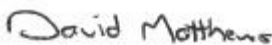


This Report has been cleared for submission to the Director by Senior Inspector, David Matthews

Signed: 

Date: 16th May 2023



**OFFICE OF ENVIRONMENTAL
SUSTAINABILITY**

**INSPECTOR'S REPORT ON AN INDUSTRIAL EMISSIONS LICENCE
APPLICATION, LICENCE REGISTER NUMBER P1189-01**

TO: GERARD O'LEARY, DIRECTOR

FROM: JIM JOHNSON

DATE: 16 MAY 2023

Applicant:	Google Ireland Limited
CRO number:	368047
Location/address:	Grange Castle Business Park South, Baldonnell Road, Dublin
Application date:	25 November 2022
Classes of Activity (under EPA Act 1992 as amended):	2.1 Combustion of fuels in installations with a total rated thermal input of 50 MW or more.
Category/ies of activity under IED (2010/75/EU):	1.1 Combustion of fuels in installations with a total rated thermal input of 50 MW or more
Main BREF document/CID/BAT Note:	Not applicable All relevant BREF documents are listed in Section 5 of this report.
Activity description/background: Data centre with combustion plant (24 diesel generators) to provide power in the event of a loss or reduction in electricity supply from the grid.	
Additional information received:	Yes (08 December 2022, 03 April 2023, 05 April 2023, 26 April 2023)
No of submissions received:	1
Environmental Impact Assessment required: Yes	Stage 2 Appropriate Assessment required: No
Environmental Impact Statement submitted (EIS): Yes 25-Nov-2022	
Site visit: not applicable	Site notice check: 17 December 2022

1 Introduction

Google Ireland Ltd. is applying for an Industrial Emissions Licence for its existing data centre facility at Grange Castle Business Park South, Baldonnell Rd, Dublin 22.

The data centre facility consists of two data storage buildings (Building 1 and 2) on a 8 ha site. Operations began in Building 1 in 2012 and in Building 2 in 2016. Each of the buildings has up to c. 50 full time employees on site during the day.

Under normal operating conditions the installation is supplied electricity from the National Grid. In the event of a loss or reduction in supply from the grid the installation has 24 no. diesel fuelled generators available to provide power. Otherwise the generators are only operated for testing and maintenance purposes. The combined capacity of the generators exceeds the 50 MWth threshold of Class 2.1 First Schedule of the EPA Act 1992, as amended and therefore the applicant has applied to the Agency for an Industrial Emissions Licence. The combustion plant are already in place, no infrastructural works are required as part of the licence application.

The land to the west and north is occupied by industrial campuses including other data centres, as well as pharmaceutical and other commercial uses (Figure 1.1 below). Lands to the south and east are primarily rural with Grange Castle Golf Club to the east and Baldonnell Aerodrome located to the south.

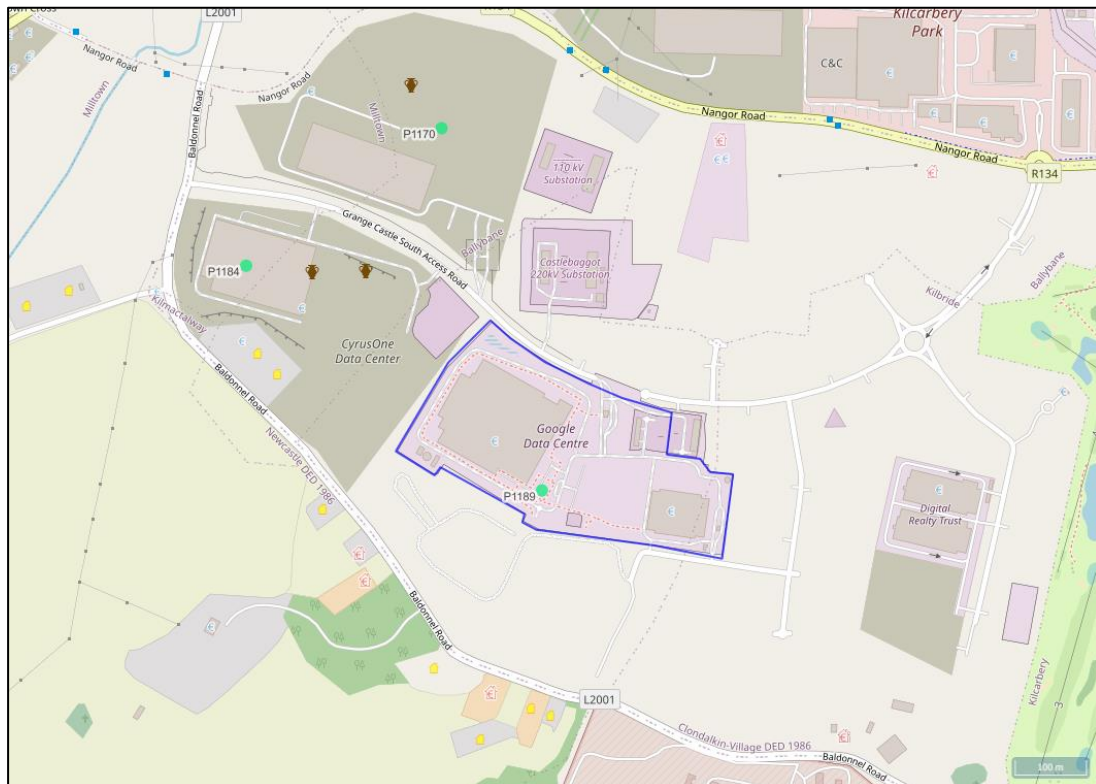


Figure 1.1: Location of the applicant's site relative to the closest sensitive receptors and other industrial sites. Buildings identified by yellow icons are residential.

2 Description of activity

The installation consists of two data centre buildings and a number of smaller ancillary buildings (Site Layout – Appendix 1). The data centre buildings include administration areas, data halls, plant room, shipping and receiving areas, air handling units (AHU),

and staff facilities (offices, canteens, meeting rooms). Each building has sprinkler water tanks and a fire pump and diesel engine ($<1 \text{ MW}_{\text{th}}$).

The data halls are cooled using a direct free air cooling system. Air is delivered to the data halls via air handling units located externally and exhausted air is discharged to the atmosphere. The cooling system does not use water to humidify the air.

Power to the installation is provided by two on-site 110 kV transformers within a substation, owned by the applicant which is within the installation boundary. There are 24 no. diesel generators on site which provide power in the event that the normal grid connection is not available. There are 7 no. generators associated with Building 1, which are located external to the building and housed in individual enclosures within a generator yard. Building 2 has 17 no. generators, which are located in generator rooms inside the building. The thermal input capacity of the generators is in the range $>5 \text{ MW}_{\text{th}}$ and $\leq 20 \text{ MW}_{\text{th}}$.

Diesel is supplied to the generators at Building 1 from individual fuel belly tanks. The tanks are double skinned, bunded and fitted with high level liquid alarms. For Building 2, there is a central fuel storage system consisting of four bulk storage tanks located in a bunded area and fitted with high-level liquid alarms.

Surface water runoff drains to a stormwater drainage system fitted with Class 1 oil interceptors and flow attenuation in the form of attenuation tanks (SW1) and a storm water pond (SW2).

Emissions from the installation include channelled emissions to air, noise, storm water discharges and emissions to sewer (domestic and canteen waste).

3 Planning Status

A number of planning applications have been made by the applicant for the area within the installation boundary. Details of these relevant planning applications and permissions have been provided in the licence application form (Attachment 6-1 Stakeholder Engagement).

The applicant has submitted the EIS associated with planning permission SD14A/0023. The Agency has had regard to the reasoned conclusions reached by the planning authority (South Dublin County Council) in undertaking its environmental impact assessment of the activity.

4 EIA Screening

In accordance with Section 83(2A) of the Environmental Protection Agency Act 1992, as amended (hereafter referred to as the EPA Act), the Agency must ensure that before a licence or revised licence is granted, that the application is made subject to an environmental impact assessment (EIA), where the activity meets the criteria outlined in Section 83(2A)(b) and 83(2A)(c).

In accordance with the EIA Screening Determination, the Agency has determined that the activity is likely to have a significant effect on the environment, and accordingly is carrying out an assessment for the purposes of EIA.

The activity is below the specified thresholds of project types 3(a) and 10(a) in Part 2 of Schedule 5 of the Planning and Development Regulations 2001 as amended.

3. (a) Industrial installations for the production of electricity, steam and hot water not included in Part 1 of this Schedule with a heat output of 300 megawatts or more.

10 (a) Industrial estate development projects, where the area would exceed 15 hectares.

Having considered the information provided by the applicant, which satisfies the requirements of Annex II A of the EIA Directive, it has been determined that the activity is likely to give rise to significant effects on the environment by virtue of its nature, size or location. This determination has been made having regard to the following:

- cumulative effects from air emissions are likely to arise with other existing and/or approved projects.*

An EIS was submitted to the Agency as part of the application on 25 November 2022. This is dealt with in the 'EIA' Section later in this report.

5 Best Available Techniques

A detailed BAT assessment was carried out by the applicant and is included in Attachment 4-7-1 of the application form.

The individual generators are within the range $>5 \text{ MW}_{\text{th}}$ and $\leq 20 \text{ MW}_{\text{th}}$ and are therefore outside the scope of the Best Available Techniques (BAT) Reference Document for Large Combustion Plants (LCP). Instead, the requirements as set out in the Medium Combustion Plant (MCP) Regulations 2017 (S.I. No. 595 of 2017), which can be considered BAT at plant level, for combustion plant between 1 and $50 \text{ MW}_{\text{th}}$ have been applied.

BAT for the installation was assessed against the following horizontal BREF documents:

- BREF document for Emissions from Storage (July 2006);
- BREF document for Energy Efficiency (February 2009);
- BREF Document for Industrial Cooling Systems (December 2001).

The applicant submitted an assessment of the installation's activity against the relevant BAT requirements set out under each of the above listed horizontal BREFs.

The assessment has demonstrated that the installation will comply with all the MCP Regulations and will be in line with the guidance specified in the relevant horizontal BREF Documents as listed above.

I consider that the applicable BAT Conclusion requirements are addressed through the technologies and techniques as described in the application form, as well as the conditions and limits specified in the RD.

6 Emissions

6.1 Emissions to Air

This section addresses emissions to air from the installation and the environmental impact of those emissions.

6.1.1 Channelled Emissions to Air

The main channelled emissions points at the installation are 24 diesel generators (Table 6.1). These provide power to the installation, when power from the National Grid is not available.

Table 6.1 Details of generators at the installation.

	No.	Capacity (MW thermal input)	Stack height above ground level (m)
Building 1	7	>5 MW _{th} and ≤ 20 MW _{th}	17
Building 2	17	>5 MW _{th} and ≤ 20 MW _{th}	25
Total	24	>120 MW _{th} and ≤ 240 MW _{th}	

There are other emission points to air at the installation (e.g. diesel fire pumps) which, due to their emission characteristics are not considered environmentally significant and are therefore regarded as minor emissions. These minor emissions are not considered as part of this impact assessment.

The diesel generators are operated for a limited number of hours. Under Reg. 13 of the MCP Regulations, plant which operate for not more than 500 hours per year are not required to comply with the emission limit values set out in the Regulations. The applicant has requested this exemption be applied to the generators on the basis that they are operated less than 500 hours per year.

The generators have emissions of NO_x, CO, SO₂, and particulate matter. As part of the application, air dispersion modelling was carried out by the applicant to assess the impact on ambient air quality from these emissions. Modelling of NO₂, SO₂ and particulate matter (PM₁₀/PM_{2.5}) was undertaken in detail. Modelling of CO (carbon monoxide) was not undertaken as emissions of CO are significantly lower than NO_x emissions relative to their ambient air quality standards. Results are presented here for NO_x emissions. Emissions of CO, SO₂, PM₁₀ and PM_{2.5} are significantly lower than NO_x emissions relative to their ambient air quality standards. Therefore, ensuring compliance with the NO₂ air quality standard will ensure compliance for all other pollutants.

The modelling carried out was in accordance with published Agency guidance and was considered sufficiently detailed and conservative to assess the impact of the main emissions to air.

The modelling was carried out using five years of meteorological data (2017 to 2021 inclusive) from Casement Aerodrome meteorological station, approximately 1.5 km south of the site. The modelling was used to predict the ambient ground level concentrations for each hour of the five years of meteorological data at every point on a grid beyond the installation boundary as well as at nearby residential receptors.

A concentration of 14 µg/m³ was considered representative of the annual average ambient background for NO₂. This was based on EPA monitoring data at suburban Zone A (Urban) background locations in Swords. A short-term (hourly) background of twice the annual (i.e. 28 µg/m³) was used as per Agency guidance. The ambient background concentration (BC) is added to the modelled process contribution (PC) from the installation to determine the predicted environmental concentration (PEC).

Two scenarios were modelled – emissions from generators at the installation alone, and a cumulative scenario that included emissions from licensed installations and other data centres in the area.

Emissions from the installation consist of emissions from generator testing and operation. For the purposes of modelling it was assumed that operation would be 150 hours per year. There were numerous generator testing regimes included in the model as follows:

- Test 1 (Monthly Maintenance): Testing eleven times per year of all 24 no. generators on the campus at 0% load for a maximum of 30 minutes each, one generator at a time, sequentially.
- Test 2 (Annual Maintenance): All 24 no. generators will be tested individually for 90 minutes at 100% load once per year.
- Test 3 (Electrical Maintenance Building 1): All 7 no. generators on Building 1 will be tested individually for 60 minutes at 100% load once per year. In addition, all Building 1 generators will be tested for 12 hours, with no more than three running together once every three years.
- Test 3 (Electrical Maintenance Building 2): All 17 no. generators on Building 2 will be tested, with either eight or nine running together for 24 hours at 100% load once every three years. In addition, all Building 2 generators will be tested for 12 hours, with no more than three running together once every three years.
- Test 4 (Building 1): All 7 no. generators on Building 1 will be tested together for 12 hours at 100% load once every three years.
- Test 4 (Building 2): All 17 no. generators on Building 2 will be tested together for 12 hours at 100% load once every three years.
- Miscellaneous operation – an allowance for the operation of all 24 generators to operate 5 hours per year on an individual basis at 100% load each year.

