Thorney Lane Data Centre Emergency Back-Up Generation Facility

Environmental Permit Application EPR/SP3224LP
Non-Technical Summary

Amazon Data Services UK Limited

Project Reference: EPR/SP3224LP/A001
Project number: 60753942
SP3224LP-APP-NTS

February 2026

Delivering a better world

Prepared for:

Amazon Data Services UK Limited

Prepared by:

AECOM Limited
12 Regan Way
Chetwynd Business Park
Nottingham NG9 6RZ
United Kingdom

T: +44 (115) 827 8000
aecom.com

Table of Contents

Plates

Tables

Glossary

Glossary/ Abbrevation	Term
AWS	Amazon Web Services
BAT	Best Available Techniques
BMS	Building Management System
BREF	BAT Reference
BS	British Standard
CO	Carbon Monoxide
DAA	Directly Associated Activity
EA	Environment Agency
EMS	Environmental Management System
EPR	Environmental Permitting Regulations
ERA	Environmental Risk Assessment
FAQ	Frequently Asked Questions
HR	Human Receptor
IED	Industrial Emissions Directive
ISO	International Standard Organisation
MCP	Medium Combustion Plant
MWth	Megawatts thermal
NOx	Nitrogen Oxides
NTS	Non-Technical Summary
OPV	Overfill Protection Valve
PROW	Public Right of Way
SCR	Site Conditon Report
UK	United Kingdom

1. Introduction

1.1 Context

AECOM Limited ('AECOM') has been commissioned by Amazon Data Services UK Ltd ('the Operator') to prepare an application under the Environmental Permitting (England and Wales) Regulations 2016, as amended ('EPR') for the emergency back-up generation facility for the proposed data centre at Thorney Business Park, Thorney Lane North, Iver in Buckinghamshire. The environmental permit will be for the operation of emergency backup generators and associated fuel storage and handling ('Proposed Installation').

The purpose of this report is to provide a Non-Technical Summary (NTS) for the application which provides a high-level overview of the proposed installation.

1.2 Proposed Installation

The Environmental Permit application will be made for the combustion activities (including fuel storage and handling) associated with emergency backup generators only and not the wider data centre operations. The installation boundary for the Environmental Permit will include the areas covered by these activities only. The Installation boundary is shown on Drawing Figure 1 Site Location and Permit Installation Boundary Plan (provided in Application Part 10 Figures and Plans).

The wider data centre development consists of the construction of commercial buildings to comprise data centres, ancillary offices, associated plant, equipment and emergency backup generators and associated fuel storage, landscaping, sustainable drainage systems and parking.

A bank of emergency generators will be provided to support the data centre operation in the event of a power outage. Each individual generator will be classed as medium combustion plant (MCP) with an aggregated thermal input for the site which will exceed 50 Megawatts thermal (MWth)`.

The installation will include 36 containerised generators to provide backup power supply for the main two data centre buildings, a smaller 'house' generator for each building to cover noncritical operations in an emergency such as offices, the proposed generator fuel storage and handling areas, and associated emission points only.

The emergency generators and associated fuel loading and storage will be classed as the Proposed Installation throughout this report and is located within a central area within the wider Data Centre Site.

