

**Planning & Development Act, 2000 - 2020,
European Communities (Environmental Impact Assessment) Regulations 1989 (as amended),
Planning & Development Regulations, 2001 (as amended)**

ENVIRONMENTAL IMPACT ASSESSMENT REPORT

NON-TECHNICAL SUMMARY

**Aungierstown Substation and transmission lines
Grange Castle South Business Park**

January 2021

MARSTON

PLANNING CONSULTANCY

NON-TECHNICAL SUMMARY

- 1.1 This Non-Technical Summary of the Environmental Impact Assessment Report (EIA Report) has been prepared on behalf of CyrusOne Irish Data Centres Holdings Ltd. to accompany an application to An Bord Pleanála for permission for two no. single circuit 110kV transmission lines and a 110kV Gas Insulated Switchgear (GIS) substation compound along with associated and ancillary works and is described as follows:
- 1.2 The proposed 110kV GIS Substation Compound is to be located on lands to the north-east of the data centre development permitted under South Dublin County Council Reg. Ref. SD18A/0134 / An Bord Pleanála Ref. ABP-302813-18, and within an overall landholding bound by the Google data centre development to the east; the Grange Castle South Access Road that provides access off the Baldonnel Road into Grange Castle South Business Park to the north; and the permitted and under construction data centre development of the applicant to the south and west within Baldonnel, Dublin 22. The site of the proposed development has an area of c. 0.9163 hectares.
- 1.3 The proposed 110kV Gas Insulated Switchgear (GIS) Substation Compound includes the provision of a two storey GIS Substation building (with a gross floor area of 1,307.2sqm) (known as the Aungierstown Substation), two transformers, lighting and lightning masts, car parking, associated underground services and roads within a 2.6m high fenced compound and all associated construction and ancillary works.
- 1.4 Two proposed underground single circuit 110kV transmission lines will connect the proposed Aungierstown 110kV GIS Substation to the existing 220kV / 110kV Castlebaggot Substation to the immediate north-east. The proposed transmission lines cover a distance of approximately 120m and 140m within the townlands of Ballybane, and Aungierstown and Ballybane.
- 1.5 The development includes the connections to the two substations (existing and proposed), changes to landscaping permitted under SDCC Reg. Ref. SD18A/0134 / An Bord Pleanála Ref. ABP-302813-18 and all associated construction and ancillary works.
- 1.6 For detailed information and key mitigation and remedial measures please consult the full EIA Report document. Having regard to Article 3 of the 2014 EIA Directive, and the Circular Letter PL 1/2017 of the Department of Housing, Planning, Community and Local Government, this document has been titled an Environmental Impact Assessment Report (EIA Report).

Purpose of the EIA Report

- 1.7 The objective of this EIA Report is to identify and predict the likely environmental impacts of the Proposed Development; to describe the means and extent by which they can be reduced or ameliorated; to interpret and communicate information about the likely impacts; and to provide an input into the decision making and planning process. The EIA Report is the primary element of the Environmental Impact Assessment (EIA) process and is recognised as a key mechanism in promoting sustainable development, identifying environmental issues, and in ensuring that such issues are properly addressed within the capacity of the planning system.
- 1.8 EirGrid will be the transmission system operator (TSO). ESB Networks will be the transmission asset owner (TAO). Figure 1.1 presents a site layout plan showing the route of the proposed underground transmission lines and the proposed GIS substation.

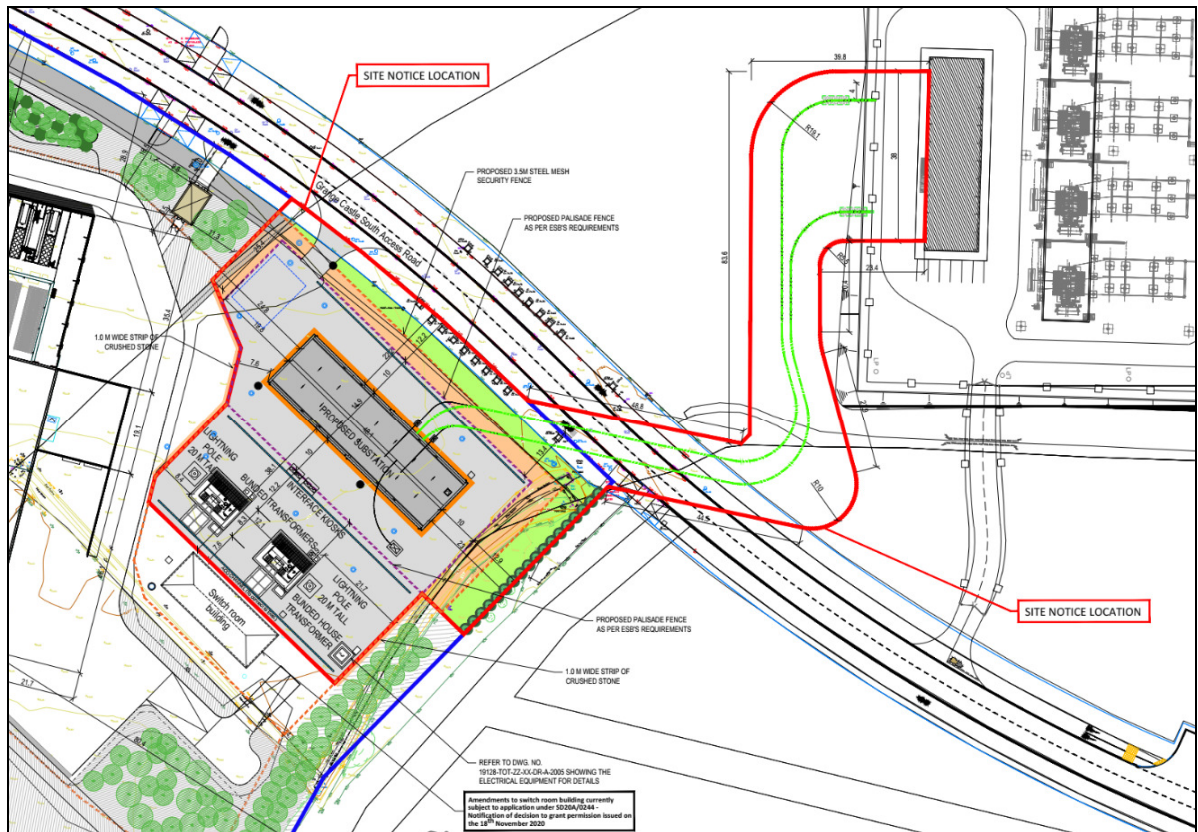


Figure 1 Proposed site layout plan illustrating red line boundary (Source: TOT Architects, December 2020)

Requirements for an EIA Report

1.9 The EIA Directives list those projects for which an EIA is mandatory (Annex I) and those projects for which an EIA may be required (Annex II). With regard to Annex II projects, Member States can choose to apply thresholds or use case by case examination or a combination of both to assess where EIA is required. In Ireland, a combination of both has been applied. The Proposed Development is not listed under Annex I EIA Directives. An EIA Report has been provided as the Proposed Development is required to provide the permanent power supply for the Permitted Development granted under SDCC SD18A/0134 / An Bord Pleanála Ref. ABP-302813-18 and the Permitted Development required an EIA Report to accompany the planning application.

1.10 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)

Permitted Development

1.11 The applicant, CyrusOne Irish Data Centres Holdings Ltd. is the same as under the Permitted Development. The Proposed Development is designed to support power demand for the Permitted Development (Reg. Ref. SD18A/0134 / An Bord Pleanála Ref. ABP-302813-18) that received its Final Grant of permission on the 18th April 2019. The Permitted Development is for a two storey data centre facility (31,785sqm) and a three storey office block (2,882sqm) plus ancillary elements that included a new Air Insulated Switch Gear (AIS) substation with associated transformer yard and Client Control building (125sqm). All elements of this original substation are being replaced under this application. The Permitted Development is currently under construction.

