



Environmental Permit Variation Application

Environmental Risk Assessment

Telehouse International Corporation of Europe Limited

Coriander Ave, London E14 2AA

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Basis of Report

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1.0 Introduction

SLR Consulting Limited (SLR) has been instructed by Telehouse International Corporation of Europe Limited (TIE) to prepare an Environmental Risk Assessment (ERA) in support of an Environmental Permit (EP) variation application for the TIE owned Docklands Data Centre Campus (the Site) located on Coriander Ave, London, E14 2AA.

An additional data centre, known as Telehouse West 2 (TW2) will be added to the EP. As part of this EP application, the Site's new permit boundary will be considered in the context of this ERA.

1.1 Methodology

This ERA is an assessment of the risks to the environment and to human health that may be associated with the proposed operations at the Installation.

This ERA has been undertaken in accordance with the Environment Agency (EA) guidance '*Risk Assessments for your Environmental Permit*'¹ dated December 2025. The aim of the ERA is to identify any potential significant risks and demonstrate that the risk of pollution or harm will be acceptable by taking the appropriate measures to manage these risks.

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

Step 1 Identify risks and sources of risk from your activity.

Step 2 Where risks are identified from Step 1 then identify the receptors that could be affected.

Step 3 Identify potential pathways between the sources of risk and receptors.

Step 4 Assess the risks and check that they are acceptable. Justify appropriate measures to control your risks, if necessary.

Step 5 Submit your assessment.

Section 2.0 of this document is a screening step to identify the risks requiring consideration as part of this assessment.

Section 3.0 identifies people or parts of the environment that could be harmed (at potentially significant risk) by the activity. The ERA for an EP variation requires all receptors that are near a site and could reasonably be affected by the activities to be identified and considered as part of the assessment.

For the purposes of this ERA the following distances (from the EP boundary) 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 cultural and 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).

Section 4.0 of this document presents the environmental risk assessment and demonstrates that any risks of pollution or harm will be mitigated to manage the risk.

¹ <https://www.gov.uk/guidance/risk-assessments-for-your-environmental-permit>



2.0 Identifying The Risks

Step 2 of the ERA is a screening step to identify the potential risks to the environment from the Installation. The EA's guidance requires the following to be considered as '*Risks from your site*¹':

- Any discharge, for example sewage or trade effluent to surface or groundwater;
- Accidents;
- Odour;
- Noise and vibration;
- Uncontrolled or unintended ('fugitive') emissions, including dust, litter, pests and pollutants that should not be in the discharge;
- Visible emissions, for example smoke or visible plumes; and
- Release of bioaerosols.

Further, for Installation and waste 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;
- Risk to groundwater from landfill leachate;
- Risks to surface water from hazardous pollutants;
- Risks to surface water from sanitary and other pollutants; and
- Installations and waste operations must also decide how to treat, recycle or dispose of waste.

The Installation will not produce any process effluent or release bioaerosols, 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 (via stacks) associated with the combustion of fuel by each emergency stand-by generator (SBG); The Site's SBGs will in the main be fuelled by hydrogenated vegetable oil (HVO) but may revert to diesel if HVO is not available. There is the potential for visible emissions from these stacks.

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

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



3.0 Telehouse North Site Setting and Receptors

This section identifies the potentially sensitive receptors in the vicinity of the data centre for TN that could be harmed (at potentially significant risk) by emissions from the activities within the proposed changes in the permit.

The guidance¹ requires all receptors that are near the data centre and could reasonably be affected by the proposed activities to be identified and considered as part of the ERA. The following distances have been used to identify the relevant receptors:

- 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 cultural and 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).

3.1 Site Setting

The Site, centred at NGR TQ 38770 81090, is located at Coriander Avenue, London, E14 2AA. The Site location, local receptors and environmental site setting are shown in drawings 001, 002 and 003 as submitted with the EP application.

The immediate surrounding area is predominantly commercial and residential. The site falls within the Tower Hamlets Air Quality Management Area. A summary of the immediate environmental site setting is provided in Table 3-1.

Table 3-1: Telehouse North Surrounding Land Uses

Boundary	Closest Distance (m)	Description
North	Adjacent	Local road network including East India Dock Road (A13).
East	Adjacent	Travelodge London Docklands Central (adjacent), Leamouth Road (A1020), residential apartments (Russet House, approx. 55m, Handlebury House, approx. 85m), Tower Hamlets Transport Complex (Government office), a service depot, the River Lea, beyond which lies Limmo Peninsula Ecological Park and a railway line.
South	Adjacent	Local road network including Saffron Avenue and East India Dock Road (A1261), residential high-rise apartments, a railway line, beyond which is Virginia Quay Park, residential properties and the River Thames.
West	Adjacent	Commercial properties, including Global Switch data centre, local road network including Rosemary Drive, Coriander Avenue, Nutmeg Lane, Clove Crescent, an area of open water beyond which are several commercial and hospitality premises (circa 140m from the site boundary) including London Campus (UWS), East India Building (London University), York St John University, Pure Gym. The A102 is circa 320m from the site.



The immediate surrounding land uses are described in detail below.

3.1.1 Industrial and Commercial

The site is predominantly surrounded by commercial properties. The closest commercial properties to the site are a Travelodge hotel, located directly adjacent to the east of the site, and a data centre (Global Switch) 15m to the west.

3.1.2 Local Transport Network

The site is accessed from Coriander Avenue.

The A13 (East India Dock Road) runs generally east/west adjacent to the northern boundary of the site, whilst the A1020 (Leamouth Road) is adjacent to the east of the site. Saffron Avenue runs adjacent to the southern boundary of the site. The East India Dock Road and Tunnel lie 25m to the south and the A102 runs approximately 195m to the west.

The Dockland Light Railway (DLR) is present approximately 150m to the south of the site. East India DLR train station is approximately 150m to the south of the site.

3.1.3 Woodland and Open Land

There are no woodlands within 500m of the site boundary. There are some small areas of open land, including one small area approximately 15m south, and Aberfeldy Village Open Space 65m north-east.

3.1.4 Residential

The closest residential properties to the site are apartment complexes approximately 40m to the north which include Merchants House, Copper House, Sailors House, Artisan House and Lighterman Point, among others, and 55m to the east which includes Russet House. There are further residential complexes within the area located 100m and 180m to the south, 115m to the north-west, 245m to the west and 360m to the east.

3.1.5 Recreational

There are numerous areas dedicated to public use in the vicinity of the site. The closest recreational area is Virginia Quay Park 180m to the south of the site. Further afield is Limmo Peninsula Ecological Park 230m to the east, Braithwaite Park and unnamed playing fields 145m and 265m to the north respectively and Robin Hood Gardens approximately 300m to the west.

There are several public footpaths in the area including the Prime Meridian Walk which leads from East India rail station to the River Thames.

3.1.6 Educational

There are two education facilities within 500m of the site, namely Culloden Primary School located approximately 160m to the north-west and Woolmore Primary School located approximately 235m to the west.

3.1.7 Surface Water Features

A search of the Multi-Agency Geographical Information for the Countryside (MAGIC)² map revealed that the closest surface water features are an unnamed pond approximately 15m

² Multi Agency Geographical Information for the Countryside, <https://magic.defra.gov.uk/MagicMap.html>, accessed July 2025.



south of the site, and two unnamed drains / surface water bodies approximately 140m west. Beyond this, Bow Creek lies 145m east of the site, East India Dock Basin lies 240m south-east of the site, the River Thames lies 360 south and the River Lea lies 500m north at the closest point.

3.2 Geology, Hydrogeology and Flooding

3.2.1 Geology

British Geological Survey (BGS)³ data indicates the following general geological sequence beneath the site:

- Fluvial sedimentary deposits of alluvium (clay, silt, sand, peat) that is normally soft to firm consolidated, compressible silty clay, but can contain layers of silt, sand, peat and basal gravel, formed between 11.8 thousand years ago and the present during the Quaternary Period. A stronger, desiccated surface zone may be present; and
- The bedrock beneath the site is a sedimentary combination of clay, silt and sand of the London Clay Formation. Sedimentary bedrock formed between 56 and 47.8 million years ago during the Palaeogene period.

3.2.2 Hydrogeology

A search on MAGIC map revealed that the bedrock beneath the site is classified as unproductive strata, meaning that it has low permeability with negligible significance for water supply or river base flows.

The superficial geology beneath the site is classified as a Secondary (undifferentiated) aquifer, meaning that it is not possible to determine whether the bedrock comprises either permeable layers capable of supporting water supplies at a local level or predominantly lower permeability layers which may store and yield limited amounts of groundwater due to localised features such as fissures, thin permeable horizons and weathering.

The site is not located within or near a Source Protection Zone.

3.2.3 Hydrology

According to MAGIC, the groundwater vulnerability at the site is classified as medium to low risk. This means that there is a medium risk of a pollutant reaching the groundwater below the site.

3.2.4 Flooding

The Flood Map for Planning⁴ identifies the site as lying within a Flood Zone 3, defined as “land having a 1 in 100 or greater annual probability of river flooding.

The Long-Term Flood Risk⁴ assessment identifies the Site as being ‘high risk’ from flooding from surface water.

³ British Geological Survey, www.bgs.ac.uk, accessed January 2026.

