

**Ballyvatta 110kV Substation and Grid
Connection**

**Outline Construction Environmental
Management Plan**

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1 Introduction

1.1 Background

PUNCH Consulting Engineers have been appointed by Tom Phillips + Associates (TPA) on behalf of the Applicant (Ballyvatta Solar Farm Limited) to prepare this Outline Construction Environmental Management Plan (OCEMP) for the proposed 110kV substation development in Ballyvatta, Co. Cork.

This Outline Construction Environmental Management Plan (OCEMP) seeks to outline the mitigation measures and monitoring proposals required to complete the works, in an appropriate manner, at the proposed development site. Works carried out during the construction phase will be designed to approved standards, which include specified materials, standards, specifications, and codes of practice. The design of the project has considered environmental concerns. The key site targets/objectives are as follows:

1. Ensure construction works and activities are completed in accordance with any planning conditions for the development.
2. Ensure construction works and activities have minimal impact/disturbance to the local community and businesses.
3. Adopt a sustainable approach to construction and, ensure sustainable sources for materials supply where possible.
4. Correct fuel storage and refuelling procedures to be followed.
5. Air and noise pollution prevention to be implemented.
6. Good waste management and housekeeping to be implemented.
7. Provide adequate environmental training and awareness for all project personnel.

Once appointed, it will be the responsibility of the Main Contractor to prepare and submit a detailed Construction Environmental Management Plan (CEMP) for the Client's submission to the local authority for approval. The CEMP will be a live document that will be updated throughout the project lifecycle by the Main Contractor as required.

Therefore, this is a working document and will be developed further prior to and during construction. Triggers for amendments to the CEMP will include:

- a. When there is a perceived need to improve performance in an area of environmental impact.
- b. As a result of changes in environmental legislation applicable and relevant to the project.
- c. Where the outcomes from auditing establish a need for change.
- d. Where Work Method Statements identify changes to a construction methodology to address high environmental risk.
- e. As a result of an incident or complaint occurring that necessitates an amendment.

This report provides the construction and environmental management framework to be adhered to during the pre-commencement and construction phases of the proposed development and it incorporates the mitigating principles to ensure that the work is carried out in a way that minimises the potential for any environmental impacts to occur.

Regardless of the form of contract, the Main Contractor will be contractually bound by any conditions arising from the site constraints identified and specified, all Statutory Regulations governing the works, and any additional measures or modifications that may be imposed on the proposed development by the planning authority.

1.2 Nature of the proposed development

The proposed development comprises the construction of a new 110kV substation and associated grid connection route and access road in Ballyvatta, Co. Cork. The proposed substation location is on a greenfield site currently used for agricultural purposes.

The total planning application area including the substation, grid connection route and access road is 5.35 hectares. The substation itself covers approximately 0.8692 hectares. The grid connection route is 1.09km in length.

The access road will be constructed along the eastern boundary of the existing 220kV substation for deliveries and maintenance. The proposed grid connection will follow the proposed site access road until it meets the L6989, where it will cross under the existing road and utilities (using horizontal directional drilling to the greenfield area to the south of the road and return to the L6989 where it will connect into the existing 220kV Substation.

The location of the site is shown in Figure 1-1 and an extract from the site layout is included in Figure 1-2.