2. Application Summary

2.1 Site Location and Current Condition

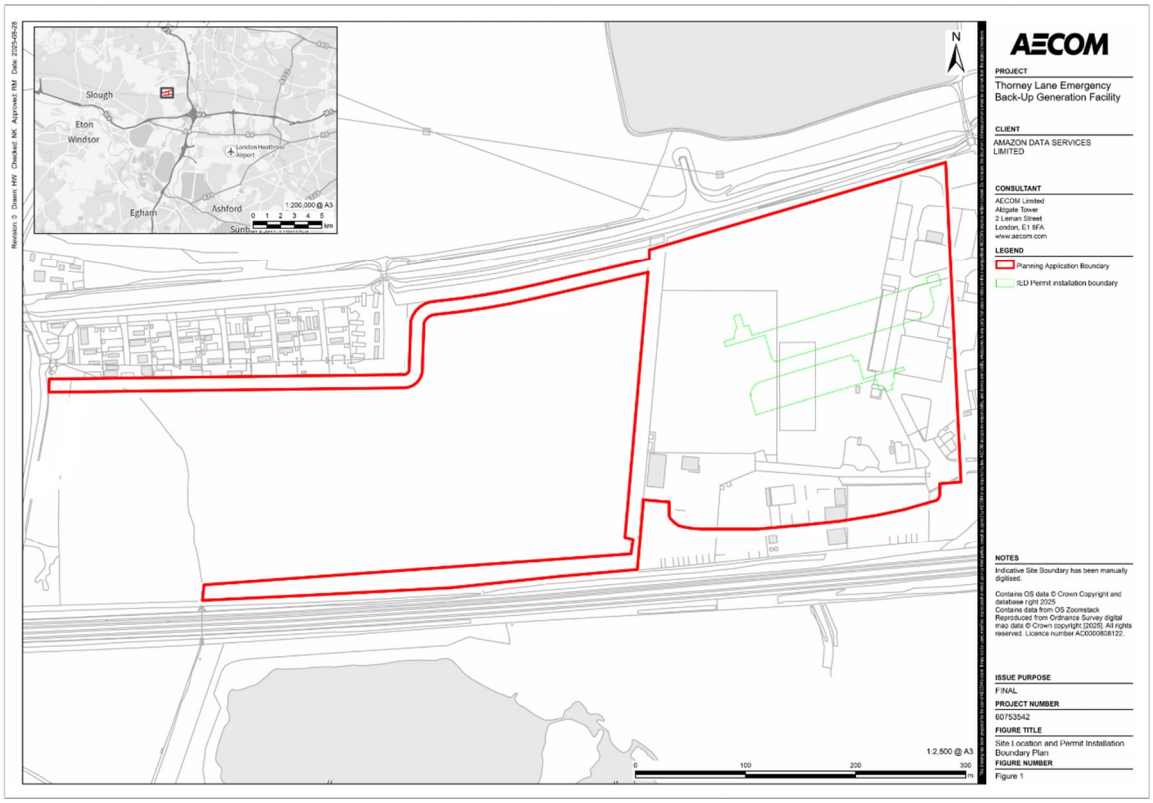
The address of the Proposed Installation is:

Thorney Lane Data Centre,
Thorney Business Park,
Thorney Lane North,
Iver,
Buckinghamshire
SL0 9EE,
United Kingdom

The Proposed Installation is centred at grid reference TQ02987 80006 and is approximately 0.8ha and forms part of a wider data centre development in the western part of the existing Thorney Business Park. There is an extant planning permission (PL/22/1775/FA dated 29th May 2024) for data centre use at this site. The operator is seeking some amendments to this planning permission to reflect its specific design and layout requirements via a new full planning application. Access (to the site is via a new access road to the south (subject to a separate planning permission) which upgrades the existing main site access into Thorney Business Park from Thorney Lane North to the east of the site. The data centre will have a secondary (emergency) access via Hollow Hill Lane

The site location is shown in Plate 1 below.

Plate 1. Site Location



The data centre site is located approximately 1.2km south of Iver Town Centre, 27km of London City Centre and 5km east of Slough. Heathrow airport is approximately 6km south-east. The data centre site is bordered by:

- Grand Union Canal (Slough Arm) and the associated Grand Union Canal Walk Public Right of Way (PROW) immediately to north;
- Arable fields, then Mansion Lane to the west;
- Businesses in the remainder of the Thorney Lane Business park to the east; and
- Great Western Rail Line and Elizabeth Line immediately south.

With respect to the Proposed Installation, the closest residential receptors comprise residential properties in Richings Park area, located approximately 300m south-east of the installation boundary (on the opposite side of the railway line), and Grand Union Place halting / caravan site, located approximately 300m to the west of the installation boundary.