- 1.12 The Client Control building (switch room) was subject to a recent retention application under Reg. Ref. SD20A/0244 as it was constructed to reflect the current substation layout. A Final Grant of Permission was issued on this application on the 4th January 2021.
- 1.13 In order to provide temporary power for part of the Permitted Development an ESB temporary substation was applied for, and was granted permission with conditions under SDCC Reg. Ref. SD19A/0300 that received its Final Grant of Permission on the 9th January 2020. An application for slight modifications to the parent permission as well as the demolition of the houses and other structures on the Permitted Development site was lodged with the Planning Authority on the 16th November 2020 under Reg. Ref. SD20A/0295. None of these works are affected by the Proposed Development.

The Operator

- 1.14 Eirgrid will be the transmission system operator (TSO) and ESB Networks will be the transmission asset owner (TAO). EirGrid will operate transmission stations, including the proposed new GIS substation, remotely from their control centres. However, ESB Networks will carry out all local operations on Eirgrid's behalf.

Consultation

- 1.15 The Applicant met with An Bord Pleanála (ABP) to confirm the Proposed Development was an SID application and to discuss the scope of the planning application. Consultation has also been undertaken with Eirgrid and ESB Networks to ensure the Proposed Development design meets their requirements.
- 1.16 In addition, the relevant specialists and project engineers have liaised directly and independently with statutory bodies (including the Water Services and Parks Departments of SDCC, Irish Water, Eirgrid, ESB, National Parks & Wildlife Services, and the Department of Defence etc.) by correspondence during the course of the EIA Report preparation. All EIA contributors/authors have incorporated advice and comments received from consultees into the relevant chapters of this EIA Report.

Regulatory control

- 1.17 The proposed transmission of electricity is not an EPA regulated activity in terms of the Industrial Emissions Directive (Directive 2010/75/EU) (which replaced the IPPC directive). The TSO and TAO will ensure the relevant regulatory requirements relating to power activities are met.

Contributors to the EIA Report

- 1.18 The preparation and co-ordination of the EIA Report has been completed by Marston Planning Consultancy Ltd. 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. DESCRIPTION OF THE PROPOSED DEVELOPMENT

- 2.1 The Proposed Development is to be located on a site of c. 0.9163 hectares that consists of a primarily greenfield site within the Grange Castle South Business Park. The GIS substation compound and the 110kV transmission lines to the Castlebaggot substation to the south of the Grange Castle South Business Park access road, is subject to a 999 year lease to Cyrus One from SDCC. The rest of the route of the transmission lines to the existing 220kV / 110kV Castlebaggot Substation is located on lands that are in the control or ownership of SDCC and ESNB.
- 2.2 The Proposed Development primarily comprises the provision of two no. 110kV transmission lines and a 110kV Gas Insulated Switchgear (GIS) substation compound along with associated and ancillary works and is described as follows:
- The proposed 110kV GIS Substation Compound is to be located on lands to the north-east of the two storey data centre facility and associated three storey office block that was permitted under SDCC Reg. Ref. SD18A/0134 / An Bord Pleanála Ref. ABP-302813-18, and within an overall landholding bound to the north by the Grange Castle South Business Park access road; to the west by the Baldonnel Road and to the south by 3 no. residential properties and the Baldonnel Road; and to the east by the Google data centre facility within Baldonnel, Dublin 22. The site of the Proposed Development has an area of c. 0.9163 hectares.
 - The proposed 110kV Gas Insulated Switchgear (GIS) Substation Compound includes the provision of a two storey GIS Substation building (with a gross floor area of 1,307.2sqm) (known as the Aungierstown Substation), two transformers, lighting and lightning masts, car parking, associated underground services and roads within a 2.6m high fenced compound and all associated construction and ancillary works.
 - Two proposed underground single circuit 110kV transmission lines will connect the proposed Aungierstown 110kV GIS Substation to the existing 220kV / 110kV Castlebaggot Substation to the immediate north-east. The proposed transmission lines cover a distance of approximately 120m and 140m within the townlands of Ballybane, and Aungierstown and Ballybane.
 - The development includes the connections to the two substations (existing and proposed), changes to landscaping permitted under SDCC Reg. Ref. SD18A/0134 / An Bord Pleanála Ref. ABP-302813-18 and all associated construction and ancillary works.
- 2.3 The design of each underground 110kV transmission line will comprise a single 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.
- 2.4 The installation of the HDPE ducting will require the excavation of one trench along each of the routes; each containing one 110kV circuit. The optimum depth of excavation of the trenches will typically be 1.25m below ground level but may increase up to c. 3m at utility crossings. The typical width of each trench is 0.6m, however this may vary depending on ground conditions and the location of existing services. The trenches will widen to being 1.5m in width closer to the proposed substation and where the ducts are crossing under the two culverts.
- 2.5 The entire length of the transmission lines will be undertaken by excavator and hand digging where required in accordance with safe work procedures and HSA Code of Practice for Avoiding Danger from Underground Services. Trenches will be excavated with stable sloping, benching where required and a suitable access and egress point.
- 2.6 A summary of the proposed target dates (earliest possible dates) for the Proposed Development are as follows:
- Application for Planning Permission - January 2021;
 - Commence Site Construction works (subject to grant of planning permission) - Q3, 2021; and
 - Completion of Construction and Commissioning - Q4, 2022.

Phases of the Proposed Development

2.7 Under the *EPA Draft EIA Report Guidelines 2017*, the description of the each of the phases of the Proposed Development is required in order to define the aspects of the lifecycle of the Proposed Development under the following headings:

- Construction;
- Commissioning;
- Operation;
- Decommissioning; and
- Description of other related projects.

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

Construction

2.9 It is estimated that the civil and commissioning works will take approximately 13-15 months. In general, the impact of the construction period would be short-term in nature. In general, the civil works element of work will require between 15 (average) and 30 (peak) staff. It is proposed that the accesses and haul roads for vehicles, the contractors' compound and fencing that will have been established for the construction of the Permitted Development will be utilised for the Proposed Development.

2.10 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.

2.11 Contractors will be required to submit and adhere to a method statement and a Construction Environmental Management Plan (CEMP). The primary potential effects from construction are temporary / short-term effects (less than one year / greater than one year and less than seven years) and are anticipated to include:

- Potential 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;
- Potential 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.; and
- Potential effects on the local road network and its environs due to construction workers and other staff attending site during preparation, construction and commissioning phases.

2.12 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.

2.13 A Schedule of Mitigation measures to be implemented as part of the Proposed Development has been included as part of the EIA Report (Appendix 2.2).

Commissioning

2.14 Once the construction of the Proposed Development is completed, ESB Networks will be mobilised to complete the commissioning. Commissioning will be carried out over a period of months. Commissioning works primarily involve a suitably qualified individual connecting the relevant cables to a switchgear within the substations. Following this, energisation can take place. 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.

Operation

2.15 EirGrid will be the transmission system operator (TSO) and ESB Networks will be the transmission asset owner (TAO). EirGrid will operate transmission stations, including the existing Castlebaggot substation and the proposed new GIS substation, remotely from their control centres. However, ESB Networks will carry out all local operations on Eirgrid's behalf. ESB Networks will undertake local

operational activities from the substations with only interim inspections along the underground 110kV transmission lines.

