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Site Condition Report

Client

South West Wood Products Ltd

Report No. : **LAM060/BAR128/SCR/001**

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Date : June 2024

31 Wimbourne Road, Barry Dock

Site Condition Report

REPORT LAM060/BAR128/SCR/001 CONTROL SHEET

Issue 1 – first issue May 2024 for comment

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EXECUTIVE SUMMARY

Area of interest	Summary of main text
Introduction	This report details the results of an intrusive site investigation undertaken across at the former Glamorgan Recycling depot and adjacent metal recycling area at Berth 31 in Barry Docks to establish the environmental condition of the site due to the historical activities undertaken across it.
Site Location & Description	The site, which is currently unoccupied, is irregular in shape and covers an area of approximately c.5.5ha on the northern side of No 2 Dock at Barry Docks with the postal address 31 Wimbourne Road, Barry Docks, Barry, Glamorgan, CF63 3DH centred around National Grid Reference 313015 168175. At the time of the site visit the area had been cleared and was generally surfaced with concrete with two cross shaped storage bays formed from stacked concrete blocks. A weighbridge with double stacked portacabin offices was by the entrance off Wimbourne Road. Railway lines ran along the southern boundary adjacent to the dock and there was a large lined corrugated metal circular metal above ground tank in the western corner. Along the northern boundary there was a soil bund that was overgrown as well was a narrow strip between the railway lines and the dock in the southern part of the site leading to another gate off David Davies Road.
Previous Reports	No reports relating to the environmental setting of the site have been made available for review.
Geology	The BGS maps show the site is underlain by artificial made ground with Tidal Flat Deposits over the Mercia Mudstone bedrock. A borehole on the site indicted 0.3m made ground over a predominantly sandy CLAY to c.9m on a thin layer (0.2m) of PEAT resting on the bedrock.
Hydrogeology	The superficial deposits are designated as a Secondary Undifferentiated aquifer with the underlying bedrock being a Secondary B aquifer. The nearest groundwater abstraction is at Barry Island Pleasure Park for "general use". Although there are no potable water abstractions within 2km there is a source protection zone 1 (inner catchment) 190m north, which likely to be up gradient.
Hydrology	Adjacent to the south-eastern boundary is the manmade Dock 2 with Barry Ponds c.25m to the east. The River Cadoxton flows south-westwards c.500m to the south, which had a Moderate overall rating in 2016. The majority of the site is not at risk of flooding although the south-western area along the dock is indicated as being a Zone 2. 1,042m to the east water is abstracted from the River Cadoxton for "general use". And "evaporative cooling" although this is up gradient of the dock..
Landfills	80m north-east there was a landfill that accepted inert, industrial, household, special, liquid sludge waste with an industrial waste landfill 170m north-east.
Site History	The original Barry dock was built to the west of the site in 1889 when the site was undeveloped. However, by 1898 the docks had extended with the addition of dock 2 adjacent to the site, which was crossed by a number of railway lines going to the loading points. It remained unchanged until after WW2 when it appears to have started to decline with the removal of railheads, which continued until the 1970's. For approximately the last 10 years the area has been used for wood processing and metal recycling.

Area of interest	Summary of main text
Preliminary Conceptual Site Model	The potential contaminant sources identified were: 1. Made ground used to raise the site levels. 2. Use of the site as a dockyard. 3. Use of the site for wood processing and metal recycling. These identified potential contamination sources have been qualitatively assessed to pose a **low risk to moderate risk** to future occupiers or the environment.
Scope of Site Investigation Works	The investigation works undertaken by FEML comprised the following: • The sinking 8N^{o} window sample probe holes. • Chemical testing of 10No selected soils samples; and • Chemical testing of a water sample from each borehole and one from the dock.
Identified Ground Conditions from the investigations	The intrusive investigations were undertaken between the 5th and 7th March 2024. Below a layer of concrete surfacing every borehole encountered made ground to depths ranging from 3.0m to >5.0m consisting of bands of sandy gravelly silty CLAY or clayey silty gravelly SAND. When encountered the underlying natural soils were the Tidal Flats Deposits and comprised a slightly sandy silty CLAY.
Human Health Risk Assessment	The made ground contained no elevated levels of contamination based upon a commercial end use apart from a localised area containing asbestos fibres, which provided the concrete slab is not disturbed will not pose a risk to human health. The site has therefore been deemed not to pose a risk to future operatives working at the proposed wood treatment facility.
Controlled Waters	The groundwater was shown to have some elevated levels of metals, sulphates and hydrocarbons as was the water within the Dock. However, these are considered to be a reflection of background levels because the site is only a small area within a large dock/industrial landscape so it is unlikely to have the potential to significantly impact upon the water quality. However, if the on-going monitoring by the regulators in the bay outside the dock identify any deterioration in water quality post commencement of the wood processing operations then further investigations will be undertaken.
Risk Assessment of other Environmental Receptors	▪ The on site testing of the made ground and water showed a DS-1 AC-1s design mix would be suitable for shallow concrete. However, any structures below the water table (c1.5m) may require a low permeability design mix to reduce the risk of sulphate attack as the groundwater is likely to be in hydraulic conductivity with the dock, which could be saline. ▪ Based upon the localised elevated BTEX and TPH in the made ground neither PE or PVC pipes would not be suitable for buried potable water supplies.

31 Wimbourne Road, Barry Dock

Site Condition Report

1.0 INTRODUCTION

1.1 Contract Details

Forge Environmental Management Ltd (FEML) have been commissioned by South West Wood Products to produce a Site Condition Report for the site at Berth 31 Wimborne Road on Barry Docks prior to their commencement of wood recycling operations there.

Appendix A contains a drawing showing the location of the site.

1.2 Previous Reports

No reports pertaining to the environmental condition of the site held by the client have been issued to FEML and from a search of the Vale of Glamorgan Council's planning portal website no relevant reports with past planning applications were identified.

1.3 Scope of Works

Based upon a review of the available data the scope of the works undertaken by FEML comprised the following:

- Sink 8No window sample probe holes;
- Chemical testing of 10No selected soil samples for a range of determinants;
- Preparation of an interpretative report detailing a Phase 1 Desk Study with a conceptual model and qualitative risk assessment to determine the presence of any potential historical contamination and if the site poses any risks. The report will also present the findings of the intrusive investigations to determine general ground conditions and geochemistry of the soils with generic quantitative risk assessments to identify any risk to human health, controlled waters or other receptors exist.

1.4 Report Limitations

The recommendations, interpretations and conclusions of this report are based solely on the historical/environmental information obtained relating to the site and the current site conditions observed during the intrusive investigations undertaken between the 5th to 7th March 2024. No responsibility can be accepted for the accuracy of third-party data.

Due to the inherent variability of the ground conditions between exploratory hole positions these conditions can only be interpreted and not defined and are accurate only for the date of the investigation works.

2.0 CURRENT SITE DESCRIPTION AND LOCATION

2.1 Site Location

The site, which is currently unoccupied, is irregular in shape and covers an area of approximately c.5.5ha is located on the northern side of No 2 Dock at Barry Docks with the postal address 31 Wimbourne Road, Barry Docks, Barry, Glamorgan, CF63 3DH at National Grid Reference 313015 168175.

At the time of the site works the study area was cleared and was generally level with majority of the area being surfaced with a concrete slab on which there were two sets of cross shaped storage bays formed with stacked concrete blocks. There was a weighbridge next to a number of double stacked portacabin offices located by the entrance off Wimbourne Road. Just beyond the weighbridge was an electricity sub-station.

Railway lines, which were still being used by the dock, run through the site along the southern boundary adjacent to the dock.

Adjacent to the western boundary there was a large lined corrugated metal circular metal above ground tank, which would appear to be for the storage of water possibly for firefighting.

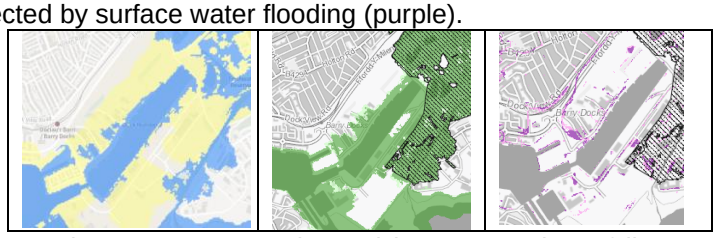
There was an overgrown bund long the northern boundary and another overgrown area on a narrow strip between the railway lines and the dock in the southern end of the site. At the south-western end of the site there was another gate giving access to and from David Davies Road.

2.2 Summary of Site Environmental Setting

A copy of a Groundsure Envirosite report has been purchased for the site a copy of which is contained in Appendix B but the key points relating to the site's environmental setting are summarised below in Table 2.2.1.

Table 2.2.1: Key Points from Groundsure Report

Area of interest	Summary of main text
Geology	The BGS maps indicate that the site is underlain made ground with the underlying superficial deposits being Tidal Flat Deposits for which the lexicon lithological description is: *"Tidal flat deposits, including mud flat and sand flat deposits, are deposited on extensive nearly horizontal marshy land in the intertidal zone that is alternately covered and uncovered by the rise and fall of the tide. They consist of unconsolidated sediment, mainly mud and/or sand. They may form the top surface of a deltaic deposit. Normally a consolidated soft silty clay, with layers of sand, gravel and peat. Characteristically low relief."* The bedrock is the Mercia Mudstone Group, which is described as: *"Dominantly red, less commonly green-grey, mudstones and subordinate siltstones with thick halite-bearing units in some basinal areas. Thin beds of gypsum/anhydrite widespread; sandstones are also present."* From borehole sunk on the site in 1976 it would appear that the made ground was 0.3m over bands of sandy CLAY (superficial deposits) to 9.3m then 0.2m band of PEAT resting on the bedrock.

Area of interest	Summary of main text
Geology (continued)	The soils have been given the following natural ground subsidence hazard ratings: • Shrink swell clays – very low (ground conditions predominantly low plasticity) • Running Sand – very low (Running sand conditions are unlikely. No identified constraints on land use due to running conditions unless water table rises rapidly.) • Compressible deposits – very low (Compressibility and uneven settlement problems are not likely to be significant on the site for most land uses). • Collapsible deposits – Negligible (Deposits with potential to collapse when loaded and saturated are believed not to be present). • Landslides – Very Low (Slope instability problems are not likely to occur but consideration to potential problems of adjacent areas impacting on the site should always be considered). • Ground dissolution of soluble rock – Negligible (Soluble rocks are either not thought to be present within the ground, or not prone to dissolution. Dissolution features are unlikely to be present).
Radon	The site is in an area where <1% of homes are estimated to be affected by radon gases
Hydrogeology	The superficial deposits are designated as a Secondary Undifferentiated aquifer, which is used where it is not possible to attribute either category A or B to a rock type. Previously these were designated as minor or non-aquifers. The underlying bedrock is considered to be a Secondary B aquifer, which is where there are predominantly lower permeability layers of rock that may store/yield limited amounts of groundwater due to localised features such as fissures, thin permeable horizons and weathering. These are generally the water-bearing parts of the former non-aquifers. There are no licensed potable water abstractions with 2km but a source protection zone 1 (inner catchment) is 190m north, although as the anticipated groundwater direction of flow is towards the sea (i.e. southwards) this will be up gradient of the site. The nearest groundwater abstraction point is from a borehole at Barry Island Pleasure Park for “general use”. Due to the proximity of the Bristol Channel, which is tidal, it is considered likely that the groundwater will be in hydraulic conductivity and therefore be slightly saline and influenced by the tides.
Hydrology	Immediately to the south is the manmade Dock 2 with Barry Ponds c.25m to the east. The River Cadoxton, which had a Moderate overall rating in 2016, flows south-westwards c.500m to the south on the opposite side of the dock. The majority of the site is not at risk of flooding although the south-western area along the dock is indicated as being a Zone 2 (i.e. 1 in 1000 (0.1%) chance each year). Natural Resource Wales (NRW) Development Advice Maps, shown below, indicate the application area to be situated within Flood Zone B (yellow): *Areas known to have flooded in the past*, A review of the Flood Map for Planning indicates the property to be partially affected by tidal flooding (green) but to be unaffected by surface water flooding (purple).  1,042m to the east Dow Corning Ltd have a number of licenses to abstract water from the River Cadoxton for “evaporative cooling” and “general use” but this is up stream of the site.

Area of interest	Summary of main text
Landfills	Within 250m the records show that: • Historic records indicate that 80m north-east at Barry Factory Salt Dow Corning Ltd had a license to accept inert, industrial, household, special, liquid sludge waste. • 170m north-east Dow Corning Ltd also have a license for "A7: industrial Waste Landfill (factory curtilage)". • The 1972 historic map showed a small "refuse heap" 28m to the north.
Licensed Waste Sites	20No permits have been issued for operations within the site which include: • Raymond Brown Minerals and Recycling Limited - use of waste in construction 50,000tps; • JM Envirofuels (Barry) Limited – treatment of waste wood 75,000tps • Glamorgan Reccyling Limited – treatment of waste wood 75,000tps • Sims Group UK Ltd - Metal Recycling site (mixed MRS's) • Dunn Bros (1995) Ltd - Metal Recycling site (mixed MRS's) • South Wales Export Ltd – 75kte Metal Recycling site
Sensitive Environmental Receptors	• The non-statutory Cadoxton Wetlands and River SINC's ecological receptors are 130m north-east and 190m south-west. • SSSI – Nearest is Hayes Point to Bendrick Rock 732m south. • No other sensitive sites are within 2km.apart from two unnamed "restored ancient woodland sites" 837m and 947m to the south-east.

2.3 Summary of Site History

From a web search (Wikipedia) it is known the original Barry Dock was opened 1889 and occupies a former sound between Barry Island and the mainland, which was dammed and filled. The second Dock 2, adjacent to the study area, was added in 1898.

Appendix C contains copies of the historic maps showing the site and surrounding from 1879, which have been reviewed and the salient land usages and changes in layout in the general vicinity of the site being discussed in Table 2.3.1 below.

Table 2.3.1: Summary of Historic Map Review

Dates	Within the site	Surround Area
1879	The south-western leg of the site extended over the shoreline onto the tidal mud flats with the Cadoxton River bisecting the site north-west to south-east before meandering back to cross the south-western section as it dischrges into the bay. Some small buildings "old brick Works" were indicated on the shoreline.	The area was undeveloped with "Sheeping Moors" to the south and east. A group of houses called "Mill Cottage" and a "New Mill (corn)" were located just beyond the site's north-west boundary.
1898	Barry Dock 2 had been built and the site was crossed with seven railheads going to loading points along the edge of the dock. New Mill Cottage was at the north-eastern end of the site.	To the north there had been major development with the formation of the town of Barry. Immediately to the east of the site was a semi-circular "Timber Pond" beyond which a much larger "Timber Pond" was "in course of construction". The Cadoxton River had been diverted to the south and called "Cadoxton Brook", with "hydraulic Engine House".

Dates	Within the site	Surround Area
1915	The only change on the site was a "Water Accumulator" shown between New Mill Cottage and the Dock.	There had been some development on the south side of the dock with new railway lines a "Transit shed" and "Atlantic Mills" buildings. The larger "Timber Pond was indicated but not labelled with a large "fresh water reservoir" immediately to the south of it.
1922	No changes were noted within the site boundary.	No significant developments or changes in land use were noted in the vicinity of the site.
1947	One of the railheads was no longer shown cross the site to the quay.	To the south-east "Sully Hospital" was shown and around it an extensive layout of proposed buildings and service roads. To the north-west Barry had continued to expand.
1965	New Mill Cottage had been renamed "Dock Cottage" and the water accumulator was not shown. Also, only two railheads being show with the others indicated as mounds.	At the eastern end of the Timber Pond was a development with a number of circular tanks. Some of the proposed buildings around Sully Hospital had been built but the majority were no longer shown.
1975	The routes of last two railway lines through the site were shown as mounds.	The eastern end of the larger timber pond had been infilled. The proposed roads and buildings had been built to the south of the site.
1982	A railway line was shown running along the northern edge of the dock with another crossing the northern section of the site	No major developments were identified in the area of the site but there had been further infilling of the timber ponds and part of the freshwater reservoir.
1991	The mounds along the routes of the former railheads were not shown. The new rail line across the northern section was also absent.	There had been further infilling of the timber ponds to the east and the freshwater reservoir.
2001	The site was still shown as being cleared. But David Davies Road ran through it along the dock edge and Wimborne Road was present running along the north-eastern boundary.	The filling of the timber ponds and freshwater reservoir had continued.
2010	No changes indicated within the site.	The ponds and reservoir had been further filled to the sizes they are currently.
2024	David Davies Road is shown terminating at the south-western site boundary. A small square structure was shown at the north-eastern end of the site, which is considered to be the electricity sub-station.	No changes or developments in the area of the site were indicated.

The site history has shown the site was first developed in the 1890's and was used as dock with railway heads crossing for loading coal directly onto the ships in the dock for export. Therefore, the site is likely to have made ground present from the construction of the dock and possible spillages from the coal being transported through it.

The site has an electricity sub-station on it but from the plans this appears to have been installed post 2010 and therefore no PCB's will have been used in the transformers or wires as its use had been banded since 1981.

2.4 Unexploded Ordnance Assessment

Although a detailed UXO risk assessment in line with CIRIA C681 is beyond the scope of this report an unexploded ordnance UXO risk map has been obtained from the Zetica Ltd website (https://zeticauxo.com). A copy of this map is in Appendix A, which shows the site is within an area deemed to be at Moderate risk from unexploded ordnance.

From a web search (www.barry.cymru/history) it has been established the docks were bombed in 1941 and the blast damaged the front of the Dock Office building. Therefore, it is recommended if any future development involving disturbance of the ground below the established surface level are proposed a specialist company undertake a UXO risk assessment.

3.0 PRELIMINARY CONCEPTUAL SITE MODEL: POTENTIAL SOURCE-PATHWAY-RECEPTOR RELATIONSHIPS

3.1 General

As part of a Desk Study review it is appropriate to undertake a qualitative risk assessment with respect to any potential sources, pathways and receptor relationships which may exist on site. A guide to Qualitative Risk Assessment is provided in '*Guidance for the Safe Development of Housing on Land Affected by Contamination R&D66: 2008'* a copy of which is contained in Appendix G. This approach is comparable to a Tier 1 human health risk assessment and identifies where a potential pollutant linkage relationship exists and if present, an estimate of the risk that defined receptors will suffer harm.

As the proposal use of the site will be for a wood recycling/processing facility and there are no residential properties within the vicinity it is considered appropriate to adopt a "commercial" end use for any future human health assessments.

3.2 Contaminant Sources

From a review of the available information from various sources the following have been identified as potential sources of contamination (SPC):

1. The south-western strip of the site has been reclaimed so made ground will have been used to raise levels. Also, the original course of the Cadoxton River bisected the central section of the site, which has been infilled. As the source of the imported fill material is unknown it could contain elevated levels of contamination. The fill material, especially if organic, could be a source of landfill gases but as it has been in-situ for >125 years it is considered any degradation would be complete so there would no longer be a source for methane or carbon dioxide.
2. The area has been used as a dock and from the Department of the Environment Industry Profiles for Dockyards and Dockland state that the "…contamination on the site will largely depend on the history of the site and on the range of materials present there. From the historical review it is known Barry Docks were built for the export of coal, which is likely to have introduce metals and hydrocarbons.
3. It is known the previous site occupiers used the site to process wood and recycle metal and this could also have resulted in metal and/or hydrocarbon contamination.

The site occupies only a small area of the dock which extended to the south and west so the surrounding area is likely to have had a similar history and use therefore, if any contamination has migrated onto the site it will be identified by the standard analysis suite proposed to address the potential on site sources.

To the east there were the timber ponds, which have now largely been infilled, which as this continued up to early 2000's it could be a source of landfill gases. However, as the site is an open yard the risk of on site migration of gas is not considered to pose a risk to the proposed wood recycling operations.

3.3 Potential Receptors

The likely viable receptors based upon the proposal to use the site as a waste wood treatment facility are:

3.3.1 Human Health

- Operatives working at the South West Wood Products waste treatment facility.
- Workers in the neighbouring businesses.
- General public using the roads around the site.

3.3.2 Controlled Waters

- Surface water, - Barry Dock 2 is immediate adjacent to the south-eastern boundary and this is connected via locks to the Bristol Channel which is considered to be an important area for wildlife, in particular wading birds as it is tidal and has large areas of mudflats.

  Therefore, for a general sensitivity assessment based upon the "*Guidance for the Safe Development of Housing on Land Affected by Contamination R&D66: 2008",* the surface water has been deemed to be Very High (H1 i.e. "high quality watercourse within close proximity or with potential for rapid transmission of pollutants*".*)

- Groundwater – the groundwater beneath the site are secondary aquifers (undifferentiated in the superficial deposits and B in the bedrock). There is a principal aquifer and Source Protection Zone to the north but these are upgradient. However, there are no identified abstractions from the groundwater within 1km of the site but it is likely to be in hydraulic conductivity with the water in the dock.

  Due to likely connection with the waters in Dock 2, which are considered to be sensitive because of the Bristol Channel, based upon R&D66 the groundwater's sensitivity is deemed to be Moderately High (M1 i.e. *"…minor aquifer, moderately vulnerable with probable use (either direct or via baseflow to a sensitive watercourse"*).

3.3.3 Other Receptors

- Underground services could be impacted by the geochemistry of the soils;
- Buried concrete could be attacked by sulphates within the soils.

3.4 Potential Pathways

3.4.1 Human Health

The proposed use of the site will be as a waste wood facility with the current surfacing remaining undisturbed therefore the potential viable pathways for future site operatives to come onto contact with any contamination are considered to be:

- Soil ingestion.
- Dermal contact.
- Inhalation of contaminant dust.

3.4.2 Buildings and services

- Direct contact with underlying contaminants.

3.4.3 Groundwater

- Migration of any contamination into the underlying aquifer.

3.4.4 Surface water

- Direct runoff of rainwater into Dock 2.
- Infiltration of rainwater into the underlying aquifer and then lateral movement via groundwater into the docks. However, as the site will remain predominantly hard cover surfaced this will significantly reduce the amount of infiltration of rainwater as it will be collected and discharged into the drainage system.

3.5 Summary of Source – Pathway – Receptor Relationship

Table 3.5.1, overleaf, highlights the source-pathway-receptor relationships that are considered viable across the site at this stage. This assessment forms the basis of the Tier 1 risk assessment. A qualitative risk estimation has been included in the table, the risk estimation is as per Annex 4 of '*Guidance for the Safe Development of Housing on Land Affected by Contamination R&D66: 2008'*, (Appendix G).

Table 2.3.1: Potential Source – Pathway – Receptor Relationships

APC No.	Source	Pathway (s)	Receptor	Classification of Consequence	Classification of Probability	Classification of Risk
1	Made ground of unknown provenance used to raise levels	Oral ingestion	Future Occupiers/Workmen	Medium	Likely	Moderate Risk
		Dust inhalation	Future Occupiers/Workmen	Medium	Likely	Moderate Risk
		Dermal contact	Future Occupiers/Workmen	Medium	Likely	Moderate Risk
		Landfill gas	Future Occupiers/Buildings	Medium	Unlikely	Low Risk
		Downward migration	Groundwater	Medium	Unlikely	Low Risk
		Surface water runoff	Surface Water	Medium	Likely	Moderate Risk
		Direct contact	Buildings and Underground Services	Medium	Likely	Moderate Risk
2	Use of the site as a dock	Oral ingestion	Future Occupiers/Workmen	Medium	Likely	Moderate Risk
		Dust inhalation	Future Occupiers/Workmen	Medium	Likely	Moderate Risk
		Dermal contact	Future Occupiers/Workmen	Medium	Likely	Moderate Risk
		Downward migration	Groundwater	Medium	Unlikely	Low Risk
		Surface water runoff	Surface Water	Medium	Likely	Moderate Risk
		Direct contact	Buildings and Underground Services	Medium	Likely	Moderate Risk
3	Use of the site for processing wood and metal recycling	Oral ingestion	Future Occupiers/Workmen	Medium	Likely	Moderate Risk
		Dust inhalation	Future Occupiers/Workmen	Medium	Likely	Moderate Risk
		Dermal contact	Future Occupiers/Workmen	Medium	Likely	Moderate Risk
		Downward migration	Groundwater	Medium	Unlikely	Low Risk
		Surface water runoff	Surface Water	Medium	Likely	Moderate Risk
		Direct contact	Buildings and Underground Services	Medium	Likely	Moderate Risk

3.6 Site Zones and Averaging Areas – Human Health Risk Assessment

Under current UK Legislation and Natural Resources Wales guidance, consideration must also be given to the relevant averaging area and to the most appropriate method of grouping the data, both of which must relate to the conceptual model. For instance, the data can be grouped spatially (i.e. for individual areas/zones within a site) or by particular strata. Zones can be used to delineate a site to facilitate cost effective site characterisation during the site investigation phase. The qualitative risk estimation with respect to contamination ranges from 'Low' to 'Moderate' but generally most of the APC's were deemed to be 'Moderate'

Based upon the proposed use of the site as a waste wood treatment facility and the generally homogenous historic use of the site it is currently considered that it should be assessed as a single zone.

A zone can be further divided into "averaging areas" which will enable the site to be more accurately assessed based on soil/made ground type, current process operations and exposure pathways. However, the determination as to whether or not the use of separate averaging areas will be appropriate for the site will depend upon the findings of a site investigation.

3.7 Uncertainties and Assumptions

The preliminary conceptual model has identified the potential presence of contaminated made ground plus possible contamination resulting from the use of the site as a dock and the a wood processing and metal recycling facility, which could pose a low to moderate risk to future site operatives or environmental receptors.

Therefore, intrusive investigations were considered necessary to determine if the contamination is present and if it poses a risk but as no specific targets (e.g. fuel storage tanks) have been identified it is proposed to locate 8No boreholes to provide general coverage across the site whilst minimising the disturbance to the existing surfacing. Appendix A contains a drawing showing the locations of these boreholes the results of which are discussed in the subsequent sections of this report.

4.0 GROUND INVESTIGATION WORKS

4.1 Scope of Investigations

The intrusive ground investigations were undertaken by FEML across the site between the 5th and 7th March 2024 comprised of:

- Sinking 8Nº window sampler probe holes (WS01-WS08),

Appendix A contains a drawing showing the exploratory hole locations, which were overseen by an experienced geo-environmental engineer who photographed and logged the strata revealed, copies of which are presented in Appendices D and E respectively.

Selected disturbed samples were obtained from the boreholes for geochemical testing and submitted the UKAS/MCERTS accredited laboratory of the i2 Analytical for chemical analysis.

All fieldwork was undertaken in general accordance with the guidance set out in "Code of Practice for Site Investigations" BS5930:1999, where applicable.

Table 4.1.1 Rationale/Targeting of the Exploratory Hole Locations

Exploratory Hole	***Target***
WS01	To provide general coverage and in the possible area of the former route of the Cadoxton River.
WS02	To provide general coverage and in vicinity of "New Mill Cottage" and "Water Accumulator".
WS03	To provide general coverage and in the possible area of the former route of the Cadoxton River.
WS04	To provide general coverage
WS05	To provide general coverage
WS06	To provide general coverage
WS07	To provide general coverage and in the possible area of the former route of the Cadoxton River.
WS08	To provide general coverage in the area reclaimed from the sea

4.2 Window Sample Probe Holes

The boreholes were sunk to depths ranging from 4.0m (terminated as sides continued to collapse when core was removed) to 5.0m with all but WS02 terminating in the natural soils. All the boreholes were installed with standpipes, as shown in the table below.

Table 4.2.1 Standpipe Response Zones in the Boreholes

Borehole	***Installation***
WS01	5.0m deep - installed to 5.0mbgl with upper 1.0m 50mm dia. plain over 4.0m slotted pipe.
WS02	5.0m deep - installed to 5.0mbgl with upper 1.0m 50mm dia. plain over 4.0m slotted pipe.
WS03	5.0m deep - installed to 4.0mbgl with upper 1.0m 50mm dia. plain over 3.0m slotted pipe
WS04	5.0m deep - installed to 5.0mbgl with upper 1.0m 50mm dia. plain over 4.0m slotted pipe
WS05	5.0m deep - installed to 5.0mbgl with upper 1.0m 50mm dia. plain over 4.0m slotted pipe
WS06	4.0m deep - installed to 3.0mbgl with upper 1.0m 50mm dia. plain over 2.0m slotted pipe
WS07	5.0m deep - installed to 3.0mbgl with upper 1.0m 50mm dia. plain over 2.0m slotted pipe

Borehole	*Installation*
WS08	5.0m deep - installed to 3.0mbgl with upper 1.0m 50mm dia. plain over 2.0m slotted pipe

4.3 Geochemical Soil Laboratory Testing

FEML scheduled chemical analysis upon a selection of samples recovered from the boreholes for a general suite of contaminants, based on the both the initial conceptual model and observations from the ground investigation. The soil samples were forwarded to i2 Analytical and tested in accordance with the suite presented in Table 4.3.1, below. A copy of the laboratory chemical analysis results report (24-008072) is provided in Appendix F.

Table 4.3.1: Schedule of Soil Chemical Testing

Test Type	*Number of Samples Tested*
Arsenic, Cadmium, Chromium, Hexavalent Chromium, Lead, Mercury, Nickel, Copper, Zinc, Selenium, Water Soluble Boron, Total Cyanide, Free Cyanide, pH, Water Soluble Sulphate, Sulphide, Elemental Sulphur, Total Monohydric Phenols, Organic Content and Speciated Polyaromatic Hydrocarbons	*10Nº soils*
Aliphatic/aromatic speciated banded TPH & BTEX	*10Nº soils*
SVOC & VOC's	*10Nº soils*
Asbestos screen	*10Nº soil*
PCB's	*8Nº soil*

4.4 Chemical Testing of Water Samples

Groundwater samples were collected from each borehole along with one from the Dock, which were also forwarded to i2 Analytical for testing in accordance with the suite presented in Table 4.4.1, below. The laboratory results report is provided in Appendix F.

Table 4.4.1: Schedule of Water Chemical Testing

Test Type	*Number of Samples Tested*
Arsenic, Cadmium, Chromium, Hexavalent Chromium, Lead, Mercury, Nickel, Copper, Zinc, Selenium, Water Soluble Boron, Total Cyanide, Free Cyanide, pH, Water Soluble Sulphate, Sulphide, Elemental Sulphur, Total Monohydric Phenols, Organic Content and Speciated Polyaromatic Hydrocarbons	*9Nº water*
Aliphatic/aromatic speciated banded TPH & BTEX	*9Nº water*
SVOC & VOC's	*9Nº water*

5.0 SUMMARY OF GROUND CONDITIONS

5.1 Introduction

The published geological maps indicate the site is underlain by a layer of artificial manmade ground, which was probably placed onto the Tidal Flat Deposits to raise levels to create the dock. The underlying bedrock is the Mercia Mudstone Group although this is unlikely to be encountered by the boreholes as the historic logs indicate it is around 9.5m deep.

5.2 Recorded Ground Conditions - General

As anticipated beneath the surfacing of concrete every borehole encountered made ground to depths ranging from 3.0m to >5.0m (base of borehole) that consisted of bands of sandy gravelly silty CLAY or clayey silty gravelly SAND. When encountered the underlying natural soils were the superficial Tidal Flats Deposits and comprised a slightly sandy silty CLAY.

Table 5.2.1 summaries the strata encountered within the trial pits and the range of depths for each layer.

Table 5.2.1: Summary of Strata Encountered

Depth (m bgl)		***Exploratory Holes Identified***	***Soil Type***	***General Description/Comments***
From	***To***			
GL	*0.25*	*WS01, WS02, WS03, WS04, WS05, WS06, WS07 & WS08*	*surfacing*	*Concrete slab*
0.25	*0.70 – 0.80*	*WS04, WS05, WS06 & WS07*	*Made Ground*	Loose grey / dark grey clayey silty fine medium coarse SAND & GRAVEL of angular mudstone or of brick concrete coal limestone mudstone. Locally occasional cobble
0.25	*1.30 - 2.00*	*WS01 & WS03*		Firm to stiff friable dark grey brown / dark grey / grey sandy silty very gravelly CLAY locally with brick concrete mudstone limestone coal.
0.25 – 2.2	*2.00 – 4.00*	*WS02 & WS03*		Loose dark grey brown / grey / light grey gravelly clayey silty fine medium coarse SAND. Gravel is fine medium coarse limestone mudstone brick mortar.
0.25	*2.80*	*WS08*		(loose) light yellow brown silty fine medium SAND locally with soft clayey silt lenses.
0.70 - 2.00	*2.00 - >5.00*	*WS01, WS02, WS04 & WS05*		Firm locally stiff brown grey / dark grey / grey variegated locally sandy slightly gravelly silty CLAY. Gravel is fine medium coarse angular limestone mudstone gravel.
0.80	*1.00*	*WS05*		Hard friable dark grey black sandy gravelly SILT (compressed coal dust & limestone mudstone gravel).
0.700 - 0.80	*3.00 - >4.00*	*WS06 & WS07*		Grey / light brown / dark grey variegated clayey silty fine medium coarse SAND & GRAVEL of fine medium coarse limestone mudstone. Locally with horizons of firm sandy gravelly silty Clay
1.30 -	*2.10*	*WS03*		Firm to stiff red brown sandy silty CLAY. Rare mudstone gravel.
2.10	*2.20*	*WS03*		Soft red brown SILT
2.80	*4.50*	*WS08*		Loose light red brown silty gravelly fine medium SAND. Gravel is angular fine medium mudstone gravel.

Depth (m bgl)		Exploratory Holes Identified	Soil Type	General Description/Comments
From	To			
3.00	*4.50*	*WS01*	*Made Ground*	Soft to firm locally stiff grey locally brown grey & dark grey variegated slightly gravelly silty CLAY. Gravel is fine medium coarse angular limestone & mudstone.
3.00 - 4.50	*>5.00*	*WS01, WS03, WS04, WS05, WS07 & WS08*	*Tidal Flat Deposits*	Soft becoming firm & stiff towards base grey locally grey brown variegated thinly laminated locally slightly sandy silty CLAY.

5.2.1 Made Ground

Below a layer of concrete made ground was present in all holes and predominantly comprised in the north/northwestern part of the site mainly of a sandy gravelly silty CLAY in bands with varying amounts of sand and gravel. Although along the southern/south-eastern edge (namely along the dock) it comprised a silty clayey gravelly SAND or clayey silty SAND & GRAVEL. Locally in the northern end of the site the upper layer (1.0-2.0m deep) included brick, coal or coal dust.

5.2.2 Superficial Deposits

Six of the borehole encountered the underlying superficial deposits, which was a red brown sandy silty CLAY.

5.2.3 Bedrock

Not encountered

5.2.4 Contamination Found

No olfactory evidence of contamination was noted across the site, although some of the bands of made ground contained coal or coal dust and this could contain elevated metals and/or hydrocarbons.

5.3 Groundwater

Groundwater was encountered in all the boreholes at depths of between 2.00m and 5.00m although generally it appeared to be at around 3.00m but it rose by between 0.15m to 1.48m to stand at 1.52m to 4.40m.

Table 5.3.1 Groundwater Strikes During the Drilling Works

Exploratory Hole	Groundwater Strike depth (mbgl)	Groundwater standing depth (mbgl)	Rise in Water Level (m)	Comments
WS01	3.00	2.85	0.15	Moderate flow
WS02	3.00	2.50	0.5	Moderate flow
WS03	3.00	1.52	1.48	Moderate flow
WS04	2.00	1.84	0.16	Moderate flow
WS05	5.00	4.40	0.6	Slow seepage
WS06	3.00	2.70	0.3	Moderate flow
WS07	3.00	2.69	0.31	Moderate flow
WS08	3.00	2.55	0.45	Moderate flow

5.4 Soil Solid Chemical Test Results

As part of the FEML investigations a total of ten samples of the made ground from the boreholes were dispatched to the laboratories of i2 Analytical for chemical analysis. A copy of the laboratory report sheet 24-008072 is contained in Appendix F but the results are summarised in Table 5.4.1.

