2.0 DESCRIPTION OF THE PROPOSED DEVELOPMENT

2.1 INTRODUCTION

As described in Chapter 1 (Introduction), the Applicant is applying to An Bord Pleanála for planning permission for an underground double circuit 110kV transmission cable installation from the existing Belcamp 220kV and 110kV Substation to a permitted 110 kV Substation (Darndale Substation) located on the former Diamond Innovations site (Unit 1C), Clonshaugh Business & Technology Park and adjacent lands.

The permitted substation works (permitted under DCC Reg. Ref.3874/15) is scheduled to commence construction in Q2 2019.

The following chapter presents a description of the proposed development as required by the relevant planning legislation, 2014 EIA Directive (2014/52/EU), European Union (Planning and Development)(Environmental Impact Assessment) Regulations 2018 and the current Draft EPA "*Guidelines on the Information to be Contained in Environmental Impact Assessment Reports"* (2017) and Draft "*Advice Notes for Preparing Environmental Impact Statements"* (2015).

2.2 CHARACTERISTICS OF THE APPLICATION

2.2.1 Description of Design during Construction and Operation

Figure 2.1 presents a site layout plan showing the route of the proposed underground cable installation. A cable installation will be installed from the permitted 110kV Substation (Darndale Substation) to the existing Belcamp 110kV and 220kV Substation located 1.97 km to the north-east of the site.

Travelling away from the approved Darndale 110kV substation the underground cable follows the periphery of the greenfield site, initially north for a distance of approximately 180m, before realigning east for a further distance of approximately 390 m. From here it enters the road reserve on the west side of the roundabout adjacent to the Clayton Hotel. The proposed route then turns eastwards and runs along the M50/R139 before entering the Belcamp Substation site from the south.

Figure 2.1 *Proposed Route of 110kV Underground cable installation*

The design of the underground cable will comprise a double 110kV circuit installed underground in 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 ground in the event of a failure.

The installation of the HDPE ducting will require the excavation of one or two trenches along the route; the trench will contain two 110kV circuits. The trench will typically run parallel to each other along the length of the route, the separation of the 2 circuits will vary from 500mm to c. 3m depending on the existing ground conditions and existing underground services. Between five and ten separate ducts will be installed in each trench. For the purposes of this assessment, reference to the 'cable installation' includes both circuits.

The optimum depth of excavation required to facilitate installation of the ducting is 1.25m below ground level (bgl) but may increase to up to c. 3m at utility crossings. The optimum width of each trench is 0.6m, however this may vary depending on ground conditions and existing services. A typical cross section of the trench is illustrated in Figure 2.2.

