

Planning Application to Dublin City Council

Non-Technical Summary

Environmental Impact Assessment Report

**Data Storage Facility Development
Woodlands and Former Diamond
Innovations site, Clonshaugh Business and
Technology Park, Dublin 17**

Prepared by

**AWN Consulting
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NON-TECHNICAL SUMMARY

1.0 INTRODUCTION

This is the non-technical summary of an Environmental Impact Assessment (EIA) Report prepared by AWN Consulting Ltd. (AWN) on behalf of Mullins Developments LLC (herein referred as 'the Applicant') to accompany a planning application to Dublin County Council (DCC) for data storage facility development on lands at Woodlands and Former Diamond Innovations site, Clonshaugh Business and Technology Park, Dublin 17. The development will be operated by Amazon Data Services Ireland Ltd. (herein referred to as 'the Operator'). The location of the Proposed Development is shown in Figure 1.1.



Figure 1.1 Location of the Proposed Development, with the site boundary indicated in red. The blue line boundary represents the Operators ownership boundary.

The Proposed Development will comprise the construction two data storage facilities (each c. 16,576 sq.m, which are 16m in height at the main parapet level) which will accommodate data halls, associated electrical and mechanical plant rooms, loading bays, maintenance and storage space, office administration areas, screened plant, back-up generators and associated site infrastructure. A full description of the development is provided in Chapter 2 (Description of the Proposed Development) of the EIA Report.

Requirement for an EIA

The requirement for EIA for certain types and scales of development is set out in the EIA Directives (2011/92/EU and 2014/52/EU), European Union (Planning and Development) (Environmental Impact Assessment) Regulations 2018 (the bulk of which came into

operation in September 2018), the European Communities (Environmental Impact Assessment) Regulations 1989-2006, Planning and Development Act 2000 (as amended) and the Planning and Development Regulations 2001-2019. It should be noted that this EIA Report is prepared in accordance with the 2011 EIA Directive (2011/92/EU), as amended by the 2014 EIA Directive.

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 project proposed is not listed under Annex I EIA Directives. However, it exceeds the relevant threshold as set out in the Planning and Development Regulations 2001-2019 for Annex II projects. The relevant threshold was considered to be “any change or extension of development already authorised, executed or in the process of being executed (not being a change or extension referred to in Part 1) which would result in an increase in size greater than 25 per cent”. The Proposed Development site area is c. 11.52 hectares. The Proposed Development will be an extension to the existing data storage facility campus on the former Diamond Innovations site (Unit 1C) in Clonshaugh Business and Technology Park and adjacent lands to the south (Relevant planning permissions DCC Reg. Ref.’s 3634/15, 3874/15, 3288/16, 3599/16, 4449/16, 3096/18 and 4185/18). The planning application area for Buildings B, C and D on the existing data storage facility campus was c. 15-hectares. The Proposed Development site area will increase the data storage facility campus by greater than 25% and as such exceeds this threshold and therefore an EIA Report is required for the Proposed Development. Further detail regarding the permitted developments (referred to as Buildings A, B, C and D) is provided in Chapter 2 (Description of the Proposed Development).

The main objective of an EIA, as set out in Article 3(1) of the 2014 EIA Directive, is to identify, describe and assess the direct and indirect significant impacts of a project on population and human health, biodiversity, land, soils, water, air & climate (including noise), material assets, cultural heritage and the landscape and the interaction between the aforementioned factors. The EIA Report reports on the findings of the EIA process to date and informs the Planning Authority, statutory consultees, other interested parties and the public in general about the likely effects of the project on the environment.

A Schedule of Mitigation measures to be implemented as part of the Proposed Development is included in Appendix 1.1 of Chapter 1 of the EIA Report.

The Operator

The Operator provides data storage, management and dissemination. To date, the operator has developed a number of data facilities in Ireland and are a significant Irish employer.

The Operator is committed to running its business in the most environmentally friendly way possible. In addition to the environmental benefits of running applications in the cloud, the company and its parent company has a long-term commitment to achieve 100% renewable energy usage for its infrastructure footprint (globally). Please refer to Chapter 2 (Description of the Proposed Development) for additional details regarding the Operators’ sustainability, energy efficiency and resource use.

Consultation

AWN, the Operator and the Proposed Development project team have liaised with the relevant departments of DCC in advance of lodgment of this application. Pre-planning

meetings were held with DCC on the 22nd July 2019 and the 20th September 2019. Representatives of the planning and conservation departments of DCC attended.

In addition, relevant specialist in the Proposed Development project team have liaised with statutory bodies (including the Water Services, Roads/Transportation, Parks and Conservation departments of DCC, Irish Water, Eirgrid, ESB, NPWS) by correspondence during the course of the EIA Report preparation.

AWN and the other respective EIA contributors/authors have incorporated all relevant advice and comments received from consultees into the relevant chapters of this EIA Report.

Regulatory Control

The proposed data storage facility activity is not an Environmental Protection Agency (EPA) regulated activity in terms of the Industrial Emissions Directive 2010/75/EU (which replaced the IPPC directive).

In accordance with the legislation relating to the Medium Combustion Directive (EU 2015/2193), the back-up generators will be registered as required with the EPA.

The proposed data storage facilities will require an EPA Greenhouse Gas (GHG) Emissions permit in accordance with the Environmental Protection Agency Act 1992, as amended. It is anticipated that the GHG Permit for the permitted data storage facility developments to the south (i.e. Buildings A, B, C and D) will be amended to incorporate the proposed additional back-up generators associated with the Proposed Development, subject to grant of planning permission for the Proposed Development. This will be applied for by the Operator prior to commencement of the scheduled activity.

Contributors to the EIA Report

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

2.0 DESCRIPTION OF THE PROPOSED DEVELOPMENT

Description of the Site

The subject site is c. 11.52 hectares in extent. It primarily comprises greenfield lands at Woodlands immediately north of Clonshaugh Business & Technology Park with a portion of the site located within the Clonshaugh Business & Technology Park. It is located 2.7km from Dublin Airport and 7km from Dublin City Centre (See Figure 1.1 in Chapter 1 Introduction).

The greenfield portion of the site was previously used for agricultural purposes and has been left fallow for the past number of years (Note: it is understood it has not been in active agricultural use since the 1990s).

The site is relatively flat though there is a slight fall in elevation from north to south (c. 1% gradient) and west to east across the site (c. 0.2% gradient). The site is relatively featureless, with colonisation by a variety of vegetation having taken place due limited activity on the site. Internal drainage ditches are overgrown and were stagnant at the time of the site visits.

The site is not located directly adjacent to any areas of national or local environmental sensitivity/designation. However, adjacent to the site to the east exist 2 no. protected structures, one of which is currently inhabited. These protected structures are Woodlands House (RPS Ref. No. 1907) and the glasshouse at Woodlands House (RPS Ref. No. 1908).

The R139 defines the northern extent of the site. Located on the other side of the R139 is undeveloped agricultural land, as well as the Clayton Hotel Dublin Airport and a number of residential properties. Directly north of the Clayton Hotel Dublin Airport, is new Holiday Inn hotel (currently under construction, with construction is substantially complete) and a service station and shop c. 244m from the site.

The Proposed Development site is bounded along its western extent by a slip road related to the M50/M1 interchange junction. Beyond the related road infrastructure (that is, the M1 motorway and the M50/M1 interchange junction) to the west exists a small green buffer zone, the western extent of which is defined by residential developments (c. 340m from the Proposed Development site).

The site is bound to the east by privately owned lands. The extent of the private property includes Woodlands House (an inhabited protected structure), and undeveloped farmlands. Immediately east of the privately-owned lands is the Clonshaugh Road, which is c. 240m to the east of the Proposed Development site. The Clonshaugh Road runs in a southerly direction and intersects the Oscar Traynor Road c. 1.4km south of the Proposed Development site. Directly east of the Clonshaugh Road are 4 no. residential apartment blocks, which are bounded on the north, east and south aspects by arable agricultural land. Further to the east, c. 290m from the site, is the Belcamp Park, a public amenity area.

The south western portion of the Proposed Development site is within the existing data storage facility campus (run by the Operator) in the Clonshaugh Business and Technology Park, with the exception of portion of these lands which is under the ownership of Dublin City Council. Figure 1.1 above (Figure 1.1 also in Chapter 1) and Figures 2.1 and 2.2 in Chapter 2 illustrate the red line boundary of the Proposed Development site and the blue line ownership boundary of the Operator.

The Clonshaugh Business and Technology Park extends for c. 1km to the south and hosts a number of businesses including data storage facilities, food manufacturers, retail businesses and an ambulance centre, among others.

Proposed Development Description

Figures 2.1 and 2.2 presents the site layout plan of the Proposed Development. The proposed data storage facilities are referred to as Buildings E and F. (Please refer to the planning drawings for end views and elevations of the proposed data storage facilities and associated structures).