⁴ <https://flood-map-for-planning.service.gov.uk/>

⁴ Check the long term flood risk for an area in England - GOV.UK (www.gov.uk)



3.3 Ecology and Cultural Heritage

3.3.1 European/International Sites

There are several designated European or International sites located within 10km of the site boundary. These sites include:

- Epping Forest Special Area of Conservation (SAC) located 7km north of the facility; and
- Lee Valley Special Protection Area (SPA) and Ramsar site, located 7.75km north of the facility.

3.3.2 Site of Special Scientific Interest

There are five Sites of Special Scientific Interest within 10km of the site boundary. These sites include:

- Gilbert's Pit (Charlton), located 3.69km south-east of the site;
- Oxleas Woodlands, located 6.7km south-east of the site;
- Walthamstow Marshes and Reservoirs, located 6.73km north of the site;
- Epping Forest, located 6.94km north of the site; and
- Abbey Wood, located 9.40km east of the site.

3.3.3 National Ecological Sites

There are numerous national sites of ecological importance located within 2km of the site boundary. These sites are shown on Drawings 002 & 003 Local Receptors and Natural and Cultural Heritage and include:

3.3.3.1 Local Nature Reserves

A review of MAGIC map reveals the following Local Nature Reserves within 2km of the site:

- Tower Hamlets Cemetery Park, approximately 1,850m to the north-west;
- Ackroyd Drive, approximately 1,850m to the north-west;
- Mudchute Park Farm, approximately 1,970m to the south-west.

3.3.3.2 Local Wildlife Sites

A review of the conservation screening report provided with enhanced pre-application advice for this EP variation application reveals the following Local Wildlife Sites within 2km of the site:

- Saffron Avenue Pond, located approximately 10m south of the site;
- East India Dock Basin, located approximately 200m south-east of the site;
- River Thames and tidal tributaries, located approximately 150m east of the site at it's closest point;
- Robin Hood Gardens, located approximately 300m south of the site;
- Bow Creek Ecology Park, located approximately 215m east of the site;
- Poplar Dock, located approximately 600m south-west of the site;
- Thames Wharf, located approximately 1km south-east of the site;



- Blackwall Basin, located approximately 850m south-west of the site;
- Millwall and West India Docks, located approximately 900m south-west of the site;
- Star Park, located approximately 800m north-east of the site;
- London's Canals, located approximately 1.10km north of the site;
- Lea Valley, located approximately 1.21km north of the site;
- Bromley-by-Bow War Memorial Wood, located approximately 1.17km north of the site;
- Transco Rough, located approximately 1.05km north of the site;
- Cameron Community Garden, located approximately 1.34km north-west of the site;
- Royal Docks, located approximately 1.37km south-east of the site;
- Bow Back Rivers, located approximately 1.65km north of the site;
- Cyril Jackson School Nature Area, located approximately 1.65km west of the site;
- St Anne's Churchyard, Limehouse, located approximately 1.76km west of the site;
- Mile End Park, located approximately 1.77km west of the site;
- East London Cemetery, located approximately 1.72km north-east of the site;
- Old Railway at Fairfoot Road, located approximately 1.78km north-west of the site;
- Tower Hamlets Cemetery Park & Ackroyd Drive Green Link, located approximately 1.83km north-west of the site;
- Mudchute Farm and Park, located approximately 2km south of the site; and
- Fun Forest, located approximately 1.73km east of the site.

3.3.3.3 Protected Species

A review of the conservation screening report provided with enhanced pre-application advice for this EP variation application reveals the following protected species within 2km of the site. The closest protected fish migratory route within 2km of the site is along the River Lea, 155m east of the Site. Protected fish migratory routes have also been identified along the River Thames, 360m south of the Site:

- Atlantic Salmon migratory route
- Allis Shad migratory route
- European Eel
- European Eel migratory route
- River Lamprey migratory route
- Sea Lamprey migratory route
- Smelt
- Smelt migratory route
- Twaite Shad migratory route

3.3.3.4 Priority Habitats

A review of MAGIC Map shows the following priority habitats are within 2km of the facility:



- Mudflats, approximately 130m east;
- Coastal Saltmarsh, 1.16km south;
- Deciduous Woodland, 1.19km north; and
- Good quality semi improved grassland, 1.94km north-west.

3.3.3.5 Other Receptors

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

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

3.4 Cultural and Heritage

3.4.1 Listed Buildings

There are several listed buildings (Grade I, II and II*) within a 2km radius of the site. There are four Grade I listed buildings within 2km of the site, the closest is Blackwall Basin which lies approximately 990m to the south-west. There are many Grade II listed buildings within a 2km radius of the site, the nearest being East India Dock Wall and Gateway approximately 30m to the east. There are nine Grade II* listed buildings within 2km of the site, with the East India Dock House, former Financial Times Print Works, approximately 90m to the west.

The locations of these listed buildings are presented on Drawing 004.

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

- Registered Parks and Gardens;
- Registered Battlefields;
- World Heritage Sites; and
- Scheduled Monuments.

A summary of the identified receptors is provided in Table 3-2 below.

Table 3-2: Identified Receptors

Receptor Name	Receptor Type	Direction from Site	Approximate Distance from Site Boundary at closest point (m)
Identified receptors within 500m of the Environmental Permit Boundary as shown on Drawing 003			
East India Dock Road (A13)	Local Transport Network	North	Adjacent
Leamouth Road (A1020)	Local Transport Network	East	Adjacent
Saffron Avenue	Local Transport Network	South	Adjacent
Travelodge	Commercial	East	Adjacent
Global Switch datacentre	Commercial	West	15



Receptor Name	Receptor Type	Direction from Site	Approximate Distance from Site Boundary at closest point (m)
Open Land	Open Land	South	15
Artificial ponds	Surface Water	Southwest	15
East India Dock Road and Tunnel	Local Transport Network	South	25
Residential Buildings including Sailors House	Residential	North	40
Residential Buildings including Russet House	Residential	East	55
Aberfeldy Village Open Space	Open Land	Northeast	65
Tower Hamlets Transport Complex (Government Office)	Commercial	East	95
Residential Apartments	Residential	South	100
Footpaths	Recreational	South	105
Residential properties associated with Athol Square	Residential	North-West	115
Artificial ponds	Surface Water	West	140
Braithwaite Park	Recreational	North	145
Bow Creek	Surface Water	East	145
East India DLR Train Station	Local Transport Network	South	150
Dockland Light Railway	Local Transport Network	South	150
Culloden Primary School	Educational	Northwest	160
High Rise Apartments associated with Newport Avenue	Residential	South	180
Virginia Quay Park	Recreational	South	180
A102	Local Transport Network	West	195
East India Dock Basin	Surface Water	Southeast	240
Limmo Peninsula Ecological Park	Ecological	East	230
Woolmoor Primary School	Educational	West	235



Receptor Name	Receptor Type	Direction from Site	Approximate Distance from Site Boundary at closest point (m)
Residential Properties associated with Ashton Street	Residential	West	245
Tower Hamlets Town Hall and Planning Department	Commercial	West	260
Playing Fields	Recreational	North	265
Residential Buildings associated with London City Island	Residential	East	360
River Thames	Surface Water	South	360
Robin Hood Gardens	Ecological/ Cultural	West	300
River Lea	Surface Water	North	500
Identified receptors within 2km and 10km of the Environmental Permit Boundary as shown on Drawing 004			
Saffron Avenue Pond	Local Wildlife Site	South	10
East India Dock Wall and Gateway	Grade II Listed Building	East	30
East India Dock House	Grade II* Listed Building	West	90
Mudflats	Priority Habitat	East	130
River Thames and tidal tributaries	Local Wildlife Site	East	150
Protected fish migratory routes	Protected Species	East	155
East India Dock Basin	Local Wildlife Site	Southeast	200
Bow Creek Ecology Park	Local Wildlife Site	East	215
Robin Hood Gardens	Local Wildlife Site	South	300
Protected fish migratory routes	Protected Species	South	360
Poplar Dock	Local Wildlife Site	Southwest	600
Star Park	Local Wildlife Site	Northeast	800
Blackwall Basin	Local Wildlife Site	Southwest	850
Millwall and West India Docks	Local Wildlife Site	Southwest	900
Blackwall Basin	Grade I Listed Building	Southwest	990
Thames Wharf	Local Wildlife Site	Southeast	1000



Receptor Name	Receptor Type	Direction from Site	Approximate Distance from Site Boundary at closest point (m)
Transco Rough	Local Wildlife Site	North	1050
London's Canals	Local Wildlife Site	North	1100
Coastal Saltmarsh	Priority Habitat	South	1160
Bromley-by-Bow War Memorial Wood	Local Wildlife Site	North	1170
Deciduous Woodland	Priority Habitat	North	1190
Lea Valley	Local Wildlife Site	North	1210
Cameron Community Garden	Local Wildlife Site	Northwest	1340
Royal Docks	Local Wildlife Site	Southeast	1370
Bow Back Rivers	Local Wildlife Site	North	1650
Cyril Jackson School Nature Area	Local Wildlife Site	West	1650
East London Cemetery	Local Wildlife Site	Northeast	1720
Fun Forest	Local Wildlife Site	East	1730
St Anne's Churchyard, Limehouse	Local Wildlife Site	West	1760
Mile End Park	Local Wildlife Site	West	1770
Old Railway at Fairfoot Road	Local Wildlife Site	Northwest	1780
Tower Hamlets Cemetery Park & Ackroyd Drive Green Link	Local Wildlife Site	Northwest	1830
Tower Hamlets Century Park	Local Nature Reserve	Northwest	1850
Ackroyd Drive	Local Nature Reserve	Northwest	1850
Mudchute Park Farm	Local Nature Reserve	Southwest	1970
Gilbert's Pit (Charlton)	SSSI	Southeast	3690
Oxleas Woodlands	SSSI	Southeast	6700
Walthamstow Marshes and Reservoirs	SSSI	North	6730
Epping Forest	SSSI	North	6940
Epping Forest	SAC	North	7000
Lee Valley	SPA and Ramsar Site	North	7750



Receptor Name	Receptor Type	Direction from Site	Approximate Distance from Site Boundary at closest point (m)
Abbey Wood	SSSI	East	9400
Good quality semi-improved grassland	Priority Habitat	Northwest	1940
Mudchute Farm and Park	Local Wildlife Site	South	2000

3.4.2 Wind Rose

A wind rose from London City Meteorological Station, approximately 4.1km to the east of the site, is provided in Figure 3-1 for 2024. The wind rose indicates that winds from the south-west to west-south-west sector are most frequent, with a secondary contribution from easterly directions. Winds from the north-east and south-east sectors are least frequent. Overall, the wind climate is dominated by moderate winds from the south-west quadrant.

