Microsoft Operations Ireland Ltd

Non Technical Summary

Attachment-1-2

September 2022 (Updated March 2023)

Licence Application (LA010221)

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1.0 INTRODUCTION

Microsoft Operations Ireland Limited ('the operator) is applying to the Environmental Protection Agency ('the Agency') for an Industrial Emissions (IE) Licence for its Data Storage installation (hereafter referred to as the 'installation') located in Grange Castle South Business Park, Dublin 22. The Data Storage installation will provide secure data storage services, and distribution of information to individuals, businesses and organisations.

The site when fully constructed will consist of two main data storage buildings named DUB14 and DUB15. The 2 no. data storage buildings have an overall building footprint of 13,394m^2 each on an overall site of approximately 13.07 hectare site with associated support buildings. The facility will also include a Central Administration Building (CAB) of 1,594m^2 in the eastern section of the site which will house a cafeteria and a four storey office space. Ancillary elements of the development include:

- Gas Generation plant;
- Bicycle Shelters;
- Internal road network and car and cycle parking;
- Water Treatment Building;
- Rainwater harvesting tank;
- Sprinkler Tanks and Pump House;
- GNI Gas Skid and Compound;
- Security fencing; and
- Drainage infrastructure including underground attenuation.

The power requirements for the proposed development will be provided via a connection to an existing substation on the site and the utility 110kv Substation (Corkagh). See Attachment 4-8-1 (Operational Report) for further information.

The permitted site layout is shown on Site Layout Plan A1010 included with this application.

