Cumbria Waste Recycling Ltd

# SEAL SANDS HAZARDOUS WASTE TRANSFER STATION ENVIRONMENTAL PERMIT APPLICATION

## Site Condition Report

EPR/YP3424LH/A001
DECEMBER 2025

PUBLIC

Cumbria Waste Recycling Ltd

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## Site Condition Report

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## *APPENDICES*

# 1 INTRODUCTION

## 1.1 AUTHORISATION

This Site Condition Report (SCR) has been prepared on behalf of Cumbria Waste Recycling Ltd (CWR) to support a new bespoke environmental permit application for a Hazardous Waste Transfer Station (HWTS) in Seal Sands, Middlesborough. The SCR is being produced for a location incorporating two distinct permitting boundaries, one will be purchased on a freehold basis, and the other will be leased from a third party.

## 1.2 BACKGROUND INFORMATION

CWR offers commercial waste services across the north of England and southern Scotland and has plans to develop a new HWTS. They are therefore required to apply for a new bespoke environmental permit issued by the Environment Agency.

At the site, CWR will accept a variety of hazardous and non-hazardous wastes for bulking, treatment and temporary storage, before the waste is removed from the site for further treatment, recovery or disposal at suitably licensed offsite locations. The Seal Sands HWTS will be operated by CWR on two distinct areas of land comprising the permitted facility, occupying a total of approximately 1.4 hectares and separated by a road. Area 1 will be owned by CWR, and Area 2 will be leased from Green Earth Developments Limited (GED) on a long-term lease.

The operations at the site are described fully in the main environmental permit application supporting document but briefly they consist of:

- Area 1 (in the south) consists of gated access for waste deliveries and the site weighbridge. The main Warehouse for the internal storage of waste, a small Warehouse for secure internal storage of waste (within locked chemical cabinets), external yards for additional waste storage, site laboratory and site office are also found in this location.

  The main Warehouse will store a variety of waste types with the exception of flammable wastes, while the small Warehouse will be used to safely and securely store smaller volumes of organic peroxides and oxidisers. Bulking and repacking operations will take place in the site Workshop on the eastern side of the main Warehouse. The yard area comprises impermeable concrete surfacing which is resistant to the materials stored here and connected to a sealed drainage system. Kerbing around the impermeable surfacing forms a containment area beyond which the land is unmade.

  The yard area within the western area of the site will be used for exclusive storage of flammable waste (including undercover storage). The second yard area to the south of the main Warehouse will store a variety of compatible wastes.

- Area 2 (in the north) consists of a yard area and a number of above ground tanks which are connected by above ground pipework. The yard area comprises impermeable concrete surfacing which is resistant to the materials stored here and connected to a sealed drainage system with a sump, that can be used to pump out waste waters generated here. The yard is an engineered bunded area with kerbing which forms a containment area and beyond the

bunded area is unmade ground. A variety of compatible wastes will be stored within the yard area.

Of the above ground tanks in Area 2, one of the tanks is used as a mixing tank for waste waters generated at the site and one of the tanks is used as an effluent discharge tank, for discharging waste waters to sewer. Both tanks are contained within a bunded concrete area. This discharge is via a private sewer connection.

As part of the environmental permit application, a SCR is required as CWR are applying for a new bespoke waste installation permit authorising the following listed activities:

1) The acceptance and temporary storage of a variety of hazardous waste with a total capacity exceeding 50 tonnes;
2) The treatment of hazardous waste by physico-chemical treatment by oil/water separation;
3) The treatment of hazardous waste by blending or mixing; and
4) The treatment of hazardous waste by repackaging wastes.

The installation also includes a number of Directly Associated Activities (DAAs), including:

- Temporary storage of non-hazardous waste;
- Cleaning of empty hazardous waste containers;
- Collection of contaminated effluent, discharge and disposal offsite; and
- Storage of raw materials.

This SCR describes and records the condition of the land and groundwater at the site. It will enable CWR to demonstrate what measures have been employed to protect land and groundwater during the lifetime of the permit and operations undertaken on site.

This report has been compiled in accordance with guidance available on the GOV.UK website and Environment Agency publication: Environmental Permitting Regulations – Site Condition Report Guidance and Templates (H5), Version 3.0, April 2013.

## 1.3 OBJECTIVES OF THE SITE CONDITION REPORT (SCR)

The SCR comprises desk-based research of information acquired from both public and private domains, along with evidence gathered from site visits and a review of the proposed site operations. The objectives of this SCR are to:

- Provide an overview of the site condition for the areas of land to be included in the permit installation boundary, including a description of the environmental setting and land pollution history;
- Identify whether the permitted activities have the potential to cause pollution of the ground and / or groundwater; and
- Identify and assess the preventative measures that will be in place to protect the ground and groundwater from these activities.

# 2 SITE DETAILS

## 2.1 SITE LOCATION AND DESCRIPTION

The information in Table 2-1 below relates to the areas of land being incorporated into the installation boundary as part of the new bespoke environmental permit application. The site is situated within an existing industrialised area of Seal Sands Industrial Estate, Teesside. Refer to Figure 2-1 for a plan of the site showing:

- The wider site (red line) is owned by GED as shown in Figure 2-1 below;
- Area 1 (freehold area) owned by CWR as shown by the green line in Figure 2-1 below; and
- Area 2 (leasehold area) owned by GED and leased by CWR as shown by the blue line in Figure 2-1 below.

**Figure 2-1 - Seal Sands HWTS Site Plan**

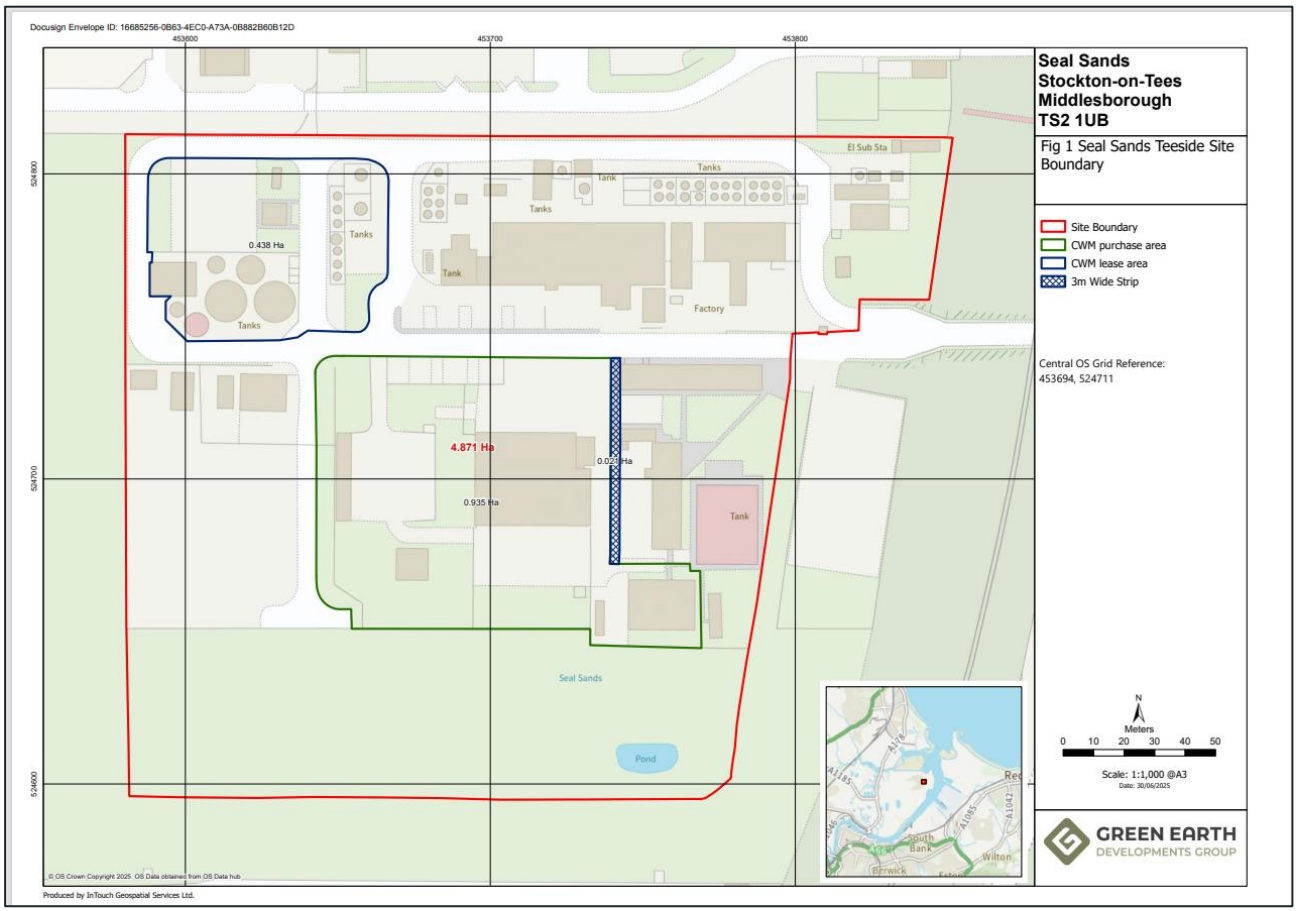


**Table 2-1 – Site Details**

| | |
|---|---|
| Installation Name | Seal Sands Hazardous Waste Transfer Station |
| Operator Name | Cumbria Waste Recycling Ltd |
| Installation Address: | Seal Sands Hazardous Waste Transfer Station<br>Seal Sands Road<br>Seal Sands<br>Middlesborough<br>TS2 1UB |
| National Grid Reference: | NZ 53662 24741<br>Easting: 453662<br>Northing:524741 |
| Size: | Total site perimeter: ~ 710 m (Perimeter of Area 1: 445 m and Area 2: 265 m)<br>Total site area: 1.39 hectares (Area 1: 0.96 hectares and Area 2: 0.44 hectares) |
| Description of Site: | The areas of land subject to this SCR are at the Seal Sands industrial estate, Teesside situated on the mouth on the River Tees. Permitted Area 1 is owned by CWR and Permitted Area 2 is leased from GED on long term lease. The site comprises previously developed land from decades of former industrial activities on the site. These include a number of buildings, areas of impermeable concrete, drainage system and above ground tanks and silos. Some areas of the site between areas of man-made development comprise grass with some low-lying vegetation. |
| Description of Surrounding Area: | The site is located on Seal Sands industrial estate in close proximity to various other chemical plants. The closest receptor is the ConocoPhillips Teesside terminal which is approximately 20 m away from the northern boundary of the Seal Sands HWTS, separated by two internal haul roads.<br>Lying 220 m to the east of the site, the chemical plant Intertek can be found separated by a railway line, Seal Sands Road, unmade ground and a number of pipelines.<br>Immediately to the south of the site is unmade ground consisting of grass and low-lying vegetation followed by the Greenergy Biofuels' biodiesel manufacturing plant (approximately 70 metres from the permit boundary). |

| | |
|---|---|
| | The receptors to the west are industrial buildings, presumably associated with the ConocoPhillips facility and further buildings to the south-west associated with Fine Organics Ltd. |

Please refer to the bespoke environmental permit application's "Technical Supporting Document", December 2025, for further information on the design and operation of the proposed HWTS. Please refer to Appendix A of this SCR for:

1. Site Location Plan (Figure 1);
2. Site Layout and Emission Points Plan (Figure 2);
3. Permeable and Impermeable Surfaces Plan (Figure 3); and
4. Site Drainage Plan (Figure 4).

## 2.2 GEOGRAPHY AND TOPOGRAPHY

Google Earth satellite imagery (dated 08/07/2025) and additional Ordnance Survey mapping obtained with the Envirocheck report (30/03/2016) for Seal Sands area, (WSP/Parsons Brinckerhoff, 2016[1]), indicates the following with regards to the site and land uses within the immediate surrounding area:

- The site is generally level at an approximate elevation of 6.5 m above Ordnance Datum (AOD). Elevations in the northeast are c. 6.30m AOD, in the northwest, c. 4.80m AOD. The central area is c. 6.50m AOD and southwestern and southeastern parts of the site lie at c. 5.70 m AOD.
- North: Adjacent to the River Tees estuary with several jetties extending into the water. There are also pipe tunnels and conveyor systems leading towards the river. Immediately adjacent to the site is car park facilities for neighbouring facility on the industrial estate.
- East: Dominated by pipelines and drains leading out to the River Tees. There are also more depots (for storage of oils and chemicals) and a laboratory situated in the surrounding area of the site.

  To the east of the site, the private sewage pipeline leading to Bran Sands STW can be seen, where CWR will transfer some of the waste water from the HWTS to be treated.
- South: More tracks and roads connecting chemical processing and storage infrastructure, including tanks and depots.
- West: Industrial infrastructure that includes an oil refinery and additional works. There are also pipelines and conveyors connecting neighbouring facilities as well as tracks and roads.

[1] Phase I Environmental Site Assessment. Vertellus Specialties UK Ltd Seal Sands, Middlesbrough, UK. WSP/Parsons Brinckerhoff, June 2016.

The site historically comprised sand flats associated with the River Tees and the terrain is flat, shaped by its history as tidal flats and marshland. The area has undergone significant land reclamation and industrial development since the early 20th century. It was reclaimed from the estuary from the 1880s onwards, most significantly during the 1960s and 1970s, using slag walls in-filled with dredgings from the Tees Estuary. Geological layers include soft silty clay, sand, gravel, and peat, with groundwater inferred to flow northward.

# 3 CONDITION OF SOIL AND GROUNDWATER AT PERMIT ISSUE

## 3.1 INTRODUCTION

This section of the SCR provides information on the condition of the area of land to be included in the installation boundary.

Information was obtained from both private and public sources, including information provided directly by CWR and from an Envirocheck report. The area of land subject to the Envirocheck report is the wider site, owned by GED as shown by the red line in Figure 2-1 above.

**Table 3-1 – Public Domain Information**

| Document / Resource Title | Information Obtained |
|---|---|
| Historical Ordnance Survey Plans | Information relating to:<br>Historical land use of the site<br>Historical land use of the surrounding area |
| British Geological Survey Website | Type of geology (bedrock and superficial) |
| Coal Authority Website | Mineral extraction data |
| GOV.UK Website | Environmental data obtained from Multi-Agency Geographic Information for the Countryside (MAGIC)<br>Maps relating to groundwater source protection zones and aquifer designations<br>Flood Risk (Flood Map for Planning)<br>Environment Agency Public Register |

**Table 3-2 – Private Domain Information - as provided by CWR**

| Document / Resource Title | Information Obtained |
|---|---|
| Envirocheck Report, 2016 (within the WSP/Parsons Brinckerhoff, 2016, Phase I Environmental Site Assessment). | Environmental data relating to the site setting and location.<br>Information in this report relates to identification of environmental conditions at the site and relevant historical information used to characterise the site and environmental setting. |
| Part 2A Land Contamination: Investigation and Assessment (Seal Sands), by ERM on behalf of Vertellus Specialty Materials (Vertellus), dated July 2012 (Report Ref: 0137414 Rev 01 Final) | The report stated that works were requested by the Environment Agency to identify whether a number of pollutant linkages identified within an earlier report are present and to undertake initial assessment in the context of the Part 2A legislation to determine whether there is a risk of impact to the identified receptors, specifically:<br>• Human Health: potential exposure through potable water, dust and vapours; |

| | |
|---|---|
| | • Property: potential exposure through direct contact with contamination or via vapours;<br>• Controlled Waters: potential migration and existing impact to shallow groundwater within the secondary aquifer (Tidal Flats Deposits) and potential impact to the deeper Principal Aquifer (Sherwood Sandstone) and off-site main river (River Tees / Tees Estuary). |
| Vertellus – Seal Sands. Environmental Site Assessment, dated 1st February 2022. Environmental Resources Management (ERM). | Assessment of land contamination at the site including results from an intrusive site investigation with respect to future site closure. |
| Vertellus – Seal Sands. Environmental Soil Sampling Assessment, dated 7th March 2023. ERM. | Details of soil sampling that was undertaken in accordance with general requirements for the site environmental permit. |

## 3.2 ENVIRONMENTAL SETTING

### REGIONAL AND SITE GEOLOGY

Geological mapping (BGS Geology Viewer - British Geological Survey) shows the area of land (the site) to be underlain by Mercia Mudstone Group – Mudstone, and overlain by Tidal Flat Deposits (sand, silt, and clay) associated with the River Tees.