- 2.16 There are no full-time staff required for operation. However, maintenance of the substation will be required by ESB Networks, including a routine weekly inspection, and a more comprehensive inspection once per year. The weekly inspection of the GIS substation will take a maximum of 8 hours on a single day and will be conducted by up to 2 staff. In addition to the weekly inspections, more comprehensive maintenance works will take place annually on each cubicle. This will require up to 4 staff to conduct testing at the substation over a maximum period of 15 days (120 hours). Traffic relating to staff movements have been assessed as part of the traffic and transportation chapter of this EIA Report (Chapter 13).

Decommissioning

- 2.17 The lifespan of the Proposed Development is not defined but it is anticipated that it will be maintained, and periodic upgrading undertaken over a long lifetime to meet future demand and upgrade in technology. If the GIS substation is no longer required over the long term, then full decommissioning in accordance with prevailing best practice will be undertaken.
- 2.18 Retirement of any cables will involve decoupling the cable from the switchgear. An excavation pit of approximately 10sqm will then be established. The cable to be retired will be identified within this excavation pit and spiked (to ensure that decoupling from the switchgear has been successful and the cable is not live). The cable will then be cut and capped to protect the exposed cable. The excavated pit can be reinstated using the excavated material with no import of fill required for this part of the Proposed Development. The retired cable can remain in situ in the ground, with the potential for it to be returned to operation should it be required in the future.

Description of other developments

- 2.19 A list of the other permitted developments in the vicinity of the Proposed Development is provided in Chapter 3 (Planning and Development Context) of this EIA Report.

Sustainability energy efficiency & resource use

- 2.20 Eirgrid and ESB Networks are committed to running their businesses in the most environmentally friendly way possible. ESB Networks is a subsidiary within ESB Group. The ESB Group has identified energy efficiency as a strategic priority within its Brighter Future strategy. ESB Group is a commercial semi-state-owned company (95% state-owned) and is committed to supporting and being exemplar in the delivery of Ireland's 2020 public sector targets. These targets, outlined in the fourth National Energy Efficiency Action Plan (2017 – 2020) (NEEAP), include an energy efficiency target of 33% for the public sector.

Major accidents / disasters

- 2.21 The 2014 EIA Directive and associated EPA Draft EIA Report Guidelines 2017 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 Proposed Development site has also been considered with reference to Seveso/COMAH.
- 2.22 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.
- 2.23 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. The assessment

indicates that the Proposed Development would not adversely impact on the flood risk for other neighbouring properties.

- 2.24 The Proposed Development will not be a Seveso/COMAH facility. Fuel oil storage (diesel) is required for the operational phase. Fuel oil will be stored within a c. 800 L capacity tank for the supply of the backup generator for the substation, within an adequately sized bund. Diesel will also be stored on the Permitted Development site for the emergency back-up generators. The volumes of diesel to be stored within the Proposed and Permitted Developments does not exceed the relevant thresholds of the Seveso Directive.

Cumulative effects

- 2.25 The cumulative impact of the Proposed Development with Building B of the Permitted Development during the construction phase; and the entire Permitted Development as granted under Reg. Ref. SD18A/0134 during the operational phase have been considered in each of the Chapters of this EIA Report.
- 2.26 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 vicinity of the site, neighbouring industrial parks and surrounding areas have been assessed. A list of the other developments considered is provided in Chapter 3 (Planning and Development Context). The cumulative impact assessment of the Proposed Development with these other developments is provided in each chapter of this EIA Report. The implementation of all mitigation measures set out under this EIA Report and under the EIA Report for the Permitted Development for each environmental aspect, will ensure that there will be no cumulative impacts arising.
- 2.27 The cumulative effect of all these planned and permitted developments with the Proposed Development during the construction phase is generally **short-term** due to the length of the construction phase (13-15 months) with a range of quality of impacts that range primarily in the **not significant, imperceptible** and **neutral** range.
- 2.28 The cumulative effect of all these planned and permitted developments with the Proposed Development during the operational phase is generally **long-term, imperceptible** and **neutral** in nature.

3. PLANNING AND DEVELOPMENT CONTEXT

- 3.1 Following consultation with An Bord Pleanála (ABP) it was confirmed that the Proposed Development meets the relevant criteria and constitutes a Strategic Infrastructure Development (SID) under Section 182A & 182B of the Planning and Development Act 2000 (as amended).
- 3.2 The site for the Proposed Development is within the functional area of South Dublin County Council (SDCC), and therefore the Planning and Development Framework with which the development complies is defined by the South Dublin County Development Plan 2016-2022. The Proposed Development is to be located within an area zoned EE (Enterprise and Employment) under the County Development Plan with the stated aim:
- “To provide for enterprise and employment related uses.”*
- 3.3 The Proposed Development will provide the power supply needed to support the power demand for the Permitted Development that received its Final Grant of Permission on the 18th April 2019 under SDCC Reg. Ref. SD18A/0134 / An Bord Pleanála Ref. ABP-302813-18.
- 3.4 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 lines, the UBC Properties development to the immediate north of the Proposed Development, other neighbouring industrial parks and surrounding areas. The SDCC Planning Department website was consulted, and permissions granted within the previous five years were examined.

- 3.5 The Proposed Development will be in keeping with all of the aspects of the relevant policy documents (as set out in Chapter 3) and SDCC'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.

4. ALTERNATIVES

- 4.1 EIA legislation and the prevailing EPA Draft Guidelines as set out in Chapter 1 of this EIA Report and best practice require that EIA Reports consider 'reasonable alternatives', for projects with regard to their environmental effects addressing:

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

Do Nothing Alternative

- 4.2 In the event that the Proposed Development does not proceed, the Permitted Development (SDCC Reg. Ref. SD18A/0134), once constructed, would be left without a permanent power supply. The permanent power supply is designed to provide the full power requirement of the Permitted Development. Without the permanent power supply that the Proposed Development will provide, Building A would only operate at a fraction of its capability, and Building B could not operate at all, until such a time as another application is made. The land on which the Proposed Development would be located, would remain undeveloped within the Permitted Development site in a do-nothing scenario. The land would be utilised for the construction phases of the Permitted Development and would then recolonise as scrub following the completion of the development.

Alternative project locations

GIS Substation

- 4.3 The location of the proposed GIS substation compound was identified as part of the Permitted Development as granted under SDCC Planning Reg. Ref. SD18A/0134 / ABP Ref. ABP-302813-18. The location of the proposed substation under the Permitted Development and the Proposed Development has remained unchanged. Its location was assessed having regard to the environmental effects, particularly in terms of visual impact, as well as the length of the 110kV transmission line and therefore construction phase impacts as well as constraints along the route as a result of other infrastructure; to connect to the Castlebaggot 220kv / 110kV substation.
- 4.4 Alternative sites were considered for the Proposed Development under the Permitted Development. However, the need for a strong architectural expression facing the Business Park entrance generated the architectural response of locating the offices to this elevation; and the substation in the north-east corner of the Proposed Development site. The visual impact of the proposed substation being located at the western end of the Permitted Development site was considered as having a negative visual impact at the entrance to the Grange Castle South Business Park and was soon dismissed as a viable alternative.
- 4.5 Currently, two data centre buildings detailed in the Permitted Development have been granted planning permission (i.e. Buildings A and B) with construction on Building A having commenced in Q3, 2019. It was not deemed practicable or necessary therefore, to consider an alternative location for the Proposed Development's 110kV GIS Substation compound during the assessment of this Proposed Development.

