LON1X0 Data Centre, Slough: Environmental Permit Application

APPENDIX B- REVISED ENVIRONMENTAL RISK ASSESSMENT TO INCLUDE BUILDING C, LON1X2.

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1. Introduction

This Environmental Risk Assessment (ERA) has been carried out in support of an application for an environmental permit for an addition to the LON1X) data centre, specifically Building C or LON1X2. This ERA supplements the existing permit application for Buildings A and B, which is already in operation. It includes an assessment of the risk to the environment and human health from a diesel fired emergency back-up generation installation with associated diesel storage.

The Environment Agency (EA) Guidance, "*Risk assessments for your environmental permit*", Gov.UK, sets out information on when an environmental risk assessment is required together with notes on how to complete a risk assessment.

The following environmental risk assessment has been developed following the Environment Agency Guidance for risk assessment for environmental permits. The assessment of risks is presented in the risk assessment tables in Section 2.

Site location

The data centre is located in the central part of the former AkzoNobel Decorative Coatings, Slough Manufacturing Unit, located at Wexham Rd, Slough SL2 5DS, National Grid Reference SU 98700 80300

The project (LON1x2) comprises the installation of Building C on the purpose-built Data Centre campus site, located in Slough, London, UK.

At present, the site consists of Buildings A&B (LON1X0), which operate independently, and the proposed modification, referred to as LON1X2, involves the addition of a third structure, Building C, to the existing data centre complex. The site was redeveloped under Slough Borough Planning permission P/00072/096 and is located in the central part of the former AkzoNobel Decorative Coatings, Slough Manufacturing Unit located at Wexham Rd, Slough SL2 5DS, National Grid Reference SU 98700 80300.

The area immediately to the north of the proposed data centre is currently unoccupied land. The Grand Union Canal lies beyond this area with residential properties present north of the Canal. To the east lies Uxbridge Road Gas Works with Uxbridge Road and residential properties present beyond. Immediately to the south, a new residential development is under construction. This is in turn bound by the Railway Line with residential properties present beyond. Commercial and industrial properties lie beyond Wexham Road to the west.

There are no formal landscape designations (such as Areas of Outstanding Natural Beauty or National Parks close to the Site. The nearest formal landscape designations are located being 13km and 40km respectively.

There are no identified statutory ecological designations within the site or surrounding areas. The closest statutory ecological designations are Black Park Country Park (SSSI) and Wraysbury & Hythe End Gravel Pit (SSSI), which are located approximately 4km to the north and 5km to the south of the site respectively. Tree cover is also very sparse across the Site.

Slough Borough is covered by five AQMAs, the Data Centre is not within any of these five AQMAs according to the Slough Borough Council 2024 Air Quality Annual Status Report (ASR). This means

these areas are recognised as having air quality levels that fail to meet the national objectives for key pollutants. The primary pollutant of concern is Nitrogen Dioxide (NO_2). This is largely generated by road traffic emissions. Monitoring and modelling showed that the problem was widespread, particularly along the town's major transport corridors, rather than being confined to a few small hotspots.

Further the entirety of the Site is located in a low probability flood risk zone (Flood Zone 1). The Site is also not located within or adjacent to a Conservation Area.

The site is in a generally developed area with no special landscape, ecological, or heritage protections.

- Landscape: It is not near any protected landscapes like National Parks. The nearest ones are over 13km away.
- Nature Conservation: There are no protected ecological sites on or immediately around the property. The nearest protected nature areas, Black Park Country Park and Wraysbury Gravel Pit, are about 4km north and 5km south, respectively. There are also very few trees on the site.
- Air Quality & Flooding: The site is not in an Air Quality Management Area. It is also located in a low-probability flood zone (Flood Zone 1), meaning the risk of flooding is minimal.
- Heritage: The site is not within or next to a Conservation Area.

Site activities

The proposed development shall include the following key features, a data centre building comprising data halls and associated support plant, storage, office and welfare accommodation, logistics area and loading bay, external plant gantry accommodating 32 Rolls-Royce MTU 20V4000 DS3300 gas oil-fuelled standby generators, electrical plant rooms and heat rejection plant, ancillary support functions, external compounds, and associated infrastructure.

Electricity for the operation of the data centre will be provided from connections to the local electricity transmission network; however, given the nature of data centres and their requirement to have an available energy supply at all times, generators will provide emergency power to the data centre in the event of a disruption in the grid power supply

The existing data centre is currently served by 52 emergency back-up generators within a compound, each with an individual associated stack. The current installation consists of 52 x 5.67 MWth reciprocating engines and will operate to provide emergency back-up power to an associated data centre should there be a break in supply from the grid. Buildings A and B also include 2 Clarke JU4H-LP24 diesel-driven fire-water pumps. The combined net thermal input of the current installation is 295.4 MW. The expanded data centre which will include the existing Buildings A and B together with the new Building C will have a rated thermal input of 517.097 MWt for the existing and the 32 new generator sets and 0.944 MWt for the combined fire water pump engines, thus giving a total site rated thermal input of 518.041 MWt for the entire site upon construction and commissioning.