Table 5.4.1: Soils Results Summary

Determinant	*Recorded Concentrations*		*Number of Samples Tested*
	Minimum Concentration (mg/kg)	*Maximum Concentration (mg/kg)*	
Arsenic	4.8	20	10
Boron	0.5	19	10
Cadmium	<0.2	4.7	10
Chromium (hexavalent)	<1.8	<1.8	10
Chromium	14	390	10
Copper	22	380	10
Lead	14	320	10
Mercury	<0.3	0.6	10
Nickel	13	78	10
Selenium	<1	<1	10
Zinc	43	1100	10
pH	7.8	10.8	10
Total Cyanide	<1	<1	10
Free Cyanide	<1	<1	10
Water Soluble Sulphate as SO_4	39	640	10
Water Soluble Sulphate as SO_4 (mg/l)	19.4	319	10
Sulphide	<1	500	10
Elemental Sulphur	<5	94	10
Organic Matter (%)	0.7	5.9	10
Total Monohydric Phenols	<1	<1	10
Naphthalene	<0.05	7.4	10
Acenaphthylene	<0.05	1	10
Acenaphthene	<0.05	0.57	10
Fluorene	<0.05	0.74	10
Phenanthrene	0.14	5.4	10
Anthracene	<0.05	1.5	10
Fluoranthene	0.09	12	10
Pyrene	0.07	11	10
Benzo(a)anthracene	<0.05	6.5	10
Chrysene	<0.05	6.3	10
Benzo(b)fluoranthene	<0.05	6.6	10
Benzo(k)fluoranthene	<0.05	3.6	10
Benzo(a)pyrene	<0.05	7.1	10
Indeno(1,2,3-cd)pyrene	<0.05	4	10
Dibenzo(a,h)anthracene	<0.05	1.1	10
Benzo(g,h,i)perylene	<0.05	4.2	10
Total PAH(16)	<0.8	69.6	10
>C5-C6 Aliphatic	<0.02	<0.02	10
>C6-C8 Aliphatic	<0.02	<0.02	10
>C8-C10 Aliphatic	<0.05	<0.05	10
>C10-C12 Aliphatic	<1	4.5	10
>C12-C16 Aliphatic	<2	150	10
>C16-C21 Aliphatic	<8	290	10
>C21-C35 Aliphatic	<8	510	10
>C5-C35 Aliphatic	<10	960	10
>C5-C7 Aromatic	<0.01	0.026	10
>C7-C8 Aromatic	<0.01	0.013	10
>C8-C10 Aromatic	<0.05	<0.05	10
>C10-C12 Aromatic	<1	5.1	10
>C12-C16 Aromatic	<2	46	10

Determinant	*Recorded Concentrations*		*Number of Samples Tested*
	Minimum Concentration (mg/kg)	*Maximum Concentration (mg/kg)*	
>C16-C21 Aromatic	<10	89	10
>C21-C35 Aromatic	<10	160	10
>C5-C35 Aromatic	<10	300	10
Asbestos	Not detected	Chrysotile Loose fibrous debris	10
VOCs			
Chloromethane	<5	<5	10
Chloroethane	<5	<5	10
Bromomethane	<5	<5	10
Vinyl Chloride	<5	<5	10
Trichlorofluoromethane	<5	<5	10
1,1-Dichloroethene	<5	<5	10
Trans 1,2-dichloroethylene	<5	<5	10
MTBE (Methyl Tertiary Butyl Ether)	<5	<5	10
1,1-Dichloroethane	<5	<5	10
2,2-Dichloropropane	<5	<5	10
Chloroform	<5	<5	10
1,1,1-Trichloroethane	<5	<5	10
1,2-Dichloroethane	<5	<5	10
1,1-Dichloropropene	<5	<5	10
Cis-1,2-dichloroethene	<5	<5	10
Benzene	<5	26	10
Carbontetrachloride	<5	<5	10
1,2-Dichloropropane	<5	<5	10
Trichloroethene	<5	<5	10
Dibromomethane	<5	<5	10
Bromodichloromethane	<5	<5	10
Cis-1,3-dichloropropene	<5	<5	10
Trans-1,3-dichloropropene	<5	<5	10
Toluene	<5	13	10
1,1,2-Trichloroethane	<5	<5	10
1,3-Dichloropropane	<5	<5	10
Dibromochloromethane	<5	<5	10
Tetrachloroethene	<5	<5	10
1,2-Dibromoethane	<5	<5	10
Chlorobenzene	<5	<5	10
1,1,1,2-Tetrachloroethane	<5	<5	10
Ethylbenzene	<5	<5	10
p & m-Xylene	<5	<5	10
Styrene	<5	<5	10
Bromoform	<5	<5	10
o-Xylene	<5	<5	10
Isopropylbenzene	<5	<5	10
1,1,2,2-Tetrachloroethane	<5	<5	10
Bromobenzene	<5	<5	10
n-Propylbenzene	<5	<5	10
2-Chlorotoluene	<5	<5	10
4-Chlorotoluene	<5	<5	10
1,3,5-Trimethylbenzene	<5	<5	10
tert-Butylbenzene	<5	<5	10
1,2,4-Trimethylbenzene	<5	<5	10
sec-Butylbenzene	<5	<5	10
1,3-Dichlorobenzene	<5	<5	10
p-Isopropyltoluene	<5	<5	10
1,4-Dichlorobenzene	<5	<5	10
1,2-Dichlorobenzene	<5	<5	10
Butylbenzene	<5	<5	10
1,2-Dibromo-3-chloropropane	<5	<5	10

Determinant	Recorded Concentrations		Number of Samples Tested
	Minimum Concentration (mg/kg)	Maximum Concentration (mg/kg)	
1,2-Dibromo-3-chloropropane	<5	<5	10
1,2,4-Trichlorobenzene	<5	<5	10
Hexachlorobutadiene	<5	<5	10
1,2,3-Trichlorobenzene	<5	<5	10
SVOCs			
Aniline	<0.1	<0.1	10
Phenol	<0.2	<0.2	10
2-Chlorophenol	<0.1	<0.1	10
Bis(2-chloroethyl)ether	<0.2	<0.2	10
1,3-Dichlorobenzene	<0.2	<0.2	10
1,2-Dichlorobenzene	<0.1	<0.1	10
1,4-Dichlorobenzene	<0.2	<0.2	10
Bis(2-chloroisopropyl)ether	<0.1	<0.1	10
1,2-Dibromo-3-chloropropane	<5	<5	10
1,2,4-Trichlorobenzene	<5	<5	10
Hexachlorobutadiene	<5	<5	10
1,2,3-Trichlorobenzene	<5	<5	10
SVOCs			
Aniline	<0.1	<0.1	10
Phenol	<0.2	<0.2	10
2-Chlorophenol	<0.1	<0.1	10
Bis(2-chloroethyl)ether	<0.2	<0.2	10
1,3-Dichlorobenzene	<0.2	<0.2	10
1,2-Dichlorobenzene	<0.1	<0.1	10
1,4-Dichlorobenzene	<0.2	<0.2	10
Bis(2-chloroisopropyl)ether	<0.1	<0.1	10
2-Methylphenol	<0.3	<0.3	10
Hexachloroethane	<0.05	<0.05	10
Nitrobenzene	<0.3	<0.3	10
4-Methylphenol	<0.2	<0.2	10
Isophorone	<0.2	<0.2	10
2-Nitrophenol	<0.3	<0.3	10
2,4-Dimethylphenol	<0.3	<0.3	10
Bis(2-chloroethoxy)methane	<0.3	<0.3	10
1,2,4-Trichlorobenzene	<0.3	<0.3	10
2,4-Dichlorophenol	<0.3	<0.3	10
4-Chloroaniline	<0.1	<0.1	10
Hexachlorobutadiene	<0.1	<0.1	10
4-Chloro-3-methylphenol	<0.1	<0.1	10
2,4,6-Trichlorophenol	<0.1	<0.1	10
2,4,5-Trichlorophenol	<0.2	<0.2	10
2-Methylnaphthalene	<0.1	2.3	10
2-Chloronaphthalene	<0.1	<0.1	10
Dimethylphthalate	<0.1	<0.1	10
2,6-Dinitrotoluene	<0.1	<0.1	10
2,4-Dinitrotoluene	<0.2	<0.2	10
Dibenzofuran	<0.2	0.7	10
4-Chlorophenyl phenyl ether	<0.3	<0.3	10
Diethyl phthalate	<0.2	<0.2	10
4-Nitroaniline	<0.2	<0.2	10
Azobenzene	<0.3	<0.3	10
Bromophenyl phenyl ether	<0.2	<0.2	10
Hexachlorobenzene	<0.3	<0.3	10
Carbazole	<0.3	0.3	10
Dibutyl phthalate	<0.2	<0.2	10
Anthraquinone	<0.3	<0.3	10
Butyl benzyl phthalate	<0.3	0.6	10
PCB Congener 28	<0.001	0.037	8

Determinant	Recorded Concentrations		Number of Samples Tested
	Minimum Concentration (mg/kg)	Maximum Concentration (mg/kg)	
PCB Congener 52	<0.001	0.012	8
PCB Congener 101	<0.001	0.023	8
PCB Congener 118	<0.001	0.015	8
PCB Congener 138	<0.001	0.028	8
PCB Congener 153	<0.001	0.021	8
PCB Congener 180	<0.001	0.011	8
Total PCBs	<0.007	0.12	8

5.5 Water Chemical Test Results

During the investigation a sample of the groundwater was collected from each borehole along with a sample taken from the water in the dock. These were also tested at E.Lab with a copy of their report 24-008072 in Appendix F but the results are summarised in Table 5.5.1.

Table 5.5.1: Water Results Summary

Determinant	Recorded Concentrations		
	GW Minimum Concentration (ug/l)	GW Maximum Concentration (ug/l)	Dock Water Concentration (ug/l)
Arsenic	3.17	17.7	2.04
Cadmium	<0.02	0.03	<0.02
Chromium	<0.2	2.1	0.9
Copper	0.7	57	3.5
Lead	<0.2	0.6	<0.2
Lead	<0.2	0.6	<0.2
Mercury	<0.05	0.08	<0.05
Nickel	0.7	5.4	0.5
Selenium	<4	6.9	<4
Zinc	1.1	23	3.9
Boron	200	4700	1500
Chromium (hexavalent)	<5	<5	<5
pH	7.2	11.4	8.4
Total Cyanide	<1	<1	<1
Free Cyanide	<1	<1	<1
Sulphate as SO_4 (mg/l)	7.57	269	1360
Sulphide	<5	18	<5
Total Monohydric Phenols	<1	<1	<1
Naphthalene	<0.01	0.43	<0.01
Acenaphthylene	<0.01	0.12	<0.01
Acenaphthene	<0.01	3.9	<0.01
Fluorene	<0.01	0.82	<0.01
Phenanthrene	<0.01	1.8	<0.01
Anthracene	<0.01	0.69	<0.01
Fluoranthene	<0.01	2.6	<0.01
Pyrene	<0.01	1.8	<0.01
Benzo(a)anthracene	<0.01	0.88	<0.01
Chrysene	<0.01	1.2	<0.01
Benzo(b)fluoranthene	<0.01	1.4	<0.01
Benzo(k)fluoranthene	<0.01	0.38	<0.01
Benzo(a)pyrene	<0.01	0.9	<0.01
Indeno(1,2,3-cd)pyrene	<0.01	0.46	<0.01
Dibenzo(a,h)anthracene	<0.01	0.18	<0.01
Benzo(g,h,i)perylene	<0.01	0.49	<0.01
Total PAH(16)	<0.16	16.4	<0.16

Determinant	*Recorded Concentrations*		
	GW Minimum Concentration (ug/l)	*GW Maximum Concentration (ug/l)*	*Dock Water Concentration (ug/l)*
>C5-C6 Aliphatic	<1	<1	<1
>C6-C8 Aliphatic	<1	<1	<1
>C8-C10 Aliphatic	<1	<1	<1
>C10-C12 Aliphatic	<10	<10	<10
>C12-C16 Aliphatic	<10	<10	<10
>C16-C21 Aliphatic	<10	<10	<10
>C21-C35 Aliphatic	<10	<10	<10
>C5-C35 Aliphatic	<1	<1	<10
>C5-C7 Aromatic	<1	<1	<1
>C7-C8 Aromatic	<1	<1	<1
>C8-C10 Aromatic	<10	24	<1
>C10-C12 Aromatic	<10	70	<10
>C12-C16 Aromatic	<10	90	<10
>C16-C21 Aromatic	<10	60	<10
>C21-C35 Aromatic	<10	240	<10
>C5-C35 Aromatic	<10	<10	<10
VOCs			
Chloromethane	<3	<3	<3
Chloroethane	<3	<3	<3
Bromomethane	<3	<3	<3
Vinyl Chloride	<3	<3	<3
Trichlorofluoromethane	<3	<3	<3
1,1-Dichloroethene	<3	<3	<3
Trans 1,2-dichloroethylene	<3	<3	<3
MTBE (Methyl Tertiary Butyl Ether)	<3	<3	<3
1,1-Dichloroethane	<3	<3	<3
2,2-Dichloropropane	<3	<3	<3
Chloroform	<3	<3	<3
1,1,1-Trichloroethane	<3	<3	<3
1,2-Dichloroethane	<3	<3	<3
1,1-Dichloropropene	<3	<3	<3
Cis-1,2-dichloroethene	<3	<3	<3
Benzene	<3	<3	<3
Carbontetrachloride	<3	<3	<3
1,2-Dichloropropane	<3	<3	<3
Trichloroethene	<3	<3	<3
Dibromomethane	<3	<3	<3
Bromodichloromethane	<3	<3	<3
Cis-1,3-dichloropropene	<3	<3	<3
Trans-1,3-dichloropropene	<3	<3	<3
Toluene	<3	<3	<3
1,1,2-Trichloroethane	<3	<3	<3
1,3-Dichloropropane	<3	<3	<3
Dibromochloromethane	<3	<3	<3
Tetrachloroethene	<3	<3	<3
1,2-Dibromoethane	<3	<3	<3
Chlorobenzene	<3	<3	<3
1,1,1,2-Tetrachloroethane	<3	<3	<3
Ethylbenzene	<3	<3	<3
p & m-Xylene	<3	<3	<3
Styrene	<3	<3	<3
Bromoform	<3	<3	<3
o-Xylene	<3	<3	<3
Isopropylbenzene	<3	<3	<3
1,1,2,2-Tetrachloroethane	<3	<3	<3
Bromobenzene	<3	<3	<3
n-Propylbenzene	<3	<3	<3

Determinant	*Recorded Concentrations*		
	GW Minimum Concentration (ug/l)	*GW Maximum Concentration (ug/l)*	*Dock Water Concentration (ug/l)*
2-Chlorotoluene	<3	<3	<3
4-Chlorotoluene	<3	<3	<3
1,3,5-Trimethylbenzene	<3	<3	<3
tert-Butylbenzene	<3	<3	<3
1,2,4-Trimethylbenzene	<3	<3	<3
sec-Butylbenzene	<3	<3	<3
1,3-Dichlorobenzene	<3	<3	<3
p-Isopropyltoluene	<3	<3	<3
1,4-Dichlorobenzene	<3	<3	<3
1,2-Dichlorobenzene	<3	<3	<3
Butylbenzene	<3	<3	<3
1,2-Dibromo-3-chloropropane	<3	<3	<3
1,2,4-Trichlorobenzene	<3	<3	<3
Hexachlorobutadiene	<3	<3	<3
1,2,3-Trichlorobenzene	<3	<3	<3
SVOCs			
Aniline	<0.05	<0.05	<0.05
Phenol	<0.05	<0.05	<0.05
2-Chlorophenol	<0.05	<0.05	<0.05
Bis(2-chloroethyl)ether	<0.05	<0.05	<0.05
1,3-Dichlorobenzene	<0.05	<0.05	<0.05
1,2-Dichlorobenzene	<0.05	<0.05	<0.05
1,4-Dichlorobenzene	<0.05	<0.05	<0.05
Bis(2-chloroisopropyl)ether	<0.05	<0.05	<0.05
2-Methylphenol	<0.05	<0.05	<0.05
Hexachloroethane	<0.05	<0.05	<0.05
Nitrobenzene	<0.05	<0.05	<0.05
4-Methylphenol	<0.05	<0.05	<0.05
Isophorone	<0.05	<0.05	<0.05
2-Nitrophenol	<0.05	<0.05	<0.05
2,4-Dimethylphenol	<0.05	<0.05	<0.05
Bis(2-chloroethoxy)methane	<0.05	<0.05	<0.05
1,2,4-Trichlorobenzene	<0.05	<0.05	<0.05
2,4-Dichlorophenol	<0.05	<0.05	<0.05
4-Chloroaniline	<0.05	<0.05	<0.05
Hexachlorobutadiene	<0.05	<0.05	<0.05
4-Chloro-3-methylphenol	<0.05	<0.05	<0.05
2,4,6-Trichlorophenol	<0.05	<0.05	<0.05
2,4,5-Trichlorophenol	<0.05	<0.05	<0.05
2-Methylnaphthalene	<0.05	0.24	<0.05
2-Chloronaphthalene	<0.05	<0.05	<0.05
Dimethylphthalate	<0.05	<0.05	<0.05
2,6-Dinitrotoluene	<0.05	<0.05	<0.05
2,4-Dinitrotoluene	<0.05	<0.05	<0.05
Dibenzofuran	<0.05	0.66	<0.05
4-Chlorophenyl phenyl ether	<0.05	<0.05	<0.05
Diethyl phthalate	<0.05	<0.05	<0.05
4-Nitroaniline	<0.05	<0.05	<0.05
Azobenzene	<0.05	<0.05	<0.05
Bromophenyl phenyl ether	<0.05	<0.05	<0.05
Hexachlorobenzene	<0.05	<0.05	<0.05
Carbazole	<0.05	0.37	<0.05
Dibutyl phthalate	<0.05	<0.05	<0.05
Anthraquinone	<0.05	0.34	<0.05
Butyl benzyl phthalate	<0.05	<0.05	<0.05
3+4 Methylphenol	<0.1	<0.1	<0.1

6.0 HUMAN HEALTH RISK ASSESSMENT

6.1 Introduction

Part IIA of the Environmental Protection Act 1990, inserted by Section 57 of the Environment Act, 1995 and the associated Contaminated Land (Wales) Regulations 2006. This has created a regime for the identification and remediation of contaminated land. Contaminated land is defined as:

> "'any land which appears to the local authority in whose area it is situated to be in such a condition, by reason of substances in, on or under the land, that –
>
> (a) significant harm is being caused or there is a significant possibility of such harm being caused; or
>
> (b) pollution of controlled waters is being, or is likely to be caused; ..."'.

The human health risk assessment process is based upon a tiered system of risk estimation. It aims to identify significant risks that may require further investigation, be considered for remediation or indicate potential legal or financial liability. A tiered approach has been adopted within the UK risk assessment framework providing a series of steps, after each of which decisions are taken on whether or not more sophisticated assessment is required. By doing so a pragmatic approach to the assessment of human health risk is maintained.

6.2 Assessment of Averaging Areas/Zones Following Ground Investigation Works

As discussed previously for the purposes of investigation and assessment a site can be divided into zones based on the historical usages or proposed end use and these zones can be further divided into averaging areas. These averaging areas can be used to assess different soil types revealed or different potential exposure pathways etc. for the purposes of accurately modelling the site conditions. Each averaging area can be considered independently of each other for human health exposure assessment.

As the layer of made ground covering the site was shown to be between 3.0 and >5.0m thick therefore, the sampling concentrated on this stratum as the natural soils are considered to be too deep to have the potential to impact upon site users. Therefore, for the purposes of the assessment the site has been determined to be a single zone and the made ground a single averaging area:

- General Site area – made ground.

6.3 Tier 1 Risk Assessment

Where chemical test data records contaminant concentrations that are beneath the laboratory detection limits these are excluded from further assessment as it is considered that this demonstrates that the source is absent from the pollutant linkage relationship. This forms the basis for the Tier 1 risk assessment.

Using the chemical test data recovered during the investigation works Table 6.3.1 shows those determinants with observed contaminant concentrations beneath the limits of detection highlighted in yellow as these will not require further assessment.

Table 5.3.1: Determinants Analysed, Identifying those above Detection

Determinant	*Recorded Concentrations*	
	Minimum Concentration (mg/kg)	*Maximum Concentration (mg/kg)*
Arsenic	4.8	20
Boron	0.5	19
Cadmium	<0.2	4.7
Chromium (hexavalent)	<1.8	<1.8
Chromium	14	390
Copper	22	380
Lead	14	320
Mercury	<0.3	0.6
Nickel	13	78
Selenium	<1	<1
Zinc	43	1100
pH	7.8	10.8
Total Cyanide	<1	<1
Free Cyanide	<1	<1
Water Soluble Sulphate as SO_4	39	640
Water Soluble Sulphate as SO_4 (mg/l)	19.4	319
Sulphide	<1	500
Elemental Sulphur	<5	94
Organic Matter (%)	0.7	5.9
Total Monohydric Phenols	<1	<1
Naphthalene	<0.05	7.4
Acenaphthylene	<0.05	1
Acenaphthene	<0.05	0.57
Fluorene	<0.05	0.74
Phenanthrene	0.14	5.4
Anthracene	<0.05	1.5
Fluoranthene	0.09	12
Pyrene	0.07	11
Benzo(a)anthracene	<0.05	6.5
Chrysene	<0.05	6.3
Benzo(b)fluoranthene	<0.05	6.6
Benzo(k)fluoranthene	<0.05	3.6
Benzo(a)pyrene	<0.05	7.1
Indeno(1,2,3-cd)pyrene	<0.05	4
Dibenzo(a,h)anthracene	<0.05	1.1
Benzo(g,h,i)perylene	<0.05	4.2
Total PAH(16)	<0.8	69.6
>C5-C6 Aliphatic	<0.02	<0.02
>C6-C8 Aliphatic	<0.02	<0.02
>C8-C10 Aliphatic	<0.05	<0.05
>C10-C12 Aliphatic	<1	4.5
>C12-C16 Aliphatic	<2	150
>C16-C21 Aliphatic	<8	290
>C21-C35 Aliphatic	<8	510
>C5-C35 Aliphatic	<10	960
>C5-C7 Aromatic	<0.01	0.026
>C7-C8 Aromatic	<0.01	0.013
>C8-C10 Aromatic	<0.05	<0.05
>C10-C12 Aromatic	<1	5.1
>C12-C16 Aromatic	<2	46
>C16-C21 Aromatic	<10	89
>C21-C35 Aromatic	<10	160
>C5-C35 Aromatic	<10	300
Asbestos	Not detected	Chrysotile Loose fibrous debris

Determinant	*Recorded Concentrations*	
	Minimum Concentration (mg/kg)	*Maximum Concentration (mg/kg)*
VOCs		
Chloromethane	<5	<5
Chloroethane	<5	<5
Bromomethane	<5	<5
Vinyl Chloride	<5	<5
Trichlorofluoromethane	<5	<5
1,1-Dichloroethene	<5	<5
Trans 1,2-dichloroethylene	<5	<5
MTBE (Methyl Tertiary Butyl Ether)	<5	<5
1,1-Dichloroethane	<5	<5
2,2-Dichloropropane	<5	<5
Chloroform	<5	<5
1,1,1-Trichloroethane	<5	<5
1,2-Dichloroethane	<5	<5
1,1-Dichloropropene	<5	<5
Cis-1,2-dichloroethene	<5	<5
Benzene	<5	26
Carbontetrachloride	<5	<5
1,2-Dichloropropane	<5	<5
Trichloroethene	<5	<5
Dibromomethane	<5	<5
Bromodichloromethane	<5	<5
Cis-1,3-dichloropropene	<5	<5
Trans-1,3-dichloropropene	<5	<5
Toluene	<5	13
1,1,2-Trichloroethane	<5	<5
1,3-Dichloropropane	<5	<5
Dibromochloromethane	<5	<5
Tetrachloroethene	<5	<5
1,2-Dibromoethane	<5	<5
Chlorobenzene	<5	<5
1,1,1,2-Tetrachloroethane	<5	<5
Ethylbenzene	<5	<5
p & m-Xylene	<5	<5
Styrene	<5	<5
Bromoform	<5	<5
o-Xylene	<5	<5
Isopropylbenzene	<5	<5
1,1,2,2-Tetrachloroethane	<5	<5
Bromobenzene	<5	<5
n-Propylbenzene	<5	<5
2-Chlorotoluene	<5	<5
4-Chlorotoluene	<5	<5
1,3,5-Trimethylbenzene	<5	<5
tert-Butylbenzene	<5	<5
1,2,4-Trimethylbenzene	<5	<5
sec-Butylbenzene	<5	<5
1,3-Dichlorobenzene	<5	<5
p-Isopropyltoluene	<5	<5
1,4-Dichlorobenzene	<5	<5
1,2-Dichlorobenzene	<5	<5
Butylbenzene	<5	<5
1,2-Dibromo-3-chloropropane	<5	<5
1,2,4-Trichlorobenzene	<5	<5
Hexachlorobutadiene	<5	<5
1,2,3-Trichlorobenzene	<5	<5

Determinant	*Recorded Concentrations*	
	Minimum Concentration (mg/kg)	*Maximum Concentration (mg/kg)*
SVOCs		
Aniline	<0.1	<0.1
Phenol	<0.2	<0.2
2-Chlorophenol	<0.1	<0.1
Bis(2-chloroethyl)ether	<0.2	<0.2
1,3-Dichlorobenzene	<0.2	<0.2
1,2-Dichlorobenzene	<0.1	<0.1
1,4-Dichlorobenzene	<0.2	<0.2
Bis(2-chloroisopropyl)ether	<0.1	<0.1
2-Methylphenol	<0.3	<0.3
Hexachloroethane	<0.05	<0.05
Nitrobenzene	<0.3	<0.3
4-Methylphenol	<0.2	<0.2
Isophorone	<0.2	<0.2
2-Nitrophenol	<0.3	<0.3
2,4-Dimethylphenol	<0.3	<0.3
Bis(2-chloroethoxy)methane	<0.3	<0.3
1,2,4-Trichlorobenzene	<0.3	<0.3
2,4-Dichlorophenol	<0.3	<0.3
4-Chloroaniline	<0.1	<0.1
Hexachlorobutadiene	<0.1	<0.1
4-Chloro-3-methylphenol	<0.1	<0.1
2,4,6-Trichlorophenol	<0.1	<0.1
2,4,5-Trichlorophenol	<0.2	<0.2
2-Methylnaphthalene	<0.1	2.3
2-Chloronaphthalene	<0.1	<0.1
Dimethylphthalate	<0.1	<0.1
2,6-Dinitrotoluene	<0.1	<0.1
2,4-Dinitrotoluene	<0.2	<0.2
Dibenzofuran	<0.2	0.7
4-Chlorophenyl phenyl ether	<0.3	<0.3
Diethyl phthalate	<0.2	<0.2
4-Nitroaniline	<0.2	<0.2
Azobenzene	<0.3	<0.3
Bromophenyl phenyl ether	<0.2	<0.2
Hexachlorobenzene	<0.3	<0.3
Carbazole	<0.3	0.3
Dibutyl phthalate	<0.2	<0.2
Anthraquinone	<0.3	<0.3
Butyl benzyl phthalate	<0.3	0.6
PCB Congener 28	<0.001	0.037
PCB Congener 52	<0.001	0.012
PCB Congener 101	<0.001	0.023
PCB Congener 118	<0.001	0.015
PCB Congener 138	<0.001	0.028
PCB Congener 153	<0.001	0.021
PCB Congener 180	<0.001	0.011
Total PCBs	<0.007	0.12

In addition to those identified in the Table 5.3.1, the following determinants have also not been assessed further with regard to human health.

- Total PAH
- Aromatic & Aliphatic (>C5 – C40)
- Organic matter.
- pH
- Water soluble sulphate
- Elemental Sulphur

- Sulphide

The justification for removing the above additional determinants is detailed below.

Total PAH values have not been considered as, in accordance with current best practice, the individual PAH species have been assessed in accordance with their differing toxicological properties.

Total TPH Aromatic & Aliphatic (>C5 – C40) values are discounted as the assessment approach is to compare the individual aliphatic or aromatic carbon ranges against their respective target values, which have been determined based upon their differing toxicology properties and availability.

Soil organic matter and pH have been recorded in order to provide information to complete quantitative human health risk assessment should it be needed and do not pose any identified human health based risks under normal circumstances.

Research on sulphate toxicology has revealed the major health effect with sulphate ingestion is laxative action. In general, the toxicity of sulphate alone is not considered to pose a significant risk to human health and has therefore been excluded from the exposure assessment.

A search for toxicity data for elemental sulphur has been unsuccessful. This has included the DEFRA/EA sources, WHO Environmental Health Criteria documents, Risk Assessment Information System (RAIS) database and the USEPA IRIS database. A Holly Industries material safety data sheet identifies that sulphur is essentially non-toxic either through ingestion, inhalation, skin or eye contact. Irritant effects have been reported when sulphur is in dust form. As a result of these searches, elemental sulphur has not been considered as a determinant that is potentially hazardous to human health.

Sulphide (S_{2-}) is a form of sulphur and is defined as a chemical compound containing sulphur and one other element and although specific sulphide species can be hazardous including hydrogen sulphide (H_2S) and carbon disulphide (CS_2) in isolation sulphide is not recognised to be a determinant that is potentially hazardous to human health.

6.4 Tier 2 Risk Assessment

The Tier 2 risk assessment utilises published and authoritative generic assessment criteria to determine the likelihood of harm being caused to human health. The proposed use of the site will be as a wood recycling facility, which will retain the hard surfacing. Therefore, to assess the chemical results it is considered suitable to compare them against the published **commercial end use** target criteria.

Table 6.4.1 compares the determinants with concentrations above the limit of detection against the adopted published assessment criteria, the source of which has been detailed, with any failures highlighted in blue.

Table 6.4.1 Tier 2 Assessment for a Commercial End Use

Determinant	***Recorded Concentrations***		***Assessment criteria***	
	Minimum Concentration (mg/kg)	***Threshold***	***Threshold***	***Source***
Arsenic	4.8	20	640	LQM
Boron	0.5	19	240000	LQM

Determinant	Recorded Concentrations		Assessment criteria	
	Minimum Concentration (mg/kg)	Threshold	Threshold	Source
Cadmium	<0.2	4.7	190	LQM
Chromium	14	390	8600	LQM
Copper	22	380	68000	LQM
Lead	14	320	2300	DEFRA
Mercury	<0.3	0.6	58	LQM
Nickel	13	78	980	LQM
Zinc	43	1100	730000	LQM
Naphthalene	<0.05	7.4	190	LQM
Acenaphthylene	<0.05	1	83000	LQM
Acenaphthene	<0.05	0.57	84000	LQM
Fluorene	<0.05	0.74	63000	LQM
Phenanthrene	0.14	5.4	22000	LQM
Anthracene	<0.05	1.5	520000	LQM
Fluoranthene	0.09	12	23000	LQM
Pyrene	0.07	11	54000	LQM
Benzo(a)anthracene	<0.05	6.5	170	LQM
Chrysene	<0.05	6.3	350	LQM
Benzo(b)fluoranthene	<0.05	6.6	44	LQM
Benzo(k)fluoranthene	<0.05	3.6	1200	LQM
Benzo(a)pyrene	<0.05	7.1	35	LQM
Indeno(1,2,3-cd)pyrene	<0.05	4	500	LQM
Dibenzo(a,h)anthracene	<0.05	1.1	3.5	LQM
Benzo(g,h,i)perylene	<0.05	4.2	3900	LQM
>C10-C12 Aliphatic	<1	4.5	9700	LQM
>C12-C16 Aliphatic	<2	150	59000	LQM
>C16-C21 Aliphatic	<8	290	1600000	LQM
>C21-C35 Aliphatic	<8	510		
>C5-C7 Aromatic	<0.01	0.026	56000	LQM
>C7-C8 Aromatic	<0.01	0.013	3500	LQM
>C10-C12 Aromatic	<1	5.1	16000	LQM
>C12-C16 Aromatic	<2	46	36000	LQM
>C16-C21 Aromatic	<10	89	28000	LQM
>C21-C35 Aromatic	<10	160	28000	LQM
Asbestos	Not detected	**Chrysotile Loose fibrous debris**	Not detected	PJ
VOCs				
Benzene	<5	26	27	#
Toluene	<5	13	56000	#
SVOCs				
2-Methylnaphthalene	<0.1	2.3	Limit of detection	PJ
Dibenzofuran	<0.2	0.7	Limit of detection	PJ
Carbazole	<0.3	0.3	Limit of detection	PJ
Butyl benzyl phthalate	<0.3	0.6	85000	CL:aire
PCB Congener 28	<0.001	0.037	Limit of detection	PJ
PCB Congener 52	<0.001	0.012	Limit of detection	PJ
PCB Congener 101	<0.001	0.023	Limit of detection	PJ
PCB Congener 118	<0.001	0.015	Limit of detection	PJ
PCB Congener 138	<0.001	0.028	Limit of detection	PJ
PCB Congener 153	<0.001	0.021	Limit of detection	PJ
PCB Congener 180	<0.001	0.011	Limit of detection	PJ
Total PCBs	<0.007	0.12	Limit of detection	PJ

Key:

- = recorded value below detection level for that averaging area and therefore passed Tier 1 assessment and not considered further
LQM = LQM/CIEH Suitable 4 Use Levels (S4UL) published 2015
DEFRA = Category 4 Screening Levels (C4SL) published 2014
PJ = As there are no published UK threshold values Professional judgement as assumed limit of detection or none detected.

= As no published VOC thresholds the LQM S4UL value has been adopted
CL:aire = EIC/AGS/CL:aire Soil Generic Assessment Criteria for Human Health Risk Assessment published January 2010

6.5 Presentation of Results of Tier 2 Risk Assessment across the Study Area

As can be seen from the previous table asbestos fibres were noted and some of the SVOC's and BPCG's for which there are no UK published assessment thresholds were present at concentrations above the limits of detection for the analysis. These results are discussed in more detail below.

Asbestos

As can be seen from the table below all the samples were screened for asbestos with it only being detected in one sample from a thin layer in WS06 between 0.25 and 0.80m.

Table 6.5.1 Summary of the Asbestos Results for the Made Ground

Borehole	*Depth*	*Description of Made Ground*	*Band Thickness (m)*	*Asbestos detected*
WS01	0.30	firm to stiff friable dark grey brown / dark grey / grey sandy silty very gravelly CLAY with brick concrete mudstone limestone coal.	0.25-2.00	None detected
WS02	0.30-0.50	(loose) dark grey brown / grey / light grey gravelly clayey silty fine medium coarse SAND. Gravel is fine medium coarse limestone mudstone brick mortar.	0.25-2.00	None detected
	0.80-0.90			None detected
WS03	0.30-0.50	stiff dark brown grey locally dark red brown sandy silty CLAY with occasional mudstone gravel.	0.25-1.30	None detected
WS04	0.30-0.40	grey / dark grey clayey silty fine medium coarse SAND & GRAVEL of angular mudstone.	0.25-0.70	None detected
WS05	0.10-0.20	(Loose) grey / brown grey silty clayey fine medium coarse SAND & GRAVEL of brick concrete limestone mudstone. Occasional cobble.	0.25-0.80	None detected
WS06	0.30-0.80	grey / red brown / brown clayey silty fine medium coarse SAND & GRAVEL (& COBBLES) of brick mudstone limestone concrete.	0.25-0.80	Chrysotile
	1.60-1.90	grey / light brown / dark grey variegated clayey silty fine medium coarse SAND & GRAVEL of fine medium coarse limestone mudstone. Locally with horizons of firm sandy gravelly silty Clay	0.80-4.00	None detected
WS07	0.30-0.70	grey / red brown / brown clayey silty fine medium coarse SAND & GRAVEL (& COBBLES) of brick mudstone limestone concrete coal.	0.25-0.70	None detected
WS08	0.20-0.70	(loose) light yellow brown silty fine medium SAND locally with soft clayey silt lenses.	0.20-2.80	None detected

From the table above and the photographs in Appendix D there does not appear to be anything visually different about the made ground in WS06 to indicate the presence of the asbestos. However, as it is not intended to change the site layout and because the logs indicate the area of impacted made ground is covered with a concrete slab there is no risk if any fibre release. Therefore, provided there are no excavation works in the area the asbestos identified in WS06 will not pose a risk to current or future site users.

SVOC's

From the analysis four of the semi volatile organic compounds (SVOCs) 2-Methylnaphthalene, Dibenzofuran, Carbazole and Butyl benzyl phthalate were shown to be present at concentrations above the limit of detection for the analysis.

There are no authoritative UK assessment thresholds for 2-Methylnaphthalene, Dibenzofuran or Carbazole therefore from a web search the following information relating to their toxicity and potential risks have been determined.

- 2-Methylnaphthalene is a PAH derived from coal tar that is generally in solid form and insoluble. Its effect on humans can be to irritate the skin, eyes, mucous membranes or upper respiratory tract. From a web search no published target levels could be found and it is not included in the REACH Regulations however, from the US EPA (https://epa-prgs.ornl.gov/cgi/bin/chemicals/csl_search) Regional Screening Level (RSL) calculator based upon an outdoor worker scenario level was determined 3335mg/kg. Therefore, when this is compared against the maximum recorded concentration of 2.3mg/kg the levels of 2-Methylnaphthalene in the made ground are not considered to pose a risk to future site occupiers.

- Dibenzofuran is also an organic aromatic compound derived from coal tar and for which the Wikipedia web site states that it is “relatively non-toxic” with the ERG guide (https:cameochemicals.noaa.gov/erg_guides/en/Guide_171.pdf) giving it a Low to Moderate hazard rating.

  Due to the absence of other sources the US EPR RSL on-line calculator has been used, which gives a screening value of 130mg/kg, which is considered to demonstrate the made ground do not pose a risk to human health as the maximum recorded value was 0.7mg/kg.

- Carbazole appears as white crystals, plates, leaflets or light tan powder. Sublimes readily and exhibits strong fluorescence and long phosphorescence on exposure to ultraviolet light. Exposure may cause irritation, allergic reactions and possibly respiratory distress with research in animals indicating it could be carcinogenic (Carbazole | C12H9N | CID 6854 - PubChem (nih.gov)).

  A review by the US EPA concluded that there was insufficient data to assess the carcinogenic potential.

  However, as the recorded concentration was 0.3mg/kg with the limit of detection being <0.3mg/kg and as the made ground is covered by a concrete slab it has been deemed not to pose a risk to human health.

Based upon the above it has been shown that the slight levels of SVOC’s recorded in made ground do not pose a risk human health and as it covered by a concrete slab there is also no pathway for site users to come into contact with it.

PCB’s

From Table 5 of the Environment Agency publication “*Soil Guideline Values for dioxins, furans and dioxin-like PCBs in soil*” (Ref Science Report SC050021 / Dioxins SGV) there are human health target levels based upon the CLEA model and a range of end uses.

Table 6.5.1 Comparison of the Maximum PCB Values against EA SGV’s

Borehole	*Depth (m)*	*Recorded Total PCB (mg/kg)*	*Soil Guidance Values for Sum of PCB's (mg/kg)*		
			Residential	*Allotment*	*Commercial*
WS01	0.30	*<0.007*	0.008	0.008	0.240
WS02	0.30-0.50	*0.12*			
WS03	0.30-0.50	*0.03*			
WS04	0.30-0.40	*0.084*			
WS05	0.10-0.20	*0.026*			
WS06	0.30-0.80	*<0.007*	0.008	0.008	0.240
WS07	0.30-0.70	*0.027*			
WS08	0.20-0.70	*<0.007*			

As can be seen in Table 6.5.2 the maximum recorded value for the sum of PCB's within the made ground is below the SGV for a commercial end use (0.120mg/kg < 240mg/kg and therefore does not pose a risk.

6.6 Summary Findings of the Human Health Risk Assessment and Recommendations

Chrysotile fibres were noted in the shallow made ground in WS06 but as this is beneath a concrete slab 250mm thick, which will sever the pathway and prevent the release of any fibres, it is not considered to pose a risk to human health. However, the Site Safety File should note that during any works requiring the breaking the concrete slab and disturbing the underlying made ground could encounter asbestos so appropriate work methods and PPE can be employed.

All the other determinants were at concentrations below their published UK thresholds or those without UK targets levels and present above their limit of detection have been compared against other authoritative soil guideline values and shown not to pose a risk to human health.

Based upon the assessment of the chemical analysis results and the presence of a concrete slab over the majority of the site surface with asphalt and compacted type 1 stone/crushed concrete in the northern area this capping to the made ground, which will sever the pathway for any underlying contamination coming into contact with current or future site users, the site is considered suitable for the proposed end use.