110kV Transmission Line Routes

- 4.6 The assessment of the alternative routes for the two 110kV transmission lines considered five route options from the Castlebaggot 220kV / 110kV substation to the proposed substation. Given the short

distance between the proposed substation and the Castlebaggot 220kV / 110kV substation the variation in the routes are minimal, and can be described as follows:

Option B-A – These route options extend from the western side of the Castlebaggot substation building and adjoin and run parallel to each other some 40m to the west before passing under the Grange Castle South Business Park access road to the proposed substation. The estimated length of both these routes are 140m and 130m. These routes run under lands in the control of a third party.

Option B-B - These route options extend from the western side of the Castlebaggot substation. The northern transmission line passes along just outside of the SDCC wayleave before aligning with the southern transmission line to run parallel to each other some 20m to the west of the Castlebaggot substation compound before passing under the Grange Castle South Business Park access road to connect into the northern elevation of the proposed substation. The estimated length of both these routes are 140m and 120m. These routes run under lands in the control of a third party.

Option B-C - These route options extend from the western side of the Castlebaggot substation. The northern transmission line passes along just outside of the SDCC wayleave before aligning with the southern transmission line to run parallel to each other some 20m to the west of the Castlebaggot substation compound before passing under the Grange Castle South Business Park access road to the eastern elevation of the proposed substation. The estimated length of both these routes are 145m and 120m. These routes run under lands in the control of a third party.

Option B-D - These route options extend from the western side of the Castlebaggot substation. The northern transmission line passes along just outside of the SDCC wayleave before aligning with the southern transmission line to run parallel to each other some 12m to the west of the Castlebaggot substation compound before passing under the Grange Castle South Business Park access road to the northern elevation of the proposed substation. The estimated length of both these routes are 140m and 120m. These routes run under lands in the control of a third party.

- 4.7 As these options were deemed not to be viable due to third party restrictions an alternative was sought. This required a route that needed to avoid conflicts with existing power lines and culverted stream. This enabled all works to be located either on lands within the control of the applicant; SDCC or a wayleave of SDCC; as well as the connection into the Castlebaggot substation infrastructure. Whilst this route provided a slightly more complex route it enabled the applicant to move forward with certainty of delivering this key infrastructure. The route passes along the SDCC wayleave outside of the Castlebaggot substation from the proposed 110kV substation. The length of these route are c. 120m and 140m.

Alternative design / Layouts

- 4.8 The proposed 110kV GIS substation compound is designed based on requirements stipulated by the TAO i.e. ESB Networks. The design of the Substation Compound is centred around the equipment requirements of ESB Networks that are required to provide an efficient and safe service. From a “design and layout” point of view, therefore, the flexibility to select alternative designs and layouts was not available to the Applicant and there are, therefore no reasonable alternatives to the layout of the proposed 110kV GIS substation compound. The Permitted Development included for an Air Insulated Switch-Gear (AIS) substation that was deemed as not acceptable by ESB Networks and Eirgrid.
- 4.9 Alternative design options for the 110kV transmission cables did not include overhead lines due to the short distance of the lines. By their very nature, overhead lines require corridors to run along alignments that must be clear of all other development. This would effectively sterilise the land in this corridor.
- 4.10 Two no. single circuit 110kV underground transmission lines were chosen above the overhead alternative as it enables more power to be transferred over a particular distance and requires less land to do so – minimising ecological and visual impacts of the Proposed Development and reducing installation costs.

Alternative processes and technologies

- 4.11 This section typically examines the project processes in relation to likely emissions to air and water, likely generation of waste and likely effect on traffic to determine the process that is least likely to impact on these parameters. The underground 110kV transmission lines will become an integral part of the national high voltage electricity grid which is currently operated by ESB Networks.
- 4.12 The underground cable installations must meet ESB Network's strict specifications to ensure it will be seamlessly absorbed into the national grid infrastructure and can provide a reliable power supply. 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.
- 4.13 In terms of the proposed processes, the proposed GIS substation will employ the same electricity generation and transmission processes that are used by EirGrid at their other facilities in Ireland and represents the most up-to-date and state of the art processes currently available. As appropriate, alternative processes are considered on an ongoing basis by EirGrid and ESB Networks as a part of each of their operations based on many factors including technical feasibility, environmental impact, efficiency, security, reliability and cost. Therefore, from a "process design" point of view, the flexibility to select alternative processes for integrating into the current national grid is not available to the Applicant. There are no reasonable alternatives available.
- 4.14 The proposed GIS substation is designed based on requirements stipulated by EirGrid. The design of the substation is centred around the equipment requirements of EirGrid that are required to provide an efficient and safe service. Therefore, the flexibility to select alternative technologies was not available to the Applicant.

Alternative mitigation

- 4.15 For each aspect of the environment, each specialist has considered the existing environment, likely impacts of the Proposed Development and reviewed feasible mitigation measures to identify the most suitable measures appropriate to the environmental setting of the Proposed Development. In making a decision on the most suitable mitigation measure the specialist has considered relevant guidance and legislation (these are identified in the table of mitigation measures in Chapter 2 - Appendix 2.2). In each case, a comparison of environmental effects was made, and the specialist has reviewed the possible mitigation measures available and considered the use of the mitigation in terms of the likely residual impact on the environment. The four established strategies for mitigation of effects have been considered: avoidance, prevention, reduction and offsetting (not required in this development).
- 4.16 Mitigation measures have also been considered based on the effect on quality, duration of impact, probability and significance of effects. The selected mitigation measures are set out in each of the EIA Report Chapters 5-16 and are summarised in Chapter 2 - Appendix 2.2.

Conclusions on Alternatives

- 4.17 The selected route for the 110kV transmission lines were deemed to be most suitable route for the Proposed Development from an engineering perspective taking into account access to land, cost and environmental effects. During construction the proposed 110kV routes will have a **short-term, neutral** and **imperceptible** environmental effect during the construction phase. It is noted that the Preferred Route is considered to have a **neutral, imperceptible, long-term** environmental effect during the operational phase.
- 4.18 The design of the proposed GIS substation have been selected with due regard to minimising the environmental and visual impact once in situ. The selection of the design has been constrained to the standard specifications required by ESB Networks for connection to the national grid. In conclusion, it is considered that the Proposed Development and design is the most suitable choice to provide the support required to meet the power requirements of the permitted development.

5. POPULATION AND HUMAN HEALTH

- 5.1 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.

- 5.2 There will be a short-term, imperceptible, positive effect on local business with the limited presence of a very small number of construction workers of 15-30 using local facilities during the construction phase of each cable installation. However, the main potential impacts on human beings associated with the Proposed Development will be in relation to air quality, noise and visual effects during the construction stage. The potential impacts are assessed within the corresponding chapters of this EIA Report and are summarised below. These are short-term impacts.
- 5.3 The main potential impacts on human beings and human health associated with the Proposed Development 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 10), 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. The impact of construction of the Proposed Development is likely to be short-term and not significant with respect to human health.
- 5.4 The potential impact on human health due to air quality during the Operational Phase is considered to be **long-term, imperceptible** and **neutral**. The potential impact on human health due to noise during the Operational Phase is set out in Chapter 9 and is considered to be **neutral, imperceptible**, and **long-term**.
- 5.5 In terms of traffic, the predicted impact of the development on human beings and in particular road users will be **short-term, negative** and **not significant** for the construction phase and **long-term, neutral** and **imperceptible** for the operational phase. Any significant construction works will take place outside of main commuter hours and at worst case a single lane carriageway will remain operational where road works within the Business Park are required. 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 3 and 12).
- 5.6 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.

6. BIODIVERSITY

- 6.1 This chapter provides an assessment of the impacts of the Proposed Development in question on the ecological environment, i.e. flora and fauna.
- 6.2 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.
- 6.3 There is connectivity between the Proposed Development site and European Sites downstream within Dublin Bay. The Proposed Development will have no measurable impacts on these European sites.
- 6.4 The Proposed Development will have no predicted impacts on European sites, therefore cumulative impacts can be ruled out. The development is located in an area of low local ecological value and, as such, is predicted to have a **neutral** and **imperceptible** effect on biodiversity.

