

***This Report has been cleared for submission to the Director by Senior Inspector,
Pamela McDonnell***

Signed: *Pamela McDonnell*

Date: 29/05/2023



**OFFICE OF ENVIRONMENTAL
SUSTAINABILITY**

**INSPECTOR'S REPORT ON AN INDUSTRIAL EMISSIONS LICENCE
APPLICATION, LICENCE REGISTER NUMBER P1170-01**

TO: GERARD O'LEARY, DIRECTOR

FROM: GREG BEECHINOR

DATE: 29TH MAY 2023

Applicant:	Amazon Data Services Ireland Limited
CRO number:	390566
Location/address:	Grange Castle South Business Park, Baldonnel Road, Dublin 22
Application date:	17 January 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
All relevant CIDs, BREF documents and National BAT notes are listed in Section 5 of this report.	
Activity description/background: Operation of generators at a data storage installation.	
Additional information received:	Yes (2 nd November 2022, 17 th November 2022, 30 th March 2023)
No of submissions received:	2
Environmental Impact Assessment required: Yes	Stage 2 Appropriate Assessment required: No
Environmental Impact Assessment Report submitted (EIAR): Yes (17-Jan-2022)	
Site visit: 28 th September 2022	Site notice check: 5 th February 2022

1. Introduction

Amazon Data Services Ltd, hereafter referred to as the applicant, currently operates a data storage installation on a 16.5 hectares site in Grange Castle South Business Park, Dublin 22. The site is bounded by Baldonnell Road to the west, by the old and new Nangor Road to the north, agricultural land and the Grange Castle Motor Company to the east and an access road off the Baldonnell Road into Grange Castle South Business Park to the south.

Large areas of the surrounding lands north and south of the site are within the Grange Castle Business Park and Profile Park which have been developed in the past 10-15 years and are occupied by industrial campuses including pharmaceutical, data centres and food manufacturing. The Google data centre campus is located to the south-east of the site and Cyrus One data storage facility, which is partly occupied by the applicant is located to the immediate south. To the immediate north of the site is the Microsoft data centre campus and the EdgeConneX data centre is located to the north west.

Once fully operational the data storage installation will contain three no. two storey data storage installation buildings which will serve as a centralised computer server system consisting of data halls which contain hundreds, if not thousands, of server units which host, manage and distribute electronic data.

The data storage buildings also include supporting mechanical and electrical rooms, as well as redundant systems for emergency back-up. Ancillary services include loading bays, maintenance and storage spaces, associated water tanks, diesel storage tanks, sprinkler tanks & pump house, security & utility spaces, foul sewer & stormwater drainage networks, and a stormwater attenuation system.

Once fully operational, there will be 70 no. 6.49 MW_{th} diesel generators, 3 no. 2.19 MW_{th} house generators, and 2 no. 0.57 MW_{th} diesel powered fire pumps. Given that the combined thermal input from the generators is 460.87 MW_{th}, this exceeds the 50 MW_{th} threshold of Class 2.1 of the First Schedule of the EPA Act 1992, as amended and therefore the applicant has applied to the Agency for an Industrial Emissions Licence.

2. Description of activity

Once fully constructed the site will consist of three two-story data storage buildings, Buildings A, B and C, with a gross floor area of 80,269sqm. Outside of normal operations, the installation is supplied electricity by some or all of the generators depending on the energy demand of the data centre.

The data centre is also protected from short-term black-outs by uninterruptable power supplies (UPSs). The UPS buffers small fluctuations in the power supply to the installation and in the event that the UPS detects an interruption in the power supply to the site or reduced power, the generators at the installation will start automatically to begin generating sufficient electricity to match the load demand required by each of the buildings. The UPS can supply power for a couple of minutes to allow time for the generators to come online. Currently there is no plan to export electricity from the site to the National Grid.

Building A – will have a gross floor area of 28,573sqm. Once fully constructed the building will have 26 no. 6.49 MW_{th} (thermal input) generators at ground level within a generator compound located on the northern side of the building. Flues associated with the generators will discharge at 25 m above ground. Construction commenced in Q2 2020, and will be completed in Q1 2024.

Building B – will be located to the immediate north of Building A, with a total gross floor area of 21,725sqm. There will be 18 no. generators located at ground floor level within a generator compound located to the north side of the data centre. Flues will discharge at 25m above ground. Construction on Building B is due to commence in Q2 2023, with the first data hall to be operational by Q2 2024 and all construction work is to be completed by Q4 2026.

Building C – will be the last of the three building to be constructed, and once constructed the total floor area will be 28,573sqm. It will include 26 no. generators located at ground level to the western side of the data centre building. The flues will discharge at 25m above ground. Construction will commence in Q1 2026, and construction work is expected to be completed by Q3 2028.

Each of the three data storage buildings will include data storage rooms, associated electrical and mechanical plant rooms, maintenance and storage spaces, office administration areas, PV panels at roof level, a 2.19 MW_{th} diesel generator for each data centre that will provide backup power to the administration and ancillary space. Each data centre building will also have its own individual diesel storage tank and refueling area.

In terms of cooling systems, the air handling units (AHUs) provide conditioned air to maintain temperature, relative humidity and pressurisation in the data halls. The AHUs can operate under two modes; Free Cooling and Evaporative Cooling. In the Free Cooling mode, fresh air from outside the building enters the data halls via external louvres. The air is warmed as it passes across the server racks in the data halls, and this air is either recirculated or exhausted to atmosphere by the exhaust fans located at roof level. Free Cooling is sufficient to cool the data halls for the majority of the time.

However, during periods of elevated ambient temperature (exceeding 30°C), then 'evaporative cooling' is required. 'Evaporative Cooling' utilises mains water (at ambient temperature) from the public water supply as the cooling medium. Air from outside the building is passed over the evaporative cooling pads which cools the incoming air before entering the data hall. The majority of the evaporative water is evaporated during this process.

3. Planning Status

A planning application have been made by the applicant for the area within the installation boundary. Details of the relevant planning application and permission have been provided in the application form. Planning permission for the data centre development was granted by South Dublin County Council (File no. SD20A/0121) on the 3rd September 2020.

The applicant has submitted the EIAR associated with planning permission File no. SD20A/0121.

The Agency has had regard to the reasoned conclusions reached by the planning authority in undertaking its environmental impact assessment of the activity.

4. EIA Screening

In accordance with Section 83(2A) of the EPA Act 1992, as amended, 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.

An EIAR was submitted to the EPA with the licence application P1170-01. This is the same EIAR that was submitted to the Planning Authority (South Dublin County Council) as part of the application for planning permission (SD20A/0121).

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:

The activity exceeds the threshold of project type 10(a) in Part 2 of Schedule 5 of the Planning and Development Regulations 2001 as amended: Industrial estate development projects, where the area would exceed 15 hectares.

An EIAR was submitted to the Agency as part of the application on the 17th January 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 of the application form.

The individual generators are less than 15 MWth and so are 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 Regulations 2017 (S.I. No. 595 of 2017), which can be considered BAT at plant level, for combustion plant between 1 and 50 MWth 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. It should be noted that there will be no significant dust or odour emissions from the installation.

6.1.1 Channelled Emissions to Air

There are a number of main channelled emission points at the installation from the 70 no. 6.49 MW_{th} diesel powered generators (Building A, B & C have 26, 18 and 26 no. generators respectively). Each of the 70 no. generators will have a minimum stack height of 25 m above ground level. In addition, each of the data storage buildings (A, B & C) has its own 2.19 MW_{th} administration generator which have an associated 19.7 m stack.

There are other emission points at the installation including 2 no. 0.57 MW_{th} diesel powered fire sprinkler 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.

As part of the application, air dispersion modelling was carried out by the applicant to predict the ambient pollutant concentrations resulting from the operation of the 70 no. 6.49 MW_{th} diesel powered generators and the 3 no. 2.19 MW_{th} generators at the installation. The modelling was carried out in accordance with published Agency guidance (AG4¹) and used five years of meteorological data (2015 – 2019 inclusive) from the Casement Aerodrome meteorological station, which is located approximately 1 km south of the site. With regard to the NO_x background concentration, EPA data from Zone A was used. Terrain data has been incorporated into the modelling assessment. Building and stack downwash has also been taken into consideration. All receptors were modelled at 1.8 m above ground level to represent breathing height.

Modelling of NO₂ was undertaken in detail. However, no detailed modelling for other pollutants including CO, PM₁₀ and PM_{2.5} was undertaken given that emissions of these pollutants are significantly lower than the NO_x emissions from the generators relative to the respective ambient air quality standard. Therefore, ensuring compliance with the NO₂ air quality standard will ensure compliance for all other pollutants.