There are a number of surface water features in the area surrounding the Site, including:

- The Grand Union Canal (Slough Arm) approximately 137m to the north of the installation boundary;
- Multiple drainage channels to the east, west and south;
- Horton Brook approximately 500mm south west from the installation boundary;
- Colne Brook approximately 700m to the south of the installation boundary; and,
- Various surface waterbodies associated with Colne Brook to the south, including Colnbrook West, Orlitts Lake and Old Slade.

A Site Condition Report (SCR) (Document Reference: SP3224LP/APP/SCR) is provided in Application Part 4. The SCR sets out to record the current condition of the site, gives a description of the substances that will be present on-site as part of the facility and assesses the likelihood of emissions to ground and groundwater occurring during the operation of the facility.

The SCR identified the potential for contamination to present at elevated concentrations associated with the former industrial land use at the Site. However, generally the likelihood of the linkage being realised from re-development was mainly assigned as low rating. The overall risk rating of low to moderate is not uncommon for industrial and brownfield sites. Site remediation works will be identified and implemented as required in accordance with the site planning permission.

2.2 The Operator

The applicant and operator is Amazon Data Services UK Limited, the operator of Amazon Web Services' (AWS) data centres in the United Kingdom. AWS is the world's most comprehensive and broadly adopted cloud and is part of Amazon. It allows clients to access technology services, such as computing power, storage, and databases, on an as-needed basis instead of instead of owning and maintaining physical data servers on their own.

The Proposed Installation and wider data centres, subject to the grant of planning permission, will form part of Amazon's planned £8 billion investment in the UK (2024-2028) to build, operate, and maintain data centres. This investment is part of the Amazon's long-term commitment to supporting growth and productivity across the country and is estimated to contribute £14 billion to the UK's total Gross Domestic Product (GDP) through to 2028 and support an average of more than 14,000 full-time equivalent (FTE) jobs on an annual basis at local UK businesses. These positions all form part of the Amazon data centre supply chain, ranging from construction, facility maintenance, engineering, telecommunications, and other jobs within the broader local economy. These investments form part of Amazon's planned £40 billion investment in the UK over three years (2025-2027), including new fulfilment centres, delivery stations, and corporate office buildings.

Amazon is resolutely committed to sustainability with a commitment to reach net-zero carbon emissions by 2040 —10 years ahead of the Paris Agreement. It is the largest corporate

purchaser of renewable energy globally for the fifth year in a row (according to Bloomberg NEF). In 2023, the company met its goal to match all the electricity consumed across its global operations, including its data centres, with 100% renewable energy - seven years ahead of its original target of 2030. Overall, the Applicant's demonstrated track record and global sustainability commitments underscore its ability to deliver environmentally responsible development.

Amazon Data Services UK Limited is listed on Companies House with registered number 09959151.

2.3 Management Arrangements

An environmental management system (EMS) will be established for the site and will follow the principles of the ISO 14001 standard. The EMS will be underpinned by an environmental policy and will include operating procedures to manage the various aspects of the operation of the plant, including but not limited to emissions monitoring, accident management, waste minimisation, resource management, and infrastructure maintenance.

Full details of the proposed management system are provided in Section 3 of the Supporting Statement (Document Reference: SP3224LP/APP/SS provided in Application Part 3 Supporting Statement) .

