

***This Report has been cleared for submission to the Director by Programme Manager,
Marie O'Connor***

Signed: Marie O'Connor **Date:** 24/08/23



**OFFICE OF ENVIRONMENTAL
SUSTAINABILITY**

**INSPECTOR'S REPORT ON AN INDUSTRIAL EMISSIONS LICENCE
APPLICATION, LICENCE REGISTER NUMBER P1192-01**

TO: DIRECTOR

FROM: DAVID MATTHEWS

DATE: 24 AUGUST 2023

Applicant:	Runways Information Services Limited
CRO number:	553841
Location/address:	Slí Na Cháirde, Portan, Clonee, County Meath
Application date:	13 February 2023
Classes of Activity (under EPA Act 1992 as amended):	2.1 Combustion of fuels in installations with a total rated thermal input of 50 MW or more.
Category/ies of activity under IED (2010/75/EU):	1.1 Combustion of fuels in installations with a total rated thermal input of 50 MW or more
Main BREF document/CID/BAT Note:	N/A. All relevant CIDs, BREF documents and National BAT notes are listed in Section 5 of this report.
Activity description/background:	Data centre with 90 diesel generators to provide power in the event of a loss or reduction in electricity supply from the grid.
Additional information received:	Yes (27 April 2023, and 11 May 2023).
No. of submissions received:	2
Environmental Impact Assessment required: Yes	Stage 2 Appropriate Assessment required: No
Environmental Impact Assessment Report submitted (EIAR): Yes 13 February 2023	
Site visit: None	Site notice check: 25 February 2023

1. Introduction

Runways Information Services Limited or the applicant, currently operate a data storage installation on a 133.06 hectare site in the townlands of Gunnocks, Portan, Loughsallagh and Clonee, County Meath. The site consists of 5 no. data storage installations (Buildings CLN1, CLN2, CLN3, CLN5, and CLN6). There are a total of c. 270 people employed onsite.

The data storage installation serves as a centralised computer server system consisting of data halls, which contain server units, which host, manage and distribute electronic data. The data storage buildings also include supporting mechanical and electrical rooms, as well as redundancy systems for emergency back-up.

Given that the installation requires a continuous supply of electricity to operate, under normal operating conditions the installation is supplied electricity from the National Grid. However, outside of normal operating conditions, the site is supplied electricity by some or all of the onsite generators depending on the energy demand of the data storage installation. Typically, the generators will be brought online in the event of a loss, reduction or instability of grid power supply; critical maintenance of power systems; or a request from the grid operator to reduce grid electricity load.

The data storage campus is located approximately 7 km north of the M50, and adjacent to the M3, just outside the villages of Clonee and Dunboyne. The area is surrounded by a mixture of rural housing, agricultural land, and industrial developments.

2. Description of activity

The site is occupied by five no. data storage buildings (Figure 2.1), with ancillary elements, including roof-level mechanical plant, ground-level generators, transformers, water treatment rooms, stormwater attenuation, and associated office, security and utility spaces.

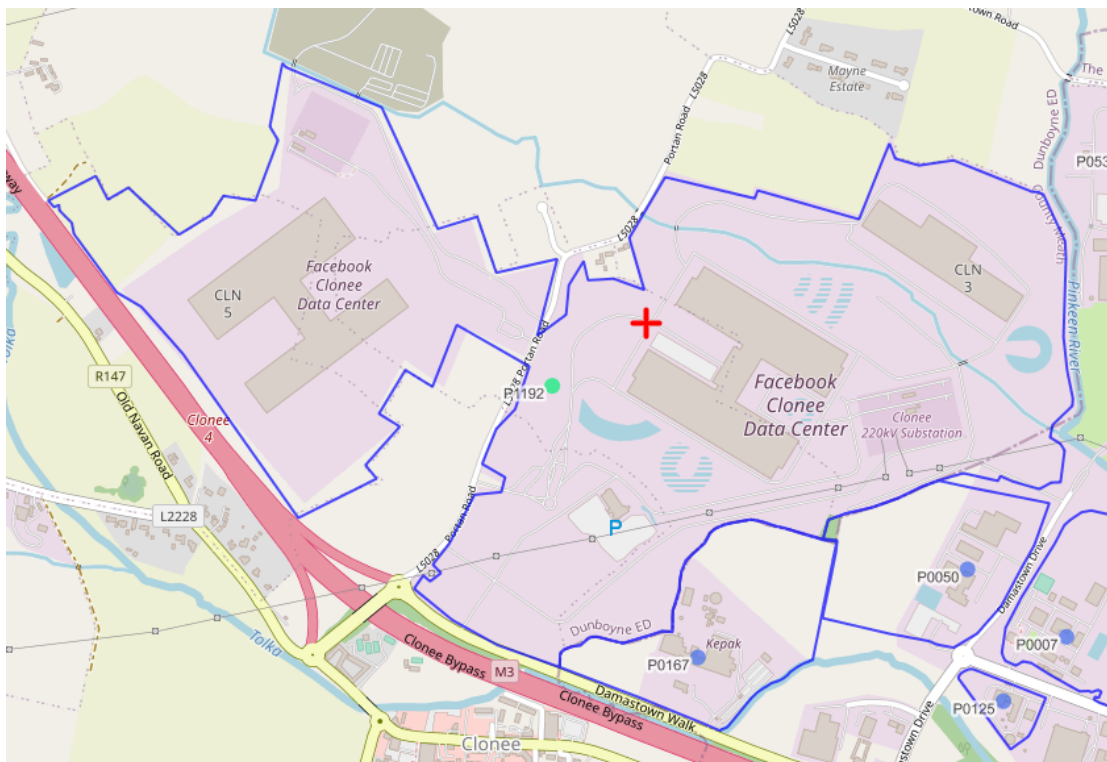


Figure 2.1: Location of the applicant's site relative to the closest sensitive receptors and other industrial sites.

The applicant has applied to the Agency for an Industrial Emissions Licence, because the combined thermal input from the 90 no. 8.26 MW_{th} generators is 743.4 MW_{th}, which exceeds the 50 MW_{th} threshold of Class 2.1¹ of the First Schedule of the EPA Act 1992, as amended, and therefore requires an IE licence.

The main emissions from the installation include noise and emissions to air from the generators (routine testing & outside normal operating conditions), stormwater discharges and emissions to sewer (process water).

3. Planning Status

A number of planning applications have been made by the applicant for the area within the installation boundary. Details of the relevant planning applications and permissions have been provided in the licence application form. These include planning permission ref: RA/150605, which was granted by Meath County Council in 2015 and following an appeal permission was granted by An Bord Pleanála (Ref: PL.245347). Planning permission ref: RA/180671 was granted by Meath County Council in 2018. Planning has also been granted by An Bord Pleanála for substation infrastructure as Strategic Infrastructure Development under Section 182A of the Planning and Development Act (Refs: PL17VA0018, ABP-301172-18 and ABP-301923-18).

The applicant has submitted an Environmental Impact Assessment Report (EIAR) dated June 2018 associated with planning permission RA/180671, as part of the licence application. The applicant also submitted an Environmental Impact Statement (EIS) dated June 2015 associated with planning permission RA/150605 (ABP Ref: PL.245347).

4. EIA Screening

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

In accordance with the EIA Screening Determination, the Agency has determined that the activity is likely to have a significant effect on the environment, and accordingly is carrying out an assessment for the purposes of EIA. The activity exceeds the following threshold in Part 2 of Schedule 5 of the Planning and Development Regulations 2001 as amended:

Class 10 (b) (iv) Urban development which would involve an area greater than 2 hectares in the case of a business district, 10 hectares in the case of other parts of a built-up area and 20 hectares elsewhere.

¹ The production of energy in combustion plant the rated thermal input of which is equal to or greater than 50 MW other than any such plant which makes direct use of the products of combustion in a manufacturing process.

An EIAR associated with Planning ref: RA/180671 and an EIS associated with Planning ref: RA/150605 (ABP Ref: PL.245347) were submitted to the Agency as part of the licence application on 13 February 2023. This is dealt with in the EIA Section later in this report.

5. Best Available Techniques

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

The individual generators are less than 15 MW_{th} and 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 MW_{th}, have been applied.

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

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

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

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

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

6. Emissions

6.1 Emissions to Air

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

6.1.1 Channelled Emissions to Air

Emissions to air are from the combustion of fuels in diesel generators at the installation (Table 6.1 below). Each building has 18 no. 8.26 MW_{th} generators, two of which act as standby/reserve capacity. The generators in Building CLN5 and CLN6 are fitted with selective catalytic reduction (SCR) NO_x abatement.

Table 6.1 Details of generators at the installation.

Building	No.	Capacity (MW thermal input)	Stack height above ground level (m)
CLN1	18	18 x 8.26	12.1m
CLN2	18	18 x 8.26	12.1m
CLN3	18	18 x 8.26	12.1m
CLN5	18	18 x 8.26	12.1m
CLN6	18	18 x 8.26	12.1m
Total	90	743.4	

Each generator is a Medium Combustion Plant (MCP). The diesel generators are not proposed to be operated more than 500 hours per year. Under Reg. 13 of the Medium Combustion Plant Regulations (S.I. No. 595 of 2017), plant which operate for not more than 500 hours per year are not required to comply with the emission limit values set out in the Regulations. The applicant has requested this exemption be applied, based on the proposed limited use of the generators at the installation.

The generators will have emissions of NO_x, CO, SO₂, and particulate matter. As part of the application, air dispersion modelling was carried out to assess the impact on ambient air quality from these emissions. Modelling of NO_x as NO₂ was undertaken in detail. However, no detailed modelling for the other pollutants including CO, SO₂, PM₁₀ and PM_{2.5} was undertaken, given that emissions of these pollutants are significantly lower than NO_x emissions from the generators, relative to their ambient air quality standards. Therefore, ensuring compliance with the NO₂ air quality standard will ensure compliance for all other pollutants.

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

The modelling was carried out using five years of meteorological data (2016 to 2020 inclusive) from the Dublin Airport meteorological station, approximately 9km east of the site. The modelling was used to predict the ambient ground level concentrations for each hour of the five years of meteorological data, at every point on a grid beyond the installation boundary, as well as at nearby residential receptors.

The installation is located in Zone D (Rural) bordering Zone A (Dublin). As a conservative approach, the background concentration from Zone A (Dublin) was used. A concentration of 15 µg/m³ was considered representative of the annual average ambient background for NO₂, based on five years of data from the EPA air monitor at Swords. A short-term (hourly) background of twice the annual (i.e., 30 µg/m³) was used as per Agency guidance. The ambient background concentration (BC) is added to the modelled process contribution (PC) from the installation to determine the predicted environmental concentration (PEC).

Emissions from the installation consist of emissions from generator testing and operation of the generators. The modelled scenario was as follows:

- The emergency operation at 100% load of 80 no. of the 90 no. diesel generators (the remaining 10 generators serving as “reserve” generators for Buildings CLN1, CLN2, CLN3, CLN5 and CLN6;
- The scenario also included weekly testing of all 90 no. generators, based on two generators running per building for one hour every week at 100% load, and thus ten generators will be tested per hour across the campus. All testing is assumed to only occur between 8am and 5pm, Monday to Friday.

For modelling purposes, operation was assumed to occur for 200 hours per year, also at 100% load.

Emissions under emergency operation were modelled as an average emission rate, rather than the maximum, as per Agency guidance on modelling of emissions from generators. The modelling analysis was then based on assuming continuous operation at the average hourly rate, i.e. the maximum hourly rate x (200/8760).