7.0 CONTROLLED WATERS RISK ASSESSMENT

7.1 Receptors

As discussed earlier in Section 3.3.2 as the water in Dock 2 immediately to the south of the site is connected to the Bristol Channel the surface water has a Very High (H1) sensitivity. Although there are no identified uses for the groundwater within 1km of the site it is considered to be hydraulic conductivity with the dock so its sensitivity was deemed to be Moderately High (M1)

7.2 Controlled Waters Risk Assessment.

A sample of groundwater was collected from each borehole along with a sample from the water in the Dock 2. The results of this analysis are contained in Appendix F but are also shown in Table 7.1.1, which compares the summary of the groundwater values and the results for the dock against the EQS thresholds for fresh (based upon soft water <50$CaCO_3$mg/l) and salt waters plus the UK drinking water standards because although not currently being used all aquifers should be considered as a potential resource. Any EQS exceedances are highlighted in blue and DWS in yellow or if both are exceeded the highlighting is orange

Table 7.2.1 Comparison of the Groundwater Results against EQS & DWS Thresholds

Determinant	*Recorded Concentrations*			*EQS thresholds (ug/l)*		*UK DWS (ug/l)*
	GW Min (ug/l)	*GW Max (ug/l)*	*Dock (ug/l)*	*Surface Water*	*Coastal waters*	
Arsenic	3.17	**17.7**	2.04	50	25	10
Cadmium	<0.02	0.03	<0.02	5	2.5	5
Chromium	<0.2	2.1	0.9	5	5	50
Copper	0.7	**57**	**3.5**	1	5	2000
Lead	<0.2	0.6	<0.2	4	25	10
Mercury	<0.05	0.08	<0.05	1	0.3	1
Nickel	0.7	5.4	0.5	50	30	20
Selenium	<4	6.9	<4			10
Zinc	1.1	**23**	3.9	8	-	5000
Boron	200	**4700**	**1500**	2000	7000	1000
Chromium (hexavalent)	<5	<5	<5			
pH	7.2	11.4	8.4			
Total Cyanide	<1	<1	<1			50
Free Cyanide	<1	<1	<1			
Sulphate as SO_4 (mg/l)	7.57	**269**	**1360**	400	250	250
Sulphide	<5	**18**	<5	0.25		
Total Monohydric Phenols	<1	<1	<1	30	30	0.5
Naphthalene	<0.01	0.43	<0.01			0.1
Acenaphthylene	<0.01	0.12	<0.01			
Acenaphthene	<0.01	3.9	<0.01			
Fluorene	<0.01	0.82	<0.01			
Phenanthrene	<0.01	1.8	<0.01			
Anthracene	<0.01	0.69	<0.01			
Fluoranthene	<0.01	2.6	<0.01			
Pyrene	<0.01	1.8	<0.01			
Benzo(a)anthracene	<0.01	0.88	<0.01			
Chrysene	<0.01	1.2	<0.01			
Benzo(b)fluoranthene	<0.01	1.4	<0.01			
Benzo(k)fluoranthene	<0.01	0.38	<0.01			
Benzo(a)pyrene	<0.01	**0.9**	<0.01	0.27		0.01
Indeno(1,2,3-cd)pyrene	<0.01	0.46	<0.01			
Dibenzo(a,h)anthracene	<0.01	0.18	<0.01			
Benzo(g,h,i)perylene	<0.01	0.49	<0.01			
Total PAH(16)	<0.16	**16.4**	<0.16			0.1
>C5-C6 Aliphatic	<1	<1	<1			
>C6-C8 Aliphatic	<1	<1	<1			

Determinant	Recorded Concentrations			EQS thresholds (ug/l)		UK DWS (ug/l)
	GW Min (ug/l)	GW Max (ug/l)	Dock (ug/l)	Fresh Water	Salt waters	
>C5-C6 Aliphatic	<1	<1	<1			
>C6-C8 Aliphatic	<10	<10	<1			
>C8-C10 Aliphatic	<10	<10	<1			
>C10-C12 Aliphatic	<10	<10	<10			
>C12-C16 Aliphatic	<10	<10	<10			
>C16-C21 Aliphatic	<10	<10	<10			
>C21-C35 Aliphatic	<1	<1	<10			
>C5-C35 Aliphatic	<10	<10	<10			
>C5-C7 Aromatic	<1	<1	<1			
>C7-C8 Aromatic	<1	<1	<1			
>C8-C10 Aromatic	<1	<1	<1			
>C10-C12 Aromatic	<10	24	<10			
>C12-C16 Aromatic	<10	70	<10			
>C16-C21 Aromatic	<10	90	<10			
>C21-C35 Aromatic	<10	60	<10			
>C5-C35 Aromatic	<10	**240**	<10	50		10
VOCs						
Chloromethane	<3	<3	<3			
Chloroethane	<3	<3	<3			
Bromomethane	<3	<3	<3			
Vinyl Chloride	<3	<3	<3			
Trichlorofluoromethane	<3	<3	<3			
1,1-Dichloroethene	<3	<3	<3			
Trans1,2dichloroethylene	<3	<3	<3			
MTBE	<3	<3	<3			
1,1-Dichloroethane	<3	<3	<3			
2,2-Dichloropropane	<3	<3	<3			
Chloroform	<3	<3	<3			
1,1,1-Trichloroethane	<3	<3	<3	100	100	
1,2-Dichloroethane	<3	<3	<3	10	10	3
1,1-Dichloropropene	<3	<3	<3			
Cis-1,2-dichloroethene	<3	<3	<3			
Benzene	<3	<3	<3	30	30	1
Carbontetrachloride	<3	<3	<3			
1,2-Dichloropropane	<3	<3	<3			0.1
Trichloroethene	<3	<3	<3	10	10	10
Dibromomethane	<3	<3	<3			
Bromodichloromethane	<3	<3	<3			
Cis-1,3dichloropropene	<3	<3	<3			
Trans1,3dichloropropene	<3	<3	<3			
Toluene	<3	<3	<3	50	40	
1,1,2-Trichloroethane	<3	<3	<3	400	300	
1,3-Dichloropropane	<3	<3	<3			0.1
Dibromochloromethane	<3	<3	<3			
Tetrachloroethene	<3	<3	<3	10	10	10
1,2-Dibromoethane	<3	<3	<3			
Chlorobenzene	<3	<3	<3			
1,1,1,2Tetrachloroethane	<3	<3	<3			
Ethylbenzene	<3	<3	<3			
p & m-Xylene	<3	<3	<3	30	30	
Styrene	<3	<3	<3			
Bromoform	<3	<3	<3			
o-Xylene	<3	<3	<3	30	30	
Isopropylbenzene	<3	<3	<3			
1,1,2,2Tetrachloroethane	<3	<3	<3			
Bromobenzene	<3	<3	<3			
n-Propylbenzene	<3	<3	<3			
2-Chlorotoluene	<3	<3	<3			
4-Chlorotoluene	<3	<3	<3			

Determinant	Recorded Concentrations			EQS thresholds (ug/l)		UK DWS (ug/l)
	GW Min (ug/l)	GW Max (ug/l)	Dock (ug/l)	Fresh Water	Salt waters	
1,3,5-Trimethylbenzene	<3	<3	<3			
tert-Butylbenzene	<3	<3	<3			
1,2,4-Trimethylbenzene	<3	<3	<3			
sec-Butylbenzene	<3	<3	<3			
1,3-Dichlorobenzene	<3	<3	<3			
p-Isopropyltoluene	<3	<3	<3			
1,4-Dichlorobenzene	<3	<3	<3			
1,2-Dichlorobenzene	<3	<3	<3			
Butylbenzene	<3	<3	<3			
1,2Dibromo3chloropropane	<3	<3	<3			
1,2,4-Trichlorobenzene	<3	<3	<3			
Hexachlorobutadiene	<3	<3	<3	0.1	0.1	
1,2,3-Trichlorobenzene	<3	<3	<3			
SVOCs						
Aniline	<0.05	<0.05	<0.05			
Phenol	<0.05	<0.05	<0.05	30	30	0.5
2-Chlorophenol	<0.05	<0.05	<0.05			
Bis(2-chloroethyl)ether	<0.05	<0.05	<0.05			
1,3-Dichlorobenzene	<0.05	<0.05	<0.05			
1,2-Dichlorobenzene	<0.05	<0.05	<0.05			
1,4-Dichlorobenzene	<0.05	<0.05	<0.05			
Bis(2-chloroisopropyl)ether	<0.05	<0.05	<0.05			
2-Methylphenol	<0.05	<0.05	<0.05			
Hexachloroethane	<0.05	<0.05	<0.05			
Nitrobenzene	<0.05	<0.05	<0.05			
4-Methylphenol	<0.05	<0.05	<0.05			
Isophorone	<0.05	<0.05	<0.05			
2-Nitrophenol	<0.05	<0.05	<0.05			
2,4-Dimethylphenol	<0.05	<0.05	<0.05			
Bis(2-chloroethoxy)methane	<0.05	<0.05	<0.05			
1,2,4-Trichlorobenzene	<0.05	<0.05	<0.05			
2,4-Dichlorophenol	<0.05	<0.05	<0.05			
4-Chloroaniline	<0.05	<0.05	<0.05			
Hexachlorobutadiene	<0.05	<0.05	<0.05			
4-Chloro-3-methylphenol	<0.05	<0.05	<0.05			
2,4,6-Trichlorophenol	<0.05	<0.05	<0.05			
2,4,5-Trichlorophenol	<0.05	<0.05	<0.05			
2-Methylnaphthalene	<0.05	0.24	<0.05			
2-Chloronaphthalene	<0.05	<0.05	<0.05			
Dimethylphthalate	<0.05	<0.05	<0.05			
2,6-Dinitrotoluene	<0.05	<0.05	<0.05			
2,4-Dinitrotoluene	<0.05	<0.05	<0.05			
Dibenzofuran	<0.05	0.66	<0.05			
4-Chlorophenyl phenyl ether	<0.05	<0.05	<0.05			
Diethyl phthalate	<0.05	<0.05	<0.05			
4-Nitroaniline	<0.05	<0.05	<0.05			
Azobenzene	<0.05	<0.05	<0.05			
Bromophenyl phenyl ether	<0.05	<0.05	<0.05			
Hexachlorobenzene	<0.05	<0.05	<0.05			
Carbazole	<0.05	0.37	<0.05			
Dibutyl phthalate	<0.05	<0.05	<0.05			
Anthraquinone	<0.05	0.34	<0.05			
Butyl benzyl phthalate	<0.05	<0.05	<0.05			
3+4 Methylphenol	<0.1	<0.1	<0.1			

From the water results it can be seen that the groundwater contained some elevated metals (arsenic, copper, zinc and boron), sulphate, sulphide, PAH's (B(a)P as the maker compound

for EQS) and Total TPH's. The dock was shown to also have elevated copper, boron, sulphates and Benzo(a)pyrene.

However, based upon the range of results recorded within the groundwater and the levels within the dock it has been considered the study area is not having an impact upon the overall groundwater quality or that in the dock. This is based upon a qualitative assessment considering that the site is a small area within an industrial area that has a long history of having the same past usages. Therefore, an contamination on the site will be also be on the adjacent land and therefore the source cannot be identified.

Also, as part of a joint project between Natural Resources Wales (NRW) and the Vale of Glamorgan Council there is an on-going water quality sampling programme in Whitmore Bay and Jackson Bay, which are immediately west of the Barry Dock entrance. Therefore, this would identify any deterioration in the quality of the sea water.

7.3 Summary of Controlled Waters Risk Assessment and Recommendations

The current site is a small area within a very large dock development, which was created by raising levels, and the past industrial/processing operations in the vicinity are likely to have the potential to be more contaminative than the proposed wood recycling facility. Therefore, it is considered the site is unlikely to have a significant impact upon the water quality but as the water quality in the bay is being monitored by the regulators if any changes are noted then further investigations can be undertaken.

8.0 RISK ASSESSMENT OF OTHER RECEPTORS

8.1 General

The other receptors identified earlier in this report were building and services. This chapter identifies each class of receptor and assesses the risk to them based upon the results of the chemical analysis and the proposed development.

8.2 Building Materials Risk Estimation

Recorded soil pH values from the analysis of the samples indicated that soils were alkaline with values ranging from 7.8 to 10.8. The associated water-soluble sulphate concentration in the soils ranged from 19.4mg/l to 319mg/l.

Groundwater was encountered at standing depth of between 1.52m to 2.85m deep, which would be below tradition foundation depth and therefore for the assessment of shallow subsurface concrete it can be considered as Static. From the analysis of the groundwater the pH values ranged from 7.2 to 11.4.

When these recorded results are compared against the BRE Special Digest 1 (2005) assessment levels, they indicate that a DS-1 AC-1s design mix would be suitable. However for deep structures below the water table the groundwater is likely to be hydraulic conductivity with the dock so is likely to be saline and therefore the likelihood of sulphate attack is increased, which may require the use of specialist low permeability concrete.

8.3 Services Risk Estimation

Contaminants in the ground can pose a risk to potable water supply by permeating water supply pipes. Therefore, in order to fulfil their statutory obligation, UK water supply companies require robust evidence from developers to demonstrate either that the ground in which new plastic supply pipes will be laid is free from specific contaminants, or that the proposed remedial strategy will mitigate any existing risk. If these requirements cannot be demonstrated to the satisfaction of the relevant water company, it becomes necessary to specify an alternative pipe material on the whole development or specific zones.

In 2010, UK Water Industry Research (UKWIR) published *Guidance for the Selection of Water Supply Pipes to be used in Brownfield Sites* (Report Ref. No. 10/WM/03/21). This report reviewed previously published industry guidelines and threshold concentrations adopted by individual water supply companies. The focus of the UKWIR research project was to develop clear and concise procedures, which provide consistency in the pipe selection decision process. It was intended to provide guidance that can be used to ensure compliance with current regulations and to prevent water supply pipe failing prematurely due to the presence of contamination.

Report 10/WM/03/21 concluded that in most circumstances only organic contaminants pose a potential risk to plastic pipe materials and Table 3.1 of the report provides threshold concentrations for PE and PVC pipes for the organic contaminants of concern.

The potential risks to water supply pipes have therefore been assessed against the threshold concentrations for PE and PVC pipe specified in Table 3.1 of Report 10/WM/03/21, which have been adopted as the GAC's for this project. Table 8.3.1, overleaf, summaries the results.

Table 8.3.1: Assessment of Results against WRAS Criteria

Determinant	**WRAS criteria**		**Recorded Concentrations**	
	PE pipe	**PVC pipe**	**Minimum**	**Maximum**
VOC	0.5	0.125	Most of the determinants<0.0005mg/kg	VOCs present in 2 samples with a maximum total = 0.039mg/kg
BTEX + MTBE	0.1	0.03	Tested individually in the VOC's with most below limit of detection <0.003m/kg	**Benzene & Toluene present in two samples with a maximum combined total = 0.039mg/kg**
SVOCs	2	1.4	Most of the determinants<0.0005mg/kg	SVOCs present in 2 samples with a maximum total = 0.00114mg/kg
Phenols	2	0.4	below limit of detection <1mg/kg	below limit of detection <1mg/kg
Cresols and chlorinated phenols	2	0.04	The chlorophenols included in the SVOC suite were below the limit of detection <0.005mg/kg	
Mineral Oils C11-C20	10	Suitable	All TPH C10-C21 results <LOD	**583.7**
Mineral Oils C21-C40	500	Suitable	All TPH C21-C35 results <LOD	**670**

Notes:

BTEX + MTBC are combined results for each individual determinant.
Mineral Oils C11-C20 is a combination of the TPH aliphatic and aromatic results for ranges C10 to C21

Mineral Oils C21-C40 is a combination of the TPH aliphatic and aromatic results for ranges C21 to C40

The results presented within Table 8.3.1 show that due to the presence of Mineral Oils, based upon a summation of the TPH C_{11}-C_{20} and C_{21}-C_{40} results, neither PE or PVC pipes would not be suitable for potable water supplies. In addition, localised marginally elevated BTEX may also pose a risk to PVC pipes.

Therefore, the statutory Water Authority should be consulted to determine the specification they require if any new buried water supply pipework is to be placed across the site.

9.0 REFINED CONCEPTUAL SITE MODEL

9.1 General

Chapter 2 presented the preliminary conceptual site model that utilised desk-based information to present a qualitative assessment of potential source-pathway-receptor relationships across the site. Following completion of the ground investigation works and Tier 2 risk assessment for human health and other environmental receptors a refined conceptual site model has been developed as detailed below.

9.2 Sources

The site investigation works and associated chemical testing have revealed the following:

- A localised area of made ground in WS06 was shown to contain asbestos but provided this remains undisturbed below the existing concrete slab this does not pose a risk to human health. All other determinants were not at concentrations considered likely to pose a risk to human health.

- The groundwater beneath the site and the water in the dock were shown to contain elevated levels of some metals, sulphate and hydrocarbons however as the site is a small area within a large former dock and industrial area it is not considered to pose a significant risk to controlled waters. Therefore, as the proposed use as a wood treatment facility has less potential to cause pollution than its previous use to process wood and recycle metal going forward it is not considered to pose a specific risk to Controlled Waters.

- It has been shown that the maximum recorded concentrations of hydrocarbons and BTEX within the made ground exceed the WRAS Trigger Values for PE and PVC pipework for potable water supplies

- The sulphate concentrations in the soils would not pose an aggressive environment for buried concrete although as the groundwater is likely to be saline any structures below the water table could be at an increased the risk of sulphate attack.

9.3 Pathway and Receptor

As detailed in Section 3 based upon the use of the site as wood treatment facility the viable pathways to the identified receptors were:

<u>Future site operatives and neighbours</u>:

- Soil ingestion.
- Dermal contact.
- Inhalation of contaminant dust.

<u>Buildings and services</u>

- Direct contact with underlying contaminants.

<u>Groundwater</u>

- Migration of any contamination into the underlying aquifer.

Surface water

- Direct runoff of rainwater into Dock 2
- Infiltration of rainwater into the underlying aquifer and then lateral movement via groundwater into the docks. However, as the site will remain predominantly hard cover surfaced this will significantly reduce the amount of infiltration of rainwater as it will be collected and discharged into the drainage system.

9.4 Risk Evaluation

Subsequent to the assessment of the results of the site investigation the site-specific qualitative risk evaluation, as presented in Section 3.5, has been reviewed and updated as discussed below and summarised in Table 9.5.1. The risk estimation has been undertaken as per '*Guidance for the Safe Development of Housing on Land Affected by Contamination R&D66: 2008'*.

9.5 Risk Evaluation for the Proposed Development

The following evaluation of risk is based upon the current development proposal using a mixed commercial and residential after use for the assessment criteria and the viable pollutant linkages were identified earlier.

9.5.1 Risk to Human Health: Soils/Gases

The made ground was generally shown to have low levels of contamination that are not considered sufficient to pose a risk to human health, based upon an assessment using authoritative published assessment criteria for an industrial use. Although one sample contained chrysotile, however as this material is covered by the existing concrete slab there is no pathway for any fibres to be released so it has been deemed not to pose a risk to current of future site users.

The made ground across the site therefore poses a **Low Risk** to human health and no remedial measures will be required. However, should any future maintenance/developments require the breaking the existing hard surfacing and disturbance to the made ground the risk of contamination, including asbestos, should be considered and appropriate working methods, PPE and remedial measures should be incorporated.

The intrusive investigations revealed a significant thickness of made ground however, it was generally layers of sandy silty SAND and GRAVELS or sandy gravelly silty CLAY that had low organic matter levels of 0.7-5.9%. Also, as the docks were constructed in the late 1890's any deleterious material will have decomposed and ceased being a potential source for landfill gases. However, there have been more recent filling operations undertaken to the east in the former Timber Pond, which could still be a source of landfill gas but as the area is unsurfaced any gases with a mechanism to migrate are more likely to vent vertically to atmosphere rather than laterally through the ground. Also, the proposed use of the study area for wood storage and recycling will not generate any new covered areas where gas could collect. Therefore, based upon guidance in the CL:aire publication RB17 "*A pragmatic approach to ground gas risk assessment"* the site is considered to be at a **Low Risk** from gas.

9.5.2 Risk to Services

The geochemistry of the made ground, when considered against the WRAS guidelines, has been shown to be unsuitable for PE or PVC pipework due elevated BTEX and hydrocarbons,

Therefore, based upon the currently available information buried water mains and pipework have been deemed to be at **Moderate Risk** of damage,

9.5.3 Risk to Buried Concrete

The made ground was shown not to have elevated sulphate levels and a DS-1 AC-1s design mix would be suitable for shallow sub-surface concrete above the water table (c.1.5m). Although due to the likely presence of saline groundwater a low permeable concrete design mix may be required for deeper concrete. Therefore, until further BRE geotechnical testing of the soils are undertaken any sub-surface concrete as part of future developments is considered to be at a **Moderate/Low Risk.**

9.5.4 Risk to Surface and Groundwater

Although the groundwater and dock contain some elevated metals, sulphates and hydrocarbons this is considered to be a reflection of the general background quality of the groundwater. Therefore, the site is not considered to be a source of any specific contamination so has been deemed to pose a **Low Risk** to Controlled Waters.

Table 9.5.1 below presents the summary risk evaluation associated with each source-pathway-receptor linkage related to the proposed development of the site.

Table 9.5.1: Summary of Risk Evaluation

APC No.	Source	Comments	Pathway (s)	Receptor	Classification of Consequence	Classification of Probability	Classification of Risk
1	Made ground of unknown provenance used to raise levels	The made ground has been deemed not to pose a risk to human health provided it remains beneath the hard surfacing. PE and PVC pipework would not be suitable for water mains due to elevated levels. Deep sub-surface concrete below the water table may be at risk from saline sea water..	Oral ingestion	Future Occupiers/Workmen	Medium	Unlikely	Low Risk
			Dust inhalation	Future Occupiers/Workmen	Medium	Unlikely	Low Risk
			Dermal contact	Future Occupiers/Workmen	Medium	Unlikely	Low Risk
			Landfill gas	Future Occupiers/Buildings	Medium	Unlikely	Low Risk
			Downward migration	Groundwater	Medium	Unlikely	Low Risk
			Surface water runoff	Surface Water	Medium	Unlikely	Low Risk
			Direct contact	Buildings	Medium	Low likelihood	Moderate/Low Risk
			Direct contact	Underground Services	Medium	Likely	Moderate Risk
2	Use of the site as a dock	No elevated levels of contamination were revealed within any of the soil samples that pose a risk to human health. BTEX and hydrocarbons may pose a risk to buried water supplies.	Oral ingestion	Future Occupiers/Workmen	Medium	Unlikely	Low Risk
			Dust inhalation	Future Occupiers/Workmen	Medium	Unlikely	Low Risk
			Dermal contact	Future Occupiers/Workmen	Medium	Unlikely	Low Risk
			Downward migration	Groundwater	Medium	Unlikely	Low Risk
			Surface water runoff	Surface Water	Medium	Unlikely	Low Risk
			Direct contact	Buildings	Medium	Unlikely	Low Risk
			Direct contact	Underground Services	Medium	Likely	Moderate Risk
3	Use of the site to process wood and recycle metals	No elevated TPH's, PAH's or metals were revealed within any of the soil samples	Oral ingestion	Future Occupiers/Workmen	Medium	Unlikely	Low Risk
			Dust inhalation	Future Occupiers/Workmen	Medium	Unlikely	Low Risk
			Dermal contact	Future Occupiers/Workmen	Medium	Unlikely	Low Risk
			Downward migration	Groundwater	Medium	Unlikely	Low Risk
			Surface water runoff	Surface Water	Medium	Unlikely	Low Risk
			Direct contact	Buildings	Medium	Unlikely	Low Risk
			Direct contact	Underground Services	Medium	Likely	Moderate Risk

10.0 CONCLUDING DISCUSSION

10.1 Conclusions

From the investigations undertaken by FEML the following conclusions have been determined based upon the proposed end use of the site as a wood recycling facility:

- At the time of the investigation the majority of the site was covered with a concrete slab apart from the northern area where there was a mixture of asphalt and compacted aggregate. The area was generally clear although there were two sets of four storage bays created by a cross shape of stacked concrete blocks and by the eastern entrance there was a weighbridge, some stacked portacabins and an electricity sub-station. From the history review it was used as a dock from 1898, which required raising levels with imported soils from unknown sources. The main export from the dock before its decline was coal which was delivered by train and loaded directly onto the ships. More recently it has been used for a wood processing and metal recycling facility;

- The boreholes were sunk to a maximum depth of 5m and revealed beneath a concrete slab a layer of made ground between 3.0m and 5.0m thick that comprised a sandy gravel silty CLAY or a clayey silty gravelly SAND. Below this the natural soils consisted of a sandy silty CLAY.

- The assessment of the chemical analysis results for the made ground samples has shown none of the determinants tested were present at concentrations that are considered likely to pose a risk to site operatives working on the proposed wood recycling yard. However, a localised area containing asbestos fibres was identified, which although currently not posing a risk to human health it indicates further areas could be present. Therefore, the site Health and Safety File should note the potential presence of asbestos in the made ground across the site so appropriate protection measures can be instigated if the slab requires breaking as part of future works.

- The groundwater was shown to contain some elevated levels of metals, sulphates, sulphides and hydrocarbons as was the water within the Dock. However, these are considered to be a reflection of the general background quality because the site is only a small area within a large dock/industrial area. Therefore, it is unlikely to have the potential to significantly impact upon the water quality however any changes in water quality following the change of use would be identified by the bay monitoring being undertaken by the Council and NRW.

- The geochemistry of soil results has shown it is unlikely to have the potential to create an aggressive environment for shallow buried concrete above the water table (minimum standing depth c.1.5m). However, the groundwater is likely to be in hydraulic conductivity with the dock and could be saline thereby increasing the risk of sulphate attack for deep foundations (e.g. piles). Therefore, for any future development work that extends below the water table further testing should be undertaken.

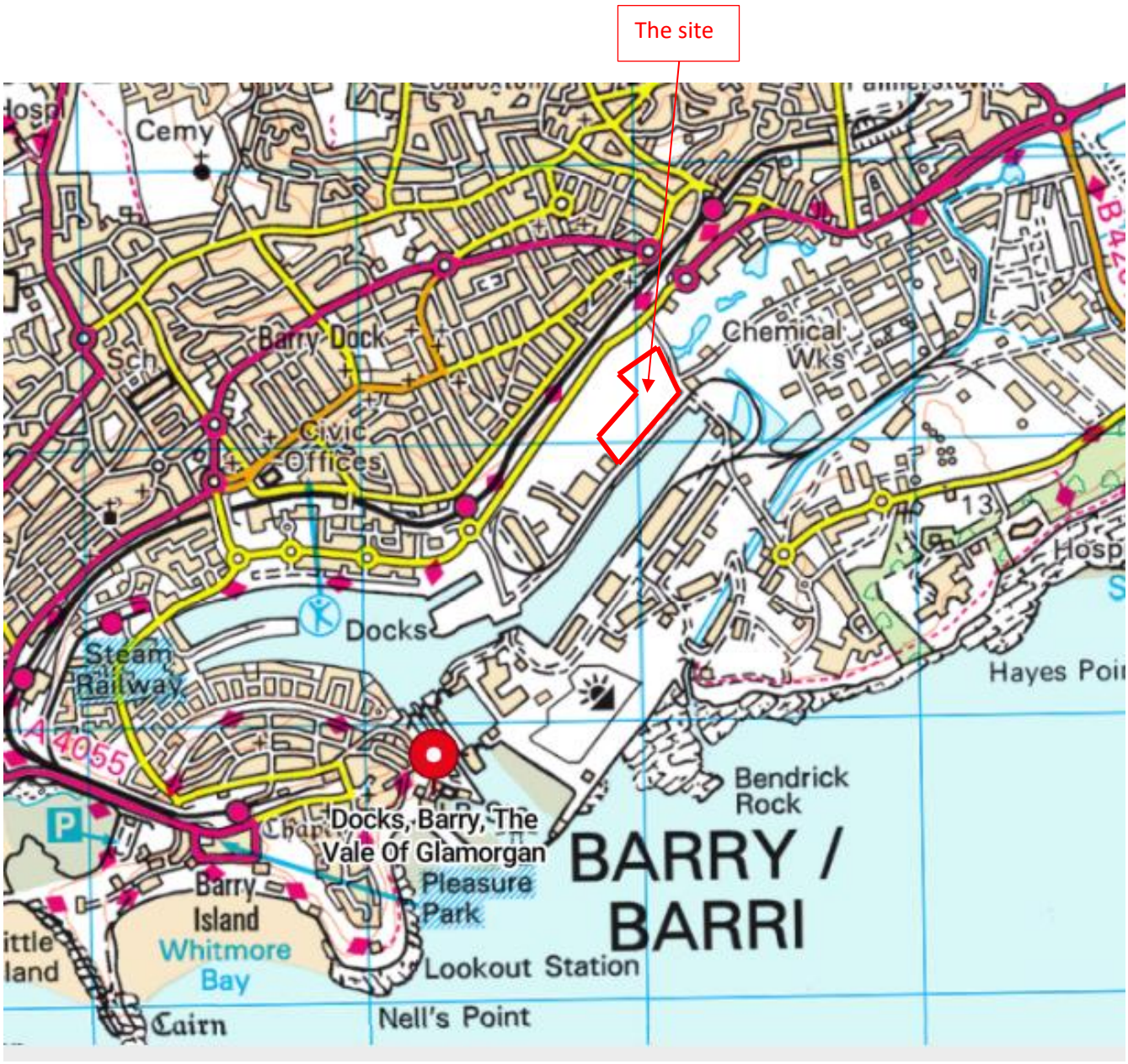
- The soil test results indicate that the made ground has the potential to impact upon the quality of drinking water in both PE and PVC pipes. Therefore, for any new supplies the local Water Authority should be consulted, who may require upgrade pipework (e.g. protecta-line) to be used.

- The site is within an area of Moderate risk of UXO therefore prior to any working that require excavations that will disturb the existing surfacing and underlying soils a

specialist consultant should undertake a review to determine the risk and if further investigations are required.

APPENDICES

APPENDIX A – Drawings



PROJECT Barry Dock	**CLIENT** South West Wood Products Ltd	Date : 5th February 2023 Scale : Not To Scale	FORGE The Forge Lower Vagg Chilthorne Domer Yeovil Somerset BA21 3PY Tel : 01935 840 346
DRAWING TITLE Site Location Plan		**DRAWING No.** **BAR128.D/sk03**	

UNEXPLODED BOMB RISK MAP

SITE LOCATION

Map Centre: 313021,168185

This map principally indicates a hazard from Unexploded Bombs (UXB) due to WWII bombardment. Other sources of Unexploded Ordnance (UXO) may be present. It should be noted that this map does not represent UXO risk and should not be reported as such when reproduced.

LEGEND

- **High:** Areas indicated as having a bombing density of 50 bombs per 1000acre or higher.
- **Moderate:** Areas indicated as having a bombing density of 15 to 49 bombs per 1000acre.
- **Low:** Areas indicated as having 15 bombs per 1000acre or less.

Miltary | **Industry** | **UXO find** | **Other**
Transport | **Docks** | **Luftwaffe targets**
Utilities | **Bombing decoy** | **Airfields**

How to use your Unexploded Bomb (UXB) risk map?

This map indicates the potential for UXBs to be present because of World War Two (WWII) bombing. It can be incorporated into a technical report, such as a Phase 1 Desk Study, or similar document as an indication of the potential for UXO encounter on a Site. Other sources of UXO may also be indicated, although note that these are not comprehensive and more detailed research is required to confirm their presence.

What if my Site is in a moderate or high density area?

We typically recommend that a detailed UXO desk study and risk assessment is undertaken for sites in an area with a moderate or high bombing density.
Additionally, if your site is in close proximity to a strategic target, military establishment, airfield or bombing decoy, then additional detailed research is recommended.

If my site is in a low risk area, do I need to do anything?

If both the map and other research confirm that there is a low potential for UXO to be present on your site, then, subject to your own comfort and risk tolerance, works can proceed with no special precautions.

If you are unsure whether other sources of UXO may be present, you can request one of our pre-desk study assessments (PDSA) by emailing a site boundary and location to uxo@zetica.com.

You should never plan site work or undertake a risk assessment using these maps alone. More detail is required, to include an assessment of the likelihood of a source of UXO hazard from other military activity not reflected on these maps.

If I have any questions, who do I contact?

tel: +44 (0) 1993 886682 **email:** uxo@zetica.com **web:** www.zeticauxo.com

The information in this UXB risk map is derived from a range of sources and should be used with the accompanying notes on our website.

KEY

⊕ Window sample hole location

PROJECT Barry Docks	**CLIENT** South West Wood Products Ltd	Date : 5th February 2023 Scale : Not To Scale	FORGE The Forge Lower Vagg Chilthorne Domer Yeovil Somerset BA21 3PY Tel : 01935 840 346
DRAWING TITLE Proposed Window Sample Position Plan		**DRAWING No.** **BAR128.D/sk01**	

APPENDIX B – Groundsure Report

Groundsure
LOCATION INTELLIGENCE

Enviro+Geo Insight

31 WIMBORNE ROAD, BARRY DOCKS, VALE OF GLAMORGAN, CF63 3DH

Order Details

Date: 23/05/2024

Your ref: LAM060/BAR128.D

Our Ref: GS-TTF-L97-74H-OQV

Site Details

Location: 313009 168143

Area: 5.53 ha

Authority: Bro Morgannwg - Vale of Glamorgan Council ↗

Contact us with any questions at:
info@groundsure.com ↗
01273 257 755

Certified B Corporation

Summary of findings

Page	Section	Past land use >	On site	0-50m	50-250m	250-500m	500-2000m
15 >	1.1 >	Historical industrial land uses >	30	16	37	93	-
22 >	1.2 >	Historical tanks >	0	0	8	8	-
23 >	1.3 >	Historical energy features >	0	0	11	12	-
24	1.4	Historical petrol stations	0	0	0	0	-
24 >	1.5 >	Historical garages >	0	0	0	17	-
25	1.6	Historical military land	0	0	0	0	-
Page	Section	Past land use - un-grouped >	On site	0-50m	50-250m	250-500m	500-2000m
26 >	2.1 >	Historical industrial land uses >	31	24	47	123	-
35 >	2.2 >	Historical tanks >	0	0	14	22	-
36 >	2.3 >	Historical energy features >	0	0	22	30	-
38	2.4	Historical petrol stations	0	0	0	0	-
39 >	2.5 >	Historical garages >	0	0	0	23	-
Page	Section	Waste and landfill >	On site	0-50m	50-250m	250-500m	500-2000m
41 >	3.1 >	Active or recent landfill >	0	0	1	0	-
42	3.2	Historical landfill (BGS records)	0	0	0	0	-
42 >	3.3 >	Historical landfill (LA/mapping records) >	0	1	0	3	-
42 >	3.4 >	Historical landfill (EA/NRW records) >	0	0	1	5	-
44 >	3.5 >	Historical waste sites >	0	0	0	5	-
45 >	3.6 >	Licensed waste sites >	20	0	2	34	-
59 >	3.7 >	Waste exemptions >	0	0	0	40	-
Page	Section	Current industrial land use >	On site	0-50m	50-250m	250-500m	500-2000m
64 >	4.1 >	Recent industrial land uses >	2	0	16	-	-
66	4.2	Current or recent petrol stations	0	0	0	0	-
66	4.3	Electricity cables	0	0	0	0	-
66	4.4	Gas pipelines	0	0	0	0	-
66	4.5	Sites determined as Contaminated Land	0	0	0	0	-

66 >	4.6 >	Control of Major Accident Hazards (COMAH) >	0	0	1	2	-
67	4.7	Regulated explosive sites	0	0	0	0	-
67 >	4.8 >	Hazardous substance storage/usage >	0	0	0	1	-
67	4.9	Historical licensed industrial activities (IPC)	0	0	0	0	-
68 >	4.10 >	Licensed industrial activities (Part A(1)) >	0	0	3	12	-
70 >	4.11 >	Licensed pollutant release (Part A(2)/B) >	0	0	0	3	-
71	4.12	Radioactive Substance Authorisations	0	0	0	0	-
71 >	4.13 >	Licensed Discharges to controlled waters >	1	8	8	14	-
75	4.14	Pollutant release to surface waters (Red List)	0	0	0	0	-
76	4.15	Pollutant release to public sewer	0	0	0	0	-
76	4.16	List 1 Dangerous Substances	0	0	0	0	-
76	4.17	List 2 Dangerous Substances	0	0	0	0	-
76 >	4.18 >	Pollution Incidents (EA/NRW) >	0	0	5	6	-
78	4.19	Pollution inventory substances	0	0	0	0	-
78	4.20	Pollution inventory waste transfers	0	0	0	0	-
78	4.21	Pollution inventory radioactive waste	0	0	0	0	-

Page	Section	Hydrogeology >	On site	0-50m	50-250m	250-500m	500-2000m
79 >	5.1 >	Superficial aquifer >	Identified (within 500m)				
81 >	5.2 >	Bedrock aquifer >	Identified (within 500m)				
83 >	5.3 >	Groundwater vulnerability >	Identified (within 50m)				
85 >	5.4 >	Groundwater vulnerability- soluble rock risk >	Identified (within 0m)				
86	5.5	Groundwater vulnerability- local information	None (within 0m)				
87 >	5.6 >	Groundwater abstractions >	0	0	0	0	2
88 >	5.7 >	Surface water abstractions >	0	0	0	0	9
90	5.8	Potable abstractions	0	0	0	0	0
91 >	5.9 >	Source Protection Zones >	0	0	1	0	-
91	5.10	Source Protection Zones (confined aquifer)	0	0	0	0	-

Page	Section	Hydrology >	On site	0-50m	50-250m	250-500m	500-2000m
92 >	6.1 >	Water Network (OS MasterMap) >	0	0	6	-	-

93 >	6.2 >	Surface water features >	1	1	6	-	-
93 >	6.3 >	WFD Surface water body catchments >	2	-	-	-	-
94 >	6.4 >	WFD Surface water bodies >	0	0	0	-	-
94 >	6.5 >	WFD Groundwater bodies >	1	-	-	-	-
Page	Section	River and coastal flooding >	On site	0-50m	50-250m	250-500m	500-2000m
95 >	7.1 >	Risk of flooding from rivers and the sea >	High (within 50m)				
96	7.2	Historical Flood Events	0	0	0	-	-
96	7.3	Flood Defences	0	0	0	-	-
96 >	7.4 >	Areas Benefiting from Flood Defences >	1	0	4	-	-
97	7.5	Flood Storage Areas	0	0	0	-	-
98 >	7.6 >	Flood Zone 2 >	Identified (within 50m)				
99 >	7.7 >	Flood Zone 3 >	Identified (within 50m)				
Page	Section	Surface water flooding >					
100 >	8.1 >	Surface water flooding >	1 in 30 year, 0.3m - 1.0m (within 50m)				
Page	Section	Groundwater flooding >					
102 >	9.1 >	Groundwater flooding >	Low (within 50m)				
Page	Section	Environmental designations >	On site	0-50m	50-250m	250-500m	500-2000m
103 >	10.1 >	Sites of Special Scientific Interest (SSSI) >	0	0	0	0	4
104	10.2	Conserved wetland sites (Ramsar sites)	0	0	0	0	0
104	10.3	Special Areas of Conservation (SAC)	0	0	0	0	0
104	10.4	Special Protection Areas (SPA)	0	0	0	0	0
105	10.5	National Nature Reserves (NNR)	0	0	0	0	0
105	10.6	Local Nature Reserves (LNR)	0	0	0	0	0
105 >	10.7 >	Designated Ancient Woodland >	0	0	0	0	3
105	10.8	Biosphere Reserves	0	0	0	0	0
106	10.9	Forest Parks	0	0	0	0	0
106	10.10	Marine Conservation Zones	0	0	0	0	0
106	10.11	Green Belt	0	0	0	0	0
106	10.12	Proposed Ramsar sites	0	0	0	0	0

106	10.13	Possible Special Areas of Conservation (pSAC)	0	0	0	0	0
107	10.14	Potential Special Protection Areas (pSPA)	0	0	0	0	0
107	10.15	Nitrate Sensitive Areas	0	0	0	0	0
107	10.16	Nitrate Vulnerable Zones	0	0	0	0	0
108	10.17	SSSI Impact Risk Zones	0	-	-	-	-
108	10.18	SSSI Units	0	0	0	0	0
Page	Section	Visual and cultural designations	On site	0-50m	50-250m	250-500m	500-2000m
109	11.1	World Heritage Sites	0	0	0	-	-
109	11.2	Area of Outstanding Natural Beauty	0	0	0	-	-
109	11.3	National Parks	0	0	0	-	-
109	11.4	Listed Buildings	0	0	0	-	-
110	11.5	Conservation Areas	0	0	0	-	-
110	11.6	Scheduled Ancient Monuments	0	0	0	-	-
110	11.7	Registered Parks and Gardens	0	0	0	-	-
Page	Section	Agricultural designations	On site	0-50m	50-250m	250-500m	500-2000m
111	12.1	Agricultural Land Classification	None (within 250m)				
111	12.2	Open Access Land	0	0	0	-	-
111	12.3	Tree Felling Licences	0	0	0	-	-
111	12.4	Environmental Stewardship Schemes	0	0	0	-	-
112	12.5	Countryside Stewardship Schemes	0	0	0	-	-
Page	Section	Habitat designations	On site	0-50m	50-250m	250-500m	500-2000m
113	13.1	Priority Habitat Inventory	0	0	0	-	-
113	13.2	Habitat Networks	0	0	0	-	-
113	13.3	Open Mosaic Habitat	0	0	0	-	-
113	13.4	Limestone Pavement Orders	0	0	0	-	-
Page	Section	**Geology 1:10,000 scale** >	On site	0-50m	50-250m	250-500m	500-2000m
114 >	**14.1** >	**10k Availability** >	Identified (within 500m)				
115	14.2	Artificial and made ground (10k)	0	0	0	0	-
116	14.3	Superficial geology (10k)	0	0	0	0	-

116	14.4	Landslip (10k)	0	0	0	0	-
117	14.5	Bedrock geology (10k)	0	0	0	0	-
117	14.6	Bedrock faults and other linear features (10k)	0	0	0	0	-
Page	Section	**Geology 1:50,000 scale >**	On site	0-50m	50-250m	250-500m	500-2000m
118 >	15.1 >	50k Availability >	Identified (within 500m)				
119 >	15.2 >	Artificial and made ground (50k) >	1	0	0	0	-
120 >	15.3 >	Artificial ground permeability (50k) >	1	0	-	-	-
121 >	15.4 >	Superficial geology (50k) >	1	0	1	0	-
122 >	15.5 >	Superficial permeability (50k) >	Identified (within 50m)				
122	15.6	Landslip (50k)	0	0	0	0	-
122	15.7	Landslip permeability (50k)	None (within 50m)				
123 >	15.8 >	Bedrock geology (50k) >	1	0	3	5	-
124 >	15.9 >	Bedrock permeability (50k) >	Identified (within 50m)				
124 >	15.10 >	Bedrock faults and other linear features (50k) >	0	0	0	2	-
Page	Section	**Boreholes >**	On site	0-50m	50-250m	250-500m	500-2000m
125 >	16.1 >	BGS Boreholes >	3	12	18	-	-
Page	Section	**Natural ground subsidence >**					
128 >	17.1 >	Shrink swell clays >	Very low (within 50m)				
129 >	17.2 >	Running sands >	Moderate (within 50m)				
131 >	17.3 >	Compressible deposits >	Moderate (within 50m)				
133 >	17.4 >	Collapsible deposits >	Very low (within 50m)				
134 >	17.5 >	Landslides >	Low (within 50m)				
136 >	17.6 >	Ground dissolution of soluble rocks >	Negligible (within 50m)				
Page	Section	**Mining and ground workings >**	On site	0-50m	50-250m	250-500m	500-2000m
138 >	18.1 >	BritPits >	0	0	0	1	-
139 >	18.2 >	Surface ground workings >	21	30	25	-	-
142 >	18.3 >	Underground workings >	0	0	0	5	0
142	18.4	Underground mining extents	0	0	0	0	-
143	18.5	Historical Mineral Planning Areas	0	0	0	0	-

143 >	18.6 >	Non-coal mining >	0	0	0	1	3
144	18.7	JPB mining areas	None (within 0m)				
144	18.8	The Coal Authority non-coal mining	0	0	0	0	-
144	18.9	Researched mining	0	0	0	0	-
144	18.10	Mining record office plans	0	0	0	0	-
145	18.11	BGS mine plans	0	0	0	0	-
145	18.12	Coal mining	None (within 0m)				
145	18.13	Brine areas	None (within 0m)				
145	18.14	Gypsum areas	None (within 0m)				
145	18.15	Tin mining	None (within 0m)				
146	18.16	Clay mining	None (within 0m)				
Page	Section	Ground cavities and sinkholes	On site	0-50m	50-250m	250-500m	500-2000m
147	19.1	Natural cavities	0	0	0	0	-
147	19.2	Mining cavities	0	0	0	0	0
147	19.3	Reported recent incidents	0	0	0	0	-
147	19.4	Historical incidents	0	0	0	0	-
148	19.5	National karst database	0	0	0	0	-
Page	Section	Radon >					
149 >	20.1 >	Radon >	Less than 1% (within 0m)				
Page	Section	Soil chemistry >	On site	0-50m	50-250m	250-500m	500-2000m
151 >	21.1 >	BGS Estimated Background Soil Chemistry >	5	10	-	-	-
152	21.2	BGS Estimated Urban Soil Chemistry	0	0	-	-	-
152	21.3	BGS Measured Urban Soil Chemistry	0	0	-	-	-
Page	Section	Railway infrastructure and projects >	On site	0-50m	50-250m	250-500m	500-2000m
153	22.1	Underground railways (London)	0	0	0	-	-
153	22.2	Underground railways (Non-London)	0	0	0	-	-
154	22.3	Railway tunnels	0	0	0	-	-
154 >	22.4 >	Historical railway and tunnel features >	17	3	21	-	-
156	22.5	Royal Mail tunnels	0	0	0	-	-

