

NON-TECHNICAL SUMMARY

1.0 INTRODUCTION

This is the non-technical summary of an Environmental Impact Assessment (EIA) Report prepared by AWN Consulting Ltd. (AWN) on behalf of Amazon Data Services Ireland Limited (hereafter referred to as 'the Applicant'). The EIA was undertaken to assess the impact of 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 on the surrounding environment. The proposed development consists of a c. 1.9 km long double circuit 110kV underground cable installation between the two substations, with a 1.1km section of the cable installation to be located within the road reserve. The proposed development will be operated by ESB Networks. The location of the route for the proposed development is shown on Figure 1.1 below.



Figure 1.1 Proposed Route of 110kV Underground cable installation

Travelling away from the permitted Darndale Substation, the proposed development follows the periphery of the green field site, initially north for a distance of approximately 180m, before realigning east for a further distance of approximately 430m. 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.

A full description of the proposed development is provided in Chapter 2 (Description of the Proposed Development).

Requirement for an EIA

The proposed development meets the relevant criteria and constitutes Strategic Infrastructure Development (SID) under Section 182A to 182E of the Planning and Development Act 2000 (as amended).

The project proposed is not listed under Annex I EIA Directives (2003/35/EC, 2011/92/EU and most recently 2014/52/EU). An EIA report has been provided as the proposed development will connect the data centre at Clonshaugh and an EIA was completed for these developments.

This EIA Report has been prepared in accordance with the requirements of the 2014 EIA Directive (2014/52/EU) and the European Union (Planning and Development) (Environmental Impact Assessment) Regulations 2018. It is prepared in the Grouped Format Structure as set down in the Environmental Protection Agency (EPA) Draft “Guidelines on the Information to be Contained in Environmental Impact Assessment Reports” (2017). In general, the EIA Report follows the framework presented in the EPA Draft “Advice Notes for Preparing Environmental Impact Statements” (2015).

The Operator

The underground transmission cable will form part of ESB Networks’ infrastructure. ESB Networks are the licensed operator of the electricity distribution system in the Republic of Ireland. Eirgrid is a state owned body responsible for operating the flow of power on the grid. Both bodies are experienced in the management and operation of the national electricity grid, with appropriate environmental, health and safety management systems in place.

Consultation

The applicant consulted with Bord Pleanála regarding a pre-application determination as to whether the proposed development constitutes Strategic Infrastructure Development (SID) and regarding scoping of the EIA and it was confirmed that the proposed development constitutes SID.

In addition, the relevant specialists and consulting engineers have liaised with Fingal County Council and Dublin City Council and typical statutory bodies (including Eirgrid and ESB, NPWS etc.) by correspondence during the course of preparation of the EIA Report and project design. The proposed development is within the functional area of both Fingal County Council and Dublin City Council.

Regulatory Control

The proposed development activity is not an EPA regulated activity in terms of the Industrial Emissions Directive (2010/75/EU). There will be no emissions to the environment during operation of the transmission cable.

Contributors to the EIA Report

The preparation and co-ordination of the EIA Report has been completed by AWN Consulting in conjunction with specialist subcontractors. The role and responsibility of each contributor, their qualifications and relevant experience are detailed in Chapter 1 (Introduction) of the EIA Report.

2.0 DESCRIPTION OF THE PROPOSED DEVELOPMENT

Site Location & History

The site of the permitted Darndale substation (DCC Reg Ref: 3288/16) is on the same site as existing and permitted data storage facilities and is the former Diamond Innovations Ltd (Unit 1C) site in the Clonshaugh Business Park. The proposed transmission cable will link to an existing substation at Belcamp (Figure 1.1).

The design of the proposed underground cable will comprise a double 110kV circuit installed underground in high-density polyethylene (HDPE) ducting. The 110kV cables will be a standard cross-linked polyethylene (XLPE) copper or aluminium 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 separation of the two 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 (following the functional specification) 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 3.2.

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

- Application for Planning Permission – February 2019
- Commence Site Construction works (subject to grant of planning permission) – End Q2 2019. This is a 19-week programme.
- Completion of Construction – Q4 2019
- Complete Commissioning Works– End Q1 2020.

Once constructed, the route will be reinstated at current ground level, grassed in greenfield area and appropriate hard stand elsewhere.

