Non-Technical Summary

SOF-11 Docklands DC UK BIDCO Limited – LCY10

EPR/QP3108ST/A001

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CONTENTS

1.0 INTRODUCTION

1.1 Purpose of this document

This document is a non-technical summary (NTS) produced by HDR in support of the bespoke Environmental Permit application (ref QP3108ST) by the operator, SOF-11 Docklands DC UK BIDCO Limited (the Operator) for their stationary installation known as the "LCY10 Datacentre", located at

Greenwich View Place
Isle of Dogs
London
E14 9NN

This document summarises the site and the supporting documentation submitted with the permit application.

Please see "Document reference list.pdf" for a list of all the documents provided to the Environment Agency (EA) to support the permit application.

1.2 Regulatory Context

The operator is required to apply for a new Bespoke permit under the Environmental Permitting (England and Wales) Regulations 2016 (As amended) (EPR) as the installation is due to carry out the following Section 1.1 Part A(1) (a) activity: burning of any fuel in an appliance with a rated thermal input of 50 megawatts or more. Specifically, the operation of 9 no Standby Diesel Generators (SDGs).

The installations diesel bulk storage tanks, accompanying pipe work and fill points are listed as Directly Associated Activities (DAA).

The installation exceeds the 50MWth threshold when all the SDGs (8.26 MWth each) are aggregated as per the rules set out in the Industrial Emissions Directive (IED). No single piece of plant exceeds 15MWth, therefore the installation is not classed as a Large Combustion Plant (LCP) and the associated BAT and emissions limits do not apply.

Given each of the 9 no SDGs are over 1MWth they will be classed as Medium Combustion Plant (MCP). Given there is no capacity agreement in place and they are not expected to exceed 500 hours per year they are classed as "excluded MCP" and are not required to comply with the emission limits set out in Schedule 25A of the EPR.

2.0 SUMMARY OF REGULATED FACILITY

2.1 Site Operations

The installation (when operational) will be a functioning data centre (DC). Current plans are for operations to commence in late 2021. As such some details are still to be confirmed.

Under normal circumstances electricity to the site will be provided by the National Grid. Grid reliability is critical to a DC and as such current plans are to install x9 no. standby diesel generators (SDGs) to provide standby power in the event of an outage / failure in the grid supply. The SDGs are on site solely to support the campus in times of grid failure. No export of generator power is planned.

2.2 Generator Details & Operations

The total rated thermal input of the 9 SDGs is approximately 74.34MWth (Refer to Thermal Schedule v1 in supporting information). The generators meet the requirements of the 2g TA-Luft standard for NOx.

The SDGs are split across two buildings with 4 in Unit 1 and the remaining 5 in Unit 2&4. All SDGs are located in the basements with vertical flues exiting through the building roofs. The permit boundary includes the combustion plant and directly associated activities such as the fuel tanks and drainage systems. The data halls and offices are not included in the boundary.

Please refer to “Site Plan & Emissions Points.pdf” for the locations of the generators, emissions points, permit boundary and diesel tank locations.

The planned operation of the SDGs is as follows (TBC once site is operational):

1. **Testing and maintenance**
   Each month the generators are powered-up and run for 30 minutes offload (0% load). This testing is likely to take place on a weekend with only 1 generator operating concurrently. An annual onload test (75% load) will likely take place one a year for approx. 3 hours. Again, this will likely take place on a weekend.

2. **Grid outage**
   In the unlikely event of a loss of grid power to the building only a portion of the SDGs will operate in order to carry the current site load. Given the redundancy arrangement not all SDGs would operate. Any SDG not required would cease to operate.

2.3 Site location

The installation is located at located at Greenwich View Place, Isle of Dogs, London. This is National Grid Reference TQ 37672 79266 (see Figure 1 and 2).

The site is in an urban location; there is office blocks to the South and West with residential properties to the North and West. To the East is Millwall Inner Dock and Millwall Outer Dock is to the South. Past the Docks to the South is further residential areas with Mudchute Park and Farm located to the South East pasted the Docks. To the North lies Canary Wharf. There are several small businesses, restaurants, office, leisure facilities, religious buildings, parks and schools in the wider vicinity of the installation.