Figure 1-1: Location of the Proposed development

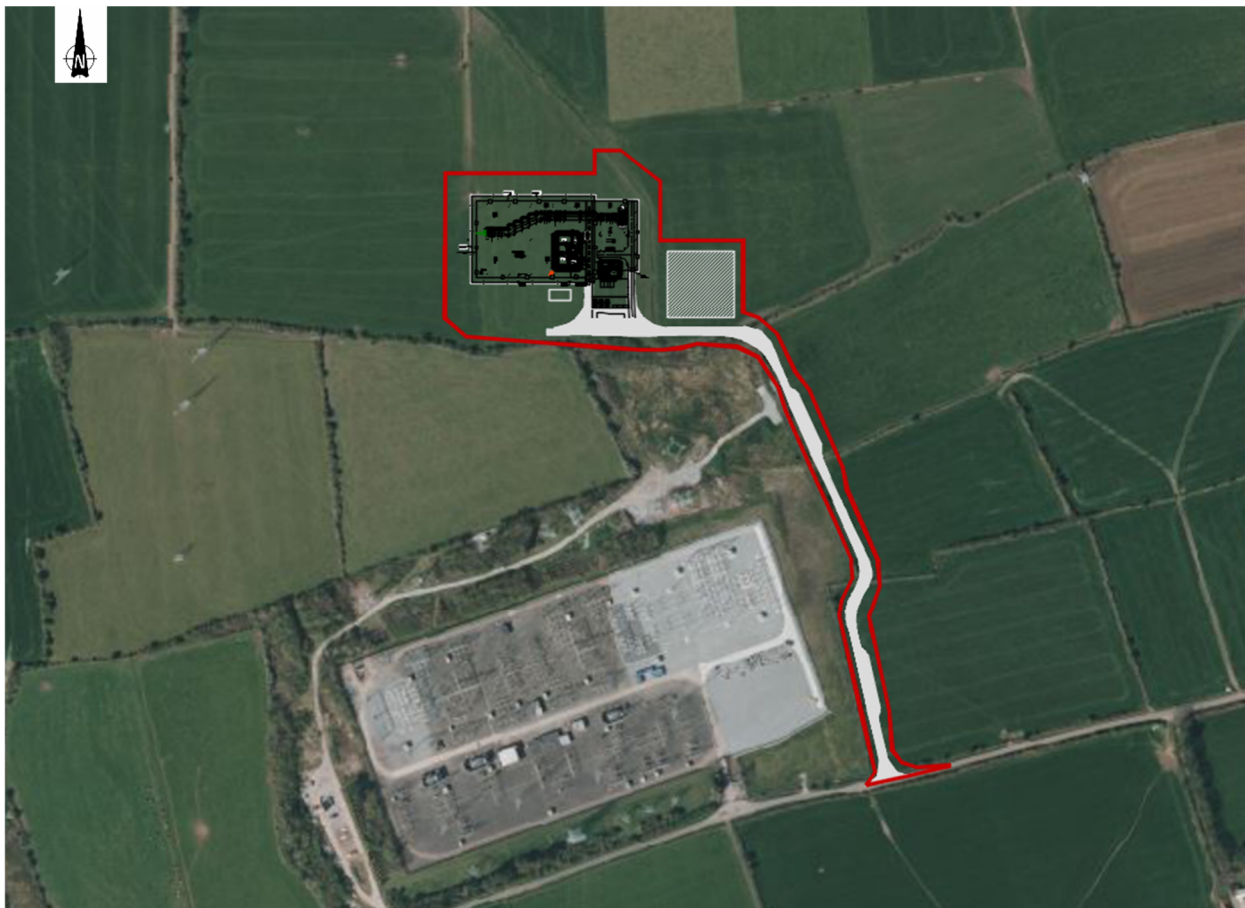


Figure 1-2: Proposed Site Layout

2 Indicative Construction Programme

It is estimated that the duration of the construction phase will be approximately 18 months. This estimation is based on typical construction programmes for other similar developments that are currently underway. The Main Contractor will be required to prepare a detailed construction programme as part of their tender proposal.

3 Site Set-Up and Security

The Main Contractor will be required to submit a site layout plan that will detail the location, as shown in the site layouts that accompany this planning submission, of the temporary compound location. The Main Contractor will ensure that the site compound will be serviced as required and will be secured with appropriate fencing/hoarding. The site compound will be used as the primary location for the storage of materials, plant and equipment, site offices and worker welfare facilities. As Project Supervisor Construction Stage (PSCS), the Main Contractor will be responsible for site security, and they are to ensure that the site and site compound are adequately secured at all times.

As with the other construction activities that are being carried out within the Cork County Council (CCC) local authority area, activities associated with the construction compounds will be subject to restrictions to the nature and timing of operations so that they do not cause undue disturbance to neighbouring areas and communities.