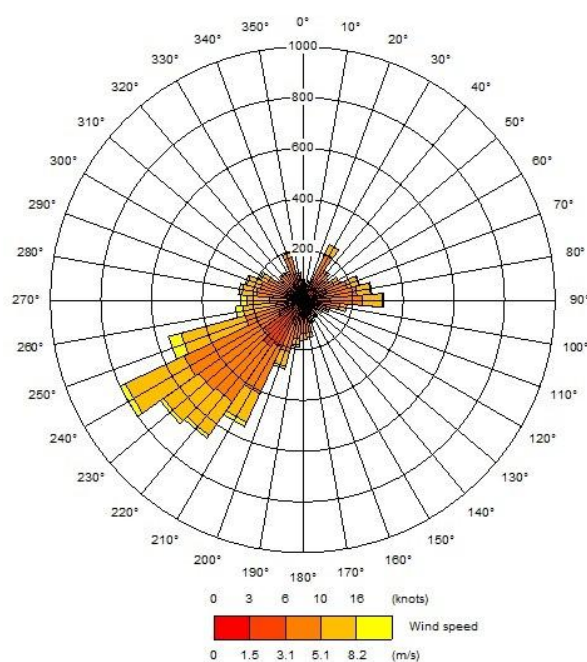


Figure 3-1: Wind Rose (London City Meteorological Station 2024)



4.0 Telehouse South Site Setting and Receptors

This section identifies the potentially sensitive receptors in the vicinity of the data centre for TS that could be harmed (at potentially significant risk) by emissions from the activities within the proposed changes in the permit.

Again, the following distances have been used to identify the relevant receptors:

- 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 cultural and 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).

4.1 Site Setting

TS data centre (centred at NGR TQ 38643 80627) is within the London Borough of Tower Hamlets, located at 1 Blackwall Way, Paul Julius Cl, London E14 2EH.

The site is bound by Thames Path and then Aspen Way (A1261) to the north, it is surrounded by open ground to the east, an apartment complex with commercial properties to the west, and the River Thames to the south. The site falls within the Tower Hamlets Air Quality Management Area.

A summary of the immediate environmental site setting is provided in Table 4-1.

The site location and environmental site setting is shown on Drawings 001, 003 and 004, respectively.

Table 4-1: Surrounding Land Uses Telehouse South Site

Boundary	Closest Distance (m)	Description
North	Adjacent	Local road network including Thames Path (NE Extension) and Aspen Way (A1261) adjacent to the site, Dockland Light Railway approx. 80m from the site boundary, residential properties approx. 120m from the site, beyond which are commercial/industrial premises, the A102 and Robin Hood Gardens approx. 260m to the northwest; further residential properties are present 320m to the northwest.
East	Adjacent	New residential development that is under construction directly adjacent to the east/northeast, beyond which are residential properties approx. 110m from the site, and Virginia Quay Park (recreational park) approx. 170m from the site, and further afield East India Dock Basin.
South	Adjacent	River Thames (adjacent), Blackwall Tunnel and commercial premises (on the opposite side of the River Thames) including The O2 Arena approx. 370m from the site boundary.
West	Adjacent	Radisson Blu Hotel directly adjacent, beyond which are various residential apartment complexes and hospitality premises approx. 70m from the site boundary. Further afield are commercial premises approx. 180m from the



Boundary	Closest Distance (m)	Description
		site, the A1206, beyond which is Poplar Dock Marina approx. 310m from the site boundary.

The immediate surrounding land uses are described in detail below.

4.1.1 Industrial and Commercial

The closest commercial premises lie in the adjacent apartment complex immediately to the west of the site, that includes East River Spa and Elasko Fitness Centre. Further commercial premises are located opposite Aspen Way (A1261), approximately 100m to the north of the site.

4.1.2 Local Transport Network

The site is accessed off the Thames Path (NE Extension) via Paul Julius Close.

Aspen Road (A1261) is located 20m to the north of the site, followed by the Dockland Light Railway with Blackwall train station located approximately 150m to the northwest. The Blackwall Tunnel runs approximately 25m to the west of the site underground, with the entrance located approximately 200m to the northwest.

4.1.3 Woodland and Open Land

There are no woodlands or open land within 500m of the site boundary.

4.1.4 Residential

The closest residential properties will be a new residential development that is under construction directly adjacent to the east/northeast. Other nearby residential properties include residential apartment complexes located adjacent to the west of the site, including Charrington Tower and Columbia West Apartments. There are further residential complexes within the area located approximately 110m to the east and 260m to the northwest.

4.1.5 Recreational

There are some recreational areas within 500m of the site boundary, with Virginia Quay Park being the closest located approximately 185m to the east of the site.

There are several public footpaths in the area, including the Prime Meridian Walk which leads from East India rail station to the River Thames located approximately 150m to the east of the site.

4.1.6 Educational

There is one education facility within 500m of the site; this is Woolmore Primary School which lies approximately 370m to the northwest.

4.1.7 Surface Water Features

The nearest surface water feature to the site is the River Thames directly adjacent to the west of the site. There are artificial ponds located approximately 180m to the northeast and several other artificial ponds 210m to the north. The East India Dock Basin is located 415m to the east. Poplar Dock Marina is located approximately 290m to the west of the site.



4.2 Geology, Hydrogeology and Flooding

4.2.1 Geology

British Geological Survey (BGS)⁵ data indicates the following general geological sequence beneath the site:

- Fluvial sedimentary deposits of alluvium (clay, silt, sand, peat) that is normally soft to firm consolidated, compressible silty clay, but can contain layers of silt, sand, peat and basal gravel, formed between 11.8 thousand years ago and the present during the Quaternary Period. A stronger, desiccated surface zone may be present; and
- The bedrock beneath the site is a sedimentary combination of clay, silt and sand of the London Clay Formation. Sedimentary bedrock formed between 56 and 47.8 million years ago during the Palaeogene period.

4.2.2 Hydrogeology

A search on MAGIC map revealed that the bedrock beneath the site is classified as unproductive strata, meaning that it has low permeability with negligible significance for water supply or river base flows.

The superficial geology beneath the site is classified as a Secondary (undifferentiated) aquifer, meaning that it is not possible to determine whether the bedrock comprises either permeable layers capable of supporting water supplies at a local level or predominantly lower permeability layers which may store and yield limited amounts of groundwater due to localised features such as fissures, thin permeable horizons and weathering.

The site is not located within or near a Source Protection Zone.

4.2.3 Hydrology

According to MAGIC, the groundwater vulnerability at the site is classified as medium to low risk. This means that there is a medium risk of a pollutant reaching the groundwater below the site.

4.2.4 Flooding

The Flood Map for Planning⁶ identifies the site as lying within a Flood Zone 3, defined as “land having a 1 in 100 or greater annual probability of river flooding.

The Long-Term Flood Risk⁴ assessment identifies the Site as being ‘high risk’ from flooding from surface water.

4.3 Ecology and Cultural Heritage

4.3.1 European/International Sites

There are several designated European or International sites located within 10km of the site boundary. These sites include:

- Epping Forest Special Area of Conservation (SAC) located 7km north of the facility; and

⁵ British Geological Survey, www.bgs.ac.uk, accessed July 2025.

⁶ <https://flood-map-for-planning.service.gov.uk/>

⁴ [Check the long term flood risk for an area in England - GOV.UK \(www.gov.uk\)](https://www.gov.uk/government/checklists/check-the-long-term-flood-risk-for-an-area-in-england)



- Lee Valley Special Protection Area (SPA) and Ramsar site, located 7.75km north of the facility.

4.4 Site of Special Scientific Interest

There are five Sites of Special Scientific Interest within 10km of the site boundary. These sites include:

- Gilbert's Pit (Charlton), located 3.69km south-east of the site;
- Oxleas Woodlands, located 6.7km south-east of the site;
- Walthamstow Marshes and Reservoirs, located 6.73km north of the site;
- Epping Forest, located 6.94km north of the site; and
- Abbey Wood, located 9.40km east of the site.