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

Table 6.2 Dispersion Model Results – emergency operations and scheduled testing

Parameter	Averaging Period	Background concentration ($\mu\text{g}/\text{m}^3$)	Process contribution to PEC ($\mu\text{g}/\text{m}^3$)	Predicted Environmental Concentration (PEC) ($\mu\text{g}/\text{m}^3$)	PEC as % of Air Quality Standard	Air Quality Standards/ Guidelines ($\mu\text{g}/\text{m}^3$)
Nitrogen Oxides (as NO_2)	99.8%ile hourly (2019)	30	99.4	129.4	65	200
	Annual (2019)	15	15.7	30.7	77	40

For the ambient 1-hour limit value (99.8%ile), the maximum predicted environmental NO_2 concentration was 65% of the standard. For the annual mean, emissions from the installation accounted for 77% of the standard at the worst off-site location.

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

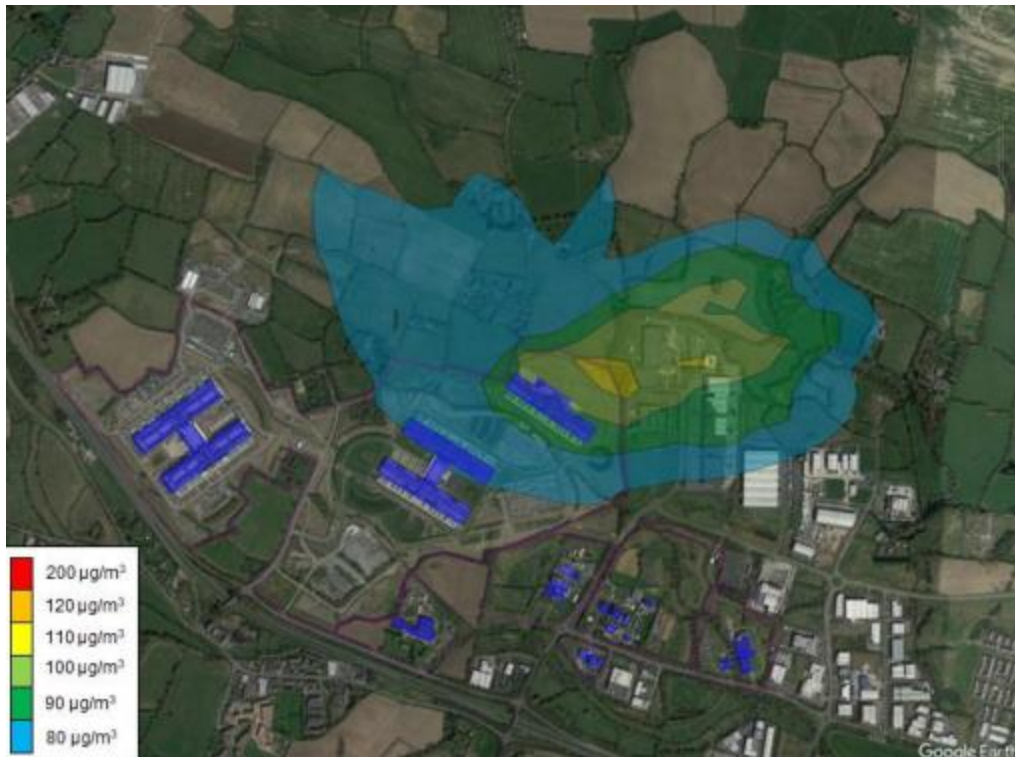


Figure 6.1: Maximum 1-hour NO_2 concentration (Predicted Environmental Concentration) for the worst-case year (2019). [Source: Letter from Applicant - 217501.1084AR03 Cumulative Air Modelling Assessment, April 2023].

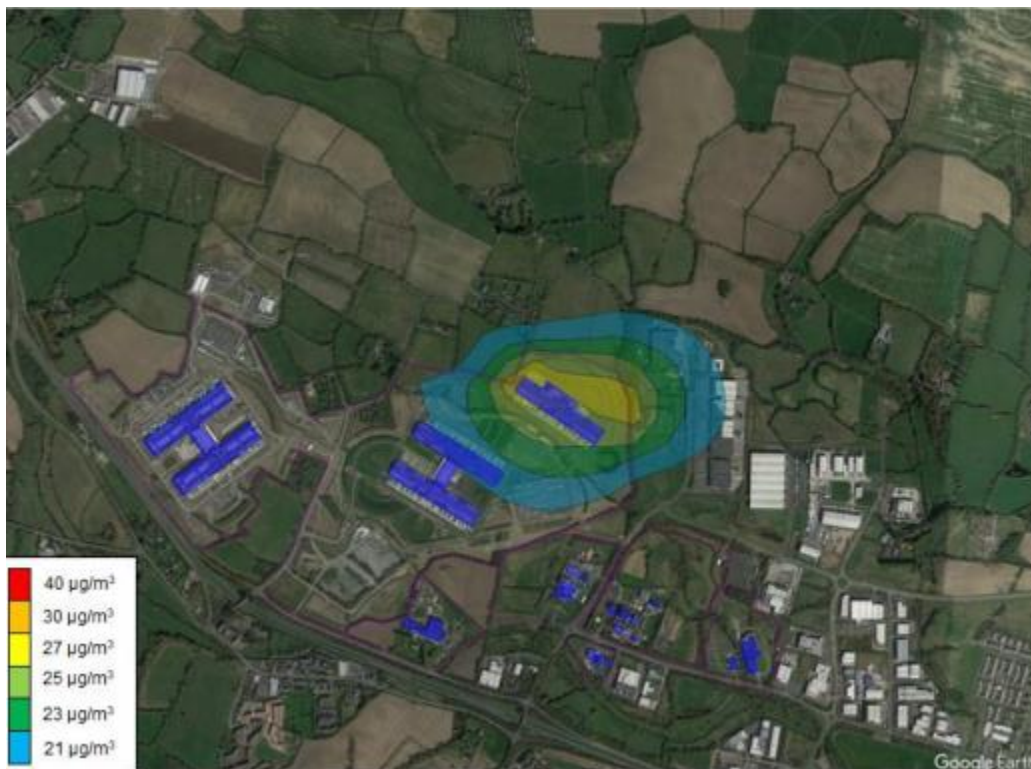


Figure 6.2: Maximum annual average NO₂ concentration (Predicted Environmental Concentration) for the worst-case year (2019). [Source: Letter from Applicant - 217501.1084AR03 Cumulative Air Modelling Assessment, April 2023].

The results indicate that the predicted ambient concentrations are within the relevant air quality standards. The modelling approach can be regarded as conservative as it includes a number of assumptions, e.g., that testing is carried out once a week for an hour at maximum load – in practice the generators are tested less frequently and at lower load.

Cumulative assessment

A cumulative air dispersion modelling assessment was carried out to assess the impact of emissions from the installation and other EPA licensed installations in the area. The other installations included in the cumulative modelling were Astellas Ireland Co., Ltd (P0007-03), Guerbet Ireland ULC (P0050-02), Clarochem Ireland Limited (P0125-02), Kepak Clonee (P0167-02), and Rottapharm Limited (P0886-02).

The following assumptions were made for the cumulative assessment:

- Conservative background concentrations were used in the assessment;
- The emergency operation of 80 no. of the 90 no. diesel generators (the remaining 10 generators serving as “reserve” generators for Buildings CLN1, CLN2, CLN3, CLN5 and CLN6) in addition to five nearby IE licence installations;
- Emergency operations were assumed to occur for a maximum of 200 hours per year calculated according to USEPA methodology, in reality generators are likely to only to be used for emergency operation for 24 – 48 hours per year in the rare event of a power outage;
- Testing of the generators was assumed to occur for one hour each week for each generator at 100% load, two generators at a time on each building (10 generators across the campus); in reality testing is more likely to occur less frequently and at lower load;
- All testing is assumed to only occur between 8am and 5pm, Monday to Friday.
- For the relevant IE licenced installations included in the model, the relevant emission points on the external sites which are licenced to release nitrogen oxides (NO_x) were included in the cumulative assessment.

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

Table 6.3 Dispersion Model Results – cumulative assessment

Parameter	Averaging Period	Background concentration ($\mu\text{g}/\text{m}^3$)	Process contribution to PEC ($\mu\text{g}/\text{m}^3$)	Predicted Environmental Concentration (PEC) ($\mu\text{g}/\text{m}^3$)	PEC as % of Air Quality Standard	Air Quality Standards/Guidelines ($\mu\text{g}/\text{m}^3$)
Nitrogen Oxides (as NO_2)	99.8%ile hourly (2018)	30	101.2	131.2	66	200
	Annual (2018)	15	16.9	31.9	80	40

The results indicate that the ambient ground level concentrations are within the relevant air quality standards for NO_2 . For the worst-case year modelled, cumulative emissions from all generators and five nearby IE licenced facilities lead to an ambient NO_2 concentration (including background) which is 66% of the maximum ambient 1-hour limit value (measured as a 99.8th percentile) and 80% of the annual limit value at the worst-case off-site receptor.

The contour plots supplied with the modelling report (below) show the location and extent of the areas where the maximum PC applies (excluding background), and also the rate of drop in ambient concentration with distance from the location of the maximum. The locations of the maximum concentrations for NO_2 are close to the boundary of the Runway installation, with concentrations decreasing with distance from the installation.



Figure 6.3: Maximum 1-hour NO_2 concentration (Predicted Environmental Concentration) for the worst-case year (2018) under cumulative scenario. [Source: Letter from Applicant - 217501.1084AR03 Cumulative Air Modelling Assessment, April 2023].

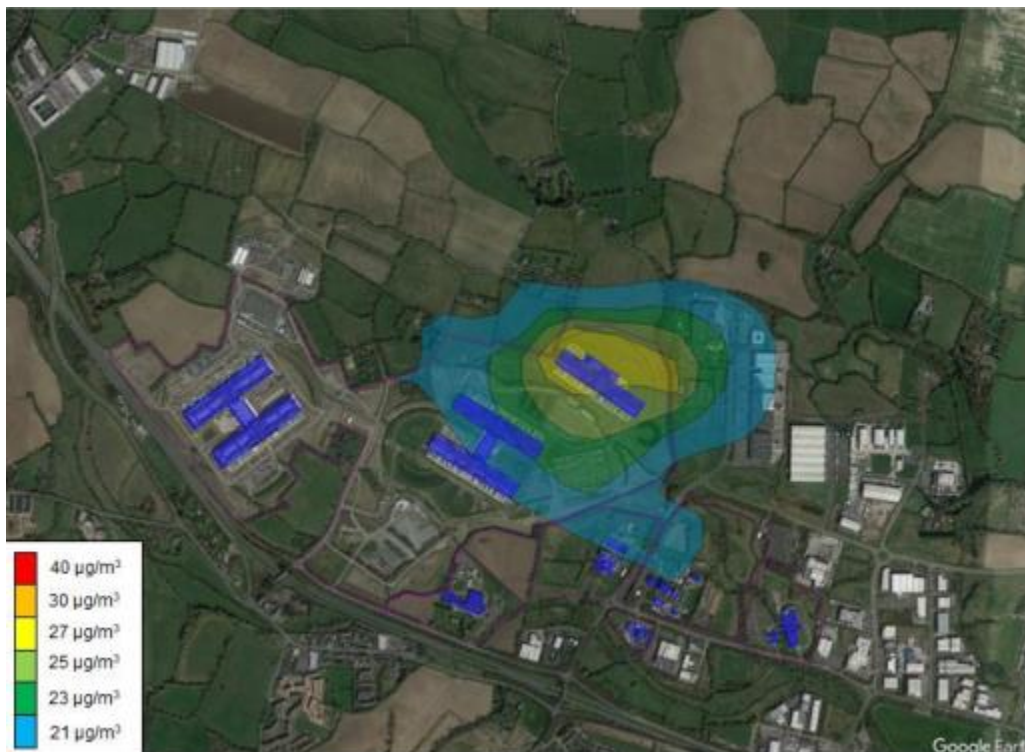


Figure 6.4: Maximum annual average concentration of NO₂ (Predicted Environmental Concentration) for the worst-case year (2019) under cumulative scenario. [Source: Letter from Applicant - 217501.1084AR03 Cumulative Air Modelling Assessment, April 2023].