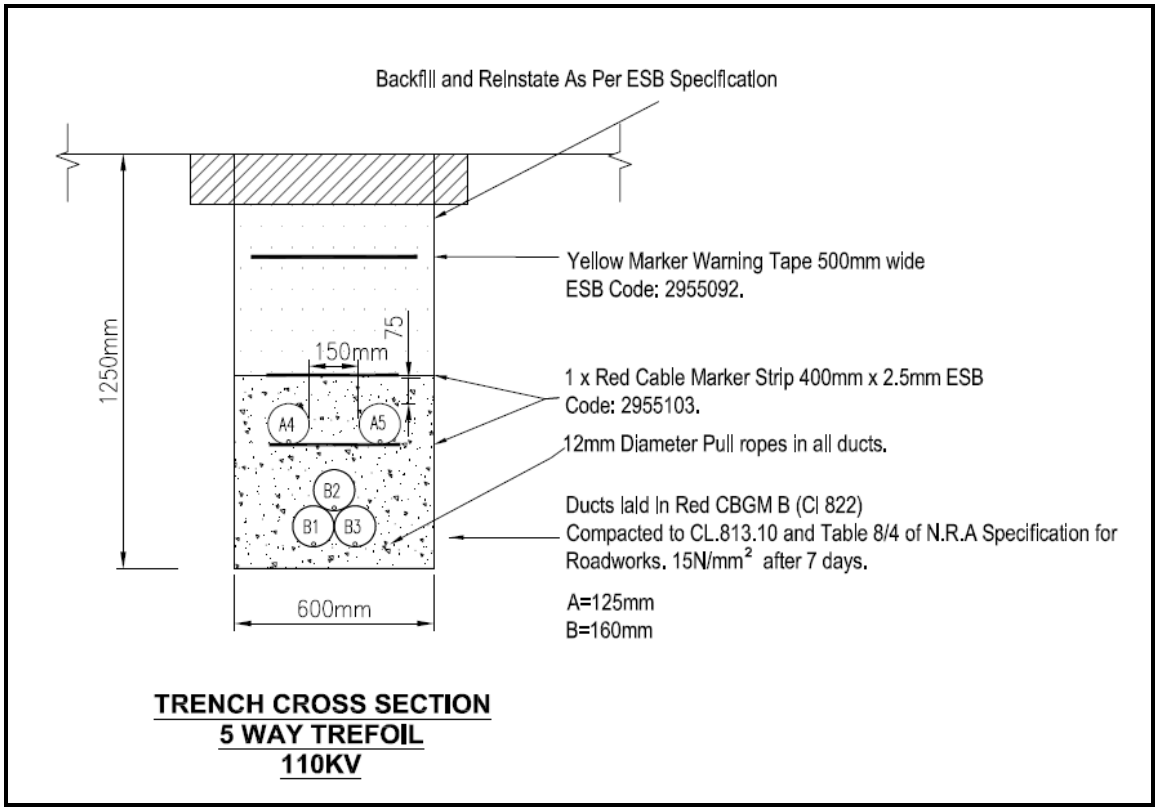

Figure 2.2 Typical Cross Section of Trench for Underground Cable (*Source: CSEA, May 2018*)

A detailed survey has been completed along the existing route to identify existing services. Details of the existing services along the route of the cable installation are provided in the engineering drawings provided with the planning documentation..

The existing construction compound (including construction parking) within the Diamond Innovations site (Unit 1C), Clonshaugh Business & Technology Park and adjacent lands will be utilised by contractors during this development.

Once constructed, the route will be reinstated at current ground level, grassed in greenfield area and appropriate hard stand elsewhere. Six joint bays will be installed (at three locations) along the route with associated link and communications boxes. There is no requirement for lighting. The proposed cable installation is below ground and will have no overall impact on the natural landscape.

2.2.2 Need for the Development

The proposed 110kV transmission cable installation will be designed to support current power demand and future growth within the Clonshaugh area inclusive of but not limited to the power requirements for the existing, 110kV temporary power supply, proposed and possible future development within the data storage facility and indicative future plan for the former Diamond Innovations site (Unit 1C), Clonshaugh Business & Technology Park and adjacent lands.

2.2.3 Proposed Site Infrastructure and Secondary Facilities

As the proposed development is an underground transmission cable which will be reinstated following construction to ground level, there is limited site infrastructure or secondary facilities required.

Temporary security, lighting and power will be required during construction along sections of the work where part closure of the dual carriageway is required. Temporary traffic management will be provided in accordance with Chapter 8 of the Traffic Signs Manual at all road works. It is anticipated that two floodlights will be required to facilitate night time working which will each require a diesel generator. In addition, 5 mobile lights are required. Where works are taking place in greenfield areas the Contractor shall construct temporary access or haul roads to facilitate access which will be reinstated upon completion of the works. Trench excavations will be temporarily supported during the works with appropriately designed trench control systems such as trench boxes or sheet piles. Temporary facilities will also be put in place to facilitate cable installation in accordance with ESB requirements.

Construction Compound and Parking
During construction, the existing construction compound on the Clonshaugh Data Storage site will be utilised. Temporary staging areas may be provided by the contractor as required.