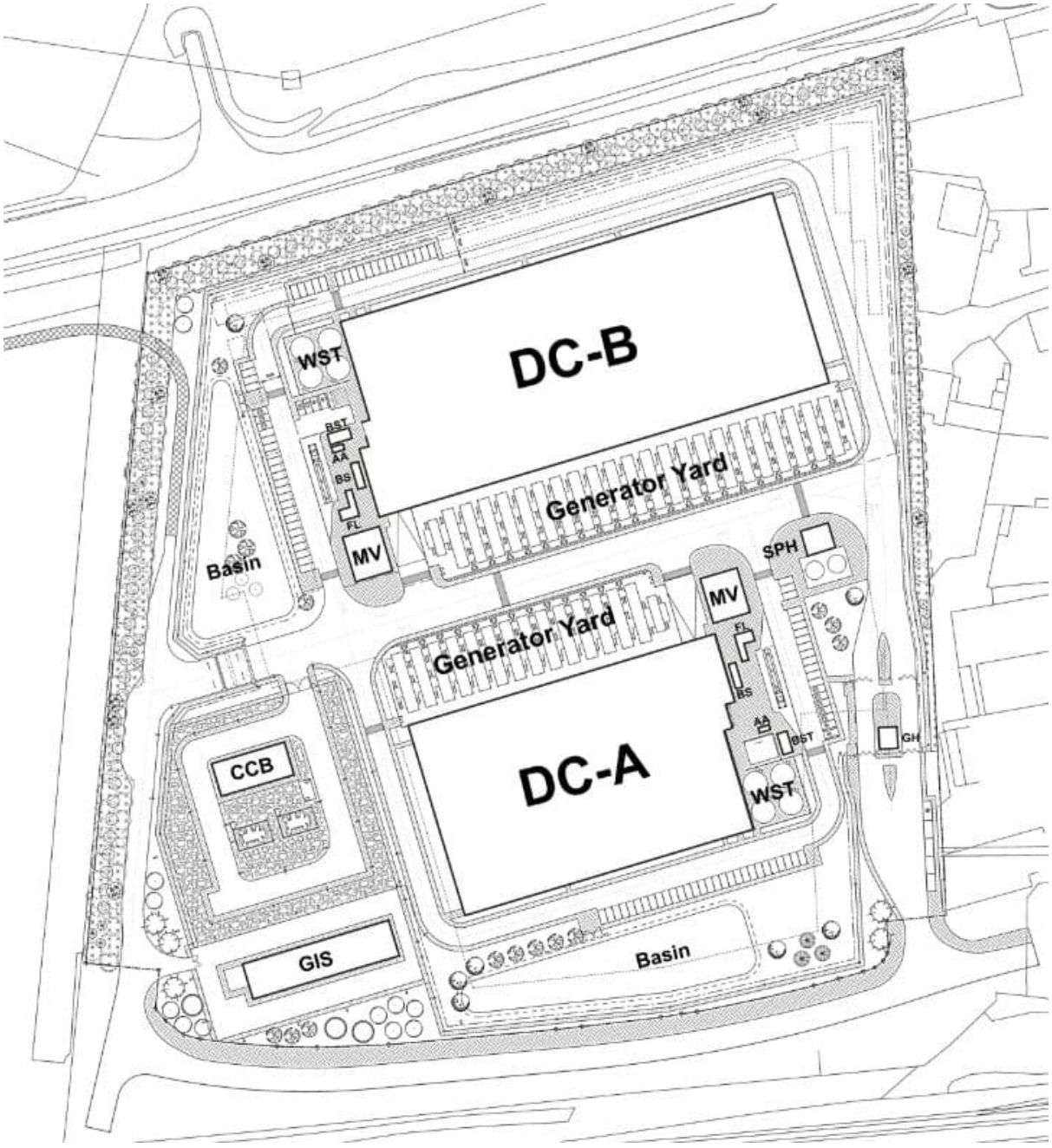
2.4 Proposed Installation Operations

2.4.1 Back-up generators

The wider data centre will be served by a direct connection to the National Grid and in the case of a partial or full grid outage, back-up generation will be provided by emergency generators. The generators will be run on diesel or equivalent such as Hydrogenated Vegetable Oil (HVO).