In the context of ecological receptors, the nearest sensitive receptor (Royal Canal Proposed NHA), is located approximately 3km south of the installation. The modelling indicates that the impacts of the emissions at this distance will be negligible and indistinguishable from background concentrations.

Recommendation

The air dispersion modelling assessment indicates that under normal operations, emissions from the installation will not give rise to impacts on air quality standards.

- The RD requires monitoring of emissions from the diesel generators at least once every five years, in line with the MCP Regulations (Schedule C).
- The RD limits the operation of diesel generators to 200 hours per year, with no more than 660.8 MWth operating simultaneously, based on the modelling above (Schedule A).
- The RD also restricts the testing of the generators to a maximum of once per week of all 90 no. generators on the campus at 100% load, for a maximum of one hour each, two generators at a time on each building (10 generators across the campus), sequentially; and testing can only occur between 8am and 5pm, Monday to Friday (Schedule A).

- If one or more of the generators is unavailable due to maintenance, then under Schedule A, the applicant may operate mobile generators in lieu of the stationary generator(s) provided that the combined thermal input of the generators in operation does not exceed the MWth capacity specified in Schedule A.
- Condition 2 of the RD requires the applicant to evaluate options for reducing emissions and improving dispersion of emissions from generators during testing, maintenance and operation.
- Condition 11 requires the applicant to maintain a record the type and quantity of fuel used, run times and loading under both testing/maintenance and operating scenarios.
- 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 to that permitted under Schedule A of the RD (Condition 3)

6.2 Emissions to Water/Sewer

6.2.1 Emissions to Surface Waters

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

6.2.2 Emissions to Sewer

Foul effluent and the residual cooling water associated with the evaporative cooling process (Buildings CLN1, CLN2, CLN3, CLN5 and CLN6) is currently being discharged from the cooling systems to the foul sewer network at SE1 (CLN1, CLN2, & CLN3) and SE2 (CLN5 & CLN6), when the ambient air temperature is above a setpoint ($>30^{\circ}\text{C}$).

The cooling system for the Data Centre IT Equipment at buildings CLN1, CLN2, and CLN3 consists of roof mounted Indirect Air Cooling (IAC) units located on the roof of each Data Centre building. Indirect Air Cooling units (IAC) uses the local ambient (colder) air to cool the servers inside the Data Centre buildings and operates in two different modes, dry cooling and wet cooling mode (adiabatic mode). The cooling system for the Data Centre IT Equipment at buildings CLN 5 and CLN6 is a new technology referred to as Statepoint Liquid Cooling (SPLC) that will reduce the amount of process water demand, in comparison to conventional technologies, to achieve desired cooling. Similar to the IAC cooling units, the SPLC units operate in dry cooling and wet cooling mode, and operate in one of three modes to optimize water and power consumption, depending on outside temperature and humidity levels. The SPLC requires less water than other cooling systems, because it uses air to cool water instead of using water to cool air.

There is process water demand on the Uisce Éireann mains supply to provide the required water for the IAC / SPLC units' wet cooling mode. The volume of water used is therefore related to ambient temperature, and will fluctuate in order to maintain the Data Centre at optimal temperatures and humidity. During wet cooling mode operations,

water use is optimised through the recirculation of cooling water, with water consumed through evaporation. Once the cooling water reaches a setpoint level of ion concentration, it is discharged via pumping stations on site to the wastewater network.

Water treatment for scale and bacteria prevention, and pH adjustment is undertaken on site to treat the incoming water supply for the process cooling water at CLN1, CLN2, CLN3, CLN5 and CLN6. There are two treatment rooms within each of the Data Centre buildings, accounting for a total of 10 no. water treatment rooms across the installation. Water treatment is only undertaken for the cooling water in the IAC / SPLC units. The domestic consumptive water use on site is provided direct from the mains supply. The process wastewater is collected in an underground process drainage system, that is separated from the domestic foul wastewater system.

The pumping stations pump the combined domestic and process wastewater to the Uisce Éireann wastewater network located on the R147 road, which then discharges into the 9C sewer. The Uisce Éireann sewer network ultimately discharges to Ringsend Wastewater Treatment Plant (Reg. No. D0034-01). There are no on-site wastewater treatment systems. Due to the hydraulic restriction on the 9C sewer, the network does not have capacity to cater for the sanitary and process effluent discharge at times of high flow, and therefore, a wastewater buffer tank is provided at each pumping station to store the equivalent peak volume of discharge over a 24 hour period.

Ringsend WWTP (D0034-01) is designed to provide secondary treatment. Treated effluent from the Ringsend WWTP is discharged to the Liffey Estuary Lower. According to EPA Maps, the coastal water quality for Dublin Bay has a reported status of unpolluted for the period 2018-2020.

The RD specifies emission limit values for parameters and monitoring requirements in line with the Section 99E Consent Notification received from Uisce Éireann. The S99 consent requires two sets of emission limits (loadings in kgs/day), one set to apply during periods of normal flow volumes ('Average Load' in the RD) in the 9C sewer, and a second, higher set of limits ('Max Load' in the RD) to apply for a 48 hour period, following a 24 hour period when no discharge is allowed to the 9C sewer, as described above. Condition 11 of the RD requires the licensee to keep records of all periods when process effluent is being stored on site, and periods when the maximum loadings apply. The licensee shall maintain records of all events where Uisce Éireann has notified them that the 9C sewer is at capacity, and when trade effluent discharge is required to be held on site. Records shall also be kept of the dates and times of resumption of discharges to sewer.

Given the above, it is considered that the recommended ELVs for this discharge to sewer at SE1 and SE2 are considered to satisfy the requirements of the IED, the WFD, and the EPA Act 1992, as amended.

6.3 Storm water discharges

Storm water discharges, which includes storm water from roofs and hardstanding areas (roads, loading bays, and footpaths) is attenuated before discharging off site at SW1 to

SW8. There are no process emissions to the storm water network. Stormwater from the installation discharges to the neighbouring local drainage ditches, Pace Stream and Portan Stream, which flows to the Tolka River, and outflow to Dublin Bay 15 km downstream of the Site.

All surface water from the generator yards, loading docks and car parking areas are treated for possible hydrocarbon content, prior to being directed to one of 12 no. attenuation ponds. The 12 no. attenuation ponds are as follows:

- Attenuation Pond No.1A discharges to emission point SW1;
- Attenuation Pond No.2A, No.3A, and No.4A discharges to emission point SW2;
- Attenuation Pond No.5A discharges to emission point SW3;
- Attenuation Pond No.6A discharges to emission point SW4;
- Attenuation Pond No.7A discharges to emission point SW5;
- Attenuation Pond No.1B, No.2B, and No.3B discharges to emission point SW6;
- Attenuation Pond No.4B discharges to emission point SW7;
- Attenuation Pond No.5B discharges to emission point SW8.

There is no bulk tank farm for diesel storage on site. Diesel is stored in belly tanks below each individual generator. The belly tanks have an integrated double skin with a 110% capacity, a retention bund within the container, and leak detection systems in the base. The belly tanks are equipped with monitoring and alarm systems, with internal level gauge sensor which are connected to an onboard controller which will alarm (audible) to prevent overfilling or a sudden loss of fuel within the tank. The onboard controller for individual generators is connected to the central critical alarm. When deliveries of fuel occur at the installation, the stormwater system for the generator yard, where the deliveries occur, is shut off. If a spill occurs on the generator hardstanding yard during fuel unloading, this can be rectified without contamination entering the stormwater network.

The hydrocarbon interceptors at the generator yards drainage systems are Class 1 full retention, and have been designed to contain the largest volume of oil held in any individual tank within the yard area drained (40,000 litres or 40,050 litres dependant on the location) plus an allowance for a 1 in 25 year rainfall event across the full yard area feeding into the drainage system. In addition, the interceptors have a high oil level float valve installed, which will isolate the drainage outlet from the interceptor, hence containing fuel oil should a major spill occur. The full retention interceptors are equipped with oil level detection and connect to the central critical alarm. The surface water run-off from the installation is limited to a pre-development greenfield run-off rate, which is limited by means of a hydrobrake flow control at each discharge point.

The table 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.

Stormwater discharge point details					
Emission Reference	Monitored parameters (monitoring frequency)	Abatement	Drainage areas	Discharging to	Trigger levels established (Y/N)
SW1-SW8 (with monitoring locations at SW1-1, to SW8-1)	Visual (daily); pH, conductivity, TOC, and temperature (weekly)	Class I full retention separators	Buildings, site roads and walkways, generator area, car parks	Tolka River via local drainage ditches - Pace Stream and Portan Stream	pH, conductivity, temperature, and TOC, required by RD.
Automatic diversion in place:	There are twelve attenuation ponds at the installation, and therefore the storm water discharge from the attention ponds to the storm water drainage ditch can be shut off using the hydro brake.				

The RD requires the applicant to maintain the storm water drainage system. The RD also requires that the storm water discharge is visually inspected daily, and monitored for temperature, conductivity, total organic carbon (TOC) and pH weekly, and for any other parameters as required by the Agency, in accordance with *Schedule C.2.3 Monitoring of Storm Water Emissions*. It should be noted that the trigger values may be revised, to the satisfaction of the Agency under Condition 6 of the RD.

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

6.4 Noise

The installation is located to the north and east of the urban areas of Clonee and Dunboyne respectively. The closest residential properties are located immediately adjacent to the site boundary, along the Portan Road (L5028), which bisects the site. There are other nearby residential properties to the west and north. The primary source of noise is expected to arise from the installation's building service plant (i.e. the AHU air intake, and the AHU air exhaust), as well as the operation of the generators during testing and emergency scenarios (i.e. generator air intake, generator air exhaust, and generator engine exhaust).

In support of its licence application, the applicant has submitted a noise assessment in accordance with the Agency's NG4 Guidance. A baseline noise survey was conducted at seven noise sensitive locations. The predominate source of noise at each of the locations monitored was road traffic from the M3 motorway.

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

- A. Standard operation: This is the normal daily site operation and is inclusive of installation noise sources, in addition to the substation transformers during

- daytime and evening periods. This scenario includes generators under test closest to eastern noise sensitive receptors during daytime periods;
- B. As above, but this scenario includes generators under test closest to western noise sensitive receptors during daytime periods;
 - C. As per scenarios A and B, but with the addition of noise from the substation transformers during night-time periods;
 - D. Representative of an emergency situation, whereby all generators are operated, due to either a loss, reduction or instability of grid power supply, critical maintenance to power systems, or a request from the grid operator to reduce demand on the grid during daytime and evening periods;
 - E. As per scenario D, but during night-time periods.