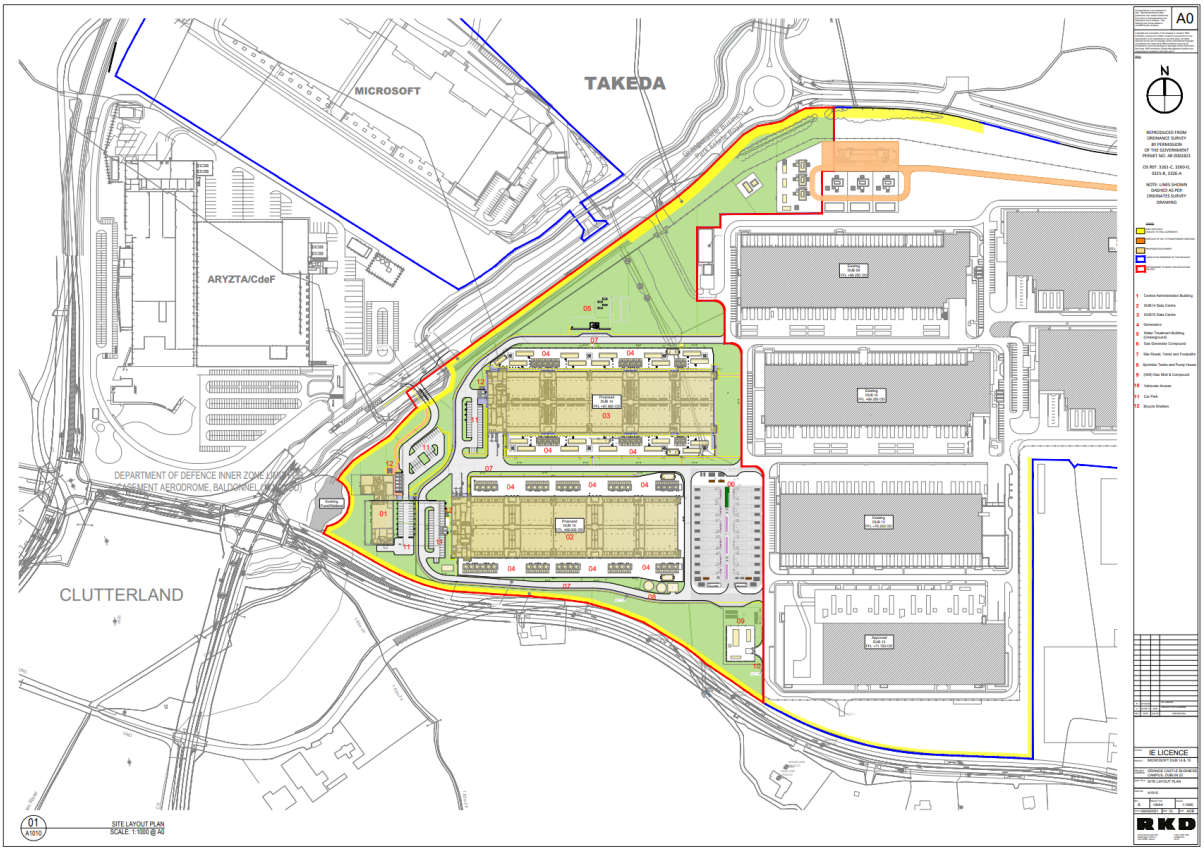

Figure 1 *Site Location (Site Layout Plan A1010)*

The installation requires a continuous supply of electricity to operate. During normal operations, the installation is supplied electricity from the national grid. The power requirements for the proposed development will be provided via a connection to an existing substation on the site and the utility 110kv Substation (Corkagh). As the development is located in what is noted as a constrained area in terms of electrical grid capacity, a standby gas generation plant (comprising 22no. generators with 22 flue stacks (c.25m high) is planned to meet the requirements of the utilities flexible demand policy. The capacity of the plant will be 167.2MWth and it will support Dub 15.

In the event of a loss of power supply i.e. power blackout, a breakdown or due to maintenance there will be 21 no. emergency diesel generators at Dub 14 which will have 21 no. flues each c.30.75m high. Each generator will be supplied with a diesel belly tank. Outside of routine testing and maintenance, the operation of these back-up generators is typically only required under the following emergency circumstances:

- A loss, reduction or instability of grid power supply,
- Critical maintenance to power systems,
- A request from the utility supplier (or third party acting on its behalf) to reduce grid electricity load.

2.0 GENERAL INFORMATION

The requirement for an IE Licence is outlined within the First Schedule of the EPA Act 1992. Activity ‘Class 2.1 Combustion of fuels in installations with a total rated thermal input of 50 MW or more’ specifically relates to this installation.

2.1 ACTIVITIES TO BE LICENSED

The installation will include a total of 43 no. generators comprising:

- 22 no. generators within the standby gas generation plant with a proposed capacity of 167.2MW; and
- 20 no. 8.66MW_{th} and 1 no. 2.4MWth emergency backup diesel generators to be used in the event of a loss of power supply.

The proposed capacity of the standby gas generation plant is above the requirement for an Industrial Emissions (IE) Licence as outlined within the First Schedule of the EPA Act 1992. Activity '*Class 2.1 Combustion of fuels in installations with a total rated thermal input of 50 MW or more'* specifically relates to this facility. The applicant is therefore, applying to the Environmental Protection Agency (EPA) for an IE Licence to operate the facility under Activity Class 2.1.

2.2 SITE CONTEXT

2.2.1 Surrounding Land

The site comprises lands directly west of the existing MS Ireland data centre campus at Grange Castle International Business Park, Clondalkin, Co Dublin. The overall campus extends to c.13.07 ha. The site is bounded by the Nangor Road to the south; by the Grange Castle access road and the Griffeen River immediately West; and by MS Data Centres DUB09, DUB10, DUB12 & DUB13 to the east.

The wider context of the proposed development is defined primarily by commercial and industrial development, with the remainder of the Microsoft Data Centre Campus in the immediate vicinity. Large areas of the surrounding lands within the Grange Castle Business Park and Profile Park have been developed in the past 10-15 years and are occupied by industrial campuses including pharmaceutical, data centres and food manufacturing uses.

The surrounding 5 km of the site also includes IE and IPC Licenced sites including:

- Pharmaceutical manufacturing: Pfizer Ireland Pharmaceuticals (P0652) located to the northeast; and Takeda Ireland Limited (P0693) located to the north west;
- Grange Back Up Power (P1033-02) power station development located to the east in Grange Castle;
- Crag Digital Limited (P1113-01) power station development to support data centre development; located further to the east in Clondalkin; and
- Waste: Starrus Eco Holdings Limited (Greenogue) (W0188) located to the south, Rilta Environmental Limited (W0192) and Rilta Environmental (W0185) located to the south.