The location of the generators, fuel tanks, emissions points (flues/stacks) and surface water connections are shown in the site plans found in Appendix A to the Permit Application Supporting Information Document.

Site history

Historically, the site has been used for paint and coating manufacture from 1919 until operation ceased in 2018. Prior to this the site was utilised for brick-earth excavation and brick making in the late 1800s as well as for a US/Canadian Army Storage Base between 1914-1918.

Planning permission was sought in November 2020 for the mixed-use development of the site (Ref P/00072/116). As part of the permission, the site underwent remediation in accordance with Buckingham Group Contracting Ltd.'s (BCGL) "*First Panattoni, Former AkzoNobel Site-Slough, Remediation Scheme for Contamination*" (reference BGCL-C19019/001/v5, dated 31 March 2020). The remediation was approved by the regulatory bodies, including the local contaminated land officer and the Environment Agency, and Condition 34 (Contaminated Land Verification Report) of the planning permission was discharged in June 2022.

Planning Permission for the development of Building C (Ref *P/00072/139)* was registered 15th March 2024. This application seeks Reserved Matters approval for the appearance, layout (inc. internal site arrangements), scale, and landscaping associated with the final phase (Phase 2 – Building C) of the approved commercial floorspace pursuant to the Outline Planning Permission granted in November 2020. It also follows the approval of Reserved Matters for Phase 1 (Buildings A and B data centres) in October 2021.

2. Risk Assessment Approach

This ERA uses the following approach for identifying and assessing the risks from the proposed operation:

1. Identify and consider risks for the site, and the sources of the risks.
2. Identify the receptors (people, animals, property that could be affected by the hazard) at risk from the site.
3. Identify the possible pathways from the sources of the risks to the receptors.
4. Assess risks relevant to the site-specific activity and check they are acceptable and can be screened out.
5. State how risks are controlled.

The ERA has identified all potential receptors that are near the site and could reasonably be affected by the proposed activities.

For the purposes of this ERA the following distances have been used to identify potentially sensitive receptors for the data centre site:

- A 10km radius has been adopted in reviewing potentially sensitive receptors of international ecological importance;
- A 2km radius has been adopted in reviewing potentially sensitive receptors of national ecological importance; and
- A radius of 500m has been adopted for all other potentially sensitive receptors (for example residential, commercial, industrial, agricultural and surface water receptors).

2.1 Climate Change Risk Assessment

Environment Agency (EA) guidance Adapting to Climate Change was withdrawn on 31 August 2022. As a result of this the EA has removed the requirement to consider climate change adaptation from the permit application process.

In place of this, operators are required to integrate climate change adaptation into the environmental management system.

The site management plan will be developed to include an assessment of the risks to the installation associated with Climate Change over the expected period of operation. Climate change duties are also specified in the GHG Permit for the site.

2.2 Identifying the risks

The risk assessment approach is based on the potential frequency or probability of the event occurring and the resulting consequence or potential effect of the event on the environment. The EA's guidance requires the following to be considered as 'Risks from your site':

- any discharge, for example sewage or trade effluent to surface or groundwater accidents
- odour (not for standalone water discharge and groundwater activities)
- noise and vibration (not for standalone water discharge and groundwater activities)

- uncontrolled or unintended ('fugitive') emissions, for which risks include dust, litter, pests and pollutants that should not be in the discharge
- visible emissions, for example smoke or visible plumes
- release of bioaerosols, for example from shredding, screening and turning, or from stack or open point source release such as a biofilter

Further, for Installation EP applications the EA guidance *states that assessment of the following additional aspects is required, where applicable:*

- *Risks from air emissions;*
- *Risks to groundwater;*
- *Global Warming Impact;*
- *Risks to surface water from hazardous pollutants;*
- *Risks to surface water from sanitary and other pollutants; and*
- *Installations must also decide how to treat, recycle or dispose of waste.*

The Installation will not produce any process effluent or release bio-aerosols, and there will be no point source emissions to groundwater, surface water or land from the application activities.

There will be several point source emissions to air associated with each diesel-fired generator stack and the potential for visible emissions from these stacks. This report is accompanied by an air quality assessment report from Atkins Realis Ltd "Air Quality Assessment Document reference: 100122494"

Therefore, only the following potential impacts are considered further in this ERA:

- Point source emissions to air;
- Accidents;
- Noise & vibration;
- Visible emissions, for example smoke or visible plumes;
- Fugitive emissions; and
- Global warming potential.

2.2.1 Geology, Hydrogeology and Hydrology

2.2.1.1 Geology

The geology is shown on the British Geological Survey (BGS) map 269 1:50,000 Series and on the BGS website. The site is underlain by between 5m and 9m of the Taplow Gravel Member, underlain by up to 39m thickness of the Lambeth Group. The underlying bedrock is the Seaford and Newhaven Chalk Formation.