Proprietary noise calculation software was used to quantify the noise level associated with the installation. Based on the noise assessment, it is evident that under normal operating conditions (Scenarios A, B, and C), and under daytime emergency conditions (Scenario D), that the installation will be compliant with the standard daytime, evening time and night-time limits at the boundary. However, under Scenario E (generators operating at night), it is evident that the installation would not be able to comply with the standard evening time (50 dB) and night-time limits (45 dB). In its application, the applicant has proposed that a higher evening time and night-time limit of 55 dB LAeq should be applicable in a scenario when the generators are in operation.

It is noted that NG4 states "In some instances, licensed sites will have certain items of emergency equipment (e.g., standby generators) that will only operate in urgent situations (e.g., grid power failure). Depending upon the context, it may be deemed permissible for such items of equipment to give rise to exceedances in the noise criteria/limits during limited testing and emergency operation only. If such equipment is in regular use for any purposes other than intermittent testing, it is subject to the standard limit values for the site".

Given that the generators could be operated for an extended period, it is considered that the standard noise limit values should apply at the noise sensitive locations, given their proximity to the installation boundary.

Based on the foregoing, the RD requires compliance with the standard noise emission limit values at noise sensitive locations. Noise limits at sensitive receptors have been imposed by the planning authority (planning permission ref. no. RA180671). Imposition of standard noise limits at noise sensitive locations will achieve or surpass these limits.

Furthermore, as the noise levels under the worst-case scenario, Scenario E (night-time operation of all generators) may lead to an exceedance of the standard noise limits at the noise sensitive locations, the RD includes a requirement on the applicant to prepare a Noise Management Plan (Condition 6). The Noise Management Plan will ensure that the necessary actions are taken onsite to ensure compliance with the noise limits at the noise sensitive locations, within six months of the date of grant of licence.

7. Waste generation

Certain wastes are generated on site as part of the licensable activity. The categories of waste that will be generated from the proposed activity will include general waste, dry mixed recyclables, food/organic waste, paper, waste oil, oily water from separators, and non-hazardous WEEE. A full list of waste streams that will be generated at the installation, and conditions under which such waste streams will arise, have been provided in Attachment 8.1 of the application form.

The applicant will apply measures at the installation for the prevention and/or minimisation of waste. Hazardous waste, such as waste oil from the maintenance of the generators, shall be stored and managed as hazardous waste, until it is disposed of off-site by a licenced/permitted contractor.

As outlined in attachment 8-1-2 of the application form, 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 (primarily diesel) and electricity. Table 8.1 below provides the applicant's estimated quantities of maximum quantities of energy and resources that will be used.

Table 8.1: Energy and resource use at the installation

Resource	Quantity per annum
Electricity	1,261,000 MWh
Gas oil (diesel)	1,872 m ³
Public Water	1,065,000 m ³

The applicant is currently trialling the use of hydrotreated vegetable oil (HVO), also called renewable diesel, on a limited number of generators at the installation, and plans to continue to explore its suitability as a replacement or supplement for conventional diesel fuel.

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. The installation uses energy-efficient lighting, cooling, servers, and other equipment to minimize energy usage.

In the application of BAT, Condition 7 of the RD 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 RD.

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 CO₂-eq. emissions from the sector by between 2 to 4 Mt CO₂-eq. by 2030, which is to be largely facilitated by increasing the share of renewable energy generation up to 80% by 2030.

Condition 7 of the RD requires the applicant to carry out a feasibility study on how to decarbonise the activity 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.

The Government Statement on the Role of Data Centres in Ireland's Enterprise Strategy recognises data centres as core digital infrastructure for both Ireland's and Europe's digital economies, and for strengthening Ireland's position as a strategic international location for IT services. Government policy seeks to facilitate the 'twin transitions' of digitalisation and decarbonisation of our economy and society, and the RD has regard to the principles set out in the statement, in particular in relation to decarbonisation and energy efficiency. Condition 7 of the RD 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/EU (EED) mandates that large organisations complete energy audits. The SEAI manages and oversees compliance with Ireland's obligations under Article 8 of the EED. However, Condition 7 of the RD requires the applicant to carry out an audit of energy use and the energy efficiency of the site within one year of the date of grant of this licence and repeat the audit at intervals as required by the Agency.

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

9. Prevention of Accidents

A certain amount of accident risk is associated with the licensable activity. Table 9.1 specifies the risks and associated safety measures relevant to this installation.

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

Table 9.1 Potential Accidents and Measures for Prevention/Limitation of Consequences.

Potential for an accident or hazardous/emergency situation to arise from activities at the installation.	• Potential for fire due to large quantities of diesel stored at the installation, leading to potential for emissions to air, water and/or soil and ground water. • Spillages/leaks due to accidents on-site. • Spills/leaks of oil or gas oil during storage, use or delivery. • Malfunction of the plant including generators, AHUs, etc., leading to the potential for fuel spills, or exceedances of the noise limits. • Failure of the hydrocarbon interceptors, leading to discharges of contaminated storm water.
Preventative/Mitigation measures to reduce the likelihood of accidents and mitigate the effects of the consequences of an accident at the installation.	• Provision and maintenance of adequate bunding. Inspection system to detect leaks in over ground pipes carrying materials other than water. Testing of the integrity and water tightness of all tanks, bunding structures and containers every three years. • All diesel storage tanks are fitted with high/low level alarms, which alarm to a central alarm system. • Fuel delivery will take place within the designated unloading areas under a Standard Operating Procedure (SOP). • 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 generator areas and transformer areas are equipped with a Class 1 full retention hydrocarbon interceptor. • All interceptors at the installation are equipped with an oil warning system, which is connected to a central critical alarm system.
Additional measures provided for in the RD	• Accident prevention and emergency response requirements (Condition 9). • Integrity of tanks to be assessed every 3 years and maintenance carried out as required (Condition 6).

	• Storm water discharge points to be visually monitored (Schedule C). • Firewater retention risk assessment (Condition 3).
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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 approximately 2,214 tonnes. Under the COMAH Regulations (S.I. No. 209 of 2015) the quantity of diesel which qualifies a given site for the application of lower-tier and upper-tier requirements is 2,500 tonnes and 25,000 tonnes respectively. Therefore, the quantity of diesel stored at the site does not exceed the thresholds of the COMAH Regulations.

10. Cessation of Activity

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

The applicant has provided a list of measures to be taken in the event of site closure/cessation of activity. These measures are listed in attachment 9-2-3 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 has previously been used for agriculture purposes only, with no evidence of other past uses, prior to the construction of the original buildings. The report refers to soil and groundwater data from site investigations carried out on the eastern portion of the site in 2014 and on the western portion of the site in 2017. No evidence of soil contamination was found on any part of the site, consistent with previous agricultural use. Slightly elevated aliphatic and aromatic hydrocarbons in the C12-C16 range were observed in three bedrock wells. Later resampling of these wells indicated that concentrations had decreased below the limit of detection in two of the wells and decreased by 85% in the other. A slightly elevated concentration of bis (2-

ethylhexyl) phthalate was observed in a single well. No other parameters exceeded the relevant generic assessment criteria (GAC).

The site is bisected by two minor watercourses, the Portan Stream and Pace Stream, and the Pinkeen River (IE_EA_09P020500) which flows along the eastern boundary of the site. The Portan Stream flows directly to the Tolka River (IE_EA_09T010800), while the Pace Stream discharges to the Pinkeen River, which subsequently joins with the Tolka River approximately 1 km downstream of the installation. The current WFD statuses of all of these water courses is 'poor'. The aquifer beneath the site, which is part of the Dublin groundwater body, is a locally important bedrock aquifer. For the purposes of the WFD, the groundwater body is classified as 'good', with a risk status of 'under review'.

All surface water from the generator yards, loading docks and car parking areas are diverted to class 1 hydrocarbon interceptors, prior to discharge to one of several surface water attenuation ponds around the campus, which form part of a sustainable urban drainage (SUDS) scheme for the Installation.

The only relevant hazardous substances stored onsite are diesel, urea, and various water treatment chemicals. The risk from these substances will be mitigated through routine integrity testing, storage within double skinned tanks, leak detection systems, and in the case of water treatment chemicals, additional remote bunding. Considering the quantities of hazardous substances and the measures to be taken to prevent accidents and incidents, the possibility of soil and groundwater contamination from the activity is considered to be low.

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

- Appropriate bunding for tanks and drum storage areas (Condition 3), with routine integrity testing (Condition 6).
- Waste and hazardous materials are to be stored in designated areas, and protected as may be appropriate against spillage and runoff (Condition 6).

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

11. Fit & Proper Person

Technical Ability

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

Legal Standing

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

ELRA, CRAMP and Financial Provision

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

Fit & Proper Conclusion

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

12. Submissions

There were two valid submissions received in relation to the licence application. The main points raised in the submissions are briefly summarised in the table below.

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.

Submissions			
1.	Name & Position Ms. Eilish O'Reilly	Organisation: Health Service Executive	Date received: 23/03/2023
	Issues raised: In its submission, the HSE noted the following: 1. The perception of noise is subjective and may cause annoyance/nuisance to local receptors even when levels comply with limits set at site boundaries. The applicant should be required to implement a public complaints procedure which ensures that a member of the public can make a complaint and that it will be investigated in a timely manner. The licence should include a condition which requires the applicant to inform local residents of scheduled maintenance of the boilers. The name and contact details of a suitably qualified staff member should be provided to the local community and at the entrance to the datacentre. 2. The air dispersion modelling study has concluded that NO₂ emissions from the operation of the diesel generators will be in compliance with the air quality standards. The EHS is satisfied that the installation will comply with air quality standards which will in turn protect human health. 3. The Irish Government declared a climate and biodiversity emergency in 2019, the Climate Action Plan 2023 sets out a roadmap to halve emissions by 2030. It is incumbent on every energy consumer to reduce energy consumption and green house gas production to protect human health. The licence should require the applicant to use renewable energy technology if available to power the facility and		

Submissions			
	to continuously investigate and implement any proven technology/initiative which reduces the production of green house gases. Agency response: - Noise emissions from the installation are dealt with in detail in the noise section of this report. Condition 2 of the RD requires that a public awareness and communications programme be put in place, and Condition 6 requires a noise management plan to be put in place within 6 months of date of grant of the licence. - The Agency notes the points raised in the submission regarding emissions to air from the diesel generators. - 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.		
2.	Name & Position Ms. Angela Deegan	Organisation: Not Here Not Anywhere	Date received: 24/04/2023
	Issues raised: 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 emissions, which is not in line with the Irish Government's Climate targets and international agreements regarding the use of fossil fuels. For this reason, the application should be rejected. Additional specific points raised in the submission are as follows: - 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 the fact that the generators would be licenced to run up to 500 hours annually and, per the application, would have "Thermal Energy Consumption" of 1872 m3 of "other fuel oil" annually. - Given the increasing levels of disaster incurred with every increment that we warm the climate due to emissions of greenhouse gases, permitting any new fossil fuel infrastructure is unconscionable. The diesel generators in this application have, in total, a rating of 743.4 MW_{th}. If licenced, they could be run for up to 500 hours annually. - 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 allowing data centres to switch to proprietary, fossil-fuelled generation.		

