Site Condition Report - FP3630EU

LON1-East Data Centre

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CONTENTS

Page No.

APPENDICES

1.0 INTRODUCTION

This Site Condition Report (SCR) or 'Site Baseline report' has been prepared by HDR on behalf of the operator, Green Mountain Limited in support of the application for a variation to existing Environmental Permit (ref: EPR/FP3630EU) for the installation located at:

3 King George Close
Eastern Avenue
Romford
RM7 7PN
Grid reference: TQ 50290 89820.

Updates to the original Site Condition Report (submitted in 2014) are highlighted yellow.

This SCR is intended to provide the Environment Agency (EA) with a description of the baseline conditions prior to permitted site operations commencing. The baseline data presented herein should be referred to upon surrender of the sites environmental permit (once issued) to demonstrate no deterioration of the land has occurred due to operations.

The extent of the land covered by this SCR and the Permit Application Area are shown on the plan in Appendix A.

This report has been prepared based on the information made available and the conditions at the time of writing. This report is only valid to the extent that the information provided is accurate and complete.

This SCR has been prepared in accordance with the EAs guidance for Applicants (H5) – Site Condition Report document with Sections 2-4 submitted with the application for a permit.

Sections 5-8 are to be maintained during the life of the permit.

Sections 9-11 are to be completed if / when the permit is surrendered.

2.0 BACKGROUND

2.1 Site details

Name of the applicant	Green Mountain DC UK Ltd (Updated as part of March 2024 permit variation from 'ISDC Development (No 2.) Limited)
Name of the site	LON1-East Data Centre (previously Romford North Data Centre)
Activity address	3 King George Close, Eastern Avenue, Romford, RM7 7PN
National grid reference	TQ 50290 89820
Document reference and dates for Site Condition Report at permit application and surrender	Permit reference FP3630EU Permit issued: 21/04/2015 Permit surrendered: TBC Appendix B – Original baseline report from permit application submitted in 2014. Appendix C – Groundwater sampling data from 2022
Document references for site plans (including location and boundaries)	Appendix A – updated Site Plan and Emissions Points Drainage plan

2.2 Site activities

The installation is a Datacentre and utilises Emergency Standby Generators (ESGs) to provide emergency power in the event of grid failure. The generators combust diesel (or an alternative such as Hydrogenated Vegetable Oil (HVO)) to produce electricity. Fuel storage differs for the existing and proposed ESGs. The existing sets have fuel circulated from bulk tanks to day tanks whereas the new ESGs will have fuel supplied by belly tanks. The belly tanks are refilled through a direct fill point on the tank.

Further details can be found in the Environmental Risk Assessment (ERA) and Non-technical summary (NTS) that accompanied the application to vary the existing Environmental Permit.

2.3 Site Setting

The site is located in Romford, surrounded by residential properties adjacent to the east and north and by commercial/industrial properties to the south and west.

The Site Sensitivity Map shows there to be a historical landfill to the west of the site (King George's Playing Fields) as well as various Industrial Land Uses around the vicinity of the site, including the Works to the south/southeast.

The Environment Agency register shows that there have been numerous pollution incidents to controlled waters, i.e. the River Rom in close proximity to the site.

2.4 Site development plans

The site has been operating as a Data Centre since before 2015 and holds a permit for the existing 7no. emergency standby generators (ESGs) and 2no. DRUPs exceeding the 50 MW threshold under Schedule 1, Section 1.1 Part A (1).

The expansion works will see 8no. additional ESGs installed and commissioned. The plans at present are for the expansion works to occur in 2 phases – 5no. in the first phase, and 3no. in the second. These will be retrofit into the existing building, with no change to the site footprint.

These ESGs will be fitted with individual belly tanks for fuel, as well as selective catalytic reduction (SCR) technology to mitigate NOx emissions. The SCR systems require urea tanks to be installed.

The aggregated total input thermal capacity on a Gross CV basis is 113.37MWth although this is wholly stand-by plant. The threshold for permitting is 50MWth.

The site had previously been developed in three phases which for historical reasons are denoted Phase III, Phase IV and Phase V. These will be referred to as Build 1, 2 and 3 going forward. The new ESGs will be referred to as Build 4 or new build.

2.5 Site investigations

Baseline soil and groundwater reference data was not included in the original permit application. Improvement conditions IP1 and IP2 were set as part of the issued permit, requiring a proposal for baseline soil and groundwater investigations and subsequently conduct them to provide an updated baseline report.

As part IP1, proposals for undertaking sampling were submitted and approved in Nov 2015. During this review, it was discovered that a site investigation was report completed in 2007. This was used to form the original baseline soil and groundwater conditions for the site.

As part of IP2, further boreholes were installed in May 2016. These allowed for more up to date soil and groundwater sampling data to be obtained and provided to the EA. This was subsequently accepted and IP2 closed.

To comply with permit conditions, further groundwater analysis has been completed in 2022 and is contained in Appendix C.