7. LAND, SOILS GEOLOGY AND HYDROGEOLOGY

- 7.1 The chapter assesses and evaluate the potential impacts to land, soils, geology and hydrogeology during the construction and operational phases of the Proposed Development.

- 7.2 The site and local area is underlain by the Lucan formation, also called the Dinantian (Upper Impure) Limestones or 'Calp' limestone. No bedrock outcrops were encountered during the site investigations or are recorded by the GSI within the red line of the Proposed Development. The bedrock aquifers underlying the Proposed Development site according to the GSI National Draft Bedrock Aquifer Map are classified as Dinantian Limestones (Calp). The GSI has classified this aquifer as Locally Important.
- 7.3 The GSI currently classifies the aquifer vulnerability in the region of the Proposed Development as High to 'Extreme' (E) on the Proposed Development site. Extreme vulnerability indicates an overburden depth of 0-3m is present, while High vulnerability indicates an overburden depth of 3-5m is present. Site investigation confirmed that presence of limestone bedrock was found at depths that were typically in the range 1.8-3m BGL.
- 7.4 Based on the NRA methodology (refer Appendix 7.1), the criteria for rating site importance of hydrogeological features, the importance of the hydrogeological features at this site is rated as **medium importance**. This is based on the assessment that the attribute has a medium-quality significance or value on a local scale. The aquifer is a Locally Important Aquifer but is not widely used for public water supply or generally for potable use.
- 7.5 The Groundwater Body (GWB) underlying the site is the Dublin GWB (EU Groundwater Body Code: IE_EA_G_008). Assessments carried out under the 1st Cycle Water Framework Directive 2013-2018 concluded an overall groundwater status as "Good" through the assessment programme. Currently the Dublin GWB has a WFD risk score of "not at risk" meaning the Dublin GWB is likely to meet its WFD targets. There is no evidence of springs or karstification in this area according to the GSI Karst database (2015).
- 7.6 Shallow cut and fill will be required to facilitate construction of the substation. Excavations are required for installation of the 110kV transmission lines.
- 7.7 The installation of the transmission lines will require the excavation of trenches along each of the routes; each containing one 110 kV circuit. The optimum depth of excavation of the trenches required to facilitate installation of the ducting will typically have an optimum depth of excavation of 1.3m below ground level but may increase to up to c. 3.5 m at utility crossings. The typical width of each trench is 0.85m; however, this may vary depending on ground conditions and existing services.
- 7.8 Subsoil stripping and localised stockpiling of soil will be required during construction. It is estimated that approximately 12,300 m³ of soils will be excavated to facilitate construction of the Proposed Development. Suitable soils and stones will be reused on site as backfill in the grassed areas, where possible. However, it is currently envisaged that majority of the excavated material will require removal offsite.
- 7.9 The implementation of mitigation measures outlined in Chapter 7 will ensure that the predicted impacts on the geological and hydrogeological environment do not occur during the construction phase and that the residual impact will be **short-term-imperceptible-neutral**. Following the NRA criteria for rating the magnitude and significance of impacts on the geological and hydrogeological related attributes, the magnitude of impact is considered **negligible**.
- 7.10 The implementation of mitigation measures highlighted in Chapter 7 will ensure that the predicted impacts on the geological and hydrogeological environment do not occur during the operational phase and that the residual impact will be **long-term-imperceptible-neutral**. Following the NRA criteria for rating the magnitude and significance of impacts on the geological and hydrogeological related attributes, the magnitude of impact is considered **negligible**.

8. HYDROLOGY

- 8.1 The chapter evaluates the potential impacts on the surrounding hydrological environment during the construction and operational phases of the Proposed Development.

- 8.2 The route of the 110kV transmission lines will cross under a culverted local stream. The excavations will be performed by hand beneath the culvert with the appropriate supports and measures in place as per the project Construction Management Plan (CMP). There is no direct hydraulic link to the Griffeen of Liffey Rivers or the Grand Canal pNHA to the north. A Stage 1 Flood Risk Assessment was completed. The assessment showed that the west part of the site is shown to be an area that is affected by the 0.1% AEP Flood Event (1 in 1000 year).
- 8.3 As a mitigation measure, it is recommended to incorporate a compensatory flood storage via an attenuation tank within the Proposed Development site with a safe discharge route to surface water sewer along the northern boundary of the substation part of the site at the allowable discharge rate of 0.5 l/s. The transformers part of the site will drain to the attenuation ponds granted under the Permitted Development. Interceptors have also been proposed to ensure the quality of storm water discharge is controlled prior to attenuation and discharge offsite.
- 8.4 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 works in the vicinity of the land drain associated with the Baldonnel Stream. By maintaining these distances and the employment of best practice methods it is anticipated to avoid local pollution of the Baldonnel Stream.
- 8.5 As such the predicted impact will be **short term, imperceptible** and **neutral** during construction. During operation there is no likely impact on receiving water bodies. 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 **long term, imperceptible** and **neutral**.

9. NOISE AND VIBRATION

- 9.1 This chapter assesses the anticipated noise and vibration impact associated with the Proposed Development at nearby noise sensitive locations.
- 9.2 The existing noise climate has been surveyed at nearby noise sensitive receptors over the course of typical day and night-time periods. Road traffic movements, both distant and local, were noted as the most significant source of noise during both daytime and night-time periods.
- 9.3 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.
- 9.4 During the construction phase of the Proposed Development there will be some impact on nearby noise sensitive properties due to noise emissions from site traffic and other activities. The application of noise limits and hours of operation, along with implementation of appropriate noise and vibration control measures, will ensure that noise and vibration impact is kept to a minimum. The resultant noise impacts will be **minor, negative** and **short-term** in nature.
- 9.5 Proprietary noise and vibration control measures will be employed in order to ensure that noise emissions from building services plant during the operational phase do not exceed the adopted criterion at the façade of any nearby noise sensitive locations. In addition, noise emissions should be broadband in nature and should not contain any tonal or impulsive elements. The resultant noise impact is **negative, not significant** and **long-term**.
- 9.6 Any change in noise levels associated with vehicles at road junctions during the Operational Phase in the vicinity of the Proposed Development is expected to be **imperceptible**. The resultant noise impact is **neutral, imperceptible** and **long-term**.

10. AIR QUALITY

10.1 This chapter evaluates the impacts which the Proposed Development may have on air quality & climate.

Air Quality

10.2 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.

10.3 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.

10.4 The sensitivity of the area was combined with the dust emission magnitude for the site under three distinct categories: earthworks, construction and track out (movement of vehicles) in order to determine the mitigation measures necessary to avoid significant dust impacts.

10.5 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 **imperceptible**, posing no nuisance at nearby sensitive receptors (such as local residences).

Climate

10.6 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 temporary and not significant in relation to Ireland's obligations under the EU 2020 target.

10.7 There are no predicted impacts to air quality or climate during the operational phase of the Proposed Development. Therefore, the operational phase is considered **neutral** for both air quality and climate.

Human health

10.8 Best practice mitigation measures are proposed for the construction phase of the Proposed Development which will focus on the pro-active control of dust and other air pollutants to minimise generation of emissions at source. The mitigation measures that will be put in place during construction will ensure that 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.

10.9 The proposed cables will be underground and will have no impact air quality in relation to human health once operational. In addition, the proposed substation does not have the potential for any emissions which could impact air quality in terms of human health during operation.

