16.0 MATERIAL ASSETS

16.1 INTRODUCTION

The purpose of this chapter is to describe the methodology used to assess the potential impacts from the proposed Baldonnell Substation and its associated 110kV underground cable, (hereafter referred to as the "proposed development") on the material assets in the study area. The chapter will describe the baseline environment of the material assets in the study area, assess the likely impacts and set out mitigation measures to be put in place to reduce these impacts on the material assets. The chapter considers the impacts on the material assets and not the people using the assets. The issues and impacts on people are discussed in Chapter 7 (Population and Human Health).

Material Assets are resources that are valued and that are intrinsic to specific places. These may be economic assets of human or natural origin. With regard to Material Assets, the Guidelines on the information to be contained in Environmental Impact Assessment Reports (2022) published by the Environmental Protection Agency (EPA) state:

"In Directive 2011/92/EU this factor included architectural and archaeological heritage. Directive 2014/52/EU includes those heritage aspects as components of cultural heritage. Material assets can now be taken to mean built services and infrastructure."

Material Assets of a human origin include:

- Existing Properties;
- Road Network;
- Rail Network;
- Canal Network;
- Recreational facilities and amenities;
- Public Utilities;
- Pedestrian Ways; and
- Aviation.

Material assets of a natural origin include:

- Land Resources;
- Geological Resource;
- Natural Amenities; and
- Raw Materials.

16.2 METHODOLOGY

16.2.1 Relevant Guidelines, Policy, and Legislation

The Material Assets Assessment was prepared in accordance with relevant European Union and Irish legislation and guidance, including the requirements of Annex IV of Directive 85/337/EEC of 27 June 1985 on the assessment of the effects of certain public and private projects on the environment (Environmental Impact Assessment (EIA) Directive) and in accordance with Schedule 6 of the Planning and Development Regulations 2001 as amended (S.I. No. 600 of 2001) and conforms to the relevant requirements as specified therein.

The following guidelines were referred to while preparing this appraisal:

- Guidelines on the Information to be Contained in Environmental Impact Statements (Environmental Protection Agency (EPA) 2022);
- Advice Notes on Current Practice in the Preparation of Environmental Impact Statements (EPA 2003) (and revised advice notes (EPA 2015b);
- Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environmental Impact Assessment (Department of the Environment, Community and Local Government 2013); and
- Environmental Impact Assessment of Projects, Guidance on the preparation of the Environmental Impact Assessment Report (European Commission 2017).

16.2.2 Data Collection Methods

As part of the compilation of this EIAR chapter, the previously discussed guidance, and advice documents were studied in order to fully understand the constraints in a study area around the proposed development and the associated gas fired power plant in Profile Park. This study area was defined as relating to the closest materials assets as set out in Section 16.1.

Material assets were identified through consultation and a review of available datasets and mapping.

16.2.3 Consultation

Consultation was undertaken for the approved gas fired power plant (SD21A/0167) with the following organisations to determine what existing infrastructure is present within the proposed works area. Mapping, where provided by these organisations, was overlaid with the project mapping and assessed.

- Moffash Limited (Profile Park owners) who provided details of all relevant utilities in Profile Park including:
  - Telecommunications.
  - Water mains.
  - Foul sewers.
  - Electrical infrastructure.
- EirGrid/ESB
- Gas Networks Ireland.
- Irish Water; and
- Department of Defence.
- Digital Netherlands VIII B.V (DRT), adjacent landowner.
- Google Ireland Limited, adjacent landowner.
- Vantage Data Centers DUB11 Limited, adjacent landowner.

16.3 BASELINE ENVIRONMENT

16.3.1 Baseline Environment – Material Assets of Human Origin

16.3.1.1 Existing Properties

The site of the proposed development is located in Profile Park, Dublin 22. This is a 100 acre (40.5 Ha) fully enclosed, private business park. Existing tenants within Profile Park and the surrounding business and enterprise parks include Google, Microsoft, Digital Realty Trust, Telecity and others. Digital Realty Trust (DRT) is located immediately adjacent to the proposed development.