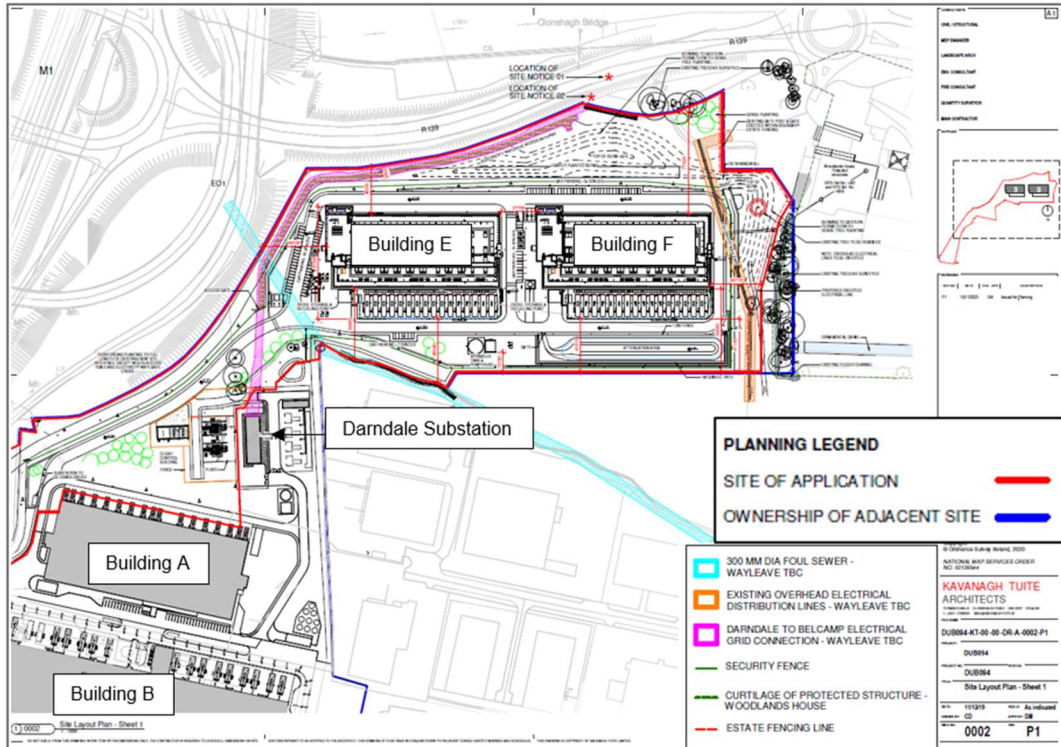


Figure 2.1. Site layout plan of the Proposed Development – Figure 1 of 2 (Source: KTA November 2020)

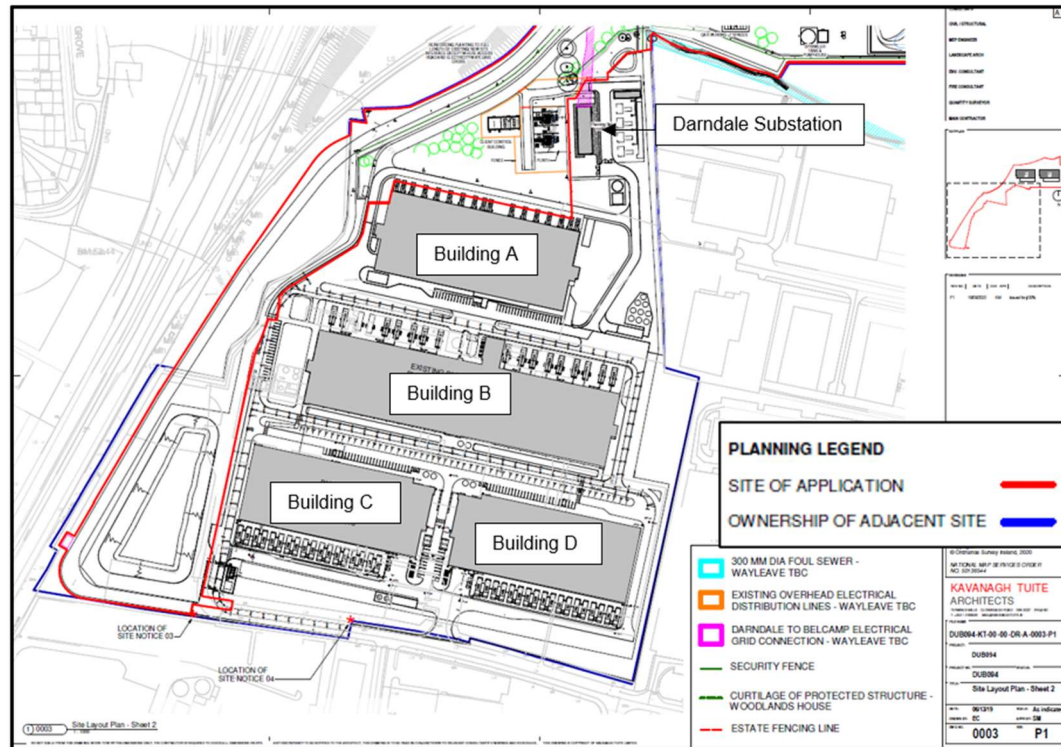


Figure 2.2. Site layout plan of the Proposed Development – Figure 2 of 2 (Source: KTA November 2020)

The Proposed Development will consist of:

- 2no. 2 storey Data Centre buildings (each 16,576sqm), which are 16m in height at the main parapet level. Each building to include:
 - Office administration area, data halls, associated electrical and mechanical plant rooms, a loading bay, maintenance and storage spaces, screened plant and solar panel array at roof level with rainwater harvesting system to support industrial water requirements.
 - 16no. emergency generators with emission stacks along with a single emergency house supply generator, all contained in a fenced compound adjacent to each building. Diesel storage tank, fuel filling area and associated plant.
- 1no water sprinkler pump room (68sqm), water storage tanks and humidifier tanks (175sqm all inclusive),
- 1no single storey client control building (216sqm) and 2no. Transformers set within a fenced compound.
- Demolition of 26sqm substation building.
- Partial diversion and undergrounding of ESB overhead lines.
- Construction of internal site road network and circulation areas connecting to existing internal road network to the South, footpaths, provision of 100no. car parking spaces, 4no. motorcycle spaces and with 68no. cycle parking spaces within a bicycle shelter, all accessed via existing campus to the South.
- Temporary construction access road along Western Boundary.
- Landscaping and planting including provision of planted berms to the Eastern and Northern boundary.
- Perimeter security fencing, site lighting, bollards, camera poles, bin stores and all associated and ancillary site works including underground utility cables, water supply, foul and storm drainage network & over ground attenuation pond.

Visually its appearance is intended to complement the industrial buildings in the environs, most notably the data centre facilities to the south of the Proposed Development site (Further details on the visual treatment of the proposed building are provided in Chapter 11 Landscape and Visual Impact of the EIA Report).

Phases of the Proposed Development

Under the current Draft EPA EIA Report Guidelines 2017, the description of the existence of the project is required to define all aspects of the proposed lifecycle of the Proposed Development under the following headings:

- Construction;
- Commissioning;
- Operation;
- Decommissioning; and
- Description of Other Developments.

Construction

The construction of the Proposed Development will comprise four main stages, namely:

- Site preparation works;
- Building Structure Construction;
- Building Envelop Construction; and
- Internal Fit Out Including M&E and commissioning.

It is anticipated that the construction of the Proposed Development will be completed during normal construction hours i.e. 7am to 6pm Monday to Friday with a half day working on Saturday (8am-2pm). However, it is possible that the appointed contractors may wish to carry out certain operations outside these hours i.e. evening hours during long summer days etc. Such occurrences will be notified to the local authority, where required and generally kept to a minimum. Where they do occur, contractors will ensure they take place over as short a timeframe as possible and as such are unlikely to cause excessive disturbance. The impact of Covid -19 may require a potentially prolonged construction schedule.

The total peak construction population on site is estimated to be of the order of c. 400 staff (average 275). Site staff will include management, engineers, construction crews, supervisors and indirect staff.

Subject to grant of planning permission, construction work will be undertaken on a phased basis, with Building E commencing construction first, followed by Building F. The target date (earliest possible date) for commencement of construction of Building E is Q1 2021 (due to be fully operational Q4 2022). The construction of Building F will be subject to the build out of Building E and customer demand. The target date (earliest possible date) for the commencement of construction of Building F is Q3 2022 (and fully operational by Q1 2024).

It is proposed that the fencing, access and haul roads for vehicles and a construction compound will be established first. The construction compound will facilitate office, portable sanitary facilities, equipment storage, waste storage, parking etc. for contractors.

The primary activities that will be required during the site preparation phase for the Proposed Development will be site clearance, excavations and levelling of the site to the necessary base level for construction, surveying and setting out for structures.

A combination of bulldozer, excavators, trucks and other soil shifting plant will commence the main site clearance and levelling aspects.

The Proposed Development will be accessed through the temporary construction entrance and construction access road. The temporary construction entrance will be constructed adjacent to the primary south-western access gate. The temporary construction access road will be constructed from the temporary construction entrance along the western boundary of the site.

This temporary construction entrance and access road will also be used for the construction of the permitted Building D development. It is proposed that the construction compound for Building D will be located on the Proposed Development site for the duration of the Building D construction phase but will be distinct from the construction compound and activities for the Proposed Development.

Once construction of Building D and the Proposed Development has been completed, the temporary construction entrance will be closed, and the temporary construction access road and compound will be removed and the ground reinstated.

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

It is anticipated that foundations will require moderate scale excavations. Due to the anticipated depth of bedrock (see Chapter 6) it is not anticipated that rock breaking will be necessary. Local minor dewatering may be required during excavation works and groundworks (depending on the time of year these works are carried out).

It is envisaged that the majority of the spoil generated will be reused in the formation level for roads and/or the construction compound and for the creation of berms and other landscaping purposes. Any excess spoil not suitable and/or required for reuse on site will be removed offsite for appropriate reuse, recovery and/or disposal as required (see Chapter 15).

The project engineers, O'Connor Sutton Cronin (OCSC), have advised that importation of fill will not be required to facilitate construction.

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

The construction of the walls and roofs of the buildings will closely follow the completion of structures. Typically, the contractors will start by building from the centre of each building and begin fitting out the 1st data storage room as early as possible in the process. The construction of the rest of the building will continue around it. The outer finishing of the building envelopes are intended to be of a similar quality and appearance to the existing and permitted data storage facilities at the existing campus (DCC Reg. Refs. 4185/18; 3096/18; 4449/16, and 3874/15).

The internal road system will initially be composed of hard-core material, rolled and compacted sufficiently to support initial construction including civil/structural sub grade works. Most of the soft landscaping will be undertaken during development of Building E with minor additional works undertaken in stages throughout construction works of Building F.

Commissioning

Once the first data storage room is built, specialist contractors will be mobilized to complete the commissioning of the first data storage room and related plant. Commissioning will be carried out on a phased basis as each data storage room is completed. Commissioning will be carried out over several months.

Operation

Once operational each data storage facility will “go live” and serve data customers on an ongoing basis. The server systems and the supporting infrastructure will be monitored by site staff and faults identified and remedied as required. Staff are primarily required onsite for security, ongoing monitoring and maintenance of plant and equipment.

Once operational, up to 50 no. full time employees will be present on site during the day in each building, including external staff, maintenance contractors and visitors, as required. Staff will be present on a shift basis, so numbers will vary throughout the day. Up to 7 no. staff will be night shifts each day per building.

Decommissioning

The lifespan of the Proposed Development is not defined but it is anticipated that it will be at least 10 - 20 years. It is likely that regular maintenance and periodic upgrading of the facilities over time will enable it to continue to meet future demands.