The British Geological Society (BGS) describes the lithology of Tidal Flat Deposits as extensive, almost 'horizontal marshy land in the intertidal zone', often shifting between being covered and uncovered by the rise and fall of the tide. The thickness of this layer is labelled by the BGS as not recorded, however the bedrock layer, Mercia Mudstone Group (MMG), has a thickness variation that is considerable, although not specified. The BGS includes a lithological description of MMG as 'Dominantly red, less commonly green-grey, mudstones and subordinate siltstones with thick halite-bearing units in some basinal areas.'

BGS viewer data from the National Geoscience Data Centre's (NGDC) shows a single borehole log has been identified in the west of the site. The borehole record is from January 1988 and the details are provided below in Table 3-3.

**Table 3-3 – BGS Borehole Log Record**

| Geological Unit | Top of Strata (m bgl) | Bottom of strata (m bgl) | Stratum description |
|---|---|---|---|
| Made Ground | 0.00 | 0.50 | Hard concrete, slag and sand |
| | 0.50 | 1.20 | Coarse sand |
| | 1.20 | 1.60 | Coarse stony sand |
| | 1.60 | 2.30 | Clay |
| | 2.30 | 5.00 | Coarse silty sand |

## MINERAL EXTRACTION

### Coal Mining

Information from the Coal Authority website (The Coal Authority Address search) confirms that the site is not located within a coalfield and that a coal mining report is not required.

### Ground Stability

The Envirocheck reports states that according to the British Geological Survey by the National Geoscience Information Service, the risk of ground stability hazards shows:

- No hazard for collapsible ground stability; and
- Very low hazard for compressible, landslide, running sand, and shrinking or swelling ground stability.

### Other Mining

The Envirocheck report states that the risk of the site being impacted by non-coal mining areas of activity is categorised as 'no hazard' and the site has no recorded past uses associated with mining.

## HYDROGEOLOGY AND HYDROLOGY

### Hydrogeology

Aquifer designations reflect the importance of aquifers in terms of groundwater as a resource (drinking water supply) but also their role in supporting surface water flows and wetland ecosystems. The maps are split into two different types of aquifer designation:

- Superficial (Drift) - permeable unconsolidated (loose) deposits. For example, sands and gravels.
- Bedrock - solid permeable formations e.g. sandstone, chalk and limestone.

The bedrock of the area is classified as a Secondary B Aquifer as per the Aquifer Designation Map (Bedrock Geology) available on the MAGIC.GOV website. This is defined by Gov.uk as 'lower permeability layers that may store and yield limited amounts of groundwater through characteristics like thin cracks (called fissures) and openings or eroded layers'. The superficial drift for the site is designated as a Secondary (undifferentiated) Aquifer where it is not possible to apply either a Secondary A or B definition because of the variable characteristics of the rock type.

Based on the topography of the site and information provided by site representatives, groundwater flow is inferred to be towards the north.

### Source Protection Zones

The Environment Agency uses a tiered, risk-based approach to regulate activities that may impact groundwater resources and to prevent and limit pollution for groundwater sources used to supply drinking water. Sources include wells, boreholes and springs. Groundwater Source Protection Zones (SPZs) are defined by the Environment Agency as either Inner Zone (SPZ1), Outer Zone (SPZ2) or Total Catchment (SPZ3). Sometimes the Environment Agency will apply a fourth zone of special interest. These zones show the risk of contamination from activities that might cause pollution in the area; the closer the activity to the source the greater the risk.

The site is not located within a Groundwater Source Protection Zone (SPZ) as shown on MAGIC.

### Drinking Water Safeguarding

The site does not lie within a Drinking Water Safeguard Zone (SgZ) for surface water as shown on MAGIC.

### Groundwater Vulnerability

The soilscape upon which the site lies is largely made up of loamy and clayey soils of coastal flats with naturally high groundwater (Magic maps) and has a medium to high groundwater vulnerability classification.

The Envirocheck report states that “A worst case vulnerability classification (H) is assumed, until proved otherwise”. This indicates the installation is within an area that will likely transmit pollution to groundwaters, and the soils are characterised by a high likelihood of leaching soils. Soils with a high leaching potential have the capability to attenuate diffuse pollutants and liquids may travel quickly to the underlying strata and/or shallow ground water.

### Groundwater Abstractions

Based on the Envirocheck report, no Environment Agency licensed groundwater abstractions have been identified within a 1 km radius of the site. Groundwater abstractions within 2 km of the site are listed in Table 3-4 below:

**Table 3-4 - Groundwater Abstractions within 2 km of the Site[1]**

| Operator | Location | License Number | Direction from Site | Distance from Site (km) |
|---|---|---|---|---|
| Tees Bulk Handling | Tees Dock | 01/25/4/123 | SE | 1.33 |
| North Tees Ltd | Boreholes X8 - Mercia Mudstone - Port Clarence | 1/25/04/164 | SW | 1.93 |
| Impetus Reclamation Ltd | Boreholes X8 - Mercia Mudstone - Port Clarence | 1/25/04/164 | SW | 1.93 |
| ICI Chemicals & Polymers Ltd | Boreholes X8 - Mercia Mudstone - Port Clarence | 1/25/04/164 | SW | 1.93 |
| ICI Chemicals C/O C J Wells She Manager | Boreholes X8 - Mercia Mudstone - Port Clarence | 1/25/04/164 | SW | 1.93 |

[1] Currently based on data from the 2006 Envirocheck report. The Environment Agency was emailed to obtain any more recent data on 03/12/25 and this table will be updated as required.

### Groundwater Elevation and Flow Direction

Monitoring data associated with the Environmental Permit held by the previous owner of the site identified that ground water has been monitored at between 0.8 and 4.0 metres below ground level (ERM, 2022).

With regards to the water level, a previous report (ERM, 2012) stated that water levels recorded in boreholes installed in Made Ground are higher than those in deeper groundwater and demonstrated little relationship. It was stated that these water bodies may be laterally continuous in places, however water in Made Ground was considered 'perched' and not regionally or necessarily locally extensive. There was some evidence to indicate the perched water is in lateral hydraulic continuity with the adjacent ConocoPhillips site.

### Groundwater Quality

Toluene has been identified in shallow groundwater beneath the site previously (during the early 2000s). The WSP/Parsons Brinckerhoff report (2016) referenced information from previous studies that was supplied by the Environment Agency to the authors. Included within one of the documents, a site specific Detailed Quantitative Risk Assessment was produced which stated the following – "Controlled Waters - current concentrations recorded within the groundwater beneath the Site indicate that pollution had occurred, particularly with respect to toluene." Conservative assessments to evaluate where there would be a significant possibility of significant pollution of Controlled Waters predicted that surface water quality in the estuary would not exceed screening criteria. Section 3.6 of this report (Baseline Reference Data) provides an overview of more recent groundwater monitoring data that is available for the site.

### Discharges to Groundwater & Controlled Waters

There are no licensed discharges to controlled waters on the site or within 250 metres of the site. The Environment Agency public register lists 38 results for discharges to water and groundwater within 1 km of the site.

The nearest discharge is shown approximately 300 m to the south west of the site, but this permit was revoked in the 1970s.

Three discharges remain valid at the current time and include one trade effluent and two sewage effluents (not water companies) as detailed in Table 3-5 below.

**Table 3-5 – Discharge Consents**

| Permit Holder | Site Name | Effluent Type | Distance (m) | Direction |
|---|---|---|---|---|
| Navigator Terminals Seal Sands Limited | Making of Chemicals + Chemical Products | Trade | 550 | South-east |
| Innogy Cogen | Sub-station/Electricity/Gas/Air Conditioning Supply | Sewage - not water company | 910 | West |
| Navigator Terminals Seal Sands Limited | WwTW (not water co) (not STP at a private premises) | Sewage - not water company | 610 | South-east |

There is also one authorised discharge by a water company, Northumbrian Water, for sewage within 3 km of the site. This is associated with the discharge from Bran Sands Waste Water Treatment Works, which is located approximately 2.5 km to the east of the site beyond the River Tees.

**Summary of Hydrogeological Setting**

The site is underlain by a Secondary B Aquifer (bedrock) and Secondary (undifferentiated) Aquifer (Superficial Drift), both with limited groundwater resource potential. It is not within a Source Protection Zone or Drinking Water Safeguard Zone. Soils are loamy/clayey with medium to high groundwater vulnerability, and a worst-case leaching potential is assumed, meaning pollution could reach groundwater. No licensed groundwater abstractions exist within 1 km, and groundwater flow is inferred northwards. A single borehole shows made ground over sand and clay to 5 m depth, with perched water not regionally extensive. There are no licensed discharges to controlled waters nearby; three valid discharge consents (one trade, two sewage) remain within 1 km. Groundwater levels are 0.8–4.0 m below ground level, and previously reported monitoring data indicates pollution, especially toluene, is present.

**Surface Water Features**

No surface water bodies are present on the site. The nearest surface water features are small surface water ponds located approximately 30 m to the south and 175 m to the west of the site. The nearest main river is the River Tees, which is located approximately 525 m to the north-east of the permit boundary at its closest point and flows out to the North Sea in the Northwest direction. At this point it is classified as a heavily modified transitional water. A review of the Environment Agency's Catchment Data Explorer shows the Lower River Tees (Marton West Beck Catchment (trib of Tidal Tees) Water Body, Tees Estuary (S Bank) Water Body, Tees from Skerne to Tidal Limit Water Body, and Lustrum Beck Catchment (trib of Tees) Water Body) to have an overall classification of 'moderate' for 2022.

**Surface Water Abstractions**

The Envirocheck report, as provided within the phase I environmental site assessment for Vertellus Specialties UK Ltd, June 2016 identifies two surface water abstractions, within 2 km of the site, as summarised in Table 3-6 below.

**Table 3-6 - Surface Water Abstractions within 2 km of the Site[1]**

| Operator | Location | License Number | Direction from Site | Distance from Site (km) |
|---|---|---|---|---|
| Tees Bulk Handling Limited | River Tees Pump | 1/25/04/123 | SE | 1.33 |
| British Steel Plc | River Tees Estuary | 1/25/04/135 | NE | 1.38 |

[1] Currently based on data from the 2006 Envirocheck report. The Environment Agency was emailed to obtain any more recent data on 03/12/25 and this table will be updated as required.

### Flood Risk

According to the GOV.UK Flood Map for Planning, the site is located within a Flood Risk Zone 1 which indicates a low probability of flooding from rivers and the sea. This means, in any year, land has a less than 0.1% (1 in 1,000) chance of flooding from rivers or the sea.

The majority of site also has a low likelihood of flooding from surface waters, with a small area of the site associated with the access road and adjacent yard areas at risk of surface water flooding.

## 3.3 SENSITIVE LAND USES

### Nitrate Vulnerable Zones

The site is not located within a Nitrate Vulnerable Zone as per Environment Agency data and MAGIC. However, the Teesmouth and Cleveland Coast is considered to be a nitrogen sensitive catchment area.

### Ecological Receptors

The following ecological receptors can be found within the relevant distances of the site (as per MAGIC). The relevant distances for Ancient Woodland, Local Nature Reserves (LNR), Local Wildlife Sites (LWS), National Nature Reserves (NNR) and Sites of Specific Scientific Interest (SSSI) is 2k m. For Marine Conservation Zones (MCZ), Ramsar Sites, Special Areas of Conservation (SACs) and Special Protection Areas (SPAs) the relevant distance is 10 km.

**Table 3-7 - Designated Site Review – ecological receptors**

| Site Name | Designation | Direction from site | Distance from site (km) |
|---|---|---|---|
| Teesmouth and Cleveland Coast | Ramsar | N, E, W & S | 0.43 (closest point) |
| Teesmouth and Cleveland Coast | SSSI | N, E, W & S | 0.43 (closest point) |
| Teesmouth | NNR | NE | 0.64 |
| Zinc Works Bird Field | LWS | N | 1.98 |

There are no SAC, SPA, MCZ, LNR or Ancient Woodland sites with the relevant distances of the site.

## 3.4 HISTORIC LAND USE

### Data Sources

The Envirocheck report, as provided within the phase I environmental site assessment for Vertellus Specialties UK Ltd, June 2016 includes extracts of Ordnance Survey (OS) plans dated from 1869. In addition, available maps included in the third-party unexploded ordnance risk assessment, and historic aerial photography on Google Earth were reviewed.

### On-Site Historical Land Use

WSP reviewed historical Ordnance survey (OS) Maps for the site and the surrounding area prepared in 1857, 1861, 1931, 1955, 1975, 1985, 2000, 2006 and 2015, and 2025. Significant changes in the use of the site and adjoining properties are summarised below:

**Table 3-8 - Table of Topographic Maps Sources**

| Topographic Maps | Subject Property | Adjoining Property |
|---|---|---|
| Yorkshire 6<br>Surveyed: 1853<br>Published: 1857<br>Scale Six-inch to the mile | The subject property is undeveloped tidal marshland and mudflats. | Adjoining properties to the north, south, east, and west are undeveloped. |
| Durham XLV<br>Surveyed: 1855<br>Published: 1861<br>Scale Six-inch to the mile. | The subject property is undeveloped tidal marshland and mudflats. | Adjoining properties to the north, south, east, and west are undeveloped. |
| Yorkshire VI.NE<br>Revised: 1927<br>Published: 1931<br>Scale Six-inch to the mile. | The subject property is undeveloped tidal marshland and mudflats. | Adjoining properties to the north, east, and west are undeveloped. To the far south of the site, there are the beginnings of developments on the south bank of the river Tees (Teesport). |
| NZ52SW - A<br>Revised: 1950 -1955<br>Published: 1955<br>Scale 1:10,560 | The subject property is undeveloped tidal marshland and mudflats. . | Adjoining properties to the north, east, and west are undeveloped. |
| 1985<br>Scale 1:1,000 | A small works is mapped in the north of the subject site comprising a number of buildings and tanks. | There is an oil refinery to the north and unidentified ‘works’ to the south. A depot is mapped to the east. Areas to the west remain undeveloped. |
| 2000 - present<br>Scale 1:1,000 | The site is fully developed comprising a number of buildings, and tanks in a similar layout to the current arrangement. | Areas surrounding the site remain developed with industrial facilities, storage tanks and associated infrastructure however the west of the site remains largely free of developments. |

**Timeline of Land Use:**

Pre 1850: the wider site and location of the current Seal Sands Industrial Estate was primarily tidal marshlands and mudflats, with little to no human development. The area was ecologically rich and largely untouched.

1850s – 1900: Initial land reclamation occurred around 1850, when the River Tees was dredged to improve coal export routes. This led to the building up of the banks of the River Tees and the beginning of industrial encroachment within the area of the current Seal Sands Industrial Estate.

1900 – 1920: The Seal Sands Industrial Estate area remains largely an area of sand and mud.

1920s – 1960: Development within the wider Teesside consists of Salt Works and Distillation Works in the Port Clarence area (south-west of the current Seal Sands Industrial Estate). On the southern bank of the River Tees can be found extensive developments associated with Middlesborough Dock and includes: various Iron Works, Steel Works, Concrete Works, Dockyards (including wharves and jetties) and extensive railway infrastructure.