Existence of the Project

Under the current Draft EPA Guidelines on the information to be contained in EIA Reports, the description of the existence 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.

Each chapter of the EIA Report assesses the potential impact of the construction and operation of the proposed development on the receiving environment and summaries of the impacts and effects are detailed under the specific headings below:

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.

Excavation, installation and reinstatement will be undertaken in stages to minimise traffic disruption. Along the R139, works will be 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. The off-road section of the transmission line (approximately 1.2km in length) will be installed between the hours of 8am and 6pm. All works requiring the closure of one or more traffic lanes will be carried out at night, between the hours of 7pm and 6am.

In general, the civil works element of work will require between 10 (average) -30 (peak) staff. The existing construction compound in the Clonshaugh data storage site will facilitate office, portable sanitary facilities, equipment storage, parking etc. for the duration of the works.

Contractors will be required to submit and adhere to a method statement and a Construction Environmental Management Plan (CEMP). Reinstatement will be as current, i.e. grassed in greenfield areas and hardstand along paved and road areas.

The primary potential effects from construction are all temporary effects less than one year) 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,
- Effects on the noise environment due to plant and equipment involved in construction.
- Effects on traffic management.

Each chapter of the EIA Report assesses the potential impact of the construction and operation of the proposed development on the receiving environment and summaries of the impacts and effects are detailed below.

A Schedule of Mitigation measures to be implemented as part of the proposed development has been included as part of the EIA Report (Appendix 1.1).

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 3-6 months.

Operation

Operation will be undertaken by ESB Networks. Staffing will undertake operation from the substations with only interim maintenance works along the transmission cable. There are no likely environmental effects during this stage.

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 decontamination and decommissioning in accordance with prevailing best practice will be undertaken.

Descriptions of Other Developments

A list of the other developments in the vicinity of the proposed development including the proposed aviation fuel line, the Greater Dublin Drainage Project and the Clonshaugh Data Storage Facility are provided in Chapter 3 Planning and Alternatives of this EIA Report. A cumulative impact assessment was carried out on these developments and is included in Chapter 15 Cumulative Impact of this EIA Report. Overall the cumulative impact is at most temporary and imperceptible during construction and no cumulative effects during operation.

Sustainability, Energy Efficiency and Resource Use

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

Major Accidents/Disasters

The 2014 EIA Directive and associated Draft EPA EIA Guidelines (2017) and the European Union (Planning and Development) (Environmental Impact Assessment) Regulations 2018, require 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, volcanic activity and sea level rise/flooding. The potential for major accidents to occur at the site of the proposed development has also been considered with reference to Seveso/Control of Major Accident Hazards (COMAH) Regulations. No significant effects were identified.

3.0 PLANNING AND DEVELOPMENT CONTEXT

The proposed development meets the relevant criteria and constitutes Strategic Infrastructure Development (SID) under Section 182A & 182B of the Planning and Development Act 2000 (as amended).

The proposed transmission cable commences at the Belcamp substation which is located in the Fingal County Council administrative area and runs south to the R139. The land in which Belcamp substation is located and the proposed route from the substation to the R139 is zoned 'High Technology'. The installation of the proposed transmission cable will contribute to the provision of infrastructure intended to support the development of such activities and greater confidence in continuity and adequacy of electricity supply. Utility Installations are permitted in principle within High Technology zones under the County Development Plan. The proposed underground cable would be categorised as a "Utility Installation" in this context and would therefore comply with the intended uses of this zoning.

The proposed underground transmission cable will provide the power supply needed to support existing and proposed data storage centre in Clonshaugh Business and Technology Park as well as providing additional power supply to support the surrounding area and as such complies with objectives ED 109 and ED 110 of the Fingal County Development Plan.

ED 109: Ensure that a range of industrial and/or manufacturing units, in terms of size, scale, format and arrangements, is provided for to adequately respond to enterprise requirements in different economic sectors.

ED110: Proactively respond to the needs of enterprises undertaking pharmaceutical, data centre, food production and logistics activities that require bespoke building facilities to meet their manufacturing requirements.

The proposed development complies with the economic development strategy in the County Development Plan in contributing to the infrastructure needed for local development.