11. LANDSCAPE AND VISUAL IMPACT

11.1 The Proposed Development is situated mostly within the site of the Permitted Development SDCC Planning Reg. Ref. SD18A/0134) and is intrinsically and visually linked to the permitted data centre development. The Proposed Development is integrated into the Permitted Development site as follows:

- The proposed Substation will be located in the north-eastern corner of the Permitted Development site along the eastern boundary with the existing Google Data Centre.
- To the east of the Substation a landscape scheme is proposed including native woodland tree planting and grass verges.

- Perimeter boundary fencing and landscaping in line with Eirgrid requirements is proposed along the northern boundary with the Grange Castle Business Park South internal access road and includes both palisade and wire mesh fencing.
 - Elements of the permitted development such as the earth berms and woodland planting which surround the site and the existing data halls will have a visual effect on the Proposed Development.
- 11.2 The location from which the site is most visually prominent is from the Grange Castle South Business Park internal access road, at the north-eastern corner of the lands where the road almost abuts the site boundary. From this section of road, the site is fully visible in the foreground as there is currently no vegetation due to the relatively recent road construction and the fact that the Proposed and Permitted Development are both part of an evolving construction site. While the site is visible in the foreground it is the data halls and associated site works which are under construction as part of the permitted development which dominate the view. This view is expansive but due to the very flat topography and vegetation little of the wider landscape is visible. The site is also visible from the main entrance of the Grange Castle Business Park South internal access road, although this view is dominated by the partly built data halls in the permitted development along with associated site structures and earthworks. The entrance feature also dominated this view.
- 11.3 Views of the subject lands are possible from the New Nangor Road on the southern edge of Profile Park. The lands are visible however, due to the flat topography of the site and surrounding vegetation and built structures, the view is not prominent. The subject lands are not visible from the residential gateway on the Baldonnel Road on the southern perimeter of the neighbouring lands. The site is not visible from the junction of the R120 and the New Nangor Road.
- 11.4 The construction compounds, temporary car parking and storage facilities etc. will be located sensitively to avoid any local visual sensitivities. Furthermore, as the Proposed Development site is located within and adjacent to the existing Grange Castle Business Park with recent built developments, including the Permitted Development to the west; and those granted and under construction to the north, the visual elements associated with construction would be considered part of the existing urban landscape.
- 11.5 The construction of the underground transmission lines will require trenching and stockpiling of material along its route. With the above considered the impact on the landscape character during construction would be **negative** and considered **moderate** in magnitude and **temporary** in its duration.
- 11.6 The operational phase will give rise to a noticeable change in the landscape character. The Permitted Development on these lands will significantly alter the landscape character and this new landscape will surround the substation that forms part of the Proposed Development.
- 11.7 The landscape measures under the Permitted Development, although reduced to its north and east due to Eirgrid's design requirements, will significantly improve the quality of the landscape character of this area. The significant amount of native woodland, wetland and grassland habitats to be created would have a very positive impact on the landscape character of this area and the wider environment. The initial impact of the built development on the landscape character could be perceived as negative in the short term due to the change in type from a field to a built structure. In the context of the surrounding development however, this impact would be significantly reduced. In the long term the level of this impact will continue to reduce further as the habitats establish and become integrated into the surrounding landscape.
- 11.8 The site is specifically zoned for this type of development and there have been recent built developments of a much larger scale in the local vicinity including a Substation. Many of these built developments are dominant in views from the Proposed Development site. In this context the Proposed Development would be considered a continuation of existing trends in the local area.
- 11.9 The landscape proposals as part of the Permitted Development include the establishment of a significant level of native woodland, hedgerows and native wetland and grassland meadows. Due to the requirements of the substation operators there has been a need to reduce this to the north and

east of the proposed substation. The overall landscape treatment will contribute positively to the landscape character of the area.

- 11.10 The overall impact on the landscape character would therefore be considered **neutral, temporary and slight** due to the level of recently built and Permitted Development in the vicinity and the Proposed Development is located in a part of the site which has little value in terms of landscape character.

Visual Impacts

- 11.11 Visibility from most of the surrounding landscape will be limited by the existing buildings and vegetation and the buildings and landscape of the Permitted Development. Views from the north of the site will be screened by the existing Castlebaggot Substation and the recently permitted development under SDCC Planning Reg. Ref. SD20A/0121. The Permitted Development includes berms and tree planting to the immediate west and along the south perimeter of the Permitted Development site.
- 11.12 The Proposed Development will not be visible from most of the surrounding areas as the Permitted Development on these lands, landscape mitigation permitted as part of this and the existing Castlebaggot substation and ongoing development to the north will screen the Proposed Development from views from the south, west and most views from the north.
- 11.13 The Proposed Development will be visible in partial glimpsed views from the New Nangor Road to the north-east and in wider views from the lands to the immediate east and north-west. The development will not be prominent in the views and only partially visible between the existing and vegetation included in the Permitted Development. Any visual impact from this development will be significantly reduced due to the scale of the surrounding Permitted Development and as there have been recent built developments of a much larger scale in the local vicinity including a Substation. In this context the Proposed Development would be considered a continuation of existing trends in the local area.
- 11.14 The overall visual impact would therefore be considered **negative, long-term and not significant** due to the level of recently built and Permitted Development in the vicinity and the Proposed Developments limited visibility.

12. TRAFFIC AND TRANSPORTATION

- 12.1 This chapter assesses the traffic impact the Proposed Development will have on the surrounding road network during construction and operation. The main part of the Proposed Development site is bounded by the Grange Castle South Business Park access road to the north. The Baldonnell Road bounds the wider Permitted Development site to the west and south. Public transport services are provided locally, with 3 no. Dublin Bus services operating within the vicinity of the site.
- 12.2 The proposed substation element of the Proposed Development will contain car parking spaces to exclusively accommodate all maintenance personnel attempting to service the proposed Substation. These will be provided in addition to the 70 no. car parking spaces permitted under SDCC Planning Reg. Ref. SD18A/0134. The proposed new spaces will be located to the west of the 110kV GIS building within the substation compound.
- 12.3 A Traffic Impact Assessment (TIA) was undertaken to evaluate the Permitted Development's traffic implications on the road network in vicinity to the Permitted Development site. The assessment determined the expected traffic impact during the operational and construction phases. The junction analysis and findings of this assessment undermines all conclusions reached in relation to the traffic impact of the Proposed Development.
- 12.4 The potential impacts of the Proposed Development 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).

- 12.5 During the construction phase, it is envisaged that HGV traffic will travel via the M50 and the N7, via the R136, R134 New Nangor Road and northern end of the Baldonnel Road to the Business Park entrance. Construction traffic will use the same route for access and egress to/from the site.
- 12.6 The likely traffic generation of the Proposed Development during the construction phase was estimated based on contractor experience of similar Substation works and underground cable installation works, taking into account the scale of the substation and the length of underground cables to be installed, also noting that the underground cable routes are mostly off-road.
- 12.7 It is likely that the construction of the Proposed Development would take place over a period of approximately 13-15 months from the commencement of construction for site development works, with a peak construction trip generation of 30 return car vehicular trips and 12 HGVs entering and exiting the site per day.
- 12.8 The traffic generation estimated for the operational phase of the Proposed Development, indicates that up to two no. vehicles trips are estimated to be generated by the proposed 110kV GIS Substation on critical time periods. These number of vehicles movements shall be expected only during the worst case scenario which shall happen once per year.
- 12.9 Given the short-term nature of the peak construction phase, the overall impact of the construction phase is considered **short-term, negative** and **not significant** and shall not affect the performance of the junctions assessed. The construction phase of the Proposed Development will occur at the same time as the Permitted Development.
- 12.10 The proposed substation does not require any full time staff to operate it on a daily basis. However, maintenance of the substation will be required, including a routine weekly inspection, and a more comprehensive inspection once per year. The weekly inspection will take a maximum of 8 hours on a single day and will be conducted by up to two ESB staff.
- 12.11 In addition to the weekly inspections, more comprehensive maintenance works will take place annually on each cubicle. This will require up to 4 ESB staff to conduct testing at the substation over a maximum period of 15 days (120 hours). This represents the worst case scenario for traffic generation related to the proposed Substation during the operational phase.
- 12.12 The traffic generation estimated for the Proposed Development, indicates that up to two no. vehicles trips are estimated to be generated by the proposed 110kV GIS Substation on critical time periods. These number of vehicles movements shall be expected only during the worst case scenario which shall happen once per year. Therefore, the impact of the operational phase of the development was found to be **long-term, neutral** and **imperceptible**.