2.3 EXISTENCE OF THE PROJECT

Under the current Draft EPA Guidelines on the information to be contained in EIA Reports, the description of the project is required to define all aspects of the proposed lifecycle of the proposed development under the following headings:

- Construction;
- Commissioning;
- Operation;
- Changes to the Project; and
- Description of Other Developments.

The following sections present a description of each of these aspects.

2.3.1 Description of Construction

It is estimated that the civil works will take approximately 10 weeks, with a further 9 weeks estimated for cable installation, jointing and testing and reinstatement. In general, the impact of the construction period would be short-term in nature.

Subject to grant of planning permission, construction work is anticipated to commence at the end of Q2 2019 with approximately 6 months for both the construction phase and commissioning phase prior to commencement of full operations. This is dependent on the commissioning of the Darndale Substation which has received planning and is currently under construction.

2.3.1.1 Working Hours

The off-road section of the transmission line (approximately 1.2km in length) will be installed between the hours of 8am and 6pm. During installation, staff will arrive on site at approximately 7am and take circa 1 hour to mobilise before commencing works.

The on-road section of the route extends 1.1km along the R139 beneath the nearside westbound lane. This would require closure of the nearside westbound lane (staged to include approximately 100m sections at a time) to facilitate the works. The 15 metre section of the transmission line that crosses the carriageway just south of the Belcamp 220kV Substation will require the staged closure of two westbound lanes and two eastbound lanes for short periods (but never both lanes at the same time) to

facilitate the works . Traffic management measures will be put in place such that one lane will remain open in each direction during this element of work.

All works requiring the closure of one or more traffic lanes will be carried out at night, between the hours of 7pm and 6am.

2.3.1.2 Staffing

In general, the civil works element of work will require a higher number of staff and construction vehicles compared to the cable installation, jointing and testing. The following construction data has been used to estimate peak daily construction traffic:

- Average construction staff: 10-16;
- Peak construction staff (peak staff levels during Civil Works): 30;

2.3.1.3 Construction Schedule

A summary of the proposed target dates (earliest possible dates) for the proposed development are as follows:

- Application for Planning Permission – December 2018
- Commence Site Construction works (subject to grant of planning permission) – End Q2 2019
- Completion of Construction – Q4 2019
- Complete Commissioning Works– End Q1 2020

2.3.1.4 Site Preparation

Preparation of the site will require limited works with minima site clearance diversion on the greenfield lands. The route survey has been completed. Consultation is ongoing regarding service diversions along the road way with relevant stakeholders.

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

2.3.1.5 Building Construction Works

Cut and Fill & Installation

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 maximum disturbance necessary to achieve the required works.

Excavation, installation and reinstatement will be undertaken in stages to minimise traffic disruption. Along the R139, works will staged (to include approximately 100m sections at a time) to facilitate the works. The 15 metre section of the transmission line that crosses the carriageway just south of the Belcamp 220kV Substation will require the staged closure of two westbound lanes and two eastbound lanes for short periods to facilitate the works.

Final Finish

Reinstatement will be as current, i.e. grassed in greenfield areas and hardstand along paved and road areas.

2.3.1.6 *Material Sourcing, Transportation and Storage*

Materials

Key materials will include cables, 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.

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

Storage
Aggregate materials such as sands and gravels will be stored in clearly marked receptacles in a secure compound area within the contractors' compound at the Clonshaugh Data Storage 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.

Transportation
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.

2.3.1.7 Waste Management
Chapter 14 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 14.1 of this 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.

2.3.1.8 *Noise, Vibration and Dust Nuisance Prevention*
With regard to construction activities, reference will be made to BS 5228 (i.e. BS 5228-1:2009+A1:2014 and BS 5228-2:2009+A1:2014) for noise and vibration control on construction and open sites, which offers detailed guidance on the control of noise and vibration from demolition and construction activities. Various mitigation measures will be applied during the construction of the proposed development, such as:

- Limiting the hours during which site activities are likely to create high levels of noise are permitted, e.g. soil levelling/excavations;
- Establishing channels of communication between the contractor/developer, local authority and residents;
- Appointing a site representative responsible for matters relating to noise and vibration, and;
- Monitoring typical levels of noise during critical periods and at sensitive locations.