Each data centre building will be served by a back-up generator yard area. Data centre A (DC-A) will be served by 14 individually containerised generators and data centre B (DC-B) will be served by 22 individually containerised generators. Each main generator will have its own associated emission stack and have a thermal input capacity of up to 7.57 MWth. There will also be a smaller ‘house’ generator for each building to cover non-critical operations such as the offices. The house generators will each have an associated emissions stack and a thermal input capacity up to 3.5 MWth. The layout of the data centre buildings and associated generator yards is shown in Plate 2 below with the environmental permit installation boundary shown in green.0

Plate 2. Proposed Data Centre Layout Including Generator Yards



Legend

DC-A - Data Centre Building (1st Phase)
DC-B - Data Centre Building (2nd Phase)
GH - Guard House
SPH - Sprinkler Pump House
MV - MV Building
FL - Fuel Loading
BS - Bike Shelter
AA - Amenity Area
BST - Bin Store
WST - Water Storage Tanks and Screen
CCB - Client Control Building
GIS - GIS Sub-Station

2.4.2 Fuel storage

Diesel will be stored on site in two main top-up tanks each holding approximately 40,000 litres (one for each generator yard). Each main generator will have an associated belly tank of approximately 17, 400 litres useable capacity and each house generator will have a belly tank of approximately 4,560 litres useable capacity.

The top up tanks will be integrally bunded to 110% and each is connected to a fuel delivery point in the fuel loading area of each generator yard. The tanks will be fitted with an Overfill

Protection Valve (OPV) to the tank fill line and a leak detect float switch within the tank bund to alarm if a leak is detected.

Each belly tank is containerised and will be bunded to 110% of the capacity of the internal tank. The tanks will be fitted with digital OLE electronic gauges which can be read at the tank or remotely via the integrated Business Management System (BMS) and will also be equipped with leak detection alarms..

All tanks will comply with the requirements of the Control of Pollution (Oil Storage) (England) Regulations 2001.

Further details of the Technical Operations is provided in Section 4 of the Supporting Statement (Document Reference: SP3224LP/APP/SS provided in Application Part 3 Supporting Statement)

2.4.3 Fuel delivery and unloading

Each generator yard will have a dedicated fuel loading area which comprises a fill point in a lockable cabinet and a fuel control panel which provides details of fuel levels in the top-up and belly tanks. The control panel is used to control the refuelling operations and provides overfill prevention controls and alarms at the cabinet. Fuel loading areas are provided with drip trays to capture minor spills and forecourt fuel interceptors at each loading ramp to prevent any spillage entering the foul drainage system.

2.4.4 Drainage

2.4.4.1 Foul Drainage

Rain water collected from the fuel loading areas and generator yard areas will be gravitated to the wider site foul drainage network via Class 1 full retention fuel and oil separators. Each interceptor will monitored on the Facility BMS and alarms will be trigger if hydrocarbons are detected.

Foul water for the Data Centre Site as a whole will discharge by gravity to the foul water pumping station to the south east of the Site. The discharge from this Site will be controlled to meet the maximum discharge rate allowed and balancing tanks will be provided on the industrial wastewater to store the excess flows.

2.4.4.2 Surface Water Drainage

No surface run off from the generator yard and fuel loading areas will enter the surface water drainage system.

The drainage strategy is for the wider data centre and facilitates gravity collection of rainwater from proposed building roofs and roads via a new surface water network which will connect new gullies, channels and rainwater pipes into a combination of geocellular attenuation tanks and detention basins.

The wider Data Centre Site will discharge surface water offsite restricted to 40.1 l/s into a new pipe run flowing approximately 420 metres to the west of the Site to an existing culvert that flows southwards under the railway line.

2.5 Best Available Techniques

At the time of writing there are no relevant published BAT reference documents (BREF notes) for data centres and the previous combustion sector guidance document: ‘Combustion Activities (EPR 1.01)’ was withdrawn in August 2018. The EA has published “Data Centre FAQ Headline Approach v21” (November 2022) as a working draft guidance document detailing the approach to permitting and regulatory obligations for data centres under the Industrial Emissions Directive (IED) and the Environmental Permitting Regulations.