As part of the assessment of the impact of the proposed development, account has been taken of developments that are currently permitted or under construction within the immediate environs of the proposed route for the transmission cable, including Clonsaugh Business & Technology Park, neighbouring industrial parks and surrounding areas. The DCC and FCC Planning Department websites were consulted and permissions granted within the previous five years (since January 2013) were examined.

The proposed development will be in keeping with all of the aspects of the relevant policy documents (as set out in Chapter 3) and FCC and DCC's stated policies and objectives to conserve, protect and enhance the environmental resources and assets of the region will not be contravened by the proposed development as described in the relevant chapters within the EIA Report.

Alternatives

EIA legislation and the prevailing EPA Draft Guidelines (August 2017) and best practice require that EIA Reports consider 'alternatives' for projects with regard to their environmental effects addressing:

- Do Nothing Alternative;
- Alternative project locations;
- Alternative designs/layouts;
- Alternative processes; and
- Alternative mitigation measures.

Do Nothing Alternative

The 'do nothing' alternative would involve not constructing the underground transmission cable between the permitted Darndale Substation and the current Belcamp Substation. The Do – Nothing approach would have no environmental effect. The provision of support for current power demand of 110kV and future growth in power demand as provided by the proposed project would not be made available to sustain and support existing and future development in the Clonsaugh Technology and Industrial Park and non-related future potential development within the Clonsaugh area. Without this strategic piece of infrastructure, the future potential of the Industrial Park to facilitate further industrial activity could be limited.

Alternative Project Locations

A route selection assessment was carried out to determine the most appropriate route for installation of the cable installation. This included an engineering feasibility study, financial feasibility study and an environmental appraisal of the route options. The route options considered are presented in Figure 3.3 (Chapter 3 Planning Alternatives). It has been determined that the most appropriate route is from the 110kV Substation on site towards the north to the boundary with the M50 via neighbouring 3rd party lands (Referred to as Route Option 2 in Figure 3.3). At the time of the route selection, the EirGrid had not provided the project Functional Specification. Based on this information it is not possible to have the 110kV cable running parallel with the Finglas to Belcamp 220kV power line within the road bed of the R139. Therefore, a minor adjustment to

route 2 was made to the route to facilitate separation between the 110 KV and 220 KV lines on the approach to the 220kV Belcamp substation.

Alternative Design/Layouts

Alternative design options considered included an above ground cable. To minimise the visual impact of such a project, it was decided to design the project to deliver the required power supply below ground.

Two single circuit underground cables were considered rather than a double circuit underground cable. However, the double circuit underground cable enables more power to be transferred over a particular distance and requires less land to do so – minimising ecological and visual impacts of the project and reducing installation costs.

Alternative Processes

The underground transmission cable will become an integral part of the national high voltage electricity grid which is currently operated by ESB Networks. As such the underground transmission cable must meet ESB Network's 'Functional Specification' strict specifications to ensure it will be seamlessly absorbed into the national grid infrastructure and can provide a reliable power supply to the Clonshaugh area. From a "process design" point of view, therefore, the flexibility to select alternative processes for integrating into the current national grid is not available to the applicant.

Conclusions on Alternatives

The selected route is the most suitable route for the proposed transmission cable from an environmental and engineering perspective and taking land access into account. The design of the proposed transmission cable has been selected with due regard to minimising the environmental and visual impact once in situ, taking consideration of alternative mitigation measures. The selection of the design has been constrained to the standard specifications required for connection to the national grid.

In conclusion, it is considered that the proposed transmission cable route and design is the most suitable choice, as discussed in Chapter 3, to provide the support required to meet current and future power requirements in the Clonshaugh area.

4.0 POPULATION AND HUMAN HEALTH

This chapter evaluated the impacts, if any, of the proposed development on population and human health with specific focus on Employment, Human Health and Amenity. Human health in this context is addressed through a review of expected effects on air quality and climate, noise and vibration and traffic.

There will be a temporary, imperceptible, positive effect on local business with the presence of c.10—30 construction workers using local facilities during the construction phase. There will be a positive, long term impact during the operational phase in terms of increased available electricity supply, to facilitate future potential industrial activities. In this context, it will have a positive effect in terms of potential to sustain and facilitate increased employment and also increased housing/accommodation demand for potential future workers who wish to locate in the area.