There are no residential receptors within 350m of the proposed development site. The closest receptors are on the Baldonnel Road to the south of the site and the R134 to the north of the site.

16.3.1.2 Road Network

The proposed development is located within the Profile Park Business Park and will be accessed from the R134 New Nangor Road. The access to Profile Park is situated within an 60km/h default urban speed zone. The R134 New Nangor Road has a carriageway width of approximately 7.3m in the vicinity of the access to Profile Park. The R134 also provides a fully segregated two-way cycle facility on its northern side along with a 2.25m width footpath. Tactile paving crossing points and street lighting are present at the junctions along with roadside bus stops.

16.3.1.3 Rail Network

The national rail network is located approximately 2.3km to the north of the proposed development at its closest point.

16.3.1.4 Canals

Canals are artificial linear bodies of water that were originally constructed for the purpose of navigation. The Grand Canal is located approximately 1km to the north of the proposed development at its closest point.

16.3.1.5 Recreational Facilities and Amenities

As discussed in Section 7.3.1.6, some of the attractions within the vicinity of the proposed development are:

- Grange Castle Golf Course is the closest tourist attraction to the proposed development; Located approximately 221m southeast of the site. The course is owned by South Dublin County Council.
- Corkagh Park is located 1.28km southeast of the proposed development. The park is approximately 120 hectares in size and originally formed part of a manor house and estate,
- Clondalkin Round Tower is built on the site of a monastery and dates to the 7th century. It is located approximately 3.23 km northeast of the proposed development and is one of only four remaining round towers in Dublin.
- The largest attraction to the proposed development is the Dublin Mountains Park, which is located approximately 5.24 km to the south, providing high quality recreation amenity and experience for both domestic and overseas visitors.

16.3.1.6 Public Utilities - Gas Network

Natural gas, supplied from Gas Networks' Ireland (GNI) national grid, will be the primary fuel source for the associated gas fired power plant. The proposed development is approximately 1km from an existing GNI compound located in the Grange Castle Business Park. Greener Ideas Limited has signed a Large Network Connection Agreement with GNI, who are presently finalising the detailed design of the gas connection to the site.

16.3.1.7 Public Utilities - Power Infrastructure

There is existing ESB electrical ducting within the road system providing coverage throughout Profile Park.

The electrical generator associated with the gas fired power plant will be connected to a 15/110kv transformer. The power plant will generate electricity at a voltage of 15kV, with the transformer increasing this voltage to 110kV. The electrical power will then be exported to the national electricity grid via a 110kV underground cable, connected to the existing Barnakyle substation. This substation is located approximately 250m to the west of the development. Greener Ideas have signed a connection agreement with EirGrid that details this method of connection to the grid.

16.3.1.8 Public Utilities - Communications Infrastructure

Telecoms infrastructure is present throughout Profile Park. Profile Park is connected directly onto the Dublin metropolitan fibre network called the T50. The T50 is a multi-duct fibre carrying system which extends over 44 km and provides connectivity to 24 business parks and from these into the global network.

16.3.1.9 Public Utilities - Water Supply Infrastructure

Water supply infrastructure comprises water mains, water network junctions, water hydrant etc. The closest infrastructure to the proposed development is a water main located immediately adjacent to the proposed development site in the existing Profile Park road system.

16.3.1.10 Public Utilities - Wastewater Collection Infrastructure

Wastewater infrastructure comprises foul water sewers, pump stations, manholes, treatment plants, etc. The closest wastewater infrastructure to the proposed development is a 225 mm foul sewer which is located immediately adjacent to the proposed development site, in the existing Profile Park road system.

16.3.1.11 Pedestrian Ways

Profile Park contains substantial pedestrian footpaths, which provide access throughout the park. However, it should be noted that Profile Park is a private estate, with no public access. A security hut and gate monitor vehicular and pedestrian access, only permitting those with business in the park to enter.