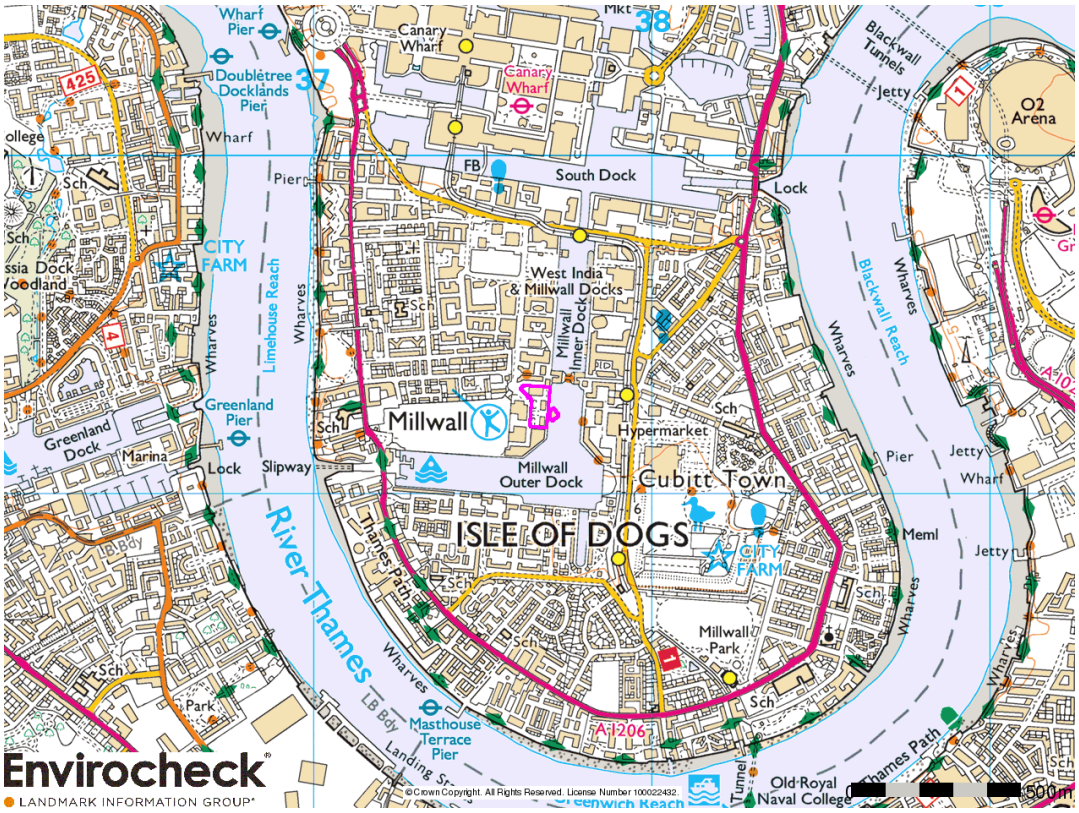

Figure 1: Site Location (1)