The scenario modelled used the US EPA Method includes the operation of 64 of the 70 no. 6.49 MW_{th} generators operating simultaneously outside normal operating conditions. For the purpose of the modelling assessment, 2 no. generators at each

¹ Air Dispersion Modelling from Industrial Installations Guidance Note (AG4), 2019.

building (i.e. 6 in total) are modelled as “catcher” generators in order to provide redundancy for the other generators. In addition, the scenario modelled also assumes the operation of the 3 no. 2.19 MW_{th} administration generators. The operation of the 67 no. generators (64 no. 6.49 MW_{th} and 3 no. 2.19 MW_{th}) was assumed to be at 90% load for up to 72 hours per annum. The modelled scenario also includes the weekly testing of the 73 no. generators (70 no. 6.49 MW_{th} and 3 no. 2.19 MW_{th}) on the campus at 25% load for a maximum of 30 minutes each, one generator at a time, sequentially; and the periodic testing of the 73 no. generators at 90% load for a maximum of one hour, once per quarter (assumed to be January, April, June and October). All testing of the generators was to occur from 8am to 5pm, Monday to Friday only.

The NO₂ modelling results at the worst-case locations at and beyond the installation boundary for the above scenario have been summarised in Table 6.1.

Table 6.1 Predicted impact of the channelled emissions to air.

Potential channelled emissions impact						
Parameter	Averaging Period	Background concentration (µg/m ³)	Process contribution (µg/m ³)	Predicted Environmental Concentration (PEC) (µg/m ³)	PEC as % of Air Quality Standard	Air Quality Standards/ Guidelines (µg/m ³) Note 1
Nitrogen Oxides (as NO ₂) - 2015	99.8%ile hourly	34 ^{Note 2}	93.2	127.2	63.6	200
	Annual	17	14.6	31.6	79	40
Nitrogen Oxides (as NO ₂) – 2016	99.8%ile hourly	34 ^{Note 2}	96.9	130.9	65.5	200
	Annual	17	14.7	31.7	73.3	40
Nitrogen Oxides (as NO ₂) - 2017	99.8%ile hourly	34 ^{Note 2}	90.8	124.8	62.4	200
	Annual	17	17.1	34.1	85.3	40
Nitrogen Oxides (as NO ₂) - 2018	99.8%ile hourly	34 ^{Note 2}	93.4	127.4	63.7	200
	Annual	17	14.4	31.4	78.5	40
Nitrogen Oxides (as NO ₂) - 2019	99.8%ile hourly	34 ^{Note 2}	94.5	128.5	64.3	200
	Annual	17	15.5	32.5	81.3	40

Note 1: Air Quality Standards Regulations, SI 58/2009, 180/2011 and 739/2022, unless otherwise stated.

Note 2: Twice the annual mean background concentration.

As can be seen in Table 6.1 above all the predicted ground level concentrations are within the relevant air quality standards based on the operation of 67 of the 73 no. generators for 72 hours per year as well as considering the schedule weekly testing and quarterly maintenance testing of all 73 no. generators at the installation. For the worst-case year modelled (2016), emissions from the installation lead to an ambient NO₂ concentration (predicted environmental concentration) which is 66% of the maximum ambient 1-hour limit value (99.8%ile) at the worst offsite location. In terms of the annual standard, for the worst-case year modelled (2017), the predicted environmental concentration is 85% of the annual standard at the worst off-site

location. The modelling is considered sufficiently conservative as 72 hours of operation per annum would require a prolonged fault or outage of the National Grid, a problem with the substation or an instruction from the Transmission System Operator (TSO) requiring the applicant to reduce its demand on the National Grid.

The geographical variations in the ground level NO₂ concentrations (maximum 1-hour) beyond the installation boundary for the worst-case year modelled (2016) are illustrated in the concentration contours in Figure 6.1. It can be seen in Figure 6.1 that the maximum ground level concentrations for NO₂ occurs close to the installation boundary and within the industrial area to the immediate south-west of the installation. The maximum ground level concentrations for NO₂ decreases with distance from the installation boundary.

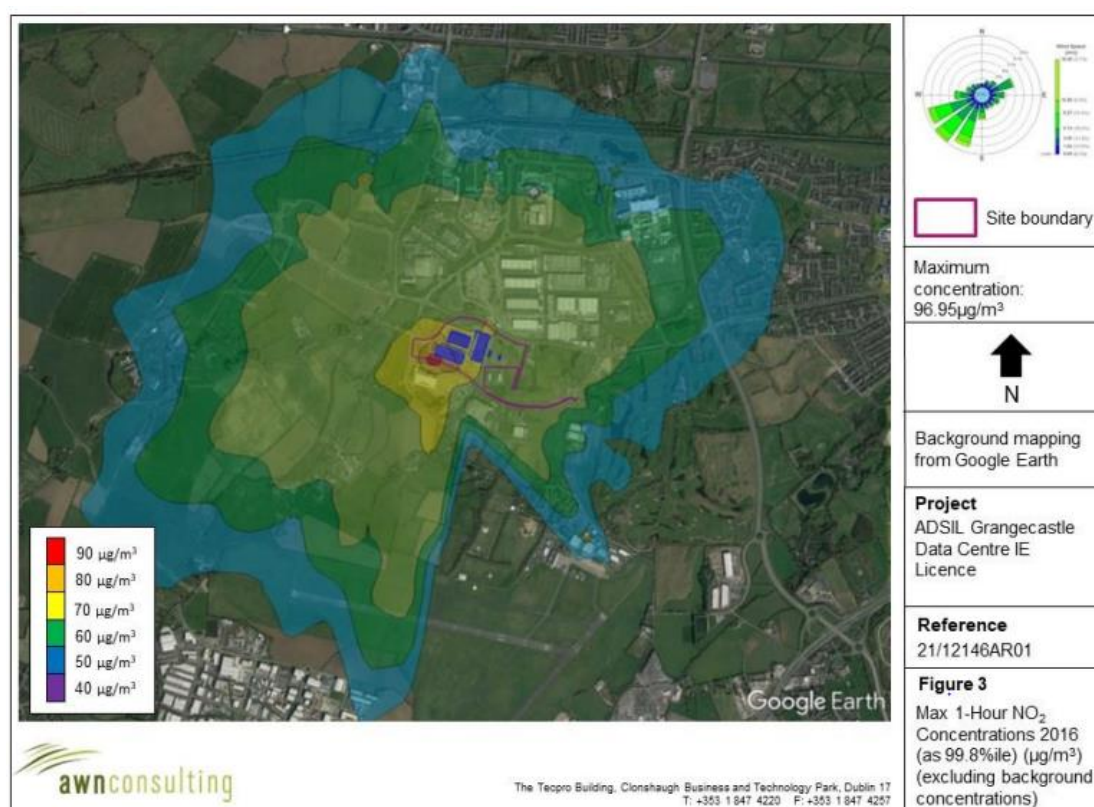


Figure 6.1: Maximum 1-hour NO₂ concentration (process contribution for the worst-case year (2016) (From Attachment-7-1-3-2-Air Emissions Impact Assessment 1, November 2022).

In the context of ecological receptors, the modelling indicates that the ambient ground level concentrations are within the relevant air quality standard for NO_x at the nearest ecological sensitive receptor (Grand Canal Proposed NHA). For the worst-case year modelled, the PC was 8% of the relevant critical level for NO_x.

Cumulative Assessment

Two EPA licensed sites have been identified to be within a 1 km radius of the installation, these are Takeda (Reg. No. P0693-03) and Pfizer (Reg. No. P0652-01), both of which are located to the north of the applicant's site, and within the Grange Castle Business Park. Both these EPA licenced sites have significant NO_x emissions and therefore these sites were included in the cumulative impact assessment. In addition, the applicant operates another data storage facility at an adjacent site which is subject

to a separate licence application, Reg. No. P1184-01. Emissions from this adjacent data storage facility operated by the applicant were also included in the cumulative impact assessment.

There are several other data storage facilities located within 1 km of the applicant's site, including Microsoft, Google and EdgeConneX. However, the applicant has cited limited public information in relation to the operation of combustion plants at these nearby sites, and so emissions from Microsoft, Google and EdgeConneX have not been included in the cumulative modelling assessment.

The cumulative NO₂ ground level concentrations at the worst-case locations at and beyond the site boundary are detailed in Table 6.2.

Table 6.2: Predicted cumulative impact of the channelled emissions to air.

Potential channelled emissions impact						
Parameter	Averaging Period	Background concentration (µg/m ³)	Process contribution (µg/m ³)	Predicted Environmental Concentration (PEC) (µg/m ³)	PEC as % of Air Quality Standard	Air Quality Standards/ Guidelines (µg/m ³) Note 1
Nitrogen Oxides (as NO ₂) - 2015	99.8%ile hourly	34 ^{Note 2}	93.4	127.4	63.7	200
	Annual	17	17.3	34.3	85.8	40
Nitrogen Oxides (as NO ₂) - 2016	99.8%ile hourly	34 ^{Note 2}	97.2	131.2	65.6	200
	Annual	17	17.6	34.6	86.5	40
Nitrogen Oxides (as NO ₂) - 2017	99.8%ile hourly	34 ^{Note 2}	91.6	125.6	62.8	200
	Annual	17	20.1	37.1	92.75	40
Nitrogen Oxides (as NO ₂) - 2018	99.8%ile hourly	34 ^{Note 2}	93.7	127.7	63.9	200
	Annual	17	17.2	34.2	85.5	40
Nitrogen Oxides (as NO ₂) - 2019	99.8%ile hourly	34 ^{Note 2}	94.6	128.6	64.3	200
	Annual	17	18.3	35.3	88.3	40

Note 1: Air Quality Standards Regulations, SI 58/2009, 180/2011 and 739/2022, unless otherwise stated.