156 >	22.6 >	Historical railways >	0	0	3	-	-
156 >	22.7 >	Railways >	1	0	6	-	-
157	22.8	Crossrail 1	0	0	0	0	-
157	22.9	Crossrail 2	0	0	0	0	-
157	22.10	HS2	0	0	0	0	-

Recent aerial photograph

Capture Date: 15/06/2022

Site Area: 5.53ha

Recent site history - 2019 aerial photograph

Capture Date: 18/09/2019

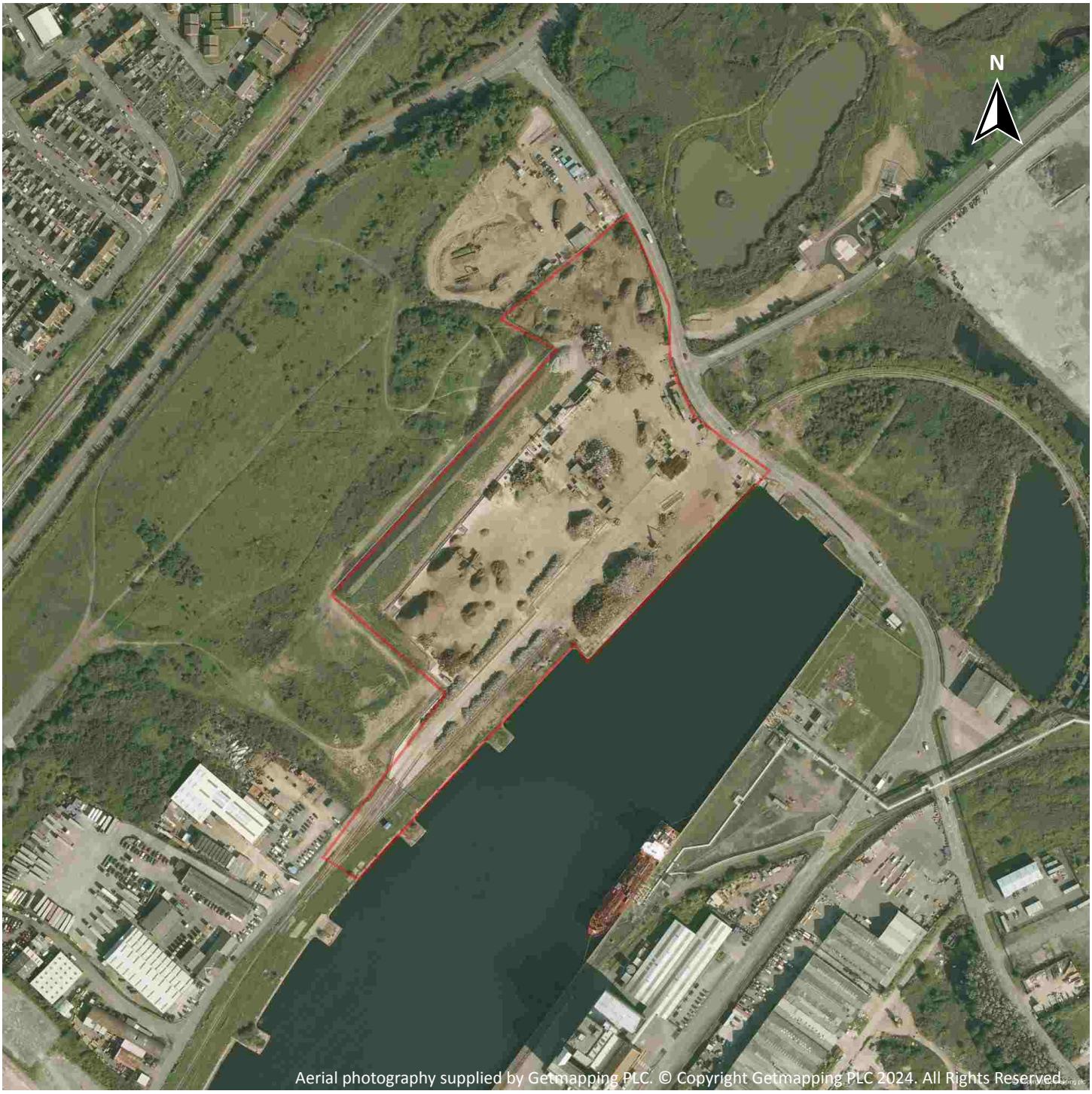
Site Area: 5.53ha

Recent site history - 2013 aerial photograph

Capture Date: 14/07/2013

Site Area: 5.53ha

Recent site history - 2009 aerial photograph



Capture Date: 17/09/2009

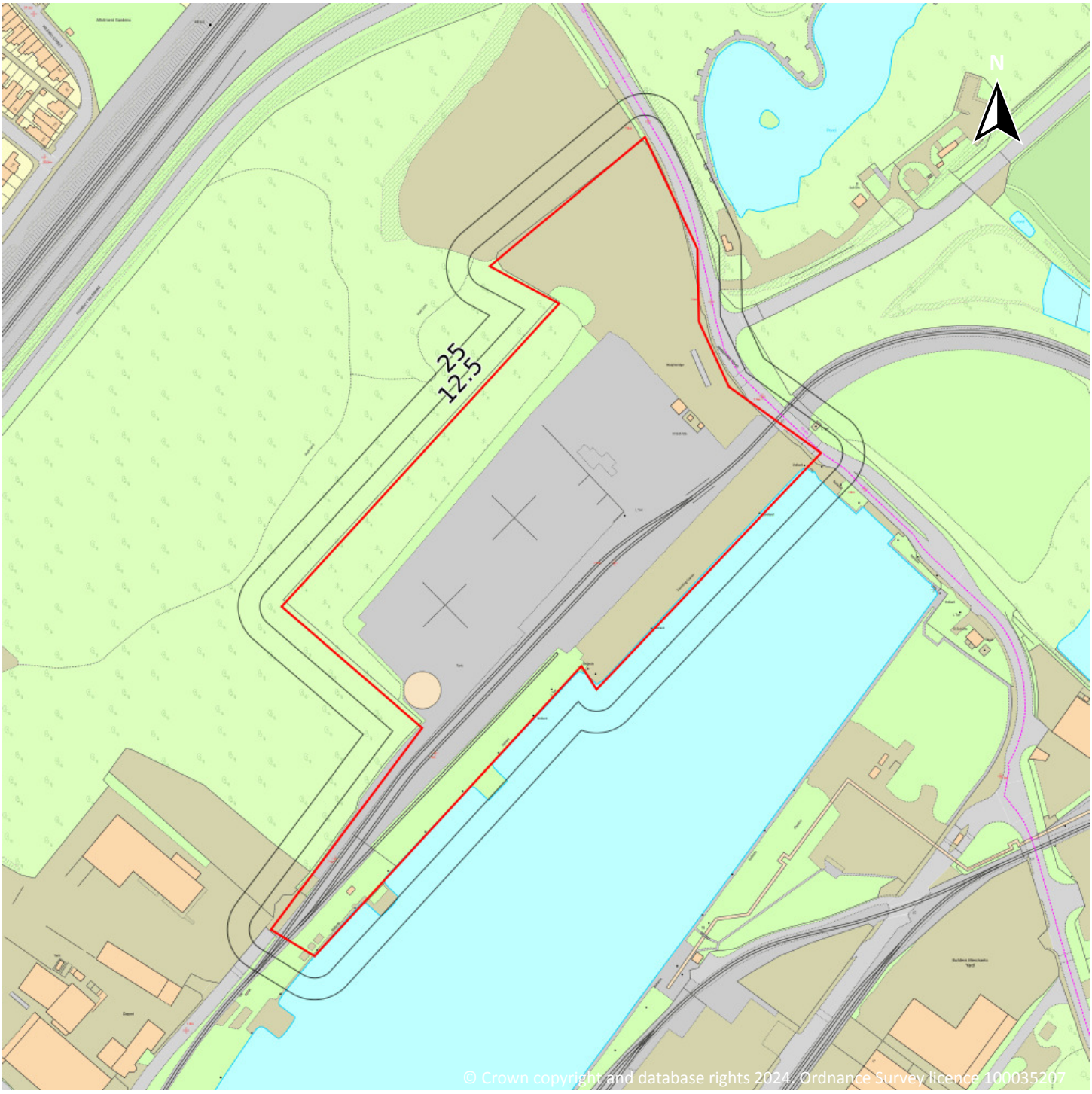
Site Area: 5.53ha

Recent site history - 2000 aerial photograph

Capture Date: 21/07/2000

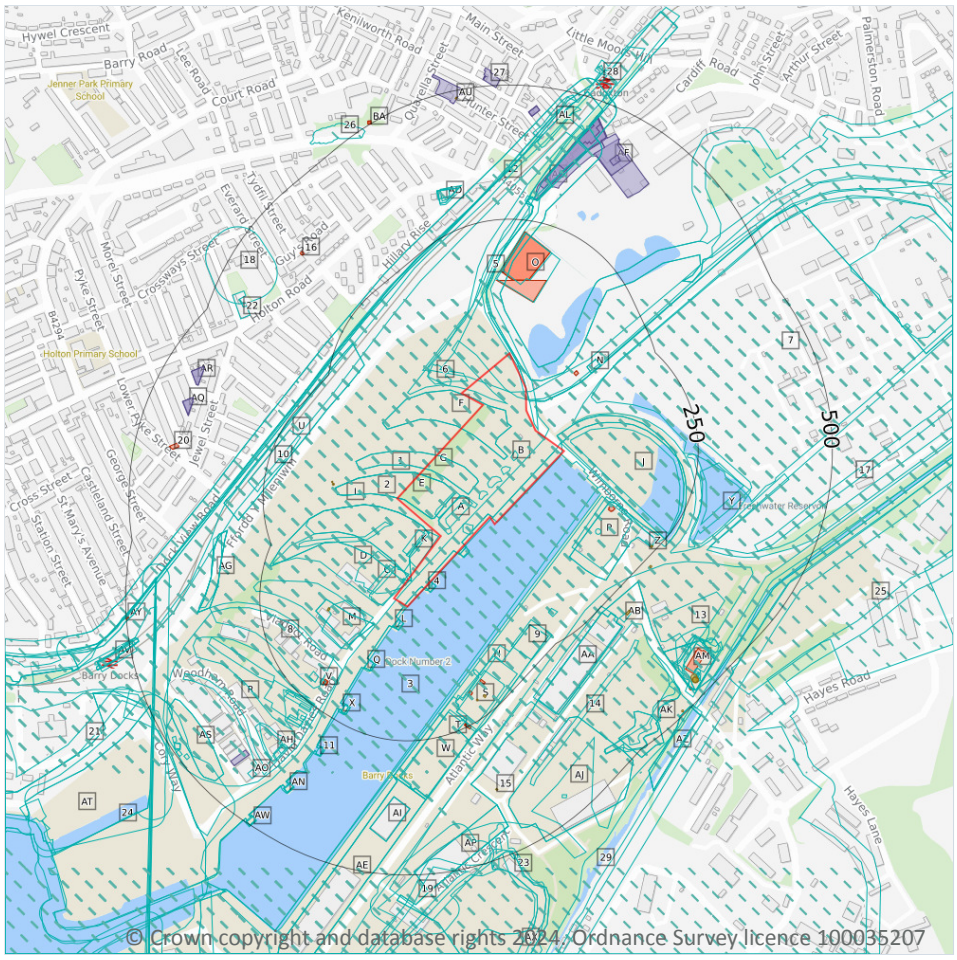
Site Area: 5.53ha

OS MasterMap site plan



Site Area: 5.53ha

1 Past land use



Site Outline

Search buffers in metres (m)

- Historical industrial land uses
- Historical tanks
- Historical energy features
- Historical garages

1.1 Historical industrial land uses

Records within 500m	176

Potentially contaminative land use features digitised from historical Ordnance Survey mapping at 1:10,000 and 1:10,560 scale, intelligently grouped into contiguous features. To prevent misrepresentation of the size of historical features at any given time, features are only grouped if they have similar geometries within immediately preceding or succeeding map editions. See section 2 for a breakdown of grouping if required. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

Features are displayed on the Past land use map on **page 15 >**

ID	Location	Land use	Dates present	Group ID
1	**On site**	**Railway Sidings**	**1898**	**1194460**

ID	Location	Land use	Dates present	Group ID
2	On site	Railway Sidings	1915	1221954
3	On site	Dock	1898 - 1915	1263933
A	On site	Unspecified Ground Workings	1921	1208752
A	On site	Unspecified Pit	1878	1185346
A	On site	Railway Sidings	1947	1202873
A	On site	Railway Sidings	1982	1218824
A	On site	Docks	1915 - 1921	1226662
A	On site	Railway Sidings	1915 - 1921	1232374
A	On site	Unspecified Ground Workings	1915	1247391
A	On site	Unspecified Ground Workings	1898	1254811
A	On site	Railway Sidings	1973	1270580
B	On site	Unspecified Ground Workings	1915	1160114
B	On site	Unspecified Ground Workings	1915	1160115
B	On site	Unspecified Ground Workings	1915	1160116
B	On site	Unspecified Pit	1915	1185347
C	On site	Wagon Works	1947	1177913
D	On site	Unspecified Works	1947	1178840
D	On site	Unspecified Ground Workings	1973	1200633
D	On site	Unspecified Ground Workings	1982	1241752
E	On site	Unspecified Pit	1973	1190345
E	On site	Unspecified Pit	1982	1241812
E	On site	Unspecified Pit	1947	1247693
F	On site	Unspecified Ground Workings	1973	1192821
F	On site	Unspecified Ground Workings	1982	1257783
G	On site	Unspecified Pit	1982	1205521
G	On site	Unspecified Pit	1973	1248746
H	On site	Docks	1936 - 1947	1219597
H	On site	Railway Sidings	1936 - 1947	1246589

ID	Location	Land use	Dates present	Group ID
I	**On site**	**Railway Sidings**	**1991**	**1231488**
4	0m SW	Coal Tips	1915 - 1947	1271961
D	1m SW	Unspecified Ground Workings	1921 - 1947	1222583
A	2m S	Coal Tips	1915 - 1947	1232887
C	4m SW	Railway Building	1915	1171686
C	5m SW	Unspecified Ground Workings	1915 - 1921	1227609
J	7m E	Timber Pond	1915	1262104
K	9m SW	Unspecified Ground Workings	1915	1266635
5	10m N	Unspecified Pit	1991	1185345
J	12m E	Timber Pond	1898	1230191
K	16m SW	Unspecified Ground Workings	1898	1248854
J	21m E	Timber Pond	1921 - 1947	1230470
6	27m N	Corn Mill	1878	1174884
L	29m SW	Coal Tips	1915	1229274
L	29m SW	Coal Tips	1921 - 1947	1255126
C	31m SW	Unspecified Ground Workings	1898	1238188
D	45m SW	Unspecified Heap	1878	1162413
M	53m SW	Unspecified Depot	1991	1252075
M	60m SW	Unspecified Depot	1973	1211252
M	60m SW	Unspecified Depot	1982	1254750
M	65m SW	Unspecified Pit	1973	1185352
O	106m N	Unspecified Depot	1982 - 1991	1245774
7	108m NE	Timber Pond	1947	1168304
P	116m E	Unspecified Depot	1947	1171243
N	120m NE	Pump House	1982 - 1991	1239445
N	120m NE	Pump House	1973	1244640
Q	121m SW	Coal Tips	1921 - 1947	1267033
Q	122m SW	Coal Tips	1915	1191833

ID	Location	Land use	Dates present	Group ID
P	127m E	Unspecified Depots	1973	1208423
P	127m E	Unspecified Depots	1982	1263425
O	130m N	Unspecified Depot	1973	1238248
P	144m SE	Chimney	1947	1182786
8	157m SW	Unspecified Pit	1973	1185362
R	160m SW	Unspecified Works	1982 - 1991	1262383
S	171m S	Unspecified Mills	1915 - 1921	1270405
S	176m S	Unspecified Mills	1982 - 1991	1240005
T	181m S	Unspecified Mills	1947	1200634
S	185m S	Unspecified Mills	1973	1218483
9	186m S	Unspecified Warehouse	1991	1164555
U	189m NW	Cuttings	1982 - 1991	1213911
U	189m NW	Cuttings	1973	1238735
H	189m SE	Railway Building	1947	1171685
V	201m SW	Railway Building	1915	1171688
V	202m SW	Railway Building	1947	1171687
W	207m S	Transit Shed	1921 - 1947	1206990
W	210m S	Transit Shed	1915	1210547
10	213m W	Cuttings	1947	1266998
X	215m SW	Coal Tips	1921 - 1947	1251200
X	216m SW	Coal Tips	1915	1238622
Y	230m E	Unspecified Ground Workings	1898 - 1915	1197878
R	244m SW	Unspecified Pit	1973	1185361
V	246m SW	Railway Building	1915	1195638
V	248m SW	Unspecified Works	1973	1190628
AA	249m SE	Unspecified Factory	1947	1173266
V	250m SW	Railway Building	1947	1233751
V	255m SW	Railway Building	1915	1216759

ID	Location	Land use	Dates present	Group ID
Y	257m E	Unspecified Pit	1991	1185343
V	258m SW	Railway Building	1915	1235009
AA	259m SE	Unspecified Warehouse	1982	1215246
AA	259m SE	Unspecified Warehouse	1973	1266590
R	266m SW	Unspecified Ground Workings	1898 - 1921	1236125
V	270m SW	Railway Building	1947	1202701
V	276m SW	Railway Building	1915	1210500
V	286m SW	Railway Building	1915	1249172
AB	289m SE	Railway Building	1947	1171689
AD	302m N	Police Station	1915 - 1947	1268305
AD	305m N	Police Station	1973	1222756
AD	305m N	Police Station	1947	1261764
11	307m SW	Coal Tips	1915 - 1947	1207569
AD	309m N	Police Station	1991	1235450
AD	314m N	Police Station	1982	1233251
AE	316m S	Unspecified Commercial/Industrial	1982 - 1991	1191753
AE	316m S	Unspecified Commercial/Industrial	1947	1205144
AE	316m S	Unspecified Commercial/Industrial	1973	1229749
AG	322m W	Tunnel	1982 - 1991	1216920
AG	322m W	Tunnel	1973	1250836
AG	322m W	Tunnel	1947	1267781
AH	323m SW	Unspecified Pit	1973	1245079
AG	329m W	Tunnel	1898	1253147
13	337m SE	Unspecified Depot	1991	1171242
14	339m SE	Unspecified Ground Workings	1915	1160117
AH	339m SW	Unspecified Pit	1947	1212702
AH	340m SW	Railway Building	1915	1231935
AH	342m SW	Railway Building	1947	1227600

ID	Location	Land use	Dates present	Group ID
AI	355m S	Unspecified Warehouse	1973	1227022
AI	355m S	Unspecified Warehouse	1982 - 1991	1259273
AJ	362m S	Unspecified Warehouse	1973	1242277
AJ	362m S	Unspecified Warehouse	1982 - 1991	1256771
AK	382m SE	Unspecified Ground Workings	1915	1160118
AL	388m N	Unspecified Ground Workings	1898 - 1915	1235858
AM	392m SE	Unspecified Works	1973	1192892
AM	392m SE	Unspecified Works	1991	1192952
AM	392m SE	Unspecified Works	1982	1219362
AN	394m SW	Coal Tips	1915	1201376
AM	395m SE	Unspecified Ground Workings	1947	1225416
AN	395m SW	Coal Tips	1921 - 1947	1261993
17	396m E	Unspecified Ground Workings	1898	1160119
18	403m NW	Ambulance Station	1947	1232598
AP	405m S	Unspecified Warehouse	1973	1195157
AP	405m S	Unspecified Warehouse	1982	1271660
AM	412m SE	Unspecified Ground Workings	1915	1221437
AO	413m SW	Railway Building	1947	1171671
19	415m S	Unspecified Warehouse	1991	1201898
AM	416m SE	Unspecified Heap	1921	1162409
21	419m W	Docks	1898	1269860
22	420m NW	Ambulance Station	1982 - 1991	1263013
AM	425m SE	Hydraulic Engine House	1898 - 1921	1265100
AS	431m SW	Unspecified Heap	1973	1205811
AS	431m SW	Unspecified Heap	1982 - 1991	1272068
AM	433m SE	Refuse Heap	1915	1178011
AK	436m SE	Refuse Heap	1973	1250840
AK	436m SE	Refuse Heap	1982	1263230

ID	Location	Land use	Dates present	Group ID
23	439m S	Unspecified Ground Workings	1898 - 1915	1224190
AK	441m SE	Unspecified Pit	1921 - 1947	1227809
AT	443m SW	Railway Sidings	1898	1192580
AT	445m W	Dock	1921	1171116
AJ	454m S	Magazine	1898	1177436
AM	458m SE	Unspecified Tank	1982	1175630
24	458m SW	Docks	1947	1209462
AM	460m SE	Chimney	1947	1182788
AT	463m SW	Unspecified Works	1947	1224742
AM	465m SE	Unspecified Tanks	1973	1168575
AM	465m SE	Unspecified Tank	1982	1249537
AM	466m SE	Unspecified Tank	1947	1201743
AM	467m SE	Unspecified Tank	1991	1197737
AS	481m SW	Railway Building	1915	1171667
AS	481m SW	Railway Building	1947	1190477
AS	482m SW	Railway Building	1915	1230987
AS	482m SW	Railway Building	1915	1171672
AV	482m SW	Railway Station	1936 - 1938	1252238
AV	482m SW	Railway Station	1915	1226295
AV	482m SW	Railway Station	1898	1261962
AW	483m SW	Coal Tips	1921 - 1947	1261386
AW	484m SW	Coal Tips	1915	1223324
25	484m SE	Unspecified Depot	1973	1224729
26	487m N	Unspecified Quarry	1898	1169456
AV	488m SW	Railway Station	1921	1218298
AV	489m SW	Railway Station	1947	1269625
AS	490m SW	Railway Building	1915	1171670
AX	492m S	Refuse Heap	1973	1218711

ID	Location	Land use	Dates present	Group ID
AX	492m S	Refuse Heap	1982	1248068
AT	496m SW	Graving Dock	1921	1191668
AZ	498m SE	Cuttings	1973	1201706
AZ	498m SE	Cuttings	1947	1206040
AZ	498m SE	Cuttings	1982 - 1991	1254363
28	498m N	Railway Station	1921	1251280
29	499m SE	Cuttings	1921	1228534

This data is sourced from Ordnance Survey / Groundsure.

1.2 Historical tanks

Records within 500m	**16**

Tank features digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale, intelligently grouped into contiguous features. To prevent misrepresentation of the size of historical features at any given time, features are only grouped if they have similar geometries within immediately preceding or succeeding map editions. See section 2 for a breakdown of grouping if required. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

Features are displayed on the Past land use map on **page 15 >**

ID	Location	Land use	Dates present	Group ID
I	121m W	Unspecified Tank	1954 - 1972	181258
I	121m W	Unspecified Tank	1954	183619
M	121m SW	Unspecified Tank	1989 - 1996	189462
I	124m W	Unspecified Tank	1943	185699
I	124m W	Unspecified Tank	1920	178539
S	216m S	Unspecified Tank	1963 - 1973	185705
S	218m S	Unspecified Tank	1989 - 1990	193406
Z	239m SE	Unspecified Tank	1973 - 1987	184059
Z	263m SE	Unspecified Tank	1955 - 1973	193777
AB	292m SE	Unspecified Tank	1955	179864
15	377m S	Unspecified Tank	1990 - 1991	191930

ID	Location	Land use	Dates present	Group ID
AM	460m SE	Unspecified Tank	1943 - 1955	186005
AM	465m SE	Unspecified Tank	1989 - 1991	184784
AM	466m SE	Unspecified Tank	1955 - 1973	184872
AU	484m N	Unspecified Tank	1990	172295
AM	492m SE	Unspecified Tank	1990 - 1991	180250

This data is sourced from Ordnance Survey / Groundsure.

1.3 Historical energy features

Records within 500m	**23**

Energy features digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale, intelligently grouped into contiguous features. To prevent misrepresentation of the size of historical features at any given time, features are only grouped if they have similar geometries within immediately preceding or succeeding map editions. See section 2 for a breakdown of grouping if required. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

Features are displayed on the Past land use map on **page 15 >**

ID	Location	Land use	Dates present	Group ID
N	94m NE	Electricity Substation	1973 - 1987	103744
O	105m N	Electricity Depot	1973 - 1987	112290
P	134m E	Electricity Substation	1973 - 1987	109292
O	136m N	Electricity Depot	1970	105183
O	137m N	Electricity Depot	1988 - 1990	110905
S	193m S	Electricity Substation	1989 - 1991	111167
S	196m S	Electricity Substation	1989 - 1996	111852
V	197m SW	Electricity Substation	1996	112635
V	199m SW	Electricity Substation	1971 - 1989	112458
T	243m S	Electricity Substation	1989 - 1996	104948
T	243m S	Electricity Substation	1971	103956
12	331m N	Electricity Substation	1996	97119
16	392m NW	Electricity Substation	1970 - 1990	105042

ID	Location	Land use	Dates present	Group ID
20	418m W	Electricity Substation	1954 - 1990	108031
AM	434m SE	Power House	1955	107616
AM	443m SE	Electricity Substation	1989 - 1991	108207
AM	444m SE	Electricity Substation	1973	112162
AM	473m SE	Electricity Substation	1989 - 1991	110571
AM	474m SE	Electricity Substation	1973	104388
AY	495m SW	Electricity Substation	1971	110584
AY	495m SW	Electricity Substation	1987 - 1996	110955
BA	499m N	Electricity Substation	1970	110753
BA	500m N	Electricity Substation	1987 - 1990	110116

This data is sourced from Ordnance Survey / Groundsure.

1.4 Historical petrol stations

Records within 500m	**0**

Petrol stations digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale, intelligently grouped into contiguous features. To prevent misrepresentation of the size of historical features at any given time, features are only grouped if they have similar geometries within immediately preceding or succeeding map editions. See section 2 for a breakdown of grouping if required. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

This data is sourced from Ordnance Survey / Groundsure.

1.5 Historical garages

Records within 500m	**17**

Garages digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale, intelligently grouped into contiguous features. To prevent misrepresentation of the size of historical features at any given time, features are only grouped if they have similar geometries within immediately preceding or succeeding map editions. See section 2 for a breakdown of grouping if required. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

Features are displayed on the Past land use map on **page 15 >**

ID	Location	Land use	Dates present	Group ID
AC	290m N	Garage	1990	33866

ID	Location	Land use	Dates present	Group ID
AC	314m N	Garage	1996	33396
AF	321m N	Garage	1970 - 1990	36378
AF	321m N	Garage	1988	33779
AF	357m N	Garage	1990	34032
AF	382m NE	Garage	1970 - 1988	34944
AO	395m SW	Coach Repair Works	1971	32472
AF	400m NE	Garage	1996	32871
AF	413m N	Garage	1996	33620
AQ	419m W	Garage	1972	32614
AQ	420m W	Garage	1972 - 1990	35463
AR	427m W	Motor Vehicle Repair Works	1972	34371
AR	427m W	Motor Vehicle Repair Works	1972 - 1990	34831
AL	444m N	Car Repair Works	1970	32496
AL	444m N	Car Repair Depot	1988 - 1990	35522
AU	477m N	Vehicle Repair Depot	1970 - 1987	35970
27	496m N	Garage	1990 - 1996	36680

This data is sourced from Ordnance Survey / Groundsure.

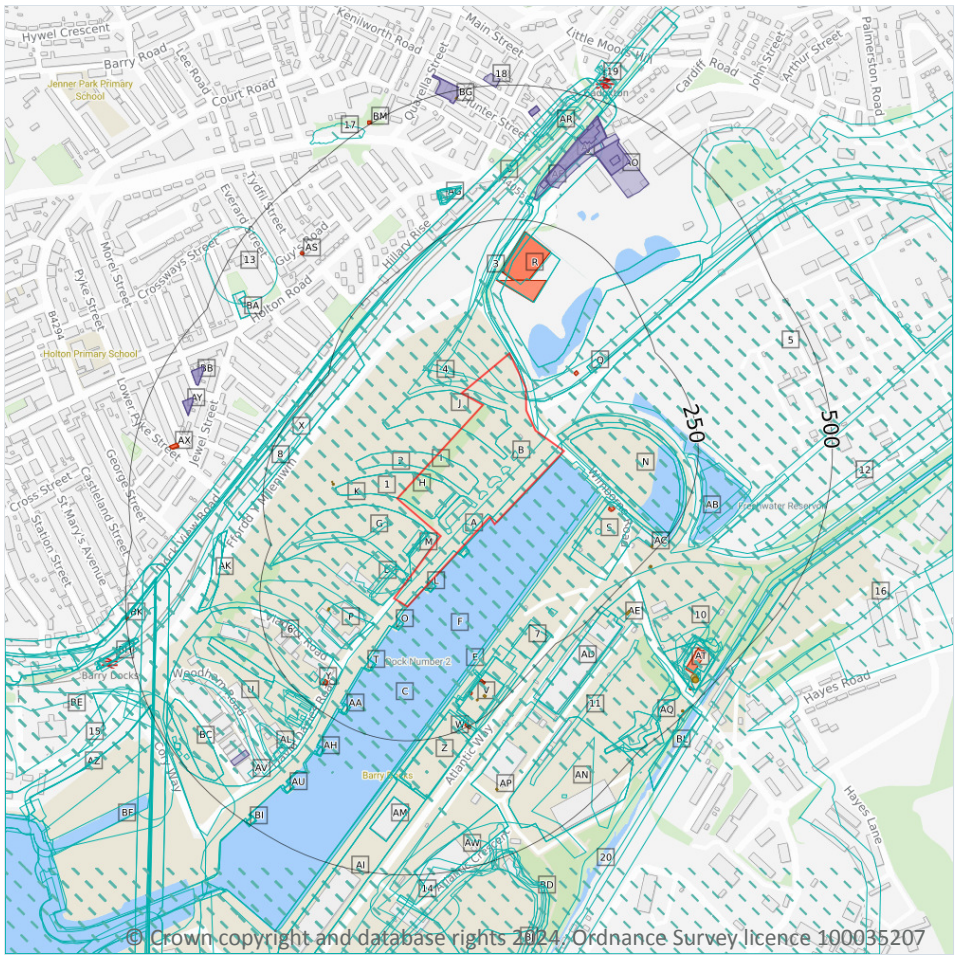
1.6 Historical military land

Records within 500m	**0**

Areas of military land digitised from multiple sources including the National Archives, local records, MOD records and verified other sources, intelligently grouped into contiguous features.

This data is sourced from Ordnance Survey / Groundsure / other sources.

2 Past land use - un-grouped



Site Outline

Search buffers in metres (m)

Historical industrial land uses

Historical tanks

Historical energy features

Historical garages

2.1 Historical industrial land uses

Records within 500m	225

Potentially contaminative land use features digitised from historical Ordnance Survey mapping at 1:10,000 and 10,560 scale. Any records shown are available intelligently grouped in section 1. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

Features are displayed on the Past land use - un-grouped map on **page 26 >**

ID	Location	Land Use	Date	Group ID
1	**On site**	**Railway Sidings**	**1915**	**1221954**
2	**On site**	**Railway Sidings**	**1898**	**1194460**
A	**On site**	**Unspecified Pit**	**1878**	**1185346**

ID	Location	Land Use	Date	Group ID
A	On site	Unspecified Ground Workings	1915	1247391
A	On site	Unspecified Ground Workings	1898	1254811
A	On site	Railway Sidings	1982	1218824
A	On site	Unspecified Ground Workings	1921	1208752
A	On site	Railway Sidings	1973	1270580
A	On site	Railway Sidings	1947	1202873
B	On site	Unspecified Ground Workings	1915	1160114
B	On site	Unspecified Ground Workings	1915	1160116
B	On site	Unspecified Ground Workings	1915	1160115
B	On site	Unspecified Pit	1915	1185347
C	On site	Dock	1915	1263933
C	On site	Dock	1898	1263933
D	On site	Wagon Works	1947	1177913
E	On site	Railway Sidings	1947	1246589
E	On site	Docks	1947	1219597
F	On site	Docks	1921	1226662
F	On site	Railway Sidings	1921	1232374
G	On site	Unspecified Ground Workings	1982	1241752
G	On site	Unspecified Ground Workings	1973	1200633
G	On site	Unspecified Works	1947	1178840
H	On site	Unspecified Pit	1982	1241812
H	On site	Unspecified Pit	1973	1190345
H	On site	Unspecified Pit	1947	1247693
I	On site	Unspecified Pit	1982	1205521
I	On site	Unspecified Pit	1973	1248746
J	On site	Unspecified Ground Workings	1982	1257783
J	On site	Unspecified Ground Workings	1973	1192821
K	On site	Railway Sidings	1991	1231488

ID	Location	Land Use	Date	Group ID
L	0m SW	Coal Tips	1915	1271961
M	1m SW	Unspecified Ground Workings	1921	1222583
L	2m SW	Coal Tips	1947	1271961
L	2m SW	Coal Tips	1921	1271961
A	2m S	Coal Tips	1915	1232887
A	3m S	Coal Tips	1947	1232887
A	3m S	Coal Tips	1921	1232887
D	4m SW	Railway Building	1915	1171686
D	5m SW	Unspecified Ground Workings	1921	1227609
N	7m E	Timber Pond	1915	1262104
G	8m SW	Unspecified Ground Workings	1947	1222583
M	9m SW	Unspecified Ground Workings	1915	1266635
3	10m N	Unspecified Pit	1991	1185345
N	12m E	Timber Pond	1898	1230191
M	16m SW	Unspecified Ground Workings	1898	1248854
N	21m E	Timber Pond	1947	1230470
N	21m E	Timber Pond	1921	1230470
D	25m SW	Unspecified Ground Workings	1915	1227609
4	27m N	Corn Mill	1878	1174884
O	29m SW	Coal Tips	1915	1229274
O	29m SW	Coal Tips	1947	1255126
O	29m SW	Coal Tips	1921	1255126
D	31m SW	Unspecified Ground Workings	1898	1238188
G	45m SW	Unspecified Heap	1878	1162413
P	53m SW	Unspecified Depot	1991	1252075
P	60m SW	Unspecified Depot	1982	1254750
P	60m SW	Unspecified Depot	1973	1211252
P	65m SW	Unspecified Pit	1973	1185352

ID	Location	Land Use	Date	Group ID
R	106m N	Unspecified Depot	1982	1245774
R	106m N	Unspecified Depot	1991	1245774
5	108m NE	Timber Pond	1947	1168304
S	116m E	Unspecified Depot	1947	1171243
Q	120m NE	Pump House	1982	1239445
Q	120m NE	Pump House	1991	1239445
Q	120m NE	Pump House	1973	1244640
T	121m SW	Coal Tips	1947	1267033
T	121m SW	Coal Tips	1921	1267033
T	122m SW	Coal Tips	1915	1191833
S	127m E	Unspecified Depots	1982	1263425
S	127m E	Unspecified Depots	1973	1208423
R	130m N	Unspecified Depot	1973	1238248
S	144m SE	Chimney	1947	1182786
6	157m SW	Unspecified Pit	1973	1185362
U	160m SW	Unspecified Works	1982	1262383
U	160m SW	Unspecified Works	1991	1262383
V	171m S	Unspecified Mills	1915	1270405
V	176m S	Unspecified Mills	1991	1240005
V	176m S	Unspecified Mills	1921	1270405
W	181m S	Unspecified Mills	1947	1200634
V	185m S	Unspecified Mills	1982	1240005
V	185m S	Unspecified Mills	1973	1218483
7	186m S	Unspecified Warehouse	1991	1164555
X	189m NW	Cuttings	1982	1213911
X	189m NW	Cuttings	1991	1213911
X	189m NW	Cuttings	1973	1238735
E	189m SE	Railway Building	1947	1171685

ID	Location	Land Use	Date	Group ID
Y	201m SW	Railway Building	1915	1171688
Y	202m SW	Railway Building	1947	1171687
Z	207m S	Transit Shed	1947	1206990
Z	207m S	Transit Shed	1921	1206990
Z	210m S	Transit Shed	1915	1210547
8	213m W	Cuttings	1947	1266998
AA	215m SW	Coal Tips	1947	1251200
AA	215m SW	Coal Tips	1921	1251200
AA	216m SW	Coal Tips	1915	1238622
AB	230m E	Unspecified Ground Workings	1915	1197878
U	244m SW	Unspecified Pit	1973	1185361
AB	244m E	Unspecified Ground Workings	1898	1197878
Y	246m SW	Railway Building	1915	1195638
Y	248m SW	Unspecified Works	1973	1190628
AD	249m SE	Unspecified Factory	1947	1173266
Y	250m SW	Railway Building	1947	1233751
Y	255m SW	Railway Building	1915	1216759
AB	257m E	Unspecified Pit	1991	1185343
Y	258m SW	Railway Building	1915	1235009
AD	259m SE	Unspecified Warehouse	1982	1215246
AD	259m SE	Unspecified Warehouse	1973	1266590
U	266m SW	Unspecified Ground Workings	1915	1236125
U	266m SW	Unspecified Ground Workings	1898	1236125
U	266m SW	Unspecified Ground Workings	1921	1236125
Y	270m SW	Railway Building	1947	1202701
Y	276m SW	Railway Building	1915	1210500
Y	286m SW	Railway Building	1915	1249172
AE	289m SE	Railway Building	1947	1171689

ID	Location	Land Use	Date	Group ID
AG	302m N	Police Station	1915	1268305
AG	304m N	Police Station	1947	1268305
AG	304m N	Police Station	1921	1268305
AG	305m N	Police Station	1973	1222756
AG	305m N	Police Station	1947	1261764
AH	307m SW	Coal Tips	1947	1207569
AH	307m SW	Coal Tips	1921	1207569
AH	308m SW	Coal Tips	1915	1207569
AG	309m N	Police Station	1991	1235450
AG	314m N	Police Station	1982	1233251
AI	316m S	Unspecified Commercial/Industrial	1982	1191753
AI	316m S	Unspecified Commercial/Industrial	1991	1191753
AI	316m S	Unspecified Commercial/Industrial	1973	1229749
AI	316m S	Unspecified Commercial/Industrial	1947	1205144
AK	322m W	Tunnel	1982	1216920
AK	322m W	Tunnel	1991	1216920
AK	322m W	Tunnel	1973	1250836
AK	322m W	Tunnel	1947	1267781
AL	323m SW	Unspecified Pit	1973	1245079
AK	329m W	Tunnel	1898	1253147
10	337m SE	Unspecified Depot	1991	1171242
11	339m SE	Unspecified Ground Workings	1915	1160117
AL	339m SW	Unspecified Pit	1947	1212702
AL	340m SW	Railway Building	1915	1231935
AL	342m SW	Railway Building	1947	1227600
AM	355m S	Unspecified Warehouse	1982	1259273
AM	355m S	Unspecified Warehouse	1991	1259273
AM	355m S	Unspecified Warehouse	1973	1227022

ID	Location	Land Use	Date	Group ID
AN	362m S	Unspecified Warehouse	1982	1256771
AN	362m S	Unspecified Warehouse	1991	1256771
AN	362m S	Unspecified Warehouse	1973	1242277
AQ	382m SE	Unspecified Ground Workings	1915	1160118
AR	388m N	Unspecified Ground Workings	1915	1235858
AT	392m SE	Unspecified Works	1982	1219362
AT	392m SE	Unspecified Works	1991	1192952
AT	392m SE	Unspecified Works	1973	1192892
AU	394m SW	Coal Tips	1915	1201376
AT	395m SE	Unspecified Ground Workings	1947	1225416
AU	395m SW	Coal Tips	1947	1261993
AU	395m SW	Coal Tips	1921	1261993
12	396m E	Unspecified Ground Workings	1898	1160119
13	403m NW	Ambulance Station	1947	1232598
AW	405m S	Unspecified Warehouse	1982	1271660
AW	405m S	Unspecified Warehouse	1973	1195157
AR	406m N	Unspecified Ground Workings	1898	1235858
AT	412m SE	Unspecified Ground Workings	1915	1221437
AV	413m SW	Railway Building	1947	1171671
14	415m S	Unspecified Warehouse	1991	1201898
AT	416m SE	Unspecified Heap	1921	1162409
15	419m W	Docks	1898	1269860
AZ	419m W	Docks	1938	1219597
AZ	419m W	Docks	1936	1219597
BA	420m NW	Ambulance Station	1982	1263013
BA	420m NW	Ambulance Station	1991	1263013
AT	425m SE	Hydraulic Engine House	1915	1265100
AT	425m SE	Hydraulic Engine House	1898	1265100

ID	Location	Land Use	Date	Group ID
AT	425m SE	Hydraulic Engine House	1921	1265100
BC	431m SW	Unspecified Heap	1982	1272068
BC	431m SW	Unspecified Heap	1991	1272068
BC	431m SW	Unspecified Heap	1973	1205811
AT	433m SE	Refuse Heap	1915	1178011
AQ	436m SE	Refuse Heap	1982	1263230
AQ	436m SE	Refuse Heap	1973	1250840
BD	439m S	Unspecified Ground Workings	1898	1224190
AQ	441m SE	Unspecified Pit	1947	1227809
AQ	441m SE	Unspecified Pit	1921	1227809
AZ	443m SW	Railway Sidings	1898	1192580
BE	444m W	Railway Sidings	1938	1246589
BE	444m W	Railway Sidings	1936	1246589
AZ	445m W	Dock	1921	1171116
AZ	445m W	Railway Sidings	1921	1232374
AZ	446m W	Docks	1915	1226662
AZ	446m W	Railway Sidings	1915	1232374
AN	454m S	Magazine	1898	1177436
AT	458m SE	Unspecified Tank	1982	1175630
BF	458m SW	Docks	1947	1209462
AT	460m SE	Chimney	1947	1182788
AZ	463m SW	Unspecified Works	1947	1224742
AT	465m SE	Unspecified Tanks	1973	1168575
AT	465m SE	Unspecified Tank	1982	1249537
AT	466m SE	Unspecified Tank	1947	1201743
AT	467m SE	Unspecified Tank	1991	1197737
BC	481m SW	Railway Building	1915	1171667
BC	481m SW	Railway Building	1947	1190477

ID	Location	Land Use	Date	Group ID
BC	482m SW	Railway Building	1915	1230987
BC	482m SW	Railway Building	1915	1171672
BH	482m SW	Railway Station	1936	1252238
BH	482m SW	Railway Station	1938	1252238
BH	482m SW	Railway Station	1915	1226295
BH	482m SW	Railway Station	1898	1261962
BI	483m SW	Coal Tips	1947	1261386
BI	483m SW	Coal Tips	1921	1261386
BI	484m SW	Coal Tips	1915	1223324
16	484m SE	Unspecified Depot	1973	1224729
BD	487m S	Unspecified Ground Workings	1915	1224190
BF	487m SW	Railway Sidings	1938	1246589
AZ	487m SW	Railway Sidings	1936	1246589
17	487m N	Unspecified Quarry	1898	1169456
BH	488m SW	Railway Station	1921	1218298
BH	489m SW	Railway Station	1947	1269625
BC	490m SW	Railway Building	1915	1171670
BJ	492m S	Refuse Heap	1982	1248068
BJ	492m S	Refuse Heap	1973	1218711
AZ	496m SW	Graving Dock	1921	1191668
BL	498m SE	Cuttings	1982	1254363
BL	498m SE	Cuttings	1991	1254363
BL	498m SE	Cuttings	1973	1201706
BL	498m SE	Cuttings	1947	1206040
19	498m N	Railway Station	1921	1251280
20	499m SE	Cuttings	1921	1228534

This data is sourced from Ordnance Survey / Groundsure.