The site layout plan will also include the site perimeter and the proposed detail relating to the hoarding and gate system.

4 Site Access

Access to the development will be via a new entrance located along the L6989 Ballynanelagh local road to the south of the proposed substation site. Access to the L6989 will be from the intersection with the L2966 and L3604 to the east of the site. This access road will be used for all site deliveries and construction traffic. There is currently no pedestrian linkage on this road and the site will be gated and secured appropriately to exclude public access.

5 Material Storage and Delivery

The Main Contractor will ensure that the delivery of materials is coordinated to minimise impacts to adjacent properties. The Main Contractor will ensure that all materials are adequately stored and secured in their site compound.

The Main Contractor will ensure the roads adjacent to the site are kept clean and free of debris.

6 Construction Traffic Management Plan

An Outline Construction Traffic Management Plan (OCTMP) has been undertaken by PUNCH Consulting Engineers for the development and accompanies this planning submission. Once appointed, the preferred Contractor will further develop the traffic management plan as required for the developer to submit to the local authority for approval in advance of works commencing onsite.

7 Potential Interface with Other Projects

In the case that other developments are being constructed simultaneous to the proposed development, the appointed Main Contractor must co-ordinate with all other Contractors to ensure a smooth interface between projects that results in the construction projects having a minimal effect on nearby residents.

There may be a number of PSCS's operating in the urban locality at any one time on individual sites, including the cable duct route works. It will be responsibility of the appointed Main Contractor, as PSCS, to ensure that delivery and haul routes, site access and egress points and potential crossing points associated with the site are fully coordinated and agreed with other Contractors in advance of the works commencing.

8 General Construction Approach

8.1 Construction Working Space

Construction working space will be set out in the detailed construction management plan at compliance stage.

Construction access routes, haul routes and delivery routes to the site are to be agreed with the Engineer/Employer's Representative in advance of works commencing onsite.

Any road closures required will be submitted and approved in advance with the local authority. It is the responsibility of the Main Contractor to prepare and submit the road closure application to the local authority in advance of works commencing onsite.

8.2 Outline Phasing Strategy

It is currently envisaged that the proposed development will be developed in three phases of works.

Pre-Construction Phase Works:

1. Site establishment.
2. Site clearance works.
3. Construction of temporary site drainage.
4. Bulk earthworks including excavation and removal of topsoil/soil.
5. Infilling of material for internal access road, site compound and laydown area.

Construction Phase Works:

1. Trenching and installation of underground cables, cable joint bays and pulling pits.
2. Installation of the associated above ground infrastructure (cable marker posts, communication boxes and access points).
3. HDD of road/utility crossing.
4. Pouring of concrete foundations (potentially piling works if required).
5. Erection of steel frame and cladding walls and roofs for any required buildings.
6. Permanent foul and surface water drainage works.
7. Installation of above ground and underground cabling.
8. Electrical installation, commissioning, and operation.
9. Other miscellaneous civil works including erection of fencing, provision of site entrance, paving etc.

Commissioning Phase Works:

1. Complete electrical testing of the system.
2. Complete testing and commissioning.
3. Practical Acceptance Testing (PAT).
4. Handover.

8.3 Outline Works Description

The construction works will involve an indicative sequence of works, as described in short below. The Main Contractor will outline works which impact public spaces within the Construction Management Plan (CMP) that shall be subject to submission and agreement with CCC.

8.3.1 Hoarding, Site Set-up, and Formation of Site Access/Egress

The site area will be enclosed with hoarding, details of which are to be agreed with CCC. This will involve erecting hoarding around the proposed site perimeter in line with the finished development extents. Hoarding panels will be maintained and kept clean for the duration of the works.

The available site footprint will enable the Main Contractor to set up the site compound within the site boundary.