1960s: In the early 1960s there was significant development at Seal Sands Industrial Estate, including the development of a new chemical plant, oil refinery, and aromatic chemicals plant. By the mid-60s a refinery and an acrylic plant had been built together with storage facilities.

1970s – 1980s: The opening of the Seal Sands Road and the connections to the A19 ensured a swift build-up of chemical investment in the 1970s, including a 220-mile-long oil pipeline, bringing offshore oil and gas to a terminus at Seal Sands Industrial Estate.

Present day: Seal Sands Industrial Estate is the current location of several major chemical, pharmaceutical and energy firms, featuring buildings, tanks, and a gas-fired gas turbine power station (which operated from 1999 to 2022). Oil importing and exporting remains one of Teesside's most important industries utilising six jetties at Seal Sands.  An oil terminal receives crude oil via a pipeline for processing, storage, and the fractionation of natural gas liquids into ethane, propane and butane.

**Timeline of Off-Site Historical Land Use**

Mid 19$^{th}$ century: The Rivers Tees is dredged up for coal exports and trade is increased due to Middlesbrough's establishment and ironside industry growth. There were already a number of blast furnaces producing about 1 million tonnes of iron per year by 1865.

1900 – 1930: The wider area is undeveloped marshland until the First World War when Billingham (located approx. 8 km to the East) was chosen as the site to produce synthetic ammonia for use in explosives. In 1917 Dorman Long (an iron manufacturing company) was established, which later founded the Teesside Steelworks.

1930 - 1960: The tidal flats between Port Clarence (to the East) and Tees Dock (to the South and West) were reclaimed.

1960 – 1969: During the 1960s the main channels of the River Tees were dredged and hydraulic fill techniques were used to reclaim land for industrial use.

1969 – 1972: Industrial activity began in late 1969 with the enclosure and development of a 40-hectare area in the eastern corner of Seal Sands. In 1970 a major slag wall was constructed dividing Seal sands into a North area of open flats and a South area with delayed tidal response.

1972 -1975: The South Area was divided into:

Area 1 (west) – reclaimed by 1974; Area 2 (northeast) – includes most of the site and the current ConocoPhillips site; completed in 1973; and Area 3 (southeast) – reclaimed by 1975.

Area 2 was initially filled with dredged material from Seaton Channel and later from the deep-water Oil Terminal.

**Waste Management Facilities**

There are two current waste operations within 1 km of the site as detailed in Table 3-9 below. EPR/EP3334AS is issued to Greenergy Biofuels Teesside Limited for a physical and chemical treatment waste facility, 70 m to the south. This is an effluent treatment plant discharging into the River Tees, for process effluents from the production of biodiesel from cooking oil.

Approximately 280 m to the north-east, Exolum Seal Sands Ltd holds EPR/CP3292LF (formerly Waste Management License 60104) for an in-house storage facility.

**Table 3-9 – Registered Waste Management Facility Sites**

| Licensee | Details | Site Type | Permit Number | Direction | Distance (m) |
|---|---|---|---|---|---|
| Greenergy Biofuels Teesside Limited | Seal Sands Terminal (South Site), Seal Sands Road, Middlesbrough, Stockton-on-Tees, TS2 1UB | A17: Physical and Chemical Treatment Facility | EP3334AS | S | 70 |
| Exolum Seal Sands LTD | Seal Sands Storage Facility, Seal Sands, Middlesbrough, Cleveland, TS2 1UB | A10: In-House Storage Facility | CP329LF | NE | 280 |

**Historical Landfill Sites**

The site and surrounding area have seen widespread land reclamation of the Tees estuary. There are records of historic landfill sites that were used for different types of commercial, inert, industrial and household wastes in the 1970s and 1980s on the Environment Agency Historic Landfill Site database. These are listed in Table 3-10 below.

**Table 3-10 - Historic Landfill Sites**

| Name | Details | Direction | Distance (km) |
|---|---|---|---|
| Seal Sands | Commercial waste historic landfill which was issued a waste management license in April 1977.<br>Ref: EAHLD05489 | West | 0.85 |

| | | | |
|---|---|---|---|
| Seal Sands | Inert and industrial waste historic landfill which operated from February 1978 until October 1989.<br>Ref: EAHLD05488 | North-west | 1.0 |
| South of Seal Sands Road | Inert, Commercial and Household waste historic landfill which operated from December 1973 until December 1978.<br>Ref: EAHLD05490 | South-west | 1.5 |

### Summary of Land Uses

The Site remained undeveloped between 1850 and the early 20th century, and the historical OS maps indicate the site and its surrounding areas were still largely undeveloped consisting mostly of tidal marshland and mudflats. While the River Tees was dredged to support trade and industrial development took place within the wider region, the first significant industrial development began in the 1960s. From 1969 to 1975, Seal Sands was divided and reclaimed in phases using dredged material, with most of the current site coming to completion in 1973. The Industrial Estate site reached its full development by 1985, featuring buildings, tanks, and a gas-fired gas turbine power station.

Off site, the area began to see establishments forming by the late 19th century with development of steelworks and synthetic ammonia production. The period encompassing the 1930s-1960s brought with it more chemical and polymer industry growth, with land reclamation between Port Clarence and Tees Dock.

Given the long history of industrial uses, potential sources of historical pollution can be attributed to on-site chemical and oil refining operations, a historic landfill immediately west of the site (licensed in 1977), and nearby off-site facilitates such as steelworks, paint works, slag works, and a depot.

## ENVIRONMENTAL CONSENTS, LICENSES, AUTHORISATIONS, PERMITS AND DESIGNATIONS FOR THE SITE AND SURROUNDING AREA

The following section contains regulatory information associated with the site and its surrounding area. This information has been obtained from the Envirocheck Report, information publicly available on the Environment Agency Public Register and the Health and Safety Executive (HSE) Control of Major Accident Hazards (COMAH) Sites Register. The nearest postcode of TS2 1UB has been used for the online searches.

### COMAH Sites

According to the HSE COMAH 2015 Public Information online search tool there are five registered COMAH establishments found within 2 km of the site. These are listed in Table 3-11 below.

**Table 3-11 - Control of Major Accident Hazards (COMAH) sites within 2 km of the Site**

| Company | Address | Operational Status | Direction | Distance (km) | Tier |
|---|---|---|---|---|---|
| ConocoPhillips (U.K.) Teesside Operator Limited | ConocoPhillips (U.K.) Teesside Operator Limited, Seal Sands Terminal, Teesside Operations, Middlesbrough, Cleveland, TS2 1UH | Current COMAH site | N | 0.275 | COMAH Upper Tier Operator |
| Navigator Terminals Seal Sands Limited | Navigator Terminals Seal Sands Limited, Seal Sands, Stockton on Tees, Cleveland, TS2 1UA | Current COMAH site | S | 0.6 | COMAH Upper Tier Operator |
| Fine Organics Limited | Fine Organics Limited, Lianhetech Seal Sands, Middlesbrough, Cleveland, TS2 1UB | Current COMAH site | SW | 0.67 | COMAH Upper Tier Operator |
| Wood Group PSN Limited | Central Area Transmission System (CATS), Seal Sands Terminal, Seal Sands Road, Seal Sands, Middlesborough, Cleveland, TS2 1UB | Current COMAH site | SW | 0.7 | COMAH Upper Tier Operator |
| px (TGPP) Limited | Teesside Gas Processing Plant, Seal Sands, Middlesbrough, TS2 1UB, UK | Current COMAH site | W | 1 | COMAH Upper Tier Operator |

### Environmental Permitting Regulations (EPR) Authorisations

According to the DEFRA's Public Register Online there are 15 registered installations and two registered waste operation within 2 km of the site. These are listed in Table 3-12 below.

**Table 3-12 – EPR Authorisations within 2 km of the Site**

| Name | Details | Permit Number | Direction | Distance (km) |
|---|---|---|---|---|
| Green Earth (Weston) Limited | Aurorium UK Limited, Vertellus Specialities UK Limited, Seal Sands Road, Seal Sands, Middlesbrough, Stockton-on-Tees, TS2 1UB | EPR/BU0311IX | n/a | n/a |
| Fine Environmental Services Limited | Fine Environmental Services - Seal Sands, Middlesbrough, Stockton-on-Tees, TS2 1UB | EPR/ZP3438CF | SW | 0.16 |

| | | | | |
|---|---|---|---|---|
| CONOCOPHILLIPS (U.K.) TEESSIDE OPERATOR LIMITED | Seal Sands, Teesside Crude Oil Stabilisation Terminal - EPR/NP3033LN, Stockton-on-Tees, Cleveland, TS2 1UH | EPR/QP3004PD | N | 0.20 |
| Greenergy Biofuels Teesside Limited<br>(Installation and Waste Operation) | Seal Sands Terminal (South Site), Seal Sands Road, Middlesbrough, Stockton-on-Tees, TS2 1UB | EPR/EP3334AS | S | 0.21 |
| Exolum Seal Sands Ltd | Seal Sands Storage Facility, Seal Sands, Middlesbrough, Cleveland, TS2 1UB | EPR/CP3292LF | NE | 0.25 |
| Victrex Manufacturing Limited | BDF Manufacturing, Seal Sands, Middlesbrough, TS2 1UB | EPR/NP3339MT | SW | 0.51 |
| Fine Organics Limited | Fine Organics Seal Sands Facility, Seal Sands Road, Stockton-on-Tees, Cleveland, TS2 1UB | EPR/PP3439GG | SW | 0.53 |
| Kd Pharma Uk Limited | Seal Sands Pharmaceuticals, Seal Sands, Cleveland, TS2 1UB | EPR/AP3834FZ | SW | 0.66 |
| Wood Group UK Limited | Cats Terminal, Seal Sands CATS Terminal, Seal Sands Road, Seal Sands, TS2 1UB | EPR/SP3839RU | SW | 1.50 |
| Highfield Environmental Limited | ICI No 3 (Teesport) Landfill, ICI No 3 Teesport, Grangetown, Middlesbrough, Cleveland, TS6 6UG | EPR/DP3331DJ | S | 1.70 |
| Lighthouse Green Fuels Limited | Tees Valley Renewable Energy Facility, Huntsman Drive, Port Clarence, Stockton-on-Tees, Cleveland, TS2 1TT | EPR/PP3037JJ | SW | 1.90 |
| Sabic UK Petrochemicals Limited | North Tees Site, North Tees Aromatics, Seaton Road, Port Clarence, Stockton-on-Tees, TS2 1TT | EPR/BU4503IW | SW | 1.95 |
| Sabic UK Petrochemicals Limited | North Tees Site, Sabic Petrochemicals, Sabic North Tees Storage, Seaton Road, Port Clarence, Stockton-on-Tees, Cleveland, TS2 1TT | EPR/LP3335RM | SW | 2.00 |
| Navigator Terminals North Tees Limited | NORTH TEES SITE, North Tees Oil Refinery & Road/Rail Terminal, Seaton Road, Port Clarence, Middlesbrough, Cleveland, TS2 1TT | EPR/FP3433DX | SW | 2.00 |

| | | | | |
|---|---|---|---|---|
| Augean North Limited | Port Clarence Non-Hazardous Landfill Site, Off Huntsman Drive, Stockton-on-Tees, Cleveland, TS2 1UE | EPR/BV1402IC | SW | 2.00 |

### Local Authority Environmental Permits

There are 27 sites which hold Local Authority environmental permits within 10 km and 7 within 5 km as listed in the Table 3-13 below. These include activities regulated by the Local Authority such as the storage of bulk chemicals, storage of petroleum at terminals, coating of metal and plastic, and cement blending and use.

**Table 3-13 – Local Authority Permitted Sites Within 5 km of the Site**

| Ref No. | Name | Details | Usage | Date Issued | Direction | Distance (km) |
|---|---|---|---|---|---|---|
| B/52 | Exoleum Seal Sands Ltd | Seal Sands Storage Terminal, Seal Sands Road, Seal Sands, Middlesbrough, TS2 1UB | Storage of Bulk Chemicals | 01/03/2021 | NE | 0.16 |
| B/67 | Exoleum Seal Sands Ltd | Seal Sands Terminal, Seal Sands, Middlesbrough, TS2 1UB | Storage of Petroleum At Terminals | 01/03/2021 | NE | 0.16 |
| B/51 | Navigator Terminal Ltd | Seal Sands Road, Seal Sands, Middlesbrough, TS2 1UB | Storage of Bulk Chemicals | 04/07/2022 | S | 0.52 |
| B/81 | Navigator Terminals Seal Sands Ltd | Seaton Carew Road, Port Clarence, Middlesbrough, TS2 1UA | Storage of Petroleum At Terminals | 04/02/2022 | SW | 3.52 |
| B/82 | Calor Gas Company Limited | Port Clarence Road, Port Clarence, Middlesbrough, TS2 1SF | Coating of metal and plastic | 26/05/2011 | SW | 4.60 |
| B/83 | Denholme Universal Ltd | Port Clarence Road, Port Clarence, Stockton-On-Tees, TS2 1RZ | Coating of metal and plastic | 09/04/2024 | SW | 4.74 |
| B/29 | Minimix North East Ltd | 31/32 Windsor Street, Billingham, Stockton-On-Tees, TS23 4EY | Cement Blending & Use | 02/03/1993 | SW | 5.0 |

### Radioactive Substances Authorisations within 5 km

According to the DEFRA's Public Register Online there are 12 sites with Radioactive Substances Permits located within 5 km of the site. These are listed in Table 3-14 below:

**Table 3-14 - Radioactive Substances Permits within 5km**

| Name | Details | Permit Type | Permit Number | Direction | Distance (km) |
|---|---|---|---|---|---|
| Exolum Seal Sands Ltd | Seal Sands, Middlesbrough, TS2 1UB | Keeping & Use of Radioactive Materials and Disposal of Radioactive Waste | PB3735DJ | NE | 0.3 |
| Wood Group UK Limited | CATS Terminal, Seal Sands, Middlesbrough, TS2 1UB | Keeping & Use of Radioactive Materials and Disposal of Radioactive Waste | ZB3098DX | SW | 1.54 |
| Sabic UK Petrochemicals Limited | The North Tees Site, Seaton Road, Port Clarence, Middlesbrough, TS2 1TT | Keeping & Use of Radioactive Materials and Disposal of Radioactive Waste | FB3557KY | SW | 2.0 |
| EDF Energy Nuclear Generation Limited | Hartlepool, Hartlepool, TS25 2BZ | Disposal of Radioactive Waste | SB3935DU | NW | 2.16 |
| Venator Materials UK Limited | Greatham Works, Tees Road, Hartlepool, TS25 2DD | Keeping & Use of Radioactive Materials and Disposal of Radioactive Waste | MB3339DR | NW | 2.5 |
| Northumbrian Water Limited | Bran Sands, Tees Dock Road, Middlesbrough, TS6 6UE | Keeping & Use of Radioactive Materials and Disposal of Radioactive Waste | PB3438DJ | SE | 2.5 |
| Able UK Limited | Graythorpe Works, Tees Road, Hartlepool, TS25 2DB | Keeping & Use of Radioactive Materials and Disposal of Radioactive Waste | LB3735DA | NW | 2.5 |

| | | | | | |
|---|---|---|---|---|---|
| Augean Treatment Limited | Port Clarence Landfill Site, Stockton on Tees, TS2 1UE | Keeping & Use of Radioactive Materials and Disposal of Radioactive Waste | UB3694DU | NW | 2.7 |
| Venator Materials UK Limited | Greatham Works, Tees Road, Hartlepool, TS25 2DD | Keeping & Use of Radioactive Materials and Disposal of Radioactive Waste | MB3339DR | NW | 2.7 |
| EDF Energy Nuclear Generation Limited | District Survey Laboratory, Unit 9, Hunter House Estate, Tofts Farm East, Hartlepool, TS25 2BE | Keeping & Use of Radioactive Materials and Disposal of Radioactive Waste | RB3896DH | N | 4.0 |
| Sabic UK Petrochemicals Limited | Wilton International Manufacturing Site, Redcar, TS10 4YA | Keeping & Use of Radioactive Materials and Disposal of Radioactive Waste | EB3296DT | SW | 4.6 |
| Able UK Limited | Able Middlesbrough Port, Scott's Road, Middlesbrough, TS2 1QQ | Keeping & Use of Radioactive Materials and Disposal of Radioactive Waste | QB3098DY | SW | 4.8 |

### Radon

The site lies within a lower probability radon affected area which is defined as less than 1% of homes being above the action level. Therefore, no radon protective measures are necessary in the construction of new dwellings or extensions.