Upon closure all buildings, plant, equipment, drainage networks etc. at the site will be fully decontaminated and decommissioned in accordance with prevailing best practice. The buildings, once rendered environmentally safe, will more than likely be retained and sold on for future use following closure.

As noted in Section 2.2.5 of Chapter 2, the interim power supply for Building E will be provided via a 10MVA Medium Voltage (MV) connection to existing power infrastructure for Buildings A and B on the existing campus. Once the 110kV connection and associated infrastructure (i.e. transformer AIS bushings, surge arresters and cable chairs) are installed and commissioned, the interim MV connection to the existing campus will no longer be required and can be decommissioned in accordance with prevailing best practice.

Description of other Developments

A list of the other developments in the vicinity of the Proposed Development including Butlers Chocolates, Clonmont Developments Ltd, Vodafone and the proposed SID development comprising 110kV cable connections to the Darndale Substation (as described in Section 2.2.5) amongst others is provided in Chapter 3 (Planning and Development Context) of this EIA Report. (In terms of construction projects some of these developments are completing alterations or extensions however the majority of these are relatively small scale).

Sustainability, Energy Efficiency and Resource Use

The Operator is committed to running its business in the most environmentally friendly way possible. In addition to the environmental benefits inherently associated with running applications in the cloud, the Operator has a long-term commitment to achieve 100% renewable energy usage. In 2019, the Operator created The Climate Pledge, which is the Operator's commitment to achieve net zero carbon emissions by 2040, ten years ahead of the Paris Agreement. As part of this pledge, the Operator has set aggressive goals, such as being 100% powered by renewable energy, including in Ireland, and they are now on path to achieve this milestone by 2025 (5 years ahead of their initial target of 2030).

In August 2020, Amazon announced a new 115-megawatt (MW) wind farm project in Co. Galway, which will begin operating in 2022, and will support the Operator's data storage facilities in the country. The new project adds to their existing projects in Co. Cork, which came online in September 2020, and another project in Co. Donegal coming online in 2022. In total, these three projects are projected to deliver 229 MW of renewable energy capacity each year, reducing carbon emissions by 366,000 tonnes of CO₂ each year, and producing enough renewable energy to power 185,000 Irish homes, per annum.

The Operator has committed to offtake 100% of the power from these renewable energy projects without relying on public funding. The Operator expects to announce more renewable projects as they head towards their 100% renewable energy goal. These projects will support Ireland meeting its energy policy targets out to 2030. The Operator's current electricity supplier in Ireland sources and retires renewable Guarantees of Origin (GOs) for every megawatt-hour (MWh) the Operator uses. For every MWh a renewable project generates, it produces a GO, which is used to track renewable production and quite literally guarantee its origin (these GOs are subsequently retired to ensure each is only used once).

Customers in Ireland (and around the world) are also able to support their own goals to become sustainable by moving to the cloud. As stated in Section 1.3 of Chapter 1, the results of a recent study of US enterprise data centers by 451 research found the

Operators data storage facilities to be 3.6 times more energy efficient than the traditional alternative and achieved an 88% reduction in carbon footprint for workloads that moved from on-premises data storage to the Operators', helping customers to become greener in the cloud.

In preparation for this application, the Operator and their design team have undertaken an assessment of a variety of sustainable design measures to assist with achieving its overall sustainability and energy efficiency targets. The energy strategy for the Proposed Development is set out in the Energy Statement prepared by the Operator (Document No. DCE-EMEA-ERG-SP001) which accompanies in the planning application. The Energy Statement also describes how waste heat associated with the facility could be utilised with a future district heating scheme developed by others.

Major Accidents/Disasters

The 2014 EIA Directive and associated EPA Draft EIA Report Guidelines 2017 require that the vulnerability of the project to major accidents and/or natural disasters (such as earthquakes, landslides, flooding, sea level rise etc.) is considered in the EIA Report. The site has been assessed in relation to the following external natural disasters; landslides, seismic activity and volcanic activity and sea level rise/flooding as outlined below. The potential for major accidents to occur at the data storage facility has also been considered with reference to Seveso/COMAH.

Landslides, Seismic Activity and Volcanic Activity

There is a negligible risk of landslides occurring at the site and in the immediate vicinity due to the topography and soil profile of the site and surrounding areas. There is no history of seismic activity in the vicinity of the site. There are no active volcanoes in Ireland so there is no risk of volcanic activity. Further detail is provided in Chapter 6 Land, Soils, Geology & Hydrogeology.

Flooding/Sea Level Rise

The potential risk of flooding on the site was also assessed. A Stage 1 Flood Risk Assessment was carried out and it was concluded that the development is not at risk of flooding. Furthermore, it is not expected that the Proposed Development would adversely impact on flood risk for other neighbouring properties. Further detail is provided in Chapter 7 Hydrology and Appendix 7.2 Stage 1 Flood Risk Assessment. Given the inland location of the site, it is not at risk from sea level rise.

Seveso/COMAH

The Proposed Development will not be a Seveso/COMAH facility. The only substance stored on site controlled under Seveso/COMAH will be diesel for generators and the amounts proposed (i.e. 80m³) do not exceed the relevant thresholds of the Seveso directive (i.e. lower tier threshold 2,500 tonnes).

The Chemical Act (Control of Major Accident Hazards Involving Dangerous Substances) Regulations 2015 (S.I. 209 of 2015) define the "consultation distance" as a distance or area relating to an establishment, within which there are potentially significant consequences for human health or the environment from a major accident at the establishment, including potentially significant consequences for developments such as residential areas, buildings and areas of public use, recreational areas and major transport routes.

Establishments are either lower tier establishments or upper-tier COMAH sites with above threshold quantities of dangerous substances present, and to which the provisions of the 2015 COMAH regulations apply.

Appendix 12 of the DCC Development Plan 2016-2022 lists the upper-tier and lower tier sites in the DCC area that have been notified to the HSA. The listed sites are largely concentrated around Dublin Port, with none near the Proposed Development site.

It is concluded that the Proposed Development site is not located within the consultation distance of any COMAH establishment that is notified to the HSA. Therefore, there are no implications for major accident hazards at the Proposed Development site.

Minor Accidents/Leaks

There is a potential impact on the receiving environment as a result of minor accidents/leaks of fuel/oils during the construction and operational phases. However, the implementation of the mitigation measures set out in the EIA Report will ensure the risk of a minor/accident is low and that the residual effect on the environment is imperceptible.

3.0 PLANNING AND DEVELOPMENT CONTEXT

The site for the Proposed Development is situated within the administrative area of Dublin City Council, and therefore the Planning and Development Framework with which the development complies is defined by the DCC Development Plan 2016 – 2022.

The National Planning Framework (herein referred to as the NPF) was published in February 2018 and contains policies which are supportive of the development of ICT infrastructure, with particular reference made to datacentres. National Strategic Outcome 6 of the NPF relates to the creation of “*A Strong Economy Supported by Enterprise, Innovation and Skills*”. This strategic outcome is underpinned by a range of objectives relating to job creation and the fostering of enterprise and innovation. As set out in the Planning Report prepared by MacCabe Durney Barnes Town Planning (MDB) which accompanies the planning application, the NPF clearly recognises the important national role which data centres play.

The Government Statement on The Role of Data Centres in Ireland’s Enterprise Strategy 2018 highlights the importance of data centres which directly contribute to job creation and they also generate significant added economic benefit by providing a range of services to other firms that undertake production, research and development, marketing, sales, service, and support activities in locations with no physical/geographic connection to the data centre. The increased renewable electricity requirement linked to data centres will be mainly delivered by the development of the new Renewable Energy Support Scheme (RESS) which will also reflect falling costs across a range of renewable technologies and an ambition to increase community and citizen participation in renewable energy projects.

The Draft Regional Spatial and Economic Strategy (RSES) for the Eastern and Midlands Regional Assembly (EMRA) includes Regional Policy Objective (RPO) 8.25 which states that the Local Authority shall support the national objective to promote Ireland as a sustainable international destination for ICT infrastructures such as data centres and associated economic activities at appropriate locations. As set out in the Planning Report prepared by MDB, the Proposed Development constitutes a consolidation and expansion of an existing campus and will play an important strategic role in reinforcing the region and Ireland as a destination for ICT and the development of data centres.

The Dublin City Development Plan 2016 – 2022 has defined the site of the Proposed Development as an 'Z6 - Employment/Enterprise Zone' with the aim to *“provide for the creation and protection of enterprise and facilitate opportunities for employment creation.”* It is considered that the proposed data storage facility development accords with this zoning objective and the vision for these zoned lands as set out in the Development Plan.

Ireland's Framework for Sustainable Development 'Our Sustainable Future' (launched 2012 with subsequent progress report in 2015), by the Department of the Environment, Community and Local Government provides a framework to ensure that development is undertaken in a sustainable manner. 'Our Sustainable Future' aims to ensure that development is carried out sustainably and in an environmentally sound manner which includes optimisation of natural resources, minimisation of waste, safe and sparing use of chemicals and the application of clean technology. All of these aspects were integral considerations in the design of the Proposed Development, where applicable and will be integral considerations in the operation of the Proposed Development on a day to day basis and are addressed within this EIA Report where appropriate.

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 vicinity of the proposed site at Clonshaugh.

The DCC Planning Department and Fingal County Council (FCC) Planning Department websites were consulted in order to generate a list of granted planning permissions from the surrounding areas of the Proposed Development within the previous five years. These lists are presented in Tables 3.1 and 3.2 of Chapter 3 of the EIA Report.

AWN, the Operator and the project team have liaised with the relevant departments of DCC in advance of lodgement of this application. Pre-planning meetings were held with DCC on the 22nd July 2019 and the 20th September 2019. Representatives of the planning and conservation departments attended. In addition, the relevant specialists have liaised the Water Services, Roads/Transportation, Parks and Conservation departments of DCC by correspondence during the course of the EIA Report preparation. AWN and the other respective EIA contributors/authors have incorporated advice and comments received from DCC into the relevant chapters of this EIA Report

It is considered that the Proposed Development is in accordance with the policies and objectives of the National Spatial Strategy, Draft Regional Spatial and Economic Strategy for the Eastern and Midlands Regional Assembly, the Government Statement on The Role of Data Centres in Ireland's Enterprise Strategy 2018, and the Dublin Development Plan 2016-2022.