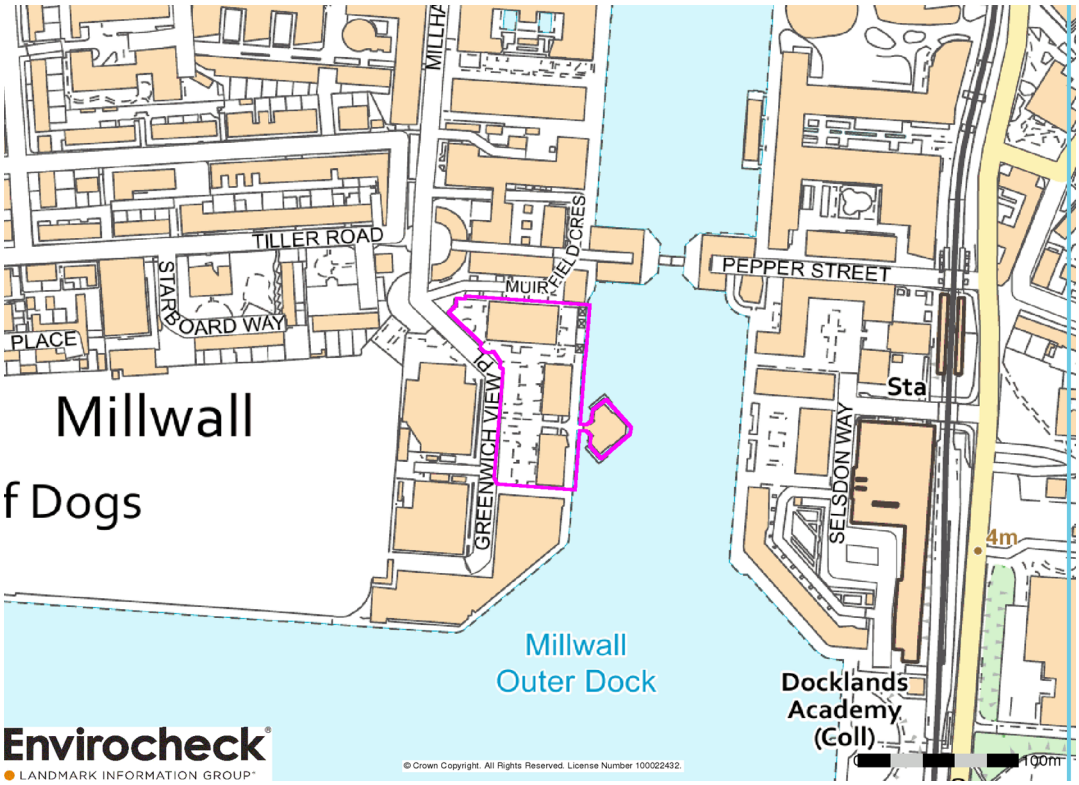

Figure 2: Site Location (2)

2.4 Site History

The historical mapping shows the site remained was developed around 1896 when the site comprises of several building labelled as Warehouses. Capewell Horse Nail Works is located on the north-western site boundary. With a Granary located immediately north of the site. The site remained as warehouses for several years until approximately 1990 when the warehouse was demolished and several small building erected onsite as well as the point into the dock.

The site then changes again in approximately 2016 when works began to redevelop the site into office blocks. The original office blocks consisted of four separate buildings (see Figure 2 above). Since 2016 work has been undertaken to combine units 2&4 and then add links between this unit and Unit 1 and Unit 3.

Please refer to supporting information for more details of the site setting and history.

2.5 Site Layout

The site is made up of four units split across two buildings, which were previously used independent of each other as office blocks. Unit 1 is the smaller of the two building and lies to the north of the site. Units 2&4 are connected and make up the larger building to the south. Unit 3, also known as 'the point' is built into the Millwall Outer Dock and is connected to units 2&4 by a link bridge on the second floor. Unit 1 and Unit 2&4 are also connected on the second floor.