Furthermore, a variety of practicable noise control measures will be employed. These may include:

- Selection of plant with low inherent potential for generation of noise;
- Erection of barriers as necessary around items such as generators or high duty compressors, and;
- Siting of noisy plant as far away from sensitive receptors as permitted by site constraints.

Noise and vibration control measures are discussed in detail in Chapter 9 Noise & Vibration.

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

In order to ensure that no dust nuisance occurs, a series of measures will be implemented including:

- Hard surface roads will be swept to remove mud and aggregate materials from their surface. If required, any area/road that has the potential to give rise to fugitive dust will be regularly watered, as appropriate, during dry and/or windy conditions;
- In dry conditions, vehicles delivering material with dust potential (soil, aggregates) will be enclosed or covered with tarpaulin at all times to restrict the escape of dust;
- Wheel washing facilities will be provided for vehicles exiting the site to ensure that mud and other wastes are not tracked onto public roads;
- Public roads outside the site will be regularly inspected for cleanliness and cleaned as necessary; and
- At all times, these procedures will be strictly monitored and assessed. In the event of dust emissions occurring outside the site boundary, movements of materials likely to raise dust would be curtailed and satisfactory procedures implemented to rectify the problem before the resumption of construction operations.

Dust nuisance control measures are discussed in further detail in Chapter 8 Air Quality and Climate.

2.3.1.9 Water Discharges

Welfare facilities will be provided for the contractors on the existing contractor compound within the former Diamond Innovation site, during the construction works. Portable sanitary facilities will be provided.

Any surface water run-off will be adequately contained and treated prior to being discharged into the DCC drainage network. See Chapter 6 Hydrology for a full description of mitigation measures proposed.

2.3.1.10 Construction Impacts

Each of the following EIA Report chapters (Chapters 5-15) includes an assessment of the potential impact of construction works on their individual environmental aspect and set out the relevant mitigation measures relating to that aspects.

A Construction Environmental Management Plan (CEMP) will be put in place by contractors to minimise the impact of all aspects of the construction works on the local environment. The CEMP will include emergency response procedures in the event of a spill, leak, fire or other environmental incident related to construction.

The primary potential effects from construction are all temporary (<19 weeks) and are anticipated to include;

- Effects in terms of nuisances relating to the air quality of the environs due to dust and other particulate matter generated from excavation works and effects on the noise environment due to plant and equipment involved in construction;

- Effects on the land, soils, geology & hydrogeology of the site during construction i.e. some loss of protection of the underlying aquifer to contaminants during site clearance, levelling and excavations etc;
- Effects on the local road network

Mitigation measures to address each of these potential short-term effects are presented in each individual EIA Report chapter.

2.3.2 Description of Commissioning

Following the installation of the transmission cable, specialist contractors will be mobilised to complete the commissioning. This will be undertaken remotely from the Darndale and Belcamp Substations. Commissioning will be carried out over a period of months. As there is no requirement for chemicals usage and minimal access to the route by personnel there is no likely environmental effect as a result of commissioning.

2.3.3 Operation of the Project

Operation will be undertaken by ESB Networks. Staff will undertake operation activities from the substations with only interim maintenance works along the transmission cable.

2.3.4 Changes to the Project

The lifespan of the proposed development is not defined but it is anticipated that it will be maintained and periodic upgrading over a long lifetime to meet future demand and upgrade in technology.

If the substations are no longer required over the long term, then full decommissioning in accordance with prevailing best practice will be undertaken.

2.3.5 Description of Other Developments

A list of the other developments in the vicinity of the proposed development including the proposed aviation fuel line amongst others is provided in Chapter 3 Planning and Alternatives of this EIA Report.