Emissions under generator operation were modelled as an average hourly emission rate rather than the maximum rate, which is in line Agency guidance on modelling of emissions from generators. The maximum hourly emission rate from the generators was multiplied by a factor $\frac{150}{8760}$ and modelled as continuous emissions over a full year.

The table below gives details of the predicted impact of the proposed main channelled emissions to air. The results presented are for the worst case location outside the installation boundary and worst case year.

Table 6.2 Dispersion Model Results – generator operation and scheduled testing

Parameter	Averaging Period	Background concentration ($\mu\text{g}/\text{m}^3$)	Process contribution to PEC ($\mu\text{g}/\text{m}^3$)	Predicted Environmental Concentration (PEC) ($\mu\text{g}/\text{m}^3$)	PEC as % of Air Quality Standard	Air Quality Standards/ Guidelines ($\mu\text{g}/\text{m}^3$)
Nitrogen Oxides (as NO_2)	99.8%ile hourly (2018)	28	127.8	155.8	77.9%	200

Parameter	Averaging Period	Background concentration ($\mu\text{g}/\text{m}^3$)	Process contribution to PEC ($\mu\text{g}/\text{m}^3$)	Predicted Environmental Concentration (PEC) ($\mu\text{g}/\text{m}^3$)	PEC as % of Air Quality Standard	Air Quality Standards/ Guidelines ($\mu\text{g}/\text{m}^3$)
	Annual (2017)	14	22.7	36.7	91.8%	40

For the ambient 1-hour limit value (99.8%ile), the maximum predicted environmental NO_2 concentration was 77.9% of the standard. For the annual mean, emissions from the installation accounted for 91.8% of the standard at the worst off-site location.

The contour plots supplied with the modelling report (below) show the location and extent of the areas where the maximum PC applies (excluding background), and also the rate of drop in ambient concentration with distance from the location of the maximum.



Figure 6.1: Maximum 1-hour NO_2 concentration (process contribution) for the worst-case year (2018). The purple lines indicate installation/facility boundaries. [Adapted from Attachment-7-1-3-2 Emissions Impact Assessment, November 2022]



Figure 6.2: Maximum annual mean NO₂ concentration (process contribution) for the worst-case year (2017). The purple lines indicate installation/facility boundaries. [Source: Attachment-7-1-3-2 Emissions Impact Assessment, November 2022]

For both the 1-hour and annual mean NO₂, the highest predicted values are concentrated in a small area on the installation boundary – indicated by a star in Figure 6.2. There are no residential receptors in this area – the area is part of a business park. The building across the road, immediately to the north of Building 2 is a substation. Given the conservative nature of the modelling and the fact that the highest concentrations are at the installation boundary, in practice it is unlikely that emissions from the activity will result in ambient air quality impacts.

Cumulative Assessment

A cumulative air dispersion modelling assessment was carried out to assess the impact of emissions from the installation and licensed installations and other data storage facilities in the area (Figure 6.3). Details of data storage facilities were obtained from planning permission applications: Amazon Data Services Ireland Limited (ADSIL), CyrusOne, Equinix, Interxion, EdgeConnex, Microsoft, Digital Reality Trust and Vantage Data Centres Dub 11 Ltd., Greener Ideas Limited and Equinix. Emissions from nearby IED licensed sites including Pfizer (P0652), Takeda (P0693), Data and Power Hub (P1165) and Grange Backup Power (P1033) were also included in the cumulative modelling.

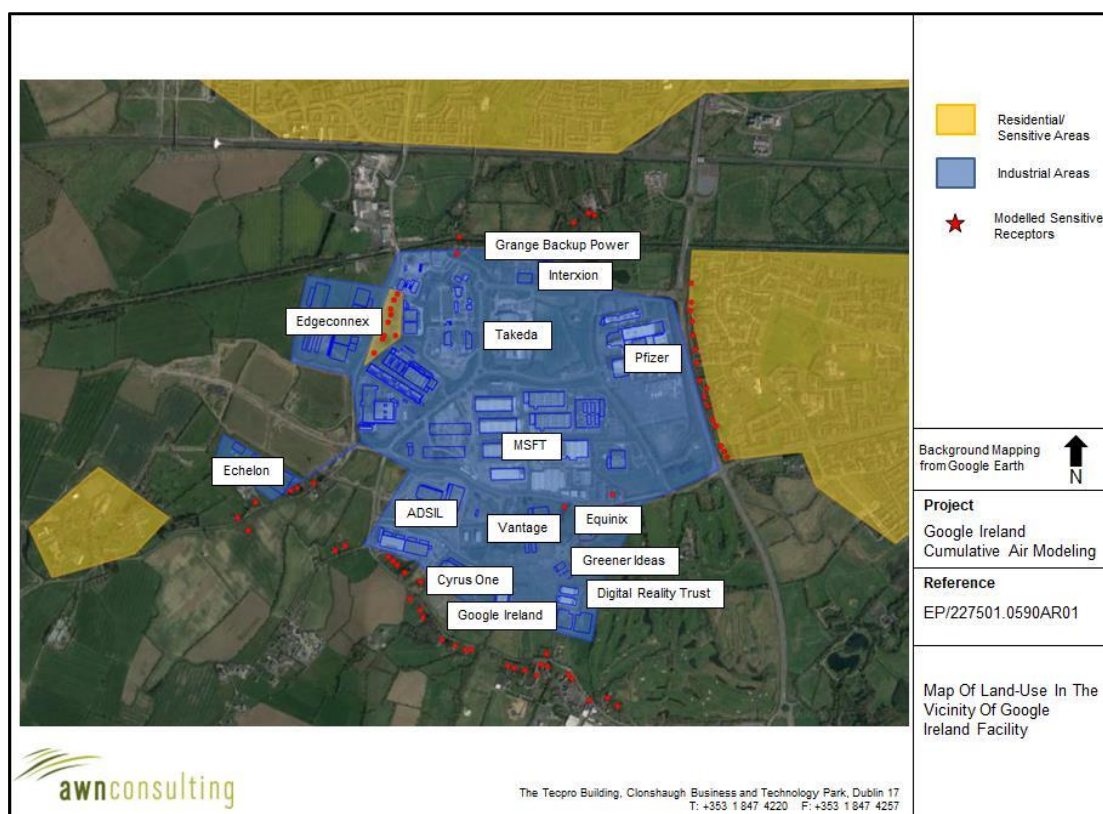


Figure 6.3: Map of licensed installations and data centres in the Grange Castle area [Source: application Attachment-7-1-3-2 Emissions Impact Assessment, November 2022]

The following assumptions were made for the cumulative assessment:

- Emissions from IED licensed installations at Takeda, Grange Backup Power and Pfizer were assumed to be continuous, i.e. 24 hours a day, 365 days a year.
- The modelling included emissions from other data storage facilities arising from testing of generators and didn't include emissions from continuous operation of these generators as these were assumed to only operate in exceptional circumstances.
- Natural gas fired combustion plant at Grange Backup Power (P1033), Data and Power Hub (P1165), EdgeConnex, and Microsoft (P1187) were assumed to operate 24 hours per day, 365 days per year

The table below gives details of the predicted impact of the proposed main channelled emissions to air under the cumulative assessment. The results presented are for the worst case location outside the installation boundary and worst case year.

Table 6.3 Dispersion Model Results – cumulative assessment

Parameter	Averaging Period	Background concentration ($\mu\text{g}/\text{m}^3$)	Process contribution to PEC ($\mu\text{g}/\text{m}^3$)	Predicted Environmental Concentration (PEC) ($\mu\text{g}/\text{m}^3$)	PEC as % of Air Quality Standard	Air Quality Standards/ Guidelines ($\mu\text{g}/\text{m}^3$)
Nitrogen Oxides (as NO_2)	99.8%ile hourly (2018)	28	144.7	172.7	86.4%	200
	Annual (2017)	14	28	42	105 %	40

For the ambient 1-hour limit value (99.8%ile), the maximum predicted environmental NO₂ concentration was 86.4% of the standard. For the annual mean, emissions from the installation accounted for 105% of the standard at the worst off-site location.

The contour plots supplied with the modelling report (below) show the location and extent of the areas where the maximum PC applies (excluding background), and also the rate of drop in ambient concentration with distance from the location of the maximum.

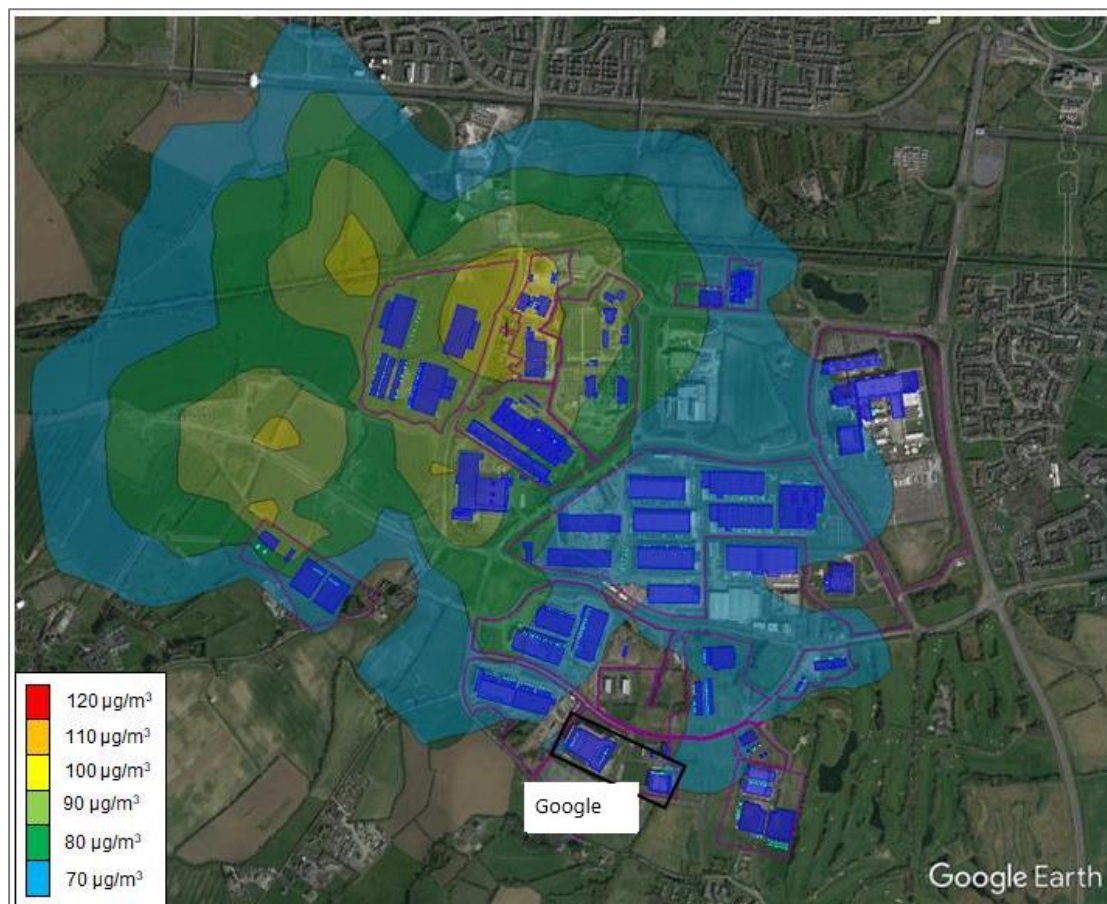


Figure 6.4 Cumulative Assessment - Maximum 1-Hour NO₂ Concentrations (as 99.8th%ile) (µg/m³) 2017 (excluding background concentrations) The purple lines indicate installation/facility boundaries. [From Attachment-7-1-3-2-Air Emissions Impact Assessment, November 2022]



Figure 6.5 Cumulative Assessment - Annual Mean NO₂ Concentrations (µg/m³) 2017 (excluding background concentrations). The purple lines indicate installation/facility boundaries. [From Attachment-7-1-3-2-Air Emissions Impact Assessment, November 2022]

The contour plots show several local maxima across the modelling domain. For the 1-hour concentration (Figure 6.4) the maxima occur to the north west of the Google installation. For the annual mean NO₂ concentration, the maximum predicted ambient concentration occurs approximately 1.3 km to the northwest of the Google installation as well as another maximum on the Google boundary. Figures 6.1 and 6.2 indicate that the predicted impact of emissions from the Google installation is confined to the immediate area around the installation boundary and doesn't contribute significantly to the wider predicted cumulative impacts shown above. The air impact assessment report reported that for the annual mean concentration, emissions from the Google installation contribute 0.17 µg/m³ or 0.4% of the mean annual NO₂ air quality standard at the worst case predicted location in the cumulative scenario in Figure 6.5 above.

Assessment of impacts on ecosystems

Air dispersion modelling was also used to predict ground level pollutant concentrations at ecological receptors closest to the site. An annual limit value of 30 µg/m³ for NO_x (NO+NO₂) is specified within EU Directive 2008/50/EC for the protection of ecosystems. The Grand Canal proposed Natural Heritage Area (pNHA) is approximately 1.5 km to the north, and the worst case contribution from the installation was 2.8% (0.83 µg/m³) of the limit and can be considered not significant. The impact of SO₂ and particulate matter emissions from the installation on the pNHA are indistinguishable from background concentrations. The installation does not make a significant contribution to predicted impacts under the cumulative assessment.

In terms of nitrogen deposition, the installation would contribute about 0.1 kg/N/ha/year to the load at Grand Canal pNHA. Given that the critical load for habitats

at the site would be in the range 10-20 kg/N/ha/year, the contribution from the installation is insignificant.