Made ground overlies the natural soils in much of the site as a result of previous development and has a thickness of between 1.0 – 1.5m. The lithography of the area is described as "clay, sand and silt with subsidiary lignite" according to the BGS lithological description.

2.2.1.2 Hydrogeology

British Geological Survey provides a Hydrogeology 625K digital hydrogeological map of the UK, from which the following information was obtained. The Rock unit is Lambeth Group, and the Character of the site is described as a low-productivity aquifer. The summary provided is a variable sequence of

clays, shell beds, fine sands, silts and pebble beds giving low yields. Sometimes, in hydraulic continuity with the underlying Chalk aquifer.

The Taplow Gravel Member is currently designated by the Environment Agency as a Secondary A Aquifer, and the Lambeth Group remains classified as a Secondary A Aquifer. The Seaford and Newhaven Chalk is classified as a Principal Aquifer. It is considered that the more cohesive and lower-permeability strata of the Lambeth Group are acting as an aquiclude between the Taplow Gravel Member and the deeper Chalk aquifer.

The site resides within Groundwater Source Protection Zone III (Total Catchment). Updated mapping indicates that SPZ 2 (Outer Protection) lies approximately 540 m from the site, and SPZ 1 (Inner Protection) is around 1.85 km from the site. This was determined using the buffer zone feature in the Environment Agency's Magic Map service (Defra, 2025).

The site has been subject to environmental monitoring as part of site investigations undertaken between 2015 and 2018. Groundwater was encountered at between 0.99m below ground level (mbgl) and 4 mbgl.

Groundwater was identified during drilling of the exploratory holes by Applied Geology with relatively stable resting groundwater levels of between 2.07 mbgl and 2.38 mbgl in Taplow Gravel, levels of between 1.08 mbgl and 2.52 mbgl in Made Ground and water was found in the sandy layer of the Lambeth Group rock formation, at a depth of between 1.65 mbgl and 2.63 mbgl below the ground level where it was measured.

2.2.1.3 Hydrology

According to the EA Flood Map for Planning, the Site is located within a Flood Zone 1. Land within flood zone 1 has a low probability of flooding from rivers and the sea. The chance of surface water flooding at this location could be more than 3.3% (1 in 30) each year. The flood map below shoes the site to outside Flood Zones 2 and 3.

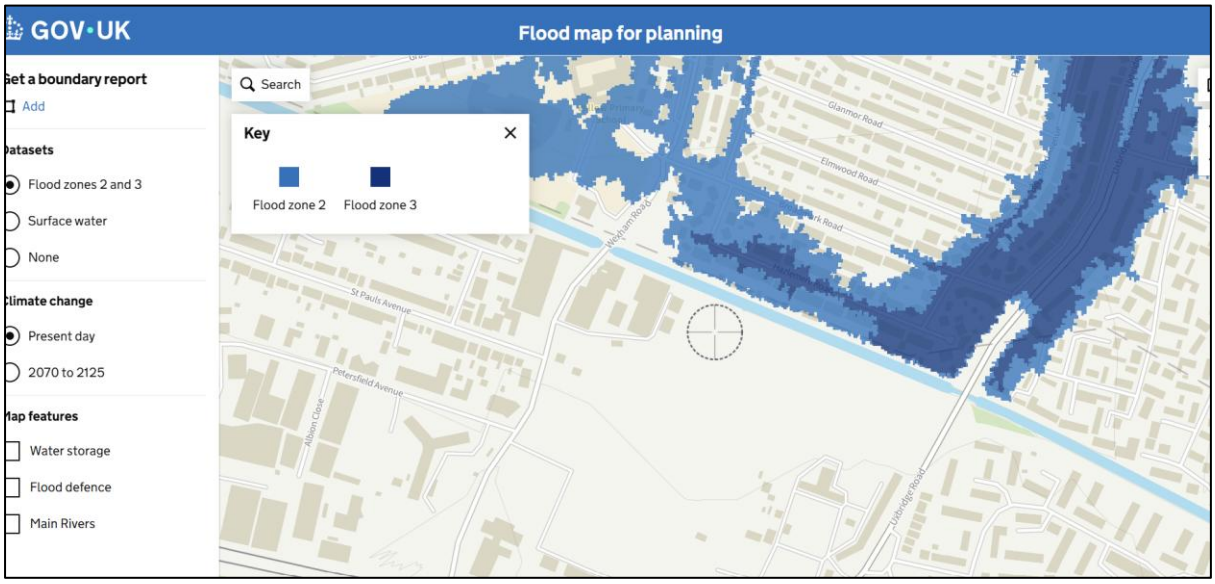


Figure 1 Flood Zone Map

The nearest surface waters to the site are the Grand Union Canal along the northern site boundary and the culverted course of the Dachett Brook, which is understood to be present beneath Uxbridge Road immediately east of the site. The Canal is not considered to be a likely receptor due to its elevated position in relation to the site, coupled with its upgradient location. Similarly, the Dachett Brook is not considered to be a receptor due to its location up-hydraulic gradient from the site.