## 3.5 POLLUTION HISTORY

### Pollution Incidents Which May Have Affected the Land

A report titled 'Remediation of Toluene Stage 1 Site Investigation (AEA Technology)' prepared for Philips Petroleum in November 1999 and referenced in the 2012 document prepared for Vertellus details two significant pollution incidents; an overfilled tank and broken bund leading to 3 $m^3$ of toluene released on the site (1988), and discovery of free phase (toluene) in trenches excavated on the adjacent (north) site's boundary (1993).

## Pollution Incidents to Controlled Waters

Monitoring data recorded within the groundwater beneath the site indicates that pollution has occurred, particularly with respect to toluene. Further assessment was undertaken to evaluate whether there would be a significant possibility of significant pollution of Controlled Waters. Based on ERM's previous assessments (probable and conservative) predicted surface water quality in the estuary would not exceed the screening criteria. Only based on very conservative situations (specifically no attenuation) were the most likely outcomes showing potential impact i.e. predicted groundwater quality at the estuary does exceed the screening criteria (toluene and cumene, chlorobenzene, benzene, tetrachloroethene). ERM conclude "based on the information available and the assessments undertaken, significant possibility of significant pollution of the Tees Estuary has not been identified".

Pollution Incidents (Category 1 and 2) from the Environment Agency's National Incident Recording System were investigated and the following substantiated incidents were noted within 5 km of the site. A further Enforcement and Prohibition Notice was noted close to the site in 2002 relating to Teesside Oil Refinery. This information is presented in the following two tables.

**Table 3-15 – Substantiated Pollution Incidents**

| Pollutant | Incident Date | Distance from Site (km) | Environmental Impact Level - Air | Environmental Impact Level - Land | Environmental Impact Level - Water |
|---|---|---|---|---|---|
| Organic Chemicals/Products | 14/11/2001 | 0.62 | Category 3 (Minor) | Category 2 (Significant) | Category 3 (Minor) |
| Pesticides and Biocides | 05/11/2001 | 3.38 | Category 3 (Minor) | Category 2 (Significant) | Category 4 (No impact) |
| Ammonia/Amine Odour | 15/07/2003 | 1.55 | Category 2 (Significant) | Category 4 (No impact) | Category 4 (No impact) |

**Table 3-16 – Prosecutions Relating to Authorised Processes**

| Pollutant | Date of incident | Direction | Distance from Site (m) | Details |
|---|---|---|---|---|
| Oil | May 14, 2002 | N | 10 | An Enforcement and Prohibition Notice was issued for a site 10 m north of the subject site. The enforcement date was May 14, 2002, and was issued following an incident in which 100 tonnes of oil was lost from a stock tank. The company has been 'told to improve the way it fills its stock tanks' |

## 3.6 BASELINE REFERENCE DATA

This section of the SCR presents the baseline reference data that is available for the whole site including the proposed permit boundary of the HWTS. It establishes the initial environmental condition of the site, using soil and groundwater data from 2022 and 2023 - before CWR obtained its permit and began operations. The previous operator was Vertellus Seal Sands, which ceased activity in 2023.

Considering the industrial history of the site and surrounding area, as documented in previous sections of this SCR, having this baseline data is essential because, without it, any contamination discovered at permit surrender could be assumed to have occurred during CWR's operations, making the company responsible for remediation for pre-existing pollution.

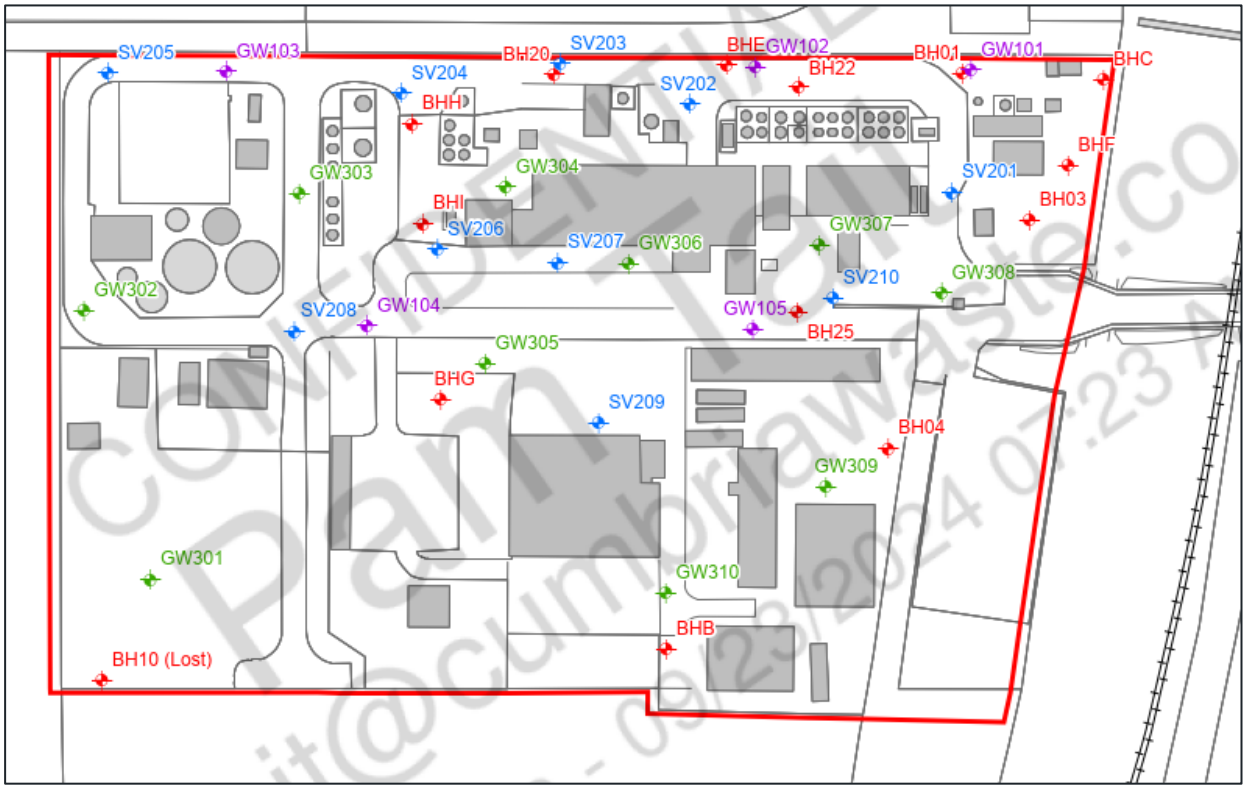
The baseline dataset includes results of soil and groundwater quality monitoring. The data helps identify existing contamination and supports the justification for ongoing monitoring by CWR.

The baseline reference data has been derived from the following two Vertellus reports (full references provided in Table 3-2 above:

- Environmental Site Assessment (2022); and
- Environmental Soil Sampling (2023).

Data collection involved systematic borehole drilling, field screening, and accredited laboratory analysis under strict safety and quality procedures. Ten strategically positioned boreholes (GW301 – GW310 shown in green in Figure 3-1 below) ensured spatial and depth coverage across areas of interest, suspected contamination sources, and background locations.

**Figure 3-1 - Seal Sands HWTS Site Plan**



Whilst all of the boreholes are considered to provide useful coverage and monitoring data for the wider site as a whole, in particular, borehole references GW303, GW305 and GW310 are specifically located within the proposed permit boundary for CWR's HWTS.

The primary parameters analysed in 2022 were volatile organic compounds (VOCs), notably toluene, chlorobenzene, and isopropylbenzene, selected based on historical site activities, known contamination sources, and regulatory requirements. Laboratory testing was performed by Element Materials Technology using UKAS-accredited methods. A total of 13 soil vapour survey samples were taken from within the proposed permit boundary of the HWTS, using a photo ionisation detector (PID), of which the maximum recorded concentration was 85.3 PID (ppm). The full soil vapour survey results from within the proposed permit boundary is presented below (Table 3-17) with the results informing the locations of newly drilled boreholes.

**Table 3-17 - Soil Vapour Survey, Recorded Concentrations**

| Soil Vapour Location Number | PID TVOC (ppm) |
|---|---|
| SV308 | 48.7 |
| SV313 | 11.2 |
| SV314 | 12.4 |
| SV315 | 79 |
| SV326 | 51.3 |
| SV327 | 85.3 |
| SV328 | 52 |
| SV330 | 52.3 |
| SV331 | 5.4 |
| SV332 | 4 |
| SV333 | 3.2 |
| SV334 | 2.3 |
| SV341 | 29.7 |

Significant concentrations of contaminants in the soil samples, as presented in the 2022 report were observed in the following locations, as shown in Table 3-18 (samples were obtained in November and December 2021).:

**Table 3-18 Site Areas Exhibiting Elevated Contaminant Levels (Soil) (ERM, 2022)**

| Parameter | Concentration | Location | | | | | |
|---|---|---|---|---|---|---|---|
| TVOC | >5,000 ppm | SV305 (subsequentl y drilled as location GW304) | SV344 (south of the process building near subsequent location GW306) | SV349 (south of the process building near subseque nt location GW307) | SV360 (south of the bulk storag e area) | - | - |
| | 1,000 ppm to 5,000 ppm | SV307 (adjacent to BHH) | SV351 (subsequentl y drilled as location GW307 south of the process building) | SV352 (south of the process building) | SV358 (south of the bulk storag e area) | SV359 (south of the main bulk storag e area) | SV210 (south of the process buildings ) |
| Chlorobenze ne | 500 ppm to 50 ppm | GW307 (0.3 m and 1.0 m) | GW309 (2. 6m) | - | - | - | - |
| Isopropylben zene | 200 ppm to 50 ppm | GW307 (0.3 m and 1.0 m) | GW308 (2.9 m) | GW309 (2.6 m) | - | - | - |

Soil Vapour Survey results (as Table 3-17, above) and the subsequent borehole monitoring show that relatively low concentrations of TVOC were observed in the boreholes located within proposed permit boundary. Within the proposed permit boundary the results for Total VOC Target List at relevant boreholes were:

- GW303 – 5.1 µg/l at 0.5 metres depth, 5.0 µg/l at 2.60 metres depth and 7.2 µg/l at 3.80 metres depth;
- GW305 – 6.3 µg/l at 0.60 metres depth, 0.6 µg/l at 2.00 metres depth, 2.8 µg/l at 2.90 metres and 4.8 µg/l at 3.50 metres depth; and
- GW310 – 1.0 µg/l at 0.30 metres depth and 0.3 µg/l at 1.85 metres depth.

A total of 37 groundwater samples from monitoring wells were collected for the analysis of VOCs in November and December 2021 (ERM, 2022). Several VOCs were detected above laboratory detection limits, with toluene being the most prevalent, followed by lower levels of chlorobenzene and isopropylbenzene. Three boreholes are located within the proposed permit boundary of the HWTS and the concentrations of toluene, chlorobenzene and isopropylbenzene are presented in Table 3-19. The highest concentrations from locations across the wider site are presented in Table 3-20 below.

**Table 3-19 - Groundwater Monitoring Results**

| Component | Concentration (µg/l) | Location |
|---|---|---|
| Toluene | 156,938 | GW303 |
| | 248 | GW305 |
| | <5 | GW310 |
| Chlorobenzene | 7,378 | GW303 |
| | 451 | GW305 |
| | <2 | GW310 |
| Isopropylbenzene | 1,461 | GW303 |
| | 35 | GW305 |
| | <3 | GW310 |

**Table 3-20 Site Areas Exhibiting Elevated Contaminant Levels (Groundwater) (ERM, 2022)**

| Component | Concentration (µg/) | Location |
|---|---|---|
| Toluene | 443,562 | GW307 to the immediate south of the process area |
| | 430,336 | SV202 to the immediate north of the process area |
| Chrolobenzene | 20,584 | GW307 to the immediate south of the process area |
| Isopropylbenzene | 6,872 | GW308 |

Groundwater analysis results show that contamination from highest concentrations of toluene, chlorobenzene and isopropylbenzene were generally detected in the north-eastern areas of the wider site. For the proposed permit area, very low concentrations (<50 µg/l) were detected towards the south (at borehole GW310) but high concentrations were also noted within the proposed permit boundary at borehole GW303.

### Perched water concentrations against Controlled Waters EQS

The 2022 ERM report indicates perched water within the Made Ground at the Vertellus Seal Sands site contains significant concentrations of a range of VOCs, chlorinated solvents, and petroleum hydrocarbons, with many samples exceeding relevant Environmental Quality Standards (EQS) or

Generic Assessment Criteria (GAC) for controlled waters. The following sections describe the context of the wider site where the highest concentrations of contaminants in groundwater are generally located in areas that are not within the proposed permit boundary of the HWTS but within the north and north-east (see Figure 3-1).

**Key Contaminants**

**BTEX (Benzene, Toluene, Ethylbenzene, Xylenes)**

- Benzene exceeded the screening criterion (8 µg/l) in 18 out of 32 samples, with the highest at GW304 (133.6 µg/l).
- Toluene exceeded the criterion (74 µg/l) in 18 samples, with a maximum of 443,562 µg/l at GW307.
- Ethylbenzene and xylenes also showed multiple exceedances.
- Within the proposed permit boundary, the highest concentrations of BTEX were found at GW303.

**Chlorinated Solvents**

- Tetrachloroethene (PCE), trichloroethene (TCE), and vinyl chloride were present above the criteria in several samples.
- Within the proposed permit boundary, the highest concentration of chlorinated solvents were found at GW303. At GW305 and GW310, PCE and TCE were below the limit of detection.

**Chlorinated Benzenes**

- 1,2-dichlorobenzene, 1,4-dichlorobenzene, and chlorobenzene had frequent and sometimes very high exceedances (chlorobenzene up to 20,584 µg/l at GW307).
- Within the proposed permit boundary, the highest concentration of chlorinated benzenes were found at GW303.

**TPH Fractions:**

- Some total petroleum hydrocarbon (TPH) aromatic and aliphatic fractions exceeded WHO drinking water standards, notably at SV201 and BH22.
- Within the proposed permit boundary, TPH aromatic and aliphatic fractions were not sampled.

**Other Organics:**

- Isopropylbenzene, 2-chlorotoluene, 4-chlorotoluene, and naphthalene also exceeded criteria at various locations.
- Within the proposed permit boundary, the highest concentration of isopropylbenzene, 2-chlorotoluene and 4-chlorotoluene were found at GW303.

High toluene and chlorobenzene concentrations suggest the presence of free phase (NAPL).

The highest concentrations and most frequent exceedances were generally found in the north-eastern and central areas of the site (e.g., GW304, GW307, GW308, SV201, BH22). Some locations (GW301, GW310, SV203, SV208, BH4, BHB) showed no exceedances, indicating spatial variability.

