



**Clifton Scannell Emerson**  
Associates

**Outline Construction Environmental Management Plan**  
**OLDBRIDGE 110 kV SUBSTATION & TRANSMISSION LINE**

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**Client: ADSIL**

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**Date: 28<sup>h</sup> September 2020**

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**CONSULTING ENGINEERS**

Civil  
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## Table of Contents

1	INTRODUCTION.....	4
2	DESCRIPTION OF THE PROJECT.....	5
3	CONSTRUCTION PROGRAMME AND PHASING .....	9
4	EXCAVATION .....	11
4.1	Archaeological and Architectural Heritage .....	11
4.2	Ground Condition .....	12
5	SITE LOGISTICS .....	13
5.1	Site Establishment and Security.....	13
5.2	Consents and Licences .....	13
5.3	Service and Utilities .....	13
5.4	Material Handling and Storage.....	14
5.5	Visitor Management.....	14
5.6	Site Working Hours.....	14
5.7	Employment and Management Workforce .....	15
6	CONSTRUCTION TRAFFIC AND SITE ACCESS .....	16
	Traffic Queueing.....	16
	Site Hoarding and Security Fencing .....	16
7	SAFETY, HEALTH AND ENVIRONMENTAL CONSIDERATIONS DURING CONSTRUCTION WORKS .....	17
7.1	Air Quality .....	17
7.2	Ecology.....	19
7.3	Noise and Vibration .....	20
7.4	Waste Management .....	21
7.5	Surface Water Management .....	22
8	SUMMARY .....	23
9	REFERENCES .....	24

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## 1 INTRODUCTION

This Outline Construction Environmental Management Plan (CEMP) has been prepared by Clifton Scannell Emerson Associates (CSEA) on behalf of Amazon Data Services Ireland Ltd (ADSIL) in support of a planning application to An Bord Pleanála (ABP) for planning permission for the provision of a new 110kV substation development.

EirGrid will be the transmission system operator (TSO). ESB Networks will be the transmission asset owner (TAO).

This Outline CEMP defines the approach to environmental management at the site during the construction phase. It provides a basis for achieving and implementing the construction related mitigation measures identified in the Environmental Impact Assessment Report (EIAR, Appendix 1.1 Schedule of Mitigation) and promotes best environmental on-site practices for the duration of the construction phase.

The outline CEMP provides a framework from which a final CMP will be developed to avoid, minimise or mitigate any construction effects on the environment prior to commencement on site.

The contractor will prepare specific method statements which should identify perceived risks to the environment and detail mitigation measures to be employed which will negate the risk to the environment.

The main issues that have been considered within this document are as follows;

- Description of works;
- Construction programme and phasing;
- Site logistics;
- Workforce;
- Public relations and community liaison;
- Construction traffic and access; and
- Safety, health and environmental management.

Preparation of the final CEMP should comply with the Schedule of Mitigation Measures presented in the EIAR (Appendix 1.1 Schedule of Mitigation) and all additional measures may be added to following consultation with relevant consultees in preparation of specific method statements prior to commencement of works.

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## 2 DESCRIPTION OF THE PROJECT

The proposed development is to be located on a site within the Drogheda IDA Business and Technology Park, Donore Road, Drogheda, Co. Meath. The development is located to the north of the data storage facility permitted under Reg. Ref.: LB/191735. The site is situated within the townland of Rathmullan and comprises an area of c. 3.1 hectares.

The proposed development primarily comprises the provision of a substation compound and associated dropdown 110kV transmission lines, along with associated and ancillary works and is described as follows:

The proposed substation compound is subdivided into two parts. The western part of the compound will accommodate a two storey 110kV GIS substation building (with a gross floor area of c. 1,447 sq.m). The eastern part of the compound will accommodate four transformers and a single storey client control building (with a gross floor area of c. 423 sq.m) and associated underground services. Both parts of the substation compound are enclosed within 2.6 metre high security fencing.

The proposed dropdown 110kV transmission lines will connect the proposed 110kV GIS substation building to existing 110kV overhead transmission lines traversing the subject site to the west of the proposed substation and will comprise the provision of two dropdown masts (c. 16 metres in height) and associated overhead transmission lines, transitioning to underground transmission lines set within ducts that will subsequently progress into the 110kV GIS Substation building, which will in turn connect to the four transformers.

The development includes access paths, landscaping, security fencing, provision of internal access roads and car parking within the GIS substation compound, provision of a 49kVa electricity connection (c. 544 metres in length, connecting to existing electrical services in the main avenue of the Drogheda IDA Business and Technology Park) for the GIS substation building, a unit substation, lightning masts, services, all associated construction works, and all ancillary works.