Note 2: Twice the annual mean background concentration.

Based on Table 6.2 above, for the worst-case year modelled (2016), the cumulative maximum ground level concentration is 66% of the maximum 1-hour value (99.8%ile) at the worst offsite location. In terms of the annual standard, for the worst-case year modelled (2017), the cumulative maximum ground level concentration is 93% of the annual standard at the worst off-site location.

The geographical variations in the cumulative ground level NO₂ concentrations (maximum 1-hour) (process contributions) beyond the installation boundary for the worst-case year modelled (2016) are illustrated in the concentration contours in Figure 6.2. It can be seen in Figure 6.2 that the maximum ground level concentrations for

NO₂ occur close to the installation boundary and within the industrial area to the south of the installation.

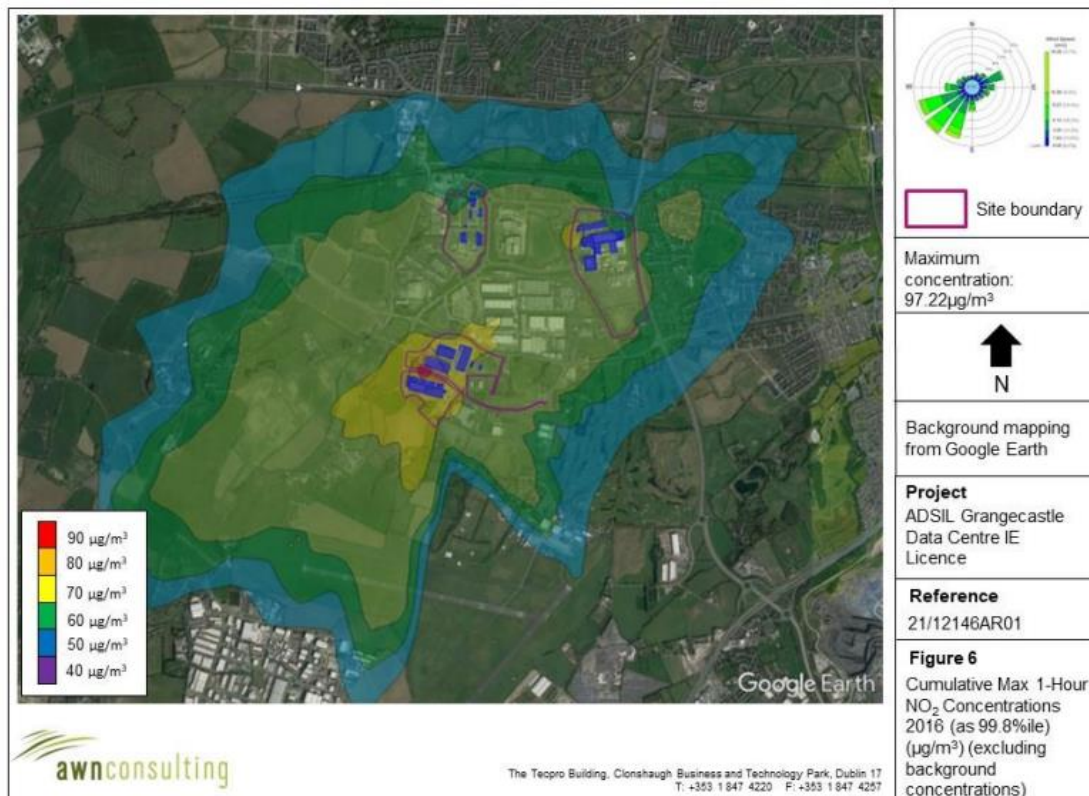


Figure 6.2: Maximum cumulative 1-hour NO₂ concentration (process contributions) for the worst-case year (2016) (From Attachment-7-1-3-2-Air Emissions Impact Assessment 1, November 2022).

The geographical variations in the cumulative ground level NO₂ concentrations (annual) (process contribution) beyond the installation boundary for the worst-case year modelled (2017) are illustrated in the concentration contours in Figure 6.3. It can be seen in Figure 6.3 that the maximum ground level concentrations for NO₂ occur close to the installation boundary and within the industrial area to the north of the installation.

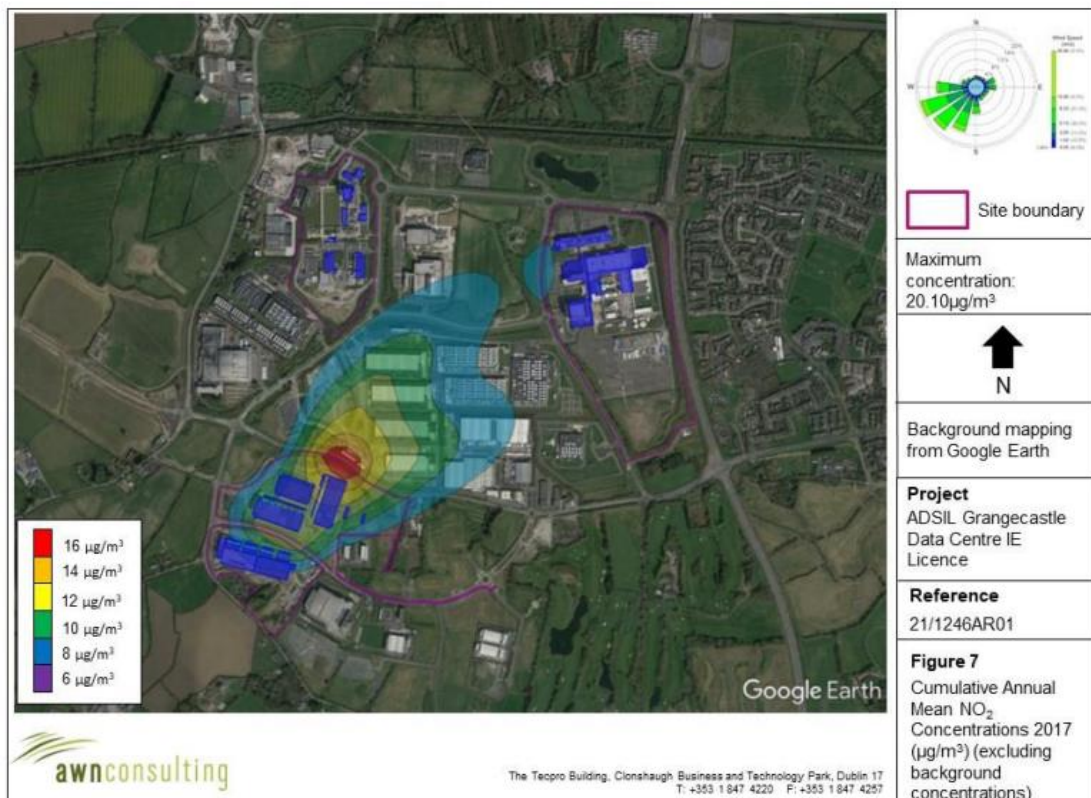


Figure 6.3: Maximum cumulative annual mean NO₂ concentration (process contributions) for the worst-case year (2017) (Source AWN Air Dispersion Modelling Report, dated 11th November 2022).

In the context of ecological receptors, the cumulative modelling indicates that the ambient ground level concentrations are within the relevant air quality standard for NO_x at the nearest ecological sensitive receptor (Grand Canal Proposed NHA). For the worse case year modelled, the PC was less than 20% for the relevant critical level for NO_x.

While the cumulative modelling assessment was unable to include all potential emissions from the operation of the generators at nearby sites (within 1 km), particularly due to limited availability of public data for the nearby data storage facilities, and while it is considered unlikely that combustion plants at the applicant's site would have to operate at full load simultaneously to the nearby sites for a prolonged period as such a scenario would require a prolonged fault or outage of the National Grid, a problem with the substation or if the TSO requested a number of a data storage facilities in Grange Castle to disconnect simultaneously from the grid and operate in 'island mode' for an extended period.

Notwithstanding the above, given the number and proximity of the generators in the Grange Castle area, particularly across several data storage facilities, there is a potential for an exceedance of both the short- and long-term air quality standards if the generators across several of the data storage facilities were to operate simultaneously.

Therefore, 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 each generator to 72 hours per year at no more than 90% load, with no more than 421.93 MW_{th} operating simultaneously (Schedule A). In event that one or more of the 'catcher' generators is unavailable due to maintenance, the applicant may operate mobile generator(s) in lieu of the 'catcher' generator(s) provided that the combined thermal input of the generators in operation does not exceed 421.93 MW_{th} (Schedule A). The RD also restricts the testing of the generators to no more than 25% load for a maximum of 30 minutes each per week, sequentially, and to no more than 90% load for a maximum of 1hour, four times per year sequentially (Schedule A).
- Alternative generator operating restrictions (hours and load) may be approved by the Agency subject to the applicant demonstrating that the alternative does not cause an increase in the mass emissions above that permitted under Schedule A of the RD (Condition 6).
- The applicant is required to examine ways to reduce its emissions and improve the dispersion of emissions from the generators during maintenance testing and operation (Condition 2).
- The applicant is required to establish an Ambient Air Quality Monitoring Programme. As part of the ambient monitoring programme, the applicant is required to establish air quality trigger levels and an associated response programme to ensure compliance with Air Quality Standards at off-site receptors (Condition 3).
- Schedule C requires the licensee to carry out monitoring of emissions in line with the Medium Combustion Plant Regulations (Schedule C).
- The applicant is required to maintain a record of generator run times, type & quantity of fuel used, and loading under both testing/maintenance and generator operating scenarios (Condition 11).