The nearest European Site (Rye Water Valley/Carlton SAC [001398]) is over 5 km away. A Screening for Appropriate Assessment was carried out, refer to the Appropriate Assessment section of this report (Section 14).

Recommendation

Notwithstanding the above, given the number and proximity of the generators in the Grange Castle area, particularly across several data storage facilities, there is the potential for an exceedance of the short-term air quality standard if generators across several of the data storage facilities operate simultaneously. It needs to be considered that the cumulative operational scenario doesn't take into account the potential for emissions from generators at other sites/installations operating generators, rather the modelling included emissions from the testing of generators.

In order to address the potential for an exceedance of both the short- and long-term NO₂ emissions, the Recommended Determination (RD) includes a number of conditions in order to reduce and mitigate the potential impact of channelled emissions to air:

- The RD limits the operation of generators at the installation to 150 hours per year (Schedule A).
- If one or more of the generators is unavailable due to maintenance, then under Schedule A, the licensee may operate mobile generators in lieu of the stationary generator(s) provided the overall capacity of the generators is not increased.
- The RD also restricts the testing of the generators to the testing regimes modelled in the air impact assessment (Schedule A).
- The hourly restriction in Schedule A is based on an assessment of the generators operating at full load. Condition 3 allows for an alternative plant loading/hour restriction to be proposed by the applicant, subject to approval by the Agency, such that the mass emission of NO_x is limited to that which was modelled.
- The applicant is required to establish an Ambient Air Monitoring Programme. As part of the ambient air monitoring programme, the applicant will establish trigger levels for relevant monitoring parameters at the monitoring locations. The air dispersion modelling shows the spatial distribution of ambient air concentrations due to emissions from the activity. Based on this data, trigger levels at monitoring points can be used to demonstrate compliance with Air Quality Standards beyond the installation boundary (Condition 3). The condition also requires a response programme containing actions to be taken, in the event of an exceedance of trigger levels.
- Condition 2 of the RD requires the applicant to evaluate options for reducing emissions and improving dispersion of emissions from generators during testing, maintenance and operation.
- Schedule C requires the applicant to carry out monitoring of emissions in line with the MCP Regulations.
- Condition 11 requires the applicant to maintain a record the type and quantity of fuel used, run times and loading under both testing/maintenance and operating scenarios.

6.1.2 Fugitive Emissions

No significant fugitive emissions are expected to arise from the proposed activity. Fluorinated gases are used at the installation which are subject to the F-gas Regulations (EU No. 517/2014).

6.2 Emissions to Water/Sewer

6.2.1 Emissions to Surface Waters

There are no direct process emissions to surface waters from the installation.

6.2.2 Emissions to Sewer

There are two sewer emission points – one for each building. Discharge from Building 1 consists of waste water from domestic use (toilets, showers, etc.) only. Discharge from Building 2 consists of wastewater from domestic uses (toilets, showers, etc.), canteen waste and condensate from internal air handling units (AHU's). These are used for air conditioning in office areas (office, canteen, meeting rooms) and generate a small amount of clean water (condensate).

The emissions to sewer are discharged to the public foul sewer network in Grange Castle, and treated at Ringsend Wastewater Treatment Plant (WWTP)(D0034-01).

A licence to discharge effluent to sewer (Ref. no. IW-FOG-757708-01) was granted by Uisce Éireann for Building 2 in 2016 to accommodate discharge of effluent from the canteen at Building 2.

The Agency issued a Section 99E Consent Notice to Uisce Éireann on 29th November 2022, which was not required because there is no process effluent discharged to the sewer network on site (domestic foul and condensate from office building only). No monitoring of the overall sewer discharge is proposed.

6.3 Storm Water Discharges

There are two storm water discharge points – SW1 associated with Building 1 and SW2 associated with Building 2. Storm water discharges includes storm water from roofs, the road network, transformer bunds and hardstanding areas. A small amount of condensate from the air handling units in the office areas in Building 1 (approximately 3.5 m³/year), consisting of clean water, is also discharged via SW1.

There are a number of additional Class-1 interceptors across the stormwater drainage network, including Class 1 by-pass interceptors at the discharge points. Runoff from fuel unloading areas and transformer bunds at the substation pass through Class 1 full retention oil interceptors. Shut-off valves are installed on the drainage system in the fuel unloading areas. Stormwater in the transformer bunds (2 no.) is manually pumped from a sump into a gully through a full retention oil separator and into the stormwater system, if found to be uncontaminated during inspection.

Storm water discharge rate from Building 1 is attenuated by 2 no. attenuation tanks and 2 no. oversized pipes and controlled by a hydro brake and discharges at SW1 via a Class 1 by-pass oil interceptor and hydro-brake.

The stormwater drainage system at Building 2 includes a stormwater attenuation pond that provides flow attenuation prior to discharge. A petrol interceptor with an oil alarm, and a sluice gate valve is located at the outfall of the stormwater pond. The valve is connected to the fire alarm system at the installation and closes automatically in the

event the fire alarm is triggered. Stormwater from the attenuation pond discharges at SW2, which is fitted with a conductivity sensor to monitor the discharge continuously.

SW2 discharges to a public storm water sewer, which discharges to the Griffeen River and ultimately to the River Liffey approximately 5km north of the site.

Table 6.4 below gives details on the installation's storm water discharges to waters; the sources of potential contamination of these discharges, the type of on-site abatement, as well as details of the receiving water.

Table 6.4 Stormwater Discharge Point Details

Emission Reference	Monitored parameters (monitoring frequency)	Abatement	Drainage areas	Discharging to	Trigger levels established (Y)
SW1, SW2	SW1 - Visual (daily); pH, TOC, conductivity, temperature (weekly) SW2 - Visual (daily); pH, TOC, temperature (weekly) Conductivity (continuous)	Class I full retention separators on the internal storm water drains from the fuel unloading areas and transformer bunds. Class I by-pass separators on the storm water drains from internal hard standing areas. Interceptor at SW2 fitted with high level oil alarms connected to the building management system.	Buildings, site roads and walkways, car parks, generator yard, fuel unloading areas, substation	Griffeen River via a public storm water drain (SW2) or drainage ditch (SW1)	N. Required by RD.
Automatic diversion in place:	SW2 (Yes) Automatic sluice gate valve fitted to SW2 that can be shut off. SW1 (No) Manual shut off valves in fuel unloading areas for both SW1 and SW..				

The RD requires the applicant to maintain the storm water drainage system. The RD also requires that the storm water discharge is visually inspected daily and monitored for temperature, conductivity, total organic carbon (TOC) and pH, and any other parameters as required by the Agency, in accordance with Schedule C.2.3 *Monitoring of Storm Water Discharges*. The applicant has proposed continuous monitoring of conductivity at SW2.

It should be noted that the trigger values may be revised, to the satisfaction of the Agency under Condition 6 of the RD.

The RD contains standard conditions in relation to the storage and management of materials and wastes. The RD also requires that accident and emergency response procedures are put in place. The controls pertaining to accidents and emergencies are addressed in Prevention of Accidents section later in this report.

6.4 Noise

The installation is located within an industrial park and the lands surrounding the installation are mainly in commercial and retail uses, including several other data centres. There are several residential dwellings between 110 and 300 m south of the

site boundary along the Baldonnell Road. There are several residential properties located from 140 m west of the site boundary.

The primary source of noise is from the installation's building service plant (i.e. the AHU air intake and the AHU air exhaust) as well as the operation of the generators during testing and operation (generator air intake, generator air exhaust and generator engine exhaust).

In support of its licence application, the applicant has submitted a noise assessment in accordance with Agency's NG4¹ Guidance. A Baseline noise survey was conducted at six residential, noise-sensitive locations around the installation. The main source of noise at all these locations was road traffic.

The noise impacts from noise sources at the installation were assessed under three operating scenarios:

1. Normal operations: representative of the day to day operations whereby the energy demand of the data centre is provided from the national grid
2. Generator testing: Normal operations, with the addition of single generator (that closest to residential receptors) in operation as part of routine testing.
3. Representative of a situation whereby all generators are operated due to either a loss, reduction or instability of grid power supply, critical maintenance to power systems or a request from the grid operator to reduce demand on the grid.

Proprietary noise calculation software (Brüel & Kjær Predictor Type 7810) was used to quantify the noise level associated with the buildings.

Under Scenarios 1 and 2, the assessment demonstrated that noise from the activity can be compliant with the standard daytime, evening time and night-time limits at the boundary. However, under Scenario 3 (all generators operating), there is a possibility the installation would not be able to comply with the standard evening time (50 dB) and night-time limits (45 dB).

Agency guidance (NG4) states that where licensed sites with certain equipment which only operate in urgent events such as grid power failure (e.g. standby diesel generators), this equipment may be permitted to exceed standard noise limit values during such events.

However, given that the generators could be operated for an extended period it is considered that the standard noise limit values should apply at the noise-sensitive locations given their proximity (c. 120 m) to the installation boundary.

Based on the foregoing, the RD requires compliance with the standard noise emission limit values at noise-sensitive locations. Noise limits at sensitive receptors have been imposed by the planning authority. Imposition of standard noise limits by the Agency will achieve or surpass these limits.

As the noise levels under Scenario 3, (the worst-case scenario of all generators in operation) are predicted to lead to an exceedance of the standard noise limits at noise-sensitive locations, the RD includes a requirement on the applicant to prepare a

¹ Guidance Note for Noise: Licence Applications, Surveys and Assessments in Relation to Scheduled Activities (NG4) 2016

Noise Management Plan (Condition 6). The RD requires that the Noise Management Plan be implemented within six months of date of grant of the licence.

7 Waste generation

Given the nature of the activity waste generation is limited.

The categories of waste generated from the activity include general waste (c. 17.5 tonnes/annum), dry mixed recyclables (c. 6.5 tonnes/annum), food/organic waste (c. 7.5 tonnes/annum), waste oil (c. 4 tonnes/annum), commercial and industrial (e.g. timber and metal from minor works) (c. 5 tonnes/annum), batteries (c. 9 tonnes/annum), and waste electrical and electronic equipment (WEEE) (46 tonnes per annum). A full list of waste streams generated at the installation, and conditions under which such waste streams arise, have been provided in Attachment 8.1 of the application form.

The applicant applies measures at the installation for the prevention and/or minimisation of waste. Hazardous waste, such as waste oil from the maintenance of the generators is stored in drums as and when required, and these are kept in a bunded area until they are disposed of off-site by the licenced/permited contractor.

As evidenced in Attachment 8-2-1 of the application form, and in accordance with the waste hierarchy specified in the IED, waste management at the installation prioritises prevention over minimisation and disposal.

8 Energy Efficiency and Resource Use

The operation of the installation involves the consumption of fuel (primarily diesel) and electricity. Table 8.1 below provides the applicant's estimate of the maximum quantities of energy and resources that could be used.

Table 8.1: Energy and resource use at the installation

Resource	Quantity per annum
Electricity	241,700 MWh
Diesel	263 m ³
Public Water	2,600 m ³
Glycol	20 litres

The applicant employs a variety of technology to maximise the efficient use of energy within the installation, including a load management system, preventative maintenance on equipment, reuse of waste heat onsite, and efficient lighting systems. The energy management system is part of an ISO 50001:2018 certification held by the applicant.

In the application of BAT, Condition 7 of the licence provides for the efficient use of resources and energy in all site operations. It requires an energy audit to be carried out and repeated at intervals as required by the Agency, and the recommendations of the audit to be incorporated into the Schedule of Environmental Objectives and Targets as outlined in Condition 2 of the licence.

The Climate Action Plan² sets out a proposed pathway to meet the emission reduction target for the energy sector through a more rapid build out of renewables (wind and

² Climate Action Plan 2023, Changing Ireland for the Better.

solar power), increased storage and the deployment of zero-emissions gas. In the case of the electricity generation sector, the Climate Action Plan sets a target to reduce CO₂-eq. emissions from the sector by between 2 to 4 Mt CO₂-eq. by 2030, which is to be largely facilitated by increasing the share of renewable energy generation up to 80% by 2030.

The Government Statement on the Role of Data Centres in Ireland's Enterprise Strategy recognises data centres as core digital infrastructure for both Ireland's and Europe's digital economies, and for strengthening Ireland's position as a strategic international location for IT services. Government policy seeks to facilitate the 'twin transitions' of digitalisation and decarbonisation of our economy and society, and the RD has regard to the principles set out in the statement, in particular in relation to decarbonisation and energy efficiency. Condition 7 of the RD further supports National policy to reduce the emissions from the energy sector by requiring the applicant to carry out a feasibility study of opportunities to increase the use of solar power, sustainable biofuels and other renewable energy options including energy storage. The Energy Efficiency Directive 2012/27/EU (EED) mandates that large organisations complete energy audits. The SEAI manages and oversees compliance with Ireland's obligations under Article 8 of the EED. However, Condition 7 of the RD requires the applicant to carry out an audit of energy use and the energy efficiency of the site within one year of the date of grant of this licence and repeat the audit at intervals as required by the Agency.

As regards Ireland's commitments at EU and International level, this installation is covered by the EU Emissions Trading System (EU ETS) and operates under a GHG permit for its own direct emissions of CO₂.

9 Prevention of Accidents

A certain amount of accident risk is associated with the licensable activity. The table specifies the risks and associated safety measures relevant to this installation.

Potential accidents & measures for prevention/limitation of consequences	
Potential for an accident or hazardous/ emergency situation to arise from activities at the installation.	• Potential for fire, due to large quantities of diesel stored at the installation, leading to potential for emissions to air, water and/or soil and ground water. • Spillages/leaks due to accidents on-site. • Spills/leaks of oil or gas oil during storage, use or delivery. • Malfunction of the plant including generators, AHUs, etc., leading to the potential for fuel spills, or exceedances of the noise limits. • Failure of the hydrocarbon interceptors leading to discharges of contaminated storm water.
Preventative/Mitigation measures to reduce the likelihood of accidents and mitigate the effects of the consequences of an accident at the installation.	• Provision and maintenance of adequate bunding. Inspection system to detect leaks in over ground pipes carrying materials other than water. Testing of the integrity and water tightness of all tanks, bunding structures and containers every three years. • All diesel storage tanks are fitted with high/low level alarms, which alarm to central alarm system.