**Concentrations in the Tidal Flat Deposits**

The groundwater in the Tidal Flat Deposits beneath the site shows localised exceedances of several key contaminants, particularly at GW105. Benzene, toluene, chlorobenzene, and certain TPH fractions are present at concentrations above regulatory standards. GW101 and GW103 did not record any exceedances, indicating spatial variability and lower impact in those areas.

**Key contaminants**

**Benzene**

- Exceeded the EQS (8 µg/l) at GW105, with a concentration of 127.5 µg/l.

**Toluene**

- Exceeded the EQS (74 µg/l) at GW102 (853 µg/l) and GW105 (89 µg/l).

**1,4-Dichlorobenzene**

- Exceeded the EQS (2 µg/l) at GW105 (20 µg/l).
- No exceedances were reported within the proposed permit area

**Chlorobenzene:**

- Exceeded the EQS (3.2 µg/l) at GW105 (7,387 µg/l), GW102 (202 µg/l), and GW104 (269 µg/l).
- Within the proposed permit boundary, the highest concentration of chlorobenzene was found at GW303 (7,378 µg/l).

**2-Chlorotoluene**

- Exceeded the EQS (0.28 µg/l) at GW105 (4 µg/l).
- Within the proposed permit boundary, the highest concentration of 2-chlorotoluene was found at GW303 (50 µg/l).

**Isopropylbenzene**

- Exceeded the EQS (3.5 µg/l) at GW105 (19 µg/l) and GW102 (8 µg/l).
- Within the proposed permit boundary, the highest concentration of isopropylbenzene was found at GW303 (1461 µg/l).

**TPH Fractions**

- TPH Aliphatic C8–C16 exceeded the WHO DWS (300 µg/l) at GW105 (2,066 µg/l).
- TPH Aromatic C5–C7, C7–C8, C8–C10, C10–C16 also showed exceedances at GW105 and GW104.

## BASELINE DATA

The following Table 3-21 provides the full baseline reference date for the site at the application stage and is considered to be most representative of the permitted area. As per Figure 3-1, borehole references GW303, GW305 and GW310 are specifically located within the proposed permit boundary for CWR's HWTS are the sources of data to be considered.

**Table 3-21 - Seal Sands HWTS Baseline Groundwater Data**

| Parameter | Unit | GW303 | GW305 | GW310 |
|---|---|---|---|---|
| Polycyclic Aromatic Hydrocarbons | | | | |
| Naphthalene | µg/l | <2 (<LOD) | <2 (<LOD) | <2 (<LOD) |
| Aromatic Hydrocarbon | | | | |
| TPH C5-C7 (Benzene) | µg/l | No data | No data | No data |
| TPH C7-C8 (Toluene) | µg/l | No data | No data | No data |
| TPH C8-C10 (Xylene) | µg/l | No data | No data | No data |
| TPH C10-C12 (Naphthalene) | µg/l | No data | No data | No data |
| TPH C12-C16 | µg/l | No data | No data | No data |
| TPH C16-C35 | µg/l | No data | No data | No data |
| Aliphatic Hydrocarbon | | | | |
| TPH C5-C6 | µg/l | No data | No data | No data |
| TPH C6-C8 | µg/l | No data | No data | No data |
| TPH C8-C10 | µg/l | No data | No data | No data |
| TPH C10-C12 | µg/l | No data | No data | No data |
| TPH C12-C16 | µg/l | No data | No data | No data |
| TPH C16-C21 | µg/l | No data | No data | No data |
| TPC C21-C35 | µg/l | No data | No data | No data |
| BTEX | | | | |
| Benzene | µg/l | 88 | 5.8 | <0.5 (<LOD) |
| Toluene | µg/l | 156,938 | 248 | <5 (<LOD) |
| Ethylbenzene | µg/l | 76 | 4 | <1 (<LOD) |
| p & m-xylene | µg/l | 107 | 6 | <2 (<LOD) |
| o-xylene | µg/l | 24 | 2 | <1 (<LOD) |
| Volatile Organic Compounds | | | | |

| Parameter | Unit | GW303 | GW305 | GW310 |
|---|---|---|---|---|
| Trichloroethene | µg/l | 81 | <3 (<LOD) | <3 (<LOD) |
| Vinyl Chloride | µg/l | 30 | 8.3 | <0.1 (<LOD) |
| Cis-1,2-dichloroethene | µg/l | 417 | 38 | <3 (<LOD) |
| Chlorobenzene | µg/l | 7,378 | 451 | <2 (<LOD) |
| Isopropylbenzene | µg/l | 1,461 | 35 | <3 (<LOD) |
| 2-Chlorotoluene | µg/l | 50 | <3 (<LOD) | <3 (<LOD) |
| 4-Chlorotoluene | µg/l | 36 | <3 (<LOD) | <3 (<LOD) |
| 1,2,4-Trimethylbenzene | µg/l | 15 | <3 (<LOD) | <3 (<LOD) |
| 1,3,5-Trimethylbenzene | µg/l | 4 | <3 (<LOD) | <3 (<LOD) |
| 1,2-Dichlorobenzene | µg/l | 296 | 21 | <3 (<LOD) |
| 1,4-Dichlorobenzene | µg/l | <3 (<LOD) | <3 (<LOD) | <3 (<LOD) |
| Tetrachloroethene (PCE) | µg/l | 89 | <3 (<LOD) | <3 (<LOD) |
| Dichloromethane (DCM) | µg/l | 4 | <3 (<LOD) | <3 (<LOD) |
| 4-Isopropyltoluene | µg/l | 4 | <3 (<LOD) | <3 (<LOD) |
| <LOD – indicates the concentration was less than the limit of detection | | | | |

**Table 3-22 - Seal Sands HWTS Baseline Soil Data**

| Parameter | Unit | GW303 | GW305 | GW310 |
|---|---|---|---|---|
| BTEX | | | | |
| Benzene | mg/kg | 0.123 | 0.012 | <0.003 (<LOD) |
| Toluene | mg/kg | 6.93 | 4.656 | 0.83 |
| Ethylbenzene | mg/kg | 0.013 | 0.023 | <0.003 (<LOD) |
| Xylenes (sum of isomers) | mg/kg | 0.027 | 0.051 | <0.008 (<LOD) |

| Parameter | Unit | GW303 | GW305 | GW310 |
|---|---|---|---|---|
| m/p-Xylene | mg/kg | 0.021 | 0.037 | <0.005 (<LOD) |
| o-Xylene | mg/kg | 0.006 | 0.014 | <0.003 (<LOD) |
| Chloroethenes | | | | |
| Tetrachloroethene (PCE) | mg/kg | 0.006 | 0.005 | <0.003 (<LOD) |
| Trichloroethene (TCE) | mg/kg | 0.011 | <0.003 (<LOD) | <0.003 (<LOD) |
| cis-1-2-Dichloroethene | mg/kg | 0.067 | <0.003 (<LOD) | <0.003 (<LOD) |
| Chlorobenzenes | | | | |
| 1,2,4-Trichlorobenzene | mg/kg | 0.018 | <0.007 (<LOD) | <0.007 (<LOD) |
| 1,2-Dichlorobenzene | mg/kg | 0.437 | 0.168 | <0.004 (<LOD) |
| 1,4-Dichlorobenzene | mg/kg | 0.010 | 0.032 | <0.004 (<LOD) |
| Chlorobenzene | mg/kg | 0.411 | 1.329 | 0.084 |
| Other VOCs | | | | |
| 2-Chlorotoluene | mg/kg | 0.025 | 0.020 | <0.003 (<LOD) |
| 4-Chlorotoluene | mg/kg | 0.017 | 0.014 | <0.003 (<LOD) |
| Isopropylbenzene | mg/kg | 0.297 | 0.256 | 0.128 |
| 4-Isopropyltoluene | mg/kg | <0.004 (<LOD) | 0.006 | <0.004 (<LOD) |
| 1,2,4-Trimethylbenzene | mg/kg | <0.006 (<LOD) | 0.012 | <0.006 (<LOD) |
| 1,3,5-Trimethylbenzene | mg/kg | <0.003 (<LOD) | 0.005 | <0.003 (<LOD) |
| Methyl Tertiary Butyl Ether (MTBE) | mg/kg | <0.002 (<LOD) | 0.005 | <0.002 (<LOD) |
| VOC Target List Total | mg/kg | 7.2 | 6.3 | 1.0 |

<LOD – indicates the concentration was less than the limit of detection

# 4 PERMITTED ACTIVITIES

## 4.1 OVERVIEW

Seal Sands HWTS is a transfer station for both hazardous and non-hazardous solid and liquid wastes with associated waste handling, storage, treatment and removal from site. Waste is removed from the site for further treatment or disposal at offsite locations. Waste treatments include:

- Physico-chemical treatment of liquid waste via gravity separation, adsorption and dissolving/neutralizing;
- Blending and mixing of liquid wastes;
- Repackaging of solid wastes; and
- Crushing and baling of solid wastes to make onwards transfer more efficient.

## 4.2 ACTIVITIES COVERED BY THE SITE CONDITION REPORT

Permitted Activities at the site will include the following:

**Table 4-1 - Table of Permitted Activities**

| Activity No. | Schedule 1 Reference | Description of Activity | Annual or Daily Capacity | R & D codes |
|---|---|---|---|---|
| AR1 | Section 5.6 A(1)(a)<br>Temporary storage of hazardous waste with a total capacity exceeding 50 tonnes pending disposal or recovery: | Temporary storage of packaged hazardous waste. | Hazardous waste transfer station activities with a maximum of 2,155 tonnes temporary storage at any time (equivalent to 2,155m$^3$ of storage volume)<br>1,965 tonnes of storage within waste containers and 190 m$^3$ of tank storage.<br>The maximum annual throughput of 105,000 tonnes.<br>All wastes to be handled and stored on an impermeable surface. | R13 - Storage of wastes pending any of the operations numbered R1 to R12 (excluding temporary storage, pending collection, on the site where it is produced)<br>D15: Storage pending any of the operations numbered D1 to D14 (excluding temporary storage, pending collection, on the site where the waste is produced) |
| AR2 | Section 5.3 Part A(1) a (ii) | Treatment of hazardous waste | 80 tonnes per day | R3 – Recycling / reclamation of organic |

| | | | | |
|---|---|---|---|---|
| | Disposal or recovery of hazardous waste with a capacity exceeding 10 tonnes per day involving physico-chemical treatment. | | The maximum annual throughput of 15,000 tonnes.<br>For waste specified in Table 5-1.<br>From receipt of waste on site to physical treatment by gravity settlement to storage of, oils and waste waters. | substances which are not used as solvents<br><br>D9: Physico-chemical treatment resulting in final compounds or mixtures which are discarded by any of the operations numbered D1 to D12. |
| AR3 | Section 5.3 Part A(1) a (iii)<br>Disposal or recovery of hazardous waste with a capacity exceeding 10 tonnes per day involving blending or mixing prior to submission to any of the other activities listed in this Section or in Section 5.1; | Treatment of hazardous waste | 290 tonnes per day<br>The maximum annual throughput of 50,000 tonnes.<br>For waste specified in Table 5-2.<br>From receipt of liquid waste on site, followed by compatibility testing, mixing/blending with other suitable wastes and storage prior to transfer offsite to a suitable facility. | R3: Recycling / reclamation of organic substances which are not used as solvents<br>R5 Recycling / reclamation of other inorganic compounds<br>D13: Blending or mixing prior to submission to any of the operations numbered D1 to D12 |
| AR4 | Section 5.3 Part A(1) a (iii)<br>Disposal or recovery of hazardous waste with a capacity exceeding 10 tonnes per day involving blending or mixing prior to submission to any of the other activities listed in this Section or in Section 5.1; | Treatment of hazardous waste | 520 tonnes per day<br>The maximum annual throughput of 90,000 tonnes.<br>For waste specified in Table 5-3.<br>From receipt of liquid wastes on site, followed by compatibility testing, mixing/blending with other suitable wastes and storage prior to transfer offsite to a suitable facility. | D13: Blending or mixing prior to submission to any of the operations numbered D1 to D12<br>R3: Recycling / reclamation of organic substances which are not used as solvents (including composting and other biological |

| | | | | |
|---|---|---|---|---|
| | | | | transformation processes)<br>R4: Recycling /reclamation of metals and metal compounds<br>R5: Recycling /reclamation of other inorganic materials |
| AR5 | Section 5.3 Part A(1) a (iv)<br>Disposal or recovery of hazardous waste with a capacity exceeding 10 tonnes per day involving repackaging prior to submission to any of the other activities listed in this Section or in Section 5.1; | Treatment of hazardous solid waste | 520 tonnes per day<br>The maximum annual throughput of 90,000 tonnes.<br>For waste specified in Table 5-4.<br>From receipt of wastes on site, followed by compatibility testing and repackaging. | D14: Repackaging prior to submission to any of the operations numbered D1 to D13<br>R12: Exchange of wastes for submission to any of the operations numbered R1 to R11 |

The site is also the location of a number of Directly Associated Activities including:

- Temporary storage and transfer of non-hazardous waste;
- Cleaning of empty hazardous waste containers;
- Collection of contaminated effluent discharge and disposal offsite; and
- Storage of raw materials.

Additionally, the following waste operations take place at the site:

- Physical treatment by dissolving solid waste into water;
- Physical treatment of empty hazardous waste containers by cutting and crushing; and
- Physico-chemical treatment of non-hazardous aqueous waste.

# 5 RELEVANT HAZARDOUS SUBSTANCES ASSESSMENT

## STAGE 1 ASSESSMENT – IDENTIFY SUBSTANCES ON SITE

Stage 1 of the assessment requires a list of the substances used, produced, or released (excluding emissions to air) on-site – identifying those that are hazardous.

In the absence of actual substances being identified (since the site is not yet operational), typical examples of wastes that are expected to be handled at the HWTS and raw materials expected to be used on site are detailed in Table 5-1 below.

**Table 5-1 - Identified substances**

| Substance | Hazardous? Y/N |
|---|---|
| Caustic (Sodium Hydroxide 30-60%) | Y |
| Diesel (in vehicles) | Y |
| Calcium hydroxide | Y |
| Regular Unleaded Petrol / Unleaded 91 | Y |
| Flammable Paint | Y |
| Hydrochloric acid | Y |
| Hydrogen Peroxide | Y |
| Mercury | Y |
| Sodium Hydroxide | Y |
| Toluene | Y |
| Xylene | Y |

## STAGE 2 ASSESSMENT – IDENTIFY RELEVANT SUBSTANCES

The aim of Stage 2 is to identify which of the hazardous substances identified on site (in Stage 1) can cause soil and / or groundwater contamination. To identify Relevant Hazardous Substances (RHS), the composition, solubility, toxicity, mobility, persistence, and physical state of each substance must be considered. This is detailed in Table 5-2 below.