16.3.1.12 Aviation

The site of the proposed development has the following characteristics in relation to proximity to the Department of Defences Casement Aerodrome which is located to the south:

- The site lies under the “Inner Horizontal Surface” of Casement Aerodrome, as defined by the International Civil Aviation Organization. Which is at an elevation of 131.6m OD (i.e., at 57m above ground level on the site).
- The site also lies within Casement Aerodrome’s “Inner Zone” which is a circle of 2km radius centred at the centre point of Casement’s main runway: this is not an ICAO surface, but a Department of Defence restriction.
- The site lies at a lateral distance of approximately 1.4km-1.55km from the centreline of Casement’s main Runway 10/28. And at a lateral distance of approximately 0.8km-1km from the extended centreline of Casement’s subsidiary Runway 04/22.

- However, no part of the site, lies under any of Casement Aerodrome's more significant Obstacle Limitation Surfaces, such as Approach Surfaces, Take-Off Climb Surfaces, or Transitional Surfaces. No part of the site lies under any of Weston Airport's or Dublin Airport's Obstacle Limitation Surfaces.
- The site, with ground level at 74.6m OD, is low-lying in relation to Casement Aerodrome, i.e., at 12m below the aerodrome's datum (of 86.6m OD), and at 22.6m below the aerodrome's published 'aerodrome elevation' (97.2m OD).

16.3.2 Baseline Environment - Material Assets of Natural Origin

16.3.2.1 Land Resources

The site of the proposed development is located in Profile Park, which is a fully enclosed, private business park, that has been developed to the highest of architectural standards. The site has been identified by South Dublin County Council in its County Development Plan 2022-2028, as Zoning Objective 'EE' which is '*To provide for enterprise and employment related uses'*.

16.3.2.2 Geological Resources

There are no Geological Heritage Sites within 2km of the proposed development.

16.3.2.3 Natural Amenities (watercourses)

Natural amenities (watercourses) are considered and assessed in Chapter 12 (Biodiversity) and Chapter 9 (Hydrology and Hydrogeology).

16.3.2.4 Raw Materials

Raw materials (e.g., wood, steel, stone, sand etc.) required during the construction phase of the proposed development will be sourced from local suppliers, where possible. However, some of the equipment parts required for the substation may not be manufactured in Ireland and these will have to be imported.

16.4 ASSESSMENT OF SIGNIFICANT EFFECTS

16.4.1 Do Nothing Scenario

Should construction of the proposed substation not be developed, there will be no impact on any of the material assets detailed in Section 18.3, including existing properties, road network, rail network, canal network, recreational facilities and amenities, public utilities, pedestrian ways, aviation, land resources, geological resource, natural amenities (watercourses) and raw materials.

However, under this same scenario, there would be no method for exporting electricity generated at the adjacent Gas Fired Peaking Power Plant to the wider transmission grid. Furthermore, the power plant would become a "stranded asset." This in turn will impact This in turn will impact EirGrid's ability to provide a safe and secure electricity network in the Dublin region.

16.4.2 Do Something Scenario

Should the proposed development proceed as planned, it will impact upon material assets in the vicinity of the proposed works. The proposed substation and its associated grid connection has been designed to take account of the identified material assets and the implementation of the

mitigation measures outlined in Section 16.5, will help reduce any negative impact on these material assets.

16.4.3 Construction Phase Effects

16.4.3.1 Existing Land/Properties

Access will be required to third party lands to allow construction works to be completed for the grid connection. However, construction practices will ensure that any impacts regarding accessibility will be minimised.

16.4.3.2 Road Network

Traffic on the road network generated by the construction phase of the proposed development will primarily consist of traffic related to either delivery of construction materials, or removal of excavated material from the site for disposal. Construction Phase staff will also generate trips to and from the construction site. The traffic impact on the road network during the Construction Phase will have slight negative temporary effects.