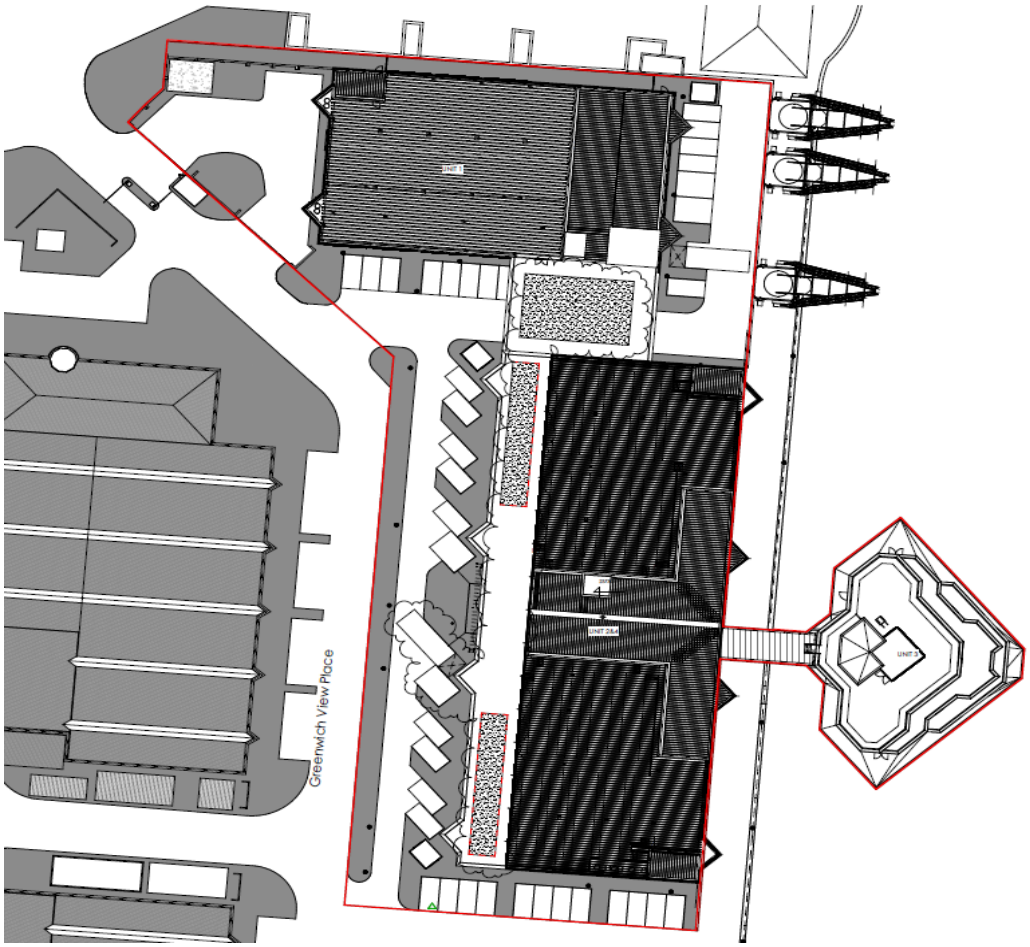

Figure 3: Site layout

2.6 Fuel Storage

The SDGs are supplied with diesel from bulk storage tanks. As such these are listed as Directly associated activities (DAA). The bulk tanks are to be located within the generator rooms in the main buildings. Please refer to 'Site Plan & Emissions Points' for details.

The installation will generally store enough diesel to provide 72 hours' worth of electricity to the site. Bulk diesel tanks are stored above ground inside the main building inside sealed rooms which significantly reduces the risk of spillages entering the environment. The bulk tanks are connected via pipes directly to the SDGs.

The exact number and size of the tanks is still to be confirmed but current plans are summarised in the table below.

Table 1: Diesel tanks

Tank No.	Ref.	Generators supplier	Capacity (litres)
1	Bulk Tank 1	G1 – G5	26,000
2	Bulk Tank 2	G1 – G5	26,000
3	Bulk Tank 3	G1 – G5	26,000
4	Bulk Tank 4	G1 – G5	26,000
5	Bulk Tank 5	G6 – G9	40,000
6	Bulk Tank 6	G6 – G9	40,000
TOTAL (Storage)			**184,000**

Typical fuel use is expected be low as the SDGs only operate in emergencies or as part of the monthly test regime. Based on the current expected testing and maintenance regime (see section 2.1) it is estimated only 40,000 litres of fuel will be used annually.

2.7 Operating techniques and Management Systems

The installation has been designed in accordance with the following guidance:

- Best Available Techniques, Environmental permits
- Data Centre FAQ Headline Approach Version 10
- Risk assessments for your environmental permit

This installation is not yet operational. As such the management system has not yet been developed and implemented. Current plans are to install a management system that will be certified to ISO 14001. This will aim to meet the EA's requirements for installations that hold environmental permits as outlined in the EA's 'Data Centre FAQ Headline Approach v10' (June 2018) and EPR guidance document: 'Combustion Activities (EPR 1.01)'.