The Proposed Development will be situated on suitably zoned lands in the Clonshaugh area. The policies and objectives of DCC regarding the conservation, protection and enhancement of environmental resources and assets of the region will not be contravened by this Proposed Development, as are described in the relevant chapters in the EIA Report.

4.0 ALTERNATIVES

EIA legislation and the prevailing guidelines and best practice require that EIA Reports consider 'alternatives' for projects with regard to their environmental effects addressing:

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

Do Nothing Alternative

The site is currently predominantly greenfield, having not been previously developed (despite a previous grant of planning for the site; please refer to Chapter 3 Table 3.3), other than the recent installation of a double circuit 110kV underground transmission line which was installed along the northern boundary of the site.

The 110kV underground transmission line was installed as part of a strategic infrastructure development (SID) which was granted permission by An Bord Pleanála (ABP Ref. PL29N.303687). As described in Chapter 2 (Description of the Development) and Chapter 16 (Cumulative Impact), the permanent power supply to the site will be provided via the double circuit 110kV underground cable from the existing Belcamp 220kV and 110 kV Substation to the Darndale Substation. This underground cable installation is now complete. The underground installation of the transmission line required some clearance of vegetation and excavations along the northern boundary of the Proposed Development site. There are no significant residual effects as a result of the installation of the transmission line on the Proposed Development site.

The greenfield portion of the site was previously used for agricultural purposes and has been left fallow for the past number of years. Currently, the site is relatively featureless, with colonisation of a variety of vegetation having taken place due to limited activity on the site.

The 'do nothing alternative' would result in no further development occurring on site, and the site remaining greenfield until such time as an alternative development consistent with the land use zoning is granted permission and constructed. Located in an Employment/Enterprise zone as per the Dublin City Development Plan 2016 – 2022, the Proposed Development is a logical addition to the area.

Alternative Project Locations

The selection of Ireland as the preferred country location for this development was based largely on the need for additional capacity at the Operator's existing data centre network in the region. The Operator and its affiliated companies develop data centre facilities across the EU and globally. The location of facilities is selected in order to provide the most secure, extensive, reliable and best performing cloud computing infrastructure available.

In general, Ireland is a suitable location for data centre developments due to the moderate climate, which means that data storage facilities here can be cooled primarily using outside air (via roof mounted air handling units). This reduces the need for additional, more energy intensive forms of cooling, which often can be required elsewhere around the world. This also benefits the facilities sustainability as data storage facilities in Ireland require far less air conditioning and temperature control

systems, which means substantially less power and water demand requirements. This has the effect of reduced air and noise emissions compared with countries with a warmer climate.

During the pre-planning phase of the Proposed Development, the Operator completed assessments of a number of potential alternative sites. To date the Operator's overall preference has been to locate its data centre developments in Dublin given the existence of a number of high-quality industrial parks with suitably zoned lands with available infrastructure and proximity to the Operator's existing facilities.

Candidate sites were assessed in terms of the following criteria:

1. Site zoning and suitability of neighbouring activities (high technology, clean industry, non-intrusive industry i.e. avoiding areas close to quarrying and other potential sources of noise and vibration etc.);
2. Availability of necessary land type and quantity of lands (including cost to acquire lands);
3. Availability and ease of grid connection for power;
4. Availability of other infrastructure required and emergency services for operation of the facilities;
5. Proximity to other data storage facilities run by the Operator;
6. Potential impacts on the environment including impacts on human health, soil, water and hydrology, biodiversity, air quality, noise, heritage, visual amenity; local traffic, material assets; waste; and
7. Suitability of ground conditions for construction of the development. The Proposed Development will have synergistic benefits with the existing and permitted developments in the Clonshaugh Business and Technology Park allowing for efficiency in operations and maintenance.

Given the proximity of the preferred site to the existing and permitted developments in the Clonshaugh Business and Technology Park, the Proposed Development is considered a logical addition to the existing development. It will have synergistic benefits with the existing and permitted developments allowing for efficiency in operations and maintenance including connectivity to infrastructure on the existing campus, minimising traffic movements for employees serving multiple facilities and minimising waste collections as waste collections for all the facilities in the vicinity can be done on the same occasion.

Alternative Layouts

In the preparation for Proposed Development, a number of alternative arrangements and configurations for the Proposed Development, roadways and parking arrangements were considered. The three main alternative layouts considered are illustrated in Figure 4.1.

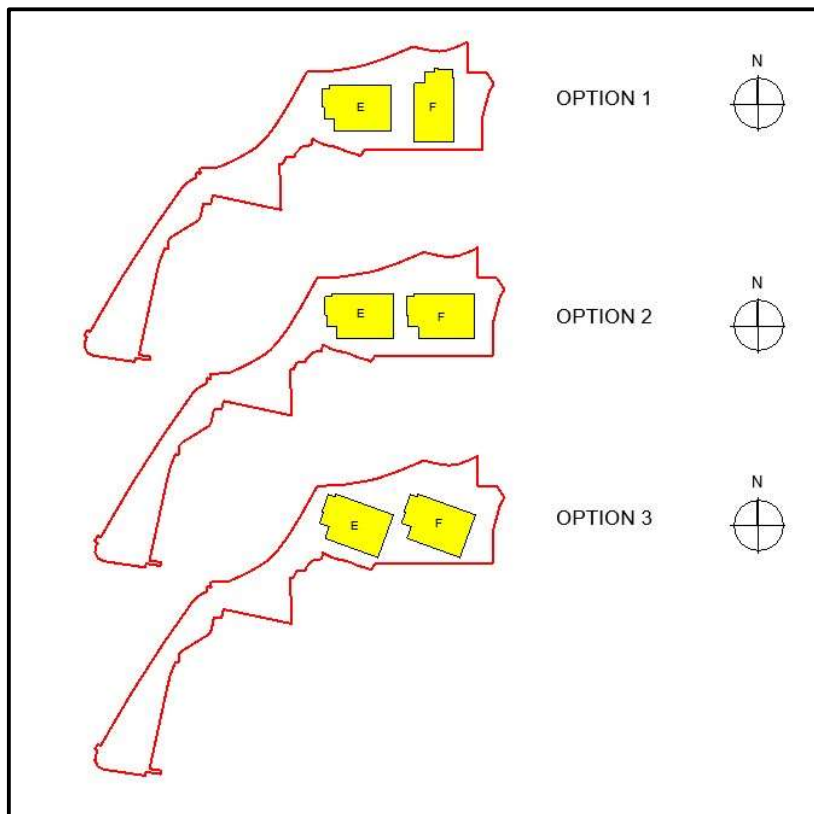


Figure 4.2. Alternative Site Layout Options (Source: KTA November 2020).

Each arrangement considered the environmental sensitivities associated with each surrounding land use i.e. the proximity to the residential areas at to the west, east and south) and the nearby Clayton Hotel Dublin Airport as well as businesses within the adjacent Clonsaugh Business and Technology Park.

There were no perceptible differences identified between the three options in terms of the potential for impacts on human health, land, soils, geology, hydrogeology, hydrology, biodiversity, archaeology, cultural heritage, traffic, material assets and waste management. However, air quality and climate, noise and vibration and landscape and visual impacts warranted further consideration to inform the selection of the preferred site layout option. The comparison of options for these environmental aspects focused on the potential impacts for the operational phase as there was no discernible difference between the construction phase impacts associated with air quality, noise and vibration and landscape and visual impact for the three options. Option 1 was least preferred from an environmental perspective with Options 2 and 3 being broadly similar and preferable in terms of the potential environmental impacts associated with air quality, noise and vibration and landscape and visual impact. Option 2 was selected as the preferred option for the Proposed Development. Other than the environmental considerations summarised above, the preferred site layout was determined based on the following factors:

- Orientation of the data storage facility buildings to optimise the use of the space available and connectivity to the existing campus;
- Presents a coherent architectural facade to the M50/M1, the R139, Clayton Hotel Dublin Airport and Woodlands House while using the bulk of the buildings to visually shield the generator compound;
- Maximises opportunities to reinforce the existing landscape and vegetation and promoting biodiversity to the north;

- Establishes a simple, regular road layout on the site; and
- The buildings occupy the central part of the site, avoiding pinch points and creating space for ancillary elements (construction compound, attenuation, sprinkler compound etc.).

Alternative Designs

In terms of alternative designs, the option of lowering the buildings to minimise the landscape and visual impact of the development was considered by the design team. The building height is a product of its function and as such the height of the buildings could not be reduced. The design team explored three options:

1. Retain the finished floor levels (FFLs) as they were initially designed (Building F: 48.0 m, Building E: 48.5 m)
2. Lower Building F by 500 mm; leave Building E at 48.5 m
3. Lower Building F by 1500 mm (to 46.5 m) and Building E by 1000 mm (to 47.5 m).

As there was no demonstrable visual benefit from lowering the buildings as per Option 2 and 3, and both these options would result in an increase in waste, traffic, noise, dust and rainwater collection, Option 1 was selected as the preferred option for the Proposed Development.

The stack heights for the back-up generators for the selected option have been modelled in an iterative fashion (i.e. with incremental increases in stack heights modelled) to ensure that an adequate stack height was selected to aid dispersion of the emissions and ensure compliance with all National and EU ambient air quality limit values. A stack height of 20m was selected as the optimum stack height as it provided the best results in terms of air dispersion. Increasing the stacks above 20m gave minimal benefit in terms of results.

Alternative Processes/Technologies

Alternative technologies are considered on an ongoing basis by the Operator as a part of each of its designs based on many factors including technical feasibility, environmental impact, efficiency, security, reliability and cost.

The Operator is committed to continually assessing and improving this technology particularly with respect to minimising power and water consumption, in accordance with the goals of Ireland's Framework for Sustainable Development 'Our Sustainable Future'. The operator's designs are constantly evolving, and hardware is chosen with energy efficiency central to the decision-making process.

The Energy Statement which accompanies the planning application explains the reasoning for the selection of certain technologies to demonstrate that the Proposed Development represents a low energy solution whilst operating as a functional, critical data storage facility development.

Alternative technologies considered in Chapter 4 include alternative cooling systems, emissions treatment technologies and water management.