4.4.1 National Ecological Sites

There are numerous national sites of ecological importance located within 2km of the site boundary. These sites are shown on Drawings 002 & 003 Local Receptors and Natural and Cultural Heritage and include:

4.4.1.1 Local Nature Reserves:

- Tower Hamlets Cemetery Park, approximately 1,850m to the north-west;
- Ackroyd Drive, approximately 1,850m to the north-west;
- Mudchute Park Farm, approximately 1,970m to the south-west.

4.4.1.2 Local Wildlife Sites

A review of the conservation screening report provided with enhanced pre-application advice for this EP variation application reveals the following Local Wildlife Sites within 2km of the site:

- Saffron Avenue Pond, located approximately 10m south of the site;
- East India Dock Basin, located approximately 200m south-east of the site;
- River Thames and tidal tributaries, located approximately 150m east of the site at it's closest point;
- Robin Hood Gardens, located approximately 300m south of the site;
- Bow Creek Ecology Park, located approximately 215m east of the site;
- Poplar Dock, located approximately 600m south-west of the site;
- Thames Wharf, located approximately 1km south-east of the site;
- Blackwall Basin, located approximately 850m south-west of the site;
- Millwall and West India Docks, located approximately 900m south-west of the site;
- Star Park, located approximately 800m north-east of the site;
- London's Canals, located approximately 1.10km north of the site;
- Lea Valley, located approximately 1.21km north of the site;
- Bromley-by-Bow War Memorial Wood, located approximately 1.17km north of the site;



- Transco Rough, located approximately 1.05km north of the site;
- Cameron Community Garden, located approximately 1.34km north-west of the site;
- Royal Docks, located approximately 1.37km south-east of the site;
- Bow Back Rivers, located approximately 1.65km north of the site;
- Cyril Jackson School Nature Area, located approximately 1.65km west of the site;
- St Anne's Churchyard, Limehouse, located approximately 1.76km west of the site;
- Mile End Park, located approximately 1.77km west of the site;
- East London Cemetery, located approximately 1.72km north-east of the site;
- Old Railway at Fairfoot Road, located approximately 1.78km north-west of the site;
- Tower Hamlets Cemetery Park & Ackroyd Drive Green Link, located approximately 1.83km north-west of the site;
- Mudchute Farm and Park, located approximately 2km south of the site; and
- Fun Forest, located approximately 1.73km east of the site.

4.4.1.3 Protected Species

A review of the conservation screening report provided with enhanced pre-application advice for this EP variation application reveals the following protected species within 2km of the site. The closest protected fish migratory route within 2km of the site is along the River Lea, 155m east of the Site. Protected fish migratory routes have also been identified along the River Thames, 360m south of the Site:

- Atlantic Salmon migratory route
- Allis Shad migratory route
- European Eel
- European Eel migratory route
- River Lamprey migratory route
- Sea Lamprey migratory route
- Smelt
- Smelt migratory route
- Twaite Shad migratory route

4.4.1.4 Priority Habitats

A review of MAGIC Map shows the following priority habitats are within 2km of the facility:

- Mudflats, approximately 130m east;
- Coastal Saltmarsh, 1.16km south;
- Deciduous Woodland, 1.19km north; and
- Good quality semi improved grassland, 1.94km north-west.

4.4.1.5 Other Receptors

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



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

4.5 Cultural and Heritage

4.5.1 Listed Buildings

There are several listed buildings (Grade I, II and II*) within a 2km radius of the site. There are four Grade I listed buildings within 2km of the site, the closest is Blackwall Basin which lies approximately 990m to the south-west. There are many Grade II listed buildings within a 2km radius of the site, the nearest being East India Dock Wall and Gateway approximately 30m to the east. There are nine Grade II* listed buildings within 2km of the site, with the East India Dock House, former Financial Times Print Works, approximately 90m to the west.

The locations of these listed buildings are presented on Drawing 004.

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

- Registered Parks and Gardens;
- Registered Battlefields;
- World Heritage Sites; and
- Scheduled Monuments.

A summary of the identified receptors is provided in Table 4-2 below.

Table 4-2: Identified Receptors

Receptor Name	Receptor Type	Direction from Site	Approximate Distance from Site Boundary at closest point (m)
Identified receptors within 500m of the Environmental Permit Boundary as shown on Drawing 003			
East India Dock Road (A13)	Local Transport Network	North	Adjacent
Leamouth Road (A1020)	Local Transport Network	East	Adjacent
Saffron Avenue	Local Transport Network	South	Adjacent
Travelodge	Commercial	East	Adjacent
Global Switch datacentre	Commercial	West	15
Open Land	Open Land	South	15
Artificial ponds	Surface Water	Southwest	15
East India Dock Road and Tunnel	Local Transport Network	South	25
Residential Buildings including Sailors House	Residential	North	40
Residential Buildings including Russet House	Residential	East	55



Receptor Name	Receptor Type	Direction from Site	Approximate Distance from Site Boundary at closest point (m)
Aberfeldy Village Open Space	Open Land	Northeast	65
Tower Hamlets Transport Complex (Government Office)	Commercial	East	95
Residential Apartments	Residential	South	100
Footpaths	Recreational	South	105
Residential properties associated with Athol Square	Residential	North-West	115
Artificial ponds	Surface Water	West	140
Braithwaite Park	Recreational	North	145
Bow Creek	Surface Water	East	145
East India DLR Train Station	Local Transport Network	South	150
Dockland Light Railway	Local Transport Network	South	150
Culloden Primary School	Educational	Northwest	160
High Rise Apartments associated with Newport Avenue	Residential	South	180
Virginia Quay Park	Recreational	South	180
A102	Local Transport Network	West	195
East India Dock Basin	Surface Water	Southeast	240
Limmo Peninsula Ecological Park	Ecological	East	230
Woolmoor Primary School	Educational	West	235
Residential Properties associated with Ashton Street	Residential	West	245
Tower Hamlets Town Hall and Planning Department	Commercial	West	260
Playing Fields	Recreational	North	265
Residential Buildings associated with London City Island	Residential	East	360
River Thames	Surface Water	South	360



Receptor Name	Receptor Type	Direction from Site	Approximate Distance from Site Boundary at closest point (m)
Robin Hood Gardens	Ecological/ Cultural	West	300
River Lea	Surface Water	North	500
Identified receptors within 2km and 10km of the Environmental Permit Boundary as shown on Drawing 004			
Saffron Avenue Pond	Local Wildlife Site	South	10
East India Dock Wall and Gateway	Grade II Listed Building	East	30
East India Dock House	Grade II* Listed Building	West	90
Mudflats	Priority Habitat	East	130
River Thames and tidal tributaries	Local Wildlife Site	East	150
Protected fish migratory routes	Protected Species	East	155
East India Dock Basin	Local Wildlife Site	Southeast	200
Bow Creek Ecology Park	Local Wildlife Site	East	215
Robin Hood Gardens	Local Wildlife Site	South	300
Protected fish migratory routes	Protected Species	South	360
Poplar Dock	Local Wildlife Site	Southwest	600
Star Park	Local Wildlife Site	Northeast	800
Blackwall Basin	Local Wildlife Site	Southwest	850
Millwall and West India Docks	Local Wildlife Site	Southwest	900
Blackwall Basin	Grade I Listed Building	Southwest	990
Thames Wharf	Local Wildlife Site	Southeast	1000
Transco Rough	Local Wildlife Site	North	1050
London's Canals	Local Wildlife Site	North	1100
Coastal Saltmarsh	Priority Habitat	South	1160
Bromley-by-Bow War Memorial Wood	Local Wildlife Site	North	1170
Deciduous Woodland	Priority Habitat	North	1190
Lea Valley	Local Wildlife Site	North	1210
Cameron Community Garden	Local Wildlife Site	Northwest	1340



Receptor Name	Receptor Type	Direction from Site	Approximate Distance from Site Boundary at closest point (m)
Royal Docks	Local Wildlife Site	Southeast	1370
Bow Back Rivers	Local Wildlife Site	North	1650
Cyril Jackson School Nature Area	Local Wildlife Site	West	1650
East London Cemetery	Local Wildlife Site	Northeast	1720
Fun Forest	Local Wildlife Site	East	1730
St Anne's Churchyard, Limehouse	Local Wildlife Site	West	1760
Mile End Park	Local Wildlife Site	West	1770
Old Railway at Fairfoot Road	Local Wildlife Site	Northwest	1780
Tower Hamlets Cemetery Park & Ackroyd Drive Green Link	Local Wildlife Site	Northwest	1830
Tower Hamlets Century Park	Local Nature Reserve	Northwest	1850
Ackroyd Drive	Local Nature Reserve	Northwest	1850
Mudchute Park Farm	Local Nature Reserve	Southwest	1970
Gilbert's Pit (Charlton)	SSSI	Southeast	3690
Oxleas Woodlands	SSSI	Southeast	6700
Walthamstow Marshes and Reservoirs	SSSI	North	6730
Epping Forest	SSSI	North	6940
Epping Forest	SAC	North	7000
Lee Valley	SPA and Ramsar Site	North	7750
Abbey Wood	SSSI	East	9400
Good quality semi-improved grassland	Priority Habitat	Northwest	1940
Mudchute Farm and Park	Local Wildlife Site	South	2000

4.5.2 Wind Rose

A wind rose from London City Meteorological Station, approximately 4.1km to the east of the site, is provided in Figure 3-1 for 2024. The wind rose indicates that winds from the south-west to west-south-west sector are most frequent, with a secondary contribution from



easterly directions. Winds from the north-east and south-east sectors are least frequent. Overall, the wind climate is dominated by moderate winds from the south-west quadrant.