The key aspects of this are covered below (subject to change):

- Operations and maintenance;
- Change Management;
- Training and competence;
- Incidents, accidents & complaints management;
- Maintaining records; and
- Site closure.
- Annual Management system review

The management system will be developed to ensure compliance with the environmental permit as well as other requirements of legislation for the protection of the environment and human health.

2.7.1 Operations and Maintenance

SOPs are expected to be developed for several operations including the operation of the generator plant and provision for fuel delivery including management of any drainage system within the fuelling location. This includes a planned preventative maintenance regime that includes visual checks of the SDGs and the diesel tanks for the presence of leaks / spills. The SDGs will be operated and maintained in line with the manufacturer's recommendations.

2.7.2 Change Management

The management system will be reviewed internally on a regular basis and upon any changes within the installation to ensure it is up to date and accurate. Information will also be provided on how staff should be informed of changes to the installation and updates to the management system. This will ensure staff are aware of the latest system.

2.7.3 Training and Competence

The operator will ensure appropriate trained and skilled personnel will manage the operation and maintenance of the installation.

2.7.4 Incidents, Accidents & Complaints Management

Procedures will be developed for the notification, recording, investigation, remediation and reporting of noncompliance, which will be developed during site commissioning. It is also expected that an 'incident plan' will be established and reviewed regularly to ensure appropriateness. The management of complaints will be determined once roles and personnel within the installation are known.

2.7.5 Maintaining Records

Records will be maintained in accordance with the management system and retained in line with requirements of the permit.

Records for the SDGs will include as a minimum:

- Incoming deliveries of diesel;
- Hours of operation;
- Waste arisings from the operation
- Fuel disposal;
- Incidents, accidents and emergencies;
- Maintenance works scheduled and status

2.7.6 Annual Management System Review

Annual review of management system to help ensure commitment to continued improvement.

3.0 SUPPORTING INFORMATION

The following sections present information to support the application for a permit and can be found in the "supporting information" folder.

3.1 BAT Assessment

Whilst there are no formal BAT reference documents or BAT conclusions a BAT assessment have been completed against the Environment Agency guidance document Data Centre FAQ Headline Approach Version 10.

The BAT assessment has given consideration of the following:

- Technologies for providing backup power
- Energy Efficiency
- Avoidance, recovery, and disposal of waste
- Fuels used
- Onsite fuel storage
- CO_2, CO and VOC control measures
- NO_x & SO_x control measures
- Emergency and voluntary operation of the generation plant
- Power supply to a site
- Emissions rate of generation plant
- Noise
- Redundancy arrangement
- Exhaust stacks/ flues
- Future site expansion

The installation is considered to meet the BAT requirements for DC's and is not expected to give rise to significant effects to the environment or human health.

3.2 Site Condition Report & Baseline

A Site Condition Report (SCR) has been provided in the supporting documents. This has been prepared in accordance with the Environment Agency's H5 Guidance Note on SCR[1]. The purpose of this document is to assess the existing condition of the ground and groundwater at the time of the application. This will then act to evidence the baseline conditions in the event that the permit is surrendered.

Provided within the Appendix of the SCR are the ground and soil investigations These documents support the SCR and have detailed analysis of the ground condition as well as laboratory results of the soil and water samples.

The area surrounding the site has been used for several purposes over the years including an iron works, granary, warehouses, cooperage and granolithic works. This has led to potential contaminated land from the industrial uses of the site and surrounding area.

Maps showing the environmental setting of the site are provided within the supporting documents within the 'Environmental Maps' folder.

The installation is located within the London Borough of Hillingdon, which has been designated as an Air Quality Management Area. Existing background concentrations of oxides of nitrogen (NOx) exceed national Air Quality Standards.

[1] https://www.gov.uk/government/publications/environmental-permitting-h5-site-condition-report.

3.3 Environmental Risk Assessment

An Environmental Risk Assessment (ERA) has been conducted for the installation and provided in the supporting documents as 'Environmental Risk Assessment v1'. This has been produced using the EA's "Risk assessment your environmental permit" guidance.