Where roads are opened for the installation of electrical cables, moderate negative temporary effects are likely to arise on these roads during construction.

16.4.3.3 Rail Network

There will be no interface and therefore no impact arising from the proposed development on the rail network.

16.4.3.4 Canal Network

There will be no interface and therefore no impact arising from the proposed development on the canal network.

16.4.3.5 Recreational Facilities and Amenities

It is not considered that the proposed development will have any direct or negative impact on tourist amenities. In addition, there are no anticipated negative effects arising from construction for local recreational facilities or amenities.

16.4.3.6 Public Utilities

The laying of underground electrical cables and a gas pipeline as part of the overall project works, has the potential to directly impact the electrical and gas network service.

Water supply and wastewater collection infrastructure is present and has the potential to be directly impacted by construction excavation works.

Communications infrastructure is also present throughout the study area. There is potential for unidentified utilities to be damaged during the construction phase. Utilities will be further identified and mapped during the detailed design stage.

Potential slight negative temporary impacts on public utilities could arise during the construction of the proposed substation.

16.4.3.7 Pedestrian Ways

No public pedestrian ways will be impacted by the proposed development.

16.4.3.8 Aviation

It should be noted that the main aviation receptor to the proposed development is Casement Aerodrome, which is located approximately 1km to the south. As part of the overall project, Greener Ideas Limited consulted with the Department of Defence in relation to potential effects on Casement Aerodrome arising from the associate gas fired power plant. As part of these consultations an aviation impact study was prepared and approved by the Department of Defence. This study concluded that '*Overall, it is considered that the permitted power plant development at Profile Park complies with all aviation and aeronautical requirements affecting the location*'.

For the proposed development, it is anticipated that the main issues to be addressed will be the use of cranes on site during construction. Details of crane use is advised to Casement Aerodrome, at least 30 days in advance of use on site. It is predicted that there will be a short term, negative and slight impact on aviation during construction.

16.4.3.9 Land Resources

Any existing material assets are located either overground or underground, in a built-up urban environment. There are no existing material assets on the site of the proposed substation. There are material assets along the proposed grid connection route and future gas connection. However, these assets are development in built up 'made' land. Therefore, an imperceptible negative effect on land-take is predicted.

16.4.3.10 Geological Resources

There are no Geological Heritage Sites within 2km of the proposed development. There will be no direct or indirect effects on geological resources arising from the construction of the proposed substation.

16.4.3.11 Natural Amenities (e.g., watercourses)

There are potential surface water quality impacts associated with the proposed substation which could indirectly impact watercourses, these would be common to most construction sites in the absence of control measures or mitigation (see Chapter 9 (Hydrology and Hydrogeology).

16.4.3.12 Raw Materials

Raw materials (e.g., wood, steel, stone, sand etc.) required during the construction phase of the proposed development will be sourced from local suppliers, where possible. However, some of the equipment parts may not be manufactured in Ireland and these will have to be imported. The proposed development may also require the use of some non-renewable materials. However, consideration will be given to the sustainable sourcing of all raw materials and materials will be reused where possible. Methodologies will be chosen at design stage to decrease the amount of imported material required. There will be an imperceptible, negative and permanent impact on raw materials as a result of the proposed substation.

16.4.4 Operational Phase Impacts

16.4.4.1 Existing Properties

During its operations phase, the proposed substation along with the associated gas fired power plant, which will operate in accordance with its Industrial Emissions Licence (IEL). Emissions or impacts on the nearest receptors will be regulated by the Environmental Protection Agency in accordance with the plants IEL. There will be imperceptible, brief effects on existing properties during the operational phase.

16.4.4.2 Road Network

The traffic generated by the Operation Phase has also been considered in the TTA (Appendix 15-1). The operational traffic for the proposed development and the associated power station is expected to be less than 5 vehicle movements per day. The potential effects of the Operation Phase on the capacity and operation of the receiving road network are considered to be negligible.