Submissions

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 200 hours annually, with no more than 682.8 MW_{th} 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/Carlton SAC (Site Code: 001398), 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 was made in light of the following reasons:

- The installation is not located within a European site.
- There are no direct process emissions to ground or groundwater from the installation.
- There are no direct process emissions to surface water. The only discharge to water is stormwater runoff from building roofs and hardstanding areas.
- Emissions to sewer (other than sanitary effluent) consist of residual cooling water from the Indirect Air Cooling and Statepoint Liquid Cooling units. This residual cooling water is discharged to sewer and ultimately treated in the EPA licensed Ringsend WWTP (Register Number D0034-01), which is designed to provide secondary treatment with a plant capacity of approximately 1,640,000 population equivalent, which is currently exceeded at the plant. Treated effluent from the Ringsend WWTP is discharged to the Liffey Estuary Lower therefore there is an indirect hydrological connection to the European sites at Dublin Bay. According to EPA Maps, the Transitional Waterbody Water Framework Directive (WFD) Status 2016-2021 for Liffey Estuary Lower is Moderate. The Coastal Waterbody WFD Status 2016-2021 for Dublin Bay is Good. Taking into account the nature of the discharge to sewer from the installation, it is considered that it will not have a significant effect on European Sites in the vicinity of the WWTP Discharge in Dublin Bay.
- European Sites and their qualifying interests are considered to be outside of the zone of influence of noise emissions arising at the installation with the closest European Site being approximately 6kms away (Rye Water Valley/Carlton SAC).

- Air dispersion modelling submitted by the applicant demonstrates that European Sites and their qualifying interests will not be adversely affected by air emissions arising at the installation with the closest European Site being approximately 6kms away (Rye Water Valley/Carlton SAC). Emissions to air consist of combustion emissions (NO₂, CO, SO₂ and particulate matter) from the 90 diesel generators.
- Given the nature and scale of emissions, it is considered that the activity in combination with other plans or projects will not have a significant effect on European Sites.

15. Environmental Impact Assessment

15.1 EIA Introduction

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 EIAR (dated June 2018) and an EIS (dated June 2015). For the purpose of the EIA section of this report, any reference to the EIA documentation received from the applicant shall include the EIAR and EIS.

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 and EIS), any information received through consultation, the documents associated with the assessments carried out by Meath County Council and An Bord Pleanála and their reasoned conclusions, and the issues that interact with the matters that were considered by those authorities 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 EIA documentation received from the applicant complies with the provisions of Article 5 of the 2014 EIA Directive and the 2011 EIA Directive, as appropriate, 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

The Agency consulted Meath County Council, Fingal County Council and An Bord Pleanála under the relevant section of the EPA Act on 16 February 2023. A reminder letter was issued to each on 14 April 2023. The above bodies did not provide any observations to the Agency on the licence application and EIAR or EIS.

15.3 Alternatives

The matter of alternatives is addressed in the EIA documentation received from the applicant. The documentation addresses a 'do nothing scenario' as well as alternative locations, alternative designs/site layouts, and alternative processes. Having selected Ireland as the preferred country due to climatic conditions and the availability of skilled workforce, the EIA documentation describes how a number of locations in Ireland were considered. The EIA documentation describes how the site at Clonee was selected due to land zoning, sufficient site area, environmental, development and infrastructural considerations such as road and motorway access, and the availability of services including electricity, water and telecommunications.

The EIA documentation states that the arrangement of buildings was designed to make the best use of the site, take into account environmental constraints, optimise energy efficiency and for access considerations. The documentation states that a number of iterations were considered before the site layout was selected. Considerations included the Portan and Pace streams which run through the site, flood risk areas and access routes. The applicant considered multi-storey and single-storey data centre buildings, with single storey selected due to being more sustainable for air cooling, minimising visual impact, and flood risk considerations. Alternatives were considered for the server design, heating system (which the EIAR states would facilitate possible future connection to a district heating system), and cooling system (to reduce water consumption).

In terms of the 'do nothing' scenario the EIA documentation states that if the project were not to proceed, then it was likely that an alternative industry would be established on the site, in accordance with the industrial/ warehousing and distribution zoning for the land. In relation to Buildings CLN5-CLN6, this development was an expansion of the existing data centre development (CLN1-CLN3), and the applicant examined adjacent areas to select the preferred site for the additional buildings and infrastructure.

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

15.4 Likely Significant Direct and Indirect Effects

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

- (a) *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 the EIA documentation submitted by the applicant. The installation, which is an existing data centre is located on a 133-hectare site north of Clonee and east of Dunboyne Co. Meath. The M3 motorway is to the south, and there is industry to the east with a number of EPA licenced sites and Damastown Industrial Estate. There is agricultural land to the north and northwest, with individual residential properties. The closest residential properties are adjacent to the installation boundary, along the Portan Road (L5028), which runs between the two parts of the site. There are other residential properties in the vicinity to the west and north (including The Mayne housing estate), and on the far side of the M3 motorway to the south.

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

The main emissions from the installation are emissions to air from the generators, noise emissions and emissions to sewer of residual cooling water. There are emissions to air (NO_x/NO₂, CO, SO₂ and particulate matter) from the diesel generator stacks when operational (as described earlier in this report). Air dispersion modelling submitted by the applicant assessed potential effects on air quality arising from the installation alone and as part of a cumulative assessment. It is considered that there is not likely to be a significant effect on air quality from the installation alone or as part of a cumulative assessment with other activities/developments, as described below.

The primary sources of noise are the installation's building service plant and operation of the generators. There is the potential for significant effects in relation to noise when all generators at the installation are in operation, taking into account the locations of the nearest residential properties.

There are no direct process emissions to surface waters from the installation. Residual cooling water associated with Air Handling Units is directed to the sewer system, from where it is directed to the EPA Licensed Ringsend Municipal Wastewater Treatment Plant (D0034-01) for treatment. Taking into account the nature of the discharge from the installation, it will not indirectly have a significant effect on human health in the vicinity of the WWTP Discharge in Dublin Bay. See also the 'Emissions to Sewer' section of this report.

The effects identified and described above have been assessed in the following section of this report: Emissions to Air, Noise, Emissions to Water/Sewer and Prevention of Accidents.

There is also the potential for accidental emissions to the environment, due to fire, explosion, leaks or spillages, etc. Accidental emissions to air, water or ground could occur in the event of a diesel spill, fire or explosion, causing air pollution, soil, groundwater, and/or surface water contamination. Accidental noise emissions could arise due to plant malfunction causing an exceedances of noise limits. These are 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 a significant effect on air quality in relation to human health based on the cumulative assessment of the generators operating and other sources in the vicinity. Operating restrictions have been imposed on the on-site generators (Schedule A of the RD). It is considered that there is also the potential for significant cumulative effects relating to noise emissions from the activity and noise sources in the area taking into account the location of the nearest residential dwellings. Refer to the Noise section of this report. In addition to imposing operating restrictions on the on-site generators, the RD requires the applicant to produce and implement a Noise Management Plan, with actions to ensure compliance with noise limits, which are to be met at noise sensitive locations. Therefore, it is considered that there is a potential for a significant cumulative effect on population and human health 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, Noise and Prevention of Accidents.

Conclusions

I have examined all the information on population and human health, provided by the applicant, any information 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 the EIA documentation from the applicant which describes the habitats and species at and in the vicinity of the installation. The installation, which is operating as a data centre is located on a 133-hectare site and was constructed between approximately 2015 and 2019. The site consists of data centre buildings, and associated infrastructure and amenity grassland areas. The area is relatively flat, and is bisected by tributaries of the Pinkeen River, which run from west to east to the Tolka River.

Prior to construction, the area was in agricultural use, with fields of improved grassland, arable land, hedgerows, woodland and scrub, watercourses and drainage ditches, and a number of farm buildings and structures which have been removed. Ecological surveys were carried out for habitats, birds, mammals and rare and invasive flora species for phases of the development in 2015 and 2017-2018. The ecological value of the area was classified as being of Local Importance. In surveys, no protected habitats or rare/threatened flora were identified.

Bat species were recorded foraging or commuting within the site and the wider area, and two bat tree-roosts were identified in 2015-2018. Two badger setts were recorded in 2015 along the northern boundary of the Pinkeen River, and in 2017 evidence of badgers were found. The setts were considered to be partially used on an intermittent or seasonal basis. They were retained in-situ with a corridor to allow badger movement. No evidence of otter was found. Bird surveys in 2018 recorded breeding activity of resident and migratory birds, and a single barn owl was recorded. The EIA documentation describes mitigation measures including pre-construction surveys, planting and landscaping, lighting design and provision of bat boxes and bird boxes. The planning authority determined (for planning ref: RA150605) that the development would have a low impact in the long term on the ecological integrity and conservation status of the site.

The Royal Canal proposed Natural Heritage Area (pNHA) is approximately 3km south of the installation. The closest NHA is Hodgestown Bog NHA (001393) approximately 25km to the southeast. The closest European Site is approximately 6kms away (Rye Water Valley/Carton SAC). A Screening for Appropriate Assessment was carried out in relation to European Sites (Refer to the Appropriate Assessment section of this report).

The potential direct and indirect effects on biodiversity that come within the functions of the Agency are related to effects on flora and fauna and their habitats, due to air emissions (including NO_x and nitrogen deposition), effects on aquatic flora and fauna and their habitats due to effects on water quality, and disturbance of mammals and birds, due to noise emissions from operation of the activity. The effects on biodiversity identified and described above have been assessed here, and in the following sections of this report: Emissions to Air, Noise, Emissions to Water/Sewer, Prevention of Accidents and Appropriate Assessment.

Emissions to air arise from the combustion of diesel in the generators. The Emissions to Air section provides details on air dispersion modelling including assessment of potential

impacts on vegetation. The effects on biodiversity relating to NO_x emissions from operation of the generators are identified, described and assessed. Given the distance to the nearest sensitive ecological receptors there is no potential for significant effects on vegetation as a result of emissions from the installation.

Noise emissions associated with operation of the activity are assessed in the Noise section of this report. In the EIA documentation, potential impacts are predicted to be significant at a local scale for bats, other mammals, and foraging (non-breeding) barn owl, due to increased human activity. It is considered that there is a potential for significant effects on mammals and birds, due to disturbance related to noise emissions. Mitigation measures and monitoring relating to Noise are detailed in the Noise section of this report. Impacts relating to lighting are a matter for the Planning Authority, and the planning permissions include conditions on lighting design.

There are no direct process emissions to surface waters from the installation. The Portan Stream and Pace Stream flow south-easterly through the site to ultimately meet the Tolka River. Storm water from the installation is discharged from an on-site storm water drainage network to the Portan Stream and Pace Stream. There are no process emissions to ground or groundwater from the activity. Refer to the Land and Soil and Cessation of Activity sections of this report in relation to soils and groundwater.

Residual cooling water from the installation will be discharged to sewer to be treated at the EPA Licensed Ringsend Municipal Wastewater Treatment Plant (D0034-01). Taking into account the nature of the discharge from the installation, it is considered that it will not indirectly have a significant effect on biodiversity in the vicinity of the WWTP discharge in Dublin Bay. See also the 'Emissions to Sewer' section of this report.