2.2 Historical tanks

Records within 500m	**36**

Tank features digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale. Any records shown are available intelligently grouped in section 1. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

Features are displayed on the Past land use - un-grouped map on **page 26 >**

ID	Location	Land Use	Date	Group ID
K	121m W	Unspecified Tank	1954	181258
K	121m W	Unspecified Tank	1972	181258
K	121m W	Unspecified Tank	1954	183619
P	121m SW	Unspecified Tank	1996	189462
P	121m SW	Unspecified Tank	1989	189462
K	124m W	Unspecified Tank	1943	185699
K	124m W	Unspecified Tank	1920	178539
V	216m S	Unspecified Tank	1963	185705
V	216m S	Unspecified Tank	1973	185705
V	218m S	Unspecified Tank	1989	193406
V	218m S	Unspecified Tank	1990	193406
V	218m S	Unspecified Tank	1990	193406
AC	239m SE	Unspecified Tank	1973	184059
AC	240m SE	Unspecified Tank	1987	184059
AC	263m SE	Unspecified Tank	1963	193777
AC	263m SE	Unspecified Tank	1955	193777
AC	263m SE	Unspecified Tank	1973	193777
AC	264m SE	Unspecified Tank	1955	193777
AE	292m SE	Unspecified Tank	1955	179864
AE	292m SE	Unspecified Tank	1955	179864
AP	377m S	Unspecified Tank	1990	191930
AP	377m S	Unspecified Tank	1990	191930
AP	377m S	Unspecified Tank	1991	191930

ID	Location	Land Use	Date	Group ID
AT	460m SE	Unspecified Tank	1943	186005
AT	465m SE	Unspecified Tank	1989	184784
AT	465m SE	Unspecified Tank	1989	184784
AT	465m SE	Unspecified Tank	1990	184784
AT	465m SE	Unspecified Tank	1990	184784
AT	465m SE	Unspecified Tank	1991	184784
AT	466m SE	Unspecified Tank	1955	184872
AT	466m SE	Unspecified Tank	1973	184872
AT	466m SE	Unspecified Tank	1955	186005
BG	484m N	Unspecified Tank	1990	172295
AT	492m SE	Unspecified Tank	1990	180250
AT	492m SE	Unspecified Tank	1990	180250
AT	492m SE	Unspecified Tank	1991	180250

This data is sourced from Ordnance Survey / Groundsure.

2.3 Historical energy features

Records within 500m	**52**

Energy features digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale. Any records shown are available intelligently grouped in section 1. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

Features are displayed on the Past land use - un-grouped map on **page 26 >**

ID	Location	Land Use	Date	Group ID
Q	94m NE	Electricity Substation	1973	103744
Q	94m NE	Electricity Substation	1987	103744
R	105m N	Electricity Depot	1973	112290
R	105m N	Electricity Depot	1987	112290
S	134m E	Electricity Substation	1973	109292
S	134m E	Electricity Substation	1987	109292
R	136m N	Electricity Depot	1970	105183

ID	Location	Land Use	Date	Group ID
R	137m N	Electricity Depot	1988	110905
R	137m N	Electricity Depot	1990	110905
V	193m S	Electricity Substation	1989	111167
V	193m S	Electricity Substation	1989	111167
V	193m S	Electricity Substation	1990	111167
V	193m S	Electricity Substation	1990	111167
V	193m S	Electricity Substation	1991	111167
V	196m S	Electricity Substation	1996	111852
V	197m S	Electricity Substation	1989	111852
Y	197m SW	Electricity Substation	1996	112635
Y	199m SW	Electricity Substation	1989	112458
Y	200m SW	Electricity Substation	1971	112458
W	243m S	Electricity Substation	1996	104948
W	243m S	Electricity Substation	1989	104948
W	243m S	Electricity Substation	1971	103956
9	331m N	Electricity Substation	1996	97119
AS	392m NW	Electricity Substation	1970	105042
AS	394m NW	Electricity Substation	1987	105042
AS	394m NW	Electricity Substation	1990	105042
AX	418m W	Electricity Substation	1954	108031
AX	418m W	Electricity Substation	1954	108031
AX	418m W	Electricity Substation	1972	108031
AX	420m W	Electricity Substation	1972	108031
AX	420m W	Electricity Substation	1990	108031
AT	434m SE	Power House	1955	107616
AT	434m SE	Power House	1955	107616
AT	443m SE	Electricity Substation	1989	108207
AT	443m SE	Electricity Substation	1989	108207

ID	Location	Land Use	Date	Group ID
AT	443m SE	Electricity Substation	1990	108207
AT	443m SE	Electricity Substation	1990	108207
AT	443m SE	Electricity Substation	1991	108207
AT	444m SE	Electricity Substation	1973	112162
AT	473m SE	Electricity Substation	1989	110571
AT	473m SE	Electricity Substation	1989	110571
AT	473m SE	Electricity Substation	1990	110571
AT	473m SE	Electricity Substation	1990	110571
AT	473m SE	Electricity Substation	1991	110571
AT	474m SE	Electricity Substation	1973	104388
BK	495m SW	Electricity Substation	1971	110584
BK	495m SW	Electricity Substation	1996	110955
BK	496m SW	Electricity Substation	1992	110955
BK	496m SW	Electricity Substation	1987	110955
BM	499m N	Electricity Substation	1970	110753
BM	500m N	Electricity Substation	1987	110116
BM	500m N	Electricity Substation	1990	110116

This data is sourced from Ordnance Survey / Groundsure.

2.4 Historical petrol stations

Records within 500m	0

Petrol stations digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale. Any records shown are available intelligently grouped in section 1. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

This data is sourced from Ordnance Survey / Groundsure.

2.5 Historical garages

Records within 500m	23

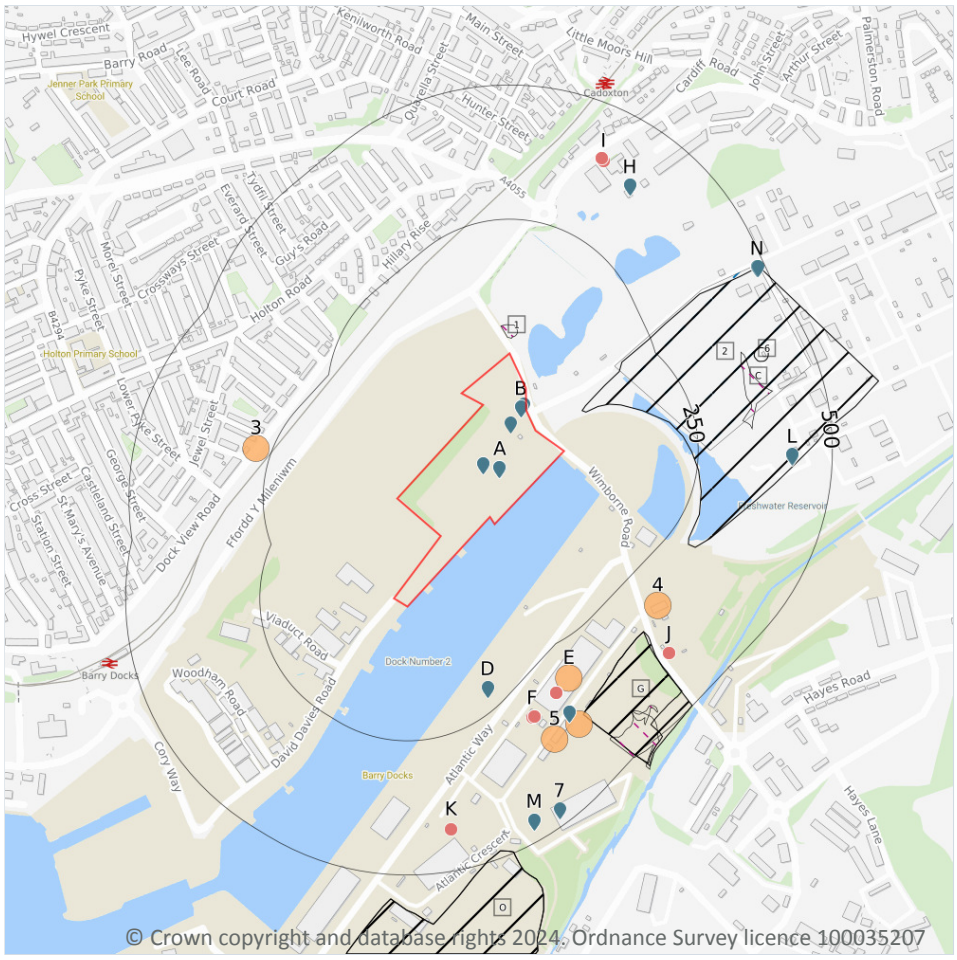
Garages digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale. Any records shown are available intelligently grouped in section 1. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

Features are displayed on the Past land use - un-grouped map on **page 26 >**

ID	Location	Land Use	Date	Group ID
AF	290m N	Garage	1990	33866
AF	314m N	Garage	1996	33396
AJ	321m N	Garage	1970	36378
AJ	321m N	Garage	1988	33779
AJ	357m N	Garage	1990	34032
AO	364m NE	Garage	1990	36378
AO	382m NE	Garage	1970	34944
AO	382m NE	Garage	1988	34944
AV	395m SW	Coach Repair Works	1971	32472
AO	400m NE	Garage	1996	32871
AJ	413m N	Garage	1996	33620
AY	419m W	Garage	1972	32614
AY	420m W	Garage	1972	35463
AY	420m W	Garage	1990	35463
BB	427m W	Motor Vehicle Repair Works	1972	34371
BB	427m W	Motor Vehicle Repair Works	1972	34831
BB	427m W	Motor Vehicle Repair Works	1990	34831
AR	444m N	Car Repair Works	1970	32496
AR	444m N	Car Repair Depot	1988	35522
AR	444m N	Car Repair Depot	1990	35522
BG	477m N	Vehicle Repair Depot	1970	35970
BG	477m N	Vehicle Repair Depot	1987	35970
18	496m N	Garage	1990	36680

This data is sourced from Ordnance Survey / Groundsure.

3 Waste and landfill



3.1 Active or recent landfill

Records within 500m	1

Active or recently closed landfill sites under Environment Agency/Natural Resources Wales regulation.

Features are displayed on the Waste and landfill map on **page 41 >**

ID	Location	Details	
2	170m NE	Operator: Dow Corning Ltd Site Address: Dow Corning Landfill, Cardiff Road, Barry, Glamorgan, CF63 2YL	WML Number: 30043 EPR Reference: DOW001 Landfill type: A7 : Industrial Waste Landfill (Factory curtilage) Status: Issued IPPC Reference: - EPR Number: EAEPR\EA/EPR/ZP3599FP/A001

This data is sourced from the Environment Agency and Natural Resources Wales.

3.2 Historical landfill (BGS records)

Records within 500m	0

Landfill sites identified on a survey carried out on behalf of the DoE in 1973. These sites may have been closed or operational at this time.

This data is sourced from the British Geological Survey.

3.3 Historical landfill (LA/mapping records)

Records within 500m	4

Landfill sites identified from Local Authority records and high detail historical mapping.

Features are displayed on the Waste and landfill map on **page 41 >**

ID	Location	Site address	Source	Data type
1	28m N	Refuse Tip	1972 mapping	Polygon
C	338m E	Refuse Tip	1988 mapping	Polygon
G	432m SE	Refuse Tip	1963 mapping	Polygon
G	433m SE	Refuse Tip	1972 mapping	Polygon

This data is sourced from the Ordnance Survey/Groundsure and Local Authority records.

3.4 Historical landfill (EA/NRW records)

Records within 500m	6

Known historical (closed) landfill sites (e.g. sites where there is no PPC permit or waste management licence currently in force). This includes sites that existed before the waste licensing regime and sites that have been licensed in the past but where a licence has been revoked, ceased to exist or surrendered and a certificate of completion has been issued.

Features are displayed on the Waste and landfill map on **page 41 >**

ID	Location	Details		
C	80m NE	Site Address: Barry Factory Salt Water Pond, Wimbourne Road, Barry, South Glamorgan Licence Holder Address: -	Waste Licence: Yes Site Reference: 22A Waste Type: Inert, Industrial, Household, Special, Liquid sludge Environmental Permitting Regulations (Waste) Reference: - Licence Issue: 19/12/1980 Licence Surrender: -	Operator: Dow Corning Limited Licence Holder: Dow Corning Limited First Recorded 31/12/1972 Last Recorded: -
G	338m SE	Site Address: Atlantic Trading Estate, Barry Dock No 2, Wimbourne Road, Barry, South Glamorgan Licence Holder Address: -	Waste Licence: - Site Reference: 6950/0060 Waste Type: Inert, Industrial, Household, Special Environmental Permitting Regulations (Waste) Reference: - Licence Issue: - Licence Surrender: -	Operator: Penarth Contractor Licence Holder: - First Recorded 31/12/1993 Last Recorded: 30/04/1996
G	338m SE	Site Address: Barry Dock No.1, Atlantic Trading Estate, Wimbourne Road, Barry, South Glamorgan Licence Holder Address: -	Waste Licence: Yes Site Reference: 6, 6950/0025 Waste Type: Inert, Industrial, Household Environmental Permitting Regulations (Waste) Reference: - Licence Issue: 02/11/1977 Licence Surrender: 31/12/1978	Operator: F J H Brackett Licence Holder: F J H Brackett First Recorded 31/12/1944 Last Recorded: 31/07/1981
6	395m E	Site Address: Barry Factory Ponds A, B and C, Wimbourne Road, Barry, South Glamorgan Licence Holder Address: -	Waste Licence: Yes Site Reference: 9 Waste Type: Industrial Environmental Permitting Regulations (Waste) Reference: - Licence Issue: 06/04/1978 Licence Surrender: -	Operator: Dow Corning Limited Licence Holder: Dow Corning Limited First Recorded 31/12/1977 Last Recorded: -
O	486m S	Site Address: Barry Docks Area A, Atlantic Trading Estate, Atlantic Crescent, Barry, South Glamorgan Licence Holder Address: -	Waste Licence: Yes Site Reference: 4 Waste Type: Industrial, Special, Liquid sludge Environmental Permitting Regulations (Waste) Reference: - Licence Issue: 26/10/1977 Licence Surrender: 31/12/1978	Operator: BP Chemicals Limited Licence Holder: BP Chemicals Limited First Recorded 31/12/1945 Last Recorded: 31/12/1994
O	486m S	Site Address: Barry Docks Area A and B, Atlantic Trading Estate, Atlantic Crescent, Barry, South Glamorgan Licence Holder Address: -	Waste Licence: Yes Site Reference: 16 Waste Type: Inert, Industrial, Commercial, Household, Special Environmental Permitting Regulations (Waste) Reference: - Licence Issue: 15/03/1979 Licence Surrender: 31/12/1978	Operator: BP Chemicals Limited Licence Holder: BP Chemicals Limited First Recorded 31/12/1945 Last Recorded: 31/12/1994

This data is sourced from the Environment Agency and Natural Resources Wales.

3.5 Historical waste sites

Records within 500m	**5**

Waste site records derived from Local Authority planning records and high detail historical mapping.

Features are displayed on the Waste and landfill map on **page 41 >**

ID	Location	Address	Further Details	Date
3	254m W	Site Address: The Compound, Dock View Road, Barry, South Glamorgan, CF63 4JP	Type of Site: Waste Recycling Centre Planning application reference: 2019/01426/FUL Description: Scheme comprises proposed waste recycling (aggregates) compound adjacent to channel view aggregates. Data source: Historic Planning Application Data Type: Point	06/01/2020
E	286m SE	Site Address: Atlantic Way, BARRY, South Glamorgan, CF63 3RA	Type of Site: Waste Transfer Station (Conversion) Planning application reference: 2009/00021/FUL Description: Scheme comprises change of use from B2 - general industrial use to sui generis - waste use which would include operational development in the form of the construction of a gasification waste to energy plant for non-hazardous waste. An application (009/00 021/FUL) for detailed planning permission was submitted to Vale Of Glamorgan B.C. Data source: Historic Planning Application Data Type: Point	-
4	299m SE	Site Address: Wimborne Road, BARRY, South Glamorgan, CF63 3DH	Type of Site: Waste Transfer Station Planning application reference: 00/00349/FUL Description: Provision of a skip waste transfer station and recycling facility for inert and construction materials. Scheme includes 2 portable office buildings and construction of a steel framed workshop building of 162 sqm with 3 roller shutter doors. Construction- roller shutter doors; steel frame. An application (ref: 00/00349/FUL) for Detailed Planning permission was submitted to Vale Of Glamorgan B.C. on 10th December 1999. Data source: Historic Planning Application Data Type: Point	-

ID	Location	Address	Further Details	Date
5	343m S	Site Address: Atlantic Way, Barry Dock, BARRY, South Glamorgan, CF63 3RA	Type of Site: Waste Transfer Station Planning application reference: 96/00939/FUL Description: Scheme proposes an inert waste recycling centre. An application (ref: 96/00939/FUL) for Detailed Planning permission was submitted to Vale Of Glamorgan B.C. on 9th August 1996. Data source: Historic Planning Application Data Type: Point	-
E	358m S	Site Address: Phase 2, Green Circle Recycling Centre, Atlantic Way Docks, BARRY, South Glamorgan	Type of Site: Recycling Centre (Change Of Use) Planning application reference: 97/00748/FUL Description: An application (ref: 97/00748/FUL) for Detailed Planning permission was submitted to Vale Of Glamorgan B.C. on 8th July 1997. Data source: Historic Planning Application Data Type: Point	-

This data is sourced from Ordnance Survey/Groundsure and Local Authority records.

3.6 Licensed waste sites

Records within 500m	**56**

Active or recently closed waste sites under Environment Agency/Natural Resources Wales regulation.

Features are displayed on the Waste and landfill map on **page 41 >**

ID	Location	Details		
A	**On site**	**Site Name: Iba Recycling Site** **Site Address: -** **Correspondence Address: -**	**Type of Site: Use of waste in construction 50,000 tps** **Size: Unknown** **Environmental Permitting Regulations (Waste) Licence Number: RAY061** **EPR reference: KB3190HU/A001** **Operator: Raymond Brown Minerals And Recycling Ltd** **Waste Management licence No: 900177** **Annual Tonnage: 0**	**Issue Date: 28/07/2015** **Effective Date: -** **Modified: -** **Surrendered Date: 0** **Expiry Date: 0** **Cancelled Date: 0** **Status: Issued**

ID	Location	Details		
A	On site	Site Name: Iba Recycling Site Site Address: - Correspondence Address: -	Type of Site: Use of waste in construction 50,000 tps Size: 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: RAY061 EPR reference: EA/EPR/KB3190HU/A001 Operator: Raymond Brown Minerals And Recycling Ltd Waste Management licence No: 900177 Annual Tonnage: 0	Issue Date: 28/07/2015 Effective Date: - Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Issued
A	On site	Site Name: - Site Address: - Correspondence Address: -	Type of Site: Use of waste in construction 50,000 tps Size: Unknown Environmental Permitting Regulations (Waste) Licence Number: KB3190HU EPR reference: - Operator: - Waste Management licence No: 900177 Annual Tonnage: 0	Issue Date: 28/07/2015 Effective Date: 28/07/2015 Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Effective
A	On site	Site Name: - Site Address: Iba Recycling Site, Barry, Vale of Glamorgan, CF63 4DH Correspondence Address: -	Type of Site: - Size: Unknown Environmental Permitting Regulations (Waste) Licence Number: KB3190HU EPR reference: - Operator: Raymond Brown Minerals And Recycling Ltd Waste Management licence No: 0 Annual Tonnage: 0	Issue Date: 28/07/2015 Effective Date: 28/07/2015 Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Effective
A	On site	Site Name: - Site Address: J M Envirofuels (Barry) Limited, Berth 31 Wimbourne Rd, Barry Docks, Barry, Vale of Glamorgan, CF63 3DH Correspondence Address: -	Type of Site: - Size: Unknown Environmental Permitting Regulations (Waste) Licence Number: AB3690CP EPR reference: - Operator: JM ENVIROFUELS (BARRY) LIMITED Waste Management licence No: 0 Annual Tonnage: 75000	Issue Date: 07/11/2017 Effective Date: 07/11/2017 Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Effective

ID	Location	Details		
A	On site	Site Name: - Site Address: Iba Recycling Site, Barry, Vale of Glamorgan, CF63 4DH Correspondence Address: -	Type of Site: - Size: Unknown Environmental Permitting Regulations (Waste) Licence Number: KB3190HU EPR reference: - Operator: Raymond Brown Minerals And Recycling Ltd Waste Management licence No: 900177 Annual Tonnage: 0	Issue Date: 28/07/2015 Effective Date: 28/07/2015 Modified: - Surrendered Date: 22/12/2017 Expiry Date: - Cancelled Date: - Status: Surrender
A	On site	Site Name: - Site Address: Glamorgan Recycling Limited, Berth 31 Wimbourne Rd, Barry Docks, Barry, CF63 3DH Correspondence Address: -	Type of Site: Treatment of waste wood 75000 tps Size: - Environmental Permitting Regulations (Waste) Licence Number: AB3690CP EPR reference: - Operator: Glamorgan Recycling Limited Waste Management licence No: - Annual Tonnage: 75000	Issue Date: 16/09/2022 Effective Date: 16/09/2022 Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Effective
A	On site	Site Name: - Site Address: Iba Recycling Site, Barry, CF63 4DH Correspondence Address: -	Type of Site: Use of waste in construction 50,000 tps Size: - Environmental Permitting Regulations (Waste) Licence Number: KB3190HU EPR reference: - Operator: Raymond Brown Minerals And Recycling Ltd Waste Management licence No: - Annual Tonnage: 0	Issue Date: 28/07/2015 Effective Date: 28/07/2015 Modified: - Surrendered Date: 22/12/2017 Expiry Date: - Cancelled Date: - Status: Surrender
A	On site	Site Name: - Site Address: Iba Recycling Site, Barry, CF63 4DH Correspondence Address: -	Type of Site: Use of waste in construction 50,000 tps Size: - Environmental Permitting Regulations (Waste) Licence Number: KB3190HU EPR reference: - Operator: Raymond Brown Minerals And Recycling Ltd Waste Management licence No: - Annual Tonnage: 0	Issue Date: 28/07/2015 Effective Date: 28/07/2015 Modified: - Surrendered Date: 22/12/2017 Expiry Date: - Cancelled Date: - Status: Surrender

ID	Location	Details		
A	On site	Site Name: - Site Address: J M Envirofuels (Barry) Limited, Berth 31 Wimbourne Rd, Barry Docks, Barry, CF63 3DH Correspondence Address: -	Type of Site: Treatment of waste wood 75000 tps Size: - Environmental Permitting Regulations (Waste) Licence Number: AB3690CP EPR reference: - Operator: JM ENVIROFUELS (BARRY) LIMITED Waste Management licence No: - Annual Tonnage: 75000	Issue Date: 07/11/2017 Effective Date: 07/11/2017 Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Effective
A	On site	Site Name: - Site Address: J M Envirofuels (Barry) Limited, Berth 31 Wimbourne Rd, Barry Docks, Barry, CF63 3DH Correspondence Address: -	Type of Site: Treatment of waste wood 75000 tps Size: - Environmental Permitting Regulations (Waste) Licence Number: AB3690CP EPR reference: - Operator: JM ENVIROFUELS (BARRY) LIMITED Waste Management licence No: - Annual Tonnage: 75000	Issue Date: 07/11/2017 Effective Date: 07/11/2017 Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Effective
B	On site	Site Name: Site At Berth 31 Site Address: Berth 31, Wimbourne Road, Barry Dock, Barry, Glamorgan, CF63 3DH Correspondence Address: -	Type of Site: Metal Recycling Site (mixed MRS's) Size: >= 75000 tonnes Environmental Permitting Regulations (Waste) Licence Number: SIM125 EPR reference: EA/EPR/ZP3692EF/S003 Operator: Sims Group U K Ltd Waste Management licence No: 100571 Annual Tonnage: 0	Issue Date: 11/10/2010 Effective Date: 12/07/2011 Modified: - Surrendered Date: 07/02/2014 Expiry Date: - Cancelled Date: - Status: Surrendered
B	On site	Site Name: Dunn Brothers (1995) Ltd Site Address: Berth 31, Wimbourne Road, Barry Dock, Barry, Glamorgan, CF63 3DH Correspondence Address: -	Type of Site: Metal Recycling Site (mixed MRS's) Size: >= 75000 tonnes Environmental Permitting Regulations (Waste) Licence Number: DUN030 EPR reference: EA/EPR/BP3693SL/A001 Operator: Dunn Bros (1995) Ltd Waste Management licence No: 100571 Annual Tonnage: 149999	Issue Date: 11/10/2010 Effective Date: - Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Issued

ID	Location	Details		
B	On site	Site Name: Site At Berth 31 Site Address: Berth 31, Wimbourne Road, Barry Dock, Barry, Glamorgan, CF63 3DH Correspondence Address: -	Type of Site: Metal Recycling Site (mixed MRS's) Size: Unknown Environmental Permitting Regulations (Waste) Licence Number: SIM125 EPR reference: ZP3692EF/S003 Operator: Sims Group U K Ltd Waste Management licence No: 100571 Annual Tonnage: 0	Issue Date: 11/10/2010 Effective Date: 12/07/2011 Modified: - Surrendered Date: 2.01402e+016 Expiry Date: 0 Cancelled Date: 0 Status: Surrendered
B	On site	Site Name: - Site Address: Site At Berth 31, Berth 31, Barry Dock, Barry, Glamorgan, CF63 3DH Correspondence Address: -	Type of Site: Metal Recycling Site (mixed MRS's) Size: Unknown Environmental Permitting Regulations (Waste) Licence Number: ZP3692EF EPR reference: - Operator: - Waste Management licence No: 100571 Annual Tonnage: 0	Issue Date: 11/10/2010 Effective Date: 11/10/2010 Modified: - Surrendered Date: 07/02/2014 Expiry Date: - Cancelled Date: - Status: Surrender
B	On site	Site Name: - Site Address: Site At Berth 31, Berth 31, Barry Dock, Barry, Vale of Glamorgan, CF63 3DH Correspondence Address: -	Type of Site: - Size: Unknown Environmental Permitting Regulations (Waste) Licence Number: ZP3692EF EPR reference: - Operator: Sims Group U K Ltd Waste Management licence No: 0 Annual Tonnage: 0	Issue Date: 11/10/2010 Effective Date: 11/10/2010 Modified: - Surrendered Date: 07/02/2014 Expiry Date: - Cancelled Date: - Status: Surrendered
B	On site	Site Name: - Site Address: Site At Berth 31, Berth 31, Barry Dock, Glamorgan, Barry, Vale of Glamorgan, CF63 3DH Correspondence Address: -	Type of Site: - Size: Unknown Environmental Permitting Regulations (Waste) Licence Number: ZP3692EF EPR reference: - Operator: Sims Group U K Ltd Waste Management licence No: 100571 Annual Tonnage: 0	Issue Date: 11/10/2010 Effective Date: 11/10/2010 Modified: - Surrendered Date: 07/02/2014 Expiry Date: - Cancelled Date: - Status: Surrender

ID	Location	Details		
B	**On site**	**Site Name: -** **Site Address: South Wales Exports Limited, 31 Wimbourne Rd, Barry Dock, Barry, Vale of Glamorgan, CF63 3DH** **Correspondence Address: -**	**Type of Site: 75kte Metal Recycling Site** **Size: -** **Environmental Permitting Regulations (Waste) Licence Number: BB3293NH** **EPR reference: -** **Operator: South Wales Exports Limited** **Waste Management licence No: -** **Annual Tonnage: 75000**	**Issue Date: 13/05/2019** **Effective Date: 13/05/2019** **Modified: -** **Surrendered Date: -** **Expiry Date: -** **Cancelled Date: -** **Status: Effective**
B	**On site**	**Site Name: -** **Site Address: Site At Berth 31, Berth 31, Barry Dock, Barry, Glamorgan, CF63 3DH** **Correspondence Address: -**	**Type of Site: Metal Recycling Site (mixed MRS's)** **Size: -** **Environmental Permitting Regulations (Waste) Licence Number: ZP3692EF** **EPR reference: -** **Operator: Sims Group U K Ltd** **Waste Management licence No: -** **Annual Tonnage: 0**	**Issue Date: 11/10/2010** **Effective Date: 11/10/2010** **Modified: -** **Surrendered Date: 07/02/2014** **Expiry Date: -** **Cancelled Date: -** **Status: Surrender**
B	**On site**	**Site Name: -** **Site Address: Site At Berth 31, Berth 31, Barry Dock, Barry, Glamorgan, CF63 3DH** **Correspondence Address: -**	**Type of Site: Metal Recycling Site (mixed MRS's)** **Size: -** **Environmental Permitting Regulations (Waste) Licence Number: ZP3692EF** **EPR reference: -** **Operator: Sims Group U K Ltd** **Waste Management licence No: -** **Annual Tonnage: 0**	**Issue Date: 11/10/2010** **Effective Date: 11/10/2010** **Modified: -** **Surrendered Date: 07/02/2014** **Expiry Date: -** **Cancelled Date: -** **Status: Surrender**
D	214m S	Site Name: - Site Address: Barry Plant, Atlantic Way, Dock 2, Barry, CF63 3RA Correspondence Address: -	Type of Site: Treatment of waste to produce soil 75,000 tpy Size: - Environmental Permitting Regulations (Waste) Licence Number: BB3096CB EPR reference: - Operator: BDC Aggregates Limited Waste Management licence No: - Annual Tonnage: 75000	Issue Date: 18/12/2018 Effective Date: 18/12/2018 Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Effective

ID	Location	Details		
D	214m S	Site Name: - Site Address: Barry Plant, Atlantic Way, Dock 2, Barry, CF63 3RA Correspondence Address: -	Type of Site: Treatment of waste to produce soil 75,000 tpy Size: - Environmental Permitting Regulations (Waste) Licence Number: BB3096CB EPR reference: - Operator: BDC Aggregates Limited Waste Management licence No: - Annual Tonnage: 75000	Issue Date: 18/12/2018 Effective Date: 18/12/2018 Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Effective
E	357m S	Site Name: - Site Address: Atlantic Salvage Company, Barry Docks, Barry, Glamorgan, CF63 3RF Correspondence Address: -	Type of Site: ELV Facility Size: Unknown Environmental Permitting Regulations (Waste) Licence Number: VP3495FH EPR reference: - Operator: - Waste Management licence No: 30354 Annual Tonnage: 2499	Issue Date: 29/09/2005 Effective Date: 29/09/2005 Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Effective
E	357m S	Site Name: - Site Address: Atlantic Salvage Company, Barry Docks, Barry, Vale of Glamorgan, CF63 3RF Correspondence Address: -	Type of Site: - Size: Unknown Environmental Permitting Regulations (Waste) Licence Number: VP3495FH EPR reference: - Operator: David John Comerford Waste Management licence No: 0 Annual Tonnage: 2499	Issue Date: 29/09/2005 Effective Date: 29/09/2005 Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Effective
E	357m S	Site Name: - Site Address: Atlantic Salvage Company, Barry Docks, Glamorgan, Barry, Vale of Glamorgan, CF63 3RF Correspondence Address: -	Type of Site: - Size: Unknown Environmental Permitting Regulations (Waste) Licence Number: VP3495FH EPR reference: - Operator: David John Comerford Waste Management licence No: 30354 Annual Tonnage: 2499	Issue Date: 29/09/2005 Effective Date: 29/09/2005 Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Effective
E	357m S	Site Name: - Site Address: Atlantic Salvage Company, Barry Docks, Barry, Glamorgan, CF63 3RF Correspondence Address: -	Type of Site: ELV Facility Size: - Environmental Permitting Regulations (Waste) Licence Number: VP3495FH EPR reference: - Operator: David John Comerford Waste Management licence No: - Annual Tonnage: 2499	Issue Date: 29/09/2005 Effective Date: 29/09/2005 Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Effective

ID	Location	Details		
E	357m S	Site Name: - Site Address: Atlantic Salvage Company, Barry Docks, Barry, Glamorgan, CF63 3RF Correspondence Address: -	Type of Site: ELV Facility Size: - Environmental Permitting Regulations (Waste) Licence Number: VP3495FH EPR reference: - Operator: David John Comerford Waste Management licence No: - Annual Tonnage: 2499	Issue Date: 29/09/2005 Effective Date: 29/09/2005 Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Effective
E	357m S	Site Name: Atlantic Salvage Company Site Address: Atlantic Salvage Company, 22, Atlantic Business Park, Barry Docks, Barry, Glamorgan, CF63 3RF Correspondence Address: -	Type of Site: ELV Facility Size: 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: COM003 EPR reference: VP3495FH/A001 Operator: Comerford David John Waste Management licence No: 30354 Annual Tonnage: 2499	Issue Date: 29/09/2005 Effective Date: - Modified: - Surrendered Date: 0 Expiry Date: 0 Cancelled Date: 0 Status: Issued
H	381m NE	Site Name: - Site Address: Unit 7, Cardiff Road, Barry, Sth Glamorgan, CF63 2QW Correspondence Address: -	Type of Site: Vehicle Depollution Facility 5000 tps Size: Unknown Environmental Permitting Regulations (Waste) Licence Number: PB3530RJ EPR reference: - Operator: - Waste Management licence No: 400205 Annual Tonnage: 4999	Issue Date: 20/08/2013 Effective Date: 20/08/2013 Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Effective
H	381m NE	Site Name: Unit 7 Site Address: Unit 7, Cardiff Road, Barry, Sth Glamorgan, CF63 2QW Correspondence Address: -	Type of Site: Vehicle Depollution Facility 5000 tps Size: 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: SBS007 EPR reference: EA/EPR/PB3530RJ/A001 Operator: S B S Salvage Limited Waste Management licence No: 400205 Annual Tonnage: 4999	Issue Date: 20/08/2013 Effective Date: - Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Issued

ID	Location	Details		
H	381m NE	Site Name: - Site Address: Unit 7, Cardiff Road, Barry, Vale of Glamorgan, CF63 2QW Correspondence Address: -	Type of Site: - Size: Unknown Environmental Permitting Regulations (Waste) Licence Number: PB3530RJ EPR reference: - Operator: S B S Salvage Limited Waste Management licence No: 0 Annual Tonnage: 4999	Issue Date: 20/08/2013 Effective Date: 20/08/2013 Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Effective
H	381m NE	Site Name: - Site Address: Unit 7, Cardiff Road, Sth Glamorgan, Barry, Vale of Glamorgan, CF63 2QW Correspondence Address: -	Type of Site: - Size: Unknown Environmental Permitting Regulations (Waste) Licence Number: PB3530RJ EPR reference: - Operator: S B S Salvage Limited Waste Management licence No: 400205 Annual Tonnage: 4999	Issue Date: 20/08/2013 Effective Date: 20/08/2013 Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Effective
H	381m NE	Site Name: - Site Address: Rear of Unit 7, Cardiff Road, Barry, Vale of Glamorgan, CF63 2QW Correspondence Address: -	Type of Site: Vehicle Depollution Facility 5000 tps Size: - Environmental Permitting Regulations (Waste) Licence Number: PB3530RJ EPR reference: - Operator: S B S Salvage Limited Waste Management licence No: - Annual Tonnage: 4999	Issue Date: 08/01/2019 Effective Date: 08/01/2019 Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Effective
H	381m NE	Site Name: - Site Address: Rear of Unit 7, Cardiff Road, Barry, Vale of Glamorgan, CF63 2QW Correspondence Address: -	Type of Site: Vehicle Depollution Facility 5000 tps Size: - Environmental Permitting Regulations (Waste) Licence Number: PB3530RJ EPR reference: - Operator: S B S Salvage Limited Waste Management licence No: - Annual Tonnage: 4999	Issue Date: 08/01/2019 Effective Date: 08/01/2019 Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Effective