16.4.4.3 Rail Network

There will be no direct or indirect impacts on the rail network arising from the proposed development. The project will therefore have a neutral effect on the rail network.

16.4.4.4 Canal Network

There will be no direct or indirect impacts on the canal network arising from the proposed development. The project will therefore have a neutral effect on the canal network.

16.4.4.5 Recreational Facilities and Amenities

There will be no direct or indirect impacts on recreational facilities and amenities arising from the proposed development. The project will therefore have a neutral effect on recreational facilities and amenities.

16.4.4.6 Public Utilities

During operation the proposed Baldonnell Substation will export electricity to the existing Barnakyle substation within Profile Park.

The associated gas fired power plant will be supplied with incoming gas.

The national distribution and transmission system operated by ESB Networks and EirGrid and the national gas network operated by GNI would facilitate these connections subject to commercial agreement.

The proposed substation will facilitate the transmission of power to the grid to support renewable energy integration. Therefore, the proposed substation along with the associated gas fired power plant would have a positive and long-term effect on public utilities.

16.4.4.7 Pedestrian Ways

There will be no direct or indirect impacts on pedestrian ways arising from the proposed development. The project will therefore have a neutral effect on the pedestrian ways.

16.4.4.8 Aviation

It should be noted that the main aviation receptor to the proposed development is Casement Aerodrome, which is located approximately 1km to the south. As part of the overall project, Greener Ideas Limited consulted with the Department of Defence in relation to potential effects on Casement Aerodrome, arising from the associated gas fired power plant. As part of these consultations an aviation impact study was prepared and approved by the Department of Defence. This study concluded that '*Overall, it is considered that the permitted power plant development at Profile Park complies with all aviation and aeronautical requirements affecting the location*'.

A summary is provided below of the main findings of the aviation impact study that pertain to the operational phase of the substation and its associated power plant.

- The site at Profile Park lies clear of all Approach Surfaces, Take-Off Climb Surfaces, and Transitional Surfaces at Casement Aerodrome, which are the more important Obstacle Limitation Surfaces [as defined by the International Civil Aviation Organization (ICAO) and by the European Aviation Safety Agency (EASA)].
- The site is also clear of all Surfaces for Weston and Dublin Airports.
- The site lies under Casement's Inner Horizontal Surface, that is at 131.6m OD. The site is at 74.6m OD, so the highest part of the proposed development, the lightning masts, are at 92.6m OD. The masts are therefore 39m below Casement's Inner Horizontal Surface.
- The site is also located within Casement Aerodrome's 'Inner Zone'. This is not an ICAO surface, but a Department of Defence defined area where no buildings or structures exceeding 20 metres in height above ground level are permitted. The substation's lightning mast are 18m high so do not exceed this limit.

The project will therefore have a neutral effect on the operations of Casement Aerodrome.

16.4.4.9 Land resources

The proposed development will be cited on a greenfield site which is zoned for enterprise and employment infrastructure of this nature. There will be a long-term impact on land use and a moderate negative effect on the land resource.

16.4.4.10 Geological Resource

There will be no direct or indirect impacts on geological resources arising from the proposed development. The project will therefore have a neutral effect on geological resources.

16.4.4.11 Natural Amenities (e.g., watercourses)

There will be no significant direct or indirect impacts on natural amenities arising from the proposed development. The project will therefore have a neutral effect on natural amenities.

16.4.4.12 Raw Materials

There will be no direct or indirect impacts on raw materials arising from the proposed substation. The project will therefore have a neutral effect on raw materials.

16.5 MITIGATION AND MONITORING MEASURES

Following an assessment of the potential impacts, the proposed substation was methodically reviewed, and mitigation methods were developed that will avoid, prevent or reduce any negative effects on the environment.