13. CULTURAL HERITAGE

- 13.1 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 South Dublin County Council Development Plan 2016-2022, the National Inventory of Architectural Heritage, the topographical files of the National Museum of Ireland, the Excavations Database, cartographic and documentary sources.
- 13.2 There are two recorded monuments within the immediate vicinity of the Proposed Development site. Both are two enclosures (CH001-002) that have been fully archaeologically excavated and in both cases post-excavation analysis is still on-going (see Figure 13.2 of Chapter 13 – Appendix 13.5). There are no National Monuments or sites subject to preservation orders within the vicinity of the Proposed Development site. There are no sites with preservation orders incorporated by the study area.
- 13.3 There is one Protected Structure within the study area (see Figure 13.2 of Chapter 13 – Appendix 13.5)—Castle Bagot House (CH003).
- 13.4 Extensive archaeological investigations have taken place within the Proposed Development site and the surrounding environs in recent years. A series of archaeological investigations were carried out

on behalf of South Dublin County Council. These investigations confirmed the nature and extent of the RMP sites (CH001–002). In addition, these investigations have confirmed the presence of three further archaeological sites—two enclosures (CH004–005) and a series of linear ditches (CH006) (Figure 13.1 of Chapter 13 – Appendix 13.5).

- 13.5 A geophysical survey was undertaken in March 2018 of a c. 2.8 ha area to the south of the development site (O’Flaherty & Bolger 2018). This area lay outside the section of the site where investigations have been previously undertaken on behalf of South Dublin County Council (Stirland 2016).
- 13.6 This survey revealed a number of anomalies of moderate archaeological potential (M:01–015). These were subsequently assessed during archaeological testing in 2018 and 2019 (see below) and established to be non-archaeological in character.
- 13.7 A further programme of archaeological test trenching was carried out in May-June 2018 (Licence No. 18E0292; O’Dowd 2018). This involved blanket test trenching of all areas of the overall development site on the south side of Grange Castle with the exception of the two sections undergoing full archaeological excavation and an area in the southeast quadrant of the development site where access for test trenching was curtailed. In addition, targeted test trenches were positioned to assess some of the anomalies identified during the March 2018 geophysical survey. The anomalies not assessed were located in the area where works were curtailed.
- 13.8 None of the geophysical anomalies that could be directly investigated (M:01–03; M04–07; M:15) proved to be archaeological features (O’Dowd 2018). However, those that were not assessed could still prove to represent sub-surface archaeological remains. The only feature of potential interest encountered was the wide linear ditch running parallel to the townland boundary between Ballybane and Aungierstown & Ballybane. This ditch appears to represent the sub-surface remains of the earlier (pre-1900) configuration of this townland boundary (CH007). It appears on historic mapping as a double field boundary and possibly an earlier trackway or laneway (CH008).
- 13.9 A third programme of archaeological test trenching was carried out at the site in November 2019 (Licence No. 18E0292ext; Hession 2020a). Eight targeted test trenches were positioned to assess some of the anomalies identified during the March 2018 geophysical survey.
- 13.10 None of the geophysical anomalies that could be directly investigated (M:010–011; M:012; M:14) proved to be archaeological features (Hession 2020a). Two intercutting pits filled by heat shattered stone were identified in Trench 44 (CH009) and may date to the Bronze Age.
- 13.11 A programme of archaeological monitoring of topsoil removal was carried out in conjunction with the construction of Phase 1 of the Permitted Development at the site in July and December 2019 (Licence No. 18E0292ext; Hession 2020b). Eight features of archaeological significance were identified and recorded. The original townland boundary between Ballybane and Aungierstown/Ballybane comprising two parallel linear ditches was investigated as part of the monitoring works. Two new archaeological sites—both burnt mounds (CH010–011)—were identified. One of these sites (CH011) was subsequently fully archaeologically excavated (see below), while the other (CH010) was preserved *in situ*.
- 13.12 Examination of the First Edition 6” Ordnance Survey map demonstrates that one townland boundary (CH007)—between Ballybane and Aungierstown & Ballybane—is incorporated by the study area (Figures 13.5–13.6; Chapter 13 – Appendix 13.5).
- 13.13 Whilst the Proposed Development site has been subject to extensive archaeological testing and subsequent excavation in a number of areas, there is potential for small or isolated archaeological features to survive beneath the existing ground level outside the footprint of the test trenches and the excavated areas. Ground disturbances associated with the Proposed Development site have the potential to directly and negatively impact on any such remains. Dependant on the nature, extent and significance of archaeological deposits, impacts (prior to the application of mitigation) may range from moderate negative to significant negative.
- 13.14 No potential negative impacts upon the architectural resource are predicted as a result of the construction of the Proposed Development. No potential negative impacts upon the cultural heritage resource are predicted as a result of the construction of the Proposed Development.

- 13.15 No significant impacts during operation are predicted upon the archaeological, architectural and cultural heritage resource.

14. WASTE MANAGEMENT

- 14.1 This chapter evaluates the impacts associated with waste management during the construction and operational phases of the Proposed Development.
- 14.2 In terms of waste management, the receiving environment is largely defined by South Dublin County Council (SDCC) as the local authority responsible for setting and administering waste management activities in the area.
- 14.3 The Proposed Development will generate surplus excavated material, as well as waste from the welfare facilities and site office at the site compound during the Construction Phase. Surplus excavated material classified as waste (as opposed to a by-product) will be segregated at source and transferred directly from site by a suitably permitted waste contractor(s) to suitably authorised receiving facilities.
- 14.4 Waste materials generated at the site compound from the welfare facilities and site office will be temporarily stored in dedicated receptacles at the site compound pending collection by a suitably permitted waste contractor(s). The waste storage area will need to be easily accessible to waste collection vehicles.
- 14.5 If waste material is not managed and stored correctly on the site or at the site compound, it is likely to lead to litter or pollution issues at site, site compound and/or on adjacent properties. The knock-on effect of litter issues is the presence of vermin on the site, site compound and the surrounding areas. Waste material will be appropriately managed on site so as to avoid these issues.
- 14.6 The use of non-permitted waste contractors for transportation or unauthorised receiving facilities could give rise to inappropriate management of waste and result in negative environmental impacts or pollution. Removal and reuse/recycling/recovery/disposal of waste material from site will be carried out in accordance with the Waste Management Act 1996 (as amended), the Waste Management (Collection Permit) Regulations 2007 (as amended) and the Waste Management (Facility Permit & Registration) Regulations 2007 (as amended). It is essential that all waste materials are dealt with in accordance with regional and national legislation, as outlined previously, and that time and resources are dedicated to ensuring efficient waste management practices.
- 14.7 Wastes will be collected by a suitably permitted contractor(s) and be transferred to suitably registered/permitted/licenced waste facilities for processing and segregation, reuse, recycling, recovery and/or disposal. There are numerous authorised waste facilities in the Leinster region which can accept non-hazardous and hazardous waste materials and acceptance of waste from the Proposed Development would be in line with daily activities at these facilities. At present, there is sufficient capacity for the acceptance of the predicted construction waste materials at facilities in the region.
- 14.8 Where offsite reuse of the wastes generated is not feasible, recycling and/or recovery of the waste will be carried where possible. Recovery and recycling of construction waste has a positive impact on sustainable resource consumption, for example where waste trees/shrubbery is mulched into a landscaping product or waste asphalt is recycled for use in new pavements. The use of recycled materials, where suitable, reduces the consumption of natural resources.
- 14.9 There is a quantity of material (made ground and soils and stones) which will need to be excavated to facilitate the Proposed Development. Clean inert soils and stones excavated will be reused on site as backfill, where practical. In the event that potentially contaminated material is encountered, correct classification and segregation of the excavated material is required to ensure that any potentially contaminated materials are identified and handled in a way that will not impact negatively on the health and safety of workers as well as on the receiving environment, both on and off-site. Contaminated material will need to be removed off-site for appropriate treatment and/or disposal.