A BAT (Document Reference: SP3224LP/APP/BAT) assessment has been developed using engineering information provided by the Operator, based on the design parameters of the Proposed Installation, available information about the local environment and the applicable standards and guidelines, outlined in the “Data Centre FAQ guidance document. The BAT assessment (Document Reference: SP3224LP/APP/BAT) is attached in Application Part 5, BAT Assessment, .

2.6 Monitoring Arrangements

The site will implement a structured approach to monitoring in accordance with BAT standards and which will include:

- Process monitoring including energy consumption, hours of operation and power generated;
- Infrastructure inspection and monitoring via planned preventative maintenance; and
- Environmental monitoring of emissions to air in alignment with BAT “Data Centre FAQ” guidance and “Combustion (Part A Installations) Basic Pre-application Advice” received through engagement with the EA. The Operator will be required to demonstrate BAT compliance through the installation of flue gas sampling ports - facilitating NO_x and CO analysis in accordance with Monitoring stack emissions: low risk MCPs and specified generators’ Published 04 June 2024, update January 2026. . Compliance will be in the form of type-certification to the relevant standard and not by individual engine exhaust point source emissions monitoring.

Full details of the proposed monitoring arrangements are provided in Section 6 of the Supporting Statement (Document Reference: SP3224LP/APP/SS provided in Application Part 3 Supporting Statement).

2.7 Environmental Emissions

Full details of the emissions from the proposed installation and associated mitigation and management techniques are provided in Sections 4 and 5 of the Supporting Statement (Document Reference: SP3224LP/APP/SS).

2.7.1 Point Source Releases to Air

The primary point source emissions to air are associated with the operation of the diesel-fired backup generators, which are intended for emergency use. Each generator will have its own emission stack and will be subject to routine testing and maintenance. The main parameters considered are associated with the release of combustion gases during generator operation which include:

- Oxides of nitrogen (NOx)
- Carbon monoxide (CO)
- Particulate matter
- Hydrocarbons.

Emission stacks from generators are identified as A1 – A36 and are shown on Drawing ‘Figure 2 Overall Site Layout and Emissions Point Plans” which is located in Application Part 10 Figures and Plans.

2.7.2 Release to Water

There is no process water used for the Proposed Installation. Drainage at the site will used to manage the following releases to water:

- Rainwater from the generator areas and fuel loading and storage areas which will be gravitated to the wider site foul drainage network via Class 1 full retention fuel and oil separators. After passing through the interceptors the foul run off from the generator yards and fuel loading areas discharge into the wider Data Centre Site foul sewer system which flows to the pumping station located to the south east of the Data Centre Site.
- Surface water runoff from the wider data centre buildings, roofs and external areas is gravity collected via a new surface water network which will connect new gullies, channels and rainwater pipes into a combination of geocellular attenuation tanks and detention basins. Data Centre surface water discharges via a new pipe to an existing culvert. No run off from the generator yards and fuel loading areas discharges to the surface water system.

As the interceptors from the generator yards and fuel loading areas are monitored via the BMS, prior to entering the wider foul sewer system, the release points to sewer are identified as the sewer release point S1 – S4 and are shown on Drawing 'Figure 2 Masterplan – Emissions Points" which is located in Application Part 10 Figures and Plans.

2.7.3 Releases to Land

Surfacing around the area of the generators, fuel storage and loading will be surfaced in concrete with kerbing and equipped with dedicated drainage that will gravitate to the foul sewer via Class 1 interceptors.

There will be no soakaways with the Proposed Installation boundary. Consequently, no direct emissions to land will occur as a result of the operation of the Proposed Installation.

2.7.4 Noise

The following have been identified as potential noise sources:

- Fans (including inlets, outlets, stacks, and enclosures);
- Pumps, drives and motors;
- Exhaust stacks; and
- Generator engines which are containerised and includes acoustic attenuation.

A Noise Management Plan (Document Reference: SP3224LP/APP/NMP provided in Application Part 9 Noise Management) has been provided which explains mitigation and management measures in respect of noise emissions from the Installation.