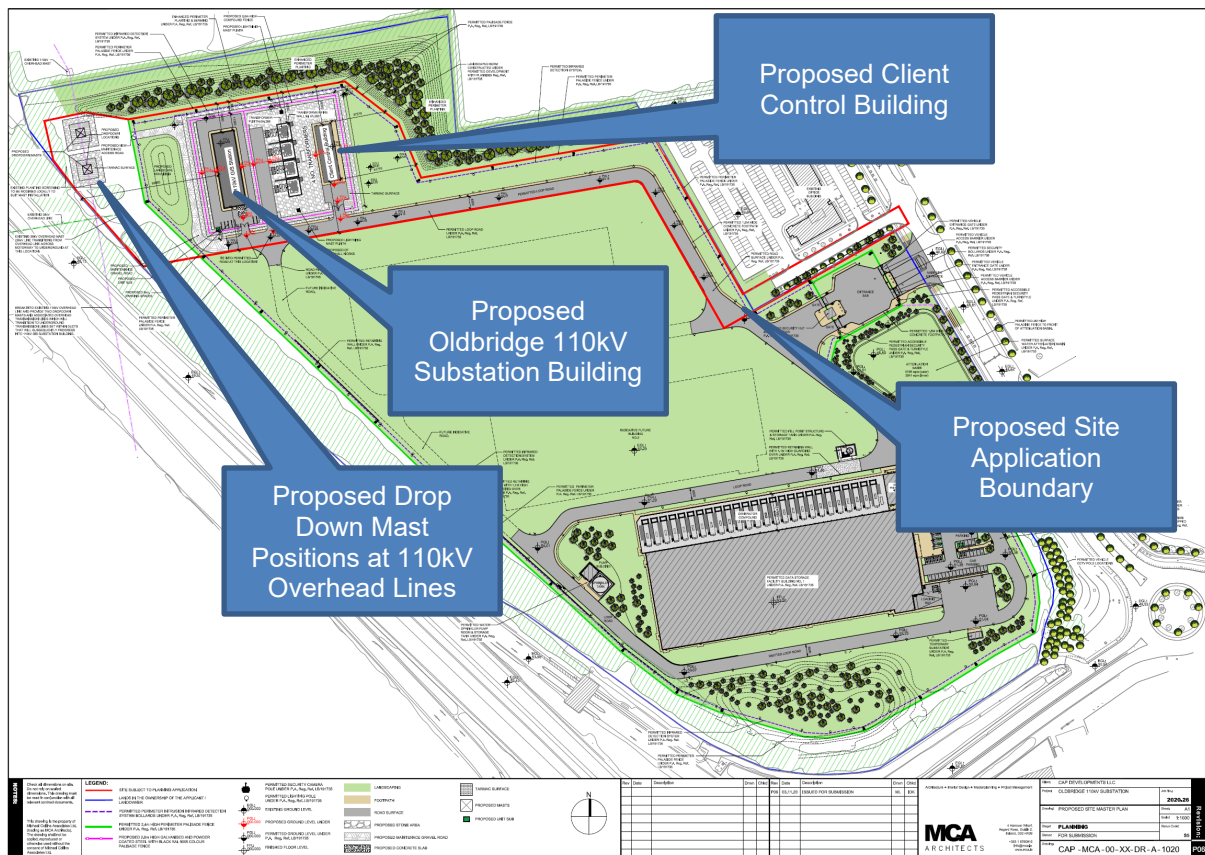


Figure 2.1 Proposed Layout of 110 kV GIS Substation, Transformers & Client Control Building