The main potential impacts on human beings and human health associated with the proposed transmission cable will be during the construction stage. Mitigation measures, such as dust management, noise management and traffic management, will be put in place during construction of the proposed development which will ensure that the impact of the proposed development complies with all EU ambient air quality legislative limit values (see Chapter 8), which are based on the protection of human health and noise

limits (see Chapter 9) meet adopted noise limit values which are based with due consideration of the effect on human health. A traffic management plan consequently, the impact of construction of the proposed development is likely to be short-term and imperceptible with respect to human health. There will be no impacts during operation.

There will be a temporary, slight, negative effect on traffic during the construction phase, with no effect during the operational phase. Mitigation measures will be put in place, including night time and weekend works, to minimise impacts on traffic flow during the construction phase (see Chapter 12).

Overall, it is expected that the proposed development will have a positive and long-term impact on the immediate hinterland through facilitating additional power supply to fuel future industrial and commercial activity which in turn results in increased employment opportunities and the associated economic and social benefits.

5.0 HYDROLOGY

The chapter evaluates the potential impacts on the surrounding hydrological environment during the construction and operational phases of the proposed development.

The area is drained by the Mayne River which flows west to east and discharges into the Baldoyle Estuary, 4.2km east of the proposed development site. The river is culverted under the M50/M1 interchange and along part of the R139. The route of the proposed development transects the river only at one location, south of the Belcamp Substation. The cable will be installed in open cut by installing a dam and overpumping, thereby minimising impact on flow and potential for any impact by sediment or hydrocarbon impact during construction.

A Stage 1 Flood Risk Assessment was completed. The assessment identified no flood hazards for the proposed development. The development resides within Flood Zone B (suitable for this type of development) and is not at risk of flooding from a 1% or 0.1% AEP event.

There is no significant dewatering anticipated during the construction works due to the shallow depth of the required trench. As such the only pumping required may be for collected stormwater run-off in any open excavations.

There is no increase in overall hard standing as the proposed underground transmission cable is going to be re-grassed in the field area and the rest of the route is within a road which is already hardstand (see Chapter 10 and CEMP). As such there is no increase in run-off as a result of this proposed development.

There is no requirement for storage of bulk oil or other chemicals at the construction site as appropriately designed facilities are available at the existing contractor compound in the former Diamond Innovation Site, Clonshaugh Business and Technology Park. There is also no requirement for stockpiling of soil as this will be directly loaded to trucks for licenced disposal.

To further minimise risk to water quality, mitigation measures are planned during the construction work. These include: compliance of contractors with a Construction Environmental Management Plan (CEMP) including management of silty water, management of any accidental local spills from construction vehicles and management of run-off during cementing works and short term open cut work crossing the Mayne.,

By maintaining these distances and the employment of best practice methods it is anticipated to avoid local pollution of the River Mayne. As such the predicted impact will be temporary, imperceptible and neutral during construction.

During operation there is no likely impact on the receiving water body. Therefore, the assessed impact is long term imperceptible and neutral. As there is no overall change in the existing hydrological regime, the potential cumulative impact with respect to water and hydrology is deemed to be not significant.

6.0 LAND, SOILS, GEOLOGY AND HYDROGEOLOGY

The chapter assesses and evaluate the potential impacts to land, soils, geology and hydrogeology during the construction and operational phases of the proposed development.

The natural undisturbed subsoil has been classified as limestone till (Dublin Boulder Clay). This is the dominant subsoil type in the region and is a glacial deposit which has a low permeability, no continuous water table and provided excellent protection to the underlying bedrock limestone aquifer. Along the road, the natural clays are likely to have been replaced by fill which may include some contamination from traffic. It is noted that an illegal landfill exists north of the R139 within IDA lands in Belcamp. The proposed development is outside of the footprint of the illegal landfill as highlighted in a 2008 EIS submitted to FCC. The EIS also noted no significant leaching of leachate within the landfill and no off site contamination of groundwater.

Based on the soil thickness and type known to be present along the route, the aquifer is given a Low Vulnerability status (good protection to the underlying aquifer) following Geological Survey of Ireland guidelines for vulnerability assessment. The bedrock underlying the route is a Locally Important Aquifer (LI) with a small section of the proposed development underlain by Poor Aquifer (Pu).. Based on the NRA/IGI criteria for rating the importance of hydrogeological features, the aquifer is rated as Low Importance to Medium Importance. The proposed development will have negligible impact on aquifer vulnerability as the shallow excavations will be reinstated with 'clean' fill.