5.0 Environmental Risk Assessment

This section considers the potential pathways between source and receptor and where appropriate, the assessment demonstrates how the risk of pollution or harm from both the TN and TS data centres can be mitigated by measures to manage these risks and/or block the pathways.

The Installation will not produce any process effluent or release bioaerosols, and there will be no point source emissions to groundwater or land from the application activities. Uncontaminated surface water runoff from the SBG roof area and the fuel/AdBlue delivery area will drain to the on-site surface water drainage system, where it will be directed via a newly installed full retention Class 1 forecourt petrol interceptor and Vortex separator, prior to discharge into the River Thames via the existing outfall, which is subject to a Port of London Authority consent. There will be no changes in the nature/composition of the surface water runoff at TS as a result of the proposed changes.

There will be several point source emissions to air associated with each diesel / HVO-fired SBG stack and the potential for visible emissions from these stacks.

Therefore, the following tables in this section assess the potential risk to receptors from the following hazards only, taking into account the measures proposed to reduce those risks:

- Air emissions;
- Global Warming Impact;
- Accidents;
- Noise & Vibration;
- Fugitive Emissions; and
- Visible Emissions.

The probability of exposure is the likelihood of the receptors being exposed to the hazard, and is defined as low, medium or high. These terms are qualified as follows:

- Low: exposure is unlikely, barriers in place to mitigate against exposure;
- Medium: exposure is fairly probable, barriers to exposure less controllable; and
- High: exposure is probable, direct exposure likely with few barriers.

The methodology outline in Section 1.0 of this report is the basis on which it is determined whether the proposed operations will lead to significant impacts on the surrounding environment. Where a conclusion of 'not significant' has been reached, it is proposed that the mitigation and management measures that will be in place at the Installation will be sufficient to ensure that there will be no impact at the surrounding environment.

5.1 Telehouse North

An assessment in terms of hazards posed, receptors and pathways, along with management and residual risks for the hazards/impacts identified above from the operation of TN data centre is presented in Tables 5-1 to 5-5 for each of the activities summarised in Section 2.



Table 5-1: Telehouse North Data Centre Air Risk Assessment and Management Plan

What do you do that can harm and what could be harmed?			Managing the Risk	Assessing the Risk		
Hazard	Receptor	Pathway	Risk Management	Probability of Exposure	Consequence	What is the overall risk
<i>What has the potential to cause harm?</i>	<i>What is at risk, what do I wish to protect?</i>	<i>How can the hazard get to the receptor?</i>	<i>What measures will you take to reduce the risk? Who is responsible for what?</i>	<i>How likely is this contact?</i>	<i>What is the harm that can be caused?</i>	<i>What is the risk that still remains? The balance of probability and consequence.</i>
Emissions from SBG stacks.	All receptors identified in drawings 002 and 003	Air	A detailed risk assessment of the impact on air quality of emissions of combustion products from the data centre Campus SBGs is presented in Section 4 of this EP application (410.066261.00001_AERA). The findings of the assessment for routine testing and maintenance operations are that for planned maintenance and testing significant impacts are considered unlikely. In the highly unlikely event of a 26 hour 'electrical grid outage' there is potential for impacts on certain receptors. Telehouse has developed an Air Quality Emergency Action Plan (AQEAP); this has been incorporated into Telehouse's EMS. The AQEAP details the management actions to be taken in the event of an emergency outage of the national electricity transmission system that could result in the prolonged usage of the SBGs which could potentially result in adverse impacts on local air quality. The AQEAP has been updated to include TW2 and submitted to the EA. Once approved by the EA will be provided to the Local Authority.	Low due to management measures and limited operational hours	Pollution, harm to environment and human health Medium	Low



What do you do that can harm and what could be harmed?			Managing the Risk	Assessing the Risk		
			Planned preventative maintenance (PPM) is in place for the maintenance and testing of the SBG's; this will be updated to include TW2 SBGs. Maintenance is conducted in accordance with the manufacturer requirements. The Site Manager will be responsible for implementing risk management measures in conjunction with the operating techniques document (Ref: 410.066261.00001/BATOT).			
Potential visible emissions from the SBG stacks typically on start-up of the SBGs.	All receptors identified in drawings 002 and 003	Air	Planned preventative maintenance (PPM) in place for the maintenance and testing of the SBGs is conducted in accordance with manufacturer requirements. Telehouse has implemented visual checks for visible emissions from the SBGs during start up. This will be extended to include TW2 SBGs.	Low due to maintenance measures and limited operational hours	Pollution, harm to environment and human health Very Low	Not Significant



Table 5-2: Telehouse North Data Centre: Noise Risk Assessment and Management Plan

What do you do that can harm and what could be harmed?			Managing the Risk	Assessing the Risk		
Hazard	Receptor	Pathway	Risk Management	Probability of Exposure	Consequence	What is the overall risk
<i>What has the potential to cause harm?</i>	<i>What is at risk, what do I wish to protect?</i>	<i>How can the hazard get to the receptor?</i>	<i>What measures will you take to reduce the risk? Who is responsible for what?</i>	<i>How likely is this contact?</i>	<i>What is the harm that can be caused?</i>	<i>What is the risk that still remains? The balance of probability and consequence.</i>
Noise from vehicular movements (fuel deliveries)	Industrial, commercial, residential and ecological receptors identified in drawings 002 and 003	Air (propagation)	The noise assessment prepared for the EP variation application to incorporate TW2 (Ref: 410.066261.00001/Noise Assessment) has concluded that the planned maintenance and testing of the SBGs is not predicted to result in excessive levels of noise that could adversely impact identified sensitive receptors. Any noise complaint received will be logged. An appropriately designated person will investigate the complaint and will take action to identify the source of the noise and remedial measures will be implemented where appropriate. The Site Manager is responsible for implementing risk management measures in conjunction with the operating techniques document (Ref: 410.066261.00001/BATOT).	Low	Nuisance Low	Low
Noise from operation of the SBGs and	Industrial, commercial, residential and	Air (propagation)	The SBGs are located inside buildings.	Low due to mitigation	Nuisance Low	Low



What do you do that can harm and what could be harmed?			Managing the Risk	Assessing the Risk		
SCR abatement systems.	ecological receptors identified in drawings 002 and 003		All equipment is maintained and operated in accordance with the manufacturer's guidance and maintained in good working order. The noise assessment prepared for the EP variation application to incorporate TW2 (Ref: 410.066261.00001/Noise Assessment) has concluded that the planned maintenance and testing of the SBGs is not predicted to result in excessive levels of noise that could adversely impact identified sensitive receptors. Any noise complaint received will be logged. An appropriately designated person will investigate the complaint and will take action to identify the source of the noise and remedial measures will be implemented where appropriate. The Site Manager is responsible for implementing risk management measures in conjunction with the operating techniques document (Ref: 410.066261.00001/BATOT).	measures in place		



Table 5-3: Telehouse North Data Centre: Fugitive Emissions Risk Assessment and Management Plan

What do you do that can harm and what could be harmed?			Managing the Risk	Assessing the Risk		
Hazard	Receptor	Pathway	Risk Management	Probability of Exposure	Consequence	What is the overall risk
<i>What has the potential to cause harm?</i>	<i>What is at risk, what do I wish to protect?</i>	<i>How can the hazard get to the receptor?</i>	<i>What measures will you take to reduce the risk? Who is responsible for what?</i>	<i>How likely is this contact?</i>	<i>What is the harm that can be caused?</i>	<i>What is the risk that still remains? The balance of probability and consequence.</i>
To Air						
Emissions during the transfer of substances in and out of storage (filling and emptying). Emissions during tank breathing, i.e. emissions due to temperature increases resulting in vapour space expansions and subsequent emissions.	Industrial, commercial, and residential receptors identified in drawings 002 and 003	Air	Best practices are adhered to for all fuel loading activities. Such measures will not remove potential for emissions but will limit the duration of such releases. Deliveries of diesel/HVO and AdBlue are from operator approved suppliers and are undertaken in accordance with delivery procedures which form part of the Environmental Management System.	Low	Nuisance	Low



What do you do that can harm and what could be harmed?			Managing the Risk	Assessing the Risk		
To Water						
Runoff from potentially contaminated areas Percolation of contaminated water	Land Groundwater Bedrock	Overland Percolation through the ground	Site surfacing comprises hardstanding with block paving for some car parking areas. Car parking areas and on-site roads are kerbed to retain surface water run-off to drain, in the main via suitably sized oil interceptors to municipal sewer. Requirement for drainage grids to be protected with a drain cover during fuel deliveries and for deliveries to be supervised by the fuel vehicle driver and the appointed facilities management contractor to reduce the risk of spillages during fuel deliveries. The generators and associated fuel and AdBlue tanks are housed internal to the data centre buildings; these areas benefit from concrete surfacing. The interceptors are regularly inspected and maintained; all retained oil/sludge is removed by suitably licensed contractors. No oily water is permitted to leave the site under normal operating conditions. The integrity of the fuel and AdBlue storage tanks/belly tanks are subject to daily visual inspection by site personnel as part of daily operations. Any defects or weaknesses spotted in a tank or containment measures will be repaired as soon as practicable. Uncontaminated surface water runoff which is discharged via the on-site surface water	Very Low	Pollution, Harm to Environment. <	



What do you do that can harm and what could be harmed?			Managing the Risk	Assessing the Risk		
			drainage pass via oil interceptors prior to discharge into municipal sewer. The Site Manager is responsible for implementing risk management measures in conjunction with the operating techniques document (Ref: 410.066261.00001/BATOT).			