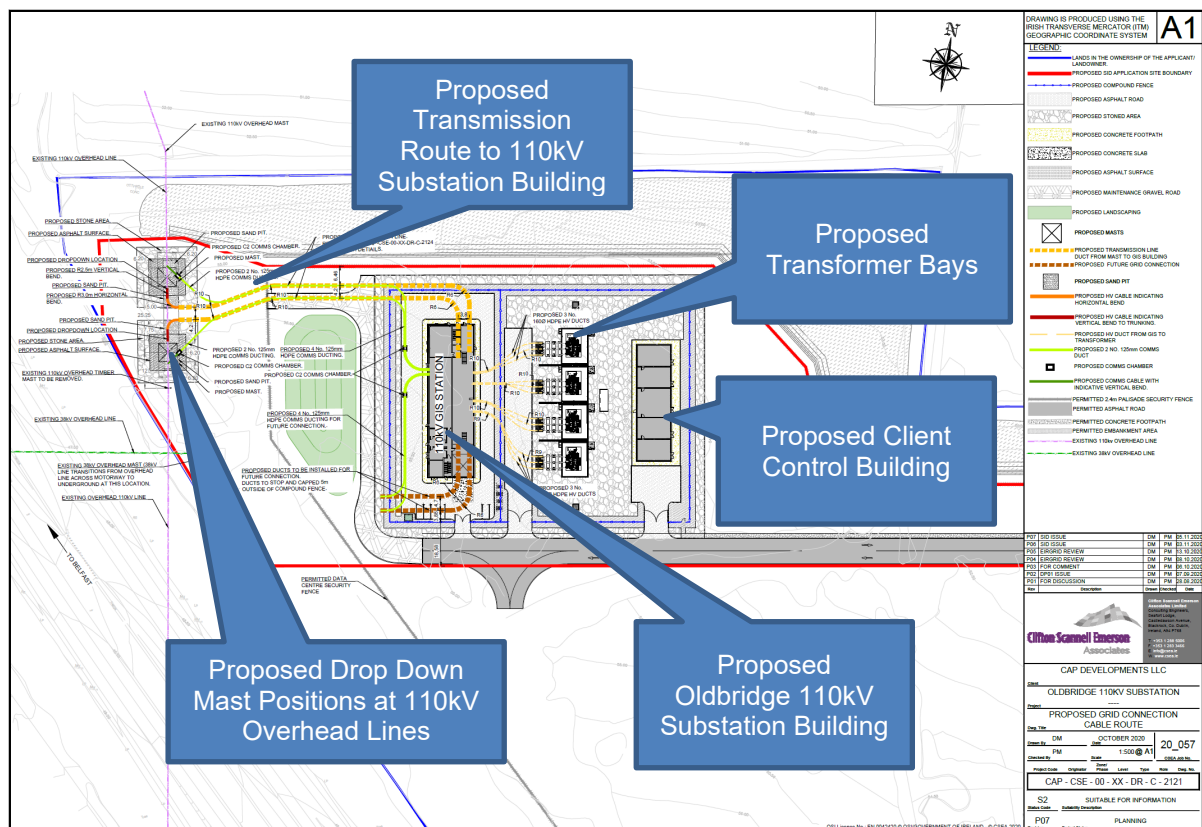


Figure 2.2 Proposed Position of Drop down Masts & Transmission Route



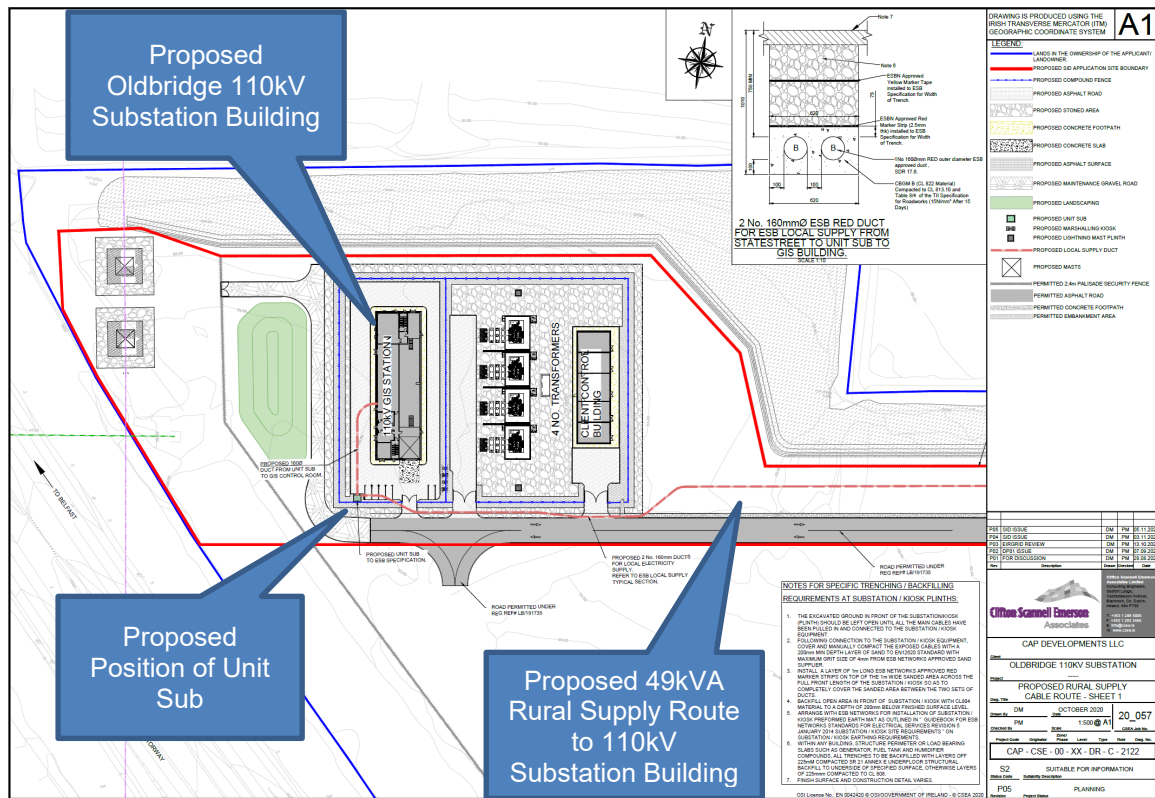


Figure 2.3 Proposed Rural Supply Route – Sheet 1

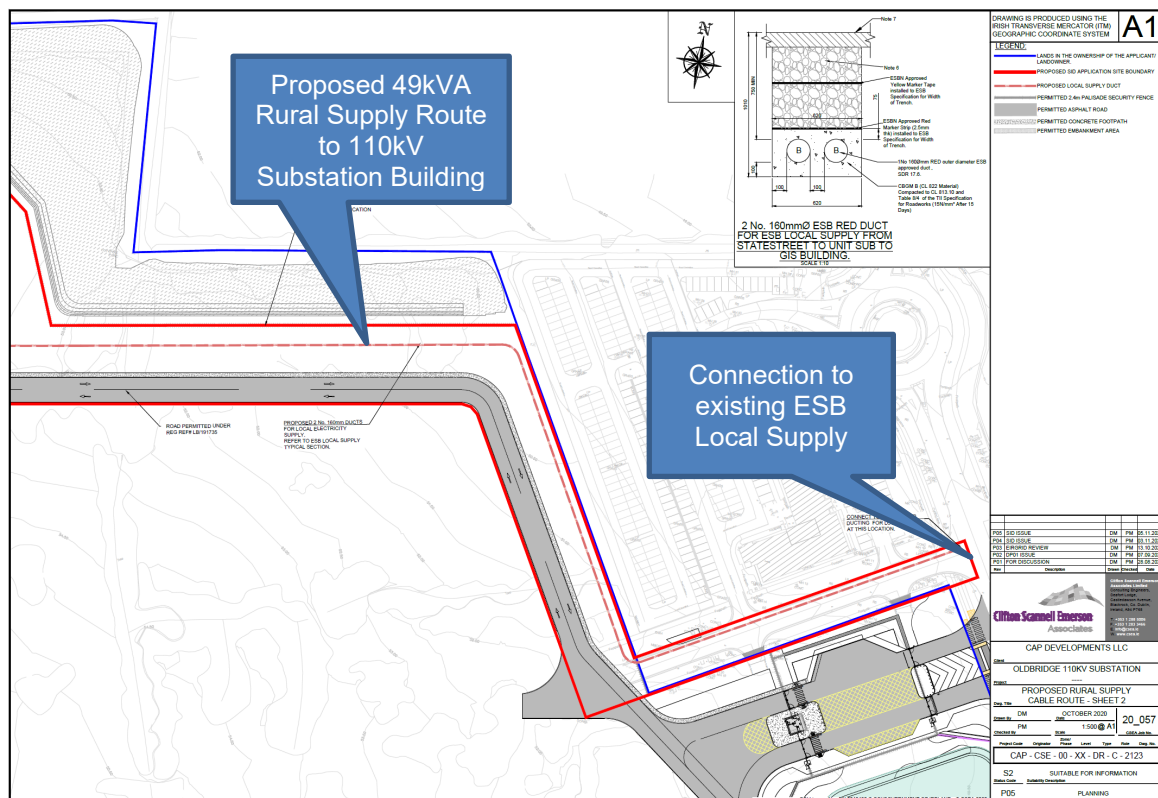


Figure 2.4 Proposed Rural Supply Route – Sheet 2

The design of the two underground 110kV transmission line will comprise a double 110kV circuit installed underground in high-density polyethylene (HDPE) ducting. The 110kV cables will be a standard XLPE (cross-linked polyethylene) copper cable. XLPE does not contain oil, therefore there is no risk of migration of oil into the ground in the event of a failure (such as a short circuit, a joint fail, a termination failure etc.). These types of failures would not have the potential to result in a perceptible environmental impact.

The trenches will typically run parallel to each other along the length of the route, the separation of the 2 circuits will vary from 4.2m to c. 3.76m the separation is depending on the duct formation from trefoil to flat formation. The optimum depth of excavation required to facilitate installation of the ducting is 0.95m below ground level. The typical width of each trench is 0.875m, however this will increase to 1.330 when the ducts transition from trefoil to flat formation. There will be six separate ducts installed in each trench. For the purposes of this assessment, reference to the 'transmission line' includes both circuits.

The design of the overhead transmission line includes 2 no. drop-down masts constructed under the existing Drybridge-Platin 110kV overhead line where the line drops into sandpits which shall transition to the underground Transmission line as described in the paragraphs above.

The design of the 49kVA underground cable will comprise a looped 10kV circuit installed underground in HDPE ducting. The 10kV cables will be a standard XLPE (cross-linked polyethylene) Aluminium cable. XLPE does not contain oil, therefore there is no risk of migration of oil into the ground in the event of a failure (such as a short circuit, a joint fail, a termination failure etc.).

The installation of the HDPE ducting will require the excavation of one trench along the route; the trench will contain one 10kV circuit. Between two and four separate ducts will be installed in the trench.

The optimum depth of excavation required to facilitate installation of the ducting is 0.95-1m below ground level (bgl) but may increase to up to c. 3m at utility crossings. The optimum width of the trench is c. 0.6m, however this may vary depending on ground conditions and existing services to up to c. 1m.



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### 3 CONSTRUCTION PROGRAMME AND PHASING

Subject to grant of planning permission, construction work is anticipated to commence at the end of Q2 2021 with completion of construction and commissioning scheduled for the end of Q3 2022.

The construction works associated with the development consist of the following principal elements:

The construction of the proposed 110kV GIS substation will comprise five main stages, namely;

- Site preparation works;
- Building Structure Construction;
- Building Envelope Construction;
- Site compound services, footpaths, and roads; and
- Fit Out Including M&E fit-outs and commissioning.

The construction of the client control building & Transformer yard will comprise six main stages, namely;

- Site preparation works;
- Building Structure Construction;
- Building Envelope Construction;
- Transformer bund Construction;
- Site compound services, footpaths, and roads; and
- Fit Out Including M&E fit-outs and commissioning.

The construction of the 110kV transmission line and 49kVA cable installation will comprise four main stages, namely;

- Site preparation works and excavations;
- Overhead line works & drop-down masts installation;
- Cable installation, jointing, testing; and
- Reinstatement.

#### **Site Preparation**

The construction of the permitted data storage facility on site (MCC ref: LB/191735)) commenced in Q3 2020 with the completion of construction and commissioning of the remaining data halls targeted for Q2 2022.

It is proposed that the accesses and haul roads for vehicles, the contractors' compound and fencing that have been established for the construction of the permitted development will be utilised for the proposed development, where possible.

The construction compound will facilitate office, portable sanitary facilities, equipment storage, parking etc. for contractors. It will be used for the duration of the works.

The primary activities that will be required during the site preparation phase for the GIS substation will be 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 excavators, trucks and other soil shifting plant will commence the main site clearance and levelling aspects.