Alternative Mitigation

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 measure appropriate to the environmental setting the project design. 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 Appendix 1.1 of Chapter 1). In each case, the specialist has reviewed the possible mitigation measures available and considered the use of the mitigation in term 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). Mitigation measures have also been considered based on the effect on quality, duration of impact, probability and significance of effects.

Conclusion

Based on the assessment of reasonable alternatives (in relation to location, layout, design, technology, mitigation) relevant to the Proposed Development and its specific characteristics as set out in this chapter, the selected site is considered to be a suitable location for the Proposed Development from both an environmental perspective and a planning perspective.

5.0 POPULATION AND HUMAN HEALTH

This chapter evaluates the impacts of the Proposed Development on population and human health. In accordance with the Draft EPA EIA Report Guidance (2017), this chapter has considered the *“existence, activities and health of people”* with respect to *“topics which are manifested in the environment such as employment and housing areas, amenities, extended infrastructure or resource utilisation and associated emissions”*.

Issues examined in this chapter include demography, population, employment, social infrastructure, landscape, amenity and tourism, natural resources, air quality, noise and vibration, material assets, traffic and health and safety.

The greenfield portion of the Proposed Development site was previously used for agricultural purposes and has been left fallow for the past number of years. To the south and west of the site are commercial, industrial and transport units, with areas of urban fabric located to the east, and the R139, commercial developments and agricultural land to the north. The commercial developments to the north comprise the Clayton Airport Hotel, the Holiday Inn (which is currently under construction but is substantially complete) and a Circle K petrol station and shop which are located north of the roundabout on the R139. The site is bound to the east by privately owned lands. The extent of these privately-owned lands includes Woodlands House and Glasshouse (an inhabited residential protected structure), and undeveloped farmlands. Directly east of the Clonshaugh Road, c. 270m from the site boundary, are 4 no. residential apartment blocks, which are bounded on the north, east and south aspects by arable agricultural land.

There are a number of primary and secondary schools in the vicinity of the Proposed Development with the closest being St.Thomas’s Special School in Priorswood c. 480m south-south-west of the site. The nearest hospital to the site is Beaumont Hospital located c. 1.9km to the south of the site. The HSE Dublin North East Health Centre is also located c. 1.4 km south of the site along the Oscar Traynor Road.

In terms of landscape amenity, the local landscape setting is generally flat with no prominent landscape features located near the site. The primary areas of landscape amenity in the immediate vicinity are Coolock Lane Park (c. 1.1km to the south), and Belcamp Park (c. 2km to the east), which are all small recreational parks. Primary amenity areas such as Dublin Bay and Phoenix Park are located c. 8km south east and c. 8km south west of the site respectively.

Tourism is not a major industry in the immediate environs of the site, however Butlers Chocolates is located c. 550m south of the site and attracts visitors and tourists. The closest shopping centres include the Northside Shopping Centre c. 1.5km south-south-east of the site and the Omni Park Shopping Centre c. 2.5km south west of the site. The Clayton Hotel Dublin Airport is located c. 170m north of the site (across the R139), with a number of other accommodation providers in the area due to the proximity to Dublin Airport. Dublin Airport is located c. 1.7km northwest of the site.

Impact Assessment

The potential impacts on local businesses and residences associated with the Proposed Development will be in relation to air quality, noise, visual and traffic impacts.

It is predicted that there will be a **slight positive** impact on local business activity during the construction phase with the increased presence of up to 400 no. construction workers using local facilities. The positive impact during the operational phase will be less with c. 50 no. full time employees anticipated per building during the day and up to 7 no. staff on night shifts per building each day. (As staff will be present on a shift basis, numbers will vary throughout the day).

There may be a **short term slight negative** impact on the local residential population during the construction phase or the operational phase, however the creation of additional employment at the facilities has the potential to create additional housing demand in the wider commuter area. It is also anticipated that the Proposed Development will have **indirect positive** effects on employment in terms of construction material manufacture, maintenance contracts, equipment supply, landscaping etc.

The potential increase in the temporary population of the area during construction as a result of the employment of workers from outside the wider Dublin area that may choose to reside in the immediate and wider local area is likely to amount to only a small percentage of the workforce employed during the construction phase but will result in some additional trade for local accommodation and services. It is expected that the majority of the work force will travel from existing places of residence to the construction site rather than reside in the immediate environs of the site. However, some local employment from within the wider local area is expected.

Mitigation measures that will be put in place for control of dust and other air pollutants during construction of the Proposed Development will ensure that the impact of the 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.

Construction will have an **indirect positive** effect on support industries such as builder suppliers, construction material manufacture, maintenance contracts, equipment supply, landscaping and other local services. There will also be a need to bring in specialist workers on a regular basis that may increase the above estimated working population at times. Specialists are only likely to stay for shorter periods depending on the nature of the work. The construction phase therefore is considered to have the potential to have a **moderate short to medium term positive** impact on the economy and employment of the local and wider area.

The completed development will also have a **positive** impact in the provision of additional capacity in cloud computing and data storage, the demand for which remains high. The operator offers a broad set of global compute, storage, database, analytics,

application and deployment services that help organisations (both locally, nationally and internationally) operate faster, lower ICT costs and scale applications. The provision of these services will also improve individual's online experience and accessibility.

Air dispersion modelling was undertaken to assess the impact of the development with reference to EU ambient air quality standards which are based on the protection of human health. As demonstrated by the dispersion modelling results, emissions from the site, assuming scheduled testing as well as emergency operation of the back-up generators, are compliant with all National and EU ambient air quality limit values and, therefore, will not result in a significant impact on human health. Conservative assumptions were made when determining the input data for the air modelling assessment and the approach used in the study leads to an over-estimation of the actual levels that will arise. In relation to the spatial extent of air quality impacts from the site, ambient concentrations will decrease significantly with distance from the site boundary.

There will be some impact on nearby noise sensitive properties due to noise emissions from site activity and traffic. The application of noise limits and limits on the 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. Therefore, the noise and vibration impact of the construction phase of the Proposed Development is likely to be **temporary to short-term and slight negative** with respect to human health because of the temporary to short-term construction phase.

Noise modelling was undertaken to assess the impact of the Proposed Development of the site with reference to noise limits typically applied by DCC and the EPA. As demonstrated by the modelling results, the predicted noise emissions associated with the Proposed Development of the site during the operational phases are compliant with the adopted noise limit values which are based with due consideration of the effect on human health. Furthermore, any change in noise levels associated with additional vehicles at road junctions in the vicinity of the Proposed Development is expected to be **imperceptible**. In essence, the noise levels that are encountered at the nearest noise sensitive locations are predicted to be within relevant noise criteria that have been adopted here for the operation of the proposed data storage facility and associated infrastructure. These criteria have been selected with due consideration to human health, therefore, will not result in a significant impact on human health.

The development will not generate any perceptible levels of vibration during operation and therefore there will be no impact from vibrations on human health.

There are no listed or scenic views, no landscape or amenity designations or protected trees pertaining to the site, and no protected structures or National Monuments on the site. The immediate surrounding area is contained within an environment of an established commercial/industrial park, wider industrial estates and motorway / motorway interchange developments. It is considered that the impact in terms of landscape amenity will be **slight** and **negative**.

There are protected structures, Woodlands House (RPS Ref. No. 1907) and the glasshouse at Woodlands House (RPS Ref. No. 1908), to the east to the site. The original agricultural setting of the property has changed substantially, however the mature woodland setting of property itself provides a strong sense of enclosure and screening and will be further reinforced by additional boundary landscaping proposed as part of the Proposed Development as set out in Chapter 11 (Landscape and Visual Impact) of the EIAR Report.

The Proposed Development will require electrical power supply from the national grid and the requirements for this supply have been detailed in Chapter 14 (Material Assets) of this EIA Report.

The traffic assessment shows that the existing public road network is currently operating well. There is capacity on the road network for the additional traffic movements on a short-term basis during construction and long-term for the operational phase. The impact of traffic from the construction phase of the Proposed Development is predicted to be **short-term, negative** and **not significant**. The impact of traffic generated by the operational phase of the Proposed Development will have an **imperceptible** effect on the amenity of the area.

The Proposed Development has the potential for an impact on the health and safety of workers employed on the site, particularly during the construction phase. The activities of contractors during the construction phase will be carried out in accordance with the Safety, Health and Welfare at Work (Construction) Regulations 2013 (S.I. No. 291 of 2013) to minimize the likelihood of any impacts on workers' health and safety. During the operational phase of the development, the operator will implement an Environmental Safety and Health Management System and associated procedures at the facilities. The health and safety planning for the construction phase of the Proposed Development will consider any appropriate measures to safeguard workers' health and safety with regards to Covid-19.

The impacts on the local population in terms of residents and businesses are considered to be mainly positive in the sense of creating direct employment opportunities and indirect additional business, both during the construction and operational phases.

Mitigation measures proposed to minimize the potential impacts on human health in terms of air quality and climate and noise and vibration are discussed in Chapters 9 and 10 of the EIA Report, respectively. Mitigation measures to reduce the impact of additional traffic movements to and from the development are set out in Chapter 13 of the EIA Report.

Overall, it is expected that the Proposed Development will have a **not significant, positive** and **long-term** impact on the immediate hinterland through continued employment opportunities and the associated economic and social benefits.

6.0 LAND, SOILS, GEOLOGY AND HYDROGEOLOGY

This chapter of the EIA Report assesses and evaluates the potential impacts of the Proposed Development on the land, geological and hydrogeological environment.

Inspection of the available GSI maps show that the bedrock geology underlying the site belongs to the LU - Lucan Formation consisting of 'Calp' limestone (i.e. sequences of dark grey massive limestones, shaley limestones, and massive mudstones). Depth to bedrock has been shown to be relatively deep in this area based on site investigation at the Proposed Development site and surrounding developed sites. In general bedrock depth >10m bgl.

The predominant soil type covering the site is classified as BminDW – Basic Deep Well Drained Mineral (grey brown podzolics, brown earths) and further to the north and east of the site are soils composed of BminPD - surface water gleys/groundwater gleys basic (Source: GSI/Teagasc soil mapping). An area of made ground is shown to the west and

north of the site. The subsoil type is predominantly classified as TLs – Till type subsoil comprising Limestone till (Carboniferous) of variable texture.