Potential accidents & measures for prevention/limitation of consequences	
	- Fuel delivery takes place within the designated unloading areas under a Standard Operating Procedure (SOP). The refuelling process SOP has been submitted in support of the application. - Operation and maintenance of plant and equipment carried out in line with manufacturer's recommendations. - Provision of spill kits and firefighting equipment. - The drainage sumps at the fuel unloading bays and in the bulk tank concrete bunds contain hydrocarbon detectors which automatically shutoff drainage from these sumps if diesel is detected in the sump. - Drainage from the diesel tank farm and transformer areas are equipped with a Class 1 full retention hydrocarbon interceptor.
Additional measures provided for in the RD	- Accident prevention and emergency response requirements (Condition 9). - Integrity of tanks to be assessed every 3 years and maintenance carried out as required (Condition 6). - Storm water discharge points to be visually monitored (Schedule C). - Firewater retention risk assessment (Condition 3).

The risk of accidents and their consequences, and the preventative and control measures listed in the table above, have been considered in full in the assessments carried out throughout this report.

Condition 9 of the RD requires procedures to be put in place to prevent accidents with a possible impact on the environment and to respond to emergencies so as to minimise the impact on the environment.

The installation is not a COMAH site, as the only substance which would be controlled under the COMAH Regulations (S.I. No. 209 of 2015) is diesel. The total amount of diesel stored at the installation is approximately 360 tonnes. Under the COMAH regulations the quantity of diesel which qualifies a given site for the application of lower-tier and upper-tier requirements is 2,500 tonnes and 25,000 tonnes respectively. Therefore, the quantity of diesel stored at the site does not exceed the thresholds of the COMAH Regulations.

10 Cessation of Activity

A certain amount of environmental risk is associated with the cessation of any licensable activity (site closure). For this installation the risks relate to the potential for soil, groundwater or surface water contamination.

The applicant has provided a list of measures to be taken in the event of site closure/cessation of activity. These measures are listed in Attachment 9.1 of the

application form. Condition 10 of the RD requires the proper closure of the activity with the aim of protecting the environment.

Baseline Report

Where an activity involves the use, production or release of Relevant Hazardous Substances, and having regard to the possibility of soil and groundwater contamination at the site of the installation, the IED requires operators to prepare a baseline report. A baseline screening assessment was undertaken by the applicant, in accordance with Stages 1 to 3 of European Commission Guidance³.

The screening assessment determined that, taking into account the type and quantity of substances used as part of the activity, the location of these substances on the site, in view of the soil and groundwater characteristics, and the measures to be taken to prevent accidents and incidents, the possibility of soil and groundwater contamination at the site of the installation is considered to be low. The site was historically used for agriculture prior to the development of the current installation.

Stormwater from the installation is diverted to an attenuation tank. The attenuation tank discharges to a stormwater sewer, and then to the River Griffeen (IE_EA_09L012100), which currently has a WFD status of 'poor'. The aquifer beneath the site, which is part of the Dublin Groundwater Body (IE_EA_G_008), is a locally important bedrock aquifer. The groundwater body is classified as 'good' for the purposes of the WFD, with a risk classification as 'under review'.

Sampling of groundwater during a 2013 site investigation referenced in the applicant's baseline screening report showed the groundwater to be of good quality, with the majority of parameters analysed below or within acceptable ranges of the Interim Guideline Values (IGV) published by the EPA and the Groundwater Threshold Values (GTV) set out in the European Communities Environmental Objectives (Groundwater) Regulations (S.I. 9 of 2010). Total coliforms showed values above the standards for both borehole locations, which was attributed to the former agricultural use of the site.

The activity will have one relevant hazardous substance – bulk storage of diesel, which is stored and managed within a bunded area, which will be subject to routine integrity testing and fitted with a high-level alarm. Considering the quantity of hazardous substances and the measures to be taken to prevent accidents and incidents, the possibility of soil and groundwater contamination from the activity is considered to be low.

In order to reduce the risk, the RD includes the following requirements:

- Appropriate bunding for tanks and drum storage areas, with routine integrity testing.
- Waste and hazardous materials are to be stored in designated areas and protected as may be appropriate against spillage and runoff.

The Agency is satisfied that a full baseline report (Stages 4 to 8) is not required. Nonetheless, upon cessation of the activity, Condition 10 of the RD requires the licensee to take certain measures to ensure that there is, to the satisfaction of the Agency, no remaining risk of environmental pollution at the site.

³ European Commission Guidance concerning baseline reports under Article 22(2) of Directive 2010/75/EU on industrial emissions.

It is in the applicant's interest to keep detailed records of operational practice such as inspections, maintenance, incidents, accidents and remediation under IED. The Agency's Office of Environmental Enforcement may refuse an application for surrender without detailed assessment and remediation proposals.

The RD requires that soil and groundwater monitoring for relevant hazardous substances be carried out every five years (groundwater) and ten years (soil) in accordance with IED requirements.

11 Fit & Proper Person

Technical Ability

The applicant has provided details of the qualifications, technical knowledge and experience of key personnel. The licence application also includes information on the on-site management structure. It is considered that the applicant has demonstrated the technical knowledge required.

Legal Standing

Neither the applicant nor any relevant person has relevant convictions under the EPA Act, or under any other relevant environmental legislation.

ELRA, CRAMP and Financial Provision

The proposed installation was assessed for the requirements of Environmental Liabilities Risk Assessment (ELRA), Closure, Restoration and Aftercare Management Plan (CRAMP) and Financial Provision (FP), in accordance with Agency guidance. Under this assessment it has been determined that ELRA, CRAMP and FP were not required.

Fit & Proper Conclusion

It is my view, that the applicant can be deemed a Fit & Proper Person for the purpose of this application.

12 Submissions

There was one submission made on this application.

Name & Position:	Organisation:	Date received:
Ms. Angela Deegan	Not Here Not Anywhere	03 May 2023
Issues raised: The submission objects to the granting of the licence on the following basis: 1. The application doesn't include the total installed capacity of the generators. 2. That because the generators 'would be run up to 500 hours annually' the amount of electricity that could be used at the installation is not known 3. That the development of 'new fossil fuel' infrastructure is not consistent with national climate targets commitments and targets regarding the reduction of fossil fuel use. 4. That there is a lack of transparency about the type of data stored at the installation and submits that energy should be conserved by prioritising data that is "business critical" over that which is not.		

5. That the applicant should be required to power the installation with renewable forms of energy from either on or off-site sources in addition to having reliable energy storage.

Agency Response:

1. The Agency decided that the capacity of individual combustion plant could remain confidential as the emissions and resources used are fully characterised and assessed in the application. However, the Agency did request that the range of the thermal input capacity for individual generators (1-5MW, 5-20MW, 20-50MW) be included. This was subsequently uploaded by the applicant on 05 April 2023 as 'Attachment-4-8-1-Operational Report_rev B'.
2. The purpose of the generators is to act as a backup when electricity supply from the grid is not available. As such this is included in the quantity stated in the application. The submission also states the generators would be licenced to run up to 500 hours annually. This is not the case. The RD restricts the operation of the generators to 150 hours per year and a small number of hours annually for testing and maintenance.
3. During 'normal' operations, the installation will be supplied with electricity from the national grid. Government policy in relation to the reduction in greenhouse gas emissions for the electricity sector will apply to the electricity supplied to the installation via the grid connection, and is subject to sectoral targets under the Climate Action Plan. The application is to operate existing generators for more hours than is currently permitted. The climate impacts are controlled under the Emissions Trading System (ETS). The installation operates under a greenhouse gas Emissions Permit in accordance with the European Communities (Greenhouse Gas Emissions Trading) Regulations 2012, (S.I. 490 of 2012 and amendments). A GHG permit, requires the operator to report each year all CO₂ emitted from the activity listed in the permit and surrender sufficient emissions trading allowances to cover the emissions of the previous calendar year. The quantity of allowances made available on the market is controlled at EU level and is reducing each year in order to ensure that overall emissions from the Emissions Trading System (ETS) sector meet the EU targets on reducing greenhouse gas emissions.
4. The nature and management of energy used to store data is outside the scope of the licence.
5. The Recommended Determination requires the licensee to examine the use of renewable forms of energy and to decrease or offset the use of fossil-fuel based energy at the installation (Condition 7).

13 Consultations

13.1 Cross Office Consultation

I consulted with Office of Environmental Enforcement in relation to the financial charges.

13.2 Transboundary Consultations

There were no transboundary consultations undertaken as there were no transboundary impacts identified.

14 Appropriate Assessment

Appendix 2 lists the European Sites assessed, their associated qualifying interests and conservation objectives. The applicant submitted an Appropriate Assessment Screening Report.

A screening for Appropriate Assessment was undertaken to assess, in view of best scientific knowledge and the conservation objectives of the site, if the activity, individually or in combination with other plans or projects is likely to have a significant effect on any European Site. In this context, particular attention was paid to the European Sites at Rye Water Valley/Carlton SAC (Site Code: 001398), Glenasmole Valley SAC (Site Code: 001209), Wicklow Mountains SAC (Site Code: 002122), South Dublin Bay SAC (Site Code: 000210), North Dublin Bay SAC (Site Code: 000206), South Dublin Bay and River Tolka Estuary SPA (Site Code: 004024), and North Bull Island SPA (Site Code: 004006).

The activity is not directly connected with or necessary to the management of any European Site and the Agency considered, for the reasons set out below, that it can be excluded, on the basis of objective information, that the activity, individually or in combination with other plans or projects, will have a significant effect on any European Site and accordingly determined that an Appropriate Assessment of the activity was not required.

This determination has been made in light of the following reasons:

- The installation is located in a business park and is not within a European Site.
- In addition to stormwater runoff from building roofs and hardstanding areas, there are emissions to surface water of condensate from fan coil units at Building 1. There is an indirect hydrological connection to the European sites at Dublin Bay. The surface water is discharged to a tributary of the Griffeen River (Water Framework Directive Code: IE_EA_09L012100) which ultimately connects to the River Liffey and to Dublin Bay >20km downstream of the installation. Taking into account the nature of these emissions and the distance downstream it is considered that these emissions will not have a significant effect on European Sites at Dublin Bay.
- Emissions to sewer (other than sanitary effluent) consist of condensate from the air handling units. This effluent is discharged to sewer and ultimately treated in the EPA licensed Ringsend WWTP (Register Number D0034-01) which is designed to provide secondary treatment with a plant capacity of approximately 1,640,000 population equivalent which is currently exceeded at the plant. Treated effluent from the Ringsend WWTP is discharged to the Liffey Estuary Lower. According to EPA Maps, the Transitional Waterbody Water Framework Directive (WFD) Status 2016-2021 for Liffey Estuary Lower is Moderate. The Coastal Waterbody WFD Status 2016-2021 for Dublin Bay is Good. Taking into account the nature and volume of the discharge from the installation, it is

considered that it will not indirectly have a significant effect on European Sites in the vicinity of the WWTP Discharge in Dublin Bay.

- Air dispersion modelling submitted by the applicant demonstrates that European Sites and their qualifying interests will not be adversely affected by air emissions arising at the installation with the closest European Site being > 5kms away (Rye Water Valley/Carton SAC). Emissions to air consist of combustion emissions from the backup diesel generators (24 no.) and emergency diesel fire pump engines and fuel vapour emissions from the diesel storage tank vents.
- There are no direct process emissions to ground or groundwater from the installation.
- Given the nature and scale of emissions, it is considered that the activity in combination with other plans or projects will not have a significant effect on European Sites.

15 Environmental Impact Assessment

15.1 EIA Introduction

The application was accompanied by an Environmental Impact Statement (EIS) associated with planning permission ref. no. SD14A/0023. The EIS submitted with this application is the same EIS submitted to the Planning Authority as part of planning application SD14A/0023 and was submitted to the planning authority prior to 15 May 2017. Therefore, this assessment is being undertaken in accordance with the requirements of *Directive 2011/92/EU on the assessment of the effects of certain public and private projects on the environment*.

As part of this environmental impact assessment, I have carried out an examination, analysis and evaluation of all the information provided by the applicant (including the EIS), any information received through consultation, the documents associated with the assessments carried out by the planning authority (South Dublin City Council), and its reasoned conclusion and the issues that interact with the matters that were considered by that authority and which relate to the activity, as well as considering any supplementary information, where appropriate. All of the documentation received was examined and I consider that the EIS complies with the provisions of Article 5 of the 2011 EIA Directive when considered in conjunction with the additional material submitted with the application.

I am satisfied that the environmental effects arising as a consequence of the activity have been satisfactorily identified, described and assessed.

Having specific regard to EIA, this Inspector's report as a whole is intended to identify, describe and assess for the Agency the likely significant direct and indirect effects of the activity on the environment, as respects the matters that come within the functions of the Agency, for each of the following environmental factors: human beings, fauna and flora, soil, water, air, climatic factors, the landscape, material assets and cultural heritage.

This Inspector's report addresses the interaction between those effects. The cumulative effects, with other developments in the vicinity of the activity have also been considered, as regards the combined effects of emissions. In addition, the vulnerability of the activity to risks of major accidents and/or disasters has been

considered. The mitigation measures proposed to address the range of predicted significant effects arising from the activity have been outlined. This Inspector's report provides conclusions to the Agency in relation to such effects.

I am satisfied that the public have been given early and effective opportunity to participate in the environmental decision-making process.

15.2 Consultation with Planning Authorities in relation to EIA

Consultation was carried out between South Dublin County Council and the Agency on 30 November 2022 and a reminder issued on 26 January 2023 under the relevant section of the EPA Act. South Dublin County Council did not provide any observations to the Agency on the licence application and EIS.