The site layout and wider context is presented in Drawing Ref. *Site Location Map Overall A1000* included with this application.

3.0 DESCRIPTION OF ACTIVITY

Attachment 4.8.1 (Operations report) presents the project description as it relates to the IE Licence.

3.1 SITE OVERVIEW

The site when fully constructed will consist of two no. two storey data centre buildings (DUB14 and DUB15) with a total building footprint of 13,394m^2 each. The CAB will be located to the east of the two data storage buildings. The gas generator compound will be located to the west of the DUB14 and DUB15 data storage buildings. The Water Treatment Building and associated plant will be located underground to the north of DUB14 and DUB15. Attachment 4-8-1 (Operational Report) presents the detailed description as it relates to the IE Licence.

3.2 PRIMARY PROCESSES/ACTIVITIES

3.2.1 Emergency Backup Generators

The facility is supported by containerised diesel-powered emergency back-up generators that are located adjacent to DUB14. These generators immediately provide the necessary power to ensure the DUB 14 data centre building continue to operate in the event of a temporary failure of electricity supply. Attachment 4-8-1 (Operational Report) presents further details on the Emergency Backup Generators as it relates to the IE Licence.

3.2.2 Data Storage Buildings

Data storage facilities are centralised computer server systems on a large scale. At typical data storage facility scale (typically involving systemised racks of hundreds/thousands of server units), they offer significant advantages (and economies of scale) over traditional in-house data storage systems.

3.2.3 Gas Generation Plant

The Dub 15 facility is supported by an onsite gas generation plant as the development is located in what is noted as a constrained area in terms of electrical grid capacity. The standby gas generation plant (comprising 22no. generators with 22 flue stacks (c.25m high) is planned to meet the requirements of the utilities flexible demand policy. The capacity of the plant will be 167.2MWth. It is anticipated that it will operated up to 8 hours a day, during peak demand periods, 365 days a year.

3.2.4 Data storage Cooling Systems

The data centre hardware and associated ancillary equipment produces heat which must be managed by the cooling systems. The data centres will cooled primarily utilising outside air, via roof mounted air handling units via internally mounted air handling units. Conditions in Ireland are conducive to this free cooling strategy, which essentially moves outside air across the servers to cool and then exhaust the higher temperature air to atmosphere. The Air Handling Units at the facility incorporate electronically commutated fans which are typically 20% more efficient than conventional AC fans and motors. The fans meet the highest applicable European fan/motor efficiency ratings.

The cooling units operate on two different modes dry cooling and evaporative cooling mode. The AHUs will primarily operate in a dry cooling mode air from inside the data hall is cooled using external air via an air-to-air heat exchanger before being supplied back to the data hall. It is expected that the AHU will operate in dry mode for c.95% in a typical year. Attachment 4-8-1 (Operational Report) presents further details regarding

the cooling systems in operation at the site. It is anticipated that the evaporative cooling system will be required very infrequently and when used will use recycled rainwater.

3.2.5 Cooling Water Supply and Water Treatment Plantroom

There will be a single storey treatment plant with a basement and associated tanks to the north of Dub 14. It will comprise of 6 above ground tanks. The data centre shall have a cooling water treatment and separate ring main within the buildings for the indirect evaporative cooling AHU. This water will be taken from harvested rainwater with a back up mains water supply. An Irish Water supply is provided to the wider campus to the east.

Captured rainwater will be diverted into the process cooling system. The rainwater captured from the data hall roof areas will be filtered, pre-treated (UV treatment) and sterilised with sodium hypochlorite before being fed into the raw water storage tank located in the water treatment plantroom area. Each water treatment plant room tank will contain raw water storage tanks for rainwater, this will reduce the demand for mains water on the site. Attachment 4-8-1 (Operational Report) presents further details regarding the rainwater harvesting and water treatment in operation at the site.

3.3 SECONDARY PROCESS/ACTIVITIES

3.3.1 Ancillary infrastructure

There is a single 4 storey Central Administration Building, associated with this facility; which will be located between the west of the two data halls DUB14 and DUB15. The Central Administration Building comprise the following main components;

- Reception area;
- Central Administration Offices for staff and management;
- Staff cafeteria;
- Staff Gym;
- Sanitary facilities;
- Shuttle bus drop-off zone; and
- Waste compound.