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 Regulation (EU) No 517/2014.

6.2 Emissions to Surface Water

6.2.1 Emissions to Surface Waters

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

6.2.2 Emissions to Sewer

Foul effluent and residual cooling water (22.5 m³/day for approx. 5 days of the year when the ambient air temperature is exceeds a setpoint of 30°C) from the industrial cooling system at the data storage installation will be discharged to the public foul sewer (at Emission Points SE1 and SE2). The residual cooling water is being discharged from the cooling systems to the foul sewer network. The Section 99E Consent

Notification for SE1 and SE2 from Uisce Eireann was received by the Agency on the 07 June 2022. SE1 (western outfall) will cater for foul and cooling wastewater flows from Blocks A, B and 50% of Block C. SE2 (east outfall) will cater for the remaining 50% of Block C foul, cooling wastewater and the welfare facilities associated with the Clutterland Substation. Rainfall which passes through the generator exhaust stacks discharges to the foul drainage network for all buildings A, B and C. The foul sewer from the Grange Castle South Business Park discharges to a regional pumping station before discharging to the Ringsend Municipal Wastewater Treatment Plant (D0034-01) for treatment.

The air handling units at the installation provide conditioned air to the data centre buildings in order to maintain temperature, relative humidity and pressurisation in the data halls. The evaporative cooling system for the data halls operates in two modes; free cooling and evaporative cooling. Under the free cooling mode, conditioned air, at ambient air temperature is passed across the IT servers located in the data halls, and this air is either recirculated or exhausted to atmosphere. Under the evaporative cooling mode, which typically occurs for approximately 5 days per year, when ambient air temperature is >30°C, public water is used as the cooling medium to cool the ambient air that is introduced into the data halls. The Evaporative Cooling Water quality in the AHU sump is maintained by a UV water sterilizer, and a conductivity probe is used to determine the level of salts build up – there is no water treatment or water softeners added.

In accordance with legionella management procedure, every cooling system is sampled annually for legionella bacteria. If a result exceeds 1000CFU/L, the air handling unit is disinfected with a hydrogen peroxide solution. Based on past experience, this is required on approximately 10% of systems annually. During the disinfection process 50mL of hydrogen peroxide solution is dosed into the air handling unit and water is recirculated through the cooling system. The disinfected water is discharged to the cooling system drain and ultimately to the foul network. Any residual hydrogen peroxide is oxidised by organics in the onsite foul drain network, is readily converted to water and oxygen and is consumed prior to discharge via foul sewer. Condition 2 of the RD restricts the addition of chemicals to this cooling water system to hydrogen peroxide, subject to the approval of the Agency.

When a conductivity set point of 1,500µS/cm is reached, the cooling water is discharged to the foul sewer network.

The table 6.3 below gives details on the installation emissions to sewer, the processes which contribute to the emissions, off-site treatment, and the proposed maximum daily flows.

Table 6.3 On-Site Treatment

Emission Reference	Process Description	Abatement	Proposed max. flow (m ³ /day)	Proposed max. flow (m ³ /hour)
SE-1	Wastewater will be generated through domestic and cooling water blow downs.	Direct discharge to sewer, with no onsite treatment proposed. Rainfall which passes through the generator exhaust stacks will be discharged to a Class 2 hydrocarbon	22.5	17.3

		interceptor before entering the foul sewer drainage network.		
SE-2	Wastewater will be generated through domestic and cooling water blow downs.	Direct discharge to sewer, with no onsite treatment proposed. Rainfall which passes through the generator exhaust stacks will be discharged to a Class 2 hydrocarbon interceptor before entering the foul sewer drainage network.	22.5	17.3
Total:			45	34.6
Off-site treatment				
Name of sewer network/agglomeration: Greater Dublin Area Agglomeration				
Responsible authority for network/agglomeration: Uisce Eireann				
Wastewater discharge licence No: D0034-01				
Wastewater discharge licence parameters: pH, toxicity, faecal coliforms, CBOD, COD, Suspended Solids, Total Nitrogen & Total Phosphorus (as P)				
Treatment capacity of the sanitary wastewater treatment plant (as per the D0034-01 2020 AER): Peak hydraulic capacity – as constructed: 959,040 m ³ /day, average hydraulic loading: 458,641 m ³ /day, organic capacity – as constructed (PE): 1,640,000 and organic capacity – current loading (peak week load) (PE): 2,278,887.				
Type of treatment: Treatment operations at the Ringsend MWWTP consist of the following: Preliminary treatment, primary treatment (settlement), secondary treatment (sequence batch reactors), and tertiary treatment (UV disinfection). Treatment capacity: The maximum daily flow rate from the installation represents approximately 0.001% of the influent to the Ringsend MWWTP (based on the average hydraulic capacity 2020 AER). Therefore, it can be considered that the proposed discharge will not have an impact on the Ringsend MWWTP given the proposed maximum flow rate and the buffering capacity of the network.				
Receiving water name (and waterbody type): The Ringsend MWWTP discharges into the Lower Liffey Estuary (IE_EA 090_0300). The current WFD ecological status of the receiving water body is good.				

The combination of emission limits proposed for the sewer emissions from the installation, the percentage volume the emission represents of the total loading to the MWWTP (c. 0.001%), and for the treatment provided by the Ringsend MWWTP, it can be considered that the level of treatment of the installation's discharges is equivalent to BAT. Uisce Eireann are required to comply with their Waste Water Discharge Authorisation (D0034-01).

The RD specifies emission limit values for parameters and monitoring requirements in line with the Section 99E Consent Notification received from Uisce Eireann.

Given the above it is considered that the recommended ELVs for this discharge to sewer are considered to satisfy the required of the IED, the WFD, and the EPA Act 1992, as amended.

6.3 Storm water discharges

Storm water runoff from access roads, impermeable surfaces and roofs will be collected via the onsite storm water drainage network. The storm water collected on site will be directed to one of the 4 no. attenuation ponds on site (with a capacity of 10,385m³) located along the western, northern and eastern boundary of the site. Prior to the storm water entering each of the attenuation ponds it will pass through a hydrocarbon interceptor. To further improve the quality of the storm water, 'forebays' are proposed in order to further improve the quality of the final storm water discharges from the installation.

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
SW1, SW2, SW3, SW4 (with monitoring locations at SW1-1, SW2-1, SW13-1, SW4-1)	Visual (daily); pH, TOC, Temperature & conductivity (weekly)	Class I by-pass separators on the storm water drains from internal hard standing areas.	Building roofs, yards and internal road network.	SW-1 Griffeen River via a South Dublin County Council Storm water drain SW-2, SW-3, SW-4 Griffeen River via Baldonnel Stream	Required in RD

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 Total Organic Carbon (TOC), pH, Temperature and Conductivity weekly, and other parameters as may be required by the Agency, in accordance with Schedule C.2.3 *Monitoring of Storm Water Emissions*.

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 in an industrial area with the Grange Castle South Business Park. Large areas of the surrounding lands to the south and north are within the Grange Castle Business Park and Profile Park, have been developed in the past 10-15 years and are occupied by industrial campuses including pharmaceutical manufacturing and data centres. A Google data centre is located to the south-east of the site and the Cyrus One data storage facility is located to the immediate south. To the north of the installation is the Microsoft data centre campus and to the north west of the installation is the EdgeConnex data centre. The closest occupied residential property to the installation is located approximately 230m south of the site boundary along the Baldonnel Road.

A Baseline noise survey was conducted in January 2020 within the vicinity of the site, and the predominant noise sources were road traffic, plant in operation on existing sites, construction work and the occasional aircraft movement overhead.

The main sources of noise at the installation under normal operating conditions (whereby the full energy demand of the data centres is being provided by the national grid), will include air handling units and the modelling undertaken by the applicant demonstrates that the installation will comply with the noise ELVs set in the RD under normal operating conditions.

It is however noted in the noise modelling report submitted in support of the licence applicant, that for the purpose of assessing compliance of noise emissions from the installation during periods of generator testing or operation, that the applicant considered a proposed noise criterion of 55dB $L_{Aeq(15\text{ mins})}$ as appropriate in abnormal operating scenarios for daytime, evening and night-time period. Agency guidance (NG4) states that where licensed sites have certain equipment which only operate in urgent events such as grid power failure (e.g. standby diesel generators), they may be permitted to exceed standard noise limit values during such events.

Therefore, given the challenges in relation to the capacity of the National Grid to meet the demand on the grid, particularly during the winter period, there is potential that the generators may be in frequent use during the winter period, and therefore in order to protect sensitive receptors it is not considered appropriate for a higher noise criterion of 55dB $L_{Aeq(15\text{ mins})}$ to apply during evening and nighttime operation of the generators in the event of a disruption in the electricity supply to the site or if the grid operator instructs the site to reduce its demand on the grid.