ID	Location	Details		
H	383m NE	Site Name: Unit 7 Site Address: Unit 7, Cardiff Road, Barry, Sth Glamorgan, CF63 2QW Correspondence Address: -	Type of Site: Vehicle Depollution Facility 5000 tps Size: Unknown Environmental Permitting Regulations (Waste) Licence Number: SBS007 EPR reference: PB3530RJ/A001 Operator: S B S Salvage Limited Waste Management licence No: 400205 Annual Tonnage: 0	Issue Date: 20/08/2013 Effective Date: - Modified: - Surrendered Date: 0 Expiry Date: 0 Cancelled Date: 0 Status: Issued
L	424m E	Site Name: - Site Address: Dow Corning Waste Transfer Station, Barry, Glamorgan, CF63 2YL Correspondence Address: -	Type of Site: Material Recycling Treatment Facility Size: Unknown Environmental Permitting Regulations (Waste) Licence Number: AP3495FZ EPR reference: - Operator: - Waste Management licence No: 30376 Annual Tonnage: 2995	Issue Date: 29/12/2005 Effective Date: 29/12/2005 Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Effective
L	424m E	Site Name: - Site Address: Dow Corning Waste Transfer Station, Barry, Glamorgan, CF63 2YL Correspondence Address: -	Type of Site: Material Recycling Treatment Facility Size: Unknown Environmental Permitting Regulations (Waste) Licence Number: AP3495FZ EPR reference: - Operator: Dow Corning Ltd Waste Management licence No: 30376 Annual Tonnage: 2995	Issue Date: 29/12/2005 Effective Date: 29/12/2005 Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Effective
L	424m E	Site Name: - Site Address: Dow Corning Waste Transfer Station, Barry, Vale of Glamorgan, CF63 2YL Correspondence Address: -	Type of Site: - Size: Unknown Environmental Permitting Regulations (Waste) Licence Number: AP3495FZ EPR reference: - Operator: Dow Corning Ltd Waste Management licence No: 0 Annual Tonnage: 2995	Issue Date: 29/12/2005 Effective Date: 29/12/2005 Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Effective

ID	Location	Details		
L	424m E	Site Name: - Site Address: Dow Corning Waste Transfer Station, Glamorgan, Barry, Vale of Glamorgan, CF63 2YL Correspondence Address: -	Type of Site: - Size: Unknown Environmental Permitting Regulations (Waste) Licence Number: AP3495FZ EPR reference: - Operator: Dow Silicones UK Limited Waste Management licence No: 30376 Annual Tonnage: 2995	Issue Date: 29/12/2005 Effective Date: 29/12/2005 Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Effective
L	424m E	Site Name: - Site Address: Dow Corning Waste Transfer Station, Barry, Glamorgan, CF63 2YL Correspondence Address: -	Type of Site: Material Recycling Treatment Facility Size: - Environmental Permitting Regulations (Waste) Licence Number: AP3495FZ EPR reference: - Operator: Dow Silicones UK Limited Waste Management licence No: - Annual Tonnage: 2995	Issue Date: 29/12/2005 Effective Date: 29/12/2005 Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Effective
L	424m E	Site Name: - Site Address: Dow Corning Waste Transfer Station, Barry, Glamorgan, CF63 2YL Correspondence Address: -	Type of Site: Material Recycling Treatment Facility Size: - Environmental Permitting Regulations (Waste) Licence Number: AP3495FZ EPR reference: - Operator: Dow Silicones UK Limited Waste Management licence No: - Annual Tonnage: 2995	Issue Date: 29/12/2005 Effective Date: 29/12/2005 Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Effective
L	425m E	Site Name: Dow Corning Waste Transfer Station Site Address: Dow Corning Waste Transfer Station, Cardiff Road, Barry, Glamorgan, CF63 2YL Correspondence Address: -	Type of Site: Material Recycling Treatment Facility Size: 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: DOW003 EPR reference: AP3495FZ/A001 Operator: Dow Corning Ltd Waste Management licence No: 30376 Annual Tonnage: 4999	Issue Date: 29/12/2005 Effective Date: - Modified: - Surrendered Date: 0 Expiry Date: 0 Cancelled Date: 0 Status: Issued

ID	Location	Details		
M	465m S	Site Name: Levics Vehicle Dismantlers Site Address: Sub Unit 1, 19, Atlantic Crescent, Barry Docks, Barry, Glamorgan, CF63 3RG Correspondence Address: -	Type of Site: ELV Facility Size: 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: LEV001 EPR reference: WP3595FZ/A001 Operator: Levics Len Waste Management licence No: 30362 Annual Tonnage: 2499	Issue Date: 14/06/2005 Effective Date: - Modified: - Surrendered Date: 0 Expiry Date: 0 Cancelled Date: 0 Status: Issued
M	465m S	Site Name: - Site Address: Levics Vehicle Dismantlers, Barry Docks, Barry, Glamorgan, CF63 3RG Correspondence Address: -	Type of Site: ELV Facility Size: Unknown Environmental Permitting Regulations (Waste) Licence Number: WP3595FZ EPR reference: - Operator: - Waste Management licence No: 30362 Annual Tonnage: 2499	Issue Date: 14/06/2005 Effective Date: 14/06/2005 Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Effective
M	465m S	Site Name: - Site Address: Levics Vehicle Dismantlers, Barry Docks, Barry, Vale of Glamorgan, CF63 3RG Correspondence Address: -	Type of Site: - Size: Unknown Environmental Permitting Regulations (Waste) Licence Number: WP3595FZ EPR reference: - Operator: Len Levics Waste Management licence No: 0 Annual Tonnage: 2499	Issue Date: 14/06/2005 Effective Date: 14/06/2005 Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Effective
M	465m S	Site Name: - Site Address: Levics Vehicle Dismantlers, Barry Docks, Glamorgan, Barry, Vale of Glamorgan, CF63 3RG Correspondence Address: -	Type of Site: - Size: Unknown Environmental Permitting Regulations (Waste) Licence Number: WP3595FZ EPR reference: - Operator: Len Levics Waste Management licence No: 30362 Annual Tonnage: 2499	Issue Date: 14/06/2005 Effective Date: 14/06/2005 Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Effective
M	465m S	Site Name: - Site Address: Levics Vehicle Dismantlers, Barry Docks, Barry, Glamorgan, CF63 3RG Correspondence Address: -	Type of Site: ELV Facility Size: - Environmental Permitting Regulations (Waste) Licence Number: WP3595FZ EPR reference: - Operator: Len Levics Waste Management licence No: - Annual Tonnage: 2499	Issue Date: 14/06/2005 Effective Date: 14/06/2005 Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Revoked

ID	Location	Details		
M	465m S	Site Name: - Site Address: Levics Vehicle Dismantlers, Barry Docks, Barry, Glamorgan, CF63 3RG Correspondence Address: -	Type of Site: ELV Facility Size: - Environmental Permitting Regulations (Waste) Licence Number: WP3595FZ EPR reference: - Operator: Len Levics Waste Management licence No: - Annual Tonnage: 2499	Issue Date: 14/06/2005 Effective Date: 14/06/2005 Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Effective
7	474m S	Site Name: Levics Vehicle Dismantlers Site Address: Sub Unit 1, 19, Atlantic Crescent, Barry Docks, Barry, South Glam, CF63 3RF Correspondence Address: Len Levics, Sub Unit 1, 19, Atlantic Cresent, Barry Docks, Barry, South Glam, CF63 3RF	Type of Site: ELV Facility Size: 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: LEV001 EPR reference: - Operator: Levics Len Waste Management licence No: 30362 Annual Tonnage: 0	Issue Date: 14/06/2005 Effective Date: - Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Issued
N	483m NE	Site Name: - Site Address: Dow Corning Ltd, Dow Corning Landfill, Barry, Glamorgan, CF63 2YL Correspondence Address: -	Type of Site: Industrial Waste Landfill (Factory curtilage) Size: Unknown Environmental Permitting Regulations (Waste) Licence Number: ZP3599FP EPR reference: - Operator: Dow Corning Ltd Waste Management licence No: 30043 Annual Tonnage: 18250	Issue Date: 09/04/1991 Effective Date: 09/04/1991 Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Effective
N	483m NE	Site Name: - Site Address: Dow Corning Ltd, Dow Corning Landfill, Barry, Glamorgan, CF63 2YL Correspondence Address: -	Type of Site: Industrial Waste Landfill (Factory curtilage) Size: Unknown Environmental Permitting Regulations (Waste) Licence Number: ZP3599FP EPR reference: - Operator: - Waste Management licence No: 30043 Annual Tonnage: 18250	Issue Date: 09/04/1991 Effective Date: 09/04/1991 Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Effective

ID	Location	Details		
N	483m NE	Site Name: - Site Address: Dow Corning Ltd, Dow Corning Landfill, Barry, Vale of Glamorgan, CF63 2YL Correspondence Address: -	Type of Site: - Size: Unknown Environmental Permitting Regulations (Waste) Licence Number: ZP3599FP EPR reference: - Operator: Dow Corning Ltd Waste Management licence No: 0 Annual Tonnage: 18250	Issue Date: 09/04/1991 Effective Date: 09/04/1991 Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Effective
N	483m NE	Site Name: - Site Address: Dow Corning Ltd, Dow Corning Landfill, Glamorgan, Barry, Vale of Glamorgan, CF63 2YL Correspondence Address: -	Type of Site: - Size: Unknown Environmental Permitting Regulations (Waste) Licence Number: ZP3599FP EPR reference: - Operator: Dow Silicones UK Limited Waste Management licence No: 30043 Annual Tonnage: 18250	Issue Date: 09/04/1991 Effective Date: 09/04/1991 Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Effective
N	483m NE	Site Name: - Site Address: Dow Corning Ltd, Dow Corning Landfill, Barry, Glamorgan, CF63 2YL Correspondence Address: -	Type of Site: Industrial Waste Landfill (Factory curtilage) Size: - Environmental Permitting Regulations (Waste) Licence Number: ZP3599FP EPR reference: - Operator: Dow Silicones UK Limited Waste Management licence No: - Annual Tonnage: 18250	Issue Date: 09/04/1991 Effective Date: 09/04/1991 Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Effective
N	483m NE	Site Name: - Site Address: Dow Corning Ltd, Dow Corning Landfill, Barry, Glamorgan, CF63 2YL Correspondence Address: -	Type of Site: Industrial Waste Landfill (Factory curtilage) Size: - Environmental Permitting Regulations (Waste) Licence Number: ZP3599FP EPR reference: - Operator: Dow Silicones UK Limited Waste Management licence No: - Annual Tonnage: 18250	Issue Date: 09/04/1991 Effective Date: 09/04/1991 Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Effective

ID	Location	Details		
N	485m NE	Site Name: Dow Corning Ltd Site Address: Dow Corning Landfill, Cardiff Road, Barry, Glamorgan, CF63 2YL Correspondence Address: -	Type of Site: Industrial Waste Landfill (Factory curtilage) Size: 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: DOW001 EPR reference: ZP3599FP/A001 Operator: Dow Corning Ltd Waste Management licence No: 30043 Annual Tonnage: 18250	Issue Date: 09/04/1991 Effective Date: - Modified: - Surrendered Date: 0 Expiry Date: 0 Cancelled Date: 0 Status: Issued

This data is sourced from the Environment Agency and Natural Resources Wales.

3.7 Waste exemptions

Records within 500m	**40**

Activities involving the storage, treatment, use or disposal of waste that are exempt from needing a permit. Exemptions have specific limits and conditions that must be adhered to.

Features are displayed on the Waste and landfill map on **page 41 >**

ID	Location	Site	Reference	Category	Sub-Category	Description
F	312m S	Scott Timber Ltd, Scott Timber, A Shed, Atlantic Way, Barry, Vale of Glamorgan, CF63 3RA	NRW-WME058315	Using waste exemption	Not on a farm	Use of waste for a specified purpose
F	312m S	Scott Timber Ltd, Scott Timber, A Shed, Atlantic Way, Barry, Vale of Glamorgan, CF63 3RA	NRW-WME058315	Using waste exemption	Not on a farm	Use of waste to manufacture finished goods
F	312m S	Scott Timber Ltd, Scott Timber, A Shed, Atlantic Way, Barry, Vale of Glamorgan, CF63 3RA	NRW-WME058315	Treating waste exemption	Not on a farm	Manual treatment of waste
E	312m S	BDC Aggregates Limited, B D C Aggregates Ltd, Atlantic Way, Barry, Vale of Glamorgan, CF63 3RA	NRW-WME060472	Storing waste exemption	Not on a farm	Storage of waste in a secure place
E	312m S	BDC Aggregates Limited, B D C Aggregates Ltd, Atlantic Way, Barry, Vale of Glamorgan, CF63 3RA	NRW-WME060472	Using waste exemption	Not on a farm	Use of waste in construction

ID	Location	Site	Reference	Category	Sub-Category	Description
E	312m S	BDC Aggregates Limited, B D C Aggregates Ltd, Atlantic Way, Barry, Vale of Glamorgan, CF63 3RA	NRW-WME060472	Treating waste exemption	Not on a farm	Mechanical treatment of end-of-life tyres
E	312m S	Vale Recycling Ltd, 2 Atlantic Crescent, No. 2 Dock, Barry, Vale of Glamorgan, CF63 3RA	NRW-WME040365	Using waste exemption	Not on a farm	Use of waste in construction
E	312m S	Vale Recycling Ltd, 2 Atlantic Crescent, No. 2 Dock, Barry, Vale of Glamorgan, CF63 3RA	NRW-WME040365	Storing waste exemption	Not on a farm	Storage of waste in a secure place
E	312m S	BDC Aggregates Limited, Barry Plant, Dock 2, Barry, Vale of Glamorgan, CF633RA	NRW-WME028645	Treating waste exemption	Waste Exemption - Agricultural and Non-Agricultural	Mechanical treatment of end-of-life tyres
E	312m S	BDC Aggregates Limited, Barry Plant, Dock 2, Barry, Vale of Glamorgan, CF633RA	NRW-WME028645	Using waste exemption	Waste Exemption - Agricultural and Non-Agricultural	Use of waste in construction
E	312m S	BDC Aggregates Limited, Barry Plant, Dock 2, Barry, Vale of Glamorgan, CF633RA	NRW-WME028645	Storing waste exemption	Waste Exemption - Agricultural and Non-Agricultural	Storage of waste in a secure place
E	312m S	Scott Timber Ltd, Scott Timber, A Shed, Barry, Vale of Glamorgan, CF633RA	NRW-WME028658	Using waste exemption	Not on a farm	Use of waste for a specified purpose
E	312m S	BDC Aggregates Limited, Barry Plant, Dock 2, Atlantic Way, Barry, Vale of Glamorgan, CF633RA	NRW-WME033069	Using waste exemption	Waste Exemption - Agricultural and Non-Agricultural	Use of baled end-of-life tyres in construction
E	312m S	BDC Aggregates Limited, B D C Aggregates Ltd, Atlantic Way, Barry, Vale of Glamorgan, CF63 3RA	NRW-WME060472	Treating waste exemption	Not on a farm	Screening and blending of waste
E	312m S	Vale Recycling Ltd, 2 Atlantic Crescent, No. 2 Dock, Barry, Vale of Glamorgan, CF63 3RA	NRW-WME040365	Treating waste exemption	Not on a farm	Screening and blending of waste
E	312m S	BDC Aggregates Limited, Barry Plant, Dock 2, Barry, Vale of Glamorgan, CF633RA	NRW-WME028645	Treating waste exemption	Waste Exemption - Agricultural and Non-Agricultural	Screening and blending of waste

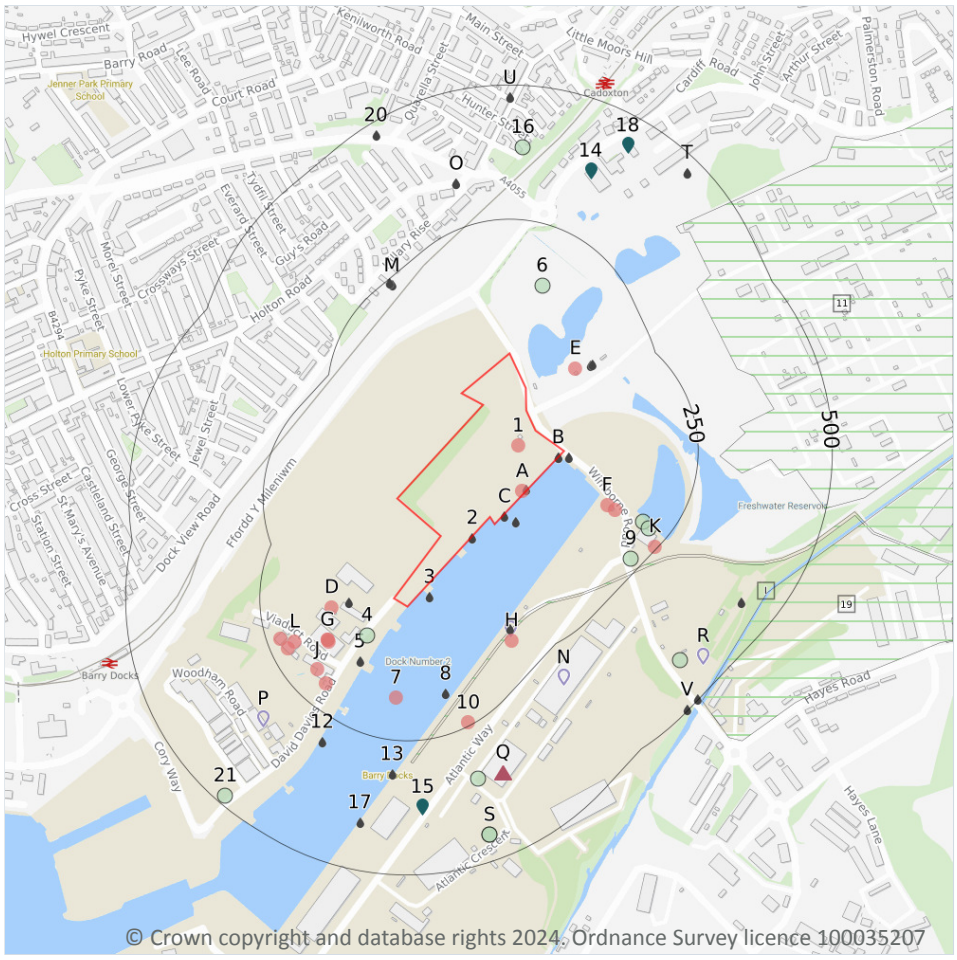
ID	Location	Site	Reference	Category	Sub-Category	Description
E	312m S	Scott Timber Ltd, Scott Timber, A Shed, Barry, Vale of Glamorgan, CF633RA	NRW-WME028658	Using waste exemption	Not on a farm	Use of waste to manufacture finished goods
E	312m S	Scott Timber Ltd, Scott Timber, A Shed, Barry, Vale of Glamorgan, CF633RA	NRW-WME028658	Treating waste exemption	Not on a farm	Manual treatment of waste
F	312m S	Grab it Plant Hire & Groundworks Contractors Ltd., 2 Atlantic Cresent, No. 2 Dock, Barry, Vale of Glamorgan, CF633RA	NRW-WME009927	Storing waste exemption	Not on a farm	Storage of waste in secure containers
F	312m S	Grab it Plant Hire & Groundworks Contractors Ltd., 2 Atlantic Cresent, No. 2 Dock, Barry, Vale of Glamorgan, CF633RA	NRW-WME009927	Storing waste exemption	Not on a farm	Storage of waste in a secure place
F	312m S	Grab it Plant Hire & Groundworks Contractors Ltd., 2 Atlantic Cresent, No. 2 Dock, Barry, Vale of Glamorgan, CF633RA	NRW-WME009927	Using waste exemption	Not on a farm	Use of waste in construction
F	312m S	A Shed, Atlantic Way, Barry, Vale of Glamorgan, CF633RA	NRW-WME001092	Using waste exemption	Waste Exemption - Non-Agricultural	Use of waste for a specified purpose
F	312m S	C/o Cardiff Demolition Limited, Old Rank Hovis Building, Barry, Vale of Glamorgan, CF63 3RA	NRW-WME002443	Using waste exemption	Waste Exemption - Non-Agricultural	Use of waste in construction
F	312m S	Grab it Plant Hire & Groundworks Contractors Ltd., 2 Atlantic Cresent, No. 2 Dock, Barry, Vale of Glamorgan, CF633RA	NRW-WME009927	Treating waste exemption	Not on a farm	Screening and blending of waste
F	312m S	A Shed, Atlantic Way, Barry, Vale of Glamorgan, CF633RA	NRW-WME001092	Using waste exemption	Waste Exemption - Non-Agricultural	Use of waste to manufacture finished goods
I	399m N	sbs salvage ltd, Redrup Motors Ltd, Cardiff Road, Y Barri, CF632QW	NRW-WME014154	Storing waste exemption	Not on a farm	Storage of waste in a secure place
I	399m N	sbs salvage ltd, Redrup Motors Ltd, Cardiff Road, Y Barri, CF632QW	NRW-WME014154	Treating waste exemption	Not on a farm	Recovery of scrap metal

ID	Location	Site	Reference	Category	Sub-Category	Description
I	401m N	sbs salvage ltd, R/O UNIT 7, REDRUPS LTD, CARDIFF ROAD BARRY, Barry, The Vale of Glamorgan, CF632QW	NRW-WME093979	Treating waste exemption	Not on a farm	Recovery of scrap metal
I	401m N	sbs salvage ltd, R/O UNIT 7, REDRUPS LTD, CARDIFF ROAD BARRY, Barry, The Vale of Glamorgan, CF632QW	NRW-WME093979	Storing waste exemption	Not on a farm	Storage of waste in a secure place
I	401m N	CVS Group, Barry Vets, Unit 2, Briscombe Retail Park, Cardiff Road, Barry, Vale of Glamorgan, CF63 2QW	NRW-WME068373	Treating waste exemption	Not on a farm	Sorting and de-naturing of controlled drugs for disposal
I	401m N	CVS (UK) Ltd, Barry Vets, Unit 2 & 3, Briscombe Retail Park, Barry, CF63 2QW	NRW-WME061800	Treating waste exemption	Not on a farm	Sorting and de-naturing of controlled drugs for disposal
I	401m N	sbs salvage ltd, R/O Unit 7, Redrups LTD, Cardiff Road, Barry, Barry, cf63 2qw	NRW-WME045991	Storing waste exemption	Not on a farm	Storage of waste in a secure place
I	401m N	sbs salvage ltd, R/O Unit 7, Redrups LTD, Cardiff Road, Barry, Barry, cf63 2qw	NRW-WME045990	Treating waste exemption	Not on a farm	Recovery of scrap metal
J	402m SE	GLJ Recycling Limited, 31 Wimborne Road, Barry Dock, Barry, South Glamorgan, CF633DH	NRW-WME028857	Storing waste exemption	Not on a farm	Storage of waste in a secure place
J	402m SE	SOUTH WALES EXPORTS LIMITED, Land at 31 Berth, No 2 Dock, BARRY, SOUTH GLAMORGAN, CF633DH	NRW-WME034286	Storing waste exemption	Not on a farm	Storage of waste in secure containers
J	402m SE	SOUTH WALES EXPORTS LIMITED, Land at 31 Berth, No 2 Dock, BARRY, SOUTH GLAMORGAN, CF633DH	NRW-WME034286	Storing waste exemption	Not on a farm	Storage of waste in a secure place
J	402m SE	SOUTH WALES EXPORTS LIMITED, Land at 31 Berth, No 2 Dock, BARRY, SOUTH GLAMORGAN, CF633DH	NRW-WME034286	Treating waste exemption	Not on a farm	Recovery of scrap metal

ID	Location	Site	Reference	Category	Sub-Category	Description
J	402m SE	GLJ Recycling Limited, 31 Wimborne Road, Barry Dock, Barry, South Glamorgan, CF633DH	NRW-WME038247	Treating waste exemption	Not on a farm	Recovery of scrap metal
K	423m S	Tom Prichard Contracting Ltd, ABP Port Barry, Unit 19, Barry, Vale of Glamorgan, CF63 3RG	NRW-WME070640	Disposing of waste exemption	Not on a farm	Burning waste in the open
K	423m S	Tom Prichard Contracting Ltd, ABP Port Barry, Unit 19, Barry, Vale of Glamorgan, CF63 3RG	NRW-WME070641	Treating waste exemption	Not on a farm	Screening and blending of waste

This data is sourced from the Environment Agency and Natural Resources Wales.

4 Current industrial land use



4.1 Recent industrial land uses

Records within 250m	18

Current potentially contaminative industrial sites.

Features are displayed on the Current industrial land use map on **page 64 >**

ID	Location	Company	Address	Activity	Category
1	**On site**	**Electricity Sub Station**	**South Glamorgan, CF63**	**Electrical Features**	**Infrastructure and Facilities**
A	**On site**	**Travelling Cranes**	**South Glamorgan, CF63**	**Travelling Cranes and Gantries**	**Industrial Features**
E	99m NE	Electricity Sub Station	South Glamorgan, CF63	Electrical Features	Infrastructure and Facilities

ID	Location	Company	Address	Activity	Category
D	117m SW	Tank	South Glamorgan, CF63	Tanks (Generic)	Industrial Features
F	128m E	Electricity Sub Station	South Glamorgan, CF63	Electrical Features	Infrastructure and Facilities
F	144m E	Mast	South Glamorgan, CF63	Telecommunications Features	Infrastructure and Facilities
G	146m SW	Vaughans Transport Systems Ltd	Dock 2, David Davies Road, Barry, South Glamorgan, CF63 4JB	Distribution and Haulage	Transport, Storage and Delivery
G	146m SW	S & K Haulage Ltd	Dock 2, David Davies Road, Barry, South Glamorgan, CF63 4JB	Distribution and Haulage	Transport, Storage and Delivery
G	146m SW	Bruno Timber Products	Dock 2, David Davies Road, Barry, South Glamorgan, CF63 4JB	Garden Goods	Consumer Products
7	171m S	Dock No 2	South Glamorgan, CF63	Moorings and Unloading Facilities	Water
H	185m S	Silo	South Glamorgan, CF63	Hoppers and Silos	Farming
J	195m SW	Works	South Glamorgan, CF63	Unspecified Works Or Factories	Industrial Features
L	202m SW	Eco Techs	Unit 3, Viaduct Road, Barry, South Glamorgan, CF63 4JB	Vehicle Repair, Testing and Servicing	Repair and Servicing
J	202m SW	Electricity Sub Station	South Glamorgan, CF63	Electrical Features	Infrastructure and Facilities
L	218m SW	Works	South Glamorgan, CF63	Unspecified Works Or Factories	Industrial Features
L	224m SW	Works	South Glamorgan, CF63	Unspecified Works Or Factories	Industrial Features
10	244m S	Electricity Sub Station	South Glamorgan, CF63	Electrical Features	Infrastructure and Facilities
K	245m SE	Tank	South Glamorgan, CF63	Tanks (Generic)	Industrial Features

This data is sourced from Ordnance Survey.

4.2 Current or recent petrol stations

Records within 500m	0

Open, closed, under development and obsolete petrol stations.

This data is sourced from Experian.

4.3 Electricity cables

Records within 500m	0

High voltage underground electricity transmission cables.

This data is sourced from National Grid.

4.4 Gas pipelines

Records within 500m	0

High pressure underground gas transmission pipelines.

This data is sourced from National Grid.

4.5 Sites determined as Contaminated Land

Records within 500m	0

Contaminated Land Register of sites designated under Part 2a of the Environmental Protection Act 1990.

This data is sourced from Local Authority records.

4.6 Control of Major Accident Hazards (COMAH)

Records within 500m	3

Control of Major Accident Hazards (COMAH) sites. This data includes upper and lower tier sites, and includes a historical archive of COMAH sites and Notification of Installations Handling Hazardous Substances (NIHHS) records.

Features are displayed on the Current industrial land use map on **page 64 >**

ID	Location	Company	Address	Operational status	Tier
I	170m S	Navigator Terminals Windmill Limited	Navigator Terminals Windmill Limited, Windmill Site, Hayes Road, Penarth, Vale of Glamorgan, CF64 5RZ	Current COMAH Site	COMAH Upper Tier Operator

ID	Location	Company	Address	Operational status	Tier
11	290m E	Dow Silicones UK Limited	Dow Silicones UK Limited, Barry, Cardiff Road, Barry, Vale of Glamorgan, CF63 2YL	Current COMAH Site	COMAH Upper Tier Operator
19	461m SE	Europe Ltd (zeon)	Europe Ltd (zeon Chemicals International), Hayes Road, Sully, CF64 5YU	Historical NIHHS Site	-

This data is sourced from the Health and Safety Executive.

4.7 Regulated explosive sites

Records within 500m	**0**

Sites registered and licensed by the Health and Safety Executive under the Manufacture and Storage of Explosives Regulations 2005 (MSER). The last update to this data was in April 2011.

This data is sourced from the Health and Safety Executive.

4.8 Hazardous substance storage/usage

Records within 500m	**1**

Consents granted for a site to hold certain quantities of hazardous substances at or above defined limits in accordance with the Planning (Hazardous Substances) Regulations 2015.

Features are displayed on the Current industrial land use map on **page 64 >**

ID	Location	Details	
Q	356m S	Application reference number: No Details Application status: Approved Application date: No Details Address: Harp International Limited , Windward Terminal, Atlantic Way, Barry Docks, Barry, Vale of Glamorgan, Wales, CF63 3RA	Details: No Details Enforcement: No details Date of enforcement: No Details Comment: No Details

This data is sourced from Local Authority records.

4.9 Historical licensed industrial activities (IPC)

Records within 500m	**0**

Integrated Pollution Control (IPC) records of substance releases to air, land and water. This data represents a historical archive as the IPC regime has been superseded.

This data is sourced from the Environment Agency and Natural Resources Wales.

4.10 Licensed industrial activities (Part A(1))

Records within 500m	15

Records of Part A(1) installations regulated under the Environmental Permitting (England and Wales) Regulations 2016 for the release of substances to the environment.

Features are displayed on the Current industrial land use map on **page 64 >**

ID	Location	Details	
H	169m S	Operator: RANK HOVIS LIMITED Installation Name: BARRY FLOUR MILL Process: ANIMAL VEGETABLE AND FOOD; TREATING ETC VEGETABLE RAW MATERIALS FOR FOOD >300T/D Permit Number: BP3376IE Original Permit Number: BP3376IE	EPR Reference: - Issue Date: 17/08/2005 Effective Date: 17/08/2005 Last date noted as effective: 17/11/2015 Status: SUPERCEDED
H	169m S	Operator: PREMIER FOODS GROUP LTD Installation Name: BARRY FLOUR MILL EPR/KP3735XW Process: ANIMAL VEGETABLE AND FOOD; TREATING ETC VEGETABLE RAW MATERIALS FOR FOOD >300T/D Permit Number: KP3735XW Original Permit Number: KP3735XW	EPR Reference: - Issue Date: 25/02/2008 Effective Date: 25/02/2008 Last date noted as effective: 17/11/2015 Status: TRANSFER EFFECTIVE
H	169m S	Operator: PREMIER FOODS GROUP LTD Installation Name: BARRY FLOUR MILL EPR/KP3735XW Process: - Permit Number: KP3735XW Original Permit Number: -	EPR Reference: - Issue Date: 08/05/2015 Effective Date: 08/05/2015 Last date noted as effective: 01/04/2017 Status: ISSUED
N	303m SE	Operator: ALEMBIC MANUFACTURING LTD Installation Name: BARRY ALUMINIUM CHLOROHYDRATE PLANT EPR/MP3431SP Process: INORGANIC CHEMICALS; GASES EG AMMONIA Permit Number: LP3638ZP Original Permit Number: MP3431SP	EPR Reference: - Issue Date: 28/02/2013 Effective Date: 28/02/2013 Last date noted as effective: 17/11/2015 Status: EFFECTIVE
N	303m SE	Operator: ALEMBIC MANUFACTURING LTD Installation Name: BARRY ALUMINIUM CHLOROHYDRATE PLANT EPR/MP3431SP Process: ASSOCIATED PROCESS Permit Number: LP3638ZP Original Permit Number: MP3431SP	EPR Reference: - Issue Date: 28/02/2013 Effective Date: 28/02/2013 Last date noted as effective: 17/11/2015 Status: EFFECTIVE
N	303m SE	Operator: ALEMBIC MANUFACTURING LTD Installation Name: BARRY ALUMINIUM CHLOROHYDRATE PLANT Process: INORGANIC CHEMICALS; GASES EG AMMONIA Permit Number: MP3431SP Original Permit Number: MP3431SP	EPR Reference: - Issue Date: 07/11/2005 Effective Date: 07/11/2005 Last date noted as effective: 17/11/2015 Status: SUPERCEDED

ID	Location	Details	
N	303m SE	Operator: Alembic Manufacturing Ltd Installation Name: Barry Aluminium Chlorohydrate Plant EA/EPR/MP3431SP/V002 Process: - Permit Number: MP3431SP Original Permit Number: -	EPR Reference: - Issue Date: 28/02/2013 Effective Date: 28/02/2013 Last date noted as effective: 02/04/2024 Status: Effective
N	303m SE	Operator: Alembic Manufacturing Ltd Installation Name: Barry Aluminium Chlorohydrate Plant EA/EPR/MP3431SP/V002 Process: PRODUCING INORGANIC CHEMICALS SUCH AS: (IV) SALTS (FOR EXAMPLE AMMONIUM CHLORIDE, POTASSIUM CHLORATE, POTASSIUM CARBONATE, SODIUM CARBONATE, PERBORATE, SILVER NITRATE, CUPRIC ACETATE, AMMONIUM PHOSPHOMOLYBDATE) Permit Number: MP3431SP Original Permit Number: -	EPR Reference: - Issue Date: 28/02/2013 Effective Date: 28/02/2013 Last date noted as effective: 02/04/2024 Status: Effective
N	303m SE	Operator: ALEMBIC MANUFACTURING LTD Installation Name: BARRY ALUMINIUM CHLOROHYDRATE PLANT EA/EPR/MP3431SP/V002 Process: - Permit Number: MP3431SP Original Permit Number: LP3638ZP	EPR Reference: - Issue Date: 28/02/2013 Effective Date: 28/02/2013 Last date noted as effective: 01/12/2016 Status: EFFECTIVE
P	331m SW	Operator: Biomass UK No. 2 Ltd Installation Name: Barry Energy Production Facility Process: THE INCINERATION OF NON-HAZARDOUS WASTE IN A WASTE INCINERATION PLANT OR WASTE CO-INCINERATION PLANT WITH A CAPACITY EXCEEDING 3 TONNES PER HOUR Permit Number: AB3790ZB Original Permit Number: -	EPR Reference: - Issue Date: 21/12/2022 Effective Date: 21/12/2022 Last date noted as effective: 02/04/2024 Status: Effective
P	331m SW	Operator: BIOMASS UK NO. 2 LTD Installation Name: BARRY ENERGY PRODUCTION FACILITY Process: THE INCINERATION OF NON-HAZARDOUS WASTE IN AN INCINERATION OR CO-INCINERATION PL... Permit Number: AB3790ZB Original Permit Number: -	EPR Reference: - Issue Date: 07/02/2018 Effective Date: 07/02/2018 Last date noted as effective: 01/04/2018 Status: EFFECTIVE

ID	Location	Details	
R	450m SE	Operator: RAYMOND BROWN MINERALS & RECYCLING LTD Installation Name: IBA RECYCLING FACILITY EPR/LP3239AW Process: RECOVERY OR A MIX OF RECOVERY AND DISPOSAL OF > 50 T/D NON-HAZARDOUS WASTE (> 100 T/D IF ONLY AD) INVOLVING TREATMENT OF SLAGS AND ASHES Permit Number: LP3239AW Original Permit Number: LP3239AW	EPR Reference: - Issue Date: 13/08/2015 Effective Date: 13/08/2015 Last date noted as effective: 17/11/2015 Status: EFFECTIVE
R	450m SE	Operator: RAYMOND BROWN MINERALS & RECYCLING LTD Installation Name: IBA RECYCLING FACILITY EPR/LP3239AW Process: - Permit Number: LP3239AW Original Permit Number: -	EPR Reference: - Issue Date: 09/03/2017 Effective Date: 09/03/2017 Last date noted as effective: 01/04/2017 Status: ISSUED
R	450m SE	Operator: RAYMOND BROWN MINERALS & RECYCLING LTD Installation Name: IBA RECYCLING FACILITY EPR/LP3239AW Process: RECOVERY OR A MIX OF RECOVERY AND DISPOSAL OR NON-HAZARDOUS WASTE WITH A CAPACIT… Permit Number: LP3239AW Original Permit Number: LP3239AW	EPR Reference: - Issue Date: 09/03/2017 Effective Date: 09/03/2017 Last date noted as effective: 01/07/2018 Status: SURRENDERED
R	450m SE	Operator: RAYMOND BROWN MINERALS & RECYCLING LTD Installation Name: IBA RECYCLING FACILITY EPR/LP3239AW Process: RECOVERY OR A MIX OF RECOVERY AND DISPOSAL OR NON-HAZARDOUS WASTE WITH A CAPACIT… Permit Number: LP3239AW Original Permit Number: LP3239AW	EPR Reference: - Issue Date: 09/03/2017 Effective Date: 09/03/2017 Last date noted as effective: 01/04/2018 Status: SURRENDERED

This data is sourced from the Environment Agency and Natural Resources Wales.

4.11 Licensed pollutant release (Part A(2)/B)

Records within 500m	**3**

Records of Part A(2) and Part B installations regulated under the Environmental Permitting (England and Wales) Regulations 2016 for the release of substances to the environment.

Features are displayed on the Current industrial land use map on **page 64 >**

ID	Location	Address	Details	
14	372m N	Barry Car Sales, Cardiff Road, Barry, CF63 7NW	Process: Petrol Vapour Recovery Status: Historical Permit Permit Type: Part B	Enforcement: No Enforcements Notified Date of enforcement: No Enforcements Notified Comment: No Enforcements Notified
15	374m S	Hanson Building Material Europe Limited, Atlantic Trading Estate, Wimborne Road,Barry Docks, Barry	Process: Use of Bulk Cement Status: Historical Permit Permit Type: Part B	Enforcement: No Enforcements Notified Date of enforcement: No Enforcements Notified Comment: No Enforcements Notified
18	445m NE	Briscombe Dry Cleaners, Cardiff Road Business Park, Barry, Vale Of Glamorgan, CF63 2QW	Process: Dry Cleaning Status: Current Permit Permit Type: Part B	Enforcement: No Enforcements Notified Date of enforcement: No Enforcements Notified Comment: No Enforcements Notified

This data is sourced from Local Authority records.

4.12 Radioactive Substance Authorisations

Records within 500m	**0**

Records of the storage, use, accumulation and disposal of radioactive substances regulated under the Radioactive Substances Act 1993.

This data is sourced from the Environment Agency and Natural Resources Wales.

4.13 Licensed Discharges to controlled waters

Records within 500m	**31**

Discharges of treated or untreated effluent to controlled waters under the Water Resources Act 1991.