**Table 5-2 - Relevant Hazardous Substances**

| Substance | Classification | Physical State | Solubility | Toxicity | Mobility | Persistence | Soil and Groundwater Pollution Potential | Relevant Substance | Relevant Substance Name |
|---|---|---|---|---|---|---|---|---|---|
| Caustic (Sodium Hydroxide 30-60%) | H290 May be corrosive to metals. H314 Causes severe skin burns and eye damage. | Liquid | Miscible with water | Substance is considered to be corrosive to animals. Substance can cause severe skin burns and eye damage. This product is strongly corrosive. The product may affect the acidity (pH) of water which may have hazardous effects on aquatic organisms. | The product is water-soluble and may spread in water systems. The product is non-volatile. | The product contains inorganic substances which are not biodegradable. | Substance is hazardous to water and should not be released to sewer or surface waters in an undiluted form. | Yes | Caustic (Sodium Hydroxide 30-60%) |
| Diesel (in vehicles) | H226 - Flammable liquids -- Category 3<br>H304 -- Aspiration Hazard -- Category 1<br>H315 -- Skin corrosion/irritation -- Category 2<br>H332 -- Acute toxicity, Inhalation -- Category 4<br>H351 -- Carcinogenicity -- Category 2<br>H373 -- Specific target organ toxicity (repeated exposure) -- Category 2<br>H411 -- Hazardous to the aquatic environment, chronic toxicity -- Category 2<br>H401--Short-Term (acute) aquatic hazard (Category 2) | Liquid | Negligible | Acute Toxicity-Toxic to fish and aquatic organisms with long lasting effects. Toxic to mammals with repeated exposure. | A liquid which can be carried on the surface of water, some volitation. Adsorption in soil Highly Volatile; will partition rapidly to air. | Complex combinations of hydrocarbons, not readily biodegradable. Some easily degraded by microorganisms but some persistent . | High – some persistent hydrocarbons Majority of components has potential to bioaccumulate. Low potential to migrate through soil. | Yes | Diesel (in vehicles) |
| Calcium hydroxide | H315 Causes skin irritation.<br>H318 Causes serious eye damage.<br>H335 May cause respiratory irritation | Solid | Soluble in water | Causes (severe) eye burns, Causes skin burns, Irritating to respiratory system. | Will likely be mobile in the environment due to its water solubility. | Soluble in water Persistence is unlikely based on information available. | Substance is a solid stored inside of plastic bags. As a solid, it is less likely to mobilise to soil and groundwater and is not classified | No | Calcium hydroxide |

| Substance | Classification | Physical State | Solubility | Toxicity | Mobility | Persistence | Soil and Groundwater Pollution Potential | Relevant Substance | Relevant Substance Name |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | as hazardous. A release may raise localised soil or water pH. | | |
| Regular Unleaded Petrol / Unleaded 91 | H224 - Extremely flammable liquid and vapour.<br>H304 - May be fatal if swallowed and enters airways.<br>H315 - Causes skin irritation.<br>H336 - May cause drowsiness or dizziness.<br>H340 - May cause genetic defects.<br>H350 - May cause cancer | Liquid | Insoluble in water | Unleaded petrol is slightly toxic to animals via ingestion and has a low toxicity via skin absorption. Inhalation can cause central nervous system depression and may cause drowsiness or dizziness It is considered a skin irritant, especially as a result of prolonged exposure. Unleaded petrol is however, highly toxic to aquatic organisms. | Spillages may form a film on water surfaces causing physical damage to organisms present and prevent the efficient transfer of oxygen. Spillages on the ground can penetrate soils and cause contamination of ground water | Unleaded petrol is expected to be biodegradable and non-persistent. | Product should not be disposed of to sewer, drain or waterways due to the effects on the aquatic environment. | Yes | Regular Unleaded Petrol / Unleaded 91 |
| Flammable Paint | H226 - Flammable liquids - Category 3<br>H315 - Skin irritant - Category 2<br>H318 - Causes eye damage - Category 1<br>H317 - May cause an allergic skin reaction - Category 1<br>H411 - Toxic to aquatic with long lasting effects - Category 2 | Liquid | Insoluble in water | Prolonged or repeated contact may dry skin and cause irritation. Sanding and grinding dusts may be harmful if inhaled. Repeated exposure to high vapor concentrations may cause irritation of the respiratory system and permanent brain and nervous system damage. Inhalation of vapour/aerosol concentrations above the recommended exposure limits causes headaches, drowsiness and nausea and may | No information available on MSDS. | Epoxy resin - not readily biodegradable xylene - readily biodegradable ethylbenzene - readily biodegradable | This mixture does not contain any substances that are assessed to be a persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) substance. | Yes | Flammable Paint |

| Substance | Classification | Physical State | Solubility | Toxicity | Mobility | Persistence | Soil and Groundwater Pollution Potential | Relevant Substance | Relevant Substance Name |
|---|---|---|---|---|---|---|---|---|---|
| | | | | lead to unconsciousness or death. Avoid contact with skin and clothing. | | | | | |
| Hydrochloric acid | H290 - May be corrosive to metals - Category 1<br>H314 - Causes severe skin burns and eye damage - Sub-category 1B<br>H318 - Causes serious eye damage - Category 1<br>H335 - May cause respiratory irritation - Category 3 | Liquid | Soluble in water | Corrosive<br>Mixture causes burns and serious eye damage (risk of blindness).<br>Mixture may cause respiratory irritation. | No data available on MSDS. | No data available on MSDS. | This substance/mixture contains no components considered to be either PBT, or vPvB at levels of 0.1% or higher | Yes | Hydrochloric acid |
| Hydrogen Peroxide | H302 - Acute toxicity - Category 4<br>H318 - Causes serious eye damage - Category 1<br>H412 - Long-term (chronic) aquatic hazard - Category 3 | Liquid | Soluble in water | Mixture causes serious eye damage.<br>Causes severe burns.<br>May cause respiratory irritation. | No data available on MSDS. | No data available on MSDS. | Harmful to aquatic life with long lasting effects. | Yes | Hydrogen Peroxide |
| Mercury | H330 - Acute toxicity - Category 2<br>H360D - Reproductive toxicity - Category 1B<br>H372 - Specific target organ toxicity - repeated exposure - Category 1<br>H400 - Short-term (acute) aquatic hazard - Category 1<br>H410 - Long-term (chronic) aquatic hazard - Category 1 | Liquid | Insoluble in water | Presumed human reproductive toxicant<br>Causes damage to organs through prolonged or repeated exposure. | No data available on MSDS. | MSDS indicates that methods for determining persistence and degradability are not applicable. | This substance/mixture contains no components considered to be either PBT, or vPvB at levels of 0.1% or higher. | Yes | Mercury |
| Toluene | H225 - Highly flammable liquid and vapour<br>H304 - May be fatal if swallowed and enters airways<br>H315 - Causes skin | Liquid | Insoluble in water | Irritating to skin.<br>Causes central nervous system depression.<br>Inhalation of high vapour concentrations may | The product contains compounds with low mobility. | Substance is not considered to be persistent, bio accumulative and toxic. | Presents no major environmental hazard. | Yes | Toluene |

| Substance | Classification | Physical State | Solubility | Toxicity | Mobility | Persistence | Soil and Groundwater Pollution Potential | Relevant Substance | Relevant Substance Name |
|---|---|---|---|---|---|---|---|---|---|
| | irritation<br>H336 - May cause drowsiness or dizziness<br>H361d - Suspected of damaging the unborn child<br>H373 - May cause damage to organs through prolonged or repeated exposure if inhaled<br>H412 - Harmful to aquatic life with long lasting effect | | | cause symptoms like headache, dizziness, tiredness, nausea. Toxic to aquatic organisms. | | | | | |
| Xylene | H226 - Flammable liquid and vapour - Category 3<br>H332 - Harmful if inhaled - Category 4<br>H312 - Harmful In contact with skin - Category 4<br>H315 - Causes skin irritation - Category 2<br>H319 - Causes serious eye irritation - Category 2<br>H335 - May cause respiratory irritation - Category 3<br>H373 - May cause damage to organs through prolonged or repeated exposure (hearing organs) - Category 2<br>H373 - May cause damage to organs through prolonged or repeated exposure if inhaled (Cental nervous system, liver, kidney) - Category 2<br>H304 - May be fatal is swallowed and enters airways - Category 1<br>H412 - Harmful to | Liquid | Insoluble in water | Moderate skin irritation - 24 h<br>Causes serious eye irritation. - 24 h<br>May be fatal if swallowed and enters airways. | No data available on MSDS. | No data available on MSDS. | This substance/mixture contains no components considered to be either PBT) or vPvB at<br>levels of 0.1% or higher | Yes | Xylene |

| Substance | Classification | Physical State | Solubility | Toxicity | Mobility | Persistence | Soil and Groundwater Pollution Potential | Relevant Substance | Relevant Substance Name |
|---|---|---|---|---|---|---|---|---|---|
| | aquatic life with long lasting effects - Category 3 | | | | | | | | |

## STAGE 3 ASSESSMENT – SITE SPECIFIC POLLUTION POSSIBILITY

The aim of Stage 3 is to identify if there is an actual risk of pollution to soil and groundwater from the RHS identified in Stage 2. This stage of the assessment considers the quantity of the RHS used and stored, the existing pollution prevention measures and whether they are fit for purpose. These are detailed in Table 5-3 below.

**Table 5-3 - Summary of Pollution Risk**

| Relevant Substance (from Stage 2) | Amount used per day (tonnes) | Maximum amount stored at the site | Storage Vessel (select) | Storage Area | Details of existing pollution prevention measures | Pollution risk (Y/N) |
|---|---|---|---|---|---|---|
| Caustic (Sodium Hydroxide 30-60%) | No more than 1 tonne per day | 5,000 litres | Integrated Bulk Container (IBC) | Main Warehouse.<br>- consumables storage | Source:<br>Sodium hydroxide is stored within IBCs at the main Warehouse area<br>Pollution Prevention Measures:<br>Sodium Hydroxide is stored within IBCs that are found on portable bunds and on impermeable surfacing. Areas of concrete surfacing that required maintenance will be made good before chemicals are stored within these areas. The impermeable surfaces includes good curbing around its perimeter and the site is fully bunded by the contained drainage system<br>In the event of a minor spillage, spill kits are available throughout the site and staff are training in Working Instructions to safely manage a spill.<br>Staff are responsible for maintaining good housekeeping standards and monitoring chemical storage and use.<br>Pathway:<br>A spillage on any of the impermeable surfaces of the site will be contained, breaking the pathway to soil and groundwaters.<br>Receptor:<br>There is no direct pathway to the groundwater or soil as a result of the impermeable surfaces. | No |
| Diesel (in vehicles) | 100 litres per day | 2,000 litres | Tank | Yard out front of main Warehouse. | Source:<br>Diesel (for use within site plant and equipment) is stored within a self bunded aboveground diesel tank within the waste reception yard.<br>Pollution Prevention Measures:<br>Diesel is stored within an above ground self bunded tank and provided with bollard protection against accidental collision and being struck by vehicles. | No |

| Relevant Substance (from Stage 2) | Amount used per day (tonnes) | Maximum amount stored at the site | Storage Vessel (select) | Storage Area | Details of existing pollution prevention measures | Pollution risk (Y/N) |
|---|---|---|---|---|---|---|
| | | | | | Staff are responsible for maintaining good housekeeping and monitoring diesel storage. Small leaks and spillages would be noticed during staff checks.<br>Use of diesel and refilling of the tank will be undertaken by suitably trained staff and suppliers.<br>The tank contains a fill gauge so that the contents can be regularly monitored.<br>Diesel is stored on the impermeable surface of the waste reception yard.<br>In the event of a minor spillage, spill kits are available throughout the site and staff are training in Working Instructions to safely manage a spill.<br>Pathway:<br>A spillage on the impermeable surfaces of the yard will be contained, breaking the pathway to soil and groundwaters.<br>Receptor:<br>There is no direct pathway to the groundwater or soil as a result of the impermeable surfaces. | |
| Calcium hydroxide | 100 kg max | 1 tonne | 25 Kg sacks | Main Warehouse.<br>- consumables storage | Source:<br>Calcium hydroxide is stored within the main Warehouse inside of plastic sacks and is therefore not likely to spill and travel across the site.<br>Pollution Prevention Measures:<br>Calcium hydroxide is stored within a bunded tank and on impermeable surfacing. The impermeable surfaces includes good curbing around its perimeter and the site is fully bunded by the contained drainage system<br>In the event of a minor spillage, spill kits are available throughout the site and staff are training in Working Instructions to safely manage a spill.<br>Staff are responsible for maintaining good housekeeping standards and monitoring chemical storage and use.<br>Pathway:<br>A spillage on any of the impermeable surfaces of the site will be contained, breaking the pathway to soil and groundwaters.<br>Receptor:<br>There is no direct pathway to the groundwater or soil as a result of the impermeable surfaces. | No |
| Regular Unleaded Petrol / Unleaded 91 | 20 tonnes per day handled (liquid) | <324m$^3$ or 324 tonnes of all flammable wastes at any one point. | 1,000 litre Integrated Bulk Container (IBC)<br>Drums (up to 205 litre)<br>Smaller bottles and jerry cans | W2 – Flammable Yard Storage | Source:<br>Waste petrol will be delivered in suitable containers/vessels which would prevent spillages from routine handling. For liquids this will likely be a drum/barrel which is placed on a suitably sized drip tray or portable bund.<br>Petrol waste/waste waters will be stored within a suitable container & due to the substance being a liquid it will be bunded appropriately to contain any spillages.<br>Pollution Prevention Measure:<br>Areas of the site where wastes are handled, stored and treated are impermeable and in good condition. Any areas of concrete surfacing that required maintenance will be made good before wastes are stored within these areas. The impermeable surfaces include good curbing around its perimeter and the site is fully bunded by the contained drainage system.<br>The flammable area has separate contained drainage and access roads incline in a way that contains flammable wastes within the bunded area.<br>The site is operated by qualified and technically competent staff and a technically competent | No |

| Relevant Substance (from Stage 2) | Amount used per day (tonnes) | Maximum amount stored at the site | Storage Vessel (select) | Storage Area | Details of existing pollution prevention measures | Pollution risk (Y/N) |
|---|---|---|---|---|---|---|
| | | | | | manager is present on site. Staff have knowledge of the wastes they are handling via the pre-acceptance information and MSDS information to make sure that wastes containing petrol are handled and stored appropriately.<br><br>In the event of a minor spillage, spill kits are available throughout the site and staff are training in Working Instructions to safely manage a spill.<br>Waste petrol is likely to be a mixture with other effluents e.g. water, oily water and spillage would be of a diluted substance.<br><br>Pathway:<br><br>A spillage on the impermeable surface will be contained in the bunded area and fall to the flammable area sump. Impermeable surfaces within the bund break the pathway to soil and groundwaters.<br><br>Receptor:<br><br>Soil and groundwater beneath the site are protected by the impermeable surface beneath the container. Spillages would be contained by portable bunds. Liquids would enter the drainage system and be contained. | |
| Flammable Paint | 20 tonnes per day handled (liquid) | <324m$^3$ or 324 tonnes of all flammable wastes at any one point. | 1,000 litre Integrated Bulk Container (IBC)<br><br>Drums (up to 205 litre)<br><br>Clip-top drums<br><br>Smaller bottles and jerry cans | W2 - Flammable Yard Storage | Source:<br><br>The flammable paint will be delivered in suitable packaging, including primary and secondary packaging which would contain any spillages. For liquids this will likely be a drum/barrel which is placed on a suitably sized drip tray or portable bund.<br><br>Flammable paints are to be stored within a suitable container & due to the substance being a liquid it will be bunded appropriately.<br><br>Pollution Prevention Measures:<br><br>Areas of the site where wastes are handled, stored and treated are impermeable and in good condition. Any areas of concrete surfacing that required maintenance will be made good before wastes are stored within these areas. The impermeable surfaces include good curbing around its perimeter and the site is fully bunded by the contained drainage system.<br>The flammable area has separate contained drainage and access roads incline in a way that contains flammable wastes within the bunded area.<br>The site is operated by qualified and technically competent staff and a technically competent manager is present on site. Staff have knowledge of the wastes they are handling via the pre-acceptance information and MSDS information to make sure that flammable paint wastes are handled and stored appropriately.<br><br>In the event of a minor spillage, spill kits are available throughout the site and staff are training in Working Instructions to safely manage a spill.<br>Pathway:<br><br>A spillage on the impermeable surface will be contained in the bunded area and fall to the flammable area sump. Impermeable surfaces within the bund break the pathway to soil and groundwaters.<br><br>Receptor:<br><br>Soil and groundwater beneath the site are protected by the impermeable surface beneath the container. Spillages would be contained by portable bunds. Liquids would enter the drainage system and be contained. | No |
| Hydrochloric acid | 20 tonnes per day | <1,616m$^3$ or 1,616 tonnes of all 'other' | 1,000 litre Integrated Bulk Container (IBC) | Either:<br>Main Warehouse. | Source: | No |