15.3 Alternatives

The matter of alternatives is addressed in Chapter 3 of the EIS, as well as in other application documentation (namely licence application attachment 4.8.1 operational report and attachment 4.7.1c BREF Economic and cross media effects), addressing alternative locations, site design/layouts, energy systems and processes/technologies.

The EIS examined the rationale for selecting Ireland as the preferred location for the data centre, which includes the climatic conditions, as data centres in Ireland require far less air conditioning and temperature control systems in contrast to countries with a warmer climate. Therefore data centres in Ireland have a lower demand on power, thereby reducing the environmental effects of the development, when compared with other countries.

The EIS detailed the applicants reasoning for choosing the preferred location within Ireland, including the need for additional capacity at the applicant's existing data centre building at the site. It details the applicant's selection of Grange Castle as the chosen location, and the low environmental sensitivity of the area given the immediate area surrounding the site is industrial. Other considerations included availability of a suitable power supply and infrastructure, natural heritage, environmental considerations such as noise, air quality, visual impact and traffic, flooding, zoning, and access to good water, wastewater and road infrastructure.

In this regard I consider that the matter of the examination of alternatives has been satisfactorily addressed.

15.4 Likely Significant Direct and Indirect Effects

The likely significant direct and indirect effects of the activities on the following factors as set out in Article 3 of the EIA Directive are considered in this section:

- (a) *human beings, fauna and flora;*
- (b) *soil, water, air, climate and the landscape;*
- (c) *material assets and the cultural heritage;*
- (d) *the interaction between the factors referred to in points (a), (b) and (c).*

15.4.1 Human Beings

Identification, Description and Assessment of Effects

Human Beings are addressed in Chapter 4 of the EIS. The installation is located in the Grange Castle Business Park South, to the west of Clondalkin village, Dublin. The immediate area is dominated by other industrial and commercial businesses in the industrial park. The closest residential properties are a number of residential dwellings located between 110 and 300 m to the west and south of the installation boundary along the Baldonnel Road.

The potential direct and indirect effects on human beings that come within the functions of the Agency, are associated with emissions to air, noise emissions, storm water discharges to water, and accidental emissions. Should emissions cause an exceedance of environmental quality standards, this could have implications for human beings.

The main emissions from the installation are emissions to air from the generators, noise emissions, and storm water discharges. There are emissions to air (NO₂, CO, SO₂ and particulate matter) from the generator stacks when in operation (which occurs in the circumstances outlined earlier in this report). The primary sources of noise are the installation's building service plant and operation of the generators. Storm water runoff (including some of the condensate water associated with the air cooling processes) are directed to the stormwater system, from where they ultimately discharge to the Griffeen River (a tributary of the River Liffey). It is not considered that these storm water discharges are likely to have a significant effect on the receiving water.

Air dispersion modelling submitted by the applicant assessed potential effects on air quality arising from the installation alone and as part of a cumulative assessment. It is considered that there is a potential for a significant cumulative effect on air quality as described below. There is also the potential for significant effects on human beings in relation to noise for the scenario of all generators in operation. The effects identified and described above have been assessed in the following section of this report:

- Emissions to Air;
- Storm water discharges;
- Noise; and
- Prevention of Accidents.

There is also the potential for accidental emissions to the environment, due to fire, explosion, or spillages. Accidental emissions to air, water or ground could occur in the event of a spill of chemicals, fuels, oils/lubricants, or due to a fire or explosion causing air pollution or soil, groundwater or surface water contamination, or due to plant malfunction causing an exceedance of noise limits. These aspects are addressed in 'Prevention of Accidents' section of this report.

Cumulative effects of the activity in relation to human beings have been assessed. There is a potential for an exceedance of air quality standards for human beings, from the installation alone and when generators across several of the data storage installations in the vicinity are operating simultaneously. There is also a potential for a significant cumulative effect in relation to noise emissions from the activity and other activities/developments.

In addition to imposing operating restrictions on the on-site generators; the RD requires an Ambient Air Quality Monitoring Programme, establishing ambient air quality trigger levels and an associated response programme to ensure there is no

exceedance of Air Quality Standards. The RD requires the applicant to prepare a noise management plan with actions to ensure compliance with noise limits set out in the RD (which specifies day, evening and night-time limits to be met at noise-sensitive locations).

Mitigation and Monitoring

Mitigation measures and monitoring in relation to human beings are detailed in the following sections of this report:

- Emissions to Air;
- Storm water discharges;
- Noise; and
- Prevention of Accidents.

Conclusions

I have examined all the information on human beings, provided by the applicant, any information received through consultations and written submissions, as well as considering any supplementary information, where appropriate. I am satisfied that the potential effects identified will be avoided, managed and mitigated by the measures identified and through the proposed conditions of the Recommended Determination. I am, therefore, satisfied that the operation of the activity is not likely to have any unacceptable direct or indirect effects in terms of human beings.

15.4.2 Fauna and Flora

Identification, Description and Assessment of Effects

Fauna and flora are addressed in Chapter 8 of the EIS. The applicant also submitted an Appropriate Assessment Screening Report (Refer to the 'Appropriate Assessment' section of this report). The EIS (2014) and AA screening report (2022) describe the habitats and species at and in the vicinity of the installation and includes habitat surveys (undertaken in 2013 and 2019), information on designated conservation areas (protected areas), non-designated habitats (drainage ditches / dry meadows and grassy verges / hedgerows / recolonising bare ground / buildings and artificial surfaces), fauna (mammals and birds). The 2013 site surveys recorded the presence of a barn owl, a buzzard and a small number of bats, however there were no suitable roosting or nesting sites available within the site. During the 2019 site surveys and examination of records for the area within the installation boundary, no Annex I habitats were present, no protected plant species were present, no invasive plant species were present, no special conservation interest bird species (nor suitable habitat) were present, and no terrestrial mammal European sites qualifying interest species (or suitable habitat) were present.

The installation is located within a c. 8 ha site in an industrial park with the site already operating as a data centre, and so consists mainly of developed land. The closest Natural Heritage Area is the Grand Canal proposed Natural Heritage Area (pNHA) (Site code 002104) approximately 1.4 km to the north of the installation boundary. The closest European sites are more than 5 km away. The applicant submitted an Appropriate Assessment Screening Report. Refer to the 'Appropriate Assessment' section of this report in relation to European Sites.

There are no natural watercourses within the installation boundary, with the closest watercourses being a tributary of the Griffeen River (Milltown Stream IE_EA_09L012100) c. 50 m northwest of the installation. There are no process

emissions to surface waters from the installation, other than the condensate water (Building 1) which is discharged to the storm water drainage network. It is considered that the storm water discharges (including condensate water) are not likely to have a significant effect on the receiving water. Refer to the 'storm water discharges' section earlier in this report, and the 'Water' sub-section within the EIA section (later in this report).

The potential direct and indirect effects are related to effects on flora and fauna and their habitats due to air emissions (including NO_x and nitrogen deposition), effects on aquatic flora and fauna and their habitats due to effects on water quality, and disturbance to fauna (such as mammals and birds) due to noise emissions from the operation of the activity.

Emissions to air arise from the combustion of fuel (diesel) by the generators. The 'emissions to air' section of this report addresses air emissions and includes air dispersion modelling, including an assessment on potential impacts on ecosystems. Air dispersion modelling indicates that the installation alone could contribute 2.8% and 2.1% of the air quality standard for vegetation/protection of ecosystems (annual mean 30 µg/m³ for NO_x (NO+NO₂)) at the closest ecological sensitive receptors (Grand Canal pNHA approximately 1.4 km away and Rye Water valley/Carton SAC approximately 5 km away) respectively. SO₂ and PM₁₀ emissions modelled by the applicant indicate contributions from the installation of less than 1% of the AQS for the protection of ecosystems at the above ecologically sensitive receptors. Therefore the contributions from the installation are not considered to be significant.

Noise emissions from the operation of the activity are assessed in the 'noise' section of this report. There is no potential for significant effects on fauna and flora due to air or noise emissions.

There is no evidence of any soil or groundwater contamination at the site of the installation. Therefore the risk to the nearest surface water is considered low. Refer to the 'Cessation of Activity' section of this report for further detail on this.

The effects identified and described above have been assessed in the following sections of this report:

- Emissions to Air;
- Storm water discharges;
- Noise;
- Prevention of Accidents; and
- Appropriate Assessment.

There is also the potential for accidental emissions to the environment, due to fire, explosion, leaks or spillages. Accidental emissions to air, water or ground could occur in the event of a spill of chemicals, fuels, oils/lubricants, or due to a fire or explosion causing air pollution or soil, groundwater or surface water contamination. These aspects are addressed in the 'Prevention of Accidents' and 'Cessation of Activity' sections of this report.

Cumulative effects of the activity in relation to fauna and flora have been assessed and it is considered that there is not likely to be a significant cumulative effect from the activity and other activities/developments. There are no likely significant direct, indirect or cumulative effects identified.

Mitigation and Monitoring

Mitigation measures and monitoring in relation to fauna and flora are detailed in the following sections of this report:

- Emissions to Air;
- Storm water discharges;
- Noise;
- Prevention of Accidents; and
- Appropriate Assessment.

Conclusions

I have examined all the information on fauna and flora, provided by the applicant, any information received through consultations and written submissions, as well as considering any supplementary information, where appropriate. I am satisfied that the potential effects identified will be avoided, managed and mitigated by the measures identified and through the proposed conditions of the Recommended Determination. I am, therefore, satisfied that the operation of the activity is not likely to have any unacceptable direct or indirect effects in terms of fauna and flora.

15.4.3 Soil

Identification, Description and Assessment of Effects

Soil is addressed in Chapter 7 of the EIS. A description of the soil type, geology and hydrogeology are provided. Geotechnical investigations were carried out by the applicant in 2013, and it was found that the soil profile at the installation comprised of topsoil, made ground, glacial deposits (till, clay and bolder) and limestone bedrock.

The land surrounding the installation is a mixture of industrial, agricultural and residential, and the site is in an area zoned for development for enterprise and employment. Much of the surrounding lands are already commercial/industrial enterprises within the industrial park with some undeveloped land.

The topography of the site falls from south to north towards the Griffeen River. The site is in the catchment of the Liffey and Dublin Bay catchment, and the River Liffey sub-catchment (Liffey_SC_090).

The bedrock aquifer is classed by the GSI as 'Locally important aquifer – bedrock which is moderately productive only in local zones'. Groundwater Vulnerability is classed as 'Extreme Vulnerability'. The Dublin groundwater body (IE_EA_G_008) has 'Good' status (2016-2021) under the Water Framework Directive.

Historic soil/groundwater contamination could have potential effects on surface waters. However, a site investigation undertaken by the applicant has shown no evidence of contamination onsite. Soil samples were taken and analysed. The EIS states that "*the soils located onsite do not pose a significant or health risk and do not indicate any significant existing contamination on site*". A Baseline Report describing soil and groundwater conditions in relation to hazardous substances was submitted as part of the licence application. Details are provided in 'Cessation of Activity' section of this report.

The potential direct and indirect effects on soil are associated with emissions to air, emissions to water, and accidental emissions. Should emissions cause an exceedance

of environmental quality standards, this could have implications for land and soil. The effects identified and described above have been assessed in the following section of this report:

- Storm Water Discharges;
- Prevention of Accidents; and
- Cessation of Activity.

There is also the potential for accidental emissions to the environment, due to fire, explosion, leaks or spillages. Accidental emissions to air, water or ground could occur in the event of a spill of chemicals, fuels, oils/lubricants, or due to a fire or explosion causing air pollution or soil, groundwater or surface water contamination. These aspects are addressed in the 'Prevention of Accidents' and 'Cessation of Activity' sections of this report

Cumulative effects of the activity in relation to soil have been assessed and it is considered that there is not likely to be a significant cumulative effect from the activity and other activities/developments. There are no likely significant direct, indirect or cumulative effects identified.

Mitigation and Monitoring

Mitigation measures and monitoring in relation to land and soil are detailed in the following sections of this report:

- Storm Water Discharges;
- Prevention of Accidents; and
- Cessation of Activity.

Conclusion

I have examined all the information on soil, provided by the applicant, any information received through consultations and written submissions, as well as considering any supplementary information, where appropriate. I am satisfied that the potential effects identified will be avoided, managed and mitigated by the measures identified and through the proposed conditions of the Recommended Determination. I am, therefore, satisfied that the operation of the activity is not likely to have any unacceptable direct or indirect effects on land and soil.

15.4.4 Water (including Waste Water, Emissions to Sewer, Storm Water, Emissions to Ground)

Identification, Description and Assessment of Effects

Water is addressed in Chapter 10 of the EIS.

There are no natural watercourses within the installation boundary. A tributary of the Griffeen River (Milltown Stream IE_EA_09L012100) is c. 50m northwest of the installation, which flows northerly joining the River Liffey (IE_EA_09L012100) approximately 5 km downstream. The River Liffey and Griffeen river both have 'poor' status under the Water Framework Directive for 2016-2021 (WFD status data from www.epa.ie). Urban run-off and urban waste water are identified by the EPA as pressures on the segment of the Griffeen River (Milltown Stream) in the industrial estate.

The groundwater body underlying the site is the Dublin Groundwater body (IE_EA_G_008). Under the Water Framework Directive 2016-2021, the groundwater is of "Good status".

The EIS included a flood risk assessment and states that the potential risk of flooding at the installation is low.

The potential direct and indirect effects on water relate to discharge of storm water (including the office building condensate) to surface water and accidental emissions. Should emissions cause an exceedance of water quality standards in the receiving water, this could have potential effects on water quality, aquatic biodiversity and human health.