The Groundwater Body (GWB) underlying the site is the Dublin GWB (EU Groundwater Body Code: IE_EA_G_008). Currently, the EPA classifies the Dublin GWB as having 'Good Status' (based on quality data for the period 2010-2015) and the Water Framework Directive risk score for this GWB is currently rated "not at risk"

The GSI presently classifies the aquifer vulnerability in the region of the subject site as Low (L) which indicates an overburden depth of c. 10m of low permeability soil is present. The vulnerability at the site is considered to be *Low*. The site investigation showed no evidence of contamination onsite.

Based on the National Roads Authority (NRA)/Institute of Geologists of Ireland (IGI) criteria for rating the importance of hydrogeological features (refer to Appendix 6.2 of the EIA Report), the importance of the hydrogeological features at this site is rated as **Low Importance**. This is based on the assessment that the attribute has a low-quality significance or value on a local scale. The aquifer is a locally important bedrock aquifer moderately productive only in local zones and is not used for public water supply or generally for potable use.

It is envisioned that 34,370m³ of soil/stones will be excavated to facilitate the Proposed Development. All topsoil will be reused onsite where possible for landscaping and berm construction works. Excavated clay will also be used where applicable. Surplus material will be removed from site for offsite reuse, recovery and/or disposal at suitably authorised facilities.

The potential impacts of construction and mitigation measures proposed have been identified and will be included in the Construction Environmental Management Plan (CEMP) for the Proposed Development.

Rainfall on excavated and stripped soil can lead to runoff with high suspended solids (SS) content during the construction phase. This can pose a potential impact to water bodies in the area. In advance of commencement of construction works, the CEMP will be developed, and this will set procedures for the settlement and release of runoff with high suspended solids. Furthermore, stockpiles will be subject to an appropriate earthwork handling protocol and it is anticipated that any stockpiles will be formed within the boundary of the site. It should be noted that there will be no direct link or pathway from this area to any surface water body.

Aggregate for the Proposed Development will be sourced from reputable suppliers as per the project Contract and Procurement Procedures. All suppliers will be vetted for the appropriate certificates, management status and regulatory compliance standards.

All fuel tanks shall be stored in designated areas, and bunded. Refuelling of construction vehicles and the addition of hydraulic oils or lubricants to vehicles, will take place in a designated area which will be away from surface water gully's or drains.

It is unlikely that contaminated material will be encountered during construction of the Proposed Development. Nonetheless, excavation works will be carefully monitored by a suitably qualified person to ensure that potentially contaminated soil is identified and segregated from clean/inert soil. In the unlikely event that potentially contaminated soils are encountered, they should be segregated, tested and classified as hazardous or non-

hazardous in accordance with the EPA Guidance Document: *Waste Classification – List of Waste and Determining if Waste is Hazardous or Non-Hazardous (2015)* and *Council Decision 2003/33/EC*. It should then be removed from site by a suitably permitted waste contractor to an authorised waste facility.

Following implementation of mitigation measures detailed in Chapter 6 of the EIA Report, the predicted impact during construction of the Proposed Development will be **short-term, imperceptible** and **neutral**.

During the Operational phase, there are limited activities that could potentially impact on the land soils, geological and hydrogeological environment. The bulk fuel storage tank will be above ground in a designated bunded. Diesel will be piped from the bulk storage tank to belly tanks at each of the back-up generator units. The belly tanks will be double skinned. Delivery of fuel will be undertaken following a documented procedure which minimises risk of spills and spill containment/clean-up kits shall be readily available on site. There will be no emissions to ground or the underlying aquifer from operational activities.

The predicted impact during operation of the Proposed Development, following implementation of mitigation measures detailed in Chapter 6 of the EIA Report will be **long-term, imperceptible** and **neutral**.

7.0 HYDROLOGY

This chapter of the EIA Report assesses and evaluates the potential impacts of the proposed development on the surrounding water & hydrological environment. There are no streams on the site itself or along its boundaries. There are a number of drainage ditches through the proposed site. These were shown to be mostly dry/stagnant during a site walkover by AWN Consulting in May and September 2019. There was no observed hydraulic connection between these ditches and offsite surface water courses. The most significant drainage system in the vicinity is the River Mayne which is partially culverted immediately to the south west of the Clayton hotel beneath the adjoining roundabout running down the R139 before emerging again 770m downstream on IDA owned lands. The River Mayne is c.50 metres away from the development site at its closest point. The Santry River lies c. 1 km south of the site

There is one water quality monitoring stations located on the Santry River downstream of the proposed site which has quality ratings available within the last ten years. This monitoring location (Clonshaugh Road Bridge RS09S010300) obtained a Q3 - Poor Status (in 2016) There is also a station downstream on the River Mayne at the Hole-in-the-Wall Bridge. This obtained a Q rating of 2-3 which also denotes a “poor” rating. Currently, the EPA classifies the WFD Ecological Status for the Mayne and Santry waterbodies as having ‘*Poor Status*’ (1st Cycle Status 2010-2015) with a current WFD River Waterbody risk score of 1a, ‘*At risk of not achieving good status*’.

Based on the NRA methodology (refer to Appendix 7.1 of the EIA Report), the criteria for rating the importance of hydrological features, the importance of the hydrological features at this site is rated as **Low Importance**. This is based on the assessment that the attribute has a low-quality significance or value on a local scale. The River Mayne is the receiving waterbody for the site, it is not a source of local potable water, and is not widely used as a local water amenity i.e. not regionally significant.

The potential risk of flooding on the site was also assessed. A site-specific Flood Risk Assessment was completed by OCSC and which is included with the planning documentation. The Proposed Development site is within Flood Zone C for tidal and fluvial flooding meaning the site has a less than 0.1% or a 1 in 1000 chance of flooding from rivers, estuaries or the sea in any one year per the OPW Guidelines for Planning Authorities for flood risk management. This represents a very low risk of tidal and fluvial flooding with no mitigation required. The areas adjacent to the site are subject to potential overland flow and ponding arising from pluvial, drainage infrastructure and watermain infrastructure sources. The OCSC report concludes that the provision of finished floor levels (FFLs) of the proposed buildings at a level higher than the surrounding levels will be effective in mitigating these risks to the site. The proposed drainage system has been designed in accordance with the relevant standards and regulations. The OCSC FRA report concludes that the flood risk arising from the proposed drainage infrastructure is negligible and no further mitigation is required. It also concludes that the flood risk represented by ground water is negligible with no further mitigation required.

The potential impacts of construction and mitigation measures proposed have been identified and will be included in the CEMP for the proposed development. The mitigation measures include:

Run-off water containing silt will be contained on site via settlement tanks and treated to ensure adequate silt removal. Silt reduction measures on site will include a combination of silt fencing, settlement measures (silt traps, silt sacks and settlement tanks/ponds).

Temporary storage of soil will be carefully managed with excavations remaining open for as little time as possible and weather conditions will be considered when planning construction activities.

To minimise any impact from material spillages, all oils, paints etc. used during construction will be stored within temporary bunded areas. Refuelling of construction vehicles and the use of any hydraulic oils or lubricants will take place in a designated area (or where possible off site) which will be away from surface water gullies or drains. All contractors will be required to implement the CEMP.

The proposed development will require site preparation, excavations and levelling for foundations, car parks and access roads, for the installation of services and landscaping. As there is no direct pathway to surface water from this site there is no likely potential impact on offsite watercourses. Some removal of perched rainwater from the excavation may be required. Volumes will be quite low, and all pumped water will be subject to onsite settlement before release.

The implementation of mitigation measures detailed in Chapter 7 of the EIA Report will ensure that the potential impacts on the surface water environment do not occur during the construction phase and that the residual impact will be **short-term-imperceptible-neutral**.

During operation there are limited risks to surface water receptors. There is a potential for leaks and spillages from the bulk fuel tank or belly tanks to occur on site. In addition to this there is a potential for leaks and spillages from vehicles along access roads, loading bays and in parking areas. However, the bulk fuel storage tank will be bunded and the belly tanks will be double skinned. Any accidental emissions of oil, petrol or diesel could cause contamination if the emissions enter the water environment

unmitigated. However, as there is no direct pathway to surface water from this site there is no likely potential impact on offsite watercourses.

The containment measures planned will minimise the risk of release of solid/ liquid material spillages to the water environment. Containment measures will include bunding of the bulk fuel storage tank and use of double skinned belly tanks on the back-up generators.

The local surface drainage network has sufficient capacity and has been sized to cater for development in the area. The proposed surface water drainage infrastructure includes hydrocarbon interceptors, an attenuation storage, and a flow control device to limit the discharge from the site to the allowable discharge rate. The proposed onsite attenuation storage can also be used for the retention of potentially contaminated firewater in the event of a fire or accident.

The implementation of mitigation measures highlighted in Chapter 7 will ensure that the potential impacts on the surface water environment do not occur during the operational phase and that the predicted impact will be ***long-term-imperceptible- neutral***.

8.0 BIODIVERSITY

This chapter of the EIA Report provides an assessment of the impacts of the Proposed Development in question on the ecological environment, i.e. biodiversity, flora and fauna. The lands in which the Proposed Development is located have no formal designations. The nearest European sites are located at Baldoyle Bay and North Dublin Bay.

The footprint of the Proposed Development is comprised of mixed broadleaved woodland, rough grassland and scrub, overgrown hedgerows associated with old drainage ditches.

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.

There is no connectivity with the River Mayne located on the other side of the R139. There will be no indirect impacts on the European sites in Baldoyle Bay and North Dublin Bay.

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.

9.0 AIR QUALITY AND CLIMATE

This chapter of the EIA Report evaluates the impacts which the proposed development may have on air quality and climate.

In terms of the existing air quality environment, data available from similar environments indicates that levels of nitrogen dioxide (NO₂) and particulate matter less than 10 microns (PM₁₀) and less than 2.5 microns (PM_{2.5}) are, generally, well within the National and European Union (EU) ambient air quality standards.

The existing climate baseline can be determined by reference to data from the EPA on Ireland's total greenhouse gas (GHG) emissions and compliance with European Union's Effort Sharing Decision "EU 2020 Strategy" (Decision 406/2009/EC). Data from the EPA in 2020 indicates that Ireland had total GHG emissions for 2018 of 60.93 million tonnes carbon dioxide equivalent (Mt CO₂eq). This is 5.59 Mt higher than Ireland's emission ceiling for 2018 as set under the EU's Effort Sharing Decision (ESD), 406/2009/EC. Emissions are predicted to continue to exceed the targets in future years.