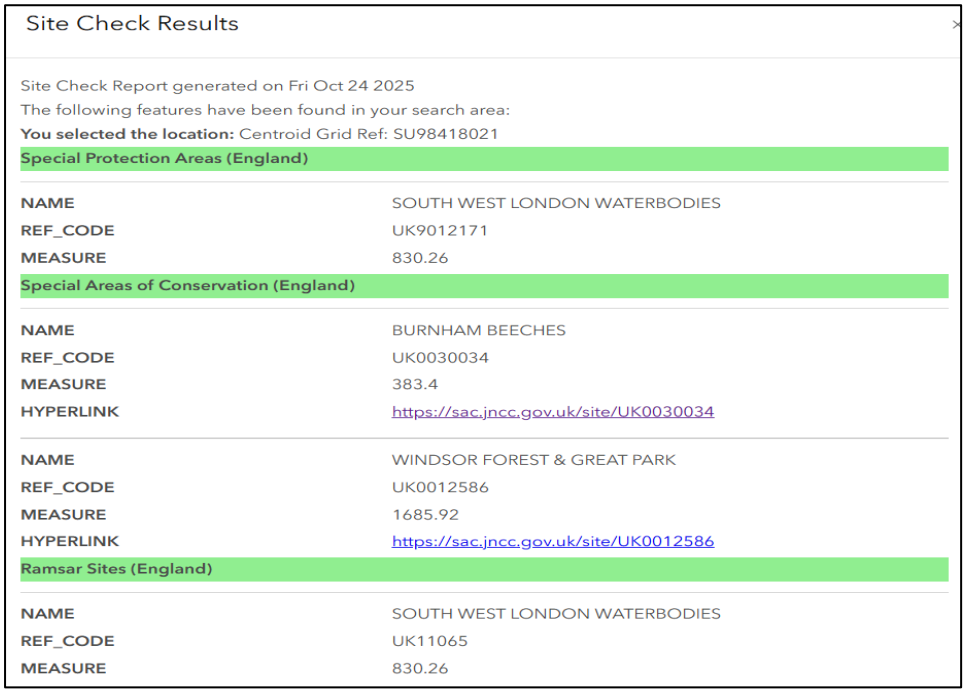
2.2.1.4 Ecology and Cultural Heritage

A Nature and Heritage Conservation Screening Report for LON1X2, was issued by the Environment Agency. A 10km radius was employed in identifying ecological receptors of European/international sites and a 2km radius for all local/national ecological receptors. A search on MAGIC map identified the ecological receptors listed below. Reference has also been made to the EA Nature and Heritage Conservation Screening Report (available as Appendix C to the Permit Application Supporting Information Document.)

European/International Sites

- Ramsar Sites and Special Protection Areas (SPA):

Southwest London Waterbodies are designated as a Ramsar (UK11065) and SPA (Ref Code UK 9012171) with the closest located approximately 4.8km to the southeast of the site.



Site Check Results

Site Check Report generated on Fri Oct 24 2025
The following features have been found in your search area:
You selected the location: Centroid Grid Ref: SU98418021

Special Protection Areas (England)

NAME	SOUTH WEST LONDON WATERBODIES
REF_CODE	UK9012171
MEASURE	830.26

Special Areas of Conservation (England)

NAME	BURNHAM BEECHES
REF_CODE	UK0030034
MEASURE	383.4
HYPERLINK	https://sac.jncc.gov.uk/site/UK0030034
NAME	WINDSOR FOREST & GREAT PARK
REF_CODE	UK0012586
MEASURE	1685.92
HYPERLINK	https://sac.jncc.gov.uk/site/UK0012586

Ramsar Sites (England)

NAME	SOUTH WEST LONDON WATERBODIES
REF_CODE	UK11065
MEASURE	830.26

Figure 2 RAMSAR Sites, SAC and SPA

- Special Areas of Conservation (SAC):

There are SACs within a 10km radius from the site. The closest is Burnham Beeches SAC (UK 0030034) located approximately 5.25km to the northwest. Windsor Forest and Great Park (UK0012586) is located approximately 5.7km to the southwest.

Table 1 Special Protection Areas (England)

Special Protection Areas (England) within 10km	
Name	**Ref Code**
South West London Waterbodies	UK9012171

Table 2 Special Areas of Conservation (England).

Special Areas of Conservation (England) within 10km	
Name	**Ref Code**
Burnham Beeches	UK0030034
Windsor Forest & Great Park	UK0012586

Table 3 Ramsar Sites (England).

Ramsar Sites (England) within 10km	
Name	**Ref Code**
South West London Waterbodies	UK11065

National Ecological Sites

- Sites of Special Scientific Interest (SSSI):

There are SSSI's within a 10km radius from the site. The closest SSSI is Black Park SSSI which is located 3.6km north-east. Wraysbury & Hythe End Gravel Pit (SSSI) is located approximately 5km to the south of the site.