| Relevant Substance (from Stage 2) | Amount used per day (tonnes) | Maximum amount stored at the site | Storage Vessel (select) | Storage Area | Details of existing pollution prevention measures | Pollution risk (Y/N) |
|---|---|---|---|---|---|---|
| | handled (liquid) | wastes at any one point. ('other' wastes that are not flammable, oxidisers or organic peroxide wastes) | Drums (up to 205 litre)<br><br>Clip-top drums<br><br>Smaller bottles and jerry cans.<br><br>Labs smalls containers (<5 litres) | Rear storage yard.<br>Bottom yard. | Hydrochloric acid waste will be delivered in suitable packaging, including primary and secondary packaging which would contain any spillages. For liquids this will likely be a drum/barrel which is placed on a suitably sized drip tray or portable bund.<br><br>Hydrochloric acid waste will be stored within a suitable container & due to the substance being a liquid it will be bunded appropriately. Hydrochloric acid will not be stored within close proximity of alkaline substances to prevent incompatible reactions (e.g. Sodium hydroxide).<br><br><u>Pollution Prevention Measures:</u><br><br>Areas of the site where wastes are handled, stored and treated are impermeable and in good condition. Any areas of concrete surfacing that required maintenance will be made good before wastes are stored within these areas. The impermeable surfaces include good curbing around its perimeter and the site is fully bunded by the contained drainage system.<br><br>The main Warehouse has ramped entrances that would prevent spillages from spilling beyond the containment of the building structure.<br>The site is operated by qualified and technically competent staff and a technically competent manager is present on site. Staff have knowledge of the wastes they are handling via the pre-acceptance information and MSDS information to make sure that wastes are handled and stored appropriately.<br><br>In the event of a minor spillage, spill kits are available throughout the site and staff are training in Working Instructions to safely manage a spill.<br><br><u>Pathway:</u><br><br>A spillage on any of the impermeable surfaces within the storage areas or the main Warehouse will be contained. Impermeable surfaces of the site break the pathway to soil and groundwaters.<br><br><u>Receptor:</u><br><br>Soil and groundwater beneath the site are protected by the impermeable surfaces beneath the storage container. Spillages would be contained by portable bunds. Kerbing at the site contains spillages. Outside of the main Warehouse, liquids would enter the drainage system and be contained to prevent reaching the receptor. Inside the main Warehouse, ramps at the entrances prevent spillages reaching receptors. | |
| Hydrogen Peroxide | Less than one tonne | <25m$^3$ or 25 tonnes of all wastes at any one point. | Drums (up to 205 litre)<br><br>Clip-top drums<br><br>Smaller bottles and jerry cans. | W3 - Secure Storage | <u>Source:</u><br><br>Hydrogen peroxide waste will be delivered in suitable packaging, including primary and secondary packaging which would contain any spillages. For liquids this will likely be a drum/barrel which is placed on a suitably sized drip tray or portable bund.<br><br>Hydrogen peroxide waste will be stored within a suitable container & due to the substance being a liquid it will be bunded appropriately and within secure storage away from non-compatible substances.<br><u>Pollution Prevention Measures:</u><br><br>Areas of the site where wastes are handled, stored and treated are impermeable and in good condition. Any areas of concrete surfacing that required maintenance will be made good before wastes are stored within these areas. The impermeable surfaces include good curbing around its perimeter and the site is fully bunded by the contained drainage system.<br>The site is operated by qualified and technically competent staff and a technically competent manager is present on site. Staff have knowledge of the wastes they are handling via the pre-acceptance information and MSDS information to make sure that wastes are handled and stored appropriately.<br><br>In the event of a minor spillage, spill kits are available throughout the site and staff are training in Working Instructions to safely manage a spill. | No |

| Relevant Substance (from Stage 2) | Amount used per day (tonnes) | Maximum amount stored at the site | Storage Vessel (select) | Storage Area | Details of existing pollution prevention measures | Pollution risk (Y/N) |
|---|---|---|---|---|---|---|
| | | | | | Pathway:<br>A spillage in the Secure Storage area will be contained by the fabric of the building. The impermeable surfaces break the pathway to soil and groundwaters.<br>Receptor:<br>Soil and groundwater are protected by the impermeable surfaces beneath the storage container. Spillages would be contained by portable bunds. | |
| Mercury | Less than one tonne | <1,616m$^3$ or 1,616 tonnes of all 'other' wastes at any one point. | Drums (up to 205 litre)<br><br>Clip-top drums<br><br>Smaller bottles and jerry cans. | Either:<br>Main Warehouse.<br>Rear storage yard.<br>Bottom yard. | Source:<br>Mercury waste will be delivered in suitable packaging, including primary and secondary packaging which would contain any spillages. For liquids this will likely be a drum/barrel which is placed on a suitably sized drip tray or portable bund.<br>Mercury waste will be stored within a suitable container & due to the substance being a liquid it will be bunded appropriately.<br><br>Pollution Prevention Measures:<br>Areas of the site where wastes are handled, stored and treated are impermeable and in good condition. Any areas of concrete surfacing that required maintenance will be made good before wastes are stored within these areas. The impermeable surfaces include good curbing around its perimeter and the site is fully bunded by the contained drainage system.<br>The main Warehouse has ramped entrances that would prevent spillages from spilling beyond the containment of the building structure.<br>The site is operated by qualified and technically competent staff and a technically competent manager is present on site. Staff have knowledge of the wastes they are handling via the pre-acceptance information and MSDS information to make sure that wastes are handled and stored appropriately.<br>In the event of a minor spillage, spill kits are available throughout the site and staff are training in Working Instructions to safely manage a spill.<br>This assessment only considers the worst-case scenario where a 100% concentration of pure Mercury is released according to the MSDS. However, it is unlikely the substance will be pure and free from impurities, therefore, the real-life scenario will be less severe.<br>Pathway:<br>A spillage on any of the impermeable surfaces within the storage areas or the main Warehouse will be contained. Impermeable surfaces of the site break the pathway to soil and groundwaters.<br>Receptor:<br>Soil and groundwater beneath the site are protected by the impermeable surfaces beneath the storage container. Spillages would be contained by portable bunds. Kerbing at the site contains spillages. Outside of the main Warehouse, liquids would enter the drainage system and be contained to prevent reaching the receptor. Inside the main Warehouse, ramps at the entrances prevent spillages reaching receptors. | No |
| Sodium Hydroxide | 10 tonnes per day handled (liquid) | <1,616m$^3$ or 1,616 tonnes of all 'other' wastes at any one point. | 1,000 litre Integrated Bulk Container (IBC)<br><br>Drums (up to 205 litre) | Either:<br>Main Warehouse.<br>Rear storage yard.<br>Bottom yard. | Source:<br>Sodium hydroxide waste will be delivered in suitable packaging, including primary and secondary packaging which would contain any spillages. For liquids this will likely be a drum/barrel which is placed on a suitably sized drip tray or portable bund.<br>Sodium hydroxide waste will be stored within a suitable container & due to the substance being a liquid it will be bunded appropriately. Sodium hydroxide will not be stored within close proximity of | No |

| Relevant Substance (from Stage 2) | Amount used per day (tonnes) | Maximum amount stored at the site | Storage Vessel (select) | Storage Area | Details of existing pollution prevention measures | Pollution risk (Y/N) |
|---|---|---|---|---|---|---|
| | | | Smaller bottles and jerry cans.<br><br>Labs smalls containers (<5 litres) | | alkaline substances to prevent incompatible reactions (e.g. Hydrochloric acid).<br>Pollution Prevention Measures:<br><br>Areas of the site where wastes are handled, stored and treated are impermeable and in good condition. Any areas of concrete surfacing that required maintenance will be made good before wastes are stored within these areas. The impermeable surfaces include good curbing around its perimeter and the site is fully bunded by the contained drainage system.<br><br>The main Warehouse has ramped entrances that would prevent spillages from spilling beyond the containment of the building structure.<br>The site is operated by qualified and technically competent staff and a technically competent manager is present on site. Staff have knowledge of the wastes they are handling via the pre-acceptance information and MSDS information to make sure that wastes are handled and stored appropriately.<br><br>In the event of a minor spillage, spill kits are available throughout the site and staff are training in Working Instructions to safely manage a spill.<br><br>Pathway:<br><br>A spillage on any of the impermeable surfaces within the storage areas or the main Warehouse will be contained. Impermeable surfaces of the site break the pathway to soil and groundwaters.<br><br>Receptor:<br><br>Soil and groundwater beneath the site are protected by the impermeable surfaces beneath the storage container. Spillages would be contained by portable bunds. Kerbing at the site contains spillages. Outside of the main Warehouse, liquids would enter the drainage system and be contained to prevent reaching the receptor. Inside the main Warehouse, ramps at the entrances prevent spillages reaching receptors. | |
| Toluene | 20 tonnes per day handled (liquid) | <324m$^3$ or 324 tonnes of all wastes at any one point. | 1,000 litre Integrated Bulk Container (IBC)<br><br>Drums (up to 205 litre)<br><br>Clip-top drums<br><br>Smaller bottles and jerry cans. | W2 – Flammable Yard Storage | Source:<br><br>Toluene will be delivered in suitable packaging, including primary and secondary packaging which would contain any spillages. For liquids this will likely be a drum/barrel which is placed on a suitably sized drip tray or portable bund.<br><br>Toluene waste is to be stored within a suitable container & due to the substance being a liquid it will be bunded appropriately.<br><br>Pollution Prevention Measures:<br><br>Areas of the site where wastes are handled, stored and treated are impermeable and in good condition. Any areas of concrete surfacing that required maintenance will be made good before wastes are stored within these areas. The impermeable surfaces include good curbing around its perimeter and the site is fully bunded by the contained drainage system.<br>The flammable area has separate contained drainage and access roads incline in a way that contains flammable wastes within the bunded area.<br>The site is operated by qualified and technically competent staff and a technically competent manager is present on site. Staff have knowledge of the wastes they are handling via the pre-acceptance information and MSDS information to make sure that wastes are handled and stored appropriately. In the event of a minor spillage, spill kits are available throughout the site and staff are training in Working Instructions to safely manage a spill.<br>This assessment only considers the worst-case scenario where a 100% concentration of pure Toluene is released according to the MSDS. However, it is unlikely the substance will be pure and free from impurities, therefore, the real-life scenario will be of a diluted product.<br><br>Pathway: | No |

| Relevant Substance (from Stage 2) | Amount used per day (tonnes) | Maximum amount stored at the site | Storage Vessel (select) | Storage Area | Details of existing pollution prevention measures | Pollution risk (Y/N) |
|---|---|---|---|---|---|---|
| | | | | | A spillage on the impermeable surface will be contained in the bunded area and fall to the flammable area sump. Impermeable surfaces within the bund break the pathway to soil and groundwaters.<br><br>Receptor:<br><br>Soil and groundwater beneath the site are protected by the impermeable surface beneath the container. Spillages would be contained by portable bunds. Liquids would enter the drainage system and be contained. | |
| Xylene | 20 tonnes per day handled (liquid) | <324m$^3$ or 324 tonnes of all wastes at any one point. | 1,000 litre Integrated Bulk Container (IBC)<br><br>Drums (up to 205 litre)<br><br>Clip-top drums<br><br>Smaller bottles and jerry cans. | W2 – Flammable Yard Storage | Source:<br><br>Xylene will be delivered in suitable packaging, including primary and secondary packaging which would contain any spillages. For liquids this will likely be a drum/barrel which is placed on a suitably sized drip tray or portable bund.<br><br>Xylene is stored within a suitable container & due to the substance being a liquid it will be bunded appropriately.<br><br>Pollution Prevention Measures:<br><br>Areas of the site where wastes are handled, stored and treated are impermeable and in good condition. Any areas of concrete surfacing that required maintenance will be made good before wastes are stored within these areas. The impermeable surfaces include good curbing around its perimeter and the site is fully bunded by the contained drainage system.<br>The flammable area has separate contained drainage and access roads incline in a way that contains flammable wastes within the bunded area.<br>The site is operated by qualified and technically competent staff and a technically competent manager is present on site. Staff have knowledge of the wastes they are handling via the pre-acceptance information and MSDS information to make sure that wastes are handled and stored appropriately. In the event of a minor spillage, spill kits are available throughout the site and staff are training in Working Instructions to safely manage a spill.<br><br>Pathway:<br><br>A spillage on the impermeable surface will be contained in the bunded area and fall to the flammable area sump. Impermeable surfaces within the bund break the pathway to soil and groundwaters.<br><br>Receptor:<br><br>Soil and groundwater beneath the site are protected by the impermeable surface beneath the container. Spillages would be contained by portable bunds. Liquids would enter the drainage system and be contained. | No |

## RELEVANT HAZARDOUS SUBSTANCES ASSESSMENT SUMMARY

This three-stage pollution risk assessment for wastes and raw materials to be consumed, stored, transferred, handled and treated at the HWTS provides a summary of the typical substances that can be expected to be managed by the site. It summarises the procedures, measures and infrastructure that will be used for all potentially polluting substances in order to minimise the risk of pollution.

This evaluation considered factors such as mobility, persistence, and ecotoxicity of substances. All of the typical substances identified as being consumed, stored, transferred, handled and treated are listed and subject to a third stage of analysis, including a review of existing mitigation measures, to ensure that the risk of pollution is reduced as far as reasonably practicable.

The assessment concludes that there is not a pollution potential posed by the site as a result of the mitigation measures identified to interrupt pollution pathways to nearby receptors, thereby sufficiently reducing the potential to cause environmental pollution. The mitigations include the physical infrastructure of the site, site equipment, operator competence and emergency equipment that is used in the event of a spill. Receptors include the grassed areas within the site and on the site perimeter, soil beneath the facility, groundwater and surface water courses in close proximity.

Liquid raw materials and liquid wastes will be stored within appropriate containers and placed on portable bunds or placed within areas of the site that are fully bunded. Raw materials will be stored within the original retail packaging that is designed to contain the material during normal handling and transportation. Waste materials are stored inside suitable waste packaging and where this is hazardous, the packaging is typically type-approved for the dangerous/hazardous properties of the waste and designed to withstand transportation under normal conditions.

Spill kits and emergency equipment will be made available to site staff. Site staff will be competent, trained and approved by the Transfer Station Manager. Site staff will receive regular training and undertake emergency drills.

Drainage at the site is fully contained and discharged in batches which are subject to testing and monitoring prior to discharge. In the event of a spillage, effluents will be retained on site. CWR uses a programme of planned preventative maintenance in order to complete routine tasks which maintain the site in a suitable condition to operate safely. Equipment is maintained in accordance with manufacturer recommendations. In the event of a defect being identified, the equipment will be taken out of service and corrective action completed prior to the equipment being returned to service

This assessment concludes that the capability of the HWTS to cause soil and groundwater pollution is effectively mitigated, and no storage or additional monitoring recommendations are made at this time.

## POLLUTION PREVENTION MEASURES

The site team will complete daily site checks including container integrity in order to prevent spillages and pollution incidents from wastes. There is a written procedure, inspection regime and Planned Preventative Maintenance Programme for all plant and equipment.

Maintenance is carried out in accordance with manufacturers' recommendations by CWR maintenance team and external approved contractors.