2.7.5 Fugitive Releases to Air, Water or Land

Due to the nature of the site, there is minimal risk of fugitive emissions to air, water or land. The potential emissions are expected to be from windblown materials from the wider site and other external areas, and the potential accidental release of diesel and lubricants during maintenance activities.

The risk of fugitive releases will be managed through the site EMS, through planned preventative maintenance and regular site inspections.

2.7.6 Odour

The Proposed Installation is not expected to be a significant source of odour emissions due to the limited use and fuel type of the generators. However, there is the risk of fugitive emissions from potential leaks and/or accidents, primarily from maintenance activities.

2.8 Environmental Impacts

The environmental emissions from the site have been evaluated for potential impact on sensitive receptors through the following assessments:

- Application Part 6 - Qualitative Environmental Risk Assessment (ERA) including the H1 Assessment (Document Reference: SP3224LP/APP/ERA)
- Application Part 7 - Air Quality Assessment (Document Reference: SP3224LP/APP/AQ)
- Application Part 8 - Noise Assessment (Document Reference: SP3224LP/APP/NIA)

2.8.1 Qualitative ERA

The ERA evaluated the impacts associated with:

- Fugitive releases to air, land and water including amenity risks and odour;
- Accidents, abnormal operations and fire risk; and
- Evaluated the potential impact from climate change.

The risk assessments also presented the proposed control and mitigation measures that will be implemented at the Proposed Installation.

The assessment concluded that providing the proposed controls and mitigation measures are in place to reduce the likelihood and impact of the identified risks there should be no significant impact on sensitive receptors.

2.8.2 H1 Assessment

H1 is a screening tool used by the regulators to evaluate if detailed modelling assessments are required (Document Reference: SP3224LP/APP/ERA, Application Part 6). The screening assessment was completed for the following scenarios for each generator:

- Scenario 1- Biweekly functional testing for 0.5 hrs (total of 13 hours per annum)
- Scenario 2- Biannual load testing for 4 hours (total of 8 hours per annum)
- Scenario 3- Maintenance (10 hours per year distributed throughout the year)
- Scenario 4- Emergency Scenario for Power Outage (up to 72 hours)

For all scenarios, Nitrogen Dioxide and Hydrocarbons do not screen out as insignificant. Emissions have been further assessed within the Air Quality Assessment (Document Reference: SP3224LP/APP/AQ, Application Part 7).

2.8.3 Air Quality Assessment

Detailed dispersion modelling has been used to calculate the concentration of pollutants at identified sensitive receptors and these have been compared with National Air Quality Strategy objectives, and Critical Levels and Critical Loads for ecosystems.

An Air Quality Assessment (Document Reference: SP3224LP/APP/AQ provided in Application Part 7 Air Quality Assessment). The assessment quantifies the potential impact of emissions to air from the generators during both routine testing and emergency operation. The assessment concluded:

- operation of the Proposed Installation under testing and maintenance, and under emergency operation would not cause an air quality compliance issue for human health with impacts screened out as insignificant. Hypergeometric distribution analysis of the hourly mean NO_2 impact during an emergency identified the probability of an exceedance occurring of less than 1% with up to 72 hours of emergency operation in a year.
- in relation to ecological impacts, operation of the Proposed Installation screened as insignificant against the air quality standards and for nitrogen deposition and were <0.1% of the critical load for acid deposition.

2.8.4 Noise Assessment

A Noise Assessment has been completed and is attached in Application Part 8 (Document Reference: SP3224LP/APP/NIA).

The design of the data centre buildings includes attenuators applied to all louvres and exhaust fans of both buildings. The generators will be housed in acoustic enclosures.

The Noise Assessment concluded:

- With the proposed mitigation strategy, during typical operation, all receptors are predicted to be below their respective daytime noise limits.
- A negligible, not significant impact is predicted at all receptors during generator testing and maintenance.
- In the emergency scenario, the predicted noise levels at HR1, HR3 and HR4 are considered an adverse, not significant impact. At receptor HR2, during the night-time, a significant adverse impact is predicted. However, due to National Grid reliability, the in-built redundancy and infrastructure maintenance, the likelihood of the emergency scenario to occur in practice and/or for any significant period of time is unlikely and therefore should be considered acceptable for the purposes of granting an Environmental Permit.