Table 4 Sites of Special Scientific Interest (England) within 10 km.

Sites of Special Scientific Interest (England) within 10km	
Name	**Ref Code**
Kingcup Meadows and Oldhouse Wood SSSI	1000820
Bray Pennyroyal Field SSSI	1000819

Denham Lock Wood SSSI	1000381
Fray's Farm Meadows SSSI	1000333
Littleworth Common SSSI	1000586
Bray Meadows SSSI	1007106
Langham Pond SSSI	1000156
Burnham Beeches SSSI	1000531
South Lodge Pit SSSI	1000563
Old Rectory Meadows SSSI	1000556
Stoke Common SSSI	1000564
Staines Moor SSSI	1000111
Wraysbury Reservoir SSSI	1007245
Black Park SSSI	1000748
Windsor Forest and Great Park SSSI	1000508
Wraysbury & Hythe End Gravel Pits SSSI	1000509
Wraysbury No. 1 Gravel Pit SSSI	1007244

Local Nature Reserve (LNR) within 2km:

- Herschel Park LNR is located approximately 1.1km to the southwest of the site
- Local Wildlife Sites (LWS) within 2km
- Railway Triangle (off Stranraer Gardens) LWS is located approximately 830 m west.
- Upland Court Park LWS is located 1,330 m south.

Searches on the MAGIC map confirmed none of the following are present within a 2km radius of the site:

- National Nature Reserves;
- Areas of Outstanding Natural Beauty;
- Biosphere Reserves; and
- Ancient Woodland.

Table 5 – Nature Reserves

Site Check Report	Features
Ancient Woodland (England)	No Features found
Biosphere Reserves (England)	No Features found
Biosphere Reserves (England) - points	No Features found
National Nature Reserves (England)	No Features found
National Nature Reserves (England) - points	No Features found
Areas of Outstanding Natural Beauty (England)	No Features found

Priority Habitats (England only)

Priority habitats are 'habitats of principle importance for the conservation of wildlife in England' and include:

- protected or priority species;
- nationally and internationally protected species; and
- species of principle importance for conservation of wildlife in England.

The EA Nature and Heritage Conservation Screening Report, identifies one area of potential priority species that may be present within the screening distance for European Water Vole.

Preliminary Ecological Appraisal desk study was completed in support of the application for planning permission. This provided five records of water vole within 2 km of the survey area, the closest was located within the Grand Union Canal adjacent to the northern boundary (the area identified in the EA Nature and Heritage Conservation Screening Report) and it was noted that this canal could also potentially be suitable for otter.

3. Environmental Risk Assessment

3.1 Risk Assessment Methodology

Approach

This ERA has been prepared in accordance with EA guidance. This guidance recommends that the following steps are undertaken in preparing a risk assessment:

1. Identify and consider risks for the site, and the sources of the risks.
2. Identify the receptors (people, animals, property, and anything else that could be affected by the hazard) at risk from the site.
3. Identify the possible pathways from the sources of the risks to the receptors.
4. Assess risks relevant to the specific activity and check they are acceptable and can be screened out.
5. State how risks are controlled if too high.
6. This Risk Assessment shall be submitted as part of the EPR permit application.

Risk scoring This ERA has been completed using the scoring matrix shown in Table 6. The Risk Matrix with definitions for each score are as follow:

Probability of exposure:

High – exposure highly likely to occur

Likely – considered to be likely

Low Likelihood – considered to be unlikely

Unlikely – considered to be highly unlikely / very rare event / mitigation in place

Consequence:

Severe – potential for significant impact requiring mitigation / remediation

Medium – potential for moderate impact which may require mitigation / remediation

Mild – negligible impact that may require mitigated

Negligible – no significant / perceivable impact to receptor

Table 6 -Risk Scoring Matrix

		Consequence			
		Severe	Medium	Mild	Negligible
Probability	High Likelihood	Very High Risk	High Risk	Moderate Risk	Moderate/ Low Risk
	Likely	High Risk	Moderate Risk	Moderate/ Low Risk	Low Risk
	Low Likelihood	Moderate Risk	Moderate/ Low Risk	Low Risk	Negligible Risk
	Unlikely	Moderate/ Low Risk	Low Risk	Negligible Risk	Negligible Risk

Using the guidance and approach outlined above, the following have been deemed to be identified as potential environmental risks which having potential to cause harm to the environment and / or human receptors:

- Controlled releases to air
- Accidents
- Odour
- Noise and Vibration
- Fugitive Emissions (from uncontrolled sources)
- Visible emissions
- Global warming potential
- Waste

Section 3.2 presents the risk assessment for each of the above including identification of the potential hazard, receptors, pathway, risk management practices, probability of exposure, consequence of exposure and overall risk.