Shallow cut and fill will be required to facilitate construction and installation of the transmission cable from the Darndale substation to the Belcamp substation, and ancillary works. The average cut depth for the installation of the transmission line will be 1.25m bgl but may increase up to approximately 3m in places. It is estimated that approximately 48,840m³ of topsoil/subsoils will be excavated to facilitate construction of the proposed development. This soil will be immediately loaded on to trucks and transported to suitably licenced waste facilities. If of suitable quality, some soil may be reused in greenfield areas.

Based on the expected inflows within the shallow sediments, no significant dewatering will be required during the construction phase. There may be localised pumping of surface water from shallow excavations during and after heavy rainfall events. Any surface water run-off will be adequately contained and treated prior to being discharged into the drainage network, which has the capability of supporting the additional water.

Based on the natural conditions present and with appropriate mitigation measures (see Section 6.6) to reduce the potential for any impact of accidental discharges to ground during this phase, the potential impact on land soils, geology and hydrogeology during construction are considered to have a temporary, imperceptible significance, with a neutral impact on quality. There are no likely significant impacts on the land, geological

or hydrogeological environment during operation. As such the impact is considered to have a long-term, imperceptible significance with a neutral impact on quality.

7.0 BIODIVERSITY

This chapter provides an assessment of the impacts of the proposed development on the ecological environment, i.e. flora and fauna. The lands in which the proposed development is located have no formal designations. The nearest European sites are located at Baldoye Bay (4.23km away) and North Dublin Bay (4.79km away).

The footprint of the proposed development comprises rough grassland and scrub, overgrown hedgerows associated with old drainage ditches and mixed woodland, the R139 and the Darndale and Belcamp substations.

There are no rare or protected habitats recorded in the study area. The site may be considered of Low Local Ecological Value. There are no predicted significant impacts on local ecology.

None of the qualifying habitats or species of the European sites occur under the footprint of the proposed works areas. Plans and measures are in place to protect all identified fauna, i.e. cutting vegetation outside bird nesting season.

The likelihood of impacts on hydrological connected sites is negligible based on distance. Water quality impacts will be avoided by best practice construction management. The proposed development will have no predicted impacts on European sites, therefore no cumulative impacts are anticipated.

The development is located in an area of low ecological value and, as such, is predicted to have a neutral and imperceptible effect on biodiversity. There is no requirement for monitoring with regard to biodiversity as no likely significant effects on biodiversity have been identified.

8.0 AIR QUALITY AND CLIMATE

This chapter evaluates the impacts which the proposed development may have on air quality & climate.

Air Quality

In terms of the existing air quality environment, data available from similar environments indicates that levels of particulate matter less than 10 microns and particulate matter less than 2.5 microns (PM10/PM2.5) are, generally, well within the National and European Union (EU) ambient air quality standards.

An assessment of the potential dust impacts as a result of the construction phase of the proposed development was carried out based on the UK Institute of Air Quality Management (IAQM) guidance. This established the sensitivity of the area to impacts from construction dust in terms of dust soiling of property and human health effects. The sensitivity of the area was combined with the dust emission magnitude for the site under three distinct categories: earthworks, construction and trackout (movement of vehicles) in order to determine the mitigation measures necessary to avoid significant dust impacts.

Once mitigation measures, such as dust and traffic management, are implemented the impacts to air quality during the construction of the proposed development are

considered, short-term and not significant, posing no nuisance at nearby sensitive receptors (such as local residences).

As the proposed transmission line will be underground once completed, there are no potential impacts to air quality during the operational phase.

Climate

Based on the scale and temporary nature of the construction works, the potential impact on climate change and transboundary pollution from the construction of the proposed development is deemed to be short-term and not significant in relation to Ireland's obligations under the EU 2020 target. There is no impact during operation as there are no emissions from the proposed development.

Human Health

The best practice dust mitigation measures that will be put in place during construction of the proposed development will ensure that the impact of the proposed development complies with all EU ambient air quality legislative limit values which are based on the protection of human health. Therefore, the impact of construction of the proposed development is likely to be short-term and imperceptible with respect to human health. The proposed transmission cable will be underground and will have no impact on noise, traffic or water in relation to human health once operational.