The site preparation required for the proposed development will be limited with minimal site clearance required.

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## **Building Construction Works**

### *Foundations and Structure*

Following the completion of site clearance and levelling, all structures will require foundations to structural engineer specifications. Building structures will comprise standard structural steel frames.

It is anticipated that foundations will require moderate scale excavations. Due to the shallow depth of bedrock, some rock breaking may be necessary. Local minor dewatering may be required during excavation works and groundworks (depending on the time of year development works are carried out).

### *Levelling/Cut and Fill*

The spoil generated during site preparation/levelling will be used for landscaping berming on site where possible, any excess spoil shall be removed from site. (see Chapter 14).

The importation of fill will be required to facilitate construction.

Contractors will be required to submit and adhere to a method statement (including the necessary risk assessments) and indicating the extent of the areas likely to be affected and demonstrating that this is the minimum disturbance necessary to achieve the required works.

Any temporary storage of spoil required will be managed to prevent accidental release of dust and uncontrolled surface water run-off which may contain sediment etc.

### *Building Envelopes and Finishes*

The outer finishing of the building envelopes are intended to be of a similar quality and appearance to the permitted developments.

Reinstatement along the 49kVA cable installation route will be as current, i.e. grassed in greenfield areas and hardstand along paved areas and roads.

### *Roads, Services and Landscaping*

The internal road system will be completed as part of the permitted development.

Landscaping will be undertaken in accordance with the landscape masterplan for the proposed development (refer to Chapter 12 of EIAR).

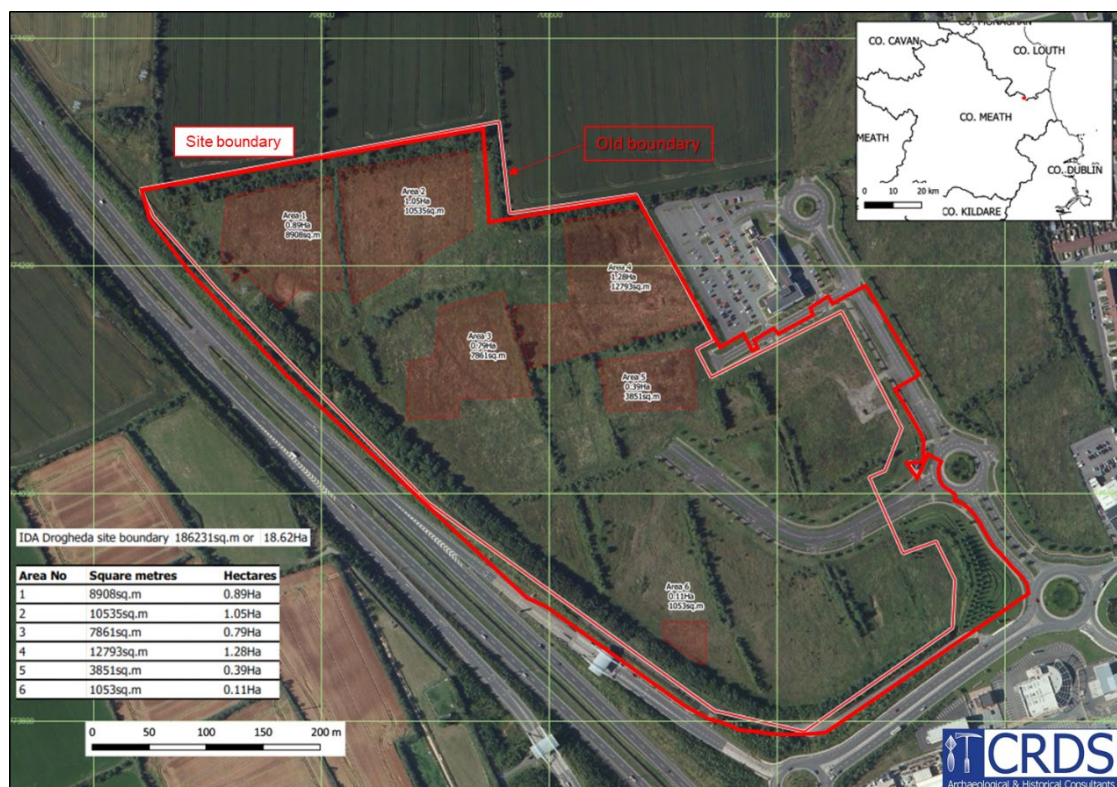
## 4 EXCAVATION

### 4.1 Archaeological and Architectural Heritage

The application for the permitted development (MCC ref: LB/191735) identified substantial sub-surface archaeological features through geophysical survey and archaeological testing within the site boundary.

A comprehensive programme of archaeological excavation commenced on site in March 2020 (licence no. 20E0082). The work is being undertaken by IAC Ltd and is being overseen by CRDS Ltd. The work is being undertaken in response to conditions relating to an extant permission (MCC ref: LB/191735) for a data storage facility and ancillary development. The following programme of works was implemented (see Figure 4.1):

- A suitably qualified archaeological consultant (CRDS Ltd) has been appointed to oversee the works and undertake the required archaeological excavations, monitoring and reporting;
- A suitably qualified archaeological contractor (IAC Ltd) has been appointed to undertake the archaeological excavations;
- Sufficient time will be afforded the archaeological team to complete their site excavations. The archaeological excavations will be sequenced to allow construction works to be phased.



**Figure 4.1:** Archaeological areas identified for excavation

It was recommended that the guidelines for archaeological excavation works are followed with respect to the excavation works (see 2017 Code of Practice for Archaeology agreed between the Minister for Arts, Heritage, Regional, Rural and Gaeltacht Affairs and Transport Infrastructure Ireland; see also 2012 Best Practice Standard: Archaeological services in fixed price contracts).

A phased approach to archaeological excavations is being implemented as follows.

- Phase 1 will consist of the stripping of topsoil of the areas of archaeological potential under archaeological supervision. This would allow for the horizontal and vertical extent and nature of archaeological features uncovered to be assessed in full.
- Phase 2 will comprise the archaeological excavation
- Phase 3 will comprise post-excavation analysis
- Phase 4 will comprise reporting and publication of the results.

The results of the excavation will serve to preserve the archaeological findings by records, and a full report outlining the results will be submitted to the National Monuments Service and to the relevant authorities.

Further detail on archaeological excavations relating to the site can be found in Chapter 11 of the EIAR.

## **4.2 Ground Condition**

Ground works will be required to clear the site and to facilitate construction of building foundations, access roads, the installation of utilities and landscaping. The Land, Soils, Geology & Hydrogeology Chapter of the EIAR (Chapter 6) details the existing ground conditions at the site and provides a summary of the anticipated stratigraphy of the soil beneath the site.

Site preparation, excavations and levelling works required to facilitate construction of foundations, access roads and the installation of services will generate. Topsoil and subsoil will be excavated to facilitate the construction of the proposed transmission cable installation route and other ancillary works. Suitable soils and stones will be reused on site as backfill in the grassed areas and berms, where possible with the remainder of the material requiring offsite reuse, recovery and/or disposal.