2.4 SUSTAINABILITY ENERGY EFFICIENCY & RESOURCE USE

The Operator (ESB Networks) is committed to running its business in the most environmentally friendly way possible.

2.5 HEALTH & SAFETY

2.5.1 Design and Construction Health and Safety

The proposed development has been designed in accordance with the Safety, Health and Welfare at Work Act 2005 (No. 10 of 2005) as amended and the Safety, Health and Welfare at Work (General Application) Regulations 2007 (S.I. 299 of 2007) as amended and associated regulations.

The installation has been designed by skilled personnel in accordance with internationally recognised standards, design codes, legislation, good practice and experience based on a number of similar existing facilities operated by the Operator.

2.5.2 General Operational Health and Safety

The Operator (ESB Networks) implements an Environmental Safety and Health Management System at each of its facilities.

2.6 POTENTIAL IMPACTS OF THE DEVELOPMENT

The proposed development is to be located within suitably zoned lands. The development, when operational, will not generate additional traffic, air, noise, water emissions or wastes generation. There will be no landscape impact as this is a below ground installation.

During construction, there is the potential for temporary nuisance impacts from traffic, dust, noise and construction waste, if not carefully managed. All contractors will be required to implement a CEMP to ensure each of these potential impacts are minimised.

Each chapter of this EIA Report assesses the potential impact of the construction and operation of the proposed development on the receiving environment. Please refer to each specialist chapter respectively.

2.7 MAJOR ACCIDENTS/DISASTERS

The 2014 EIA Directive and associated Draft EPA EIA Guidelines requires that the vulnerability of the project to major accidents, and/or natural disasters (such as earthquakes, landslides, flooding, sea level rise etc.) is considered in the EIA Report. The site has been assessed in relation to the following external natural disasters; landslides, seismic activity and volcanic activity and sea level rise/flooding as outlined below. The potential for major accidents to occur at the data storage facility has also been considered with reference to Seveso/COMAH.

Landslides, Seismic Activity and Volcanic Activity
There is a negligible risk of landslides occurring at the site and in the immediate vicinity due to the topography and soil profile of the site and surrounding areas. There is no history of seismic activity in the vicinity of the site. There are no active volcanoes in Ireland so there is no risk of volcanic activity. Further detail is provided in Chapter 5 Land, Soils, Geology & Hydrogeology.

Flooding/Sea Level Rise
The potential risk of flooding on the site was also assessed. A Stage 1 Flood Risk Assessment was carried out and it was concluded that the development is not at risk of flooding. Furthermore, it is not expected that the proposed development would adversely impact on flood risk for other neighbouring properties. Further detail is provided in Chapter 6 Hydrology and Appendix 6.1 Stage 1 Flood Risk Assessment.

Seveso/COMAH
The proposed development will not be a Seveso/COMAH facility. The only substance stored on site controlled under Seveso/COMAH will be diesel for generators and the amounts proposed do not exceed the relevant thresholds of the Seveso directive.

Minor Accidents/Leaks
There is no potential for any significant leak as no bulk hydrocarbon or other chemical storage is required. There is potential for a localised impact from contractor vehicles during the construction phase. However, the implementation of the mitigation measures set out in Chapters 5 and 6 will ensure the risk of a minor/accident is low and that the residual effect on the environment is imperceptible.

2.8 RELATED DEVELOPMENT AND CUMULATIVE IMPACTS

As part of the assessment of the impact of the proposed development, the cumulative impacts of the proposed development with other developments that are currently permitted or under construction within the Clonshaugh Business & Technology Park, neighbouring industrial parks and surrounding areas have been assessed. A list of the other developments considered is provided in Chapter 3 Planning and Alternatives. The cumulative impact assessment of the proposed development with these other developments is provided in Chapter 15. With mitigation, it is anticipated that there will be no significant cumulative environmental effects.