All storm water (which includes the office building condensate) is diverted to the onsite attenuation pond or tanks prior to discharge. The only discharge to water is a combination of stormwater runoff from hardstanding areas, roofs and other impermeable surfaces, and uncontaminated condensate water. This will discharge to water at two locations (SW1 and SW2); to an existing stormwater drain via an attenuation pond (SW-2) or via attenuation tanks with hydrobrake (SW1); to the Griffeen River. It is not considered that these storm water discharges are likely to have a significant effect on the receiving water.

There are two emissions to sewer (one from each of the two buildings); that from Building 1 is comprised from domestic use (office / canteen /meeting rooms); and that from Building 2 is comprised of the stormwater arising from the transformer compound and control building areas and the condensate from the small air handling units in the offices of Building 2. The applicant holds a consent from Uisce Éireann (Ref. No. IW-FOG-757708-01) to discharge trade effluent (canteen waste) to sewer from Building 2. Emissions to sewer are not included in the RD as they are not process emissions from the activity. A Section 99E consent is not required. There are no direct emissions to ground or groundwater.

The effects identified and described above have been assessed in the following sections of this report:

- Storm water discharges;
- Emissions to Water/Sewer
- Waste Generation;
- Prevention of Accidents; and
- Cessation of Activity.

There is also the potential for accidental emissions to surface water, groundwater or sewer in the event of a fuel or chemical spill as a result of bund failure, or fire or explosion, with the potential to affect surface water/groundwater quality as well as aquatic habitats and species. However, the likelihood of accidental emissions to water is considered low in light of the measures outlined in the 'Prevention of Accidents' section of this report and in light of the conditions in the RD. This is addressed in the 'Prevention of Accidents' section of this report.

Cumulative effects of the activity in relation to water have been assessed and is considered that there is not likely to be a significant cumulative effect from the activity and other activities/developments. Therefore, there are no likely significant direct, indirect or cumulative effects identified.

Mitigation and Monitoring

Mitigation measures and monitoring in relation to water are detailed in the following sections of this report:

- Storm water discharges;
- Emissions to Water/ Sewer
- Waste Generation;
- Prevention of Accidents; and
- Cessation of Activity.

Conclusions

I have examined all the information on water (including Waste Water, Emissions to Sewer, Storm Water,) provided by the applicant, any information received through consultations and written submissions, as well as considering any supplementary information, where appropriate. I am satisfied that the potential effects identified will be avoided, managed and mitigated by the measures identified and through the proposed conditions of the Recommended Determination. I am, therefore, satisfied that the operation of the activity is not likely to have any unacceptable direct or indirect effects on water.

15.4.5 Noise and Vibration

Identification, Description and Assessment of Effects

Noise and vibration are addressed in Chapter 9 of the EIS. Noise is also addressed in Attachment 7.1.3.2 of the application form (Emissions Impact Assessment). The installation is located in a mainly industrial area. The nearest noise-sensitive locations are detailed in the 'noise' section of this report and include a number of residential dwellings located along the Baldonnel Road to the west and south of the site boundary (110 – 300 m from the site boundary).

The potential direct and indirect effects of the activity are mainly noise associated with the operation of the air handling units and the generators. Noise arising from the installation could have the potential to cause nuisance for those living near the activity or to affect noise-sensitive species.

The application states that the installation has been designed to minimise noise emissions, that low noise equipment has been selected where practical and that noise attenuation has been incorporated into the design of the generators. However, as described below it is evident that the installation would not be able to comply with the standard evening time (50 dB) and night-time limits (45 dB).

The applicant has carried out a noise assessment, which included noise monitoring at noise-sensitive locations, when the generators are not in use, as well as noise modelling to predict impacts of noise sources from the installation when generators are operating. The noise assessment was based on the application of different noise limits dependent on time of day (daytime, evening or night-time limits). The noise monitoring demonstrated compliance when the generators were not in use.

Noise impacts were assessed for a number of scenarios related to operation of the installation. The assessment indicated that the applicant could not comply with evening

and night-time limits (50 dB and 45 dB respectively) at the installation boundary under Scenario 3 (all generators in operation at one time). Therefore, there is the potential for significant effects, noting that the nearest residential property is c. 110 m from the installation boundary. The RD requires the applicant to prepare and submit a Noise Management Plan with actions to ensure compliance with noise limits set out in the RD (which specifies day, evening and night-time limits) to be met at noise-sensitive locations.

The effects have been assessed in the following sections of this report:

- Noise.

Vibration due to operation of the activity is considered not likely to have a significant effect.

There is the potential for accidental noise and vibration emissions due to an explosion causing loud noise. This is addressed in 'Prevention of Accidents' section of this report.

Information in relation to cumulative effects of the activity regarding noise have been provided by the applicant, and background levels of noise were taken into account. It is considered that there is the potential for significant cumulative effects relating to noise when the generators are in operation, taking into account the location of the nearest residential dwellings.

Mitigation and Monitoring

Mitigation measures and monitoring in relation to noise are detailed in the following section of this report:

- Noise.

Conclusions

I have examined all the information on noise and vibration provided by the applicant, any information received through consultations and written submissions, as well as considering any supplementary information, where appropriate. I am satisfied that the potential effects identified will be avoided, managed and mitigated by the measures identified and through the proposed conditions of the Recommended Determination. I am, therefore, satisfied that the operation of the activity is not likely to have any unacceptable direct or indirect effects in terms of noise and vibration.

15.4.6 Air (including Dust and Odour)

Identification, Description and Assessment of Effects

Air is addressed in Chapter 11 of the EIS. Emissions to air are also addressed in Attachment 7.1.3.2 of the application form (Emissions Impact Assessment).

The potential direct and indirect effects on air are associated with emissions to air (Oxides of Nitrogen (NO_x), Oxides of Sulphur (SO_x) Carbon Monoxide (CO) and particulate matter) from the generator stacks due to combustion of diesel. There is also the potential for indirect effects on habitats due to nitrogen deposition as a result of NO_x emissions to air and nitrogen deposition.

Should emissions cause an exceedance of Air Quality Standards this could have implications for air quality, human beings and flora and fauna within and beyond the installation boundary. General site dust and odour emissions have the potential to

impact human health and cause nuisance, however, the activity will not be a significant source of odour or dust.

The applicant carried out air dispersion modelling to predict the impact of emissions from the generators (NO₂, SO₂ and PM₁₀) on ambient air concentrations. The dispersion modelling submitted assessed potential effects on air quality arising from the installation alone and as part of a cumulative assessment. The results were compared to relevant air quality standards for the protection of human health and for the protection of vegetation/habitats. Impacts from the installation on the closest ecologically sensitive receptors (Grand Canal pNHA and Rye Water valley/Carton SAC) are not considered significant (as outlined earlier in the 'Emissions to air' and 'Fauna and Flora' sections of this report). However, as detailed in the 'Emissions to Air' and 'Human Beings' sections of this report, there is potential for an exceedance of air quality standards for human health when the generators are operating. Therefore, it is considered that there is a potential for a significant cumulative effect from the activity individually and in combination with other activities/developments.

The effects identified and described above have been assessed in the following section of this report:

- Emissions to Air.

There is also the potential for accidental air emissions to the environment. Accidental emissions to air could occur in the event of a fire or explosion causing air pollution, including dust and odour. This is addressed in the 'Prevention of Accidents' section of this report.

As outlined in the 'Emissions to Air' section of this report, there are a number of EPA licensed sites and licensable sites within 1 km of the installation. Cumulative effects of the activity in relation to air have been assessed and these have been considered as part of a cumulative assessment. There is a potential for an exceedance of air quality standards from the installation alone and when generators across several of the data storage installations in the vicinity are operating simultaneously. Therefore, it is considered that there is a potential for a significant cumulative effect from the activity and other activities/developments. See the 'Emissions to Air' section of this report. In addition to imposing operating restrictions on the on-site generators; the RD requires an Ambient Air Quality Monitoring Programme, establishing ambient air quality trigger levels and an associated response programme to ensure there is no exceedance of Air Quality Standards.

Mitigation and Monitoring

Mitigation measures and monitoring in relation to air are detailed in the following sections of this report:

- Emissions to Air.

Conclusions

I have examined all the information on Air (including Dust and Odour) provided by the applicant, any information received through consultations and written submissions, as well as considering any supplementary information, where appropriate. I am satisfied that the potential effects identified will be avoided, managed and mitigated by the measures identified and through the proposed conditions of the Recommended Determination. I am, therefore, satisfied that the operation of the activity is not likely

to have any unacceptable direct or indirect effects in terms of Air (including Dust and Odour).

15.4.7 Climate

Identification, Description and Assessment of Effects

Climatic factors are generally addressed throughout the EIS and in the sustainability report included as part of the EIS. Climate is further addressed in Attachment 7.1.3.2 of the application form (Emissions Impact Assessment). Climate change is a significant global issue which affects weather and environmental conditions (air, water, land and soil) which consequently affects human beings, material assets, cultural heritage, the landscape and fauna and flora. Climate change is caused by warming of the climate system by enhanced levels of atmospheric greenhouse gases (GHG) due to human activities. GHG's are carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), nitrogen trifluoride (NF₃) and sulphur hexafluoride (SF₆).

The Climate Action and Low Carbon Development (Amendment) Act 2021 set legally binding targets of a 51% reduction of greenhouse gas emissions by 2030 compared to 2018 levels, and net-zero emissions by 2050. The Climate Action Plan 2023⁴ sets out a proposed pathway to meet the emission reduction target for the energy sector through a more rapid build out of renewables (wind and solar power), increased electricity storage, and the deployment of zero-emissions gas. It states that in the short- and medium-term, new demand growth from large energy users, such as data centres, will have to be moderated to protect security of supply and ensure consistency with the carbon budget programme. Furthermore, the Government Statement on the Role of Data Centres⁵ in Ireland's Enterprise Strategy recognises data centres as core digital infrastructure for both Ireland's and Europe's digital economies and for strengthening Ireland's position as a strategic international location for IT services. Government policy seeks to facilitate the 'twin transitions' of digitalisation and decarbonisation of our economy and society. The RD requires the applicant to carry out a feasibility study of opportunities to decarbonise as detailed further down in this section of the report.

The potential direct effects on climate from the activity are from emissions from the combustion of diesel in the generators at the installation. Some F-gases are used on site for refrigeration in the air-cooling systems. F-gases are controlled under the F-Gas regulations (F-Gas Regulation (EU) No. 517/2014) and are not addressed in the RD. The potential indirect effects on climate are from the emissions associated with the generation of electricity taken from the national grid.

Direct effects on climate from the activity are from emissions from the combustion of diesel in the generators at the installation. The carbon dioxide (CO₂) emissions from the onsite generators are covered by the GHG permit issued by the EPA for the site (IE-GHG170-10431-4, originally issued in 2013 and last amended in 2019), required by the EU Emissions Trading System (ETS). The EU ETS covers emissions of CO₂ from power and heat generation. Verified CO₂ emissions from the installation were 321 tCO₂, 66 tCO₂, and 152 tCO₂, respectively in 2019, 2020 and 2021. Further details of historical CO₂ emissions from the installation can be found on the European Union

⁴ Climate Action Plan 2023, Changing Ireland for the Better. ([Error! Hyperlink reference not valid.](#))

⁵ Government Statement on the Role of Data Centres in Ireland's Enterprise Strategy, July 2022.

The use of the generators as proposed in the RD would be a transitional measure when there is a high risk of an outage occurring on the national grid and until such time as there is additional renewables on the National Grid. There will be an ongoing requirement for testing of the individual generators, but this has been the case prior to the licence application. Monitoring under the GHG Permit has shown that emissions are less than 1,000 tCO₂ per annum. Emissions of CO₂ from the installation could be up to approximately 717 tCO₂ per annum (calculated based on the applicant's estimated diesel usage of 262.64 m³ per annum). To put this in context, greenhouse gas emissions from the entire energy sector in 2021 were just over 10 million tonnes of CO₂ equivalent (EPA, 2022⁶).

Indirect emissions of CO₂ may arise due to the use of electricity from the national grid, if generated from fossil fuels, which will contribute to climate change. The applicant states that the installation will consume approximately 240,000 MW hours of electricity per year from the national grid. This equates to 83,472 tonnes of CO₂ per annum, based on an emission factor of 347.8g CO₂/kwh (SEAI 2021⁷), which is considered significant.

The 'Energy Efficiency and Resource Use' section of this report and the applicant's application documents provides information on the applicant's proposals in relation to energy efficiency.

The activity will result in a net increase in Ireland's CO₂ emissions and the impact of these direct and indirect emissions from the installation will contribute to climate change and therefore are considered significant. Furthermore, in relation to cumulative effects, it cannot be concluded that the combined greenhouse gas emissions from the installation and other sources will not have significant cumulative effects on climate.

It is considered that the likelihood of accidental emissions occurring which could affect climate is low in light of the measures outlined in the "Prevention of Accidents" section above and the proposed conditions in the RD.

The effects of emissions from the activity on climate will be mitigated as follows:

- The activity is required to operate under a greenhouse gas permit under the EU Emissions Trading System (EU ETS) Directive in accordance with the European Communities (Greenhouse Gas Emissions Trading) Regulations 2012 (S.I. 490 of 2012 and amendments). The installation operates under GHG Emissions Permit IE-GHG170-10431-4. The GHG permit does not cover emissions of gases other than carbon dioxide. The GHG permit does not set a limit on the quantity of CO₂ emitted by the installation. The operator must report each year all CO₂ emitted from the activity listed in the permit and surrender sufficient emissions trading allowances to cover the emissions of the previous calendar year. The quantity of allowances made available on the market or by free allocation is controlled at EU level and is reducing each year

⁶Ireland's Provisional Greenhouse Gas Emissions 1990-2021 (EPA, 2022). (https://www.epa.ie/publications/monitoring--assessment/climate-change/air-emissions/EPA-Ireland%27s-Provisional-GHG-Emissions-1990-2021_July-2022v3.pdf).