There is also the potential for accidental emissions to the environment, due to fire, explosion, leaks or spillages. Accidental emissions to air, water or ground could occur in the event of a spill of chemicals, fuels, oils 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 biodiversity have been assessed. It is considered that there is a potential for significant effects on mammals and birds, due to disturbance related to noise emissions from the activity and other activities/developments. The RD specifies noise limits, which are to be met at noise sensitive locations, and requires the applicant to produce and implement a Noise Management Plan with actions to ensure compliance with these limits. It is considered that there is a potential for a significant cumulative effect on biodiversity 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, Noise, Prevention of Accidents and Appropriate Assessment.

Conclusions

I have examined all the information on biodiversity, provided by the applicant, any information 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 the EIA documentation received from the applicant. The land was previously agricultural, with a number of residential and agricultural structures that were demolished before construction of the data centre buildings. The lands surrounding the site are in agricultural and commercial/industrial uses and with residential dwellings. There are a number of EPA licensed facilities to the east and northeast and the M3 motorway is to the south.

The installation is currently in operation with data centre buildings and infrastructure and amenity grassland areas. The site and surrounding topography are relatively flat. Ground investigations were carried out in 2014 and 2017 identifying topsoil, made ground, till and bedrock at depths from 2.9 to 13.2 m below ground level.

A Baseline Report describing soil and groundwater conditions in relation to hazardous substances was submitted as part of the licence application. It describes soil analysis results from 2017, and states that there was no evidence of soil contamination beneath the site, and that the findings were consistent with previous agricultural use. Refer to the EIA Water section and Cessation of Activity section regarding groundwater. Refer also to the Cessation of Activity section regarding the Baseline Report.

The potential direct and indirect effects on land and soil are associated with emissions to air, accidental emissions and any historical contamination. 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: Air, Storm Water Discharges, Prevention of Accidents and Cessation of the Activity.

There is also the potential for accidental emissions to the environment, due to fire, explosion, leaks or spillages. Accidental emissions to air, water or ground could occur in the event of a spill of chemicals, fuels, oils 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 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 in relation to land and soil.

Mitigation and Monitoring

Mitigation measures and monitoring in relation to land and soil are detailed in the following sections of this report: Prevention of Accidents and Cessation of the Activity.

Conclusion

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

Water is addressed in the EIA documentation received from the applicant. The installation is located in the catchment of the Tolka River, which flows to the Tolka Estuary and Dublin Bay >15 km downstream. The Portan Stream and Pace Stream (Tolka_030) flow south-easterly through the site to ultimately meet the Tolka River. Also, the Pinkeen River (Pinkeen_010) flows along the eastern site boundary and joins the Tolka River 1 km downstream. The current WFD status of each of these water courses is 'Poor'. The pressures on these waterbodies are identified by the EPA as 'urban runoff' and 'industry', and 'agriculture' for the Pinkeen River. <https://gis.epa.ie/EPAMaps/Water>

Storm water runoff (rainfall) from hardstanding areas is attenuated on site, prior to discharge to the Portan Stream and Pace Stream at eight discharge points. It is not considered that these storm water discharges are likely to have a significant effect on the receiving water.

There are no direct process emissions to surface water, ground or groundwater from the installation. The aquifer beneath the site, which is part of the Dublin Groundwater Body, is a locally important bedrock aquifer. EPA data (2016-2021) classifies the Dublin GWB (Code: IE_EA_G_008) as having 'Good Status'. As stated above, the previous land use was agricultural, with agricultural and residential structures, which were demolished.

The application refers to groundwater monitoring from 2017, where slightly elevated hydrocarbons were observed in three bedrock wells. Additional sampling carried out in 2018 showed that the results in two of the wells were below detection limits, with an 85% reduction in the third well. Slightly elevated concentrations of some metals were reported however, the applicant determined that these concentrations were unlikely to pose a significant risk to controlled waters. Refer to the Section on Cessation of Activity.

Emissions to sewer (other than sanitary effluent) consist of evaporative cooling water. This effluent is discharged to sewer and ultimately treated in the EPA licensed Ringsend WWTP (Register Number D0034-01). The maximum discharge consented to by Uisce

Eireann is 2,644 m³/day (total combined from SE-1 and SE-2). Taking into account the nature of the discharge from the installation, it will not indirectly have a significant effect on the environment in the vicinity of the Ringsend WWTP Discharge in Dublin Bay. Refer to the Emissions to Sewer section of this report.

The potential direct and indirect effects on water relate to accidental emissions. There is the potential for accidental emissions to water or groundwater, in the event of a fuel or chemical spill, or fire or explosion, with the potential to cause groundwater, and/or surface water contamination, affect water quality as well as aquatic habitats and species. Should discharges or 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 Water/Sewer, Prevention of Accidents and Land and Soil.

However, the likelihood of accidental emissions to water is considered low in light of the measures outlined in the Prevention of Accidents section, 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. Therefore, there are no likely significant direct, indirect or cumulative effects identified in relation to water.

Mitigation and Monitoring

Mitigation measures and monitoring in relation to water are detailed in the following sections of this report: Emissions to Water/Sewer, Prevention of Accidents, Cessation of Activity.

Conclusions

I have examined all the information on water (including Waste Water, Emissions to Sewer, Storm Water, Emissions to Ground) provided by the applicant, any information 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 the EIA documentation submitted by the applicant. The applicant utilised a computer-based noise model to prepare noise prediction calculations at noise sensitive receptors. The installation is located north of Clonee and east of Dunboyne, Co. Meath. The M3 motorway is to the south, and there is industry to

the east with a number of EPA licenced sites and Damastown Industrial Estate. There is agricultural land to the north and northwest with residential properties.

The closest residential properties are adjacent to the installation boundary, along the Portan Road (L5028), which runs between the two parts of the site. There are other residential properties in the vicinity to the west and north (including The Mayne housing estate), and on the far side of the M3 motorway to the south. The applicant submitted a noise assessment, and the existing noise environment was dominated by road traffic noise from the M3 motorway and local roads.

There are potential direct and indirect effects of noise associated with the operation of the activity due to the building service plant (including air handling units) and operation of the generators. The generators are located in generator yards associated with the data centre buildings. Noise arising from the installation could have the potential to cause nuisance for those living near the activity, or to affect noise sensitive species.

Noise impacts were assessed for a number of scenarios relating to the operation of the installation. The assessment indicated that the applicant could not comply with evening and night-time noise limits (50dB and 45dB respectively) in the scenario where all of the diesel generators are running. Therefore, there is the potential for significant effects in relation to noise, having regard to the locations of residential dwellings. The RD requires the applicant to prepare and submit a noise management plan, with actions to ensure compliance with noise limits set out in the RD (which specifies day, evening and night-time limits of 55dB, 50dB and 45dB to be met at noise sensitive locations. The effects have been assessed in the Noise section of this report.

The application states that the installation has been designed to minimise noise emissions, that low noise equipment has been selected where practical, that plant has been located to minimise the potential impact at noise sensitive receptors, and that noise attenuation has been incorporated into the design of the generators. Screens also reduce noise from roof mounted plant. There is no source of vibration associated with the activity that is likely to have significant effects on the environment.

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

In relation to cumulative effects of the activity regarding noise, the applicant has provided information on background noise from other sources, including traffic, which have been taken into account in the noise modelling. It is considered that there is the potential for significant cumulative effects relating to noise when the generators are operating and taking into account the location of the nearest residential dwellings. Therefore, it is considered that there is a potential for a significant cumulative effect from the activity and other activities/developments in relation to noise.

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 and vibration provided by the applicant, any information 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 the EIA documentation received from the applicant. The potential direct and indirect effects on air are associated with emissions to air (NO_x/NO_2 , CO, SO_2 and particulate matter) from the diesel generator stacks, due to combustion of diesel. There is also the potential for indirect effects on habitats, due to nitrogen deposition as a result of NO_x emissions to air.

Should emissions cause an exceedance of Air Quality Standards, this could have implications for air quality, human health and biodiversity within and beyond the installation boundary. General site dust and odour emissions have the potential to impact human health and cause nuisance however, the activity will not be a significant source of odour or dust.

The applicant carried out air dispersion modelling to predict the impact of emissions from the diesel generation plant on ambient air concentrations during emission scenarios, as set out in the Air section of this report. The dispersion modelling submitted assessed potential effects on air quality arising from the installation alone and as part of a cumulative assessment. The modelling was considered sufficiently detailed and conservative to assess the impact of the main emissions to air. The results were compared to relevant air quality standards for the protection of human health and for the protection of vegetation/habitats. The results indicated that the predicted concentrations from the installation alone will not breach the relevant air quality standards and it is considered that there is not likely to be a significant effect on air quality. The effects identified and described above have been assessed in the Air section of this report.

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

Cumulative effects of the activity in relation to air have been assessed. Modelling by the applicant included EPA licenced installations in the vicinity, as described in the Air Section of this report. Modelling indicates that concentrations will not breach the relevant air quality standards. It is considered that there is not likely to be a significant

cumulative effect from the activity and other activities/developments in the area. See the Emissions to Air section of this report. The RD imposes operating restrictions on the on-site diesel generation plant.

Mitigation and Monitoring

Mitigation measures and monitoring in relation to air are detailed in the Air section of this report.

Conclusions

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

The EIA documentation received from the applicant 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. Furthermore, the Government Statement on the Role of Data Centres⁴ in Ireland's Enterprise Strategy recognises data centres as core digital infrastructure for both Ireland's and Europe's digital economies, and for strengthening Ireland's position as a strategic international location for IT services. Government policy seeks to facilitate the 'twin transitions' of digitalisation and decarbonisation of our economy and society. The RD requires the applicant to carry out a feasibility study of opportunities to decarbonise, as detailed further down in this section of the report.

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.

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 will also be used on site as refrigerants in the air-cooling systems. F-gases are controlled under the F-Gas regulations (F-Gas Regulation (EU) No. 517/2014) and are not addressed in the RD. The potential indirect effects on climate are from the emissions associated with the generation of electricity taken from the national grid.

Direct effects on climate from the activity are from emissions from the combustion of diesel in the generators at the installation. During normal operations, it is intended that the installation is supplied electricity from the national grid. The diesel generators will provide power in the event of loss of power from the grid. Each of the five data centre buildings has 18 generators (each 8.26 MW_{th}), which is 90 generators in total. Carbon dioxide (CO₂) emissions from on-site generators are covered by a GHG Permit IE-GHG189-10513-1, which was issued to the applicant on 03 September 2018. The installation is named *Clonee Data Center*, and the permit relates to CLN1, CLN2 and CLN3. The applicant will be required under the EU Emissions Trading Scheme (ETS) to obtain/amend a GHG permit to cover carbon dioxide (CO₂) emissions from the sources not currently covered in the GHG permit (CLN5 and CLN6). The EU ETS covers emissions of CO₂ from power and heat generation.

In the GHG Permit, the installation's estimated annual emissions (for CLN1-CLN3) as CO₂ equivalent are 3,857.2 tonnes CO₂(e). Based on the thermal input of the generators the total estimate for the five buildings would be 6,429 tonnes CO₂(e). Verified CO₂ emissions for this permit (which relates to three buildings) were 607 tCO₂, 387 tCO₂ and 467 tCO₂ respectively in 2020, 2021 and 2022. Further details of historical CO₂ emissions can be found on the European Union Transaction Log: [EUROPA - Environment - Kyoto Protocol - European Union Transaction Log](#)

The use of the generators as proposed in the RD would be a transitional measure when there is a high risk of an outage occurring on the national grid, and until such time as there is additional renewables (and flexgen as back-up) 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.