The purpose of the ERA is to identify the significant risks to human health and the environmental from site activities, and the controls in place to help mitigate these risks to an acceptable level.

The potential risks identified as part of the ERA are outlined below:

- Discharges to air;
- Discharges to surface water or groundwater;
- Global warming potential;
- Accidents;
- Odour;
- Noise and vibration;
- Fugitive emissions (from uncontrolled sources); and
- Visible emissions.

The main risks associated with site activities relates to the operation of the SDGs and these operate infrequently and for short duration. Additionally, the bulk tanks associated with these as DAA are located internally. As a result, no significant environmental risks have been identified at the site. The detailed Air Quality and Noise assessments provided with the application evidence this conclusion.

3.4 Air Quality Assessment

The installation is located within the London Borough of Tower Hamlets, which has been designated as an Air Quality Management Area for NO_2 and PM_{10}.

Specialist Air Quality Consultants were appointed to undertake an air quality dispersion model of pollutants resulting from the operation of the combustion plant on site. A particular focus is on NOx emissions as the main pollutant from combustion of diesel by the SDGs, which meet the requirements of the 2g TA-Luft standard for NOx. This assessment is provided in the supporting documents as 'Air Quality Assessment'.

The assessment has considered the long and short-term impacts on local air quality from the operation of the SDGs. The following scenarios have been modelled using emissions rates taken from manufacturer datasheets provided as part of the application:

- **Scenario 1**: Monthly test – this will be offload (0% load) tests for 30 minutes on a weekend with only 1 generator operating concurrently.
- **Scenario 2**: Annual test – this will be onload (75% load) for 3 hours on a weekend with only 1 generator operating concurrently.
- **Scenario 3**: Emergency power outage – at a worst-case this will be onload (75% load) for 5 hours with all 9 generators operating cumulatively (In general only the generators required to carry site load would operate).

The assessment concluded that normal operation of the SDGs would have no significant effect at any receptor location including ecological receptor. The normal operation would also have no significant effect on the 1-hour mean NO_2 concentrations and CO concentrations or the 24-hour mean NO_x concentrations. Based on the predications and the use of expected worst-case emissions, it is considered that the overall air quality impacts of the site would be not significant.

Once the site is operational an Air Quality Management Plan (AQMP) is to be developed to mitigate impacts in response to a power outage or blackout. The aim of this will be to minimise the impact on local air quality during emergency operation of the combustion plant

onsite. This will be produced with input from the EA and Tower Hamlets and a finalised plan will be incorporated into the site's environmental management system.

3.5 Noise Assessment

Specialist Noise consultants, Industrial Noise & Vibration Centre Ltd., in February 2021 produced a noise impact assessment as part of the planning application for the installation. This assessment looked at impacts from various noise sources under a number of different operating scenarios.

The SDGs whilst operating are a potential source of noise. As such, mitigation has been provided to reduce noise impacts in the form of acoustic silencers at the air inlets and outlets of the rooms. The rooms will also be lined with acoustic absorbent to aid in reducing the internal noise levels. Each generator has an exhaust flue that is ducted to the rooftop and vented above the roof level.

The report identified that there were no significant impacts predicted from site operations, specifically the operation of the SDGs under all scenarios (testing or from an outage). As a result, no noise mitigation plan has been developed.

Despite the low likelihood of noise breakout from the site the intention is that, once operational, the Air Quality management Plan (AQMP) will also cover noise so that local residents are notified of potential impacts during a significant event such as an outage. Outages are likely to be rare and prolonged operation of the SDGs is unlikely given the redundancy in place and the reliability of the Grid network.

3.6 Climate Change Risk Assessment

A climate change risk assessments (CCRA) has been completed in line with the requirements set out in Application form B2.6. These have been further assessed in the ERA in Section 3.3. The predominant risks from climate change relate to rising river levels and intense rainfall events. The flood risk assessment (FRA) provided with this application has assessed these risks in detail and due to the controls in place the residual risks are considered to be low.