Furthermore, it is noted in the noise modelling submitted by the applicant that under the scenario of the operation of the generators that the highest noise levels occur within the installation boundary and the wider industrial estate. Under the worst-case operating scenario (full load), the impacts at the nearest occupied sensitive receptor is low and would be within the standard noise emission limit values (Figure 6.4).



Figure 6.3: Noise Prediction when generators are in operation.

In terms of sensitive areas or European sites, the nearest ecologically sensitive area to the installation is the Grand Canal Proposed NHA (002104) which is approximately 1.4 km north of the installation. While the nearest European site to the facility is the Rye Water Valley/Carlton SAC which is located approximately 5.2 km north-west of the installation. Given the distance from the installation to the nearest European site, it is considered to be outside the zone of influence (see the Appropriate Assessment Section of this report).

Noise conditions and emission limit values, which shall apply at the noise sensitive location, have been included in the RD. Also, having assessed the submission made by the HSE (see the Submission Section of this report), the RD requires annual noise monitoring to ensure compliance with the noise emission limit values. The monitoring frequency may be amended by OEE under Condition 6 following an evaluation of monitoring results.

7. Waste generation

Certain wastes are generated on site as part of the licensable activity. Waste generated on site mainly comprises dry mixed recyclables (c. 78 tonnes/annum), filters (air and potable water) (c. 0.5 tonnes/annum), lubricating oils (c. 17 tonnes/annum), absorbents used in minor spills (c. 2 tonnes/annum) and e-waste including batteries from the UPS systems (c. 0.5 tonnes/annum). Hazardous waste such as used oil, oily rags/filters, oily water waste from the maintenance of hydrocarbon inceptors will be stored in a designated bunded area, prior to collection by a licenced waste contractor for off-site recovery and/or disposal.

The licensee employs a number of measures at the installation for the prevention and/or minimisation of waste. Full details on the waste streams that will be generated at the installation, and the conditions under which such waste streams will arise, have been provided in attachment 8.1 – Waste Generated of the application form.

As outlined in attachment of the 8.1.2 of the applicant forms, and in accordance with the hierarchy specified in the IED, waste generated at the site will, in order of priority, be minimised, be prepared for re-use, recycling, recovery or disposal.

8. Energy Efficiency and Resource Use

The operation of the installation involves the consumption of fuel, water and electricity. The maximum consumption of electricity and public water are provided in the table below. The site will also use gas oil as the primary fuel for power generation at the installation in the event of a disruption in the power supply from the national grid. The site will also generate up to 219.45 kWe of renewable energy through PV panel technology.

Resource	Quantity per annum
Electricity	1,121,280 MWh
Renewables energy generated and used on site	219.45 kWe
Diesel	1,486 tonnes
Public water supply	4,959 m ³

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, and efficient lighting systems.

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 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 CO₂eq. emissions from the sector by between 2 to 4 MtCO₂eq. by 2030, which is to be largely facilitated by increasing the share of renewable energy generation up to 80% by 2030.

While the applicant has provided some detail in its application form in relation to its plans to use a more sustainable fuel (i.e. bio diesel) and its investment through Corporate Power Purchase Agreements (CCPAS) in three major wind projects, Condition 7 of the RD requires the applicant to provide a clear road map on how the applicant proposes to decarbonise the activity at the installation by identifying opportunities to increase the use of solar, sustainable biofuels, and alternative renewable energy sources and submit a report to the Agency within six months of the date of grant of the licence.

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

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	
<p>Potential for an accident or hazardous/ emergency situation to arise from activities at the installation.</p>	<ul style="list-style-type: none"> • 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.
<p>Preventative/Mitigation measures to reduce the likelihood of accidents and mitigate the effects of the consequences of an accident at the installation.</p>	<ul style="list-style-type: none"> • 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 a central alarm system. • Fuel delivery will take 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 bypass hydrocarbon interceptor. • All interceptors at the installation are equipped with an oil warning system which is connected to a central critical alarm system.
<p>Additional measures provided for in the RD</p>	<ul style="list-style-type: none"> • 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 is diesel. The total amount of diesel that will be stored at the installation will be 1245 tonnes. Under the COMAH Directive (2012/18/EU) 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 the site closure/cessation of activity. These measures are listed in attachment 9-2-3 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 report was submitted with the application (Attachment-4-8-3). The report states that the site was previously used for agricultural purposes, with no evidence of other past uses, prior to the construction of the current installation.

The report refers to data from a 2019 site investigation. The soil sample monitoring results did not indicate contamination based on the Generic Assessment Criteria (GAC) derived to be protective of human health and also ecology for Commercial/industrial land use. In the context of the ground water samples, two parameters, barium and zinc, were slightly elevated however this is not considered to present a risk or indicate a significant plume of contamination.

Storm water from the installation is diverted to the on site retention ponds prior to indirectly discharging 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'.

The activity will have one relevant hazardous substance, i.e., diesel, which will be 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 substance, 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 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. Two parameters, barium and zinc, showed slightly elevated concentrations in groundwater samples however it is not considered that these present a risk to future users nor that they represent a significant plume of contamination.

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. Submission

There were two valid submissions received in relation to the licence application. While the main points raised in the submissions are briefly summarised in the table below, the original submission may be referred to for greater detail and expansion of particular points.

The issues raised in the submissions are noted and addressed in this Inspector's Report and the submissions were taken into consideration during the preparation of the Recommended Determination.

Table 12.1 Valid Submission

Submissions

1.	<p>Name & Position Miss Fiona Byrne</p>	<p>Organisation: Health Service Executive</p>	<p>Date received: 25th February 2022</p>
<p>Issues raised:</p> <p>In its submission the HSE noted the following:</p> <ul style="list-style-type: none"> • The Environmental Health Service (EHS) <i>is satisfied with the conclusions of the Air Emissions Impact Assessment which states that impacts on ambient air quality associated with the standby generators at the proposed Amazon Data Services facility will be in compliance with the ambient air quality standards which are based on the protection of the environment and human health.</i> • <i>Due to the number and proximity of data storage facilities in the Grange Castle Business Park and surrounding area, the Environmental Health Service recommends that additional noise monitoring (daytime, evening and night time) is undertaken during the first year of operation of the plant. This is in order to ensure that any cumulative noise impacts have been addressed by proposed mitigation measures and is recommended for the protection of public health.</i> <p>Agency response:</p> <p>The Agency notes the points raised in the submission, particularly in relation to increasing the frequency of noise monitoring during the first year of operation. Noise and Air emissions from the proposed activity are dealt with in detail in the noise and emissions to air sections of this report.</p>			
	<p>Name & Position Ms Angela Deegan</p>	<p>Organisation: Not Here Not Anywhere</p>	<p>Date received: 17th April 2023</p>
<p>Issues raised:</p> <p>The main issue raised in the submission relates to the granting of a licence for the operation of fossil fuel power infrastructure giving rise to greenhouse gas emission which is not in line with the Irish Government's Climate targets and international agreements regarding the use of fossil fuels and for this reason the application should be rejected. Additional specific points raised in the submission are as follows:</p> <ol style="list-style-type: none"> 1. A discrepancy is noted in Section 4.6.1 of the application. In the Electricity Usage table of the said section of the application form, it states that no non-renewable electricity is generated and used at the site, despite there being 464.4 MWth of onsite generators. 2. Given the climatic impacts of greenhouse gas emissions, permitting any new fossil fuel infrastructure is unconscionable. The diesel generators in this application have a total rating of 464.4 MWth. If licensed, the generators could be run for up to 500 hours annually. 			

Submissions

3. Transparency about what is being stored and for whom should be a requirement. It would enable society and the Government to rank different types of data storage services by importance to society and be able to order data centres to turn off certain categories of services in different circumstances – such as in the event of a warning that the national grid may be unable to meet power demand – rather than allow data centres to switch to fossil-fuelled generation.
4. Fossil fuel infrastructure is not a viable solution. The applicant should be required to ensure its data centre is powered entirely by either onsite or off-site renewable energy and storage.

Agency response:

1. During normal operations, the installation will be supplied electricity from the national grid. Non-renewable power generation from the generators will only occur onsite in the event of an interruption in the power supply to the installation from the national grid.
2. The installation is required to operate 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 the 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 an EU level, and is reducing each year in order to ensure that the overall emissions from the Emissions Trading System (ETS) sector meet the EU targets on reducing greenhouse gas emissions. Furthermore, the Recommended Determination requires the applicant to examine the use of renewable forms of energy and to decrease or offset the use of fossil-fuel based energy both directly through the operation of the generators and indirectly through the national grid (Condition 7). It should further be noted that the RD restricts the operation of the generations to no more than 72 hours annually, with no more than 421.93 MWth operating simultaneously.
3. Transparency around the data being stored at the installation is outside the scope of the licence.
4. Condition 7 of the RD requires the applicant to examine the use of renewable forms of energy and to decrease or offset the use of fossil-fuel based energy at the installation. Climate impacts are discussed further in the Energy Efficiency and Resource Use and the Climate sections of this report.

13. Consultations

13.1 Cross Office Consultation

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

13.1 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.