The Main Contractor will be responsible for the security of the site. The Main Contractor will be required to:

1. Operate a Site Induction Process for all site staff;
2. Ensure all site staff shall have current 'Safe Pass' cards and appropriate PPE;
3. Install adequate site hoarding to the site boundary;
4. Maintain site security at all times;
5. Install access security in the form of turn-styles and gates for staff;
6. Separate public pedestrian access from construction vehicular traffic;

8.3.2 Site Clearance and Demolition

The location is a greenfield site and will require minimal site clearance beyond localised topsoil removal for the proposed access track and hedgerow removal to accommodate the site entrance.

8.3.3 Construction Sequence of Development

The construction methodology and programme of these activities will be dictated by the Main Contractor.

The Main Contractor must prepare a Resource and Demolition Waste Management Plan in accordance with the “Best Practice Guidelines on the Preparation of Waste Management Plans for Construction and Demolition Projects” (Department of Environment, Heritage, and Local Government, 2006) and ensure that all material is disposed of at an appropriately licensed landfill site. The Main Contractor must also outline detailed proposals within the CMP to accommodate construction traffic.

The above represents a high-level indicative construction sequence only. The actual sequence will be dictated by the Main Contractor. The Main Contractor will issue a detailed construction programme outlining the various stages prior to commencement of works.

9 Waste Management Plan

The Main Contractor will be required to prepare a detailed waste management plan for the project. This will be included in the overall construction management plan that will be submitted to the local authority.

10 Communications and Local Stakeholder Management

The Main Contractor will, as required, liaise with owners of the local properties in advance of works commencing on site. The Main Contractor will use a competent sign provider and all signage used will meet the requirements of the Safety, Health & Welfare at Work (General Applications) Regulations 2007 and Chapter 8 Traffic Signs Manual.

11 Working Hours

The proposed hours of work on site will be 07:00 hrs to 19:00 hrs Monday to Friday and 08:00 hrs to 16:30 hrs Saturday unless otherwise specified by planning conditions. It is anticipated that construction working hours will be stipulated in the planning conditions attached to the planning grant. Any working hours outside the normal construction working hours will be agreed with CCC. The planning of such works will take consideration of sensitive receptors, in particular any nearby homes and businesses.

12 Lighting

There are no proposals to alter the existing lighting arrangements in the area. It is not envisaged that any existing public lighting will need to be disconnected as a result of the proposed works. Appropriate lighting will be provided as necessary at construction compounds. All lighting will be installed so as to minimise light spillage from the site, in accordance with the recommendations in the Ecological Impact Assessment. Additional site lighting will be angled downwards to minimise spillage to surrounding areas. The following measures will be applied in relation to additional site lighting:

- 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.
- Lighting will be provided with the minimum luminosity sufficient for safety and security purposes.

- Where practicable, precautions will be taken to avoid shadows cast by the perimeter fencing on surrounding footpaths, roads, and amenity areas.
- Lighting will be positioned and directed as not to unnecessarily intrude on adjacent buildings and land uses, ecological receptors and structures used by protected species, nor to cause distraction or confusion to passing motorists.

13 Construction Employment

Construction employment numbers will vary depending on the construction stage of the project and the actual approach adopted by the Main Contractor.

14 Environmental Impact Mitigation Measures

14.1 Biodiversity and Habitats

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

- Fencing to ensure habitat is not damaged during construction activities, minimum of 15m stand-off implemented from the watercourses.
- Like for like replacement planting of scrub, hedgerow and trees lost within the Site.
- Root protection zones will be implemented in accordance with British Standard (BS) 5837:2012 and installed under the supervision of an appropriately experienced specialist.
- 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 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 offsite, 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). Any pipes should be capped when not in use (especially at night) to prevent animals becoming trapped.
- The treeline and hedgerow should be protected from light spill.
- Any additional lighting required for the 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.
- Work hours should be limited to daylight hours, to limit disturbance to nocturnal and crepuscular animals.
- 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 Development then appropriate mitigation will be implemented and detailed within the Contractor CEMP/ method statement.
- Vegetation removal required to facilitate works for the Development should be carried out outside the bird nesting season.
- 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.