Additional Ancillary infrastructure includes:

- Internal road network and car and cycle parking;
- Bicycle Shelters;
- Water Treatment Building (Including Sprinkler Tanks and Pump House);
- Rainwater harvesting tank (3,516m^3);
- GNI Gas Skid and Compound
- Security fencing; and
- Drainage infrastructure including underground attenuation.

3.4 WATER, SEWER, AND STORMWATER DRAINAGE INFRASTRUCTURE

3.4.1 Potable water

When constructed the facility has both domestic water demand and cooling water back up supply. The potable water supply will be supplied through a 100mm diameter main

which will connect to the existing campus wide 150mm diameter watermain, which is supplied from the Irish water connection to the overall Microsoft campus.

3.4.2 Foul and Process Sewer

Domestic Effluent

When constructed sanitary effluent from the washroom facilities and break room areas from the data centre buildings and central administration building will be collected and will connect via a new 225mm Ø gravity foul sewer and discharge into a single outfall (SE1) into the existing 450mm Ø sewer located to the southwest of the site. Average wastewater flow from the permitted development will be circa 0.5l/s, with a peak discharge of 3l/s. The foul network ultimately discharges for final treatment and disposal at Ringsend Wastewater Treatment Plant (WWTP) in Dublin. The industrial wastewater from the DUB15 and DUB14 will flow north to the water treatment building before being discharged to the foul water sewer.

Cooling Water Drain down

Excess cooling/process wastewater from the Dub 15 and Dub 14 cooling system will be pumped into the foul sewer for discharge. The Cooling system requires water when atmospheric temperatures are above the setpoint, which is expected to be less than 5 days annually. The spent industrial cooling/process water is monitored for flow and conductivity prior to discharge from the water treatment plant to the onsite foul network. It should be noted that the treatment of the harvested rain water includes the addition of sodium hypochlorite to mitigate against legionella and cooling process does not involve the addition of any further chemicals. This described further in the operational report Attachment 4-8-1.

3.4.3 Stormwater Drainage Systems

When constructed the rainwater from the yards and the proposed road network will be collected in newly constructed gravity surface water drainage system, underground attenuation tanks, and discharged to the existing stormwater mains network to the southwest of the site. (See Drawing CD02B Proposed Surface Water Drainage).

There are three class 1 full retention fuel separators with carbon monitors and lockdown valves linked to the facilities BMS, located prior to discharge into the attenuation tank on each of the surface water drainage lines.

The storm water drainage within the entire development has been designed to accommodate attenuation requirements of 1:10, 1:30 and 1:100 year storm event including for a 20% increase in rainfall to account for climate change via the on-site attenuation tank of 4,400m^3.

3.4.4 Environmental Conditions

3.4.4.1 Soil

The Baseline Report (Attachment 4.8.3) concluded that there is no evidence of any residual contamination beneath the site.

The only chemical stored on site in significant quantities is diesel. However, the risk prevention measures planned at the installation significantly reduce the potential for an environmental impact to soil or water to occur. These measures include double

contained vessels and spill management procedures and incorporation of interceptors on stormwater lines.

Source-pathway-receptor linkages were assessed for the bulk storage areas. It was concluded that there are no direct pathways to either the soil or groundwater environment.

3.4.4.2 Groundwater

Attachment 4-8-3 of this application provides a Baseline Report which identifies no historic contamination of groundwater.

3.4.4.3 Surface Water

The installation is located within the Eastern River Basin District (ERBD), as defined under the European Communities Directive 2000/60/EC. Surface water quality is monitored continuously by the EPA at various regional locations along principal and other smaller watercourses. The monitoring location (GRIFFEEN - In Lucan Village RS09G010600) which is just north of Insert 7.7's scope obtained a Q rating of 3 - Poor Status (in 2019). The station "GRIFFEEN - First Bridge E. of Milltown" (RS09G010200) also has a status of poor and denotes the values at Lucan Village as this station is upstream of the proposed site.