Air Quality

During the construction phase there is the potential for dust emissions to impact nearby sensitive receptors resulting in potential dust soiling and human health impacts. Best practice mitigation measures have been proposed for the construction phase of the Proposed Development in order to mitigate potential dust impacts. Provided the mitigation measures outlined within Chapter 9 are implemented construction dust impacts will be short-term, neutral and not significant at nearby sensitive receptors.

Air dispersion modelling of operational phase emissions was carried out using the United States Environmental Protection Agency's regulatory model AERMOD. The aim of the study was to assess the contribution of operational emissions of NO₂ from the proposed development to off-site levels of this pollutant. Both the methodologies of the USEPA and UK Environment Agency were included within the assessment as per guidance issued by the Irish EPA. The modelling was undertaken to assess the impact to ambient air quality from the following three scenarios:

- **Do Nothing Scenario:** This comprises the existing and permitted developments and involved the emergency operation of 64 no. of the 71 no. existing or permitted diesel generators (the remaining seven generators serving as "catcher" generators) for Buildings A, B, C and D. The scenario also included weekly testing and quarterly maintenance testing of all generators associated with Buildings A, B, C and D.
- **Proposed Development Scenario:** This comprises the emission points described in the "Do Nothing" Scenario above as well as emission points associated with the Proposed Development (Buildings E and F) and included the emergency operation of 92 no. of the 103 no. diesel generators (the remaining eleven generators serving as "catcher" generators for Buildings A, B, C, D, E and F). The scenario also included weekly testing and quarterly maintenance testing of all 103 generators.
- **Cumulative Impact Scenario:** The cumulative impact scenario assessed the combined impact of the Proposed Development as outlined above as well as the emergency operation and scheduled testing of 40 no. existing back-up diesel generators associated with three neighbouring data storage buildings at an existing data storage facility approximately 500m south of the site of the Proposed Development.

The emission points were modelled at the following stack heights:

- Back-up Generators for proposed Buildings E and F, permitted Buildings C and D and existing Building A – 20m;

- Back-up Generators for Building B – 25m.

Modelling results are based on conservative predicted operational assumptions.

USEPA Methodology

The modelling assessment has found that ambient NO₂ concentrations as a result of the Do Nothing Scenario, the Proposed Development Scenario and the Cumulative Impact Scenario are in compliance with the relevant ambient air quality limit values at all locations at or beyond the site boundary. The impacts to air quality from operation of the proposed development are therefore deemed long-term and slight in terms of significance and negative in terms of quality (following the EPA terminology for description of effects in EIA Reports).

For the Proposed Development Scenario, emissions from the site assuming scheduled weekly testing and quarterly maintenance testing as well as emergency operation of the back-up generators for 72 hours per year will lead to an ambient NO₂ concentration (including background) which is 61% of the maximum ambient 1-hour limit value (measured as a 99.8th%ile) and 79% of the annual limit value at the worst-case location at or beyond the site boundary.

For the Cumulative Impact Scenario, emissions from all back-up generators modelled assuming scheduled weekly testing and quarterly maintenance testing as well as emergency operation of the back-up generators for 72 hours per year will lead to an ambient NO₂ concentration (including background) which is 61% of the maximum ambient 1-hour limit value (measured as a 99.8th%ile) and 85% of the annual limit value at the worst-case location at or beyond the site boundaries.

UK EA Methodology

The results for the Proposed Development Scenario indicate that in the worst -case year, the back-up generators can operate for up to 44 hours per year before there is a likelihood of an exceedance of the ambient air quality standard (at a 98th percentile confidence level). However, the UK guidance recommends that there should be no running time restrictions placed on these generators which (aside from testing) are only used to provide power on site only during an emergency scenario.

Climate

Based on the scale and temporary nature of the construction works, the potential impact on climate change and transboundary pollution from the construction of the Proposed Development is deemed to be short-term and not significant in relation to Ireland's obligations under the EU 2020 target.

No significant on-site CO₂ emissions will occur as a result of the Proposed Development. Whilst the use of electricity for the Proposed Development would indirectly result in emissions equivalent to an upper limit of 0.36% of Ireland's national annual CO₂ emissions. The cumulative electricity usage for the overall landholding including the existing, permitted and proposed developments would be equivalent to 0.89% Ireland's national annual CO₂ emissions. The overall impact to climate is deemed indirect, negative, long-term and slight

Human Health

The best practice dust mitigation measures that will be put in place during construction of the Proposed Development will ensure that the impact of the 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 predicted to be neutral, short-term and imperceptible with respect to human health.

As demonstrated by the dispersion modelling results, pollutant concentrations with the proposed development operational are compliant with all National and EU ambient air quality limit values and, therefore, will not result in a significant impact on human health.

Mitigation Measures

A dust minimisation plan will be implemented during the construction phase of the Proposed Development to ensure that no significant dust nuisance occurs outside the site boundary.

With regards to the operational phase, provided each stack is built to the minimum heights determined by the air dispersion modelling, no further mitigation measures are required.

Residual Impacts

Once the mitigation measures outlined in the mitigation section of Chapter 9 are implemented, the residual impacts on air quality or climate from the construction of the Proposed Development will be **short-term** and **imperceptible** and for the operational phases of the Proposed Development will be **long-term, negative** and ranging from **imperceptible** to **slight**.

10.0 NOISE AND VIBRATION

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

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. Other noise sources included aircraft activities associated with Dublin Airport and other typical noise sources expected in a suburban environment (e.g. pedestrian activity, dogs barking, distant plant noise etc.)

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

During the construction phase of the Proposed Development there will be some impact on nearby noise sensitive properties due to noise emissions from site activity and traffic. The application of noise limits and limits on the 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 impact is **slight, negative** and **short-term**.

The primary sources of noise during the operational phase of the Proposed Development will be long-term and include the introduction of additional building services plant for general site operation, additional building services plant (i.e. generators) for emergency site operation and the introduction of additional vehicular traffic on existing public roads. Proprietary noise and vibration control measures will be employed in order to ensure that emissions from building services plant do not exceed the relevant criteria at nearby noise sensitive locations. Any change in noise levels associated with additional vehicles at road junctions in the vicinity of the Proposed Development is expected to be imperceptible. The resultant noise impact is **not significant, negative** and **long-term**.

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

11.0 LANDSCAPE AND VISUAL

The proposed development of Buildings E and F will be located immediately north of the existing and emerging data storage facility campus; south of the R139 and the recently developed hotel buildings on the northern side of the R139; adjacent to the M1 to the west, and c. 140m from Woodlands house to the northeast.

Roads to the north and east have established mixed woodland tree planting that provides substantial landscape screening towards the development site. The motorway interchange to the west and northwest includes elevated slip lanes that have more open views over both the immediate locality and the wider north Dublin area, and includes existing data storage facility buildings, smaller scale traditional industrial buildings, motorway infrastructure, the recent hotel development, Woodlands House and, when weather permits, longer range views to the Dublin Bay and the Dublin mountains. There are extensive residential areas to the south and east of the development site, and including public open space and parks, however these are separated from the development site by the established industrial buildings of the Clonshaugh Business and Technology Park.

The Proposed Development will be set within the context of the long-established Clonshaugh Business and Technology Park, the more recently developed and emerging larger scale data storage facilities, and the M1/M50 motorway interchange. Woodlands House, a Protected Structure, to the northeast, includes extensive areas of mature woodland planting within its own curtilage, and the Proposed Development includes the establishment of additional mixed woodland landscape berms between the western boundary of Woodlands House and the Proposed Development so as to maintain the enclosure and character of Woodlands house in its current setting.

The landscape and visual impact of the development will slight/moderate to imperceptible as much of the surrounding context is already either industrial or infrastructural in nature and character. The larger scale of both the existing and proposed data storage facility buildings is accommodated between the more traditional and smaller scale industrial buildings of Clonshaugh Business and Technology Park and the motorway infrastructure, and away from established residential areas. A series of photomontages have been prepared from representative locations and are included in Appendix 11.1 of the EIA Report. Additionally, a series of electronically generated virtual views from Woodlands House were prepared to identify the optimum landscape screening that could be provided in the vicinity of Woodlands House. These views are included within the Conservation Report which is included Appendix 12.6 of the EIA Report.

The construction stage of the proposed development has the potential for impacts associated with typical construction activity, including site disturbance, excavation working, material import and the emergence of new structures. Other similar building types have recently been developed to the immediate south of the proposed development site area. Given the existing context and generally low sensitivity of the site, and the ongoing construction activity associated with other data storage facility buildings, it is considered that the landscape and visual impact during construction will be **short term, slight to moderate** and **neutral to negative** in nature.

On completion of the proposed development, the development site will change from a fallow grassland field to a modern facility with high quality contemporary clean-lined industrial buildings and associated landscape development. The proposed development will be perceived as a continuation of the other data storage facility buildings that have been completed or are under construction, and as part of the wider evolving high-tech developments. A series of photomontages illustrate the appearance of the proposed development from a series of representative vantage points within the visual context of the development site. Given the established and emerging context, and the nature of the proposed development, it is considered that the landscape and visual impact during operation will range from **slight to moderate**, and from **neutral to negative**.

Mitigation for visual impact will include both built and landscape elements of the other data storage facility developments to the south that will inherently provide screening of the proposed development from the south, together with reinforcement of existing roadside landscaping, and the establishment of new mixed woodland landscape berms, specimen trees and wildflower meadow planting within the overall site area. At Woodlands House in particular, a new landscape berm will grade towards Woodlands House to provide a landform that is undulating and natural in character. This will be planted with evergreen and larger species on the higher levels so as to establish early screening, leading to semi-mature trees and whips on the lower slopes, and to wildflower meadow planting around the base. This mixed woodland berm will extend the screening effect of the established mature trees along the western edge of the Woodlands House further northwards so as to provide strong screening between Woodlands House and the Proposed Development.

The built elements of the proposed development are also designed to present as high quality clean-lined contemporary structures that are commensurate with the high-tech zoning of the lands and the emerging developments in the adjacent lands to the south.

The lands are zoned for development as proposed and the scheme provides for an appropriate and high-quality response to the permitted land use.

12.0 ARCHAEOLOGICAL, ARCHITECTURAL AND CULTURAL HERITAGE

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

There are no direct impacts on archaeological or cultural heritage sites subject to statutory protection associated with the Proposed Development, however there is the possibility that sub-surface archaeological features surviving within the site.