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/Carton 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 is based on the following reasons:

- The installation is located in a business park and is not located within a European site.
- There are no direct process emissions to surface water or groundwater from the installation.
- Effluent generated (cooling water) from the installation is discharged to the existing foul sewer network and ultimately treated in the licensed Ringsend WWTP.
- The separation distance (>5Kms) from European sites and their qualifying interests which are outside of the zone of influence of the installation in relation to noise and air emissions. Emissions to air consist of emissions from the emergency back-up generators.

15. Environmental Impact Assessment

15.1 EIA Introduction

This assessment is being undertaken in accordance with the requirements of Directive 2014/52/EU amending Directive 2011/92/EU on the assessment of the effects of certain public and private projects on the environment. The application was accompanied by an Environmental Impact Assessment Report (EIAR) associated with planning permission ref. SD20A/0121.

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 EIAR), information received through consultation, the documents associated with the assessments carried out by South Dublin County 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, written submissions, as well as considering any supplementary information, where appropriate. All of the documentation received was examined and I consider that the EIAR complies with the provisions of Article 5 of the 2014 EIA Directive when considered in conjunction with the additional material submitted with the application.

I am satisfied that the information contained in the EIAR has been prepared by competent experts and 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: population and human health, biodiversity, land, soil, water, air and climate, 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 activities 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.

A summary of the submissions made by third parties has been set out above in the Submissions Section of this report.

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 on 20 January 2022 between South Dublin County Council and the Agency under the relevant section of the EPA Act 1992, as amended. A reminder letter was issued on 23 March 2022. South Dublin County Council did not provide any observations to the Agency on the licence application and EIAR.

15.3 Alternatives

The matter of alternatives is addressed in Chapter 4 of the EIAR. Section 4.8 notes that the orientation of the data centre building was to optimise the use of the space available while allowing for environmental considerations including a 10m biodiversity corridor along the southern edge of the Baldonnell Stream. Section 4.15 also examines 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 in Europe with

a warmer climate. Therefore in Ireland, data centres will have a lower demand on water and power, reducing the environmental effects of the development.

The EIAR also details the applicant's assessments of alternative locations in Ireland, particularly in the Greater Dublin Area. Section 4.20 detailed the applicants reasoning for choosing Grange Castle South Business Park as the preferred location, which includes the low environmental sensitivity of the area given the immediate area surrounding the site is industrial.

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) population and human health;*
- (b) biodiversity, with particular attention to species and habitats protected under Directive 92/43/EEC and Directive 2009/147/EC;*
- (c) land, soil, water, air and climate;*
- (d) material assets, cultural heritage and the landscape;*
- (e) the interaction between the factors referred to in points (a) to (d).*

15.4.1 Population & Human Health

Identification, Description and Assessment of Effects

Population and human health are addressed in Chapter 5 of the EIAR. The installation is located in an industrial park, comprising industrial and commercial businesses. There is a Google data centre located to the south-east of the installation and a separate data centre operated by the applicant (Reg. No. P1184-01) is located to the immediate south. To the north of the installation is the Microsoft data centre campus. The closest occupied residential property to the installation is located approximately 230m south of the site boundary along the Baldonnell Road.

The main emissions from the installation include emissions to air from the generators, noise emissions and storm water discharges. There are emissions to air (NO₂, CO, SO₂ and particulate matter) from generator stacks (during testing and outside of normal operating conditions). The primary sources of noise include the installation's building service plant and operation of the generators. Storm water runoff which is directed to the storm water system ultimately discharges to the Griffeen River.

The potential direct and indirect effects on population and human health are associated with emissions to air, noise emissions, sewer emissions and accidental emissions. Should emissions cause an exceedance of environmental quality standards this could have implications for population and human health. The effects identified and described above have been assessed in the following section of this report: Emissions to Air, Emissions to Sewer, Stormwater Discharges, and Noise.

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, emissions to water, and accidental emissions. Should emissions cause an exceedance of environmental quality standards this could have implications for population and human health. The results of the air dispersion modelling submitted by the applicant

indicate that the predicted concentrations will not breach the relevant air quality standards for human health. There is potential for significant effects in relation to noise when all generators are in operation. The effects identified and described above have been assessed in the following sections of the report:

- Emissions to Air;
- Storm Water Discharges;
- Emissions to Sewer;
- Noise;
- Prevention of Accidents.

There is also the potential for accidental emissions to the environment, due to e.g. fire, explosion, leaks or spillages etc. Accidental emissions to air, water, ground could occur if in the event of a diesel spill, fire or explosion, causing air pollution, soil, groundwater, and/or surface water contamination, or due to plant malfunction causing an exceedance of noise limits. This is addressed in the 'Prevention of Accidents section of this report.

Cumulative effects of the activity in relation to population and human health have been assessed. There is a potential for an exceedance of air quality standards for human health if generators across several of the data storage installations in the vicinity are operated simultaneously. In addition to imposing operating restrictions on the on-site generators, the RD requires an Ambient Air Monitoring Programme, establishing ambient air quality trigger levels and an associated response programme to ensure there is no exceedance of Air Quality Standards. Therefore, it is considered that there is a potential for a significant cumulative effect from the activity and other activities/developments.

Mitigation and Monitoring

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

- Emissions to Air;
- Emissions to Sewer;
- Stormwater Discharges;
- Noise; and
- Prevention of Accidents.

Conclusions

I have examined all the information on population and human health, provided by the applicant, received through consultations, 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 population and human health.

15.4.2 Biodiversity

Identification, Description and Assessment of Effects

Biodiversity is addressed in Chapter 6 of the EIAR. The EIAR describes the habitats and species at and in the vicinity of the installation. The site is comprised of improved agricultural land which is no longer managed. The ecological value of the area within the proposed installation boundary has been classified as being of local importance (low ecological value). The applicant has also submitted an Appropriate Assessment Screening Report and this is dealt with in the Appropriate Assessment section of this report.

The closest Natural Heritage Area is the Grand Canal proposed Natural Heritage Area (pNHA) (Site code 002104) approximately 1.2 km to the north of the installation boundary. The closest European sites are more than 5 km away.

There are no natural watercourses within the installation boundary, with the closest watercourses being the Griffeen River (IE_EA_09L012100) c. 200m from the installation. There will be no process discharges to water (refer to the 'Emissions to water' and 'Storm Water Discharges' sections of this report).

The potential direct and indirect effects on biodiversity are related to effects on aquatic flora and fauna and their habitats due to air emissions (including NO_x and nitrogen deposition) to effects on water quality, and disturbance to fauna due to noise emissions. The effects identified and described above have been assessed in the following sections of this report:

- Emissions to Air;
- Noise;
- Emissions to Sewer
- Storm Water Discharges;
- Prevent of Accidents; and
- Appropriate Assessments.

Emissions to air arise from the combustion of fuel (diesel) by the generators. The Emissions to Air section provides details on air dispersion modelling including assessment of potential impacts on vegetation. Noise emissions associated with operation of the activity are assessed in the Noise section of this report. It is considered that there is no potential for significant effects on biodiversity due to noise emissions.

The nearest ecological sensitive receptor (Grand Canal Proposed Natural Heritage Area (pNHA)) is located approximately 1.2 km north of the installation. Modelling of emissions to air demonstrates there is no potential for significant impacts to vegetation at the nearest ecological sensitive receptor as a result of emissions from the installation.

There is no evidence of soil or groundwater contamination at the site of the activity. Refer to the *Cessation of Activity* section of this report.

There is also the potential for accidental emissions to the environment, due to e.g. fire, explosion, leaks or spillages. Accidental emissions to air, water, ground could occur in the event of a fuel spill, or a fire or explosion involving fuel, causing air pollution, soil, groundwater, or surface water contamination. This is addressed in the Prevention of Accidents section of this report.

Cumulative effects of the activity in relation to biodiversity have been assessed. There is a potential for an exceedance of relevant air quality standards if generators across

several of the data storage installations in the vicinity are operated simultaneously. In addition to imposing operating restrictions on the on-site generators the RD requires an Ambient Air Monitoring Programme, establishing ambient air quality trigger levels and an associated response programme to ensure there is no exceedance of Air Quality Standards. Therefore, it is considered that there is a potential for a significant cumulative effect from the activity and other activities/developments.

Mitigation and Monitoring

Mitigation measures and monitoring in relation to biodiversity are detailed in the following sections of this report: Emissions to Air, Emissions to Sewer, Storm water discharges, Noise, Prevention of Accidents.

Conclusions

I have examined all the information on biodiversity, provided by the applicant, received through consultations, 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 biodiversity.

15.4.3 Land and Soil

Identification, Description and Assessment of Effects

Land and soil are addressed in Chapter 7 of the EIAR. The installation is to be located in the Grange Castle South Business Park, Clondalkin Dublin 22. The land is zoned for development, and much of the surrounding lands are already developed as data centres, pharmaceutical developments and other forms of commercial development. The topographical levels range from c. 75m AOD in the south east to c. 68m AOD in the north-west of the site. prior to the development its development by the applicant, it was a greenfield site which was previously used for agricultural purposes.

The soil type beneath the proposed installation has been classified as surface water gleys/ground water gleys basic and grey, brown podzolics/brown earths. The subsoil has been classified as quaternary glacial till.