⁷ [Conversion Factors](#) | [SEAI Statistics](#) | [SEAI](#) (SEAI, 2022).

in order to ensure that overall emissions from the ETS sector meet the EU targets on reducing greenhouse gas emissions. As this site is part of the EU ETS, the impact of carbon dioxide emissions is addressed in that market-based scheme. A local impact on air quality from CO₂ is not expected and there is therefore no CO₂ limit in the Recommended Determination.

- The RD limits the number of generators that can operate at any one time, limits the operation hours of generators, and includes restrictions on testing of the generators.
- Whilst the activity requires a GHG permit, specific conditions on energy efficiency and a requirement for an energy audit within one year of the date of grant of the licence and periodically thereafter are included in Condition 7 of the RD.
- Any leakage of F-gases will be monitored and controlled under the F-Gas regulations (F-Gas Regulation (EU) No. 517/2014).
- Indirect emissions arising from the use of electricity from the national grid in the installation are also covered under the EU ETS Directive. These emissions are covered under the EU ETS at the electricity generating plant, but the applicant is also required to address electricity usage as part of energy efficiency management and report on the quantity of electricity used annually.
- The RD requires the applicant to address electricity usage as part of energy efficiency management under the Schedule of Environmental Objectives and Targets (Condition 2).
- Condition 7 further requires the applicant to carry out a feasibility study of opportunities to increase the use of solar power, sustainable biofuels, and alternative renewable energy sources including energy storage and to submit a report to the Agency within six months of the date of grant of the licence.

At a national level the direct and indirect effects of the activity on climate must be considered in the context of the wider electricity supply system. The generators are being put in place to provide capacity only in the event of a shortfall when renewable or other conventional generation is not available, or during testing. While there are national targets (as discussed above) and sectoral targets for the electricity sector, it is up to the electricity market to achieve these through the use of renewables and decarbonisation of the sector in accordance with the Climate Action Plan.

Mitigation and Monitoring

As listed in bullet points above the main mitigation measures and monitoring in relation to the effect of direct emissions on climate will be covered in the GHG permit for this installation. In addition, mitigation measures set out in the following sections of this report will also have a mitigating effect on both direct and indirect emissions:

- Emissions to Air;
- Prevention of Accidents; and
- Energy Efficiency and Resource Use.

Conclusions

I have examined all the information on climatic factors provided by the applicant, any information received through consultations and written submissions, as well as considering any supplementary information, where appropriate. I am satisfied that the potential effects identified will be avoided, managed and mitigated by the measures identified and through the proposed conditions of the Recommended Determination. I am, therefore, satisfied that the operation of the activity is not likely to have any unacceptable effects in terms of climatic factors.

15.4.8 The Landscape, Material Assets and Cultural Heritage

15.4.8.1 The Landscape

Identification, Description and Assessment of Effects

The Landscape is addressed in Chapter 5 of the EIS. The potential direct and indirect effects on the landscape are visual impacts, including the data centre buildings, generators including stacks, as well as associated infrastructure (roads, fencing, lighting, fuel stores and landscaping). Any disturbance of the landscape has the potential to impact on human beings and their enjoyment of the surrounding area due to visual impacts. These matters are dealt with in the decision of the planning authority to grant planning permission for the developments on site and it has considered the effects to be acceptable.

The installation is located in a mainly industrial area zoned for development. Emissions from the operation of the activity will not affect the landscape of the area.

No significant cumulative effects on the landscape have been identified

Therefore, there are no likely significant direct, indirect or cumulative effects identified.

Mitigation and Monitoring

There are no specific mitigation measures or monitoring proposed in the RD.

The Landscape Conclusions

The planning authority (South Dublin County Council planning permission ref. SD14A/0023) has identified, described and assessed the likely significant direct and indirect effects of the development on the landscape concluding that:

- *"It is acknowledged that the proposed data centre is of a very large scale and would represent a significant visual impact in comparison to the existing Greenfield nature of the site. However, the land is zoned for industrial purposes, as is a very substantial portion of land in the vicinity. The development of structures of large scale and massing must be expected on suitably zoned lands".*
- *"It is considered that with sufficient mitigation planting, the visual impact from the data centre would be acceptable, considering the zoning of the land".*
- *"Having regard to the existing data centre developments to the east and the EP2 zoning of the land as well as the details submitted relating to impact and management of noise, air and construction traffic, it is considered that subject to conditions, the proposed Data Centre by Google Ireland Ltd., would be acceptable and accord with Council policy, would not result in significant adverse impact on the residential amenity of dwellings in the vicinity, or impact negatively on the River Griffeen system and would therefore be in accordance with the proper planning and sustainable development of the area".*

The Recommended Determination does not propose to include any additional mitigation measures in relation to landscape.

15.4.8.2 Material Assets (including resource use and waste generation)

Identification, Description and Assessment of Effects

The EIS addresses Material Assets in Chapters 6 (roads and traffic), 13 (material assets) and 15 (interaction between environmental factors) and includes information on traffic, transport, infrastructure, property, and resources (both natural and others), such as energy and water.

The potential direct and indirect effects on material assets are the consumption of natural resources, in particular diesel and water. The estimated quantities of electricity, diesel and water used are provided in the 'Energy Efficiency and Resource Use' section of this report. The generators will operate solely on diesel and only during the circumstances outlined earlier in this report (i.e. outside of normal operating conditions), and the diesel is stored onsite. Usage will be dictated by the frequency of occurrence of these scenarios. The activity will also generate a certain amount of waste material and the potential amounts generated are listed in the licence application.

The use of natural resources by the activity and the generation of wastes will not have significant effects in terms of material assets.

The effects identified and described above have been assessed in the following section of this report:

- Waste Generation;
- Energy Efficiency and Resource Use; and
- Prevention of Accidents.

No significant cumulative effects on material assets have been identified.

Material assets such as roads and traffic and built services are dealt with in the decision of the Planning Authority (South Dublin County Council) to grant permission for the development. The Planning Authority has considered the effects to be acceptable.

No significant cumulative effects on material assets have been identified. Therefore, there are no likely significant direct, indirect or cumulative effects identified.

Mitigation and Monitoring

Mitigation measures and monitoring in relation to material assets are detailed in the following sections of this report:

- Waste Generation;
- Energy Efficiency and Resource Use; and
- Prevention of Accidents.

There are no specific mitigation measures or monitoring proposed in the RD.

Material Assets Conclusions

I have examined all the information on Material Assets provided by the applicant, any information received through consultations and written submissions, as well as considering any supplementary information, where appropriate. I am satisfied that the potential effects identified will be avoided, managed and mitigated by the measures identified and through the proposed conditions of the Recommended Determination. I am, therefore, satisfied that the operation of the activity is not likely to have any unacceptable direct or indirect effects in terms of Material Assets.

The planning authority (South Dublin County Council, planning permission ref. SD14A/0023) has also identified, described and assessed the likely significant direct and indirect effects of the development on material assets concluding that *"Having regard to the existing data centre developments to the east and the EP2 zoning of the land as well as the details submitted relating to impact and management of noise, air and construction traffic, it is considered that subject to conditions, the proposed Data Centre by Google Ireland Ltd., would be acceptable and accord with Council policy, would not result in significant adverse impact on the residential amenity of dwellings in the vicinity, or impact negatively on the River Griffeen system and would therefore be in accordance with the proper planning and sustainable development of the area"*.

15.4.8.3 Cultural Heritage

Identification, Description and Assessment of Effects

Cultural Heritage is addressed in Chapter 14 of the EIS, which provides information on potential direct and indirect effects on cultural heritage. Any loss of archaeological or architectural heritage could impact negatively on human beings. These matters are dealt with in the decision of the planning authority to grant planning permission for the developments on site and the planning authority has considered the effect to be acceptable.

The installation is an existing data centre, with buildings, infrastructure and hardstanding areas. The site, which is located within an established industrial park. There are a number of buildings or features of architectural significance and known archaeological features near the site of the installation. These are listed and discussed in the EIS, and include eight recorded archaeological monuments (two churches, two graveyards, two ecclesiastical enclosures, a font and a castle).

It is very difficult to envisage any pathway by which emissions from the operation of the activity could impact any feature which might be present.

No significant cumulative effects on the cultural heritage have been identified. Therefore, there are no likely significant direct, indirect or cumulative effects identified.

Mitigation and Monitoring

There are no specific mitigation measures or monitoring proposed in the RD.

Cultural Heritage Conclusions

The planning authority (South Dublin County Council, planning permission ref. SD14A/0023) has also identified, described and assessed the likely significant direct and indirect effects of the development on cultural heritage concluding that:

- *"In the event of discovery of material the developer would be obliged to stop works and contact the Department of Arts, Heritage and the Gaeltacht. This is considered sufficient"*.
- *"Having regard to the existing data centre developments to the east and the EP2 zoning of the land as well as the details submitted relating to impact and management of noise, air and construction traffic, it is considered that subject to conditions, the proposed Data Centre by Google Ireland Ltd., would be acceptable and accord with Council policy, would not result in significant adverse impact on the residential amenity of dwellings in the vicinity, or impact*

negatively on the River Griffeen system and would therefore be in accordance with the proper planning and sustainable development of the area”.

The Recommended Determination does not propose to include any additional mitigation measures in relation to cultural heritage.

Overall Conclusions for the Landscape, Material Assets, and Cultural Heritage

I have examined all the information on the landscape, material assets and cultural heritage provided by the applicant, any information received through consultations and written submissions, as well as considering any supplementary information, where appropriate. I am satisfied that the potential effects identified will be avoided, managed and mitigated by the measures identified. I am, therefore, satisfied that the operation of the activity is not likely to have any unacceptable direct or indirect effects in terms of the Landscape, Material Assets, and Cultural Heritage.

15.4.9 Interactions Between Environmental Factors

Interactions of effects are considered in Chapter 15 of the EIS. The most significant interactions between the factors as a result of the activity are summarised below:

Interaction between Human Beings, Flora and Fauna and Air Quality, Water, Soil, Material Assets and Climate: the activity will generate air pollutants that could have an effect on human health, flora and fauna including habitats and vegetation and all interrelated factors.

Interaction between Human Beings, Flora and Fauna and Noise: the activity has the potential to generate noise that could disturb fauna and have adverse impacts on human beings.

Interaction between Climate and all the other environmental factors: the activity will generate GHGs as discussed in the 'Climate' section of this report. The cumulative effects of GHG emissions from the installation will contribute to climate change which in turn will have significant effects on all interrelated environmental factors. Such effects are addressed in the 'climate' section of this report.

As demonstrated such effects are not considered to be unacceptable.

Conclusions

I have considered the interaction between human beings, flora and fauna, soil, water, air, climate, landscape, material assets, cultural heritage and the interaction of the likely effects identified throughout this report. I am satisfied that the potential effects identified will be avoided, managed and mitigated by the measures identified and through the proposed conditions of the Recommended Determination. I am, therefore, satisfied that the operation of the activity is not likely to have any unacceptable direct or indirect effects in terms of the interaction between the foregoing environmental factors.

15.4.10 Vulnerability of the Project to Risks of Major Accidents and/or Disasters

The EIS (generally throughout the document) and application documentation (non-technical summary and Attachment 9.1 Environment Management Techniques) describes the expected effects deriving from the vulnerability of the activity to risks of major accidents and/or disasters that are relevant to the activity.

Major accidents and/or disasters assessed by the applicant include: external natural disasters; flood risk; major accidents (fires and explosions); and minor accidents and spills/leaks. The potential for major accidents to occur at the data storage installation has also been considered with reference to Seveso Directive (2012/18/EU) and the Chemical Act (Control of Major Accident Hazards Involving Dangerous Substances) Regulations 2015 (S.I. 209 of 2015) (COMAH Regulations⁸).

External natural disasters are not likely to occur at the installation due to the topography and location. The potential risk of flooding on the site has been addressed by the applicant, and it has been determined that the installation would not adversely impact on the flood risk for other neighbouring properties.

Under the COMAH Regulations, the quantity of diesel which qualifies a given site for the application of lower-tier and upper-tier requirements is 2,500 tonnes and 25,000 tonnes respectively. Therefore, the quantity of diesel stored (360 tonnes) at the site does not exceed the thresholds of the COMAH Regulations.

It is further noted, under The COMAH Regulations 2015, that the installation is not located within the consultation distance of any COMAH site that is notified to the HSA.

The Inspector's assessment is dealt with in the 'Prevention of Accidents' section of this report.

Mitigation and Monitoring

The mitigation and monitoring measures in relation to the vulnerability of the project to risks of major accidents and disasters specified in the RD are outlined in the 'Prevention of Accidents' section of this report.

Conclusions

I have examined all the information on major accidents and/or disasters provided by the applicant, any information received through consultations and written submissions, as well as considering any supplementary information, where appropriate. I am satisfied that the potential effects identified will be avoided, managed and mitigated by the measures identified and through the proposed conditions of the Recommended Determination. I am, therefore, satisfied that the operation of the activity is not likely to have any unacceptable direct or indirect effects as a result of major accidents and/or disasters.

15.5 Reasoned Conclusion on the significant effects

Having regard to the examination of environmental information contained above, and in particular to the content of the EIS and supplementary information provided by the applicant and any submissions from the planning authority and third parties in the course of the application, it is considered that the potential significant direct and indirect effects of the activity on the environment are as follows:

⁸ Chemical Act (Control of Major Accidents Hazards involving Dangerous Substances Regulations 2015 (S.I. No. 209 of 2015)

- Effects on air quality due to emissions to air from generators through combustion of diesel;
- Noise emissions associated with the operation of the installation;
- Accidental emissions to air, surface water, ground or groundwater from fire, explosion, leaks or spillages;
- Storm water discharges (including condensate from office air cooling systems) to the Griffeen River; and
- Effects on climate due to the release of CO₂ emissions to air.