It is recommended that a geophysical survey be undertaken of areas that have not previously been subject to development or construction-related impacts. Archaeological testing trenching should be undertaken based on the results of that geophysical survey.

The site of the drystone wall noted during the site assessment should be subject to archaeological testing.

Should additional archaeological features or material be uncovered during archaeological testing or any phase of construction, ground works should cease

immediately and the National Monuments Service of the Department of Culture, Heritage and the Gaeltacht should be informed. Time must be allowed for a suitably qualified archaeologist to inspect and assess any material. If it is established that archaeologically significant material is present, the National Monuments Service may require that further archaeological mitigation be undertaken.

The recommendations given within Chapter 12 are subject to the approval of the Dublin City Archaeologist and the National Monuments Service, Department of the Culture, Heritage and the Gaeltacht.

No direct impacts on sites of architectural heritage interest which are subject to statutory protection were identified during the assessment. However potential indirect (visual) on Woodlands House (RMP DU014-056/RPS 1907 (DCC)) and a potential direct impact on a wrought iron gate and granite gate post were identified.

Landscape mitigation, including the reinforcement of existing planning in the north-east corner of the site and the construction of mounding along the eastern site boundary is proposed to mitigate the visual impact on Woodlands House (RMP DU014-056/RPS 1907 (DCC)). The wrought iron gate and granite gate post should be removed from site prior to the commencement of construction to avoid damage.

13.0 TRAFFIC AND TRANSPORTATION

This chapter assesses the impact that the Proposed Development will have on the surrounding road network during construction and operation.

The site is located in close proximity to the M50 in an existing industrial/business park. There are limited public transport services locally, with 2 no. Dublin Bus services operating in the area. Pedestrian facilities are of a good quality while cycle infrastructure is limited at present.

The potential impact 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). The traffic volumes associated with approved surrounding development were taken into account as part of the traffic assessment and, thus, the cumulative impact of the development and surrounding approved development is known.

A number of traffic surveys were carried out on the local road network in May 2019, which were factored up in accordance with TII Project Appraisal Guidelines – Unit 5.3: Travel Demand Projections (2019) to establish construction and opening year traffic flows in the area.

The worst- case traffic generation of the proposed development during the construction stage was established based on construction traffic data recorded at a similar data storage facility site. Peak construction trip generation for the Proposed Development, anticipated to occur in Q4 2022, was estimated as operational traffic for Building E and peak construction traffic associated with Building F. The impact of the construction phase of the Proposed Development was found to be **short-term, negative** and **not significant** during peak construction.

The operational stage trip generation potential was estimated for the Proposed Development based on a first principles assessment of the expected staff numbers and shift times for an estimated opening year of 2024. A worst-case scenario trip generation

was assumed. The impact of the operational phase of the development was assessed as a percentage of traffic flows on adjoining roads and was found to be **long-term, neutral and imperceptible**, with the Proposed Development's operational traffic volumes below the thresholds stated in the TII Guidelines for Traffic and Transport Assessments, 2014 for junction analysis.

14.0 MATERIAL ASSETS

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

- Chapter 5 Population and Human Health;
- Chapter 9 Air Quality & Climate;
- Chapter 13 Traffic & Transportation; and
- Chapter 15 Waste Management.

Ownership and Access

The site of the Proposed Development as described in Chapter 2 Description of the Proposed Development is primarily owned by the Operator as illustrated by the blue and red line boundaries in Figure 2.1 in Chapter 2. The remaining portion of the site, along the western boundary, is owned by Dublin City Council. Letters of consent, to apply for development on the lands from the Operator and Dublin City Council, are included with the planning application.

The main access to the site will be via the primary south-western access gate of the existing campus. The site will be fully secured with a 3m high security fence, CCTV and surveillance system.

During construction the Proposed Development will be accessed through a temporary construction entrance, which will be constructed adjacent to the primary south-western access gate, and temporary construction access road, which will be constructed from the temporary construction entrance along the western boundary of the site. This construction entrance and access road will also be used for the construction of the permitted Building D development. Once construction of the permitted Building D and Proposed Development have been completed, this construction entrance and construction access road will be reinstated, as previously stated in Section 2.3.1 of Chapter 2.

Power and Electrical Supply

A 110 kilovolt (kV) Substation has recently been constructed within the existing data storage facility campus. The 110kV Substation (also referred to as the Darndale Substation) was permitted by DCC under DCC Reg. Ref.: 3288/16, which was an amendment of DCC Reg. Ref.: 3874/15 (see Chapter 3 for Planning History).

The permanent power supply to the Proposed Development will be provided via a double circuit 110kV underground cable from the existing Belcamp 220kV and 110 kV Substation to the Darndale Substation, which was permitted by ABP under ABP Ref. PL29N.303687. This underground cable installation is now complete. The only

remaining works are the energisation of the Darndale Substation which is due to be undertaken in November 2020. These remaining works will be completed prior to commencement of construction of the Proposed Development.

The 110kV underground cable is designed to support current power demand and future growth within the Clonshaugh area inclusive but not limited to the power requirements for the Proposed Development.

The Proposed Development will have a maximum operational electrical demand of 33.6MW per building, with an overall maximum operational demand for both buildings of 67.2MW.

In the event of a loss of power to the site, diesel-powered back-up generators will be activated to provide power pending restoration of mains power.

Telecommunications

A new fibre optic cable distribution network will be installed for the Proposed Development and will connect to the existing fibre optic cable distribution network in the Operator's existing campus in Clonshaugh Business and Technology Park. There is sufficient capacity in the network for the Proposed Development.

As the connection works are entirely within the site boundary, it not anticipated that this would have any potential offsite impact from the installation of the cable.

Surface Water Infrastructure

The surface water drainage system for the Proposed Development incorporates runoff control in the form of hydrocarbon interceptors, attenuation and flow control device, which will restrict discharge from the development to the allowable greenfield runoff rate of 16.6l/s. These Sustainable Urban Drainage System (SuDs) measures will prevent an increase in surface water flow offsite. The allowable greenfield runoff rate has been established by the project engineers, OCSC, using the methodology set out in the Engineering Services Report.

The attenuated storm water will be discharged offsite to the existing Clonshaugh Business & Technology Park surface water system located to the south of the site, via the surface water drainage network for the permitted development.

As the surface water infrastructure installation works are entirely within the permitted and proposed site boundaries, it not anticipated that this would have any potential offsite impact.

Foul Drainage

Domestic effluent arising from occupation of the data storage facility buildings will be collected in newly constructed foul drainage network within the site and discharged to the existing 300mm foul sewer which crosses the site. The wastewater discharged from the site will ultimately discharge to the municipal Wastewater Treatment Plant (WWTP) at Ringsend. In addition, rainfall which passes through the back-up generator exhaust stacks will discharge to a Class 2 petrol interceptor before connecting to the main foul drainage network. There are no proposed process water emissions.

A pre-connection enquiry (PCE) form was submitted to Irish Water (IW) which addressed the proposed wastewater discharges (and water demand) for the Proposed Development. IW provided a confirmation of feasibility (CoF) for the development on 12 February 2020 (IW Connection Reference No CDS19008228). The COF is included as

an appendix to the OCSC Engineering Services Report which is included with the planning documentation.

As the foul drainage works are entirely within the permitted and proposed site boundaries, it not anticipated that this would have any offsite impact.

Water Supply

Water is required for cooling equipment, cleaning, general potable supply for drinking and sanitary facilities. This will be sourced from rainwater harvesting and mains water supply via a connection to the existing 150mm diameter watermain and 250mm diameter firemain that serves the existing campus. The design requires a peak water demand of up to 1.71 litres per second(l/s) for both buildings. As noted in the Engineering Services Report, a PCE was submitted to IW which addressed water demand for the Proposed Development. IW provided a CoF for the development on 12 February 2020 (IW Connection Reference No CDS19008228).

As the water supply works are entirely within the permitted and proposed site boundaries, it not anticipated that this would have any offsite impact.

15.0 WASTE MANAGEMENT

This chapter has been prepared to address the issues associated with waste management during the construction and operational phases of the Proposed Development.

An assessment was carried out of the potential impacts associated with resource consumption and waste management during the construction and operational phases of the Proposed Development. The receiving environment is largely defined by DCC as the local authority responsible for setting and administering waste management activities in the area through regional and development zone-specific policies and regulations.

During the construction phase, typical construction waste materials will be generated which will be source segregated on-site into appropriate skips/containers and removed from site by suitably permitted waste contractors to authorized waste facilities. Where possible, materials will be reused on-site to minimize raw material consumption. Source segregation of waste materials will improve the re-use opportunities of recyclable materials off-site. Construction of foundations and services will require the excavation of c. 34,370m³ of soil and stones. Excavated material will be reused onsite for landscaping and berms where possible. Surplus material will be removed from site for offsite reuse, recovery and/or disposal at a suitably authorised facility. There has been no evidence of residual contamination on the site to date and therefore it is anticipated that excavated soils/stones will be clean/inert material suitable for re-use, recovery and/or disposal offsite.

A carefully planned approach to waste management and adherence to the site-specific Construction and Demolition Waste Management Plan during the construction phase will ensure that the effect on the environment will be **short-term, neutral** and **imperceptible**.

Dedicated areas have been allocated for storage of waste materials generated during the operational phase of the development. This waste will be generated from the building staff and will comprise of typical commercial waste types. The waste storage areas have been allocated to ensure a convenient and efficient management

strategy with source segregation a priority. Waste will be collected from the waste storage areas by permitted waste contractors and removed off-site for re-use, recycling, recovery or disposal.

Provided the mitigation measures outlined in Chapter 15 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**.

16.0 CUMULATIVE IMPACTS

This chapter of the EIA Report considers the potential cumulative impacts on the environment of the Proposed Development with other developments on adjoining properties and the cumulative impacts with developments in the locality (including planned and permitted developments).

The potential cumulative impacts are assessed for each environmental aspect and the predicted impact for each aspect for each scenario is described in Chapter 16 of the EIA Report. With mitigation for each environmental aspect, it is predicted that there will be no significant long-term cumulative effects.

17.0 INTERACTIONS – INTERRELATIONSHIPS BETWEEN THE ASPECTS

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

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