- Works shall be supervised and overseen by an independent suitably qualified and experienced Ecological Clerk of Works who will ensure compliance and strict adherence with the relevant mitigation measures. The clerk of works shall be empowered to halt works where he/she considers that the continuation of the works is likely to result in a significant pollution or siltation incident or disturbance/displacement of protected species. In the event of a water pollution incident, or of damage to the adjacent watercourses, a report will be made available to the relevant statutory authorities, and onsite works will cease until authorized to continue by the planning authority.
- The Contractor must ensure that no harm comes to wildlife by maintaining the site efficiently and clearing away materials which are not in use, such as wire or bags in which animals can become entangled.
- The Main Contractor's CMP must refer to the Malone O'Regan Appropriate Assessment screening report and the Macro Works Landscape and Visual Impact Assessment (LVIA) report for all guidance measures relating to the protection of wildlife specific to this site development.

14.2 Protection of Water Quality

Please refer to Section 14.5 for details on the protection of water quality.

14.2.1 Pollution Control and Spill Prevention

Please refer to Sections 14.4 and 14.5 for details on pollution control and spill prevention.

14.2.2 Adherence to Best Practice Guidance

Construction management measures including specific measures to prevent pollution of watercourses will be incorporated into the CEMP, which will ensure that there are no likely effects on the receiving environment from surface water runoff.

Mitigation measures set out in the CEMP in accordance with CIRIA Good Practice Guidelines (C532 - Control of Water Pollution from Construction Sites) will be implemented during the construction phase of the proposed development.

Guidelines in the following best practice documents should also be adhered to:

1. Construction Industry Research and Information Association (CIRIA) (2005) Environmental Good Practice on Site (C692)
2. Construction Industry Research and Information Association (2001) Control of Water
3. Pollution from Construction Sites, Guidance for Consultants and Contractors (C532)
4. Construction Industry Research and Information Association (2000) Environmental
5. Handbook for Building and Civil Engineering Projects (C512)
6. Environmental Protection Agency (2015) List of Waste and Determining if Waste is
7. Hazardous or Non-Hazardous
8. Environment Agency et al. (2015) Guidance on the Classification and Assessment of Waste, Technical Guidance WM3
9. Environmental Protection Agency (2013) Guidance (and Templates) on the Management of Contaminated Land and Groundwater at EPA Licensed Site
10. Environment Agency (2004) Model Procedures for the Management of Land Contamination (CLR11)

Construction method statements will be submitted to Cork County Council for agreement prior to site works commencing.

14.3 Biosecurity

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 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 offsite, and removal to landfill is the least sustainable and often the most expensive option. The Check-Clean-Dry approach should be followed, ensuring that all PPE and equipment is cleaned before entering site from another location, and prior to leaving the site. For more information refer to: www.nonnativespecies.org/checkcleandry.

14.4 Land, Soil and Geology

14.4.1 Earthworks

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 to facilitate the efficient transfer of material within the site. 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 to reduce the degradation of the soil structure.
- Surface water controls will be implemented to minimise water ingress into excavations.
- 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.

To minimise the impact of the 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.

14.4.2 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 Development and any deliveries to site will be along existing national, regional, and local routes for importation and exportation of materials.
- Haulage within the 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.

14.4.3 Overburden Collapse

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.

14.4.4 Use of Concrete and Lime

Mitigation and monitoring measures to limit potential impacts associated with the use of natural resources throughout the course of the 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 on-site 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 (off-site) and direct discharge of wash water to ground or surface waters will be strictly prohibited. Alternatively, where washout takes place on-site, 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.

14.4.5 Accidental Spills and Leaks

- The following mitigation measures would be implemented to reduce the potential for accidental spills and leaks during the construction phase:
- Wastewater from the construction welfare facilities will be managed by means of a sealed storage tank. All wastewaters will be removed from site by permitted waste collector to wastewater treatment plants.
- 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.