Mitigation Measures

A dust minimisation plan will be implemented during the construction phase of the proposed development to ensure that no significant dust nuisance occurs outside the site boundary, measures include the development of a documented system for managing site practices with regard to dust control, monitoring and assessment of dust the dust minimisation plan. No mitigation is required during operation.

Residual Impacts

If the mitigation measures outlined in this assessment are implemented, there will be no residual impacts of significance on air quality or climate from the construction or operational phases of the proposed development.

9.0 NOISE AND VIBRATION

This chapter assesses the anticipated noise and vibration impact associated with the proposed development at nearby noise sensitive locations.

Due to the fact that the existing ambient noise climate is dictated by road traffic noise it has been reviewed in line with consideration of Dublin Agglomeration noise mapping (2013-2018) that have been published for day and night-time periods. Road traffic movements, both distant and local are the most significant source of noise during both daytime and night-time periods. Other noise sources include aircraft activities associated with Dublin Airport.

When considering a development of this nature, the potential noise and vibration impact on the surroundings must be considered for each of two distinct stages: the short-term impact of the construction phase and the longer-term impact of the operational phase.

During the construction phase of the proposed development there will be some impact on nearby noise sensitive properties due to noise emissions from site activity and traffic. Any noise impacts they will be temporary and will reduce as the proposed development progresses from initial ground works. The application of noise limits and limits on the hours of operation, along with implementation of appropriate noise and vibration control

measures, such as selection of plant with low inherent potential for generation of noise and placing of noisy/vibratory plant as far away from sensitive properties, will ensure that noise and vibration impact is kept to a minimum. The resultant impact is slight, negative and temporary and short-term.

There will be no noise emissions from the operation of the transmission cable connection. Consequently, there is no requirement to assess any operational noise emissions.

No significant sources of vibration will be present during the operational phase. There are therefore no predicted vibration impacts at neighbouring dwellings during the operational phase. The resultant vibration impact is imperceptible, neutral and long-term.

There will be no vibration emissions from the operation of the transmission cable. Consequently, there is no requirement to assess any operational noise emissions .

10.0 LANDSCAPE AND VISUAL

This chapter comprises an assessment of the likely impacts of the proposed development on the landscape and visual environment.

The wider area has a substantially industrial character including existing industrial facilities and additional lands zoned for industrial development. The area also comprises significant road infrastructure including the grade separated M1/M50 motorway interchange and the R139 regional road, and is also adjoined by residential areas, open space and public parks accessed via local road networks.

The immediate environs of the proposed development is substantially within the R139 carriageway, but also includes two areas of open scrub woodland and grass fields at the western and eastern extents of the development. The route of the development will pass through a limited number of established roadside tree boundaries when traversing from filed to carriageway and vice versa. The Mayne River runs through the fields along the northern side of the R139.

The site is located within the administrative area of Dublin City Council and is Zoned Z6: Employment/Enterprise in the Dublin City Development Plan, with the objective ...to provide for the creation and protection of enterprise and facilitate opportunities for employment creation, and also within the Fingal County administrative area and immediately north of the R139 within lands Zoned HT: ...to provide for office, research and development of high technology/high technology manufacturing type employment in a high quality built and landscape environment.

There are no protected views and prospects; tree preservation objectives or orders; or special landscape designations within or in the vicinity of the site.

The proposed route is substantially contained within the R139 carriageway corridor and the proposed development will be installed under the existing carriageway. It will also extend under the two areas of open scrub woodland and grass fields at the western and eastern extents of the proposed development before joining the Darndale Substation and the Belcamp Substation.

The nature of the proposed development, being underground, is that once it has been constructed in the excavated trench, ground surfaces will be reinstated to match their

existing condition. Where the proposed route passes through existing tree rows, localised tree removal will be mitigated by replanting trees to restore the integrity of the tree row.

The proposed development is modest in nature, designed to avoid any intervention with significant landscape or impact on any sensitive visual receptors, and will not give rise to significant landscape or visual impacts, either during construction, in operation or of a residual nature.