Any operational or maintenance issues will be reported to relevant Management teams and will be addressed appropriately (i.e. repair work undertaken, replacement plant / equipment fitted where necessary).

# 6 OPERATIONAL PHASE SCR

## 6.1 CHANGES TO THE ACTIVITY

In accordance with the template detailed in the Environment Agency publication: EPR H5 Site Condition Report: Guidance and Templates (Version 3.0 April 2013), the Operational Phase SCR requires the maintenance of four key areas:

- 4.0 Changes to the activity;
- 5.0 Measures taken to protect land;
- 6.0 Pollution incidents that may have had an impact on land, and their remediation; and
- 7.0 Soil gas and water quality monitoring (where undertaken).

These key areas are listed in this section and the following chapters below and are intended to be updated and altered during the operational phase of the site as required.

**Table 6-1 – Changes to Activities (Section 4 in H5 SCR Template)**

| | |
|---|---|
| Have there been any changes to the activity boundary? | |
| Have there been any changes to the permitted activities? | |
| Have any 'dangerous substances' not identified in the Application Site Condition Report been used or produced as a result of the permitted activities? | |
| Checklist of supporting information that should be included as a result of changes to activities:<br>• Plan showing any changes to the boundary (where relevant) ·<br>• Description of the changes to the permitted activities (where relevant) ·<br>• List of 'dangerous substances' used/produced by the permitted activities that were not identified in the Application Site Condition Report (where relevant) | |

## 6.2 MEASURES TAKEN TO PROTECT LAND

This section of the SCR provides supporting evidence to demonstrate how pollution prevention measures have worked for the areas of land subject to the SCR.

**Table 6-2 – Measures Taken to Protect Land Supporting Evidence (Section 5 in H5 SCR Template)**

| Checklist of Supporting Information | |
|---|---|
| ▪ Inspection records and summary of findings of inspections for all pollution prevention measures | This data will be collected during the life of the permit, as required, to demonstrate whether |

| | |
|---|---|
| ▪ Records of maintenance, repair and replacement of pollution prevention measures | deterioration of the land has occurred as a result of the permitted activities. |

## 6.3 POLLUTION INCIDENTS THAT MAY HAVE HAD AN IMPACT ON LAND AND THEIR REMEDIATION

This section of the SCR summarises any pollution incidents that may have damaged the land. A description of each incident, and how it was subsequently investigated and remedied is included.

**Table 6-3 – Pollution Incidents Supporting Evidence (Section 6 in H5 SCR Template)**

| Checklist of Supporting Information | |
|---|---|
| ▪ Records of pollution incidents that may have impacted on land | This data will be collected during the life of the permit, as required, to demonstrate whether deterioration of the land has occurred as a result of the permitted activities. |
| ▪ Records of their investigation and remediation | |

## 6.4 SOIL, GAS AND WATER QUALITY MONITORING (WHERE UNDERTAKEN)

This section of the SCR provides detail on any soil, gas and / or water quality monitoring that has been undertaken with regards to the areas of land described in the SCR.

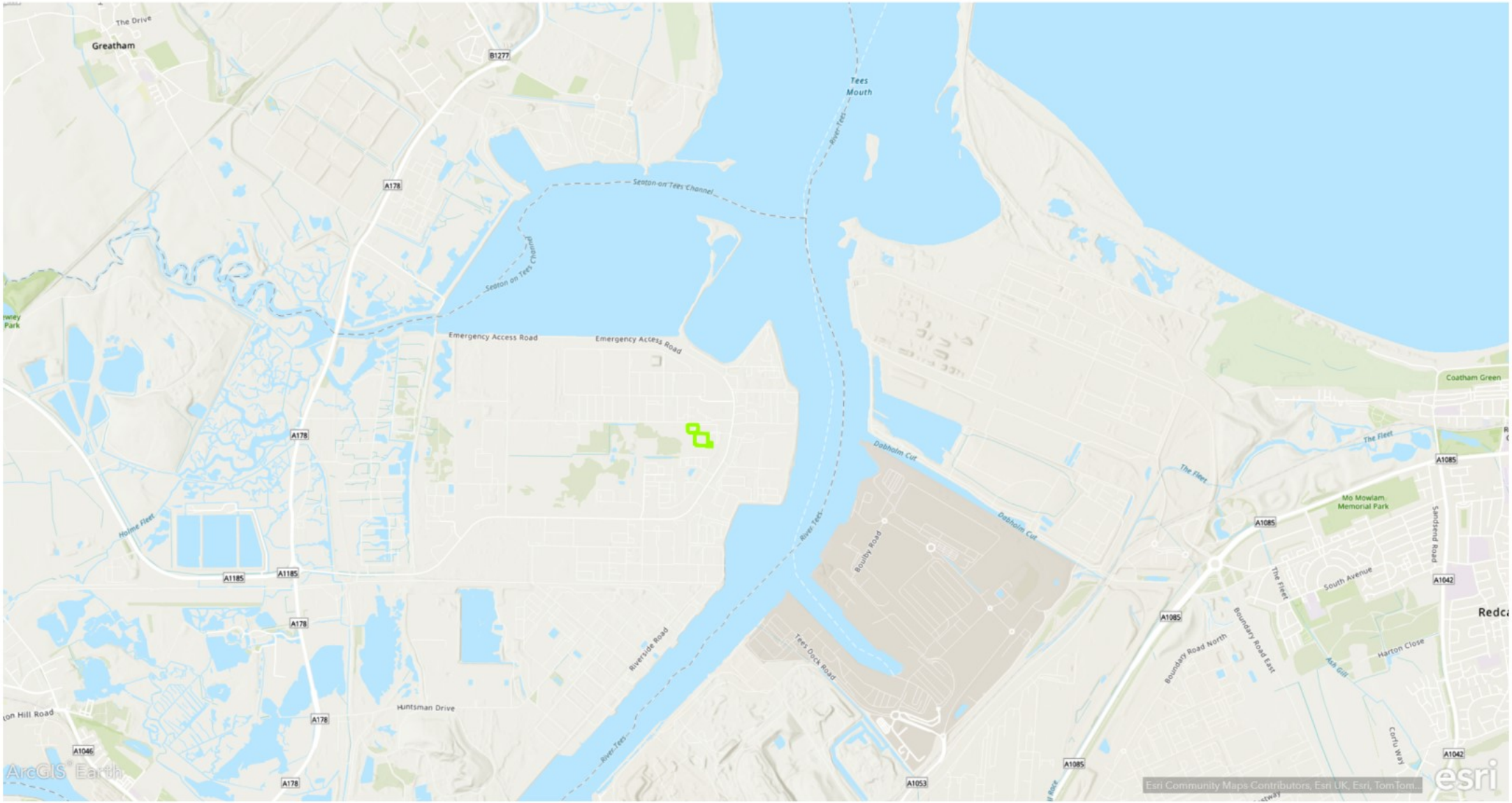
**Table 6-4 – Soil, Gas and Water Quality Monitoring Supporting Evidence (Section 7 in H5 SCR Template)**

| Checklist of Supporting Information | |
|---|---|
| ▪ Description of soil, gas and / or water monitoring undertaken | This data will be collected during the life of the permit, if required, to demonstrate whether deterioration of the land has occurred as a result of the permitted activities. |
| ▪ Monitoring results | |

# Appendix A

## SITE PLANS

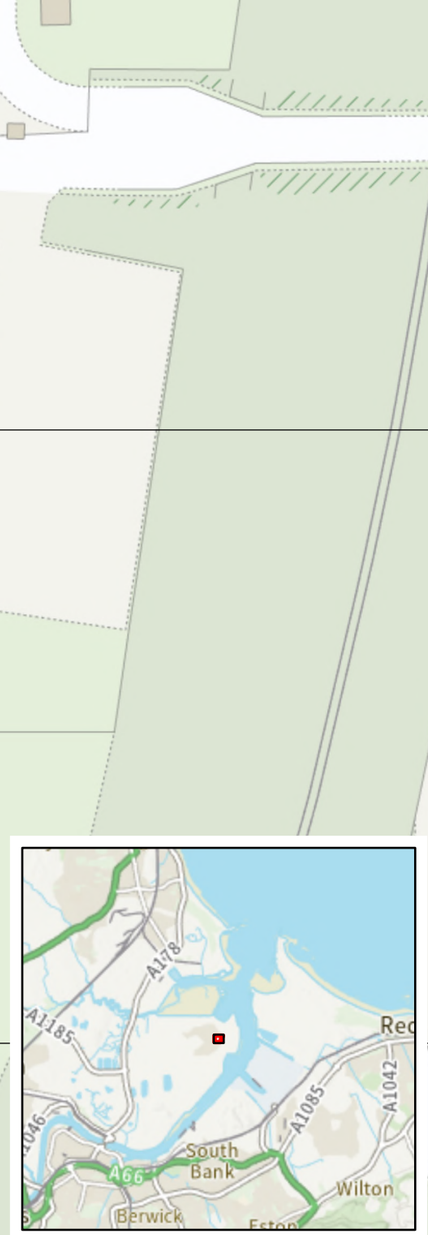
# Figure 1: Seal Sands Site Location Plan



453600 453700 453800

524800 524700 524600

S1
A2
A1
W5
Bioplant
0.438 Ha
Tanks
Effluent Discharge Tank
Mixing Tank
Tank
Tanks
Tank
Factory
El Sub Sta
Site weighbridge
Waste reception area
D
Flammable Area
Covered Area
W2
W1
0.935 Ha
Warehouse
Q
Q
Bulking / repackaging workshop
Waste acceptance area
W3
W4
Rear Yard
Site offices & Labs
G1
Seal Sands
Pond






Produced by InTouch Geospatial Services Ltd.

# Seal Sands
# Stockton-on-Tees
# Middlesborough
# TS2 1UB

Fig 1 Seal Sands Teesside Site Boundary

Q = Quarantine location

D = Diesel storage location

= Location of perimeter fence

= Air Emission Point

= Effluent Discharge Point

= Septic Tank Discharge Point

W1 - Warehouse Storage (816 pallets / 980m3 / 980 tonnes)
W2 - Flammable Storage (324 / 396 m3 / 396 tonnes)
W3 - Secure Storage (25 / 31m3 / 31 tonnes)
W4 - Rear Yard Storage (400 / 480 m3 / 480 tonnes)
W5 - Bioplant Storage (400 / 480 m3 / 480 tonnes)

N

Meters
0 10 20 30 40 50

Scale: 1:1,000 @A3

Date: 30/06/2025

# Seal Sands
# Stockton-on-Tees
# Middlesborough
# TS2 1UB

Figure 3:
Seal Sands HWTS Permeable and Impermeable Surfaces

453600
453700
453800
524800
524700
524600

Tanks
Tanks
Tank
Tanks
Tank
Tanks
Factory
El Sub Sta
Tank
Seal Sands
Pond


CWM Permit Boundary

Made Ground / Impermeable Ground

Unmade ground

Buildings and structures

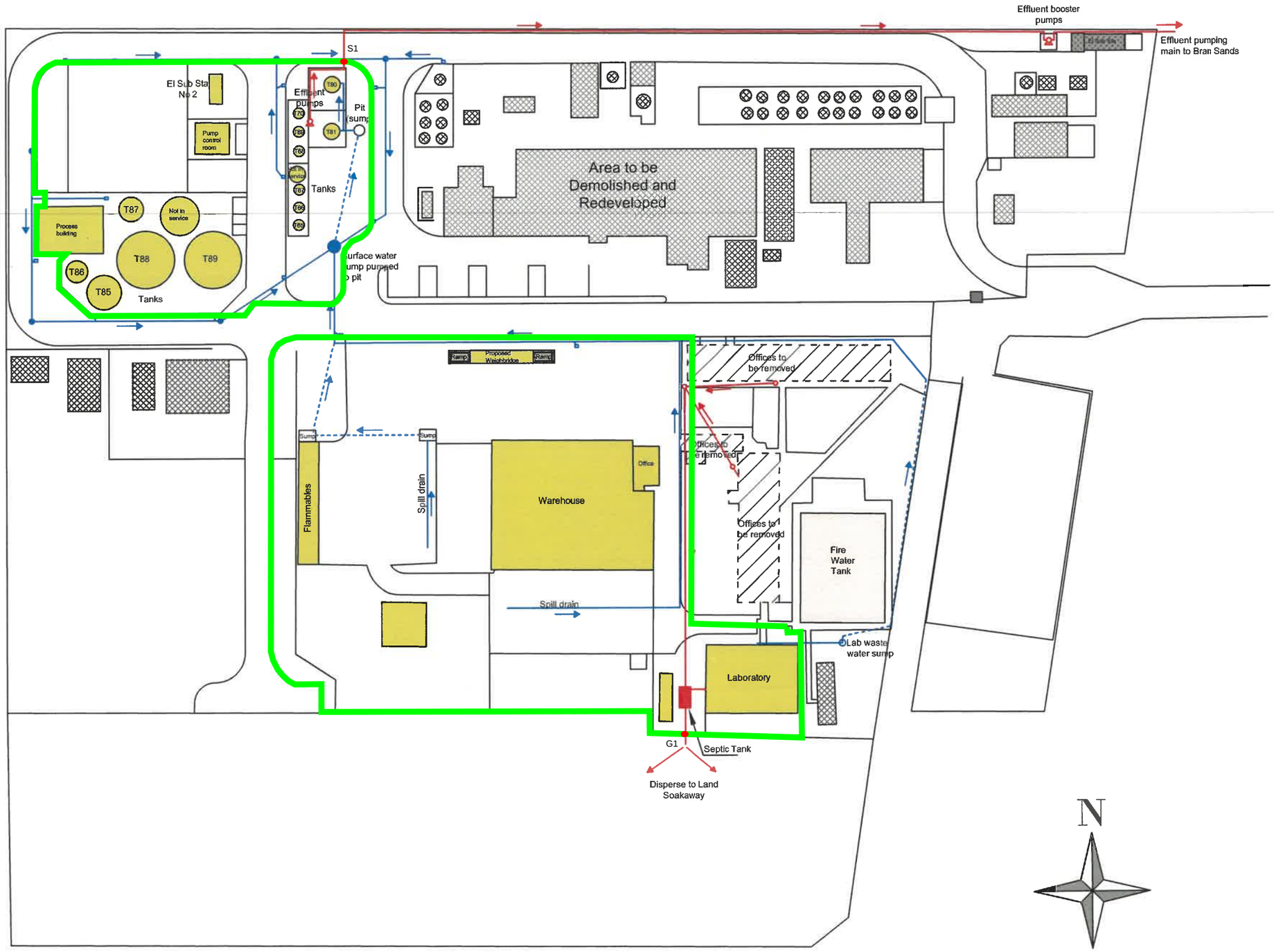
N

Meters
0 10 20 30 40 50

Scale: 1:1,000 @A3
Date: 06/11/2025



| No. | Revision/Issue | Date |
|---|---|---|
| 2 | Final for Issue | 12/25 |
| 1 | Draft for Review | 11/25 |




General Notes

CWM Permit Boundary

CWG Facilities

Surface water drainage to sump?

Foul water drainage to septic tank

S1 Effluent discharge emission point

G1 Septic tank discharge to ground emission point

| No. | Revision/Issue | Date |
|---|---|---|
| B | Lab waste water & tank ID added | 8-12-25 |
| A | Surface water updated | |


Firm Name and Address

CUMBRIA WASTE GROUP

Unit 5A Wavell Drive
Rosehill Estate
Carlisle
CA1 2ST

Tel: 01228 822100
www.cumbriawaste.co.uk


Project Name and Address

SEAL SANDS
Drainage Layout

| Project | Sheet |
|---|---|
| S-1 | 3B |
| Date: 08.12.2025 | |
| Scale: 1:500@A1 | |

8 First Street
Manchester
M15 4RP

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