16.5.1 Construction Phase

16.5.1.1 Existing Land/Properties

There are no mitigation measures relating to existing properties outside of Profile Park. Within Profile Park, impacts on the neighbouring Digital Realty data centre will be mitigated in accordance with the Construction and Environmental Management Plan (CEMP) which is included in Appendix 3-2. In summary, the application of general construction best practise will ensure limited nuisance is experienced at this location.

16.5.1.2 Road Network

The proposed works will require the crossing of road infrastructure and the opening of the road to lay underground electrical cables and a gas pipeline. Chapter 15 (Traffic and Transport) details specific mitigation measures to be undertaken during the construction phase to eliminate and reduce any impacts on the road network.

16.5.1.3 Public Utilities

During the project detailed design stage, further consultation will be undertaken with all communication utility providers to confirm the current locations of their infrastructure. This information will be considered in the detailed design of the project and the infrastructure avoided where possible.

16.5.1.4 Aviation

While it is unlikely that any cranes used during construction will reach the level of the aerodrome's Inner Horizontal Surface, it will be necessary, under S.I. 215 of 2005 – 'Irish Aviation Authority (Obstacles to Aircraft in Flight) Order', for prior notification of the use of any cranes to be submitted, at least 30 days in advance, to the Irish Aviation Authority and to Casement Aerodrome.

16.5.1.5 Land Resources

All impacts will be mitigated in accordance with the CEMP which is included in Appendix 3-2. In summary, the application of general construction best practise will ensure limited nuisance is experienced at this location.

16.5.1.6 Geological Resource

No specific mitigation measures are required during the construction phase with regards to geological resources.

16.5.1.7 Natural Amenities (e.g., watercourses)

Mitigation measures for the protection of watercourses are detailed in Chapter 9 (Hydrology & Hydrogeology) and will be adhered to throughout the construction phase.

16.5.1.8 Raw Materials

Consideration will be given to the sustainable sourcing of all materials. Materials will be reused where possible. The methodologies chosen at design stage, will result in a decrease in the amount of imported material, which in turn will reduce the impact of traffic on the surrounding roads and will result in less demand on non-renewable sources such as quarries.

Other mitigation measures which will be employed in relation to raw materials are as follows:

- Design will be optimised to minimise the requirements for raw materials;
- Materials will be reused where possible;
- Raw materials will be sourced locally where possible; and
- Raw materials will be managed in accordance with the CEMP for construction.

16.5.2 Operation phase

There are no mitigation and monitoring measures required during the operation of the proposed Baldonnell Substation.

16.6 CUMULATIVE EFFECTS

Material assets will interact with other EIAR topics given the nature of the works. Project related traffic will also interact with the land resource in the area which are a mixture of industrial, urban and agricultural.

Mitigation measures have been proposed within this EIAR to eliminate and reduce any adverse effects from this interaction on the land. The raw materials needed for the project also interact with the project traffic. The methodologies chosen at design stage will seek to result in a decrease in the amount of imported material, where feasible, which in turn will reduce the impact of traffic on the surrounding roads and will result in less demand on non-renewable sources such as quarries.

When roads are opened for the installation of the proposed grid connection cable or for the gas pipeline, interaction will occur between material assets (namely the local road network and utility providers), traffic and population. Further consultation will be undertaken with utility providers in the project detailed design stage and mitigation measures put in place to minimise any adverse impacts.

With regard to the cumulative impact of the interactions of impacts, it is unlikely that any of these interactions will result in significant additional impacts that are not already anticipated in this EIAR.

16.7 RESIDUAL IMPACTS

The material assets identified in the study area are considered to be typical infrastructure frequently encountered in civil engineering infrastructure projects, in both rural and urban environments. As such, it is considered that the resulting predicted impacts on material assets from the proposed development will be positive, slight and permanent.

16.8 REFERENCES

- European Union (1985). Directive 85/337/EEC of 27 June 1985 on the assessment of the effects of certain public and private projects on the environment [1985].
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