In summary, it is considered that the proposed development is in-keeping with the established / envisaged uses and with the zoning of the area. The site is located within a context of industrial and roadway infrastructure that is not considered to be visually significant or sensitive. Landscape and visual impacts will be limited to temporary and slight construction stage impacts. The underground nature of the proposed development will not give rise to any significant operational stage landscape and visual effects.

11.0 ARCHAEOLOGICAL, ARCHITECTURAL AND CULTURAL HERITAGE

This chapter assesses the predicted impacts of the proposed development on archaeological, architectural and cultural heritage using a number of sources including the Record of Monuments and Place, the Dublin City Development Plan, the Fingal County Development Plan, the topographical files of the National Museum of Ireland, the Excavations Database, cartographic and documentary sources.

There are no direct impacts on archaeological, architectural or cultural heritage sites that are subject to statutory protection associated with the proposed development. The proposed development will directly impact two features of archaeological potential namely the townland boundary between Willsborough and Clonshaugh and a laneway which provided access to the farm outbuildings of Woodstown House. It is recommended that the townland boundary be subject to a topographic and photographic survey and that the laneway be subject to pre-development archaeological testing.

Should archaeological features or material be uncovered during archaeological testing or any phase of construction, ground works shall cease immediately and the National Monuments Service of the Department of Culture, Heritage and the Gaeltacht shall be informed. Time must be allowed for a suitably qualified archaeologist to inspect and assess any material. If it is established that archaeologically significant material is present, the National Monuments Service may require that further archaeological mitigation be undertaken.

The mitigation measures detailed are subject to the approval of the Dublin City Archaeologist and the National Monuments Service, Department of the Culture, Heritage and the Gaeltacht.

The implementation of mitigation measures detailed will ensure that the effect during the construction phase is neutral and imperceptible.

The operational phase of the proposed development is not predicted to have any impact on archaeological, architectural and cultural heritage.

12.0 TRAFFIC AND TRANSPORTATION

This chapter assesses the traffic impact that the proposed development will have on the surrounding road network during construction and operation.

The site containing the permitted Darndale 110kV Substation is located in close proximity to the M50 in an existing industrial/business park. There are limited public transport services locally, with 2 no. Dublin Bus services operating in the area. Pedestrian facilities are of a good quality while cycle infrastructure is limited at present. The surrounding road network in the vicinity of the site also includes the R139, Clonshaugh Road, the R104, the access road to the Industrial Estate, and the Business Estate Road.

The potential impact of the proposed transmission cable connection has been considered for both the construction and operational stages based on Transport Infrastructure Ireland (TII) guidelines set out in the Traffic & Transport Assessment Guidelines (2014). The cumulative impact of the proposed development and the indicative future development (should it be developed) has also been assessed.

There is currently a TII traffic counter located along the R139, between Clonshaugh Road and the Belcamp 220kV Substation and traffic count information from this counter was used to inform the study.

The traffic generation of the proposed development during the construction stage was estimated based on contractor experience of similar underground cable installation works, taking into account the proportion of the underground cable to be installed off-road and the proportion of the underground cable to be installed along the R139 carriageway. It is assumed that construction vehicles will match the distribution of traffic currently travelling on this road. The impact of the construction phase of the development was found to be temporary, negative and not significant during peak construction.

The operational stage trip generation potential was estimated based on a standard ESB maintenance programme for such a cable development. One return light vehicle trip will be generated once every three years by ESB staff for maintenance purposes, apart from the initial inspection which will be carried out after one year, generating a return light vehicle trip to and from the site. Therefore, the impact of the operational phase of the development was found to be long-term, neutral and imperceptible, with the development's operational traffic volumes significantly below the thresholds stated in the TII Guidelines for Traffic and Transport Assessments, 2014 for junction analysis.

Mitigation measures for the construction phase are outlined in Chapter 12 which include a traffic management plan. There will be no mitigation measures required for the operational phase of the proposed development.

13.0 MATERIAL ASSETS

This chapter evaluates the impacts, if any, which the proposed development may have on Material Assets. The Draft EPA EIA Guidelines (2017) state that material assets are now taken to mean built services and infrastructure, roads and traffic and waste management. The EPA Draft Advice Notes for Preparing Environmental Impact Statements (2015) also give the following examples of material assets; assimilative capacity of air, ownership and access and tourism. In the EIA Report, the impacts on the various material assets described above have been considered in the following chapters of this EIA Report as follows:

- Chapter 4 Population and Human Health;
- Chapter 8 Air Quality & Climate;

- Chapter 12 Traffic & Transportation; and
- Chapter 14 Waste Management.