Features are displayed on the Current industrial land use map on **page 64 >**

ID	Location	Address	Details	
A	**On site**	**BARRY DOCKS ., ., .**	**Effluent Type: UNSPECIFIED** **Permit Number: AN0033248** **Permit Version: 1** **Receiving Water: SEVERN ESTUARY**	**Status: CONSENT EXPIRED - TIME LIMIT** **Issue date: 10/09/1987** **Effective Date: 10/09/1987** **Revocation Date: 09/10/1992**
B	**On site**	**BARRY DOCKS PS CSO OFF WIMBOURNE RD, WIMBOURNE ROAD, BARRY DOCKS (NO.2 DOCK), BARRY, VALE OF GLAMORGAN**	**Effluent Type: UNSPECIFIED** **Permit Number: AN0033249** **Permit Version: 1** **Receiving Water: SEVERN ESTUARY**	**Status: CONSENT EXPIRED - TIME LIMIT** **Issue date: 10/09/1987** **Effective Date: 10/09/1987** **Revocation Date: 09/10/1992**

ID	Location	Address	Details	
B	**On site**	**BARRY DOCKS PS CSO OFF WIMBOURNE RD, WIMBOURNE ROAD, BARRY DOCKS (NO.2 DOCK), BARRY, VALE OF GLAMORGAN**	**Effluent Type: SEWAGE DISCHARGES - PUMPING STATION - WATER COMPANY Permit Number: AN0037801 Permit Version: 4 Receiving Water: THE NORTH WEST CORNER OF BARRY**	**Status: NEW CONSENT (WRA 91, S88 & SCHED 10 AS AMENDED BY ENV ACT 1995) Issue date: 26/04/2005 Effective Date: 31/03/2007 Revocation Date: 11/03/2008**
B	**On site**	**BARRY DOCKS PS CSO OFF WIMBOURNE RD, WIMBOURNE ROAD, BARRY DOCKS (NO.2 DOCK), BARRY, VALE OF GLAMORGAN**	**Effluent Type: SEWAGE DISCHARGES - PUMPING STATION - WATER COMPANY Permit Number: AN0037801 Permit Version: 5 Receiving Water: THE NORTH WEST CORNER OF BARRY**	**Status: Effective Issue date: 12/03/2008 Effective Date: 12/03/2008 Revocation Date: -**
2	2m S	BARRY DOCKS OUTLET 45 NO 29 BASE, OUTLET 45 NO 29 BASE, NO 29 BASE	Effluent Type: UNSPECIFIED Permit Number: AN0033245 Permit Version: 1 Receiving Water: SEVERN ESTUARY	Status: CONSENT EXPIRED - TIME LIMIT Issue date: 10/09/1987 Effective Date: 10/09/1987 Revocation Date: 09/10/1992
C	3m SE	BARRY DOCKS ., ., .	Effluent Type: UNSPECIFIED Permit Number: AN0033246 Permit Version: 1 Receiving Water: SEVERN ESTUARY	Status: CONSENT EXPIRED - TIME LIMIT Issue date: 10/09/1987 Effective Date: 10/09/1987 Revocation Date: 09/10/1992
B	14m E	BARRY DOCKS	Effluent Type: UNSPECIFIED Permit Number: AN0033205 Permit Version: 1 Receiving Water: SEVERN ESTUARY	Status: CONSENT EXPIRED - TIME LIMIT Issue date: 10/09/1987 Effective Date: 10/09/1987 Revocation Date: 05/08/1992
3	17m S	BARRY DOCKS ., ., .	Effluent Type: UNSPECIFIED Permit Number: AN0033244 Permit Version: 1 Receiving Water: SEVERN ESTUARY	Status: CONSENT EXPIRED - TIME LIMIT Issue date: 10/09/1987 Effective Date: 10/09/1987 Revocation Date: 09/10/1992
C	24m SE	BARRY DOCKS ., ., .	Effluent Type: UNSPECIFIED Permit Number: AN0033247 Permit Version: 1 Receiving Water: SEVERN ESTUARY	Status: CONSENT EXPIRED - TIME LIMIT Issue date: 10/09/1987 Effective Date: 10/09/1987 Revocation Date: 09/10/1992
D	84m SW	FACTORY AT DAVID DAVIES ROAD BARRY, FACTORY AT DAVID DAVIES ROAD, BARRY DOCKS, BARRY, VALE OF GLAMORGAN	Effluent Type: - Permit Number: AN0238001 Permit Version: 0 Receiving Water: BARRY DOCKS	Status: Effective Issue date: 27/10/1992 Effective Date: 27/10/1992 Revocation Date: -

ID	Location	Address	Details	
E	127m NE	BARRY DOCKS STORM PS BARRY, BARRY	Effluent Type: UNSPECIFIED Permit Number: AN0088801 Permit Version: 1 Receiving Water: BARRY DOCK NUMBER 2	Status: CONSENT EXPIRED - TIME LIMIT Issue date: 19/10/1989 Effective Date: 19/10/1989 Revocation Date: 09/02/1994
E	131m NE	Storm Overflow at Barry East (Docks) Pumping Station, Behind Cardiff Road Industrial Estate, Just off Wimbourne Road, Barry, CF63 2QW	Effluent Type: SEWAGE DISCHARGES - PUMPING STATION - WATER COMPANY Permit Number: AN0037801 Permit Version: 0 Receiving Water: Barry Dock No.2	Status: Effective Issue date: 21/04/2022 Effective Date: 21/04/2022 Revocation Date: -
5	133m SW	BARRY DOCKS OUTLET 43 NO 26 HOIST, BARRY DOCKS OUTLET 43 NO 26 HOIS, OUTLET 43 NO 26 HOIST ., NO 26 HOIST ., ., .	Effluent Type: UNSPECIFIED Permit Number: AN0033243 Permit Version: 1 Receiving Water: SEVERN ESTUARY	Status: CONSENT EXPIRED - TIME LIMIT Issue date: 10/09/1987 Effective Date: 10/09/1987 Revocation Date: 31/03/1995
H	169m S	RANK HOVIS LTD ATLANTIC MILLS BARRY, RANK HOVIS LIMTED, ATLANTIC MILLS ATLANTIC WAY, NO2 DOCK BARRY, VALOE OF GLAMORGAN, CF63 3RA	Effluent Type: TRADE DISCHARGES - BOILER BLOWDOWN EFFLUENT Permit Number: AN0324001 Permit Version: 1 Receiving Water: GROUNDWATER VIA SOAKAWAY	Status: REVOKED (WRA 91, S88 & SCHED 10 AS AMENDED BY ENV Issue date: 30/08/2002 Effective Date: 30/08/2002 Revocation Date: 27/10/2006
8	176m S	BARRY DOCKS	Effluent Type: UNSPECIFIED Permit Number: AN0033204 Permit Version: 1 Receiving Water: SEVERN ESTUARY	Status: CONSENT EXPIRED - TIME LIMIT Issue date: 10/09/1987 Effective Date: 10/09/1987 Revocation Date: 23/09/1992
M	237m NW	BARRY - ST HILLARY RISE (REAR	Effluent Type: SEWAGE DISCHARGES - PUMPING STATION - WATER COMPANY Permit Number: AN0102801 Permit Version: 3 Receiving Water: UNNAMED W'COURSE THEN P.S. THE	Status: Effective Issue date: 29/03/2007 Effective Date: 29/03/2007 Revocation Date: -
M	244m NW	CSO at BARRY - ST HILLARY RISE (REAR), Cycle path next to 53, Hillary Rise, Barry, CF63 3HZ	Effluent Type: SEWAGE DISCHARGES - STW STORM OVERFLOW/STORM TANK - WATER COMPANY Permit Number: AN0102801 Permit Version: 0 Receiving Water: Unnamed watercourse then Pumping Station then Barry Docks	Status: Effective Issue date: 21/10/2019 Effective Date: 21/10/2019 Revocation Date: -

ID	Location	Address	Details	
12	298m SW	FISHER CONTAINERS DAVID DAVIES ROAD, FISHER CONTAINERS DAVID DAVIES R, DAVID DAVIES ROAD BARRY DOCK BAR, BARRY DOCK BARRY, BARRY	Effluent Type: UNSPECIFIED Permit Number: AN0033206 Permit Version: 2 Receiving Water: BARRY DOCKS	Status: LAPSED UNDER SCHEDULE 23 ENVIRONMENT ACT 1995 Issue date: 10/07/1992 Effective Date: 10/10/1992 Revocation Date: 31/10/1996
13	313m S	BARRY DOCKS - NO 4 BERTH ., ., .	Effluent Type: UNSPECIFIED Permit Number: AN0033203 Permit Version: 1 Receiving Water: SEVERN ESTUARY	Status: CONSENT EXPIRED - TIME LIMIT Issue date: 10/09/1987 Effective Date: 10/09/1987 Revocation Date: 16/01/1995
O	331m N	HOLTON ROAD, BARRY	Effluent Type: SEWAGE DISCHARGES - SEWER STORM OVERFLOW - WATER COMPANY Permit Number: AN0102701 Permit Version: 3 Receiving Water: UNNAMED STREAM	Status: REVOKED (WRA 91, S88 & SCHED 10 AS AMENDED BY ENV Issue date: 31/03/2005 Effective Date: 31/03/2007 Revocation Date: 31/03/2006
O	331m N	HOLTON ROAD, BARRY	Effluent Type: SEWAGE DISCHARGES - SEWER STORM OVERFLOW - WATER COMPANY Permit Number: AN0102701 Permit Version: 1 Receiving Water: UNNAMED STREAM	Status: REVOKED - UNSPECIFIED Issue date: 19/10/1989 Effective Date: 19/10/1989 Revocation Date: 19/10/1989
O	331m N	HOLTON ROAD, BARRY	Effluent Type: SEWAGE DISCHARGES - SEWER STORM OVERFLOW - WATER COMPANY Permit Number: AN0102701 Permit Version: 2 Receiving Water: UNNAMED STREAM	Status: NEW CONSENT, BY APPLICATION (WRA 91, SECTION 88) Issue date: 20/10/1989 Effective Date: 20/10/1989 Revocation Date: 30/03/2007
17	411m S	BARRY DOCKS	Effluent Type: UNSPECIFIED Permit Number: AN0033202 Permit Version: 1 Receiving Water: SEVERN ESTUARY	Status: CONSENT EXPIRED - TIME LIMIT Issue date: 10/09/1987 Effective Date: 10/09/1987 Revocation Date: 11/01/1993
I	433m SE	BARRY WIMBOURNE ROAD ICI RAIL SIDIN, BARRY WIMBOURNE ROAD ICI RAIL SI, WIMBOURNE ROAD ICI RAIL SIDINGS, ICI RAIL SIDINGS	Effluent Type: UNSPECIFIED Permit Number: AN0069001 Permit Version: 1 Receiving Water: SOAKAWAY	Status: CONSENT EXPIRED - TIME LIMIT Issue date: 23/05/1988 Effective Date: 23/05/1988 Revocation Date: 17/08/1992
T	471m NE	Unknown Unknown Unknown Unknown Unk	Effluent Type: UNSPECIFIED Permit Number: AN0141401 Permit Version: 1 Receiving Water: LANDLOCKED MARSH WETLAND/POND	Status: REVOKED - UNSPECIFIED Issue date: 01/01/1901 Effective Date: 01/01/1901 Revocation Date: 08/06/1989

ID	Location	Address	Details	
T	471m NE	Unknown Unknown Unknown Unknown Unk	Effluent Type: UNSPECIFIED Permit Number: AN0141401 Permit Version: 2 Receiving Water: LANDLOCKED MARSH WETLAND/POND	Status: CONSENT EXPIRED - TIME LIMIT Issue date: 09/06/1989 Effective Date: 09/06/1989 Revocation Date: 17/05/1993
U	476m N	BARRY - VERE STREET	Effluent Type: SEWAGE DISCHARGES - SEWER STORM OVERFLOW - WATER COMPANY Permit Number: AN0107201 Permit Version: 1 Receiving Water: DOCK NO.2 VIA P.S.VIA UNNAMED	Status: NEW CONSENT, BY APPLICATION (WRA 91, SECTION 88) Issue date: 20/10/1989 Effective Date: 20/10/1989 Revocation Date: 30/03/2007
U	476m N	BARRY - VERE STREET	Effluent Type: SEWAGE DISCHARGES - SEWER STORM OVERFLOW - WATER COMPANY Permit Number: AN0107201 Permit Version: 2 Receiving Water: DOCK NO.2 VIA P.S.VIA UNNAMED	Status: REVOKED (WRA 91, S88 & SCHED 10 AS AMENDED BY ENV Issue date: 31/03/2005 Effective Date: 31/03/2007 Revocation Date: 31/03/2007
20	476m N	BARRY - GLADSTONE ROAD	Effluent Type: UNSPECIFIED Permit Number: AN0103901 Permit Version: 1 Receiving Water: DOCK NO.2 VIA BARRY DOCK STORM	Status: CONSENT EXPIRED - TIME LIMIT Issue date: 20/10/1989 Effective Date: 20/10/1989 Revocation Date: 09/02/1994
V	498m SE	ATLANTIC TRADING ESTATE BARRY, ATLANTIC TRADING ESTATE, BARRY, VALE OF GLAMORGAN, WALES	Effluent Type: TRADE DISCHARGES - UNSPECIFIED Permit Number: AF4010801 Permit Version: 1 Receiving Water: RIVER CADOXTON	Status: REVOKED (WRA 91, S88 & SCHED 10 AS AMENDED BY ENV Issue date: 10/07/1974 Effective Date: 10/07/1974 Revocation Date: 09/07/2009
V	498m SE	BARRY DOCKS CADAXTON RIVER BRIDGE W, BARRY DOCKS CADAXTON RIVER BRIDG, CADAXTON RIVER BRIDGE WIMBOURNE, WIMBOURNE ROAD ., ., .	Effluent Type: UNSPECIFIED Permit Number: AN0033240 Permit Version: 1 Receiving Water: SEVERN ESTUARY	Status: CONSENT EXPIRED - TIME LIMIT Issue date: 10/09/1987 Effective Date: 10/09/1987 Revocation Date: 16/01/1995

This data is sourced from the Environment Agency and Natural Resources Wales.

4.14 Pollutant release to surface waters (Red List)

Records within 500m	**0**

Discharges of specified substances under the Environmental Protection (Prescribed Processes and Substances) Regulations 1991.

This data is sourced from the Environment Agency and Natural Resources Wales.

4.15 Pollutant release to public sewer

Records within 500m	0

Discharges of Special Category Effluents to the public sewer.

This data is sourced from the Environment Agency and Natural Resources Wales.

4.16 List 1 Dangerous Substances

Records within 500m	0

Discharges of substances identified on List I of European Directive E 2006/11/EC, and regulated under the Environmental Damage (Prevention and Remediation) Regulations 2015.

This data is sourced from the Environment Agency and Natural Resources Wales.

4.17 List 2 Dangerous Substances

Records within 500m	0

Discharges of substances identified on List II of European Directive E 2006/11/EC, and regulated under the Environmental Damage (Prevention and Remediation) Regulations 2015.

This data is sourced from the Environment Agency and Natural Resources Wales.

4.18 Pollution Incidents (EA/NRW)

Records within 500m	11

Records of substantiated pollution incidents. Since 2006 this data has only included category 1 (major) and 2 (significant) pollution incidents.

Features are displayed on the Current industrial land use map on **page 64 >**

ID	Location	Details	
4	84m SW	Incident Date: 16/10/2014 Incident Identification: 1287274 Pollutant: Sewage Materials Pollutant Description: Crude Sewage	Water Impact: - Land Impact: Category 3 (Minor) Air Impact: Category 4 (No Impact)
6	140m N	Incident Date: 10/11/2001 Incident Identification: 42140 Pollutant: Organic Chemicals/Products Pollutant Description: Other Organic Chemical or Product	Water Impact: Category 4 (No Impact) Land Impact: Category 3 (Minor) Air Impact: Category 4 (No Impact)

ID	Location	Details	
K	197m E	Incident Date: 16/08/2015 Incident Identification: 1365049 Pollutant: Oils and Fuel Pollutant Description: Mixed/Waste Oils	Water Impact: Category 2 (Significant) Land Impact: Category 2 (Significant) Air Impact: Category 3 (Minor)
K	213m E	Incident Date: 20/08/2015 Incident Identification: 1366325 Pollutant: Oils and Fuel Pollutant Description: Gas and Fuel Oils	Water Impact: Category 2 (Significant) Land Impact: Category 2 (Significant) Air Impact: Category 3 (Minor)
9	227m SE	Incident Date: 24/03/2015 Incident Identification: 1335313 Pollutant: Specific Waste Materials Pollutant Description: Contaminated Construction & Demolition Mat & Waste	Water Impact: - Land Impact: Category 4 (No Impact) Air Impact: Category 3 (Minor)
Q	346m S	Incident Date: 11/12/2013 Incident Identification: 1183004 Pollutant: Multiple Pollutants Pollutant Description: 3 Pollutants Including Other General Biodegradable	Water Impact: - Land Impact: Category 4 (No Impact) Air Impact: Category 3 (Minor)
16	385m N	Incident Date: 12/02/2003 Incident Identification: 136623 Pollutant: Inert Materials and Wastes Pollutant Description: Construction and Demolition Materials and Wastes	Water Impact: Category 4 (No Impact) Land Impact: Category 3 (Minor) Air Impact: Category 4 (No Impact)
R	424m SE	Incident Date: 10/10/2014 Incident Identification: 1285857 Pollutant: Inert Materials and Wastes Pollutant Description: Construction and Demolition Materials and Wastes	Water Impact: - Land Impact: Category 4 (No Impact) Air Impact: Category 3 (Minor)
S	451m S	Incident Date: 24/04/2014 Incident Identification: 1229714 Pollutant: Multiple Pollutants Pollutant Description: 2 Pollutants Including Rocks and Gravel	Water Impact: - Land Impact: Category 4 (No Impact) Air Impact: Category 3 (Minor)
S	451m S	Incident Date: 09/04/2014 Incident Identification: 1225571 Pollutant: Inert Materials and Wastes Pollutant Description: Soils and Clay	Water Impact: - Land Impact: Category 4 (No Impact) Air Impact: Category 3 (Minor)
21	483m SW	Incident Date: 16/12/2002 Incident Identification: 126244 Pollutant: Inert Materials and Wastes Pollutant Description: Construction and Demolition Materials and Wastes	Water Impact: Category 3 (Minor) Land Impact: Category 4 (No Impact) Air Impact: Category 4 (No Impact)

This data is sourced from the Environment Agency and Natural Resources Wales.

4.19 Pollution inventory substances

Records within 500m	0

The pollution inventory (substances) includes reporting on annual emissions of certain regulated substances to air, controlled waters and land. A reporting threshold for each substance is also included. Where emissions fall below the reporting threshold, no value will be given. The data is given for the most recent complete year available.

This data is sourced from the Environment Agency and the Scottish Environment Protection Agency.

4.20 Pollution inventory waste transfers

Records within 500m	0

The pollution inventory (waste transfers) includes reporting on annual transfers and recovery/disposal of controlled wastes from a site. A reporting threshold for each waste type is also included. Where releases fall below the reporting threshold, no value will be given. The data is given for the most recent complete year available.

This data is sourced from the Environment Agency and the Scottish Environment Protection Agency.

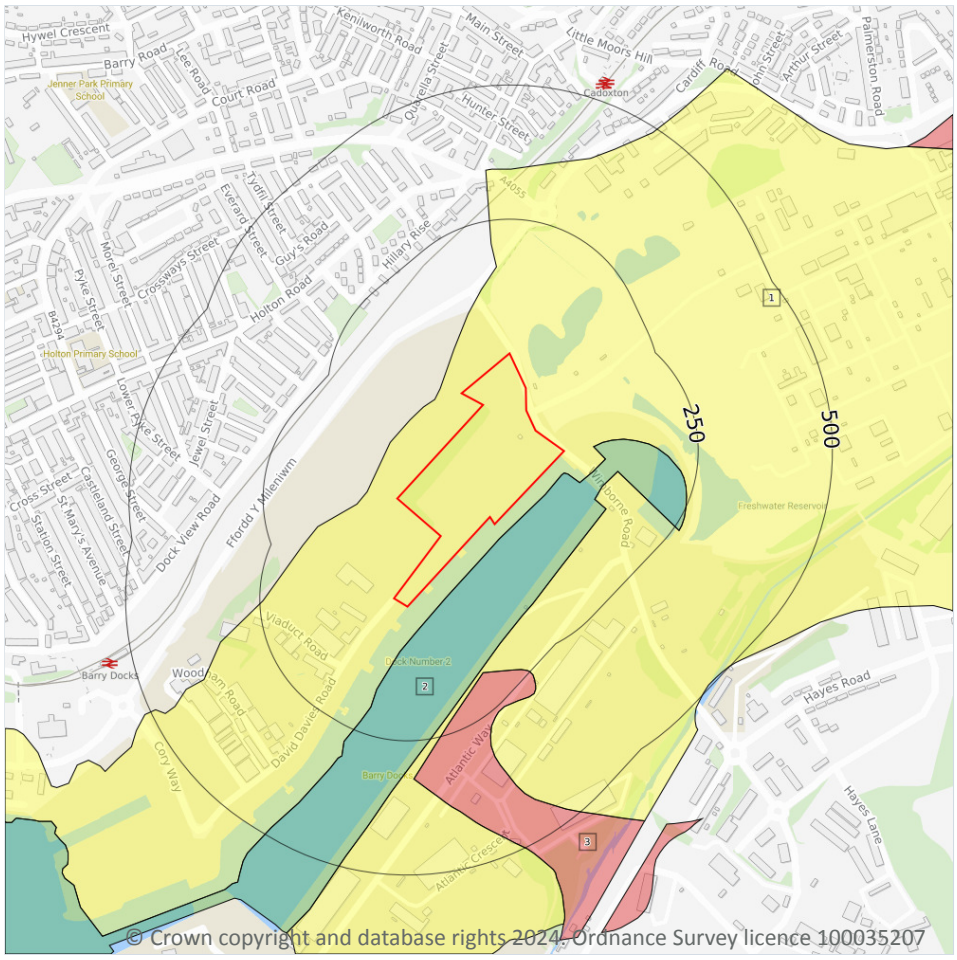
4.21 Pollution inventory radioactive waste

Records within 500m	0

The pollution inventory (radioactive wastes) includes reporting on annual releases of radioactive substances from a site, including the means of release. Where releases fall below the reporting threshold, no value will be given. The data is given for the most recent complete year available.

This data is sourced from the Environment Agency and the Scottish Environment Protection Agency.

5 Hydrogeology - Superficial aquifer



5.1 Superficial aquifer

Records within 500m	3

Aquifer status of groundwater held within superficial geology.

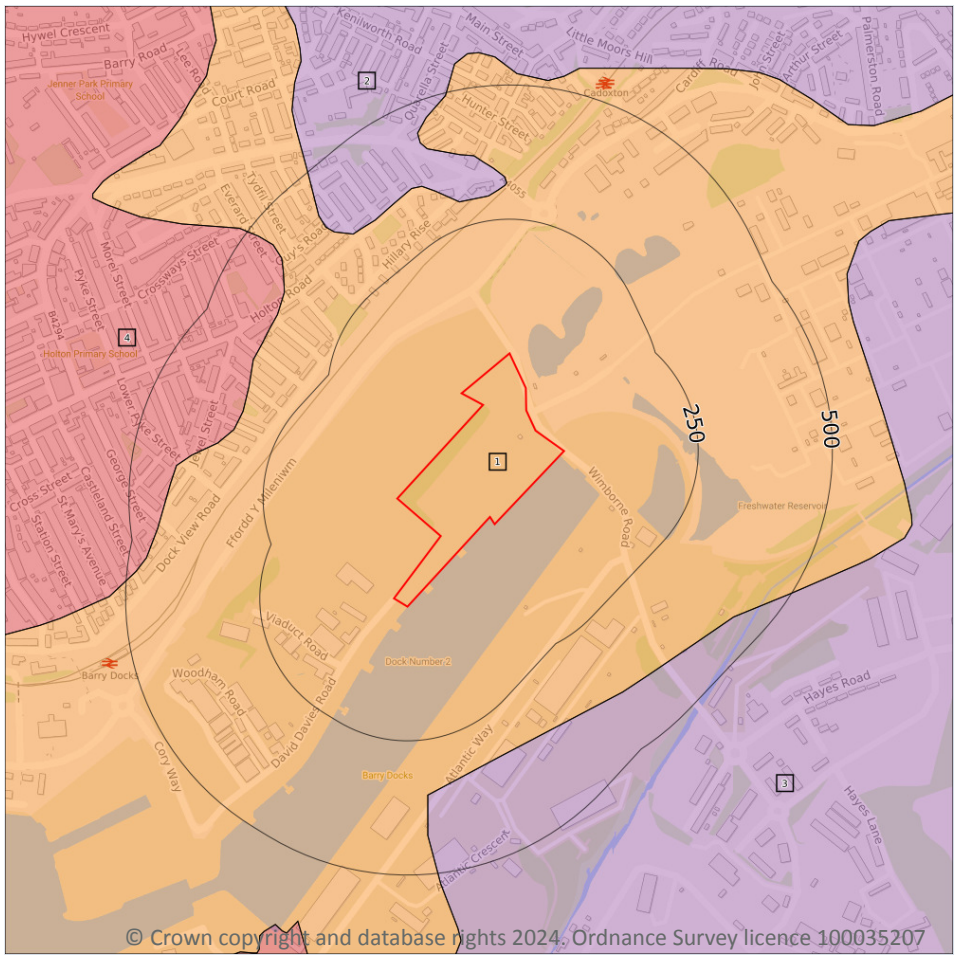
Features are displayed on the Hydrogeology map on **page 79 >**

ID	Location	Designation	Description
1	**On site**	**Secondary Undifferentiated**	**Assigned where it is not possible to attribute either category A or B to a rock type. In general these layers have previously been designated as both minor and non-aquifer in different locations due to the variable characteristics of the rock type**
2	26m SE	Unknown	Unknown

ID	Location	Designation	Description
3	187m S	Secondary A	Permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers

This data is sourced from the British Geological Survey, the Environment Agency and Natural Resources Wales.

Bedrock aquifer



5.2 Bedrock aquifer

Records within 500m	4

Aquifer status of groundwater held within bedrock geology.

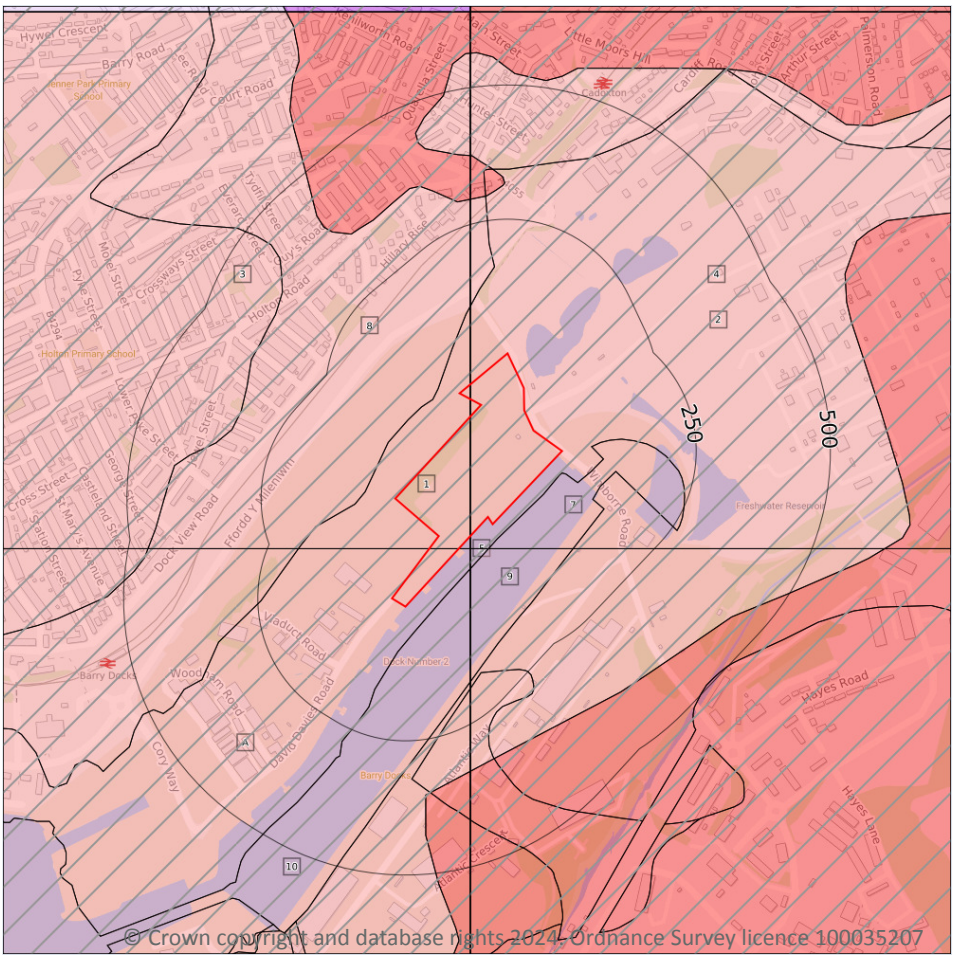
Features are displayed on the Bedrock aquifer map on **page 81 >**

ID	Location	Designation	Description
1	**On site**	**Secondary B**	**Predominantly lower permeability layers which may store/yield limited amounts of groundwater due to localised features such as fissures, thin permeablehorizons and weathering. These are generally the water-bearing parts of the former non-aquifers**
2	295m N	Principal	Geology of high intergranular and/or fracture permeability, usually providing a high level of water storage and may support water supply/river base flow on a strategic scale. Generally principal aquifers were previously major aquifers

ID	Location	Designation	Description
3	328m S	Principal	Geology of high intergranular and/or fracture permeability, usually providing a high level of water storage and may support water supply/river base flow on a strategic scale. Generally principal aquifers were previously major aquifers
4	330m W	Secondary A	Permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers

This data is sourced from the British Geological Survey, the Environment Agency and Natural Resources Wales.

Groundwater vulnerability



5.3 Groundwater vulnerability

Records within 50m	8

An assessment of the vulnerability of groundwater to a pollutant discharged at ground level based on the hydrological, geological, hydrogeological and soil properties within a one kilometre square grid. Groundwater vulnerability is described as High, Medium or Low as follows:

- High - Areas able to easily transmit pollution to groundwater. They are likely to be characterised by high leaching soils and the absence of low permeability superficial deposits.
- Medium - Intermediate between high and low vulnerability.
- Low - Areas that provide the greatest protection from pollution. They are likely to be characterised by low leaching soils and/or the presence of superficial deposits characterised by a low permeability.

Features are displayed on the Groundwater vulnerability map on **page 83 >**

ID	Location	Summary	Soil / surface	Superficial geology	Bedrock geology
1	**On site**	**Summary Classification: Secondary bedrock aquifer - High Vulnerability Combined classification: Productive Bedrock Aquifer, Productive Superficial Aquifer**	**Leaching class: High Infiltration value: <40% Dilution value: 300-550mm/year**	**Vulnerability: Medium Aquifer type: Secondary Thickness: <3m Patchiness value: <90% Recharge potential: No Data**	**Vulnerability: High Aquifer type: Secondary Flow mechanism: Well connected fractures**
2	**On site**	**Summary Classification: Secondary bedrock aquifer - High Vulnerability Combined classification: Productive Bedrock Aquifer, Productive Superficial Aquifer**	**Leaching class: High Infiltration value: <40% Dilution value: 300-550mm/year**	**Vulnerability: Medium Aquifer type: Secondary Thickness: 3-10m Patchiness value: <90% Recharge potential: No Data**	**Vulnerability: High Aquifer type: Secondary Flow mechanism: Well connected fractures**
A	**On site**	**Summary Classification: Secondary bedrock aquifer - High Vulnerability Combined classification: Productive Bedrock Aquifer, Productive Superficial Aquifer**	**Leaching class: High Infiltration value: <40% Dilution value: 300-550mm/year**	**Vulnerability: Medium Aquifer type: Secondary Thickness: 3-10m Patchiness value: <90% Recharge potential: No Data**	**Vulnerability: High Aquifer type: Secondary Flow mechanism: Well connected fractures**
5	15m S	Summary Classification: Secondary bedrock aquifer - High Vulnerability Combined classification: Productive Bedrock Aquifer, Productive Superficial Aquifer	Leaching class: High Infiltration value: <40% Dilution value: 300-550mm/year	Vulnerability: Medium Aquifer type: Secondary Thickness: 3-10m Patchiness value: <90% Recharge potential: No Data	Vulnerability: High Aquifer type: Secondary Flow mechanism: Well connected fractures
7	25m SE	Summary Classification: Secondary bedrock aquifer - High Vulnerability Combined classification: Productive Bedrock Aquifer, Unproductive Superficial Aquifer	Leaching class: High Infiltration value: <40% Dilution value: 300-550mm/year	Vulnerability: - Aquifer type: Unknown (lakes+landslip) Thickness: 3-10m Patchiness value: <90% Recharge potential: No Data	Vulnerability: High Aquifer type: Secondary Flow mechanism: Well connected fractures
8	40m NW	Summary Classification: Secondary bedrock aquifer - High Vulnerability Combined classification: Productive Bedrock Aquifer, No Superficial Aquifer	Leaching class: High Infiltration value: <40% Dilution value: 300-550mm/year	Vulnerability: - Aquifer type: - Thickness: <3m Patchiness value: <90% Recharge potential: No Data	Vulnerability: High Aquifer type: Secondary Flow mechanism: Well connected fractures

ID	Location	Summary	Soil / surface	Superficial geology	Bedrock geology
9	40m S	Summary Classification: Secondary bedrock aquifer - High Vulnerability Combined classification: Productive Bedrock Aquifer, Unproductive Superficial Aquifer	Leaching class: High Infiltration value: <40% Dilution value: 300-550mm/year	Vulnerability: - Aquifer type: Unknown (lakes+landslip) Thickness: 3-10m Patchiness value: <90% Recharge potential: No Data	Vulnerability: High Aquifer type: Secondary Flow mechanism: Well connected fractures
10	41m S	Summary Classification: Secondary bedrock aquifer - High Vulnerability Combined classification: Productive Bedrock Aquifer, Unproductive Superficial Aquifer	Leaching class: High Infiltration value: <40% Dilution value: 300-550mm/year	Vulnerability: - Aquifer type: Unknown (lakes+landslip) Thickness: 3-10m Patchiness value: <90% Recharge potential: No Data	Vulnerability: High Aquifer type: Secondary Flow mechanism: Well connected fractures

This data is sourced from the British Geological Survey, the Environment Agency and Natural Resources Wales.

5.4 Groundwater vulnerability- soluble rock risk

Records on site	**3**

This dataset identifies areas where solution features that enable rapid movement of a pollutant may be present within a 1km grid square.

ID	Maximum soluble risk category	Percentage of grid square covered by maximum risk
3	**Significant soluble rocks are likely to be present. Low possibility of localised subsidence or dissolution-related degradation of bedrock occurring naturally, but may be possible in adverse conditions such as high surface or subsurface water flow.**	**7.000000000000001%**
4	**Significant soluble rocks are likely to be present. Low possibility of localised subsidence or dissolution-related degradation of bedrock occurring naturally, but may be possible in adverse conditions such as high surface or subsurface water flow.**	**2.0%**
A	**Significant soluble rocks are likely to be present. Low possibility of localised subsidence or dissolution-related degradation of bedrock occurring naturally, but may be possible in adverse conditions such as high surface or subsurface water flow.**	**0.0%**

This data is sourced from the British Geological Survey and the Environment Agency.

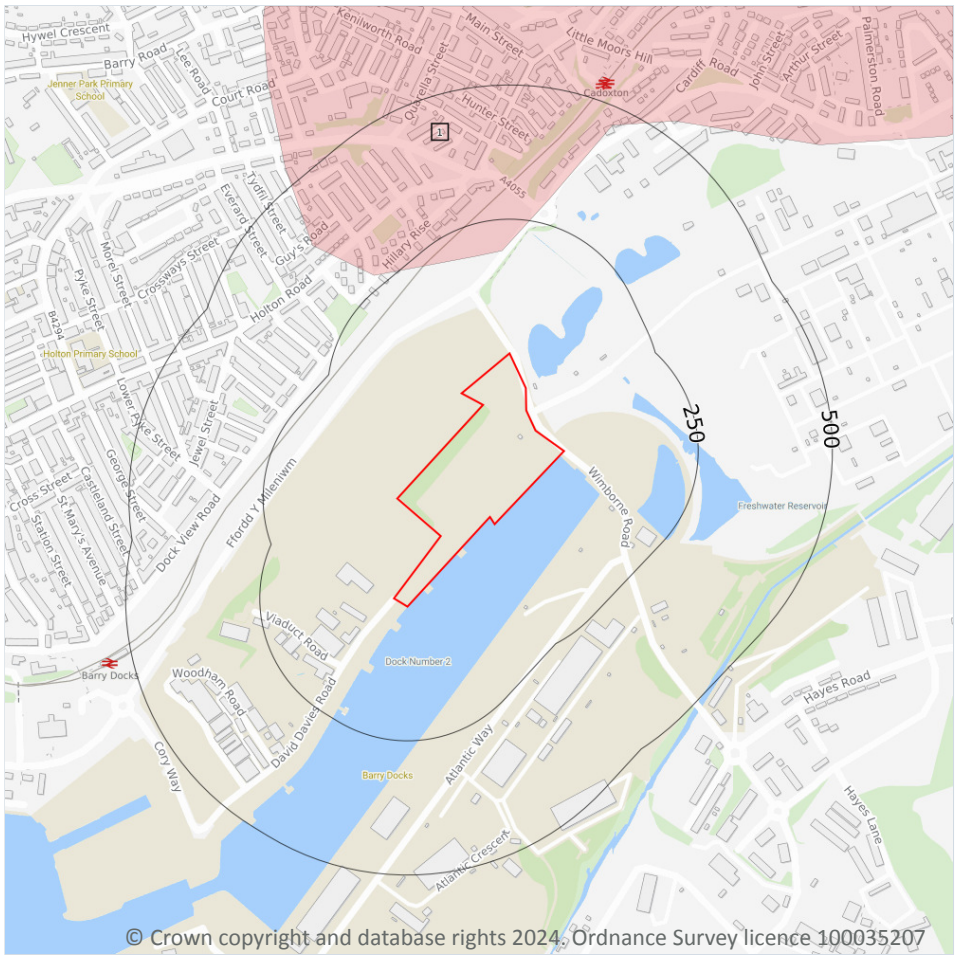
5.5 Groundwater vulnerability- local information

Records on site	0

This dataset identifies areas where additional local information affecting vulnerability is held by the Environment Agency. Further information can be obtained by contacting the Environment Agency local Area groundwater team through the Environment Agency National Customer Call Centre on 03798 506 506 or by email on enquiries@environment-agency.gov.uk ↗.

This data is sourced from the British Geological Survey and the Environment Agency.

Abstractions and Source Protection Zones



Site Outline

Search buffers in metres (m)

- Source Protection Zone 1 — Inner catchment
- Source Protection Zone 2 — Outer catchment
- Source Protection Zone 3 — Total catchment
- Source Protection Zone 4 — Zone of Special Interest
- Source Protection Zone 1c — Inner catchment - confined aquifer
- Source Protection Zone 2c — Outer catchment - confined aquifer
- Source Protection Zone 3c — Total catchment - confined aquifer
- Drinking water abstraction licences
- Drinking water abstraction licences — Polygon features
- Drinking water abstraction licences — Linear features
- Groundwater abstraction licence (point)
- Groundwater abstraction licence (area)
- Groundwater abstraction licence (linear)
- Surface Water Abstractions (point)
- Surface Water Abstractions (area)
- Surface Water Abstractions (linear)

5.6 Groundwater abstractions

Records within 2000m	2

Licensed groundwater abstractions for sites extracting more than 20 cubic metres of water a day and includes active and historical records. The data may be for a single abstraction point, between two points (line data) or a larger area.

Features are displayed on the Abstractions and Source Protection Zones map on **page 87 >**

ID	Location	Details	
-	1783m SW	Status: Historical Licence No: 21/58/31/0030 Details: General use relating to Secondary Category (Medium Loss) Direct Source: EAW Groundwater Point: BOREHOLE AT BARRY ISLAND PLEASURE PARK Data Type: Point Name: Hyper Value Holdings Limited Easting: 311620 Northing: 166620	Annual Volume (m^3): - Max Daily Volume (m^3): - Original Application No: - Original Start Date: 21/03/1997 Expiry Date: 21/03/2002 Issue No: 100 Version Start Date: 21/03/1997 Version End Date: -
-	1783m SW	Status: Historical Licence No: 21/58/31/0031 Details: General Use Relating To Secondary Category (Medium Loss) Direct Source: EAW Groundwater Point: BOREHOLE AT BARRY ISLAND PLEASURE PARK Data Type: Point Name: Hyper Value Holdings Limited Easting: 311620 Northing: 166620	Annual Volume (m^3): 41172 Max Daily Volume (m^3): 112.8 Original Application No: - Original Start Date: 31/05/2002 Expiry Date: 31/03/2018 Issue No: 1 Version Start Date: 21/05/2004 Version End Date: -

This data is sourced from the Environment Agency and Natural Resources Wales.

5.7 Surface water abstractions

Records within 2000m	**9**

Licensed surface water abstractions for sites extracting more than 20 cubic metres of water a day and includes active and historical records. The data may be for a single abstraction point, a stretch of watercourse or a larger area.