Any surplus material that requires removal from site for offsite reuse, recovery and/or disposal and any potentially contaminated material (in the unlikely event that it is encountered), should be segregated, tested and classified as either non-hazardous or hazardous in accordance with the EPA publication entitled '*Waste Classification: List of Waste & Determining if Waste is Hazardous or Non-Hazardous*' using the *HazWasteOnline* application (or similar approved classification method). If the material is to be disposed of to landfill, it will then need to be classified as clean, inert, non-hazardous or hazardous in accordance with the *EC Council Decision 2003/33/EC* and landfill specific criteria. This legislation sets limit values on landfills for acceptance of waste material based on properties of the waste including potential pollutant concentrations and leachability.

The surplus soils and stones may be suitable for acceptance at either inert or non-hazardous soil recovery facilities/landfills in Ireland or, in the event of hazardous material being encountered, be transported for treatment/recovery or exported abroad for disposal in suitable facilities.

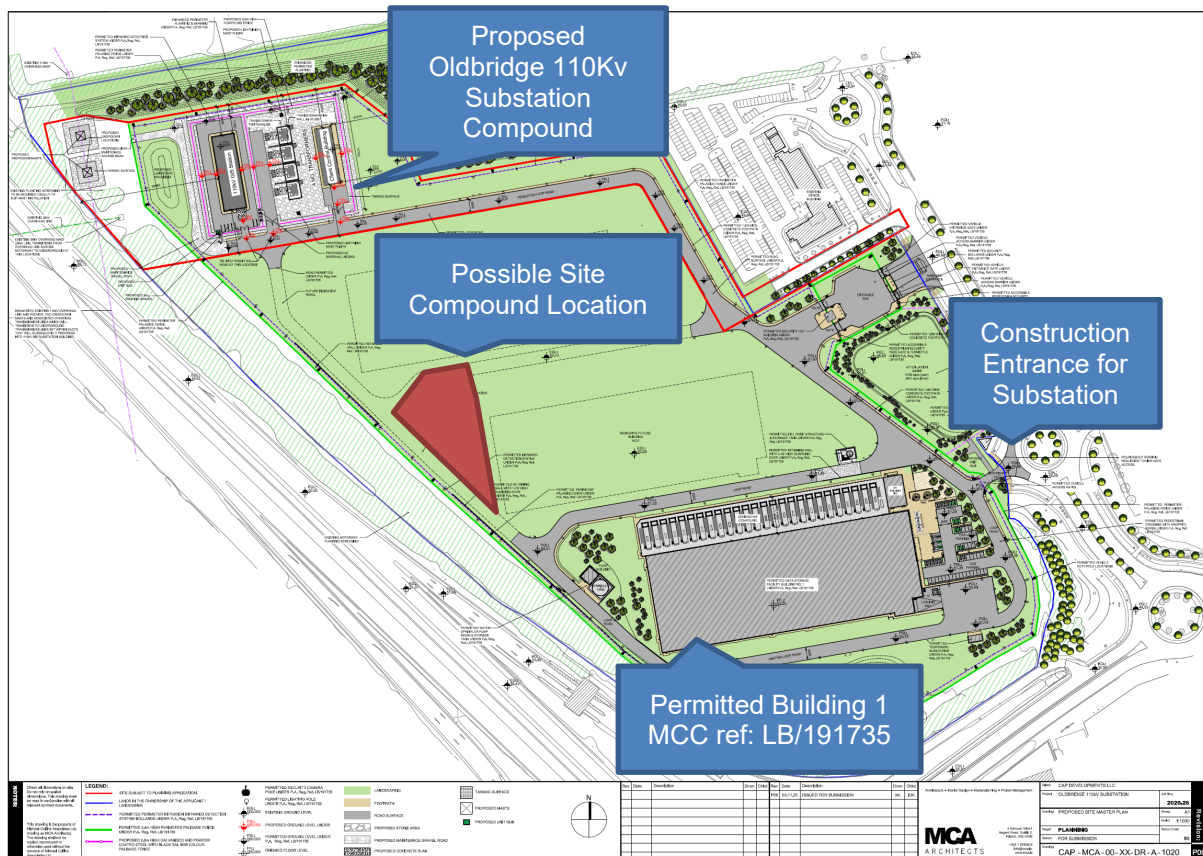


## 5 SITE LOGISTICS

### 5.1 Site Establishment and Security

The site office and welfare facilities will be situated on site at an agreed location within the site boundary.

All of the sub-contractors as well as the main contractor and project managers will occupy offices in the same area. The site parking for all staff, contractors and visitors will also be located in this area.



**Figure 5.1** Location for the Site Offices and Materials Compound

### 5.2 Consents and Licences

All statutory consents and licences required to commence on-site construction activities will be obtained ahead of works commencing, allowing for the appropriate notice period. These will include, but are not limited to:

- Site notices;
- Construction commencement notices; and
- Licence to connect to existing utilities and mains sewers, where required.
- Road opening licences.

### 5.3 Service and Utilities

Welfare facilities (canteens, toilets etc.) will be available within the construction compound on site. The watermain from previously permitted development of building “1” will be utilised in order to serve the proposed development during the construction.

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## **5.4 Material Handling and Storage**

Key materials will include cables, steel structure, concrete and piping, apart from cables which are ordered by specific order for the project, a 'Just in Time' delivery system will operate to minimise storage of materials, the quantities of which are unknown at this stage.

Where possible it is proposed to source general construction materials from the Dublin area to minimise transportation distances.

Aggregate materials such as sands and gravels will be stored in clearly marked receptacles in a secure compound area within the contractors' compound on site. Liquid materials will be stored within temporary bunded areas, doubled skinned tanks or bunded containers (all bunds will conform to standard bunding specifications – BS EN 1992-3:2006) to prevent spillage.

Construction materials will be brought to site by road. Construction materials will be transported in clean vehicles. Lorries/trucks will be properly enclosed or covered during transportation of friable construction materials and spoil to prevent the escape material along the public roadway.

The majority of construction waste materials generated will be soil from excavation works. Soil requiring removal offsite will be removed from site regularly to ensure there is minimal need for stockpiling.

## **5.5 Visitor Management**

Visitors will only be allowed to enter the main site compound at the western boundary of the site from the IDA Estate Road or via designated pedestrian access gates. A dedicated, secured footpath to the security office is established at the gate for registration and obtaining PPE prior to entering the site. A log will be maintained by security to control access to the site. Visitors will be required to attend a site-specific induction to allow access to the site unless being accompanied by an inducted member of the site team.

Visitors will then be taken by an inducted member of the construction team to the required area of the site.

## **5.6 Site Working Hours**

Construction of the proposed development would take place over a period of approximately 16 months from the commencement of construction for site development works.

Majority of works are to be done off-road within the site boundary, with the exception of service connections which will be done under licence from the Local Authority, IDA and Utility providers.

During the off-road section of works, no construction vehicles will access the site (or commence work) before 7.30 a.m. and all construction vehicles departing the site will do so before 7.00 p.m.