The methodology outlined in Section 3.1 has been employed to score potentially significant environmental risks associated with the installation's activities.

3.2 Environmental Risk Assessment

In completing the assessment, the proposed prevention and control measures are assumed to be in place. Where relevant, details of these measures are identified within the assessment.

The risk assessment has been completed by scoring the hazard areas outlined above using a risk matrix as shown in Table 6 above.

Note on Data centres

There is no hourly limit in environmental standards for acute exposure to nitrogen dioxide. However, we have assessed the short-term environment assessment level for oxides of nitrogen as the data centre backup generators add up to 50MWth or more.

The assessment includes the maximum hourly (100th percentile) nitrogen dioxide predicted environmental concentration (PEC) for:

- maintenance and testing
- a worst-case scenario of loss of on-site power during an emergency event lasting 72 hours

3.2.1 Controlled Releases to Air

Hazard	Receptor	Pathway	Risk Management Controls and Responsibilities	Probability	Consequence	Overall Risk
Point source emissions to air- NOx, CO, SO2, PM10 emissions from generator stacks	Site employees, residents from adjacent housing and surrounding commercial and industrial workers, ecological and cultural heritage receptors.	Air borne	An Air Quality impact assessment & Dispersion model has been completed and submitted as part of the On evaluation of the modelled concentrations across the study area (isopleths) and estimated PECs at discrete receptors, the 'most-likely' testing scenario is not considered have a significant effect on existing annual mean NO2 concentrations either at receptors adjacent to the facility, or further afield within declared AQMAs. The achievement of the long-term NO2 AQS objective is therefore unaffected by the operation of the testing regime, despite the conservative assumptions within the modelling. The modelled concentrations for the 'most-likely' testing scenario are not considered to have a significant effect on hourly NO2 concentrations either at receptors adjacent to the facility, or further afield within declared AQMAs. The achievement of the short-term NO2 AQS standard is unaffected, despite the conservative assumptions within the modelling. Please refer to the Air Quality Assessment supplied with the application for further details. The generators are emergency standby plant designed to provide power in the event of grid failure. The probability of this happening is extremely low as such an outage is a 1 in 23 years event. Further calculations using the hypergeometric mean approach have shown that, for 24 hours of power outage in a year, the probability of an exceedance of the AQS objective for a cumulative outage across all sites is below 1%, while the probability of the AEGL-1 being exceeded on more than 4 occasions is less than 2%.. All generators have been fitted with Selective	Low – Maintenance and testing Very low – grid failure	Emissions to air have an adverse impact to human health and ecological receptors in surrounding areas.	Low – Maintenance and testing Low – Grid failure

Hazard	Receptor	Pathway	Risk Management Controls and Responsibilities	Probability	Consequence	Overall Risk
			Catalytic Reduction (SCR) to reduce NOx to 95mgNm3 (at 5% O2) The flues / stacks for all generators terminate vertically at approx. 23m, approx. 1 metre above roof height, and are unimpeded by cowls/caps. The operation of individual generators at the expanded facility for routine testing is concluded not to present a significant adverse effect on the nearest sensitive human health and ecological receptors. During a worst-case emergency outage, the hourly standard for NO2 and the AEGL-1 level for non-disabling health effects may be exceeded; however, the probability of such an event coinciding with the least favourable hours of meteorological data for dispersion is extremely low. It is anticipated that an air quality management plan will be required under the environmental permit, to set out the actions that will be taken and those responsible, in the unlikely event of an emergency power outage in order to prevent adverse effects on public health.			
Visible emissions from diesel fired generator stacks, typically on start-up during cold weather/	Employees, residents, ecological and cultural heritage receptors	Air				

3.2.2 Accidents

Hazard	Receptor	Pathway	Risk Management Controls and Responsibilities	Probability	Consequence	Overall Risk
Accidents relating to fuel storage e.g. Spills, overfilling during refuelling / disposal / transfers, failure of secondary containment, pipe ruptures, valve failure, user error, collision.	Groundwater, surface water, sewer system, soils.	Land/ water	Generators and associated tanks will be located internal to main Data Centre building, reducing the risks of spillages entering the environment. Each of the 32 new generator sets has its own dedicated bunded diesel belly tanks. The existing generator sets at Building A and Building B are similarly protected. The receiver fuel tanks are filled by via a locked floor cabinet, fitted with a non-return valve, fuel fill control panel, and manual isolation value (complete with drip tray). The belly tank valves connect to individual overfill protection valves and are located within the bunded generator canopies. Tanks are to be bunded to BS799 Part 5 Type J 2010 specifications. This reduces the risk of accidental impact, theft, vandalism and fugitive emissions. Given the standby nature of the plant means they operate infrequently (~<50hours pa). Fuel delivery, Emergency preparedness and spill response procedures will be implemented once the full site is operational. Suppliers will adhere to procedures. Deliveries will be carried out by competent individual(s) and supervised by site staff. Tertiary containment in the form of petrol interceptors is in place to prevent spilt fuel entering surface water. These are to be inspected regularly. Surrounding area covered in good quality hardstanding. For more information see drainage plan submitted with the application. Spill kits (including drain covers) will be provided in close proximity of fuel storage and fill points. Drip trays to capture spillages from fill points and associated pipework will also be provided. There is a maintenance regime to include visual checks for leaks / spills.	Very low – Bulk Tanks. Low - refuelling	Leaks of fuel or other substances associated with site operations into the surrounding environment can cause adverse impacts to the ground water/land as well as adjacent water courses.	Very low – bulk tanks Medium – refuelling

