazardous waste consignments.
- The tonnages and low code for the waste materials.
- Details of any rejected consignments.
- The waste transfer forms for hazardous wastes transferred from the site.
- The transfrontier shipment of waste forms for hazardous wastes transferred abroad.
- The certificates of recycling, reuse or disposal for all wastes transferred from the site.
- The results of any analysis conducted on wastes.
- The results of any analysis conducted on excavated soil.

The appointed Contractor shall provide a report of all waste arising at the Site to include the information set out above. Information on the management of waste at the Site shall be made available to the Applicant or its representatives upon request. The original documentation relating to the management of waste shall be maintained at the Site.

#### **4.12.2.6 Responsibility**

It will be the responsibility of the appointed Contractor (inc. sub-contractors) to ensure that a written record of all quantities and natures of wastes removed from the site are maintained onsite in a waste file (in hardcopy or electronically).

It is the responsibility of the appointed Contractor (inc. sub-contractors) or his/her delegate that all contracted waste haulage drivers hold an appropriate waste collection permit for the transport of waste loads and that all waste materials are delivered to an appropriately licenced or permitted waste facility in compliance with the relevant Regulations.

Prior to commencement of the excavation and construction activity and removal of any waste offsite, details of the proposed destination of each waste material will be provided to FCC, along with waste collection permit numbers.

#### **4.12.2.7 Waste Audits**

Waste Audits and monitoring (including truck tracing) will be carried out at regular intervals through the construction phase of the Proposed Development.

The appointed Contractor, as part of regular site inspection audits, will determine the effectiveness of the waste management strategy and will determine the best methods for waste minimisation, reduction, re-use, recycling and disposal as the construction phase progresses and waste materials are generated.

#### **4.12.2.8 Soil Management Plan**

The appointed Contractor shall develop where applicable a Soil Management Plan (SMP) as part of the WMP outlining its proposal for the management and reuse of excavated materials from the Site, where permitted in accordance with the relevant legislation, and provided that the reuse meets the engineering requirements for material used within the works. The SMP will be required to include details such as:

- Depth and method of topsoil stripping and stockpiling, including separation of topsoil resources of different potential.
- Detail relevant stockpile procedures to track dates of creation, sources of materials, classification and disposal/recovery information.
- Methods of stripping and stockpiling of higher quality re-useable subsoil (if appropriate).
- Identification of landscaping topsoil requirements and assessment of suitability and availability of onsite resources (if appropriate).
- Detail relevant procedures for the unexpected finds of contaminated materials onsite including measures for the handling, treatment and management of contaminated materials.
- Means of protection of subsoil from compaction damage and remedial measures (ripping/subsoiling) for reinstatement.

- Means of erosion control and measures to prevent sediment laden run-off entering watercourses/standing water bodies.

In addition, where the appointed Contractor proposes to maximise the reuse of excavated soil in order to minimise the generation of waste, it shall set out how it proposes to manage and document this reuse to the satisfaction of FCC or its representatives. This shall include the following as a minimum:

- Identification and recording of the location from where the material was excavated.
- Delineation of areas where excavated soil is intended for disposal as waste, and where it is intended for reuse (where permitted).
- Delineation of areas of contaminated and uncontaminated soil (if present).
- Sampling of excavated soil (the number and location of soil samples).
- The proposal for the laboratory to carry out the testing.
- The suite of parameters for which the soil is to be tested.
- The criteria for assessing whether the soil is contaminated or uncontaminated.
- Geotechnical criteria for reuse.
- The appointed Contractor shall establish the controls necessary to manage the generation, handling and storage of waste at the Site.