There are three class 1 full retention fuel separators with carbon monitors and lockdown valves linked to the facilities BMS, located prior to discharge into the attenuation tank on each of the surface water drainage lines as outlined in Attachment 4-8-3 of this application.

3.4.4.4 Air

Ambient air quality monitoring was not undertaken as part of the preliminary assessment for this site. Reference has been made to the latest air quality monitoring programs that have been undertaken in recent years by the EPA.

Attachment 7-1-3-2 – Air Emissions Impact Assessment of this application provides a summary of the relevant air quality that has been used as a baseline for the air dispersion modelling completed for the project.

3.4.4.5 Noise

An environmental noise survey was conducted by AWN to quantify the existing noise environment. The surveys were conducted in general accordance with guidance contained in the EPA NG4 publication and ISO 1996: 2017: *Acoustics – Description, measurement and assessment of environmental noise -Determination of Sound Pressure Levels*.. Specific details are set out in Attachment 7-1-3-2 - Noise Emissions Impact Assessment of this application.

4.0 BEST AVAILABLE TECHNIQUES AND COMMISSION IMPLEMENTING DECISION

Section 86A(3) of the EPA Act 1992 as amended, requires that the Agency shall apply BAT conclusions as a reference for attaching one or more conditions to an IE Licence. The installation has principally been assessed against the BAT conclusions contained in Table 4.1:

Table 4.1 *Applicable BAT documents*

Horizontal BREF	Publication date	Attachment
Best Available Techniques (BAT) Reference Document for Large Combustion Plants	2017	Attachment-4-7-1-BREF - Large Combustion Plants
Reference Document on the Best Available Techniques for Energy Efficiency	2009	Attachment-4-7-2-BREF - Energy Efficiency
Reference Document on the Best Available Techniques on Emissions from Storage	2006	Attachment-4-7-3 BAT REF - Emissions from Storage
Reference Document on the application of Best Available Techniques to Industrial Cooling Systems	2001	Attachment-4-7-4 BAT REF - Industrial Cooling Systems

The assessment has demonstrated that the installation will comply with all applicable BAT Conclusion requirements specified in the CID and will be in line with the guidance specified in the other relevant BREF Documents and relevant national BAT notes.

5.0 EMISSIONS AND ABATEMENT TREATMENT SYSTEMS

This section describes the emissions from the unit operations above and the abatement or treatment system in place for those emissions and summarises any monitoring controls in place.

5.1 AIR EMISSIONS

Main Air Emissions

DUB15 will have 22 no. gas generators with 22 no. flues, each of which will be built to a minimum height of 25m above ground level to provide for adequate dispersion of pollutants. The emissions point from each gas generator have been labelled A2-1 to A2-22 in Attachment 7.4.1. These emission points are shown in Drawing Ref. A1015 – *Major Air Emissions Points* included with this application.

Minor emissions

DUB14 will have 21 no. standby diesel generators with 21 no. flues, each of which will be built to a height of 30.75m above ground level resulting in a total of 21 emission points. The water treatment plant adjacent to DUB14 facility will also have a back-up generator. These generators will only be used during abnormal operating in the case of emergencies are classified as minor emission points due to their periodic testing and infrequent use. The emission points from each generator have been labelled Emission Points A3-1 to A3-22 in Attachment 7.4.2. The environmental impact of these minor emissions are set out in Attachment-7-1-3-2 - Air Emissions Impact of this license application.

It is anticipated, based on the applicants' experience, that emergency back-up generators will rarely be used. They will be tested periodically to maintain operational readiness.

There is mechanical duct and diesel generator flue at the CAB building, these are labelled Emission Points A3-23 and A3-24 in Attachment 7.4.2.

Potential Emissions

These are emissions which only operate under abnormal process conditions. Typical examples include bursting discs, pressure relief valves, and emergency generators. The emergency back-up generators are included as minor emission sources due to the routine testing and load bank testing.

The diesel storage emergency diesel generators at the facility each include two-way normal pressure (breather) and pressure relief vents on the diesel belly tanks. These produce minor diesel vapour (trace) emissions.