Table 5-4: Telehouse North Data Centre: Accident Risk Assessment and Management Plan

What do you do that can harm and what could be harmed?			Managing the Risk	Assessing the Risk		
Hazard	Receptor	Pathway	Risk Management	Probability of Exposure	Consequence	What is the overall risk
<i>What has the potential to cause harm?</i>	<i>What is at risk, what do I wish to protect?</i>	<i>How can the hazard get to the receptor?</i>	<i>What measures will you take to reduce the risk? Who is responsible for what?</i>	<i>How likely is this contact?</i>	<i>What is the harm that can be caused?</i>	<i>What is the risk that still remains? The balance of probability and consequence.</i>
Leak from on-site fuel, oil and AdBlue storage	Land, groundwater	Over land. Percolation through the ground from above ground storage tanks (ASTs) and associated pipework	TN: Above ground bulk diesel / HVO storage tanks are of single skin steel construction and are located in bunded tank rooms designed to contain 110% of the tank volume, or where there is more than one tank 125% of the largest tank. The tank room bunds have leak detection.	Low	Pollution, Harm to Environment and Human Health Medium	Low



What do you do that can harm and what could be harmed?			Managing the Risk	Assessing the Risk		
		Percolation through the ground from below ground storage tanks (USTs) and associated pipework	Below ground diesel / HVO tanks are of double skinned steel construction and have leak detection. All diesel / HVO bulk storage tanks have overfill indication and audible alarms. SBG day tanks are either single or double skinned. These day tanks are located within bunded SBG buildings; the bunds are alarmed. Day tanks have a fuel level gauge, low level/high level/high high-level alarms. Fuel transfer pipelines from the bulk storage tanks consist of double skinned flooded buried lines; for buried self-draining pipelines these are single skinned, the angle of the pipework ensuring that any residual diesel / HVO drains back to the storage tank. The fuel transfer pipelines for North 2 building are double skinned with leak detection. To minimise the risk of corrosion all pipework is painted or is constructed of corrosion resistant material. Above ground diesel / HVO pipework is typically jointed single skinned. On site fuel storage and associated pipework is scheduled for testing for leaks, corrosion and mechanical integrity every 5 years. <u>TW2:</u> Above ground bulk fuel storage tanks (x 4) will be double skinned and located internally in the Oil Pump Room (there will be 2 pump rooms). The bulk tanks and oil pumps in each room will be located in a concrete bund which will provide 110% containment. There will be a sensor in the bund to detect any leaks; this will			



What do you do that can harm and what could be harmed?			Managing the Risk	Assessing the Risk		
			be connected to the facility management system (FMS). The bulk fuel tanks will have leak detection alarms, high high/high and low low/low level alarms connected to the FMS, a tank level gauge, a pressure delivery over-fill prevention valve and mechanical relief valves to prevent over pressurisation of fuel supplied from fuel tanker deliveries. To minimise the risk of corrosion all pipework will be painted or constructed of corrosion resistant material. Bulk fuel tanks fill points will be located externally on the wall of the room in which the tanks are located. These fill points will be located in a lockable cabinet; the cabinet will be provided with a drip tray. A fuel discharge mains ring (located internal to the TW2 data centre building) will deliver fuel from the bulk tanks to the SBG day tanks. The fuel will be pumped from the bulk tanks to the day tanks by fuel pumps to be located in an Oil Pump Room. Both Oil Pump Rooms will be provided with 110% containment. There will be a sensor in each bunded pump room to detect any leaks; this will be connected to the FMS. The fuel delivery pipework will have leak detection connected to the FMS. <u>TW2 Fuel Dump Tanks</u> There will be 2 x fuel dump tanks (each with a 7,500 litre capacity), designed for 2 generator day tanks to discharge into a single dump tank			



What do you do that can harm and what could be harmed?			Managing the Risk	Assessing the Risk		
			in an emergency event. These dump tanks will be located inside the TW2 data centre building, each in a dedicated room. The tanks will be of single skin steel construction and located in below ground (3.5m depth) concrete lined chambers. The dump tanks will have leak detection, automatic tank contents level gauge, and high level alarm, all of which will be connected to the FMS. The emergency fuel dump pipework will be located inside the building in a concrete lined floor trench with a grid covering to allow for ease of inspection of the pipeline. The pipework will be provided with leak detection. On site fuel storage and associated pipework at TW2 will be scheduled for testing for leaks, corrosion and mechanical integrity every 5 years. The Site Manager is responsible for implementing risk management measures in conjunction with the operating techniques document (Ref: 410.066261.00001/BATOT).			
Discharge of fuel oil or AdBlue outside bunded or kerbed area	Industrial, commercial, residential, surface water, recreational and ecological receptors identified in drawings 002 and 003	Over land Percolation through the ground Surface water	Best practices are adhered to for all fuel and AdBlue loading/unloading activities. In the case of fuel, all suppliers are required to adhere to the current Carriage of Dangerous Goods (ADR) Regulations. Any spillage that does occur will be cleaned/contained immediately using absorbent material in the spill kits provided on-site and on fuel delivery vehicles.	Low	Pollution, Harm to Environment and Human Health. Medium	Low



What do you do that can harm and what could be harmed?			Managing the Risk	Assessing the Risk		
			Deliveries of fuel and AdBlue are from operator approved suppliers and will be undertaken in accordance with delivery procedures that have been developed as part of the Environmental Management System. Any spillage that does occur will be cleaned up/contained immediately using absorbent material in the spill kits provided on-site, in accordance with the spill procedure. All spills will be removed from site by a suitably licensed waste contractor. The Site Manager is responsible for implementing risk management measures in conjunction with the Operating Techniques (Ref: 410. 066261.00001/BATOT).			
Fire	Industrial, commercial, residential, surface water, recreational and ecological receptors identified in drawings 003 and 004	Air (smoke), water run-off	A Fire Risk Assessment has been undertaken for the facility; this was completed by an external company. This will be completed for TW2. Each building has a fire alarm which is subject to regular testing; this will be the case for TW2. Foam suppressant systems are in place with the exception of North Building where one bulk diesel / HVO tank room has a gas fire suppressant system and a water suppressant system for the other two bulk diesel / HVO tank rooms. TW2 will have fire suppression systems, details of which are yet to be finalised. The generators will automatically shut down in the event of a fire. With the exception of N2 Building and TW2, all day tanks will	Very Low	Potential explosion hazard. Release of emissions to air resulting from oxygen starved combustion of fuel oil. Potential for fire to spread to other areas of plant. Water contamination (runoff) Medium	Low



What do you do that can harm and what could be harmed?			Managing the Risk	Assessing the Risk		
			automatically drain back to the bulk diesel / HVO tanks. For N2 Building, in the event of a fire diesel / HVO will drain to a below ground dump tank; there is capacity for only 1 x day tank to drain back to this dump tank. For TW2, fuel from the generator day tanks will in the event of a fire drain to the fuel dump tanks located inside the data centre building. The two fuel dump tanks are designed for 2 generator day tanks to discharge into a single dump tank in an emergency event.			
Security and Vandalism	Industrial, commercial, residential, surface water, recreational and ecological receptors identified in drawings 003 and 004	Air/Land	The following security measures are in place: • 24/7 security team on site • 24/7 Telehouse support team on site • Site access control system • Site perimeter security measures • CCTV. The Site Manager is responsible for implementing risk management measures in conjunction with the Operating Techniques (Ref: 410.066261.00001/BATOT).	Low	Pollution, Harm to Environment and Human Health Low	Low
Flooding	Personnel on site Industrial, commercial, residential, surface water, recreational and ecological receptors identified in	Land, Water	According to the UK government Flood Map for Planning, the data centre lies within flood zone 3. Land and property in flood zone 3 have a 1 in 100 or greater annual probability of river flooding. The data centre not been subject to flooding since operation by Telehouse. Evacuation procedures will be implemented in the event of flooding.	Low	Medium	Not significant



What do you do that can harm and what could be harmed?			Managing the Risk	Assessing the Risk		
	drawings 003 and 004.		The Site Manager is responsible for implementing risk management measures in conjunction with the operating techniques document (Ref: 410.066261.00001/BATOT).			

Table 5-5: Telehouse North Data Centre Global Warming Potential (GWP)

What do you do that can harm and what could be harmed?			Managing the Risk	Assessing the Risk		
Hazard	Receptor	Pathway	Risk Management	Probability of Exposure	Consequence	What is the overall risk
<i>What has the potential to cause harm?</i>	<i>What is at risk, what do I wish to protect?</i>	<i>How can the hazard get to the receptor?</i>	<i>What measures will you take to reduce the risk? Who is responsible for what?</i>	<i>How likely is this contact?</i>	<i>What is the harm that can be caused?</i>	<i>What is the risk that still remains? The balance of probability and consequence.</i>
Generation of CO ₂ e emissions	National and global air quality and climate change	Air	Operation of the generators involves the combustion of diesel or HVO fuel to generate electricity for use at the data centre in the event of an emergency outage of the National Grid supply of electricity. The generators are subject to planned maintenance and testing. The combustion of diesel and HVO results in the generation of CO ₂ e emissions. Telehouse is a participant to a Climate Change Agreement, (CAA) for the data centre sector. Energy management techniques have been implemented to monitor, record and track energy consumption at the data centre.	Medium	Harm to Environment, Harm to Human Health Medium	Medium



What do you do that can harm and what could be harmed?			Managing the Risk	Assessing the Risk		
			To achieve the reductions that will be required under the CCA energy reduction targets are established in the Environmental Management System. Energy consumption has been considered in the BATOT document (Ref: 410.066261.00001/BATOT).			