2.6 Proposed monitoring

The permit includes the requirement to complete periodic monitoring of groundwater at least once every 5 years and soil at least once every 10 years as is standard for Data Centre applications such as this. Given the permit was issued in April 2015, monitoring has been undertaken and is contained in Appendix C.

The proposals for carrying out further monitoring are to continue with the approach taken since permit issue. This is summarised as follows:

- **Location:** 3no. existing borehole locations, as agreed with EA permitting officer.
- **Sampling methods:** Groundwater and soil sampling and chemical analysis in line with the contaminants of concern.
- **Substances:** The main pollutants of concern are associated with fuel storage. This may include the following: pH, Ammoniacal Nitrogen, Phenols, Heavy Metals, Polyaromatic Hydrocarbons (PAH), and Total Petroleum Hydrocarbons (TPH).

3.0 CONDITION OF THE LAND AT PERMIT ISSUE

Table 3.1 – Environmental setting

Condition area	Description
Site History	The site is located at 3 King George Close in the town of Romford in Essex. Historically this site was open land prior to the land being used as a Brick Works by 1920. This was demolished during the 1960s and by 1971 a warehouse was located on site. It has been used for industrial purposes since then.
Geology and Hydrogeology Data sources: • Original Environmental Permit Application: Section 8.5 Phase I Environmental Audit (CMP, 2007)	The findings of the Site Investigation indicate that the site is immediately underlain by Made Ground (varying from depths of 0 – 5m across the site). Beneath this is Hackney Gravels (a minor aquifer of variable permeability) underlain by a low permeable London Clay.
Contaminated Land Data sources: • Original Environmental Permit Application: Section 8.5 Phase I Environmental Audit (CMP, 2007)	The soil contamination maps for the area show that heavy metal concentrations (arsenic. Cadmium and nickel) are all significantly lower than the Soil Guideline Values for the corresponding land use. The chromium concentrations are estimated to be within 90 – 120 mg/kg and the lead concentrations are between 300 – 600 mg/kg.

Condition area	Description
Flood Data source: • Original Environmental Permit Application: Section 12.3 Site Sensitivity Context Maps (Groundwater Vulnerability) • Original Environmental Permit Application: Section 12.4 Flood Maps (1:1000) (EA Historic Flood Maps) & (RMS 75year Flood Return Map)	The BGS Groundwater Vulnerability maps shows that the site is located on an area of Variably Permeable land therefore the site does have some risk of flooding from groundwater sources. The environment Agency's Historic Flood Map shows that in the past the River Rom has exceeded its channel capacity and the extent of the flooding reaches immediately to the west of the site. The Risk Management Solutions Flood Data Map show that the site is at risk of flooding during a 1 in 75 year event.
Landfill Gas Hazards	King George's Playing Fields to the west of the site is a historical landfill site. It is not expected to pose any environmental risks as a result of landfill gas or leachate permeating from the site.
Environmental Noise and Statutory Nuisance Data sources: • Original Environmental Permit Application: Section 8.3 Acoustic Report (Sharps Redmore Partnership, 2010) • Noise Impact Assessment (Apex Acoustics, 2023)	No sources of nuisance have been identified from adjacent sites to the target site. Noise sensitive receptors in the vicinity of the Data Centres are considered to be the residential properties to the north and east of the site. Existing background noise levels at the site are low, with the lowest measured noise levels recorded close to the residential premises at night being 35dB (LA90). The new plant and building design are predicted to produce noise levels of 10 dB below existing background noise levels at the nearby receptors, in accordance with the planning criteria. A criteria has been placed on the planning consent of the site which states that at the 1st floor windows of the closest residential properties the noise levels must not exceed 30dB (LAeg). Various Mitigation options have been adopted to meet this standard.
Hazardous Materials and Environmentally Hazardous Materials	There are no major hazardous substances installations within 1 km of the study site.
Radon	The site is not in an area requiring radon protection.
Waste Management	No waste deposits were observed on the study site.

Condition area	Description
Site Sensitivity • Air Quality Assessment (Alkali Environmental, 2023)	The Air Quality Assessments account for the sensitive ecological receptors at: • Hainault Forest • Curtismill Green • Thorndon Park • Hornchurch Cutting • Ingrebourne Marshes • Inner Thames Marshes • Epping Forest • Roding Valey Meadows The report notes "predicted annual mean nitrogen deposition rates are above the relevant Low EQS at 9 receptor locations. In addition, predicted annual mean nitrogen deposition rates are above the relevant High EQS at 6 receptor locations. The exceedances are due to the high background deposition rates, which exceed the EQSs as a base condition. The PC proportion of the EQS is less than 1% at all ecological receptor locations. As such, impacts on 24-hour mean NOx concentrations at all locations can be screened out as **insignificant** in accordance with the EA screening criteria."