Construction activities will be carried out Monday to Saturday, with no on site construction activities to take place on Sundays or Bank Holidays. The above will be subject to any planning conditions restrictions imposed as part of the grant of permission



## **5.7 Employment and Management Workforce**

Construction traffic would consist of the following:

- Private vehicles belonging to site construction staff;
- Private vehicles belonging to site security staff;
- Occasional Private vehicles belonging to professional staff (i.e. design team, utility companies); and
- Excavation plant and dumper trucks used for site development works

Construction traffic has been estimated using data obtained from a similar 110kV Substation development that used a similar construction methodology to the current development. The following construction data has been used to estimate peak daily construction traffic:

- Peak construction staff (peak staff levels during Civil Works): 30;
- Peak cars (LV) entering/exiting site per day: 30; and
- Peak HGVs (HV) entering/exiting site per day: 10;

All employees working on the site will be required to have a Safe Pass Card (or similar approved Construction Health & Safety card), manual handling training and the necessary certificates to operate machinery, as required. The details of training required, records maintained, and induction procedures will be outlined in the Main Contractor's Health and Safety Plan(s).

## 6 CONSTRUCTION TRAFFIC AND SITE ACCESS

The route of the 110KV underground cable is, in its entirety, off-road and within the applicant's boundary. Most of the route of the 49kVA cable is off-road, with the exception of a short section in the vicinity of the IDA road to the East of the applicant's site, which may require the incremental closure of one or more lanes.

During construction of the proposed development, construction traffic will travel to and from the site via the construction site access located on the south east section of the site. It is expected that the origins and destinations of construction traffic will continue to match the distribution of traffic currently using the surrounding road network with the majority of construction traffic via the M1 motorway.

The following measures will be put in place during the construction works:

- The contractor will be required to provide wheel cleaning facilities, and regular cleaning of the main access road;
- Temporary car parking facilities for the construction workforce (30 no. spaces) will be provided within the site for and the surface of the car park will be prepared and finished to a standard sufficient to avoid mud spillage onto adjoining roads;
- Monitoring and control of construction traffic will be ongoing during construction works. Construction Traffic Management will minimise movements during peak hours.
- Construction Traffic routes minimising traffic impact on surrounding residential development will be used by construction vehicles.

### **Traffic Queueing**

Material deliveries and collections from site will be planned, scheduled and staggered to avoid any unnecessary build-up of construction works related traffic.

### **Site Hoarding and Security Fencing**

Security fencing has already been established around the site compound.

Site access will be restricted by dedicated security personnel who will check all incoming and outgoing vehicles and workers.

## 7 SAFETY, HEALTH AND ENVIRONMENTAL CONSIDERATIONS DURING CONSTRUCTION WORKS

The appointed main contractor will be required to prepare a Construction Health & Safety Plan which will be put in place prior to commencement of the works. At a minimum, this plan will include:

- *Construction Health & Safety training requirements;*
- *Induction procedures;*
- *Emergency protocols; and*
- *Details of welfare facilities.*

### 7.1 Air Quality

This section describes the site policy with regard to dust management and the specific mitigation measures which will be put in place during construction works. The objective of dust control at the site is to ensure that no significant nuisance occurs at nearby sensitive receptors. In order to develop a workable and transparent dust control strategy, the following measures have been formulated by drawing on best practice guidance from Ireland, the UK and the US, such as:

- Department of Environment, Heritage and Local Government (DOEHLG), *Quarries and Ancillary Activities, Guidelines for Planning Authorities* (2004) <sup>1</sup>;
- US Environment Protection Agency (USEPA), *Compilation of Air Pollutant Emission Factors, AP-42, Fifth Edition* (periodically updated) (1986) <sup>2</sup>;
- The Scottish Office – Development Department, *Planning Advice Note PAN50 Controlling the Environmental Effects Of Surface Mineral Workings Annex B: The Control of Dust at Surface Mineral Workings* (1996) <sup>3</sup>; and
- Institute of Air Quality Management (IAQM), *Guidance on the Assessment of Dust from Demolition and Construction* (2014) <sup>4</sup>.

#### Site Management

The site activities will be undertaken with due consideration of the surrounding environment and the close proximity of sensitive receptors such as watercourses, residents and pedestrians. Dust management during the construction phase will be the most important aspect in terms of minimising the impacts of the project on the surrounding air quality. The following measures will also be implemented to ensure impacts are minimised:

- Complaint registers will be kept detailing all telephone calls and letters of complaint received in connection with construction activities, together with details of any remedial actions carried out;
- Equipment and vehicles used on site will be in good condition such that emissions from diesel engines etc. are not excessive; and
- Pre-start checks will be carried out on equipment to ensure they are operating efficiently and that emission controls installed as part of the equipment are functional.

#### Dust Control Measures

The aim is to ensure good site management by avoiding dust becoming airborne at source. This will be done through good design, planning and effective control strategies. The siting of construction activities and the limiting of stockpiling will take note of the location of sensitive receptors and prevailing wind directions in order to minimise the potential for significant dust nuisance. In addition, good site management will include the ability to respond to adverse weather conditions by either restricting operations on-site or using effective control measures quickly before the potential for nuisance occurs.

- During working hours, technical staff will be available to monitor dust levels as appropriate; and
- At all times, the dust management procedures put in place will be strictly monitored and assessed.

The dust minimisation measures should be reviewed at regular intervals during the construction phase to ensure the effectiveness of the procedures in place and to maintain the goal of minimisation of dust generation. In the event of dust nuisance occurring outside the site boundary, site activities should be reviewed, and procedures implemented to rectify the problem. Specific dust control measures to be employed are presented below.

#### **Site Roads**

Site access routes (particularly unpaved routes) can be a significant source of fugitive dust from construction sites if control measures are not in place. The most effective means of suppressing dust emissions from unpaved roads is to apply speed restrictions. Studies show that these measures can have a control efficiency ranging from 25% to 80% <sup>5</sup>.

- A speed restriction of 20 km/hr will be applied as an effective control measure for dust for on-site vehicles;
- Bowsters will be available during periods of dry weather throughout the construction period. Research shown found that the effect of surface watering is to reduce dust emissions by 50% <sup>6</sup>. The bowster will operate during dry periods to ensure that unpaved areas are kept moist. The required application frequency will vary according to soil type, weather conditions and vehicular use;
- Access gates to the site shall be located at least 10m from sensitive receptors where possible; and
- Any hard surface roads will be swept to remove mud and aggregate materials from their surface while any unsurfaced roads shall be restricted to essential site traffic only.

#### **Land Clearing/Earth Moving**

Land clearing/earth-moving works during periods of high winds and dry weather conditions can be a significant source of dust.

- During dry and windy periods, and when there is a likelihood of dust nuisance, watering shall be conducted to ensure moisture content of materials being moved is high enough to increase the stability of the soil and thus suppress dust;
- During periods of very high winds (gales), activities likely to generate significant dust emissions should be postponed until the gale has subsided.

The movement of truck containing materials with a potential for dust generation to an off-site location will be enclosed or covered.