5.2 Telehouse South

An assessment in terms of hazards posed, receptors and pathways, along with management and residual risks for the hazards/impacts identified from the operation of TS data centre is presented in Tables 5-6 to 5-10 for the proposed changes to the activities summarised in Section 2.



Table 5-6: Telehouse South Data Centre Air Risk Assessment and Management Plan

What do you do that can harm and what could be harmed?			Managing the Risk	Assessing the Risk		
Hazard	Receptor	Pathway	Risk Management	Probability of Exposure	Consequence	What is the overall risk
<i>What has the potential to cause harm?</i>	<i>What is at risk, what do I wish to protect?</i>	<i>How can the hazard get to the receptor?</i>	<i>What measures will you take to reduce the risk? Who is responsible for what?</i>	<i>How likely is this contact?</i>	<i>What is the harm that can be caused?</i>	<i>What is the risk that still remains? The balance of probability and consequence.</i>
Emissions from SBG stacks.	All receptors identified in drawings 003 and 004	Air	The 4 SBGs (MTU 20V4000G94LF) are US EPA Tier 2 (optimized emissions). In addition, SCR abatement has been installed on the 4 SBGs. The SCR abatement is designed to reduce NO_x emissions to <236mg/m³ at 5% oxygen. A detailed risk assessment of the impact on air quality of emissions of combustion products from the Campus SBGs is presented in this EP variation application to include TW2 (410.066261.00001_AERA). The findings of the assessment for routine testing and maintenance operations are that planned maintenance and testing will not result in an adverse impact on air quality. In the highly unlikely event of a 26 hour 'electrical grid outage' there is potential for impacts on certain receptors. Telehouse has developed an Air Quality Emergency Action Plan (AQEAP); this has been incorporated into Telehouse's EMS. The AQEAP details the management actions to be taken in the event of an emergency outage of the national electricity transmission system that could result in the prolonged usage of the SBGs which could	Low due to management measures, limited operational hours and SCR abatement on the SBGs to minimise NO_x emissions	Pollution, harm to environment and human health Medium	Low



What do you do that can harm and what could be harmed?			Managing the Risk	Assessing the Risk		
			potentially result in adverse impacts on local air quality. The AQEAP has been updated to include TW2 and submitted to the EA. Once approved by the EA will be provided to the Local Authority. PPM will be in place for the maintenance and testing of the SBG's; maintenance will be conducted in accordance with the manufacturer requirements. The Site Manager will be responsible for implementing risk management measures in conjunction with the operating techniques document (Ref: 410.064698.00001/BATOT).			
Potential visible emissions from the SBG stacks typically on start-up of the SBGs.	All receptors identified in drawings 003 and 004	Air	Planned preventative maintenance (PPM) is in place for the maintenance and testing of the SBGs; maintenance is conducted in accordance with manufacturer requirements. Telehouse has implemented visual checks for visible emissions from the SBGs during start up.	Low due to maintenance measures and limited operational hours	Pollution, harm to environment and human health Very Low	Not Significant



Table 5-7: Telehouse South Data Centre: Noise Risk Assessment and Management Plan

What do you do that can harm and what could be harmed?			Managing the Risk	Assessing the Risk		
Hazard	Receptor	Pathway	Risk Management	Probability of Exposure	Consequence	What is the overall risk
<i>What has the potential to cause harm?</i>	<i>What is at risk, what do I wish to protect?</i>	<i>How can the hazard get to the receptor?</i>	<i>What measures will you take to reduce the risk? Who is responsible for what?</i>	<i>How likely is this contact?</i>	<i>What is the harm that can be caused?</i>	<i>What is the risk that still remains? The balance of probability and consequence.</i>
Noise from vehicular movements (fuel deliveries)	Industrial, commercial, residential and ecological receptors identified in drawings 002 and 003	Air (propagation)	The TS data centre is operational 24 hours, seven days a week. On-site vehicles are required to adhere to a considerate speed limit. Fuel oil deliveries and AdBlue deliveries are only be carried out during daytime hours except in the case of emergency outage situations where more frequent deliveries may be required. Any noise complaint received will be logged. An appropriately designated person will investigate the complaint and will take action to identify the source of the noise and remedial measures implemented where appropriate. The Site Manager is responsible for implementing risk management measures in conjunction with the operating techniques document (Ref: 410.064698.00001/BATOT).	Low	Nuisance Low	Low
Noise from operation of the SBGs and SCR	Industrial, commercial, residential and ecological	Air (propagation)	SBGs are located inside buildings. All equipment is maintained and operated in accordance with the manufacturer's guidance and maintained in good working order.	Low due to mitigation measures in place	Nuisance Low	Low



What do you do that can harm and what could be harmed?			Managing the Risk	Assessing the Risk		
abatement systems.	receptors identified in drawings 003 and 004.		The noise assessment prepared for the EP variation application to include TW2 (Ref: 410.066261.00001/Noise Assessment) has concluded that the planned maintenance and testing of the SBGs is not predicted to result in excessive levels of noise that could adversely impact identified sensitive receptors. Any noise complaint received will be logged. An appropriately designated person will investigate the complaint and will take action to identify the source of the noise and remedial measures will be implemented where appropriate. The Site Manager is responsible for implementing risk management measures in conjunction with the operating techniques document (Ref: 410.064698.00001/BATOT).			



Table 5-8: Telehouse South Data Centre Fugitive Emissions Risk Assessment and Management Plan

What do you do that can harm and what could be harmed?			Managing the Risk	Assessing the Risk		
Hazard	Receptor	Pathway	Risk Management	Probability of Exposure	Consequence	What is the overall risk
<i>What has the potential to cause harm?</i>	<i>What is at risk, what do I wish to protect?</i>	<i>How can the hazard get to the receptor?</i>	<i>What measures will you take to reduce the risk? Who is responsible for what?</i>	<i>How likely is this contact?</i>	<i>What is the harm that can be caused?</i>	<i>What is the risk that still remains? The balance of probability and consequence.</i>
To Air						
Emissions during the transfer of substances in and out of storage (filling and emptying). Emissions during tank breathing, i.e. emissions due to temperature increases resulting in vapour space expansions and subsequent emissions.	Industrial, commercial, and residential receptors identified in drawings 003 and 004	Air	Best practices are adhered to for all fuel and AdBlue loading activities. Such measures will not remove potential for emissions but will limit the duration of such releases. Deliveries of diesel / HVO & AdBlue are from operator approved suppliers and undertaken in accordance with delivery procedures which form part of the Environmental Management System. Refurbishment of TS involved removal of all existing permitted SBGs and associated fuel systems along with the two underground bulk fuel tanks. 4 new containerised SBGs have been installed in the South Support Building (SSB), each with individual 18,000 litre belly tanks (provided with 110% containment) designed to British Standard BS799 Part 5 2010 (Oil Burning Equipment. Carbon steel oil storage tanks. Specification). The SBG belly tanks are filled	Low	Nuisance	Low



What do you do that can harm and what could be harmed?			Managing the Risk	Assessing the Risk		
			directly from refuelling vehicles. The diesel / HVO belly tanks have the following protection measures: • Tank level gauge. • High and low level alarms connected to the BMS. • A pressure delivery over-fill prevention valve. • Leak detection alarms connected to the BMS. • The SBGs have pressure relief valves to prevent over pressurisation of diesel / HVO supplied from the belly tanks. • To minimise the risk of corrosion all pipework is painted or constructed of corrosion resistant material. AdBlue is stored in two 17,000l bulk storage tanks. These tanks are located on level 1 of the SSB. Adjacent to each tank is a urea tank pump to enable the refilling of these bulk tanks from tanker deliveries at ground level of the SSB. Each AdBlue bulk storage tank is of stainless-steel construction; the tanks are double skinned and provided with a bund (bund capacity 316 litres). Each bulk tank is fitted with level sensors, a tank level gauge and high/low level alarms. There is a sensor in the AdBlue bund which will alarm on the detection of excessive liquid in the bund. A new fuel distribution system and AdBlue distribution system has been installed within the SSB, with a new fill point located externally			