Hazard	Receptor	Pathway	Risk Management Controls and Responsibilities	Probability	Consequence	Overall Risk
Flooding of drainage network and generators	Groundwater, surface water, sewer system	Floodwater, surface waters, drainage system, etc	A Flood Risk Assessment has been completed as part of the development of the site drainage strategy, as well as a Groundsure report. These concluded that the site is predominantly located within a Flood Zone 1 area which is deemed to have less than a 1 in 1000 (0.1%) chance of river or tidal flooding. Other sources of flooding have been investigated and are considered to be low risk (see drainage plan submitted with application). The generators and their fuel tanks are located internal to the Data Centre building which will provide a level of protection from surface water flooding. The surface water drainage system follows performance requirements that ensure all surfaces are suitably graded, so surface water is conveyed to the public drainage system and the drainage systems will adequately convey flows and meet self-cleansing velocities. Routine maintenance of the onsite drainage system will help prevent surface water drains from being obstructed by debris. Emergency procedures (amongst others) are to be developed and implemented once the site is operational.	Very low	Flooding / water damage to the generators could impact resiliency of operations. Flood water pollution from flooded generators could have an adverse impact to the local environment,	Low
Fire	Emissions to Air / Water	Air and Water	Prior to the site becoming operational, all generator enclosures will be fitted with fire detection systems. Generators and tanks are fitted with valves that automatically shut-off in the event of a fire shutting off the fuel supply. Fire suppression systems will rely on mains water to extinguish fires. In the unlikely event of a fire, there is potential for fire water from either site suppression systems / emergency services to enter the environment and cause harm. Emergency preparedness and response plans are to be produced once the site is operational to mitigate this risk.	Very low	Fire would also cause emissions to air, having an adverse impact to the local environment/ receptors. Firewater could infiltrate local water courses, adversely impacting the local environment	Low

Hazard	Receptor	Pathway	Risk Management Controls and Responsibilities	Probability	Consequence	Overall Risk
Vandalism	Land / Surface Water / Ground Water / Air	Drainage systems, air, surface/soils.	The site is fully operational and is manned 365 days a year with monitoring by security staff from a security office using an extensive CCTV system. Entry and exit to the site are tightly controlled via a security gate and turnstiles. The palisade security fencing acts as an impenetrable perimeter to prevent unauthorised access to the site.	Very low	Damage arising from vandalism to the generators / storage tanks could impact emergency backup potential /localised pollution from a spill could adversely impact the local environment.	Very low

3.2.3 Odour

Hazard	Receptor	Pathway	Risk Management Controls and Responsibilities	Probability	Consequence	Overall Risk
Odour from storage and combustion of fuels.	Employees and local residents	Airborne	The generator sets and associated tanks are located internal to the Data Centre buildings in sealed bulk / day tanks. Emissions are not expected to be significant, and an odour Management Plan is not required. Fuel tank filing will be carried out by trained fuel tanker drivers. This removes any significant risk of vapour release and spillages during deliveries. The complaints procedure will be followed in the event the site receives an odour complaint relating to the permitted activities.	Very low	Nuisance to on-site staff and local residents. May lead to complaints.	Very low

3.2.4 Noise and Vibration

Hazard	Receptor	Pathway	Risk Management Controls and Responsibilities	Probability	Consequence	Overall Risk
Noise and Vibration from start-up and operation of generators	Employees, local residents, and adjacent premises / pedestrians / road users immediately surrounding the installation.	Air	A noise impact assessment has been completed and submitted as part of the permit application ("Noise Impact Assessment"). This report concluded that "the noise levels are predicted to achieve the noise limits at the nearest noise sensitive properties and therefore noise impacts are not considered to be significant." Please refer to the noise report submitted with the application for further details. A bespoke generator acoustic canopy, for every generator has been designed to reduce acoustic sound pressure to 75 dBA at 1m from the exterior of the unit at 1.5m above ground level. Significant noise outbreak is not expected as the ESGs operate infrequently as they are emergency standby plant designed to provide power in the event of grid failure. This is a highly rare event given grid reliability. Annual operation is likely to be limited to testing and maintenance. Generators are to be maintained in accordance with manufacturer guidelines as part of a planned preventative maintenance regime. The complaints procedure will be followed in the event the site receives a noise complaint relating to the generators.	Low – Maintenance and testing Very low – Grid failure	Complaints from local residences. Potential harm to human health due to elevated noise levels.	Low – Maintenance and testing Low – Grid failure
Noise from site traffic e.g. fuel deliveries	Employees, local residents, and adjacent premises /pedestrians / road users immediately surrounding the installation.	Air	The data centre is located in the central part of the former AkzoNobel Decorative Coatings, Slough Manufacturing Unit, located at Wexham Rd, Slough SL2 5DS, National Grid Reference SU 98700 80300. Thera are industrial/commercial buildings are in the immediate vicinity of the site, with residential properties to the north and south. The generators are emergency standby plant that is operated infrequently as discussed above. As such fuel consumption is low meaning fuel deliveries by road tankers are infrequent.	Low	Complaints from local residences. Potential harm to human health due to elevated noise levels.	Very low.