Having assessed those potential effects, I have concluded as follows:

- Emissions to air will be mitigated by imposing operating restrictions on the generators; through the requirement to establish an Ambient Air Quality Monitoring Programme, which includes establishing ambient air quality trigger levels and an associated response programme to ensure compliance with Air Quality Standards, and implementing other monitoring, maintenance and control measures;
- Noise emissions will be mitigated by imposing daytime, evening-time and night-time noise limits at noise-sensitive locations, the requirement to prepare and implement a Noise Management Plan, and monitoring, maintenance and control measures;
- Accidental emissions to air, surface water, ground or groundwater from fire, explosion, leaks or spillages will be prevented and mitigated through accident and emergency requirements, tank, container and drum storage requirements and inspection and integrity testing of pipes, tanks and bunds;
- Storm water discharges (including condensate from office air cooling systems) to the Griffeen River will be mitigated through the requirement for oil separators and silt traps, establishment and, maintenance of trigger levels and a response programme to address exceedances and visual inspection of storm water drains; and
- Effects on climate due to release of CO₂ emissions will be mitigated through the limitations on the generators, which includes an operating hour restriction, conditions relating to energy efficiency and alternative energy sources, and through the requirement to participate in the EU Emissions Trading System (ETS).

Having regard to the effects (and interactions) identified, described and assessed throughout this report, I consider that the monitoring, mitigation and preventative measures proposed will enable the activity to operate without causing environmental pollution, subject to compliance with the Recommended Determination. The conditions of the RD and the mitigation measures proposed will significantly reduce the likelihood of accidental emissions occurring and limit the environmental consequences of an accidental emission should one occur.

16 EPA Charges

The annual enforcement charge recommended in the RD is €5,446, which reflects the anticipated enforcement effort required and the cost of monitoring.

17 Recommendation

The Agency, in considering an application for a licence or the review of a licence, shall have regard to Section 83 of the EPA Act. The Agency shall not grant a licence or

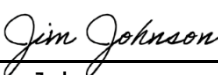
revised licence unless it is satisfied that emissions comply with relevant emission limit values and standards prescribed under regulation. In setting such limits and standards, the Agency must ensure they are established based on the stricter of both the limits and controls required under BAT, and those required to comply with any relevant environmental quality standard. The Agency shall perform its functions in a manner consistent with Section 15 of the Climate Action and Low Carbon Development Acts 2015 as amended.

The RD specifies the necessary measures to provide that the installation shall be operated in accordance with the requirements of Section 83(5) of the EPA Act, and has regard to the AA Screening and EIA. The assessment is consistent with Section 15 of the Climate Action and Low Carbon Development Plan 2015 as amended. The RD gives effect to the requirements of the EPA Act.

This report was prepared by Jim Johnson, Máire Buckley, Niamh Connolly and Philip Stack.

I recommend that a Proposed Determination be issued subject to the conditions and for the reasons as drafted in the RD.

Signed



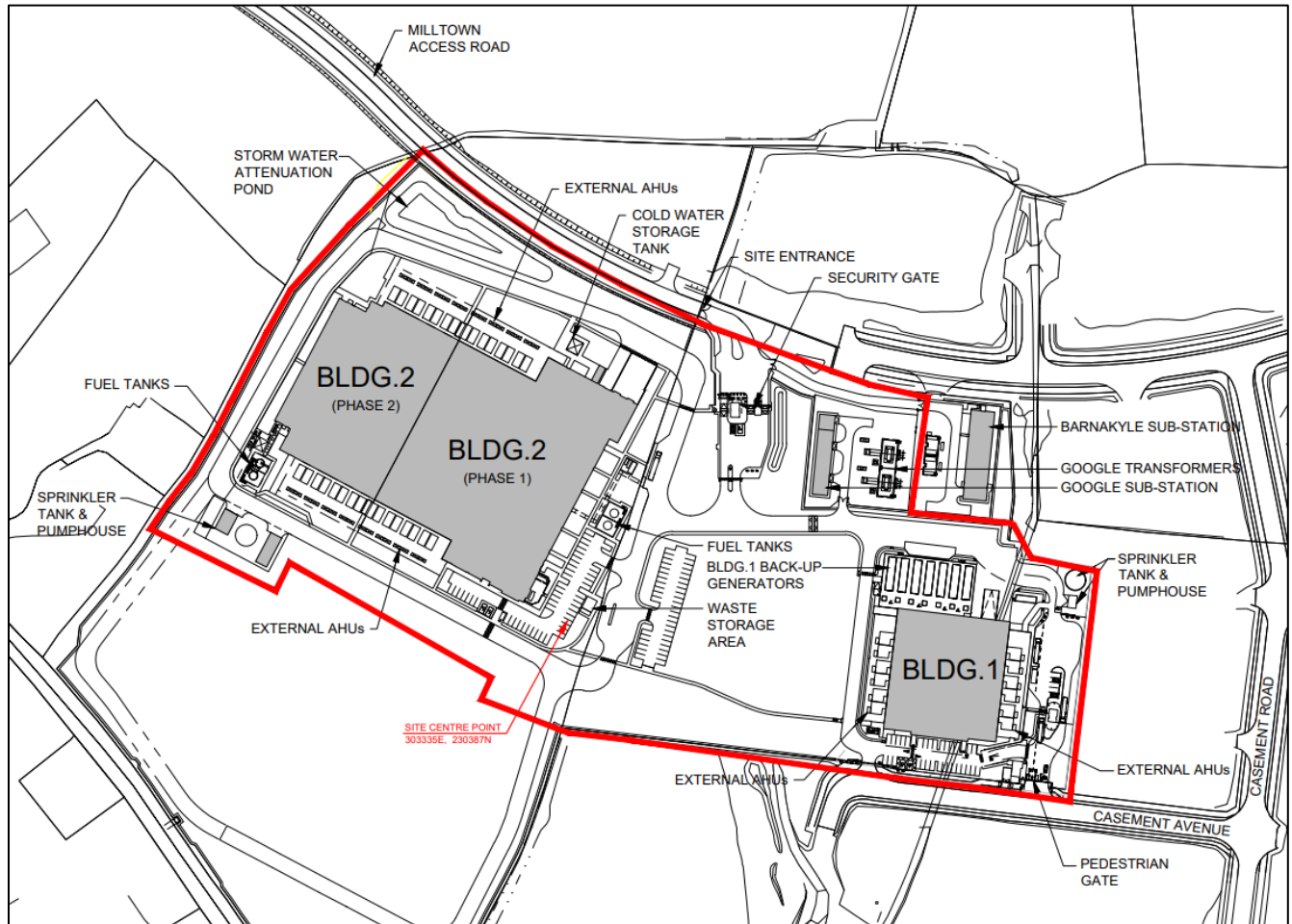
Jim Johnson

Procedural Note

In the event that no objections are received to the Proposed Determination on the application, a licence will be granted in accordance with Section 87(4) of the EPA Act, as soon as may be after the expiration of the appropriate period.

Appendices

Appendix 1: Site Layout



Detail from the drawing titled 'Site Plan', submitted as part of the licence application on 25 November 2022.

Appendix 2 Appropriate Assessment

Appendix 2: List of European Sites assessed, their associated qualifying interests and conservation objectives.

Site Code	Site Name	Qualifying Interests (* denotes a priority habitat)	Conservation Objectives
001398	Rye Water Valley/Carton SAC	Habitats 7220 Petrifying springs with tufa formation (Cratoneurion)* Species 1014 Narrow-mouthed Whorl Snail (<i>Vertigo angustior</i>) 1016 Desmoulin's Whorl Snail (<i>Vertigo moulinsiana</i>)	NPWS (2021) Conservation Objectives: Rye Water Valley/Carton SAC 001398. Version 1. National Parks and Wildlife Service, Department of Housing, Local Government and Heritage.
001209	Glenasmole Valley SAC	Habitats 6210 Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia) (* important orchid sites) 6410 Molinia meadows on calcareous, peaty or clayey-silt-laden soils (Molinion caeruleae) 7220 Petrifying springs with tufa formation (Cratoneurion)*	NPWS (2021) Conservation Objectives: Glenasmole Valley SAC 001209. Version 1. National Parks and Wildlife Service, Department of Housing, Local Government and Heritage.
002122	Wicklow Mountains SAC	Habitats 3110 Oligotrophic waters containing very few minerals of sandy plains (Littorelletalia uniflorae) 3160 Natural dystrophic lakes and ponds 4010 Northern Atlantic wet heaths with Erica tetralix 4030 European dry heaths 4060 Alpine and Boreal heaths 6130 Calaminarian grasslands of the Violetalia calaminariae 6230 Species-rich Nardus grasslands, on siliceous substrates in mountain areas (and submountain areas, in Continental Europe)* 7130 Blanket bogs (* if active bog) 8110 Siliceous scree of the montane to snow levels (Androsacetalia alpinae and Galeopsietalia ladani) 8210 Calcareous rocky slopes with chasmophytic vegetation 8220 Siliceous rocky slopes with chasmophytic vegetation 91A0 Old sessile oak woods with Ilex and Blechnum in the British Isles Species 1355 Otter (<i>Lutra lutra</i>)	NPWS (2017) Conservation Objectives: Wicklow Mountains SAC 002122. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs.
000210	South Dublin Bay SAC	Habitats 1140 Mudflats and sandflats not covered by seawater at low tide 1210 Annual vegetation of drift lines 1310 Salicornia and other annuals colonising mud and sand 2110 Embryonic shifting dunes	NPWS (2013) Conservation Objectives: South Dublin Bay SAC 000210. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.
000206	North Dublin Bay SAC	Habitats 1140 Mudflats and sandflats not covered by seawater at low tide 1210 Annual vegetation of drift lines	NPWS (2013) Conservation Objectives: North Dublin Bay SAC 000206. Version 1. National Parks and Wildlife

Site Code	Site Name	Qualifying Interests (* denotes a priority habitat)	Conservation Objectives
		1310 Salicornia and other annuals colonising mud and sand 1330 Atlantic salt meadows (<i>Glauco-Puccinellietalia maritima</i>) 1410 Mediterranean salt meadows (<i>Juncetalia maritimi</i>) 2110 Embryonic shifting dunes 2120 Shifting dunes along the shoreline with <i>Ammophila arenaria</i> (white dunes) 2130 Fixed coastal dunes with herbaceous vegetation (grey dunes)* 2190 Humid dune slacks Species 1395 Petalwort (<i>Petalophyllum ralfsii</i>)	Service, Department of Arts, Heritage and the Gaeltacht.
004024	South Dublin Bay and River Tolka Estuary SPA	Birds A046 Light-bellied Brent Goose (<i>Branta bernicla hrota</i>) A130 Oystercatcher (<i>Haematopus ostralegus</i>) A137 Ringed Plover (<i>Charadrius hiaticula</i>) A141 Grey Plover (<i>Pluvialis squatarola</i>) A143 Knot (<i>Calidris canutus</i>) A144 Sanderling (<i>Calidris alba</i>) A149 Dunlin (<i>Calidris alpina</i>) A157 Bar-tailed Godwit (<i>Limosa lapponica</i>) A162 Redshank (<i>Tringa totanus</i>) A179 Black-headed Gull (<i>Chroicocephalus ridibundus</i>) A192 Roseate Tern (<i>Sterna dougallii</i>) A193 Common Tern (<i>Sterna hirundo</i>) A194 Arctic Tern (<i>Sterna paradisaea</i>) Habitats A999 Wetlands	NPWS (2015) Conservation Objectives: South Dublin Bay and River Tolka Estuary SPA 004024. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.
004006	North Bull Island SPA	Birds A046 Light-bellied Brent Goose (<i>Branta bernicla hrota</i>) A048 Shelduck (<i>Tadorna tadorna</i>) A052 Teal (<i>Anas crecca</i>) A054 Pintail (<i>Anas acuta</i>) A056 Shoveler (<i>Anas clypeata</i>) A130 Oystercatcher (<i>Haematopus ostralegus</i>) A140 Golden Plover (<i>Pluvialis apricaria</i>) A141 Grey Plover (<i>Pluvialis squatarola</i>) A144 Sanderling (<i>Calidris alba</i>) A143 Knot (<i>Calidris canutus</i>) A149 Dunlin (<i>Calidris alpina</i>) A156 Black-tailed Godwit (<i>Limosa limosa</i>) A157 Bar-tailed Godwit (<i>Limosa lapponica</i>) A160 Curlew (<i>Numenius arquata</i>) A162 Redshank (<i>Tringa totanus</i>) A169 Turnstone (<i>Arenaria interpres</i>) A179 Black-headed Gull (<i>Chroicocephalus ridibundus</i>) Habitats A999 Wetlands	NPWS (2015) Conservation Objectives: North Bull Island SPA 004006. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.

Appendix 3: Relevant Legislation

The following European instruments are regarded as relevant to this application assessment and have been considered in the drafting of the Recommended Determination.
Industrial Emissions Directive (IED) (2010/75/EU)
Environmental Impact Assessment (EIA) Directive (2011/92/EU as amended by 2014/52/EU)
Habitats Directive (92/43/EEC) & Birds Directive (79/409/EC)
Water Framework Directive (2000/60/EC)
Waste Framework Directive (2008/98/EC)
Dangerous Substances Directive (2006/11/EC)
Medium Combustion Plant Directive (EU) 2015/2193
Air Quality Directives (2008/50/EC and 2004/107/EC)
Seveso Directive (2012/18/EU)
Energy Efficiency Directive (2018/2002/EU)
Environmental Liability Directive (2004/35/CE)
EU Directive 199/32/EC (Relating to a reduction in the sulphur content of certain liquid fuels and amending Directive 93/12/EEC)

Appendix 4: Acknowledgement and Attribution:

This report uses maps submitted as part of the application and map imagery as set out in **Table 1** below.

Map Source	Link to Source	Data Provider Note 1	Usage Licence	Attribution Statement	Location in Report
OpenStreetMap (EPA Maps)	Figure 1.1 https://gis.epa.ie/EPAMaps/default	Open Street Map	https://www.openstreetmap.org/copyright	Map Data: © OpenStreetMap contributors	1. Introduction