#### **Stockpiling**

The location and moisture content of rubble stockpiles are important factors which determine their potential for dust emissions. The following measures will be put in place:

- Overburden material will be protected from exposure to wind by storing the material in sheltered parts of the site, where possible;
- Regular watering will take place during dry/windy periods to ensure the moisture content is high enough to increase the stability of the soil and suppress dust;
- There will be no storage of soil along the cable route; and
- Where feasible, hoarding will be erected around site boundaries to reduce visual impact. This will also have an added benefit of preventing larger particles from impacting on nearby sensitive receptors.

### **Site Traffic on Public Roads**

Spillage and blow-off of debris, aggregates and fine material onto public roads will be reduced to a minimum by employing the following measures:

- Vehicles delivering or collecting material with potential for dust emissions shall be enclosed or covered with tarpaulin at all times to restrict the escape of dust;
- At the main site traffic exits, a wheel wash facility shall be installed if feasible. All trucks leaving the site must pass through the wheel wash; and
- Public roads outside the site will be regularly inspected for cleanliness and cleaned as necessary.

### **General**

The pro-active control of fugitive dust will ensure that the prevention of significant emissions, rather than an inefficient attempt to control them once they have been released, will contribute towards the satisfactory management of dust by the construction contractor.

## **7.2 Ecology**

The proposed development will have a neutral imperceptible effect on designated sites within the zone of impact of the development site. The proposed development is located in an area of low ecological value and as such predicted to have a neutral imperceptible effect on biodiversity.

There will be no direct impacts on the River Boyne and River Blackwater European sites and there would be no habitat loss or fragmentation as a result of the Proposed Development. Having considered direct impacts and ruling them out, indirect impacts are then considered in terms of source pathway vectors. There is no connectivity with the River Boyne. There will be no indirect impacts on the River Boyne and River Blackwater European sites.

The key strategies to be undertaken to minimise impact on the local flora and fauna during site clearing and construction are as follows:

- There will be a loss of short gappy sections of remnant hedgerows which are of low local value. The overall loss of hedgerow will be c. 900 m. This is balanced by the retention of over 1.5 km of surrounding mixed broad-leaved woodland which will be retained. Additional landscaping will support the surrounding woodland;
- Potential impacts on bats and birds will be avoided by cutting of vegetation outside the bird nesting season March 1<sup>st</sup> to August 31<sup>st</sup> as per standard practice having regard to the Wildlife Acts, and;
- If any new lighting is directed towards the boundaries of the site, there is a risk of indirect impacts on foraging bats, and on potential roost features in the surrounding area. A detailed lighting plan for the site has not yet been developed, as this typically occurs in the later stages of the construction of a development. However, 'bat-sensitive' lighting techniques will be incorporated into the lighting plan, which will avoid or minimise any potential impacts of lighting on bats. 'Bat-sensitive lighting' for this development would have the following design principles:
  - If lighting is required near site boundaries, the lighting poles will be installed on the boundary and will face inwards (i.e. towards the centre of the site). This will ensure that lighting is not directed outside the site boundaries.
  - All lights around the site boundary will be fitted with directional hoods and/or luminaires to direct the light downwards onto targeted areas and to prevent unnecessary light-spill.
  - The intensity of lighting will be kept to the minimum level required for safety and security.
  - Low-UV LEDs or low / high pressure sodium lamps will be the preferred bulb type, as they have least adverse effect on bats. Mercury, metal halide or high-UV LED bulbs will not be used.

### 7.3 Noise and Vibration

Noise impacts arising from earthworks and construction activities have the potential to cause annoyance or nuisance to local residents in the area.

The earthworks will generate typical construction activity related noise and vibration sources from use of a variety of plant and machinery such as rock breakers (where required), excavators, lifting equipment, dumper trucks, compressors and generators.

The noise limits to be applied for the duration of the infrastructure works are those specified in the B Category of BS 5228. These limits are summarised below and will be applied at the nearest sensitive receptors to the works.

- Night (23:00-07:00) = 55dB
- Evening (19:00-23:00) = 65dB
- Day (07:00-19:00) = 70dB
- At the commercial property = 75dB

The total noise (LAeq) which should not be exceeded during daytime is therefore 70dB. Vibration limits to be applied for the infrastructure works are those specified in the TII document Guidelines for the Treatment of Noise and Vibration in National Road Schemes (TII, Revision 1, 2004). These limits are outlined below:

Allowable Vibration (in terms of peak particle velocity) at the closest part of sensitive property to the source of vibration, at a frequency of;

- Less than 10Hz - 8mm/s
- 10 to 50 Hz – 12.5mm/s
- 50 to 100 Hz (and above) - 20mm/s

Any noise complaints related to activities at the site will be logged and investigated and, where required, measures taken to ameliorate the source of the noise complaint.

A designated noise liaison should be appointed to site during construction works. Any complaints should be logged and followed up in a prompt fashion. In addition, prior to particularly noisy construction activity, e.g. excavation close to a property, etc., the site contact should inform the nearest noise sensitive locations of the time and expected duration of the works.

All works on site shall comply with BS 5228 2009+ A1 2014 (Parts 1 & 2) which gives detailed guidance on the control of noise and vibration from construction activities. In general, the contractor shall implement the following mitigation measures during the proposed infrastructure works:

- Avoid unnecessary revving of engines and switch off equipment when not required.
- Keep internal haul roads well maintained and avoid steep gradients.
- Minimise drop height of materials.
- Start-up plant sequentially rather than all together

More specifically the Contractor shall ensure that:

- In accordance with “Best Practicable Means”, plant and activities to be employed on site are reviewed to ensure that they are the quietest available for the required purpose.
- Where required, improved sound reduction methods are used e.g. enclosures.
- Site equipment is located away from noise sensitive areas, as much as physically possible.
- Regular and effective maintenance by trained personnel is carried out to reduce noise and / or vibration from plant and machinery.
- Hours are limited during which site activities likely to create high levels of noise and vibration are carried out.
- A site representative responsible for matters relating to noise and vibration will be appointed prior to construction on site.



## **7.4 Waste Management**

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.

Chapter 15 of EIA Report contains a detailed description of waste management relating to construction of the proposed development. A site-specific Construction and Demolition Waste Management Plan is included as Appendix 15.1 of the EIA Report. This C&D Waste Management Plan will be refined and updated in advance of the works to ensure best practice is followed in the management of waste from the proposed development.

Adherence to the C&D Waste Management Plan prepared for the construction works will ensure that the management of waste arising is dealt with in compliance with the provisions of the Waste Management Acts 1996 – 2011 as amended 7, associated Regulations 7, the Litter Pollution Act of 1997 as amended 8 and the Eastern-Midlands Region Waste Management Plan 2015 – 2021 9, and achieve optimum levels of waste reduction, re-use and recycling.