Fugitive Emissions

Fugitive emissions are defined as low level diffuse emissions, mainly of volatile organic compounds, that occur when either gaseous or liquid process fluids escape from plant equipment. There are no such emissions anticipated from the installation.

5.1.1 Treatment and Abatement Systems

The emissions to air from the site have been considered, the only direct emissions from the installation are from the gas generation plant and the emergency back-up generators.

The emissions from the gas generation plant have been considered against the Industrial Emissions Directive (IED) (Directive 2010/75/EU) was adopted on 7 January 2013 and is the key European Directive which covers the regulation of the majority of processes in the EU. As part of the IED Article 15 - Paragraph 2 requires Emissions Limit Values (ELVs) are based on best available techniques (BAT) and the relevant sector Reference Document of Best Available Techniques (BREF documents).

The most relevant BAT sector document for the activities at the installation is the Best Available Techniques (BAT) Reference Document for Large Combustion Plants LCP. ELVs set out in the LCP BAT are applicable to individual combustion plant greater than 15 MWth. However, the individual gas generators are 7.6MWth which is below the 15 MWth threshold and therefore does not apply in this case. The Medium Combustion Plant (MCP) Regulations (S.I No. 595 of 2017), which transposed the Medium Combustion Plant Directive ((EU) 2015/2193), applies to the individual plant in this case.

It should be noted that the standby diesel generators are for emergency back-up only and are not anticipated to operate in excess of 500 hours per annum. Therefore, the emergency diesel generators as proposed are exempt from complying with the relevant ELVs set out in the MCP Directive subject to Section 13(3) of the Medium Combustion Plant (MCP) Regulations.

Air dispersion modelling has been undertaken as discussed in Attachment 7.1.3.2 (Air Emissions Impact Assessment) to ensure that the appropriate ambient air quality standards are met. The modelling has been undertaken using the AERMOD air dispersion model in line with EPA Guidance Note AG4.

The stack heights of the gas generation plant and emergency back-up generators for the facility have been designed to ensure that an adequate height was selected to aid

dispersion of the emissions and achieve compliance with these ambient air quality standards at all off-site locations (including background concentrations). There is no SCR abatement or treatment systems proposed or required for the gas generation plant and emergency diesel generators.

5.1.2 Control and Monitoring

The emissions from the emergency back-up diesel generators and the gas generators have been considered against the Medium Combustion Plant (MCP) Regulations (S.I No. 595 of 2017), which transposed the Medium Combustion Plant Directive ((EU) 2015/2193).

The gas generators will operate up to 8 hours a day and are designed to comply with the emission limit values. The diesel generators are for emergency back-up and are not anticipated to operate in excess of 500 hours per annum. Therefore, the emergency backup generators as proposed are exempt from complying with the emission limit values subject to Section 13(3) of the Medium Combustion Plant (MCP) Regulations.

5.2 EMISSIONS TO SEWER

Sanitary effluent from the washroom facilities and break room areas from the data centre buildings will be collected and will connect via a new 225mm Ø gravity foul sewer and discharge into a single Emission Point (SE1) into the existing 400mm Ø sewer located to the west of the site.

The Evaporative Cooling utilises 'Evaporative Cooling Water', treated harvested rainwater (at ambient temperature) as the cooling media. There is a requirement to have the capability to discharge spent cooling water as process effluent into the foul network. The residual cooling water, associated with the evaporative cooling process, is discharged from the cooling systems to the foul network. This is recirculated sanitised rainwater that has been treated with sodium hypochlorite and been through the AHUs only. See Attachment-7-1-3-2 – Stormwater Ground and Sewer Emissions Impact Assessment for further details.

5.3 STORMWATER EMISSIONS

The surface water will be ultimately discharged to the stormwater network and the River Griffeen located to the southwest of the site. This is a new installation, and foul water and process water is separated from all stormwater lines in accordance with the Best Available Techniques.

The hardstanding areas that drain surface water from the generator yard, loading dock, and fuel delivery areas shall pass through full Class 1 Full Retention separators prior to entering the surface water attenuation tank located to the west of the site. The carparking areas pass through Class 1 by-pass separators prior to the attenuation tank. (See Drawings CD02A and CD02B). The attenuated stormwater discharges offsite at 1 no. Emission Point (SW1).