- 14.10 Reuse of suitable clean inert excavated material onsite, where practical, will reduce consumption of natural quarry resources.
- 14.11 The predicted effect of construction waste generated from the Proposed Development is considered to be **short-term, neutral** and **imperceptible**.
- 14.12 During the operational phase, a structured approach to waste management will promote resource efficiency and waste minimisation. Provided the mitigation measures are implemented and a high rate of reuse, recycling and recovery is achieved, the predicted impact of the operational phase on the environment will be **long-term, neutral** and **imperceptible**.

15. MATERIAL ASSETS

15.1 This chapter evaluates the impacts, if any, which the Proposed Development may have on Material Assets. The EPA Draft EIA Report Guidelines 2017 state that material assets are now taken to mean built services and infrastructure, roads and traffic as well as waste management. In this EIA Report, the impacts on some of the material assets described above have been considered in the following chapters:

- Chapter 5, Population and Human Health;
- Chapter 10, Air Quality & Climate;
- Chapter 12, Traffic & Transportation; and
- Chapter 14, Waste Management.

15.2 This chapter assesses ownership and access (including buildings and other structures), built services and infrastructure.

Ownership and access

15.3 The site of the Proposed Development as described in Chapter 2 Description of the Proposed Development is under the following ownership:

- GIS substation compound and the 110kV transmission lines to the Castlebaggot substation to the south of the Grange Castle South Business Park access road, is subject to a 999 year lease to Cyrus One from SDCC;
- The rest of the 110kV transmission lines continues through SDCC lands outside the Permitted Development site, under the Grange Castle South Business Park access road and along a wayleave to the boundary of the Castlebaggot 110kV / 220kV substation; and
- The lands for the remaining portion of the Proposed Development site are within the existing Castlebaggot substation and are owned by the TAO (ESB Networks).

15.4 Letters of consent, to apply for development on the lands have been obtained from ESB Networks and SDCC and are included with the planning application.

15.5 The main access to the GIS substation compound will be via and directly off the Grange Castle South Business Park access road. A secondary access to the compound is via the main access of the Permitted Development that provides vehicular access to the client control room and transformers.

15.6 The Permitted Development site will be fully secured with a 3.5m high security fence, CCTV and surveillance systems with a 2.6m high fence around the proposed 110kV GIS substation compound. There is good visibility on approach to both access points as detailed in Chapter 12 - Traffic and Transportation.

15.7 The implementation of mitigation measures will ensure that the predicted impacts on the material assets during the construction phase will be **short-term, neutral** and **imperceptible** for the construction phase.

Power and Electrical Supply

- 15.8 The construction compound and temporary power supply that has been established for the construction of Permitted Development will be utilised for the Proposed Development. The power requirements for the construction phase will be relatively minor and therefore the power demand for the construction phase would have a potential short-term, imperceptible impact.
- 15.9 The excavation of trenches within the vicinity of existing electrical services will be carried out partly by hand and in consultation with ESB Networks to ensure there is no impact on existing users.
- 15.10 The Proposed Development has been designed in accordance with the requirements of ESB Networks. Eirgrid has confirmed that there is sufficient power available from the existing area network for the Proposed Development. There are no predicted impacts associated with power and electrical supply, and telecommunications for the Proposed Development for the operational phase.

Telecommunications

- 15.11 A fibre optic cable distribution network will be installed within the site for the Permitted Development. The connection into the wider telecommunications network will be undertaken by a statutory telecommunications operator. There are **no potential impacts** associated with telecommunications for the Proposed Development for the operational phase.

Surface water infrastructure

- 15.12 The route of the 110kV transmission line to the Castlebaggot 110kV / 220kV substation traverses underneath two culverts as well as under various other infrastructure. There will be a requirement to excavate and hand dig below existing utilities and culverts to the required depth.
- 15.13 It is proposed to collect the surface water runoff from the Proposed Development and discharge an attenuated flow via a Stormtech attenuation system into the storm water sewer to the north that has capacity for the Proposed Development. The underground single circuit 110kV transmission lines from the proposed substation to the existing Castlebaggot 220kV / 110kV substation do not require any surface water drainage infrastructure as they will be underground. The underground single circuit 110kV transmission lines from the proposed substation to the existing Castlebaggot 220kV / 110kV substation do not require any surface water drainage infrastructure.
- 15.14 The potential impact associated with surface water for the construction phase is **short-term, neutral and imperceptible**. There are no potential impacts associated with surface water infrastructure for the Proposed Development for the operational phase.

Foul drainage infrastructure

- 15.15 Welfare facilities (canteens, toilets etc.) will be available within the construction compound for the permitted development on the site approved under Reg. Ref. SD18A/0134 and it is proposed that it can be utilised for the small number of staff required for the construction phase of the Proposed Development. The increase in wastewater discharges, if any, will be imperceptible and will not affect existing users. There may be a requirement to discharge stormwater collected in the trenches for the 110kV transmission lines to sewer. Any discharge water will be treated using a siltbuster or similar to remove suspended solids to ensure there is no impact on the foul drainage network. There will be no impact from construction works on the existing foul sewer network during construction.
- 15.16 The connection to the existing foul drainage network is entirely within the red line boundary of the site. It is not anticipated that the connection to this sewer would have any offsite impact. The potential impact associated with foul drainage for the construction phase is **short-term, neutral and imperceptible**.
- 15.17 There are **no potential impacts** associated with foul drainage infrastructure for the Proposed Development for the operational phase.

Water supply

- 15.18 Welfare facilities (canteens, toilets etc.) will be available within the construction compound for the permitted data centre development on the site approved under Reg. Ref. SD18A/0134 and it is proposed that it can be utilised for the small number of staff required for the construction phase of the Proposed Development. The increase in water demand, if any, will not be significant enough to impact existing users.
- 15.19 The potential impact associated with water supply for the construction phase is **short-term, neutral and imperceptible**.
- 15.20 A pre-connection enquiry (PCE) form was submitted to Irish Water (IW) as part of the Permitted Development application (Reg. Ref. SD18A/0134) which as well as addressing the water demand for the Permitted Development also addressed water demand for the Proposed Development. IW provided a Connection Offer for the development on the 5th September 2019 (IW Reference Number: Reference No CDS1900460401).
- 15.21 The underground single circuit 110kV transmission lines from the proposed substation to the existing Castlebaggot 220kV / 110kV substation do not require any water supply. There are **no potential impacts** associated with water supply for the Proposed Development for the operational phase.

16. INTERACTIONS

- 16.1 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.
- 16.2 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.