Emissions of CO₂ from the diesel generators are approximately 5,111 tCO₂ per annum (calculated based on the applicant's stated diesel usage of 1,872 m³ per annum). To put this in context, greenhouse gas emissions from the entire energy sector in 2021 were just over 10 million tonnes of CO₂ equivalent (EPA, 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. In the application the electricity consumption figure is provided as 1,261,000 MW hours of electricity per

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).

year. This equates to 438,576 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 proposals in relation to energy efficiency. Planning ref: RA180671 includes a planning condition that should a developed area become suitable for a district heating system, that the applicant shall provide the necessary infrastructure, technology and plant from the data centre to the boundary of the site for connection by others.

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

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

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

- The activity is required to operate under a greenhouse gas permit, under the EU Emissions Trading System (EU ETS) Directive in accordance with the European Communities (Greenhouse Gas Emissions Trading) Regulations 2012, (S.I. 490 of 2012 and amendments). The installation operates under a GHG Emissions Permit (IE-GHG189-10513-1), although it should be noted that the current permit only relates to CLN1, CLN2 and CLN3. The applicant is required under the EU Emissions Trading Scheme (ETS) to obtain/amend a GHG permit to cover carbon dioxide (CO₂) emissions from the sources not currently covered in the GHG permit (CLN5 and CLN6). The GHG permit will 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 will be 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 imposes limits on the operation of the generators and includes restrictions on testing of the generators.

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

- Whilst the activity requires a GHG permit, specific conditions on energy efficiency and a requirement for an energy audit within one year of the date of grant of the licence and periodically thereafter are included in Condition 7 of the RD.
- Any leakage of F-gases will be monitored and controlled under the F-Gas regulations (F-Gas Regulation (EU) No. 517/2014).
- Indirect emissions arising from the use of electricity from the national grid in the installation are also covered under the EU ETS Directive. These emissions are covered under the EU ETS at the electricity generating plant, but the applicant is also required to address electricity usage as part of energy efficiency management and report on the quantity of electricity used annually.
- The RD requires the applicant to address electricity usage as part of energy efficiency management under the Schedule of Environmental Objectives and Targets (Condition 2).
- Condition 7 further requires the applicant to carry out a feasibility study of opportunities to increase the use of solar power, sustainable biofuels and other renewable energy options including energy storage, 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 bullet points above the main mitigation measures and monitoring in relation to the effect of direct emissions on climate will be covered in the GHG permit for this installation. In addition, mitigation measures set out in the following sections of this report will also have a mitigating effect on both direct and indirect emissions: Emissions to Air, Prevention of Accidents; and Energy Efficiency and Resource Use.

Conclusions

I have examined all the information on climatic factors provided by the applicant, any information received through consultations, 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

Material Assets is addressed in the EIA documentation received from the applicant which includes information on utilities and natural resources, traffic and waste management.

The potential direct and indirect effects on material assets are the consumption of natural resources, in particular diesel and water. The quantities used are provided in the 'Energy Efficiency and Resource Use' section of this report. The generators will operate solely on diesel, which is stored onsite. The circumstances that lead to the operation of these generators is outlined earlier in this report, and their usage will be dictated by the frequency of occurrence of these circumstances. The activity will also generate a certain amount of waste material and the potential amounts generated are listed in the licence application. Water use is also dependant on the requirements of water for cooling, as described in the report sections on Water and Energy Efficiency and Resource Use.

The use of natural resources by the activity and the generation of wastes will not have significant effects in terms of material assets. The effects identified and described above have been assessed in the following section of this report: Waste Generation, Energy Efficiency and Resource Use; and Prevention of Accidents.

Material assets such as roads, traffic and built services are dealt with in the decisions of the planning authorities (Meath County Council and An Bord Pleanála) to grant planning permission for the developments on site and they have considered the effects to be acceptable.

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

Mitigation and Monitoring

Mitigation measures and monitoring in relation to material assets are detailed in the following sections of the licence assessment part of this report: Waste Generation, Energy Efficiency and Resource Use, and Prevention of Accidents.

Material Assets Conclusions

I have examined all the information on Material Assets provided by the applicant, any information 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 authorities have also identified, described and assessed the likely significant direct and indirect effects of the development on material assets considering the effects to be acceptable. For planning ref: RA/180671, which was granted in 2018, Meath County Council state that the use of utilities and the generation of waste and wastewater due to operation of the development will result in cumulative impact with existing demands on these utilities and services, but that the impacts are considered to be insignificant. Their conclusion includes that the development would not seriously

injure the amenities of the area and would be in accordance with the proper planning and sustainable development of the area.

15.4.8.2 Cultural Heritage

Identification, Description and Assessment of Effects

Cultural Heritage is addressed in the EIA documentation received from the applicant, which sets out the archaeological and heritage features in the area. The installation is an existing data centre with buildings, infrastructure, hardstanding areas and amenity grassland. The site was previously agricultural land with agricultural buildings.

The potential direct and indirect effects on archaeological and architectural heritage are in relation to population and human health. Any loss of archaeological or architectural heritage could impact negatively on population and human health.

The EIA documentation refers to effects on archaeological and architectural heritage assets discovered during trenching, including evidence of pits, linears and two fulacht troughs. It also refers to archaeological excavations in the vicinity, which revealed the remains of previously unrecorded monuments. These matters are dealt with in the decisions of the planning authorities to grant planning permission for the developments, and the planning authorities have considered the effects to be acceptable. There were requirements included in planning permissions for archaeological monitoring during construction of the phases of development.

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 authorities have identified, described and assessed the likely significant direct and indirect effects of the development on cultural heritage. The planning authorities (Meath County Council, and An Bord Pleanála) required planning conditions on archaeological testing and excavation for potential unrecorded archaeological deposits within the site.

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

Landscape is addressed in the EIA documentation received from the applicant. The potential direct and indirect effects on the landscape are the visual impact of the five

single storey data centre buildings, diesel generator plant and stacks, and other associated infrastructure.

The installation, which is existing and in operation is located on a 133-hectare site north of Clonee and east of Dunboyne Co. Meath. The M3 motorway is to the south and there is industry to the east and Damastown Industrial Estate. There is agricultural land to the north and northwest, with residential properties in the vicinity. The closest residential properties are adjacent to the installation boundary, along the Portan Road (L5028), which runs between the two parts of the site. The site and surrounding topography are relatively flat with a slight gradient to the southeast.

The potential direct and indirect effects on the landscape are in relation to population and human health. Any disturbance of the landscape has the potential to impact on population and human health, and their enjoyment of the surrounding area due to visual impacts.

Meath County Council in relation to RA/150605 concluded that the development would result in a change in the overall landscape character from agricultural and rural, to light industrial, which would be a significant localised change. They state that such a change was envisaged for some time, due to zoning of lands for this purpose since 2001. They state that the highest visual impacts would be experienced by locations immediately to the east and north of the site. Meath Co. Co. concluded that the development assimilates well with the surrounding environment, particularly in the context of the landscaping scheme submitted.

An Bord Pleanála agreed with conclusions by Meath Co. Co. that the development would not adversely impact on the receiving environment. These matters are dealt with in the decisions of the planning authorities to grant planning permission for the developments on site and they have considered the effects to be acceptable.

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 authorities have identified, described and assessed the likely significant direct and indirect effects of the development on the landscape, and considered the effects to be acceptable. Meath County Council and An Bord Pleanála imposed planning requirements in relation to trees to be retained, and a landscaping scheme to be implemented for the development.

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, any information 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:

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

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

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. The potential for major accidents to occur at the data

storage installation has also been considered with reference to Seveso Directive (2012/18/EU) and the Chemical Act (Control of Major Accident Hazards Involving Dangerous Substances) Regulations 2015 (S.I. 209 of 2015) (COMAH). Fire and fuel spills have also been addressed in the documentation.

The EIAR (which relates to buildings CLN5 and CLN6) states that there is no history of flooding in the immediate vicinity of the site, but that there are records relating to flooding associated with the Tolka River approximately 200m to the south. In a flood risk assessment by the applicant, the south of the development site was determined to be within Flood Zone 'B' (Moderate probability of flooding) with the remainder within Flood Zone 'C' (Low probability of flooding). The EIS (which relates to CLN1-CLN3) refers to parts of the site being at risk from potential flooding from the Pinkeen River and Portan Stream in a north-eastern corner of the site. Planning ref: RA150605 (and the permission granted by An Bord Pleanála) includes a condition requiring that all flood mitigation measures in the flood risk assessment of the EIS be implemented to the satisfaction of the Planning Authority. A condition was included in planning ref: RA180671 requiring the applicant to submit documentation to Meath Co. Co. in the interest of flood prevention.

In the EIAR the applicant concluded that other than flooding there were no other likely significant impacts associated with the potential for major accidents and/or natural disasters. It is considered that external natural disasters other than flooding (e.g., seismic activity, volcanic activity and sea level rise) are not likely to occur at the installation due to the topography and location.

Under the COMAH Regulations the quantity of diesel which qualifies a given site for the application of lower-tier and upper-tier requirements is 2,500 tonnes and 25,000 tonnes respectively. The quantity of diesel stored at the site (provided by the applicant as 2,214 tonne) does not exceed the thresholds of the COMAH Regulations. The Regulations lay down rules for the prevention of major accidents which involve dangerous substances, and the limitation of their consequences for human health and the environment, with a view to providing a high level of protection in a consistent and effective manner. The Inspector's assessment is dealt with in the 'Prevention of Accidents' section of this report.

Mitigation and Monitoring

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

Conclusions

I have examined all the information on major accidents and/or disasters provided by the applicant, any information received through consultations, 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 the generators through combustion of diesel;
- Noise emissions associated with operation of the installation;
- Accidental emissions to air, surface water, ground or groundwater, from fire, explosion, leaks or spillages;
- Emissions to sewer of residual cooling water; 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 implementing other monitoring, maintenance and control measures;
- Noise emissions will be mitigated by imposing daytime, evening and night-time noise limits at noise sensitive locations, the requirement to prepare and implement a Noise Management Plan, and monitoring, maintenance and control measures;
- Emissions to sewer will be mitigated by imposing emission limit values and implementing other 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; and
- Effects on climate due to release of CO₂ emissions will be mitigated through the limitations on the generators, which includes an operating hour restriction, through 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

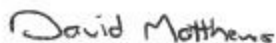
The Agency, in considering an application for a licence or the review of a licence, shall have regard to Section 83 of the EPA Act. The Agency shall not grant a licence or revised licence unless it is satisfied that emissions comply with relevant emission limit values and standards prescribed under regulation.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

This report was prepared by David Matthews, Jim Johnson, Niamh Connolly and Philip Stack.