A baseline assessment report describing soil and groundwater conditions was submitted as part of the application. Details of site investigations and findings are provided in the *Cessation of Activity* section of this report.

The potential direct and indirect effects on land and soil are associated with emissions to air, 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 sections of this report:

- Emissions to Air;
- Storm Water Discharges;
- Prevention of Accidents; and
- Cessation of Activity

There is the potential for accidental emissions to the environment due to fire, explosion, leaks or spillages. Accidental emissions to air, water, ground could occur in

the event of a spill of chemicals, fuels, oils or lubricants, or due to a fire or explosion causing air pollution, soil, groundwater, and/or surface water contamination. This is addressed in the Prevention of Accidents section of this report.

Cumulative effects of the activity in relation to land and 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: Emissions to Air, Storm Water Discharges, Prevention of Accidents and Cessation of the Activity.

Conclusion

I have examined all the information on land and soil, provided by the applicant, received through consultations, 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 Emissions to Sewer, Storm Water, Emissions to Ground)

Identification, Description and Assessment of Effects

Water is addressed in Chapter 8 of the EIAR. The potential direct and indirect effects on water relate to emission to sewer and storm water discharges. Should the 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. The effects identified and described above have been assessed in the following sections of this report:

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

The Griffeen River flows in a northerly direction to the west of the site and it is culverted beneath the Grand Canal and from there it flows north through Lucan, before entering the River Liffey. The 'Milton 09' stream is a small tributary of the Griffeen River, which has been culverted and runs through the site from north-west to south-east. The Baldonnel Stream runs roughly east to west along the north-eastern corner of the site. The river is in three distinct forms. The eastern section runs over the northeast corner of the site, is in its natural condition and runs at surface for approximately 200m from the boundary with Boland's Grange castle in an open ditch. The central 280m length of the stream has been realigned and borders the northern boundary of the site. The final, western reach is a 200m culvert and borders the north-west boundary of the site.

The groundwater body underlying the site is the Dublin Groundwater body (IE_EA_G_008). Under the Water Framework Directive 2013-2018 has concluded that the groundwater is of "Good status" and has a groundwater risk score of "not at risk".

The EIAR included a site-specific flood risk assessment and states that the installation is not at risk.

There is no process effluent discharge to water from the installation. There is an effluent discharge to sewer arising from the evaporative cooling water which is discussed in the 'Emissions to Sewer' section of this report. There are no direct emissions to ground or groundwater.

There is also the potential for accidental emissions to water or groundwater, which could occur in the event of a fuel spill, fire or explosion with the potential to affect surface water through storm water discharges/groundwater quality as well as aquatic habitats and dependent species. However, the likelihood of accidental emissions to water is considered low in light of the measures outlined in the "Prevention of Accidents" section above 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 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 water are detailed in the following sections of this report: Emissions to Sewer, Storm Water Discharges, Waste Generation, Prevention of Accidents, Baseline Report.

Conclusions

I have examined all the information on water (including , Emissions to Sewer, Storm Water Discharges, Emissions to Ground) provided by the applicant, received through consultations, 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 EIAR. The proposed installation is located within the Grange Castle South Business Park, with commercial units located to the east, north and south of the site. The nearest occupied residential sensitive areas are located to the south and south west of the site and consist of single dwelling private properties. The closest of the residential dwellings is located c. 240m south west of the installation boundary.

The potential direct and indirect effects of the activity are noise from the operation of the air handling units and the generators. In terms of vibration, there is no source of

vibration associated with the day to day operation of the data centre that would give rise to impacts at nearby sensitive locations. 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 effects have been assessed in the noise section of this report.

There is also the potential for accidental noise and vibration emissions due to an explosion or noise due to plant malfunction. This is addressed in the Prevention of Accidents section of this report.

Cumulative effects of the activity in relation to noise and vibration 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 including traffic. There are no likely significant direct, indirect or cumulative effects identified.

Mitigation and Monitoring

Mitigation measures and monitoring in relation to noise are detailed in the 'Noise' section of this report.

Conclusions

I have examined all the information on noise provided by the applicant, received through consultations, 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 10 of the EIAR. The potential direct and indirect effects on air, are associated with emissions from the generators due to the combustion of diesel. The activity undertaken at the installation is not a significant source of odour or dust. There is also the potential for indirect effects on habitats due to nitrogen deposition and NO_x emissions to air.

Should emissions cause an exceedance of Air Quality Standards this could have implications for air quality, population and human health and biodiversity within and beyond the installation boundary.

The applicant carried out air dispersion modelling to predict the impact of emissions from the generators on ambient air quality. 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. The effects identified and described above have been assessed in the 'Air' section of this report.

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

Cumulative effects of the activity in relation to air have been assessed. There is potential for an exceedance of Air Quality Standards if generators across several of the data storage installations in the vicinity were to operate simultaneously (see the 'Emissions to Air' section of this report). Therefore, it is considered that there is a potential for a significant cumulative effect from the activity and other activities/developments. In addition to imposing operating restrictions on the on-site generators the RD requires an Ambient Air 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, Prevent of Accidents.

Conclusions

I have examined all the information on Air (including Dust and Odour) provided by the applicant, received through consultations, 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

Chapter 10 of the EIAR addresses Climatic Factors. Climate change is a significant global issue which affects weather and environmental conditions (air, water, land and soil) which consequently affects population and human health, material assets, cultural heritage, the landscape and biodiversity. 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 2023³ 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. The Government Statement on the Role of Data Centres in Ireland's Enterprise Strategy⁴ 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 strategy, in particular in relation to decarbonisation and energy efficiency. Condition 7

³ Climate Action Plan 2023, Changing Ireland for the Better. ([Error! Hyperlink reference not valid.](#))

⁴ Government Statement on the Role of Data Centres in Ireland's Enterprise Strategy, July 2022

of the RD would further support 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 (EED), as amended, 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.

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 also 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.

The carbon dioxide (CO₂) emissions from the onsite generators are covered by a GHG permit issued by the EPA (IE-GHG203-02), required by the EU Emissions Trading Scheme (ETS). The EU ETS covers emissions of CO₂ from power and heat generation. The GHG Permit IE-GHG203-02, which was issued on 18th January 2023. Verified CO₂ emissions from the installation were 122 tCO₂ and 382 tCO₂ in 2021 and 2022 respectively. Further details of historical CO₂ emissions from the installation can be found on the European Union Transaction Log ([EUROPA - Environment - Kyoto Protocol - European Union Transaction Log](#)).

The use of the generators for up to 72 hours 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 and monitoring under the GHG Permit has shown that emissions are less than 1,000 tCO₂ per annum. Emissions of CO₂ from the installation, once fully operational, could be up to approximately 4,718 tCO₂ per annum (calculated based on the applicant's estimated diesel usage of 1,486 tonnes 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, 2022⁵).

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 1,447,152 MW hours of electricity per year. This equates to 386,851 tonnes of CO₂ per annum, based on an emission factor of 347.8g CO₂/kWh (SEAI 2021⁶), 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 proposal in relation to energy efficiency.

⁵Ireland'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).

⁶ [Conversion Factors | SEAI Statistics | SEAI](#) (SEAI, 2022).

The activity will result in a net increase in Ireland 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 of this report 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 a GHG Emissions Permit (IE-GHG203-02). 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 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, the operational 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 study to identify opportunities to increase the use of solar power, sustainable biofuels, and alternative renewable energy sources and 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 the 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 the direct and indirect emissions: Emissions to Air; Prevention of Accidents; and Energy Efficiency and Resources Use.

Conclusions

I have examined all the information on climatic factors provided by the applicant, received through consultations, 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 Material Assets, Cultural Heritage and the Landscape

15.4.8.1 Material Assets (including resource use and waste generation)

Identification, Description and Assessment of Effects

The EIA documentation received from the applicant addresses Material Assets, 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 diesel and water to be used are provided in the 'Energy Efficiency and Resource Use' section of this report. The generators will operate on diesel and only during the circumstances outlined earlier in this report (i.e. under power interruption or testing scenarios), and the diesel is stored on-site. 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 sections 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.

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 the licence assessment part of this report: Waste Generation, Energy Efficiency and Resource Use, Prevention of Accidents.

Material Assets Conclusions

I have examined all the information on Material Assets provided by the applicant, received through consultations, 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 has also identified, described and assessed the likely significant direct and indirect effects of the development on material assets concluding that the proposal was acceptable subject to conditions.

15.4.8.2 Cultural Heritage

Identification, Description and Assessment of Effects

The potential direct and indirect effects on cultural heritage are addressed in Chapter 13 of the EIAR. 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. 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 has identified, described and assessed the likely significant direct and indirect effects of the development on cultural heritage concluding that "*no significant impacts during operation are predicted upon the archaeological, architectural and cultural heritage resource.*"

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

15.4.8.3 The Landscape

Identification, Description and Assessment of Effects

The potential direct and indirect effects on the landscape are addressed in Chapter 16 of the EIAR. These potential effects on human beings and their enjoyment of the surrounding area arise from visual impacts, including 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 within an industrial estate. 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 has identified, described and assessed the likely significant direct and indirect effects of the development on the landscape concluding that "the magnitude of the negative visual impact is not significant and long term in duration".