The Operator has prepared a Noise Management Plan (Document Reference: SP3224LP/APP/NMP). in accordance with the EA guidance and this is presented in Application Part 9.

2.9 Resource Management

Full details of the resource management arrangements are provided in Section 4.2 of the Supporting Statement (Document Reference: SP3224LP/APP/SS provided in Application Part 3 Supporting Statement).

2.9.1 Water

There is no water required for the operation of the Proposed Installation, although an internal mains water connection will be in place for wider data centre welfare requirements.

2.9.2 Raw Materials

The main raw material for the Proposed Installation will be diesel or equivalent (including Hydrogenated Vegetable Oil) for fuel and lubrication oil.

Raw materials used at the facility will be periodically reviewed to ensure that they are all appropriate for use and that consumption is optimised.

All raw materials will be stored in appropriate containers/tanks depending on their classification. All hazardous materials will be stored safely and in accordance with the Oil Storage Regulations, the Pollution Prevention Guidance and the BAT requirements identified in “Data Centre FAQ” guidance document to avoid contamination.

2.9.3 Waste

All waste generated on site will be managed in line with the waste hierarchy and disposed of by licensed waste contractors where necessary in accordance with the sites waste management procedures.

2.9.4 Energy Efficiency

The 38 back-up generators will be fuelled by diesel or equivalent (including Hydrogenated Vegetable Oil). Due to the back-up nature of the installation operation which requires fast,

flexible operation; combined cycle operation is not a feasible option and is considered unavailable on this basis. The plant selected to provide back-up generation have a gross electrical efficiency of at least 37% based on the electrical output of the generators as a percentage of its thermal input.

2.10 Decommissioning and Closure

A plan for appropriate decommissioning and closure of the proposed installation at the end of its operating life will be developed by the operator. The plan will ensure that the site is returned to the baseline condition.

Decommissioning would be undertaken safely, in line with specific procedures and subject to risk assessment and permit to work schemes, and with regard to the environmental legislation at the time of decommissioning. The required licences and permits would also be acquired.

3. Application Type

The application is for a new bespoke EPR permit. The EPR permit will include the activities and techniques detailed within this application which will be developed in accordance with the standards and guidance which detail 'Best Available Techniques' (BAT).

The application will include the listed activities and directly associated activities (DAA) as shown in Table 1 below.

Table 1. Permitted Activities

Activity Ref No	Activity under EPR 2016 Schedule 1	Description of Specified Activity	Limits
Installation Activities			
A1	Burning fuel in an appliance with a rated thermal input in excess of 50 megawatts {Schedule 1 Activity – Chapter 1, Section 1.1, Part A (1) (a)}.	Operation of emergency standby generators burning diesel or HVO solely for the purpose of providing electricity to the installation in the event of a failure of supply from the National Grid including testing and maintenance. The development comprises; • 36 x main generators, • 2 x house generators.	From receipt of raw material (diesel or HVO) to combustion in emergency standby generators. Emergency standby generators for electricity production to exhaust of products of combustion to atmosphere to generation, storage and dispatch of wastes. Electricity produced at the installation cannot be exported to the National Grid. With the exception of testing and maintenance, the generators shall only be operated for on-site emergencies and not for elective power generation..
Directly Associated Activities			
A2	Storage of Raw Materials	Fuel for the generators and other maintenance related materials such as lubricants.	From receipt of raw materials to use within the facility.
A3	Refuelling Operations	Filling of generator fuel tanks.	Fuelling activities undertaken at designated fill points on the refuelling laybys.
A4	Foul Water Drainage	Management of generator yard and refuelling area foul water.	Input to site foul drainage system for the generator and fuel loading areas until discharge to wider site foul water drainage via interceptors.