- Chemicals will be stored within a storage container with an accompanying Control of Substances Hazardous to Health (“COSHH”) Datasheet in accordance with health and safety regulations. All chemicals will be stored in designated bunded areas at least 15m away from watercourses.
- 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.
- All plant and equipment will utilise biodegradable hydraulic oil.
- Drip trays will be located under all static plant.
- Hoses and valves will be checked regularly for signs of wear and will be turned off and securely locked when not in use.
- Diesel pumps and similar equipment will be checked regularly, and any accumulated oil removed for appropriate disposal.
- 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 bowzers are used on the site, in the event of a machine requiring refuelling outside of the designated impermeable 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 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.
- In the event of an accidental spillage, or water pollution incident, the site manager or designate shall notify the Local Authority as soon as possible.

14.5 Hydrology

14.5.1 Sedimentation

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

- Works will be carried out in accordance with good practice as set out in CIRIA Guidelines Control of Water Pollution from Construction Sites - Guide to Good Practice.
- All drainage and sediment /silt traps shall be in place before any other works are undertaken on the site.
- All work shall be carried out in favourable weather conditions to minimise the generation of silt & fines.
- 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.
- Where feasible, clean water (e.g., water that has yet to come into contact with any disturbed construction or working areas) will be kept separate from water shed or intercepted by construction areas.
- Up-gradient cut-off ditches and water diversion measures will be installed to intercept and divert clean water around construction compound area. These measures will be installed ahead of the main construction works.
- Discharge will be discharged into an area of vegetation for dispersion or infiltration, in accordance with SuDS techniques or discharged into existing watercourses.
- 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 Development site.
- Fixed surface water monitoring locations shall be identified on the site layout map, to include all locations where surface water discharges from the site.
- These locations shall be inspected on a daily basis while work is ongoing on the site, and after any heavy rainfall events. Records of all visual inspection shall be maintained on site.
- If surface watercourses are found to be contaminated with silt or other pollutant during visual inspection the works causing this pollution shall be stopped until remedial measures are put in place.
- Silt fencing shall be installed around the downslope side of construction compounds, and around any soil stockpiles.
- Site access tracks shall be constructed so that storm water run-off from the track will flow to the side of the track for attenuation on adjoining land, and not along the track.

14.5.2 Migration of Drilling Fluids

The following mitigation measures would be implemented to reduce the potential for HDD 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 3m 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 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.

14.5.3 Surface Water Monitoring

Surface water monitoring would be undertaken at locations on the principal watercourses downstream of the Development infrastructure and upstream of other non-natural influences, where possible. Regular visual inspections of surface watercourses are proposed. To supplement the visual inspections, it is anticipated that there would be up to four surface water monitoring points for extractive sampling and analysis.

No more than 12 weeks before construction commences baseline surveys will be undertaken to record the status of the minor tributaries around the site. This will include the following:

- Photographic record of the watercourse crossing point.
- Record of flow and sediment type at watercourse crossing point.
- Water quality samples from the water quality monitoring locations analysed for water quality parameters.
- During construction, the Compliance manager will conduct weekly inspection of all site pollution prevention measures (silt fences, settlement ponds, check dams, splash boards etc) and visually assesses their effectiveness. Recommendations for proactive remedial action will be made to the Contractor.

Water quality monitoring will be undertaken by the Contractor who will appoint a suitably qualified person to carry out daily inspections of watercourses close to construction activities to identify:

- Pollution risks.
- Spillages or leakages.
- Non-compliance with this OCEMP.
- Monitoring of over-pumping arrangements if required.
- Pollution incidents.
- Weekly inspections will be undertaken of all watercourses and bodies across the site, in particular after periods of heavy or prolonged rainfall.
- The Contractor will be responsible for recording the results of the daily and weekly inspections, recommending appropriate actions, and monitoring the implementation and outcome of such actions. The Contractor will take monthly water samples suspended solids readings at agreed locations. These samples will be analysed for the parameters noted above.

14.6 Construction Noise, Dust and Vibration

The Main Contractor will be required to monitor noise, dust and vibration which will be outlined in the planning conditions. The Main Contractor will establish baselines for noise, dust, and vibration in advance of works commencing on site.