What do you do that can harm and what could be harmed?			Managing the Risk	Assessing the Risk		
			at ground level of the SBB which will allow the delivery of fuel directly to the SBGs, and AdBlue to the 2 bulk storage tanks, by bulk road tanker. The AdBlue bulk tanks will be subject to regular preventative maintenance to minimise the risk of leaks. The SBG belly tanks and 2 AdBlue tanks will be monitored to detect any leaks, via the BMS. Spill kits are available at the site. Spill procedures are in place, as part of the Environmental Management System. Areas where fuel and AdBlue is stored are subject to daily visual inspections as part of daily operational activities. The Site Manager will be responsible for implementing risk management measures in conjunction with the operating techniques document (Ref: 410.064698.00001/BATOT).			
To Water						
Runoff from potentially contaminated areas (e.g. car park and where the generators, associated diesel belly tanks are located) Percolation of contaminated water	Land Groundwater Bedrock	Overland percolation through the ground	A new fill point for diesel / HVO and AdBlue has been located at ground level of the SSB in a dedicated loading area to allow bulk tankers to park and connect to the fill points. The loading area, which is concrete surfaced with raised kerbing around the perimeter, is cambered so that any runoff will drain towards a central drainage channel. This floor drain directs the runoff via the surface water drainage system to a newly installed full retention Class 1 forecourt petrol interceptor designed with a holding capacity of 7,600 litres.	Very Low	Pollution, Harm to Environment. Medium	Low



What do you do that can harm and what could be harmed?			Managing the Risk	Assessing the Risk		
			This interceptor has high level silt and oil alarms. Tertiary containment is provided by the contoured hardstanding of the area where the road tanker refuelling area and refuelling point is located, additionally raised kerbing will be present along the site perimeter. The integrity of the diesel / HVO storage tanks/belly tanks and AdBlue tanks are subject to periodic visual inspection by site personnel as part of daily operations. Any defects or weaknesses spotted in a tank or containment measures will be repaired as soon as practicable. The interceptor is subject to regular emptying and maintenance by an appointed specialist contractor. All interceptor oil/sludge will be removed by suitably licensed contractors. The Site Manager will be responsible for implementing risk management measures in conjunction with the operating techniques document (Ref: 410.064698.00001/BATOT).			



Table 5-9: Telehouse South Data Centre Accident Risk Assessment and Management Plan

What do you do that can harm and what could be harmed?			Managing the Risk	Assessing the Risk		
Hazard	Receptor	Pathway	Risk Management	Probability of Exposure	Consequence	What is the overall risk
<i>What has the potential to cause harm?</i>	<i>What is at risk, what do I wish to protect?</i>	<i>How can the hazard get to the receptor?</i>	<i>What measures will you take to reduce the risk? Who is responsible for what?</i>	<i>How likely is this contact?</i>	<i>What is the harm that can be caused?</i>	<i>What is the risk that still remains? The balance of probability and consequence.</i>
Leak from on-site fuel, oil and AdBlue storage	Land, groundwater	Over land. Percolation through the ground from above ground storage tanks (ASTs) and associated pipework Percolation through the ground from below ground storage tanks (USTs) and associated pipework	4 containerised SBGs are installed in the SSB, each with individual 18,000 litre belly tanks (provide with 110% containment), designed to British Standard BS799 Part 5 2010 (Oil Burning Equipment. Carbon steel oil storage tanks. Specification). The belly tanks are filled directly from refuelling vehicles. The diesel / HVO belly tanks have the following protection measures: • Tank level gauge. • High and low level alarms connected to the BMS. • A pressure delivery over-fill prevention valve. • Leak detection alarms connected to the BMS. • The generator sets have pressure relief valves to prevent over pressurisation of diesel / HVO supplied from the belly tanks.	Low	Pollution, Harm to Environment and Human Health Medium	Low



What do you do that can harm and what could be harmed?			Managing the Risk	Assessing the Risk		
			To minimise the risk of corrosion all pipework is painted or constructed of corrosion resistant material. AdBlue is stored in two 17,000l bulk storage tanks located on level 1 of the SSB. Each bulk storage tank is of stainless steel construction; the tanks are double skinned and provided with a bund (bund capacity 316 litres). Each bulk tank is fitted with level sensors, a tank level gauge and high/low level alarms. There is a sensor in the AdBlue bund which will alarm on the detection of excessive liquid in the bund. The diesel / HVO belly tanks and AdBlue bulk tanks are filled from a ground level fill point, as described previously. The diesel / HVO belly tanks and AdBlue tanks are subject to regular preventative maintenance to minimise the risk of leaks. The integrity of diesel / HVO and AdBlue tanks are subject to daily visual inspection by site personnel as part of standard daily operations. Any defects or weaknesses spotted in a tank or containment measures will be repaired as soon as practicable. On site fuel and AdBlue storage and associated pipework will be scheduled for testing for leaks, corrosion and mechanical integrity every 5 years. The Site Manager will be responsible for implementing risk management measures in conjunction with the operating techniques document (Ref: 410.064698.00001/BATOT).			



What do you do that can harm and what could be harmed?			Managing the Risk	Assessing the Risk		
Discharge of fuel oil or AdBlue outside bunded or kerbed area	Industrial, commercial, residential, surface water, recreational and ecological receptors identified in drawings 003 and 004	Over land Percolation through the ground Surface water	Best practices are adhered to for all fuel loading/unloading activities. All suppliers are required to adhere to the current Carriage of Dangerous Goods (ADR) Regulations. Any spillage that does occur will be cleaned/contained immediately using absorbent material in the spill kits provided on-site and on fuel delivery vehicles. Deliveries of diesel / HVO are from operator approved suppliers and will be undertaken in accordance with delivery procedures that have been developed as part of the Environmental Management System. Any spillage that does occur will be cleaned up/contained immediately using absorbent material in the spill kits provided on-site, in accordance with the spill procedure. All spills will be removed from site by a suitably licensed waste contractor. The Site Manager is responsible for implementing risk management measures in conjunction with the Operating Techniques (Ref: 410.064698.00001/BATOT).	Low	Pollution, Harm to Environment and Human Health. Medium	Low
Fire	Industrial, commercial, residential, surface water, recreational and ecological receptors identified in drawings 003 and 004	Air (smoke), water run-off	The site benefits from a fire alarm system and associated fire suppression systems inside the SSB. The SSB container units themselves each have independent fire suppression systems. Tertiary containment is provided by the contoured hardstanding of the area where the road tanker refuelling area and refuelling point will be located; additionally raised kerbing will be present along the site perimeter.	Very Low	Potential explosion hazard. Release of emissions to air resulting from oxygen starved combustion of fuel oil.	Low



What do you do that can harm and what could be harmed?			Managing the Risk	Assessing the Risk		
			Emergency Procedures are maintained and reviewed as part of the EMS; these detail the actions to be taken in the event of a fire. The Site Manager will be responsible for implementing risk management measures in conjunction with the operating techniques document (Ref: 410.064698.00001/BATOT).		Potential for fire to spread to other areas of plant. Water contamination (runoff) Medium	
Security and Vandalism	Industrial, commercial, residential, surface water, recreational and ecological receptors identified in drawings 003 and 004	Air/Land	The following security measures are in place: • 24/7 security team on site • Minimum of circa 8 staff (comprising security and facilities management personnel) on site. • Site access control system • Site perimeter security measures • CCTV. The Site Manager is responsible for implementing risk management measures in conjunction with the Operating Techniques (Ref: 410.064698.00001/BATOT).	Low	Pollution, Harm to Environment and Human Health Low	Low
Flooding	Personnel on site Industrial, commercial, residential, surface water, recreational and ecological receptors identified in drawings 003 and 004.	Land, Water	According to the UK government Flood Map for Planning, the data centre lies within flood zone 3. Land and property in flood zone 3 have a 1 in 100 or greater annual probability of river flooding. The data centre not been subject to flooding since operation by Telehouse. Evacuation procedures will be implemented in the event of flooding. The Site Manager is responsible for implementing risk management measures in	Low	Medium	Not significant



What do you do that can harm and what could be harmed?			Managing the Risk	Assessing the Risk		
			conjunction with the operating techniques document (Ref: 410.064698.00001/BATOT).			

Table 5-10: Telehouse South Data Centre Global Warming Potential (GWP)

What do you do that can harm and what could be harmed?			Managing the Risk	Assessing the Risk		
Hazard	Receptor	Pathway	Risk Management	Probability of Exposure	Consequence	What is the overall risk
<i>What has the potential to cause harm?</i>	<i>What is at risk, what do I wish to protect?</i>	<i>How can the hazard get to the receptor?</i>	<i>What measures will you take to reduce the risk? Who is responsible for what?</i>	<i>How likely is this contact?</i>	<i>What is the harm that can be caused?</i>	<i>What is the risk that still remains? The balance of probability and consequence.</i>
Generation of CO ₂ e emissions	National and global air quality and climate change	Air	Operation of the generators involves the combustion of diesel / HVO fuel to generate electricity for use at the data centre in the event of an emergency outage of the National Grid supply of electricity. The SBGs are subject to planned maintenance and testing. The combustion of diesel / HVO results in the generation of CO ₂ e emissions. Telehouse is a participant to a Climate Change Agreement, (CAA) for the data centre sector. Energy management techniques have been implemented to monitor, record and track energy consumption at the data centre.	Medium	Harm to Environment, Harm to Human Health Medium	Medium



What do you do that can harm and what could be harmed?			Managing the Risk	Assessing the Risk		
			To achieve the reductions that will be required under the CCA energy reduction targets are established in the Environmental Management System. Energy consumption has been considered in the BATOT document (Ref: 410.064698.00001/BATOT).			



6.0 Conclusion

The ERA has separately considered sensitive receptors to the Docklands Campus; Telehouse North and Telehouse South data centres and assessed the potential risks from the data centres based on the balance between the probabilities of exposure and the magnitude of the consequences of those exposures. Overall, with measures in place to manage potential risks, no significant environmental risks have been identified at the facility from either TN or TS data centre.





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