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

Signed



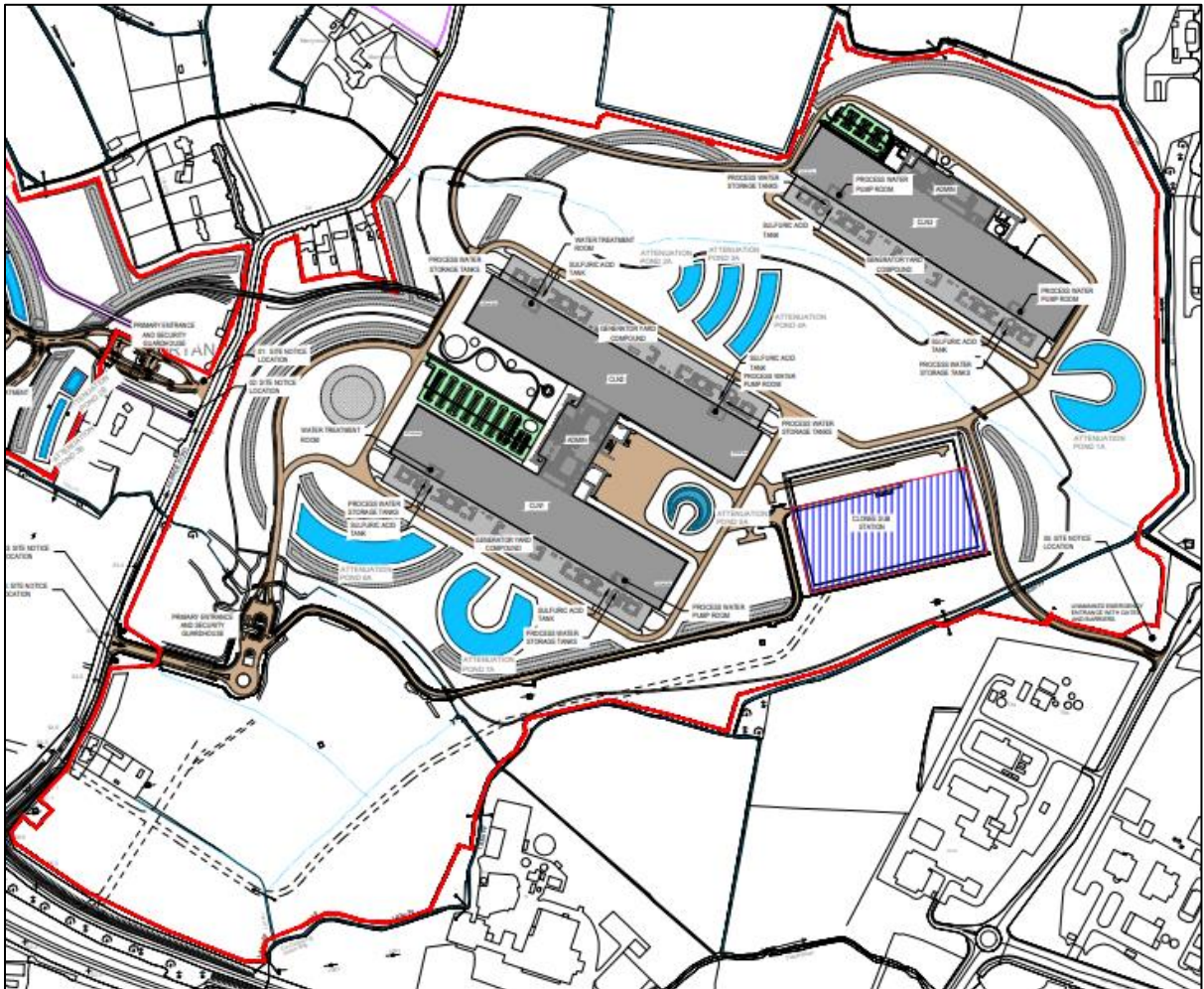
Dr. David Matthews

Procedural Note

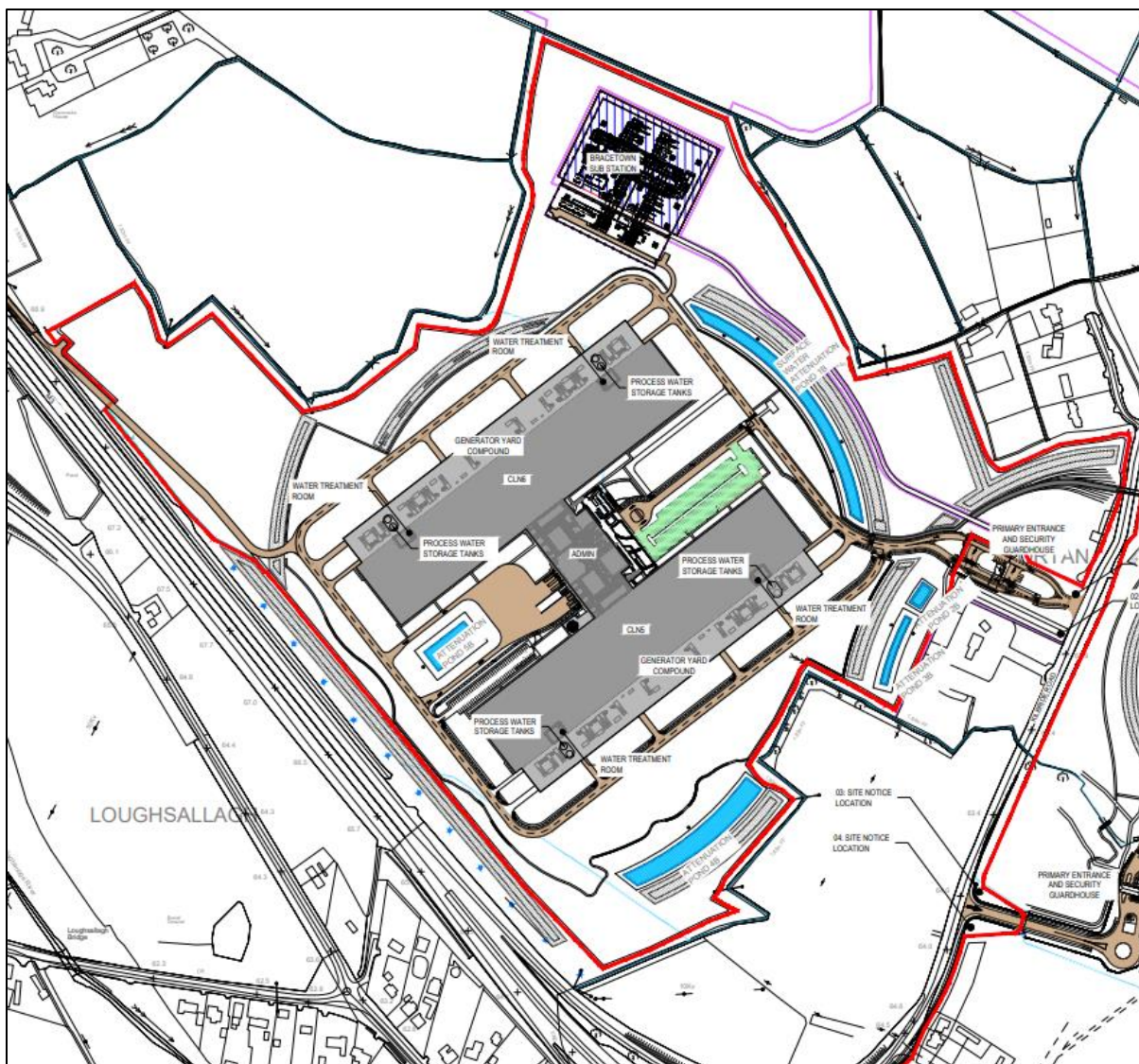
In the event that no objections are received to the Proposed Determination on the application, a licence will be granted in accordance with Section 87(4) of the EPA Act, as soon as may be after the expiration of the appropriate period.

Appendices

Appendix 1: Site Layout



Detail from the drawing titled 'Site Layout Plan Sheet 1', submitted as part of the licence application on 13 February 2023, showing the eastern portion of the installation.



Detail from the drawing titled 'Site Layout Plan Sheet 2', submitted as part of the licence application on 13 February 2023, showing the western portion of the installation.

Appendix 2: Appropriate Assessment

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/Cartron SAC	Habitats 7220 Petrifying springs with tufa formation (Cratoneurion)* Species 1014 Narrow-mouthed Whorl Snail (<i>Vertigo angustior</i>) 1016 Desmoulin's Whorl Snail (<i>Vertigo moulinsiana</i>)	NPWS (2021) Conservation Objectives: Rye Water Valley/Cartron SAC 001398. Version 1. National Parks and Wildlife Service, Department of Housing, Local Government and Heritage.
000210	South Dublin Bay SAC	Habitats 1140 Mudflats and sandflats not covered by seawater at low tide 1210 Annual vegetation of drift lines 1310 Salicornia and other annuals colonising mud and sand 2110 Embryonic shifting dunes	NPWS (2013) Conservation Objectives: South Dublin Bay SAC 000210. Version 1.0. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.
000206	North Dublin Bay SAC	Habitats 1140 Mudflats and sandflats not covered by seawater at low tide 1210 Annual vegetation of drift lines 1310 Salicornia and other annuals colonising mud and sand 1330 Atlantic salt meadows (Glauco-Puccinellietalia maritimae) 1410 Mediterranean salt meadows (Juncetalia maritimi) 2110 Embryonic shifting dunes 2120 Shifting dunes along the shoreline with <i>Ammophila arenaria</i> (white dunes) 2130 Fixed coastal dunes with herbaceous vegetation (grey dunes)* 2190 Humid dune slacks Species 1395 Petalwort (<i>Petalophyllum ralfsii</i>)	NPWS (2013) Conservation Objectives: North Dublin Bay SAC 000206. Version 1.0. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.
004024	South Dublin Bay and River Tolka Estuary SPA	Birds A162 Redshank (<i>Tringa totanus</i>) A193 Common Tern (<i>Sterna hirundo</i>) A157 Bar-tailed Godwit (<i>Limosa lapponica</i>) A130 Oystercatcher (<i>Haematopus ostralegus</i>) A141 Grey Plover (<i>Pluvialis squatarola</i>) A149 Dunlin (<i>Calidris alpina</i>) A137 Ringed Plover (<i>Charadrius hiaticula</i>) A194 Arctic Tern (<i>Sterna paradisaea</i>) A192 Roseate Tern (<i>Sterna dougallii</i>) A143 Knot (<i>Calidris canutus</i>) A179 Black-headed Gull (<i>Chroicocephalus ridibundus</i>) A144 Sanderling (<i>Calidris alba</i>) A046 Light-bellied Brent Goose (<i>Branta bernicla hrota</i>)	NPWS (2015) Conservation Objectives: South Dublin Bay and River Tolka Estuary SPA 004024. Version 1.0. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.

Site Code	Site Name	Qualifying Interests (* denotes a priority habitat)	Conservation Objectives
		Habitats Wetlands	
004006	North Bull Island SPA	Birds A179 Black-headed Gull (<i>Chroicocephalus ridibundus</i>) A048 Shelduck (<i>Tadorna tadorna</i>) A054 Pintail (<i>Anas acuta</i>) A160 Curlew (<i>Numenius arquata</i>) A157 Bar-tailed Godwit (<i>Limosa lapponica</i>) A046 Light-bellied Brent Goose (<i>Branta bernicla hrota</i>) A056 Shoveler (<i>Anas clypeata</i>) A169 Turnstone (<i>Arenaria interpres</i>) A141 Grey Plover (<i>Pluvialis squatarola</i>) A052 Teal (<i>Anas crecca</i>) A144 Sanderling (<i>Calidris alba</i>) A130 Oystercatcher (<i>Haematopus ostralegus</i>) A140 Golden Plover (<i>Pluvialis apricaria</i>) A149 Dunlin (<i>Calidris alpina</i>) A156 Black-tailed Godwit (<i>Limosa limosa</i>) A162 Redshank (<i>Tringa totanus</i>) A143 Knot (<i>Calidris canutus</i>) Habitats Wetlands	NPWS (2015) Conservation Objectives: North Bull Island SPA 004006. Version 1.0. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.

Appendix 3: Relevant Legislation

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