Typical waste materials that will be generated from the construction works will include:

- Soil and stones;
- Biodegradable/Green waste
- Bituminous mixtures, coal tar and tarred products;

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

### **7.4.1 Waste Minimisation**

Waste minimisation measures proposed are summarised as follows:

- Materials will be ordered on an 'as needed' basis to prevent over supply;
- Materials will be correctly stored and handled to minimise the generation of damaged materials;
- Materials will be ordered in appropriate sequence to minimise materials stored on site; and
- Sub-contractors will be responsible for similarly managing their wastes.

All wood waste generated by site works will be inspected and examined and will be segregated as re-useable wood and scrap wood waste.

### **7.4.2 Waste Storage**

A dedicated and secure compound containing bins, and/or skips, and storage areas, into which all waste materials generated by construction site activities are to be stored. This is to be established within permitted site compound south of the proposed 110kV substation.

Waste materials generated will be segregated on at the site compound, where it is practical. Where the on-site segregation of certain wastes types is not practical, off-site 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 appointed waste contractor will collect and transfer the wastes as receptacles are filled.

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. Appointed employees will be made responsible for ensuring good site housekeeping.

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### **7.4.3 Responsibility**

It will be the responsibility of the construction manager to ensure that a written record of all quantities and natures of wastes removed from the site are maintained on-site in a waste file (in hardcopy or electronically).

It is the responsibility of the project manager 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.

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

Prior to commencement of the excavation and construction activity and removal of any waste off-site, details of the proposed destination of each waste material will be provided to DCC.

### **7.5 Surface Water Management**

Run-off into excavations/earthworks cannot be prevented entirely and is largely a function of prevailing weather conditions. Earthwork operations will be carried out such that surfaces, as they are being raised, shall be designed with adequate drainage, falls and profile to control run-off and prevent ponding and flowing. Correct management will ensure that there will be minimal inflow of shallow/perched groundwater into any excavation.

Care will be taken to ensure that exposed soil surfaces are stable to minimise erosion. All exposed soil surfaces will be within the main excavation site which limits the potential for any offsite impacts. No significant dewatering will be required during the construction phase which would result in the localised lowering of the water table. There may be localised pumping of surface run-off from the excavations (up to 3m) during and after heavy rainfall events to ensure that the trenches are kept relatively dry.

Mitigation measures that will be put in place during the construction phase to ensure protection of surface waterbodies are detailed in Section 7.6.2 of Chapter 7 (Hydrology) of the EIA Report.

These measures are in compliance with the following relevant CIRIA guidance documents:

- Control of Water Pollution from construction Sites, Guidance for consultants and contractors (C532) 10; and Environmental Good Practice on Site (3rd edition) (C692) 11.
- CIRIA, (2001), *Control of Water Pollution from Construction Sites, Guidance for Consultants and Contractors*, (C532) Construction Industry Research and Information Association;
- CIRIA (2002) *Control of water pollution from construction sites: guidance for consultants and contractors (SPI56)* Construction Industry Research and Information Association;
- CIRIA (2005), *Environmental Good Practice on Site* (C650); Construction Industry Research and Information Association;
- BPGCS005, *Oil Storage Guidelines*;
- CIRIA 697 (2007), *The SUDS Manual*; and
- *UK Pollution Prevention Guidelines*, (PPG) UK Environment Agency, 2004.

## 8 SUMMARY

This Outline CEMP sets out the overall management strategy for construction works for the proposed development.

The Outline CEMP aims to ensure the management of construction activity is carried out in a planned, structured and considerate manner which minimises the impacts of the works on the local environment, residents and commercial activities in the vicinity of the site. Due to the nature of construction works, there may be unforeseen events which occur at the site and the project team will actively manage any changes and discuss with the relevant authorities, where required.

The project team are committed to ensuring that the construction activities to be carried out are pro-actively managed so as to minimise potential impacts

## 9 REFERENCES

1. Department of Environment, Heritage and Local Government (DOEHLG), *Quarries and Ancillary Activities, Guidelines for Planning Authorities* (2004).
2. US Environment Protection Agency (USEPA), *Compilation of Air Pollutant Emission Factors, AP-42, Fifth Edition (periodically updated)* (1986).
3. The Scottish Office – Development Department, *Planning Advice Note PAN50 Controlling the Environmental Effects Of Surface Mineral Workings Annex B: The Control of Dust at Surface Mineral Workings* (1996).
4. Institute of Air Quality Management (IAQM), *Guidance on the Assessment of Dust from Demolition and Construction* (2014).
5. UK Office of Deputy Prime Minister, *Controlling the Environmental Effects of Recycled and Secondary Aggregates Production Good Practice Guidance* (2002).
6. USEPA, *Fugitive Dust Technical Information Document for the Best Available Control Measures* (1997).
7. Waste Management Act 1996 (No. 10 of 1996) as amended 2001 (No. 36 of 2001), 2003 (No. 27 of 2003) and 2011 (No. 20 of 2011). Sub-ordinate and associated legislation includes:
  - European Communities (Waste Directive) Regulations 2011 (S.I. No. 126 of 2011) as amended 2011
  - Waste Management (Collection Permit) Regulations 2007 (S.I. No. 820 of 2007) as amended
  - Waste Management (Facility Permit and Registration) Regulations 2007 (S.I. No. 821 of 2007) as amended
  - Waste Management (Licensing) Regulations 2000 (S.I. No. 185 of 2000) as amended
  - Waste Management (Packaging) Regulations 2014 (S.I. No. 282 of 2014)
  - Waste Management (Planning) Regulations 1997 (S.I. No. 137 of 1997)
  - Waste Management (Landfill Levy) Regulations 2015 (S.I. No. 189 of 2015)
  - European Communities (Waste Electrical and Electronic Equipment) Regulations 2014 (S.I. No. 149 of 2014)
  - Waste Management (Batteries and Accumulators) Regulations 2014 (S.I. No. 283 of 2014) as amended
  - Waste Management (Food Waste) Regulations 2009 (S.I. No. 508 of 2009) as amended 2015 (S.I. No. 190 of 2015)
  - European Union (Household Food Waste and Bio-waste) Regulations 2015 (S.I. No. 191 of 2015)
  - Waste Management (Hazardous Waste) Regulations 1998 (S.I. No. 163 of 1998) as amended
  - Waste Management (Shipments of Waste) Regulations 2007 (S.I. No. 419 of 2007)
  - Waste Management (Movement of Hazardous Waste) Regulations 1998 (S.I. No. 147 of 1998)
  - The European Communities (Transfrontier Shipment of Hazardous Waste) Regulations 1988 (S.I. No. 248 of 1988)
  - European Communities (Shipments of Hazardous Waste exclusively within Ireland) Regulations 2011 (S.I. No. 324 of 2011)
  - European Union (Properties of Waste which Render it Hazardous) Regulations 2015 (S.I. No. 233 of 2015) as amended
8. Litter Pollution Act 1997 (No. 12 of 1997) as amended
9. *Eastern-Midlands Region Waste Management Plan 2015 – 2021* (2015)
10. Construction Industry Research and Information Association (CIRIA) *Control of Water Pollution from construction Sites, Guidance for consultants and contractors (C532)*.
11. CIRIA, *Environmental Good Practice on Site* (3rd edition) (C692).

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