See Attachment-7-1-3-2 – Stormwater Ground and Sewer Emissions Impact Assessment for further details.

5.4 NOISE EMISSIONS

During operation, the primary source of noise is expected to arise from plant items which will be required to service the data storage facilities (i.e. the AHU), the operation of the emergency back-up generators during testing and emergency scenarios and plant items associated with the Gas Generation Plant.

An assessment of the noise emission impacts in line with the EPA *Guidance Note for Noise: Licence Applications, Surveys and Assessments in Relation to Scheduled Activities (NG4)* has been conducted by AWN and included in Attachment-7-1-3-2 - Noise Emissions Impact Assessment.

Plant items will be selected in order to achieve the stated noise levels and or appropriate attenuation will be incorporated into the design of the plant/building in order that the plant noise emission levels are achieved on site (including any system regenerated noise). Plant items will also be selected such that noise emissions do not give rise to tonal or other special noise characteristics off site at the nearest noise sensitive locations.

The predicted noise levels at all Noise Sensitive Locations (NSL) are below the day, evening and night-time noise criteria that are applicable to the site operations.

Annual day time, evening and night-time monitoring is proposed to be undertaken in accordance with the IE licence requirements.

See Attachment-7-1-3-2 - Noise Emissions Impact Assessment for further details on noise emissions.

6.0 MANAGEMENT OF RAW MATERIALS, INTERMEDIARIES AND WASTES

A list of all raw materials in use on the site is provided in Attachment 4.6.2.

The site produces minimal amounts of waste. Details of the estimated waste volumes, types, disposal/recovery techniques are provided in Section 8 of this application. The majority of the wastes generated are non-hazardous. Appropriate segregation and management of waste operators ensures no significant impacts on downstream facilities.

6.1 ENERGY EFFICIENCY AND RESOURCE USE

The operation of the installation will involve the consumption of electricity, fuel and mains water. The estimated quantities to be used when the installation is operational are specified in Attachment 4.6.1 of the application and are shown below in Table 6.1 below.

Table 6.1 *Summary of the Estimated Future Resource use at the Installation Resource*

Resource	Quantity per annum
Electricity (purchased)	498,000 MWh
Total Electricity (generated and used)	107,435 MWh
Electricity (generated and exported)	N/A
Natural Gas	26,500,000 m^3

Diesel (Gas Oil)	50 m^3
Water (Public Supply & Rainwater Harvesting)	9,003 m^3

The applicant will employ a variety of technologies to maximise the efficient use of energy within the installation. The installation will be operated in accordance with an Energy Efficient Management System (EEMS), which will be compliant with the requirements of ISO50001, as well as the requirements of BAT.

7.0 PREVENTION OF ACCIDENTS

Based on the information available for products used on site and corresponding usage and storage volumes, the EC (Control of Major Accidents Hazards involving Dangerous Substances) Regulations 2015 (S.I. No. 209 of 2015) do not apply to this site.

The only substance stored on site controlled under Seveso/COMAH will be diesel for the emergency generators. The quantity of diesel which qualifies a given establishment for the application of lower-tier and upper-tier requirements under Directive 2012/18/EU is 2,500t and 25,000t respectively. The development is proposed to store a maximum of 696 tonnes of diesel.

Regardless of the potential for major accident hazards, the operation of any activity involves a certain amount of risk to the environment and human health. Preventative/Control measures are implemented to reduce the likelihood of accidents and mitigate the effects of the consequences of an accident at the installation.

8.0 MANAGEMENT AND PROCESS CONTROL SYSTEMS

8.1 BUILDING MANAGEMENT SYSTEM (BMS) AND ELECTRICAL POWER MONITORING SYSTEM (EPMS)

The installation operates a Building Management System (BMS) and an Electrical Power Monitoring System (EPMS) for control and monitoring, data collection and alarm/reporting of the air handling systems and mechanical utility systems site wide. Specifically, this includes the cooling systems, electrical supply, emergency back-up generators, water supply, fire alarms, fire detection and suppression systems and fuel oil use.