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

Overall Conclusions for Material Assets, Cultural Heritage and the Landscape

I have examined all the information on material assets, cultural heritage and the landscape provided by the applicant, received through consultations, 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 Material Assets, Cultural Heritage and the Landscape.

15.4.9 Interactions Between Environmental Factors

Interactions of effects are considered in the EIA documentation received from the applicant. The most significant interactions between the factors as a result of the activity are summarised below:

Interactions between Population and Human Health, Biodiversity and Air Quality, Water, Land, Soil, Material Assets and Climate: the activity will generate air pollutants that could have an effect on human health, biodiversity including habitats and vegetation and all interrelated factors.

Interaction between Population and Human Health, Biodiversity and Noise: the activity has the potential to generate noise that could disturb fauna and have adverse impacts on human health.

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 population and human health, biodiversity, land, 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 EIA documentation received from the applicant 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 such as landslides, seismic activity, volcanic activity and sea level rise / flood risk; major accidents (fires and explosions); and minor accidents and spills/leaks.

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

The installation is not classified as a COMAH (Control of Major Accident Hazards Involving Dangerous Substances) site as the only substance which would be controlled under the COMAH Regulations⁷ is diesel. The total amount of diesel that will be stored at the installation will be 1,486 tonnes, which does not exceed the thresholds of the COMAH Regulations.

It is further noted, under The Chemical Act (Control of Major Accident Hazards Involving Dangerous Substances) Regulations 2015 (S.I. 209 of 2015), that the installation is not located within the consultation distance of any COMAH site that is notified to the HSA.

⁷ Chemical Act (Control of Major Accidents Hazards involving Dangerous Substances Regulations 2015 (S.I. No. 209 of 2015)

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, received through consultations, 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 EIA documentation received from the applicant and supplementary information provided by the applicant, and the submissions from 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:

- 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;
- Emissions to sewer of evaporative cooling water;
- Storm water discharges 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 additional monitoring, maintenance and control measures;
- Noise emissions will be mitigated by imposing daytime, evening-time and night-time noise limits at noise-sensitive locations, and implementing 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;

- Emissions to sewer (evaporative cooling water) will be mitigated by imposing emission limit values and monitoring, maintenance and control measures;
- Storm water discharges 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 operating hours restrictions, 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

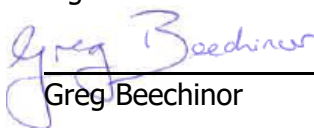
The Agency, in considering an application for a licence or the review of a licence, shall have regard to Section 83 of the EPA Act. The Agency shall not grant a licence or revised licence unless it is satisfied that emissions comply with relevant emission limit values and standards prescribed under regulation. 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 Act 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 Act 2015 as amended. The RD gives effect to the requirements of the EPA Act, and has regard to submission made.

This report was prepared by Greg Beechinor and Niamh Connolly.

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

Signed



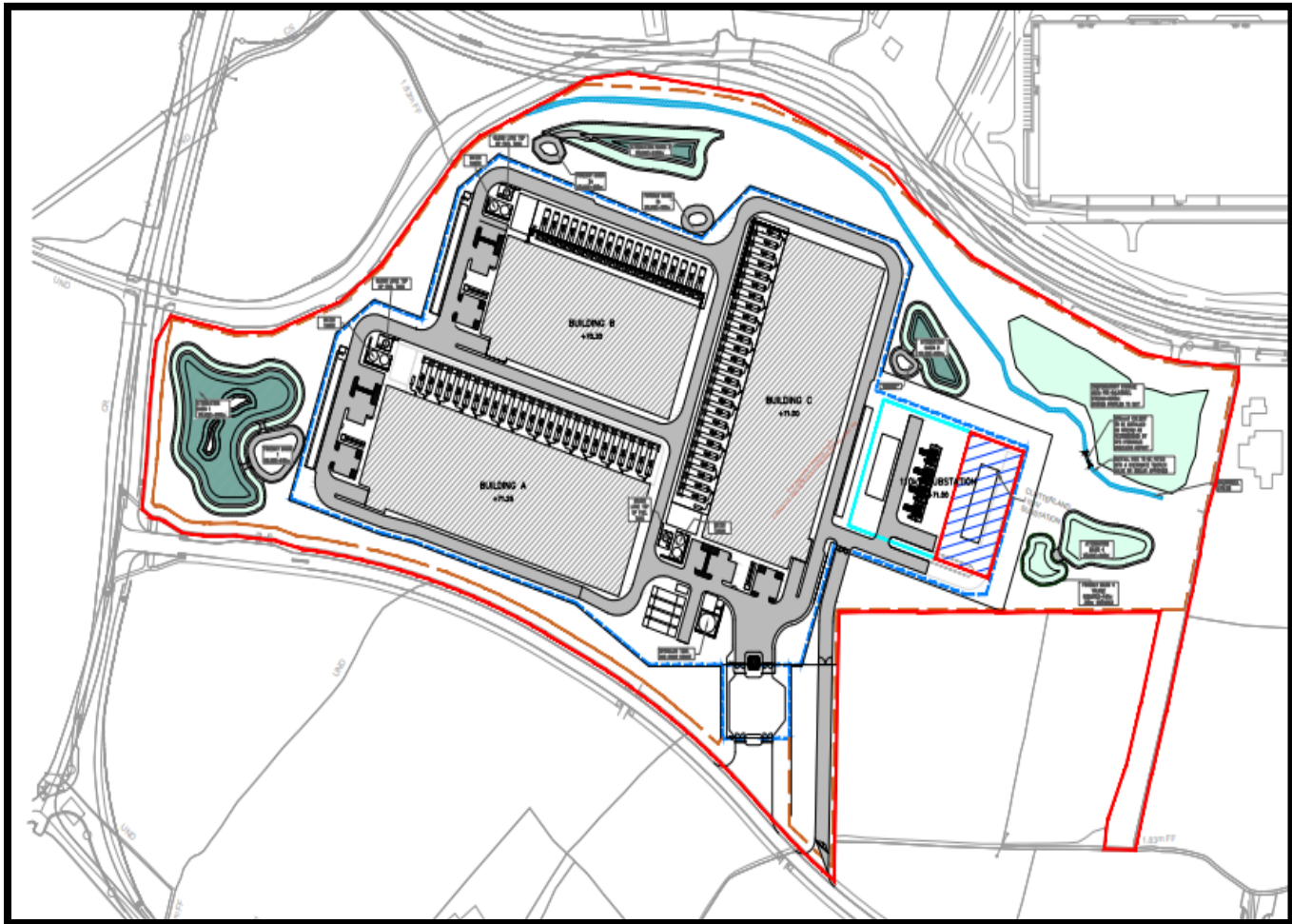
 Greg Beechinor

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 Environmental Protection Agency Act 1992, as amended, 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 17 January 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	<p>Habitats 7220 Petrifying springs with tufa formation (Cratoneurion)*</p> <p>Species 1014 Narrow-mouthed Whorl Snail (<i>Vertigo angustior</i>) 1016 Desmoulin's Whorl Snail (<i>Vertigo moulinsiana</i>)</p>	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	<p>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)*</p>	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	<p>Habitats 3110 Oligotrophic waters containing very few minerals of sandy plains (<i>Littorelletalia uniflorae</i>) 3160 Natural dystrophic lakes and ponds 4010 Northern Atlantic wet heaths with <i>Erica tetralix</i> 4030 European dry heaths 4060 Alpine and Boreal heaths 6130 Calaminarian grasslands of the <i>Violetalia calaminariae</i> 6230 Species-rich <i>Nardus</i> 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 (<i>Androsacetalia alpinae</i> and <i>Galeopsietalia ladani</i>) 8210 Calcareous rocky slopes with</p>	NPWS (2017) Conservation Objectives: Wicklow Mountains SAC 002122. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs.

Site Code	Site Name	Qualifying Interests (* denotes a priority habitat)	Conservation Objectives
		<p>chasmophytic vegetation 8220 Siliceous rocky slopes with chasmophytic vegetation 91A0 Old sessile oak woods with Ilex and Blechnum in the British Isles</p> <p>Species 1355 Otter (<i>Lutra lutra</i>)</p>	
000210	South Dublin Bay SAC	<p>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</p>	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	<p>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 1330 Atlantic salt meadows (<i>Glaucopuccinellietalia maritimae</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</p> <p>Species 1395 Petalwort (<i>Petalophyllum ralfsii</i>)</p>	NPWS (2013) Conservation Objectives: North Dublin Bay SAC 000206. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.
004024	South Dublin Bay and River Tolka Estuary SPA	<p>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>)</p>	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.

Site Code	Site Name	Qualifying Interests (* denotes a priority habitat)	Conservation Objectives
		A194 Arctic Tern (<i>Sterna paradisaea</i>) Habitats A999 Wetlands	
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>) A143 Knot (<i>Calidris canutus</i>) A144 Sanderling (<i>Calidris alba</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)
Energy Efficiency Directive (2018/2002/EU)

The following European instruments are regarded as relevant to this application assessment and have been considered in the drafting of the Recommended Determination.

Environmental Liability Directive (2004/35/CE)