Table 3.2 – Pollution history:

Condition area	Description
Pollution incidents Data source: • Environment Agency Register	The Environment Agency register shows and that there have been numerous pollution incidents to controlled waters, i.e. the River Rom in close proximity to the site.
Historical land-uses and associated contaminants Data source: • Envirocheck database	The development site is located on King George Close in the town of Romford in Essex. Historically this site was open land prior to the land being used as a Brick Works by 1920. This was demolished during the 1960s and by 1971 a warehouse was located on site. It has been used for industrial purposes since then. King George's Playing Fields to the west of the site is a historical landfill site. It is not expected to pose any environmental risks as a result of landfill gas or leachate permeating from the site. There are no major hazardous substances within 1 km of the study site.
Waste management facilities	The site has existing waste management in place as outlined in their Waste Management Policy (FP3630EU_006 Waste Management).

Table 3 – Evidence of historical contamination

Condition area	Description
Evidence of Historical Contamination Data Source: • Envirocheck database • - Original Site Condition Report H5 (see Appendix A)	Soil contamination maps for the area show that heavy metal concentrations (arsenic, cadmium and nickel) are all significantly lower than the Soil Guideline Values for the corresponding land use. The chromium concentrations are estimated to be within 90 – 120 mg/kg and the lead concentrations are estimated to be between 300 – 600 mg/kg.

Table 5 – Supporting information sources

Condition area	Description
Supporting information and sources	The following were provided as part of the original application for a permit: • Envirocheck maps and maps relating to the EA's nature and heritage conservation screening service.. • "Environmental Statement – Non Technical Summary.pdf" The following have been provided as part of the variation: • Periodic ground water data (Appendix C)

4.0 PERMITTED ACTIVITIES

Table 6 - Permitted activities

Permitted activities	The site requires the environmental permit under Schedule 1, Section 1.1 Part A(1) for the 'burning any fuel in an appliance with a rated thermal input of 50 or more megawatts' as the site has a number of emergency diesel generators which together have a thermal input of over 50 megawatts. **Updated Site Condition Report for variation application March 2024.** An application to vary the permit is being submitted to account for the following changes: • 8no. new generators are being installed. These are to be located internal to the main building with x2 generators per room across 4 rooms. • 8no. fuel tanks are to be installed. These will sit below each generator they serve and are referred to as 'belly tanks'. • 8no. Urea tanks are to be installed. These tanks will be located adjacent each generator and will provide urea for the selective catalytic reduction systems on each generator to mitigate NOx emissions.
Non-permitted activities undertaken	The installation boundary is limited to the permitted activities. The internal data halls and office space is not part od the permitted activities. In normal conditions these will operate using electricity provided by the national grid.
Document references for: • **plan showing activity layout; and** • **environmental risk assessment.**	Please see the following folders / documents that accompanied the EPR application. In addition to this the following have been updated as part of the application to vary the existing Environmental permit • BAT assessment • Environmental Risk Assessment • Site Plan and emissions points

5.0 CHANGES TO THE ACTIVITY

Have there been any changes to the activity boundary?	There is no change to the boundary as a result of this EP variation application.
Have there been any changes to the permitted activities?	This updated SCR is to support the EP variation application submitted in March 2024 to reflect the installation of an additional x8 no. generators and associated fuel tanks.
Have any 'dangerous substances' not identified in the Application Site Condition Report been used or produced as a result of the permitted activities?	Not applicable.
Checklist of supporting information	• Description of the changes to the permitted activities (within this document) • Appendix A SITE PLAN AND EMISSIONS POINTS • Appendix B ORIGINAL SITE INVESTIGATION • Appendix C GROUNDWATER SAMPLING RESULTS

6.0 MEASURES TAKEN TO PROTECT LAND

Measures taken to protect land	The measures for the existing permitted activities remain unchanged from the original EP application as there has been no change to the generators or the associated fuel tanks and no incidents have been reported. The measures for the x 8 no. new generators, their fuel and urea tanks has been outlined in the updated BAT assessment submitted with application to vary the existing Environmental permit.
Checklist of supporting information	Updated BAT assessment submitted with application to vary the existing Environmental permit.

7.0 POLLUTION INCIDENTS THAT MAY HAVE HAD AN IMPACT ON LAND, AND THEIR REMEDIATION

Checklist of supporting information	The site condition of the data centre has not changed since the original EP application was submitted, as there has been no change to the site boundary and no ground pollution incidents have been reported. No additional baseline data / site investigation has been undertaken for the EP variation application.

8.0 SOIL GAS AND WATER QUALITY MONITORING (WHERE UNDERTAKEN)

Checklist of supporting information	Monitoring data has been completed and results have been provided in Appendix C.

9.0 DECOMMISSIONING AND REMOVAL OF POLLUTION RISK

Checklist of supporting information	

10.0 REFERENCE DATA AND REMEDIATION (WHERE RELEVANT)

Checklist of supporting information	

11.0 STATEMENT OF SITE CONDITION

APPENDIX A

SITE PLAN AND EMISSIONS POINTS

APPENDIX B

ORIGINAL SITE INVESTIGATION

APPENDIX C

GROUNDWATER SAMPLING RESULTS