The BMS/EPMS will ensure the facility is running an optimal efficiency and will alert the operators in the event of a malfunction through the use of visual and auditable alarms.

8.2 STANDARD OPERATING PROCEDURES

The facility will develop prior to operation a number of Standard Operating Procedures (SOPs). These address all relevant operational process and environmental matters onsite including, but not limited to;

- Emergency Response Plan, including fire and explosion response, incident, spill response procedures,
- Generator testing

- Operational Waste Management;
- Chemical and fuel delivery, storage and handling;
- Water treatment plant processes;
- Maintenance schedule;
- Reporting on, investigating, and documenting incidents;

8.3 FIRE MANAGEMENT

A system shall be provided for detection, alarm and fire suppression to enhance life safety and protection of property by the detection of fire, enabling an audio/visual alarm to be given such that emergency actions may be taken fully compliant with Irish and EU regulations and in accordance with the insurers' requirements.

The system shall incorporate fire alarm panels strategically located throughout the building to provide both Fire Fighters and operational staff detailed indications of the fire alarm status and report any alarm or fault events and to provide detailed device address information including an active graphical display. Detection shall comprise manual call points, smoke and/or heat detectors and aspirating detection.

There will be a fire/sprinkler main which will be supplied from a dedicated set of firewater storage tanks and associated pump house which will pressurise a separate firemain network.

The fire detection and alarm systems will be subject to routine checks by site personnel and will be inspected and tested by the external service provider on a regular basis.

8.4 SITE CLOSURE

Upon cessation of operations and subsequent decommissioning of the installation, it is anticipated that there will be no remaining environmental liabilities, i.e. Clean Closure is expected. Environmental monitoring will be conducted upon agreement and request of the Agency. Once operations cease and site is decommissioned, there will be no significant emissions to atmosphere at the installation so monitoring of emissions will not be required. A site closure plan is described in Attachment 9-1-1 of this Licence Application.

9.0 ENVIRONMENTAL IMPACT ASSESSMENT

The Environmental Impact Assessment Report (EIAR) relating to this activity, prepared on behalf of MS Ireland Operation Ltd. dated July 2021, which has been previously submitted to SDCC for Planning Ref. SD20A/0283 has been submitted to the Agency as part of this application (Attachment 6-3-19 of the IE Licence application). All planning permissions for the data storage facilities that are relevant to this Licence application under Class 2.1 of the EPA Act 1992 (as amended) have been granted on site.

The installation is to be constructed and operated in accordance with SDCC for Planning Ref. SD20A/0283 therefore the EIAR submitted to the EPA dated July 2021 (Attachment 6-3-19 of the IE Licence application) is relevant to this IE License activity. Any further information, including reports and advice, relating to the environmental impact assessment of the proposed activity is made available and contained within Section 7 of this licence application .

9.1 ALTERNATIVES

The development of the Central Administration Building, Dub 14 and Dub 15 is ideally located adjacent to existing Microsoft data halls. Several iterations of site layout were considered planning stages of the development to arrive at the proposed arrangement of buildings and site infrastructure.

In terms of the proposed technology, the engineering design team for the proposed development have considered technology that is used at the existing Microsoft datacentres and by other operators in Ireland and around the world. The design represents state of the art technology.

Substantial work has been undertaken to determine the most environmentally friendly and energy efficient solutions for the installation. In respect of the technology chosen:

- The data processing buildings have been designed to operate at the warmest practical conditions*;*
- The cooling systems have been designed and optimised to these warmer conditions such that they do not require chillers (noise generating) at all and therefore 100% of the cooling is achieved, compressor free for 100% of the year;
- All the fan motors within the indirect mass air free cooling air handling units utilise EC (electrically commutated) DC motor technology with variable speed control; and
- Rainwater harvesting systems have been employed to reduce water demand from the mains supply; and
- The Emergency Generators have been chosen with acoustic enclosures to dampen sound to appropriate levels.

10.0 CONCLUSIONS

This non-technical summary includes a brief overview of the IE licence application, detailing each of the sections contained within the application that are relevant and applicable to the site.

It should be noted that in order to obtain comprehensive detailed description of the installation and the activities that will be carried out there, the full application should be viewed.