3.2.5 Fugitive Emissions (from uncontrolled sources)

Hazard	Receptor	Pathway	Risk Management Controls and Responsibilities	Probability	Consequence	Overall Risk
Fuel spills during refuelling / leaks / accidents e.g. damaged tanks /pipework.	Groundwater, surface water, sewer system, soils.	Surface run off / surface waters via drainage or vertical leaching.	Risk management procedures and processes are as Section 3.2.2 (Accidents) above.	Very low – Bulk tanks Low – refuelling	Leaks of fuel or other substances associated with the permitted installation into the surrounding environment can cause adverse impacts to the ground water and very unlikely as well as the adjacent Garnd Union canal.	Very low – bulk tanks Medium – refuelling
VOCs / fumes from storage / delivery of fuel	Employees and local residents,	Air	The fuel tanks are located internal to the Energy Centre building and are containerised in bunded belly tanks. Emissions are not expected to be significant. Fuel volume and leak detection alarms are in place, which will minimise the likelihood of release to the environment. Refuelling activities are carried out by approved suppliers with trained competent individuals that operate in accordance with the site's refuelling procedures which will be developed as part of the sites Environmental Management System (EMS). Deliveries are rare, and best practices are adhered to in order to limit durations which fumes could escape into the environment.	Very low	Emissions to air have an adverse impact to human health and ecological receptors in surrounding areas.	Very low

3.2.6 Visible Emissions

Hazard	Receptor	Pathway	Risk Management Controls and Responsibilities	Probability	Consequence	Overall Risk
Visible Emissions from generator stacks	Local residents	Visual	Smoke may be visible during the first 10-15s of operation as the engine starts up. After this time visible plumes are not anticipated due to high exhaust temperatures (approx. 450°C). Visible emissions after this time are to be investigated as part of generator maintenance. Plumes may not be visible due to line of sight, weather conditions, and the timing of generator operation as tests may be outside of working hours. They may also be infrequent therefore are not considered to be likely / significant. The installation of SCR, the site's maintenance regime and regular fuel polishing is intended to remove impurities, and to help ensure the engine burns as cleanly as practicable to reduce visible emissions. The complaints procedure will be followed in the event the site receives complaints relating to the visible emissions from the generators	Low	Potential visual impacts, particularly during generator start-up.	Very low

3.2.7 Global Warming Potential (of the site)

Hazard	Receptor	Pathway	Risk Management Controls and Responsibilities	Probability	Consequence	Overall Risk
Global Warming Potential from combustion of fuel by generators.	Global atmosphere.	Airborne	The generators are emergency standby plant designed to provide power in the event of grid failure. This is a highly rare event given grid reliability. Annual operation is likely to be limited to maintenance and testing. This level of operation is not considered to provide a significant global warming impact, with a site total GHG emission load estimated to be less than 2,000 tCO2e per year.	Very low	Contribute to climate change, due to increase in greenhouse. gases present in the atmosphere.	Very low

3.2.8 Waste

Hazard	Receptor	Pathway	Risk Management Controls and Responsibilities	Probability	Consequence	Overall Risk
Waste associated with generators e.g. waste fuels, oil sorbents and rags, lubricants & hydraulic fuels, solid wastes (air filters, packaging and spare parts) and end of life plant.	Ground, soil, ground water, surface water, sewer system.	Land/ water	Small quantities of wastes may be generated from routine generator maintenance activities or in the event of a spillage/leakage. This is likely to be low given the standby nature of the generators and the procedures in place to minimise waste generation. Procedures for licenced and responsible collection of waste oils and other hazardous wastes are to be developed once the site is operational. This will include the retention of relevant Duty of Care information. Contractors are responsible for waste disposal that arises during maintenance activities.	Very low	Potential to contaminate water/ land.	Very low.

4. Conclusion

This ERA has identified and assessed the potential risks and hazards associated with the operation of the facility and from accidents.

This ERA has shown that potential environmental hazards associated with the development have been identified. The risks assessed and mitigation measures have been taken either through design or clearly defined operation procedures such that the potential consequences arising from these hazards is low or very low, in line with a Datacentre Facility of this size, nature and location