14.6.1 General Noise Measures

The Main Contractor will follow best practicable measures (BPM) on both the site and the staging area to reduce the noise impact on the local community, including:

- Fixed and semi-fixed ancillary plant such as generators, compressors etc. to be positioned to cause minimum noise disturbance. If necessary, acoustic barriers or enclosures to be provided for specific items of fixed plant.
- All plant used onsite will comply with the EC Directive on Noise Emissions for Outdoor Equipment (2000/14/EC), where applicable.
- Operation of plant in accordance with the manufacturer's instructions.

- All major compressors to be 'sound reduced' models fitted with properly lined and sealed acoustic covers which are kept closed whenever the machines are in use, and all ancillary pneumatic percussive tools to be fitted with mufflers or silencers of the type recommended by the manufacturers.
- All plant used on site will be regularly maintained.
- Machines in intermittent use to be shut down in the intervening periods between work or throttled down to a minimum.
- Drop heights of materials from lorries and other plant will be kept to a minimum.
- Adherence to the codes of practice for construction working and piling given in BS 5228 and the guidance given therein for minimising noise emissions from the site.
- Periodically check that mitigation measures are being implemented and are fit for purpose during the works with corrective action mechanisms in place.
- Local residents will be kept informed and provided with a contact name and number for any queries or complaints.
- All complaints of an environmental nature related to the operation of the activity will be recorded. Each such record shall give details of the date and time of the complaint, the name of the complainant (if provided), and give details of the nature of the complaint. A record shall also be kept of the response made in the case of each complaint.

14.7 Monitoring

The Main Contractor will schedule regular representative monitoring, and monitoring during specific noise activities which are in close proximity of noise sensitive receptors (e.g. track construction or periods of intensive deliveries). All noise monitoring will be carried out in accordance with ISO Recommendations 1996 - "Acoustics-Description and Measurement of Environmental Noise Levels" as amended. Records of the monitoring completed, and the construction activities undertaken during the monitoring shall be kept by the Contractor.

14.8 General Dust Management Measures

The following mitigation measures would be implemented to reduce the potential for dust (and particulate matter) during the construction phase:

- Display the name and contact details of person(s) accountable for air quality and dust issues on the site boundary.
- 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 and the action taken to resolve the situation in the logbook.
- Undertake daily on-site and off-site inspections, 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 and record inspection results.
- Increase the frequency of site inspections by the person accountable for air quality and dust issues on site when activities with a high potential to produce dust are being carried out and during prolonged dry or windy conditions.
- Plan the site layout so that machinery and dust causing activities are located away from receptors, as far away as possible.
- 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 on site 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.
- 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 a 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 on site 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 site are covered to prevent escape of materials during transport.
- Record all inspections of haul routes and any subsequent action in a site logbook.

14.9 Landscape and Visual Impact

A Landscape and Visual Impact Assessment (LVIA) has been prepared for the proposed substation development by Macro Works as part of the planning application package. The assessment and determination of the impact on landscape and visual aspects outlined in that report will form part of the Main Contractor's CMP.

The embedded landscape mitigation measures outlined in the landscape mitigation plan that accompanies this submission 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 native hedgerow comprising native whip planting, wildflower/wildgrass seeding and advanced nursery stock to increase screening from external areas.

14.10 Traffic and Transportation

Please refer to the Outline Construction Traffic Management Plan which accompanies this submission for details of the traffic and transportation associated with the proposed development.

14.11 Material Assets

14.11.1 Utilities

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

- 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.

14.12 Waste

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.

14.12.1 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.

14.12.2 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.

14.12.3 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.

15 Conclusion

This OCEMP seeks to outline the mitigation measures and monitoring proposals required to complete the works, in an appropriate manner, at the proposed substation development in Ballyvatta, Co. Cork.

This report was prepared in accordance with the best practice guidelines and principles for the avoidance, minimisation and control of adverse environmental impacts associated with the proposed development.

The Main Contractor will be required to prepare a detailed CEMP for the project, taking into account the requirements of this OCEMP and with due regard to any conditions/stipulations outlined in any future planning decision.