This chapter assesses ownership and access, built services and infrastructure.

Ownership and Access

The proposed route for the proposed development travels through lands which are owned by three different parties i.e. Dublin City Council (DCC), Fingal County Council (FCC) and the Applicant. Letters of consent have been obtained from all parties and are included in Appendix 13.1. A letter of consent for ESB Networks as the operator of the cable installation is also included. Access to the Darndale substation site is via the Clonshaugh Business Park and for the Belcamp substation is from the R139.

Power and Electrical Supply

There is currently no transmission cable between the permitted Darndale Substation and the existing Belcamp Substation. The proposed development will provide for a double circuit 110kV power supply running from the existing Belcamp Substation to the permitted 110kV Darndale Substation on the Applicant's site.

Telecommunications

Along the proposed route of the proposed development on the southern boundary of the R139 there is a fibre optic line running in an easterly direction from the Clonshaugh roundabout towards Clarehall. On the northern boundary of the R139 there is another fibre optic cable running along a section of the R139. The proposed development will not impact on these existing services. There is a fibre optic cable distribution network installed currently for the Clonshaugh data storage facility.

Water Supply, Stormwater & Foul Drainage

The contractors compound, which is located at the Darndale substation, is already supplied by a live 150mm watermain and foul drainage infrastructure. These were completed under Planning Reg. Ref. 4449/16.

There are stormwater sewers running along both the northern and southern boundaries of the R139 and a 450mm diameter foul sewer. The north fringe sewer crosses the R139 at chainage 1220. A survey of all existing infrastructure has been undertaken. The construction of the proposed development will have no overall impact on existing service delivery along the route. The contractor will be required to ensure continuity of service during construction works.

The implementation of mitigation measures detailed in Chapter 14 of the EIA Report will ensure that the predicted impacts on the material assets will be temporary, neutral and imperceptible for the construction phase and long-term, neutral and not significant during operation.

14.0 WASTE MANAGEMENT

This chapter evaluates the impacts, if any, which the proposed development may have on waste during construction. There are no likely impacts during operation.

An assessment was carried out of the potential impacts associated with resource consumption and waste management during the construction phase of the proposed development. As the project transverses both DCC and FCC lands, both authorities are responsible for setting and administering waste management activities in the area following regional and development zone-specific policies and regulations.

During the construction phase, typical construction waste materials, such as soil and stones, tarmacadam and trees/shrubbery, will be generated which will be segregated on-site into appropriate skips/containers and removed from site by suitably permitted waste contractors to authorised waste facilities. Where possible, materials will be reused on-site to minimise raw material consumption (see Chapter 14). Source segregation of waste materials will improve the re-use opportunities of recyclable materials off-site.

During construction, two trenches are required to be excavated to a typical depth of 1.25m bgl but may increase up to approximately 3m in places. Clifton Scannell Emerson Associates (project engineers) have estimated that c. 48,840m³ of soil and stone, 2,000m³ of tarmacadam and 1,500m³ of trees/shrubbery will be generated. It is envisaged that the majority of this material along the road will be removed offsite with some material in greenfield areas being reused as backfill in the grassed areas. A carefully planned approach to waste management and adherence to the site-specific Construction and Demolition Waste Management Plan during the construction phase will ensure that the predicted effect on the environment will be short-term, neutral and imperceptible. Following construction there will be no generation of waste.

Mitigation measures are outlined in Chapter 14 and are in line with those detailed in the project specific C&D WMP which has been prepared for the proposed development. Some of the measures include waste minimisation, on-site segregation of waste and the appointment of a waste manager.

The residual impact will be neutral and imperceptible.

15.0 INTERACTIONS

This chapter of the EIA Report addresses potential interactions and inter-relationships between the environmental factors discussed in the preceding chapters. This covers both the construction and operational phase of the proposed development.

In the main, the majority of EIA Report chapters have already included and described assessments of potential interactions between aspects however this section of the assessment presents a summary and assessment of the identified interactions.

In summary, the majority of interactions are neutral.