Features are displayed on the Abstractions and Source Protection Zones map on **page 87 >**

ID	Location	Details	
-	1042m E	Status: Active Licence No: 21/58/11/0003 Details: General Use relating to Secondary category - High Loss - High Direct Source: - Point: - Data Type: Point Name: - Easting: 314190 Northing: 168400	Annual Volume (m^3): 1458175 Max Daily Volume (m^3): 3995 Original Application No: - Original Start Date: 25/07/2002 Expiry Date: - Issue No: - Version Start Date: - Version End Date: -

ID	Location	Details	
-	1042m E	Status: Historical Licence No: 21/58/11/0003 Details: Evaporative Cooling Direct Source: EAW Surface Water Point: RIVER CADOXTON AT DOW CORNING Data Type: Point Name: Dow Corning Ltd Easting: 314190 Northing: 168400	Annual Volume (m^3): - Max Daily Volume (m^3): - Original Application No: - Original Start Date: 10/02/1966 Expiry Date: - Issue No: 100 Version Start Date: 05/09/1997 Version End Date: -
-	1042m E	Status: Historical Licence No: 21/58/11/0003 Details: General use relating to Secondary Category (Medium Loss) Direct Source: EAW Surface Water Point: RIVER CADOXTON AT DOW CORNING Data Type: Point Name: Dow Corning Ltd Easting: 314190 Northing: 168400	Annual Volume (m^3): - Max Daily Volume (m^3): - Original Application No: - Original Start Date: 10/02/1966 Expiry Date: - Issue No: 100 Version Start Date: 05/09/1997 Version End Date: -
-	1042m E	Status: Historical Licence No: 21/58/11/0003 Details: Process water Direct Source: EAW Surface Water Point: RIVER CADOXTON AT DOW CORNING Data Type: Point Name: Dow Corning Ltd Easting: 314190 Northing: 168400	Annual Volume (m^3): - Max Daily Volume (m^3): - Original Application No: - Original Start Date: 10/02/1966 Expiry Date: - Issue No: 100 Version Start Date: 05/09/1997 Version End Date: -
-	1042m E	Status: Historical Licence No: 21/58/11/0003 Details: General Use relating to Secondary category - High Loss - High Direct Source: - Point: - Data Type: Point Name: - Easting: 314190 Northing: 168400	Annual Volume (m^3): 1458175 Max Daily Volume (m^3): 4944 Original Application No: - Original Start Date: 25/07/2002 Expiry Date: - Issue No: - Version Start Date: - Version End Date: -
-	1042m E	Status: Historical Licence No: 21/58/11/0003 Details: General Use Relating To Secondary Category (High Loss) Direct Source: EAW Surface Water Point: RIVER CADOXTON AT DOW CORNING Data Type: Point Name: Dow Corning Ltd Easting: 314190 Northing: 168400	Annual Volume (m^3): 1458175 Max Daily Volume (m^3): 3995 Original Application No: - Original Start Date: 10/02/1966 Expiry Date: - Issue No: 102 Version Start Date: 25/07/2002 Version End Date: -

ID	Location	Details	
-	1281m NW	Status: Active Licence No: WA/058/0011/003 Details: Unknown (Impounding) - Direct Source: - Point: - Data Type: Line Name: - Easting: 312057 Northing: 169178	Annual Volume (m^3): 0 Max Daily Volume (m^3): - Original Application No: - Original Start Date: 27/10/2014 Expiry Date: - Issue No: - Version Start Date: - Version End Date: -
-	1436m NW	Status: Active Licence No: WA/058/0011/004 Details: Transfer between Sources (Pre Water Act 2003) - Very Low Direct Source: - Point: - Data Type: Point Name: - Easting: 311931 Northing: 169271	Annual Volume (m^3): 0 Max Daily Volume (m^3): - Original Application No: - Original Start Date: 27/10/2014 Expiry Date: 31/03/2030 Issue No: - Version Start Date: - Version End Date: -
-	1436m NW	Status: Historical Licence No: WA/058/0011/004 Details: Transfer Between Sources (Pre Water Act 2003) Direct Source: EAW Surface Water Point: UN-NAMED TRIBUTARY OF THE COLD BROOK Data Type: Point Name: The Vale of Glamorgan Council Easting: 311931 Northing: 169271	Annual Volume (m^3): - Max Daily Volume (m^3): - Original Application No: - Original Start Date: 27/10/2014 Expiry Date: 31/03/2030 Issue No: 1 Version Start Date: 27/10/2014 Version End Date: -

This data is sourced from the Environment Agency and Natural Resources Wales.

5.8 Potable abstractions

Records within 2000m	**0**

Licensed potable water abstractions for sites extracting more than 20 cubic metres of water a day and includes active and historical records. The data may be for a single abstraction point, a stretch of watercourse or a larger area.

This data is sourced from the Environment Agency and Natural Resources Wales.

5.9 Source Protection Zones

Records within 500m	1

Source Protection Zones define the sensitivity of an area around a potable abstraction site to contamination.

Features are displayed on the Abstractions and Source Protection Zones map on **page 87 >**

ID	Location	Type	Description
1	190m N	1	Inner catchment

This data is sourced from the Environment Agency and Natural Resources Wales.

5.10 Source Protection Zones (confined aquifer)

Records within 500m	0

Source Protection Zones in the confined aquifer define the sensitivity around a deep groundwater abstraction to contamination. A confined aquifer would normally be protected from contamination by overlying geology and is only considered a sensitive resource if deep excavation/drilling is taking place.

This data is sourced from the Environment Agency and Natural Resources Wales.

6 Hydrology

Site Outline

Search buffers in metres (m)

Water Network (OS MasterMap)

Surface water features (wider than 5m)

Surface water features (narrower than 5m)

WFD River, canal and surface water transfer water bodies

WFD Lake water bodies

WFD Transitional and coastal water bodies

WFD Surface water body catchments boundaries

WFD Groundwater body boundaries

6.1 Water Network (OS MasterMap)

Records within 250m	6

Detailed water network of Great Britain showing the flow and precise central course of every river, stream, lake and canal.

Features are displayed on the Hydrology map on **page 92 >**

ID	Location	Type of water feature	Ground level	Permanence	Name
B	199m NE	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-

ID	Location	Type of water feature	Ground level	Permanence	Name
7	213m SW	Lake, loch or reservoir.	On ground surface	Watercourse contains water year round (in normal circumstances)	Dock Number 2
C	213m SW	Inland river not influenced by normal tidal action.	Underground	Watercourse contains water year round (in normal circumstances)	-
C	217m SW	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
C	217m SW	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
C	217m SW	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-

This data is sourced from the Ordnance Survey.

6.2 Surface water features

Records within 250m	8

Covering rivers, streams and lakes (some overlap with OS MasterMap Water Network data in previous section) but additionally covers smaller features such as ponds. Rivers and streams narrower than 5m are represented as a single line. Lakes, ponds and rivers or streams wider than 5m are represented as polygons.

Features are displayed on the Hydrology map on **page 92 >**

This data is sourced from the Ordnance Survey.

6.3 WFD Surface water body catchments

Records on site	2

The Water Framework Directive is an EU-led framework for the protection of inland surface waters, estuaries, coastal waters and groundwater through river basin-level management planning. In terms of surface water, these basins are broken down into smaller units known as management, operational and water body catchments.

Features are displayed on the Hydrology map on **page 92 >**

ID	Location	Type	Water body catchment	Water body ID	Operational catchment	Management catchment
2	**On site**	**Coastal catchment**	**Not part of a river WB catchment**	**333**	**Thaw and Cadoxton**	**Tawe to Cadoxton**
A	**On site**	**River WB catchment**	**Cadoxton - headwaters to tidal limit**	**GB110058026420**	**Thaw and Cadoxton**	**Tawe to Cadoxton**

This data is sourced from the Environment Agency and Natural Resources Wales.

6.4 WFD Surface water bodies

Records identified	**1**

Surface water bodies under the Directive may be rivers, lakes, estuary or coastal. To achieve the purpose of the Directive, environmental objectives have been set and are reported on for each water body. The progress towards delivery of the objectives is then reported on by the relevant competent authorities at the end of each six-year cycle. The river water body directly associated with the catchment listed in the previous section is detailed below, along with any lake, canal, coastal or artificial water body within 250m of the site.

Features are displayed on the Hydrology map on **page 92 >**

ID	Location	Type	Name	Water body ID	Overall rating	Chemical rating	Ecological rating	Year
11	463m SE	River	Cadoxton - headwaters to tidal limit	GB110058026420	Moderate	Good	Moderate	2016

This data is sourced from the Environment Agency and Natural Resources Wales.

6.5 WFD Groundwater bodies

Records on site	**1**

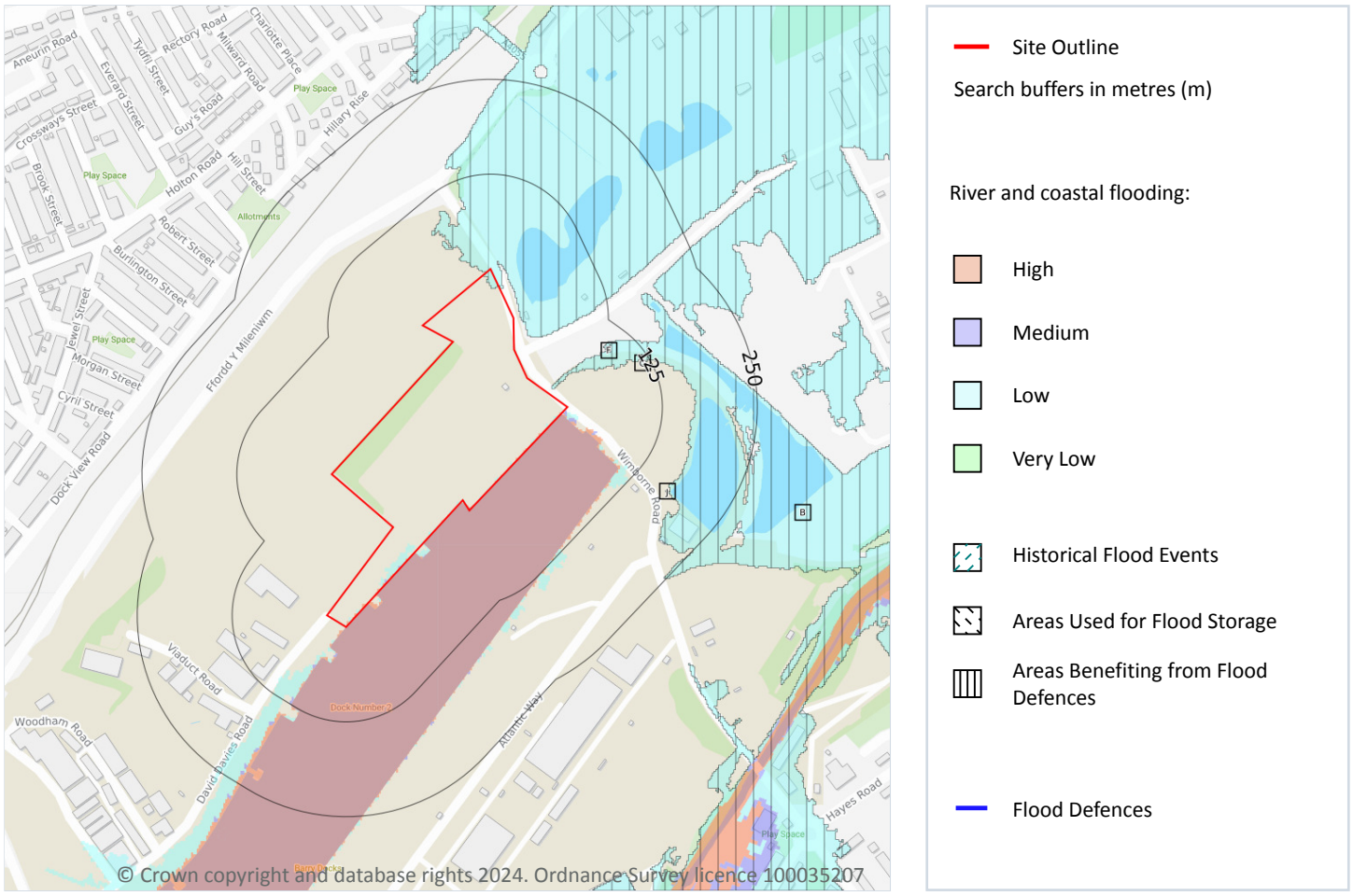
Groundwater bodies are also covered by the Directive and the same regime of objectives and reporting detailed in the previous section is in place.

Features are displayed on the Hydrology map on **page 92 >**

ID	Location	Name	Water body ID	Overall rating	Chemical rating	Quantitative	Year
3	**On site**	**Thaw & Cadoxtan Jurassic Lias**	**GB41002G201400**	**Good**	**Good**	**Good**	**2017**

This data is sourced from the Environment Agency and Natural Resources Wales.

7 River and coastal flooding



7.1 Risk of flooding from rivers and the sea

Records within 50m	109

The chance of flooding from rivers and/or the sea in any given year, based on cells of 50m within the Risk of Flooding from Rivers and Sea (RoFRaS)/Flood Risk Assessment Wales (FRAW) models. Each cell is allocated one of four flood risk categories, taking into account flood defences and their condition. The risk categories for RoFRaS for rivers and the sea and FRAW for rivers are; Very low (less than 1 in 1000 chance in any given year), Low (less than 1 in 100 but greater than or equal to 1 in 1000 chance), Medium (less than 1 in 30 but greater than or equal to 1 in 100 chance) or High (greater than or equal to 1 in 30 chance). The risk categories for FRAW for the sea are; Very low (less than 1 in 1000 chance in any given year), Low (less than 1 in 200 but greater than or equal to 1 in 1000 chance), Medium (less than 1 in 30 but greater than or equal to 1 in 200 chance) or High (greater than or equal to 1 in 30 chance).

Features are displayed on the River and coastal flooding map on **page 95 >**

Distance	Flood risk category
On site	**High**
0 - 50m	High

This data is sourced from the Environment Agency and Natural Resources Wales.

7.2 Historical Flood Events

Records within 250m	**0**

Records of historic flooding from rivers, the sea, groundwater and surface water. Records began in 1946 when predecessor bodies started collecting detailed information about flooding incidents, although limited details may be included on flooding incidents prior to this date. Takes into account the presence of defences, structures, and other infrastructure where they existed at the time of flooding, and includes flood extents that may have been affected by overtopping, breaches or blockages.

This data is sourced from the Environment Agency and Natural Resources Wales.

7.3 Flood Defences

Records within 250m	**0**

Records of flood defences owned, managed or inspected by the Environment Agency and Natural Resources Wales. Flood defences can be structures, buildings or parts of buildings. Typically these are earth banks, stone and concrete walls, or sheet-piling that is used to prevent or control the extent of flooding.

This data is sourced from the Environment Agency and Natural Resources Wales.

7.4 Areas Benefiting from Flood Defences

Records within 250m	**5**

Areas that would benefit from the presence of flood defences in a 1 in 100 (1%) chance of flooding each year from rivers or 1 in 200 (0.5%) chance of flooding each year from the sea.

Features are displayed on the River and coastal flooding map on **page 95 >**

ID	Location	
B	**On site**	**Area benefiting from flood defences**
F	91m NE	Area benefiting from flood defences
G	111m E	Area benefiting from flood defences
J	170m E	Area benefiting from flood defences
C	245m E	Area benefiting from flood defences

This data is sourced from the Environment Agency and Natural Resources Wales.

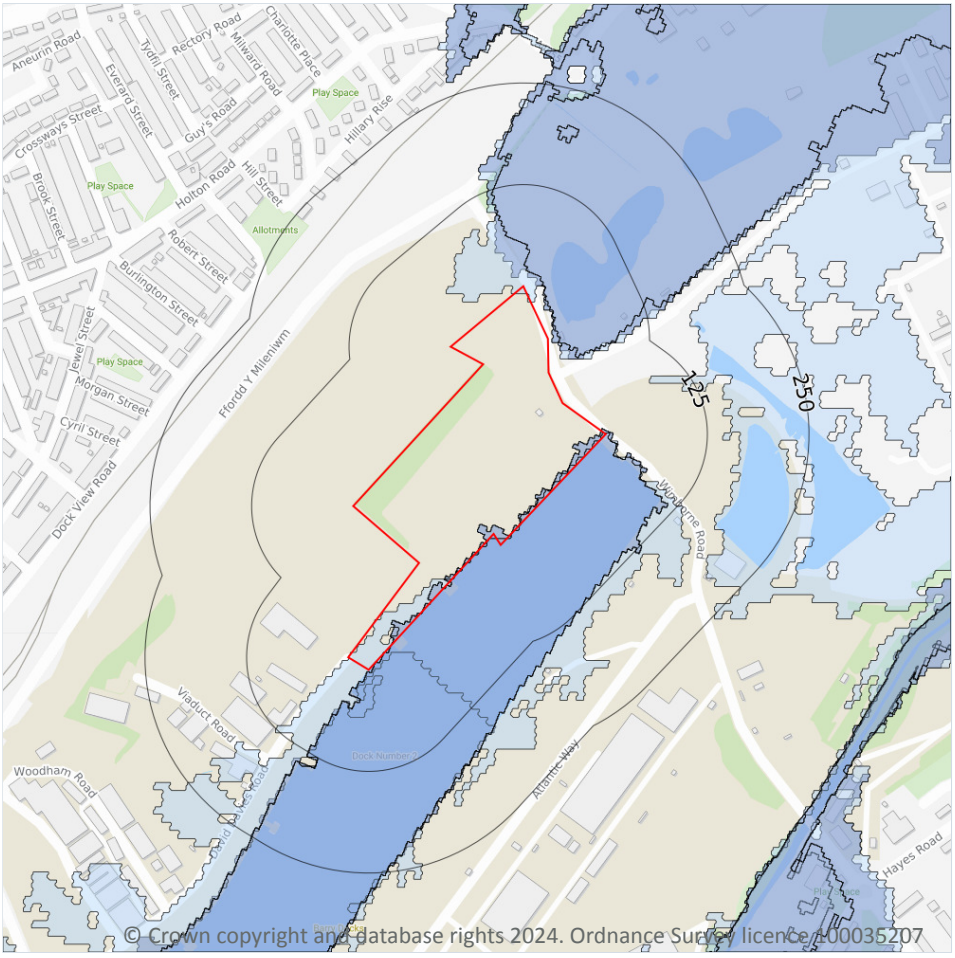
7.5 Flood Storage Areas

Records within 250m	0

Areas that act as a balancing reservoir, storage basin or balancing pond to attenuate an incoming flood peak to a flow level that can be accepted by the downstream channel or to delay the timing of a flood peak so that its volume is discharged over a longer period.

This data is sourced from the Environment Agency and Natural Resources Wales.

River and coastal flooding - Flood Zones



Site Outline

Search buffers in metres (m)

Flood zone 2

Flood zone 3

7.6 Flood Zone 2

Records within 50m	1

Areas of land at risk of flooding, when the presence of flood defences are ignored. Covering land between Flood Zone 3 (see next section) and the extent of the flooding from rivers or the sea with a 1 in 1000 (0.1%) chance of flooding each year.

Features are displayed on the River and coastal flooding map on **page 95 >**

Location	Type
On site	**Zone 2 - (Fluvial /Tidal Models)**

This data is sourced from the Environment Agency and Natural Resources Wales.

7.7 Flood Zone 3

Records within 50m	1

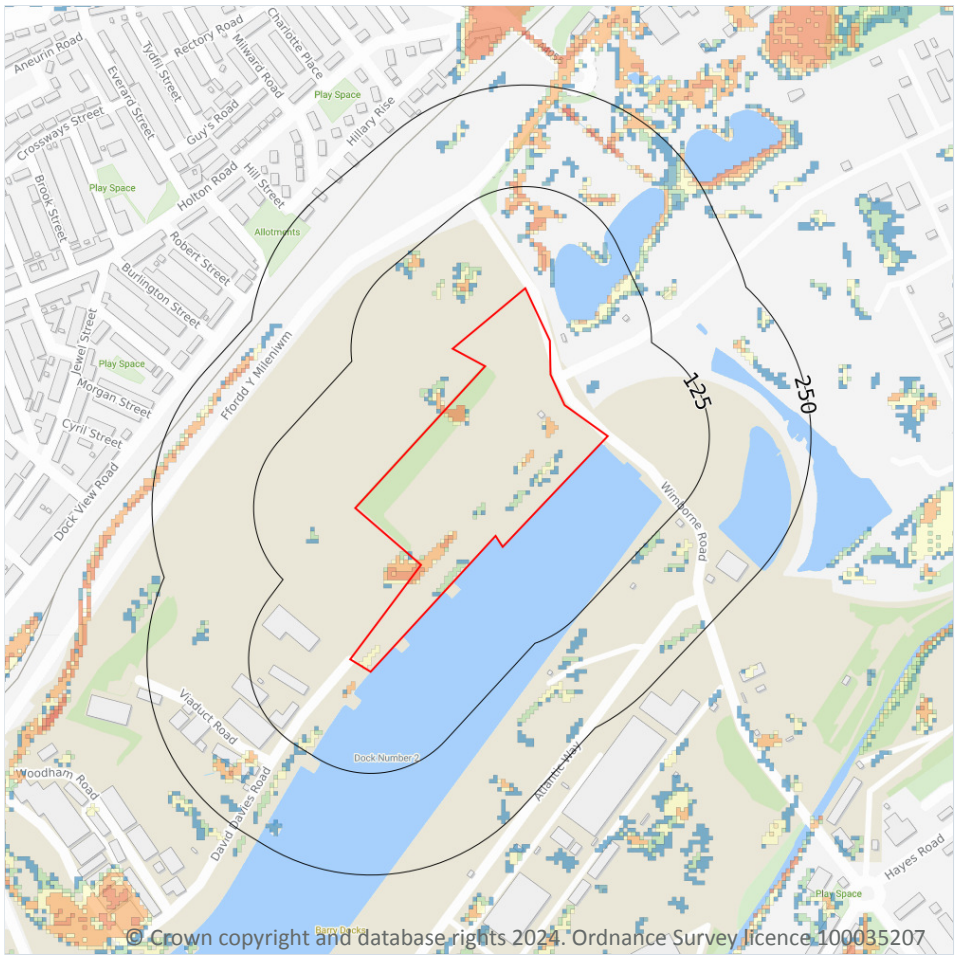
Areas of land at risk of flooding, when the presence of flood defences are ignored. Covering land with a 1 in 100 (1%) or greater chance of flooding each year from rivers or a 1 in 200 (0.5%) or greater chance of flooding each year from the sea.

Features are displayed on the River and coastal flooding map on **page 95 >**

Location	Type
On site	**Zone 3 - (Fluvial /Tidal Models)**

This data is sourced from the Environment Agency and Natural Resources Wales.

8 Surface water flooding



Site Outline

Search buffers in metres (m)

1 in 1000 return period
- Depth between 0.1m - 0.3m
- Depth between 0.3m - 1.0m
- Depth greater than 1.0m

1 in 250 return period
- Depth between 0.1m - 0.3m
- Depth between 0.3m - 1.0m
- Depth greater than 1.0m

1 in 100 return period
- Depth between 0.1m - 0.3m
- Depth between 0.3m - 1.0m
- Depth greater than 1.0m

1 in 30 return period
- Depth between 0.1m - 0.3m
- Depth between 0.3m - 1.0m
- Depth greater than 1.0m

8.1 Surface water flooding

Highest risk on site	**1 in 30 year, 0.3m - 1.0m**
Highest risk within 50m	**1 in 30 year, 0.3m - 1.0m**

Ambiental Risk Analytics surface water (pluvial) FloodMap identifies areas likely to flood as a result of extreme rainfall events, i.e. land naturally vulnerable to surface water ponding or flooding. This data set was produced by simulating 1 in 30 year, 1 in 100 year, 1 in 250 year and 1 in 1,000 year rainfall events. Modern urban drainage systems are typically built to cope with rainfall events between 1 in 20 and 1 in 30 years, though some older ones may flood in a 1 in 5 year rainfall event.

Features are displayed on the Surface water flooding map on **page 100 >**

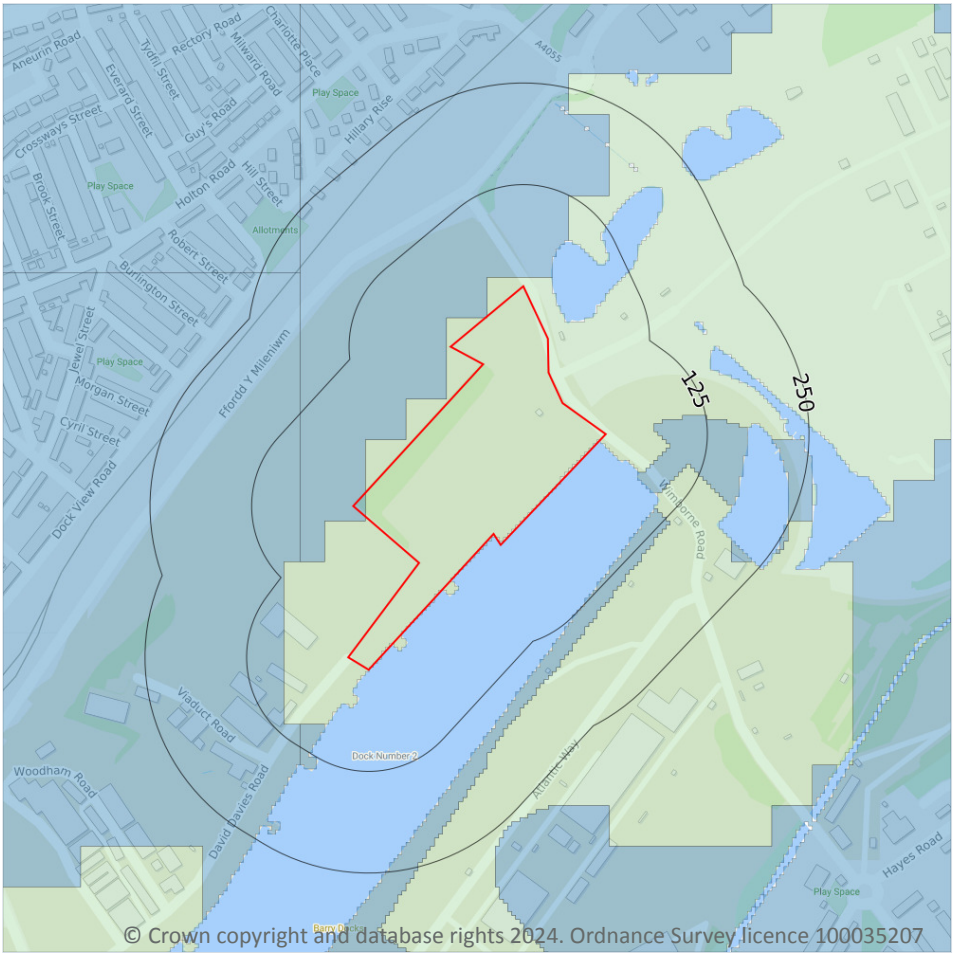
The data shown on the map and in the table above shows the highest likelihood of flood events happening at the site. Lower likelihood events may have greater flood depths and hence a greater potential impact on a site.

The table below shows the maximum flood depths for a range of return periods for the site.

Return period	Maximum modelled depth
1 in 1000 year	Between 0.3m and 1.0m
1 in 250 year	Between 0.3m and 1.0m
1 in 100 year	Between 0.3m and 1.0m
1 in 30 year	Between 0.3m and 1.0m

This data is sourced from Ambiental Risk Analytics.

9 Groundwater flooding



9.1 Groundwater flooding

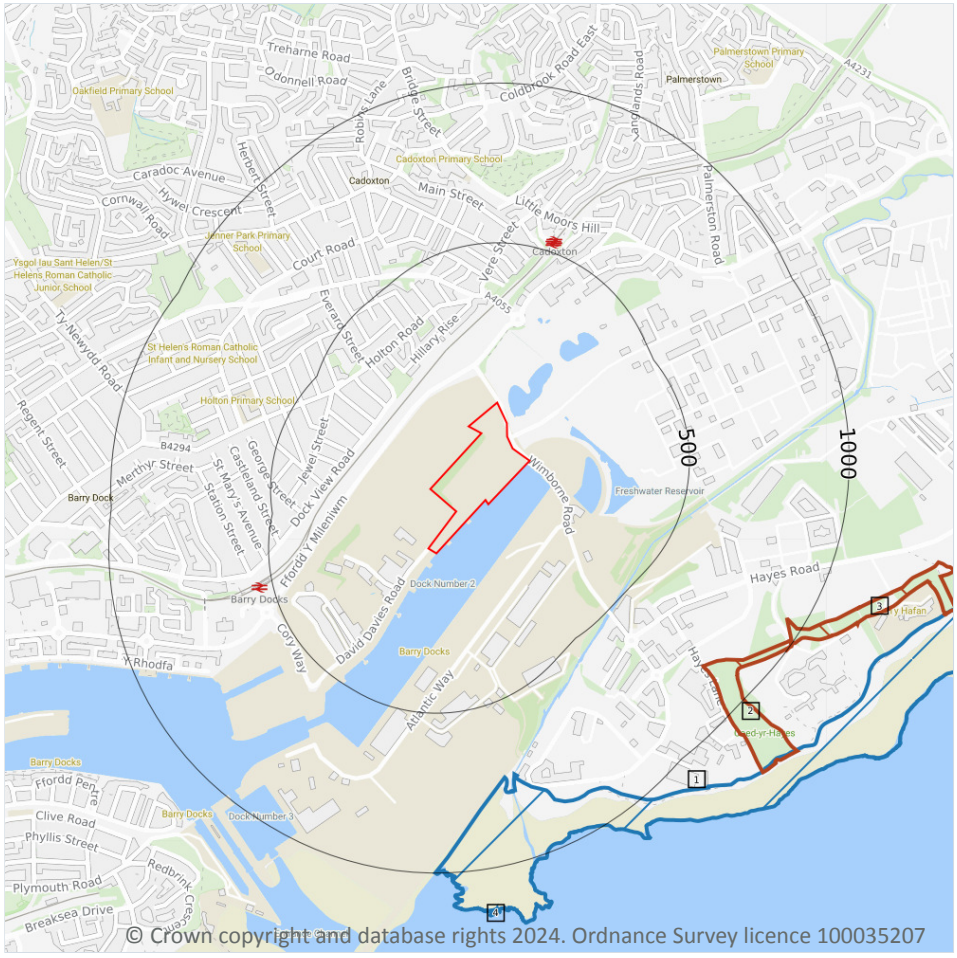
Highest risk on site	**Low**
Highest risk within 50m	**Low**

Groundwater flooding is caused by unusually high groundwater levels. It occurs when the water table rises above the ground surface or within underground structures such as basements or cellars. Groundwater flooding tends to exhibit a longer duration than surface water flooding, possibly lasting for weeks or months, and as a result it can cause significant damage to property. This risk assessment is based on a 1 in 100 year return period and a 5m Digital Terrain Model (DTM).

Features are displayed on the Groundwater flooding map on **page 102 >**

This data is sourced from Ambiental Risk Analytics.

10 Environmental designations



Site Outline

Search buffers in metres (m)

Sites of Special Scientific Interest (SSSI)

Designated Ancient Woodland

10.1 Sites of Special Scientific Interest (SSSI)

Records within 2000m	4

Sites providing statutory protection for the best examples of UK flora, fauna, or geological or physiographical features. Originally notified under the National Parks and Access to the Countryside Act 1949, SSSIs were re-notified under the Wildlife and Countryside Act 1981. Improved provisions for the protection and management of SSSIs were introduced by the Countryside and Rights of Way Act 2000 (in England and Wales) and (in Scotland) by the Nature Conservation (Scotland) Act 2004 and the Wildlife and Natural Environment (Scotland) Act 2010.

Features are displayed on the Environmental designations map on **page 103 >**

ID	Location	Name	Data source
1	732m S	Hayes Point to Bendrick Rock	Natural Resources Wales

ID	Location	Name	Data source
4	1134m S	Hayes Point to Bendrick Rock	Natural Resources Wales
-	1536m SW	Barry Island	Natural Resources Wales
-	1900m N	Coedydd y Barri / Barry Woodlands	Natural Resources Wales

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

10.2 Conserved wetland sites (Ramsar sites)

Records within 2000m	0

Ramsar sites are designated under the Convention on Wetlands of International Importance, agreed in Ramsar, Iran, in 1971. They cover all aspects of wetland conservation and wise use, recognizing wetlands as ecosystems that are extremely important for biodiversity conservation in general and for the well-being of human communities. These sites cover a broad definition of wetland; marsh, fen, peatland or water, whether natural or artificial, permanent or temporary, with water that is static or flowing, fresh, brackish or salt, and even some marine areas.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

10.3 Special Areas of Conservation (SAC)

Records within 2000m	0

Areas which have been identified as best representing the range and variety within the European Union of habitats and (non-bird) species listed on Annexes I and II to the Directive. SACs are designated under the EC Habitats Directive.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

10.4 Special Protection Areas (SPA)

Records within 2000m	0

Sites classified by the UK Government under the EC Birds Directive, SPAs are areas of the most important habitat for rare (listed on Annex I to the Directive) and migratory birds within the European Union.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

10.5 National Nature Reserves (NNR)

Records within 2000m	0

Sites containing examples of some of the most important natural and semi-natural terrestrial and coastal ecosystems in Great Britain. They are managed to conserve their habitats, provide special opportunities for scientific study or to provide public recreation compatible with natural heritage interests.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

10.6 Local Nature Reserves (LNR)

Records within 2000m	0

Sites managed for nature conservation, and to provide opportunities for research and education, or simply enjoying and having contact with nature. They are declared by local authorities under the National Parks and Access to the Countryside Act 1949 after consultation with the relevant statutory nature conservation agency.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

10.7 Designated Ancient Woodland

Records within 2000m	3

Ancient woodlands are classified as areas which have been wooded continuously since at least 1600 AD. This includes semi-natural woodland and plantations on ancient woodland sites. 'Wooded continuously' does not mean there is or has previously been continuous tree cover across the whole site, and not all trees within the woodland have to be old.

Features are displayed on the Environmental designations map on **page 103 >**

ID	Location	Name	Woodland Type
2	837m SE	Unknown	Restored Ancient Woodland Site
3	947m SE	Unknown	Restored Ancient Woodland Site
-	1897m N	Unknown	Ancient Semi Natural Woodland

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

10.8 Biosphere Reserves

Records within 2000m	0

Biosphere Reserves are internationally recognised by UNESCO as sites of excellence to balance conservation and socioeconomic development between nature and people. They are recognised under the Man and the Biosphere (MAB) Programme with the aim of promoting sustainable development founded on the work of the local community.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

10.9 Forest Parks

Records within 2000m	0

These are areas managed by the Forestry Commission designated on the basis of recreational, conservation or scenic interest.

This data is sourced from the Forestry Commission.

10.10 Marine Conservation Zones

Records within 2000m	0

A type of marine nature reserve in UK waters established under the Marine and Coastal Access Act (2009). They are designated with the aim to protect nationally important, rare or threatened habitats and species.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

10.11 Green Belt

Records within 2000m	0

Areas designated to prevent urban sprawl by keeping land permanently open.

This data is sourced from the Ministry of Housing, Communities and Local Government.

10.12 Proposed Ramsar sites

Records within 2000m	0

Ramsar sites are areas listed as a Wetland of International Importance under the Convention on Wetlands of International Importance especially as Waterfowl Habitat (the Ramsar Convention) 1971. The sites here supplied have a status of 'Proposed' having been identified for potential adoption under the framework.

This data is sourced from Natural England.

10.13 Possible Special Areas of Conservation (pSAC)

Records within 2000m	0

Special Areas of Conservation are areas which have been identified as best representing the range and variety within the European Union of habitats and (non-bird) species listed on Annexes I and II to the Directive. SACs are designated under the EC Habitats Directive. Those sites supplied here are those with a status of 'Possible' having been identified for potential adoption under the framework.

This data is sourced from Natural England and Natural Resources Wales.

10.14 Potential Special Protection Areas (pSPA)

Records within 2000m	0

Special Protection Areas (SPAs) are areas designated (or 'classified') under the European Union Wild Birds Directive for the protection of nationally and internationally important populations of wild birds. Those sites supplied here are those with a status of 'Potential' having been identified for potential adoption under the framework.

This data is sourced from Natural England.

10.15 Nitrate Sensitive Areas

Records within 2000m	0

Areas where nitrate concentrations in drinking water sources exceeded or was at risk of exceeding the limit of 50 mg/l set by the 1980 EC Drinking Water Directive. Voluntary agricultural measures as a means of reducing the levels of nitrate were introduced by DEFRA as MAFF, with payments being made to farmers who complied. The scheme was started as a pilot in 1990 in ten areas, later implemented within 32 areas. The scheme was closed to further new entrants in 1998, although existing agreements continued for their full term. All Nitrate Sensitive Areas fell within the areas designated as Nitrate Vulnerable Zones (NVZs) in 1996 under the EC Nitrate Directive (91/676/EEC).

This data is sourced from Natural England.

10.16 Nitrate Vulnerable Zones

Records within 2000m	0

Areas at risk from agricultural nitrate pollution designated under the EC Nitrate Directive (91/676/EEC). These are areas of land that drain into waters polluted by nitrates. Farmers operating within these areas have to follow mandatory rules to tackle nitrate loss from agriculture.

This data is sourced from Natural England and Natural Resources Wales.

SSSI Impact Zones and Units

10.17 SSSI Impact Risk Zones

Records on site	0

Developed to allow rapid initial assessment of the potential risks to SSSIs posed by development proposals. They define zones around each SSSI which reflect the particular sensitivities of the features for which it is notified and indicate the types of development proposal which could potentially have adverse impacts.

This data is sourced from Natural England.

10.18 SSSI Units

Records within 2000m	0

Divisions of SSSIs used to record management and condition details. Units are the smallest areas for which Natural England gives a condition assessment, however, the size of units varies greatly depending on the types of management and the conservation interest.

This data is sourced from Natural England and Natural Resources Wales.

11 Visual and cultural designations

11.1 World Heritage Sites

Records within 250m	0

Sites designated for their globally important cultural or natural interest requiring appropriate management and protection measures. World Heritage Sites are designated to meet the UK's commitments under the World Heritage Convention.

This data is sourced from Historic England, Cadw and Historic Environment Scotland.

11.2 Area of Outstanding Natural Beauty

Records within 250m	0

Areas of Outstanding Natural Beauty (AONB) are conservation areas, chosen because they represent 18% of the finest countryside. Each AONB has been designated for special attention because of the quality of their flora, fauna, historical and cultural associations, and/or scenic views. The National Parks and Access to the Countryside Act of 1949 created AONBs and the Countryside and Rights of Way Act, 2000 added further regulation and protection. There are likely to be restrictions to some developments within these areas.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

11.3 National Parks

Records within 250m	0

In England and Wales, the purpose of National Parks is to conserve and enhance landscapes within the countryside whilst promoting public enjoyment of them and having regard for the social and economic well-being of those living within them. In Scotland National Parks have the additional purpose of promoting the sustainable use of the natural resources of the area and the sustainable social and economic development of its communities. The National Parks and Access to the Countryside Act 1949 established the National Park designation in England and Wales, and The National Parks (Scotland) Act 2000 in Scotland.

This data is sourced from Natural England, Natural Resources Wales and the Scottish Government.

11.4 Listed Buildings

Records within 250m	0

Buildings listed for their special architectural or historical interest. Building control in the form of 'listed building consent' is required in order to make any changes to that building which might affect its special interest. Listed buildings are graded to indicate their relative importance, however building controls apply to all buildings equally, irrespective of their grade, and apply to the interior and exterior of the building in its entirety, together with any curtilage structures.

This data is sourced from Historic England, Cadw and Historic Environment Scotland.

11.5 Conservation Areas

Records within 250m	0

Local planning authorities are obliged to designate as conservation areas any parts of their own area that are of special architectural or historic interest, the character and appearance of which it is desirable to preserve or enhance. Designation of a conservation area gives broader protection than the listing of individual buildings. All the features within the area, listed or otherwise, are recognised as part of its character. Conservation area designation is the means of recognising the importance of all factors and of ensuring that planning decisions address the quality of the landscape in its broadest sense.

This data is sourced from Historic England, Cadw and Historic Environment Scotland.

11.6 Scheduled Ancient Monuments

Records within 250m	0

A scheduled monument is an historic building or site that is included in the Schedule of Monuments kept by the Secretary of State for Digital, Culture, Media and Sport. The regime is set out in the Ancient Monuments and Archaeological Areas Act 1979. The Schedule of Monuments has c.20,000 entries and includes sites such as Roman remains, burial mounds, castles, bridges, earthworks, the remains of deserted villages and industrial sites. Monuments are not graded, but all are, by definition, considered to be of national importance.

This data is sourced from Historic England, Cadw and Historic Environment Scotland.

11.7 Registered Parks and Gardens

Records within 250m	0

Parks and gardens assessed to be of particular interest and of special historic interest. The emphasis being on 'designed' landscapes, rather than on planting or botanical importance. Registration is a 'material consideration' in the planning process, meaning that planning authorities must consider the impact of any proposed development on the special character of the landscape.

This data is sourced from Historic England, Cadw and Historic Environment Scotland.

12 Agricultural designations

12.1 Agricultural Land Classification

Records within 250m	0

Classification of the quality of agricultural land taking into consideration multiple factors including climate, physical geography and soil properties. It should be noted that the categories for the grading of agricultural land are not consistent across England, Wales and Scotland.

This data is sourced from Natural Resources Wales.

12.2 Open Access Land

Records within 250m	0

The Countryside and Rights of Way Act 2000 (CROW Act) gives a public right of access to land without having to use paths. Access land includes mountains, moors, heaths and downs that are privately owned. It also includes common land registered with the local council and some land around the England Coast Path. Generally permitted activities on access land are walking, running, watching wildlife and climbing.

This data is sourced from Natural England and Natural Resources Wales.

12.3 Tree Felling Licences

Records within 250m	0

Felling Licence Application (FLA) areas approved by Forestry Commission England. Anyone wishing to fell trees must ensure that a licence or permission under a grant scheme has been issued by the Forestry Commission before any felling is carried out or that one of the exceptions apply.

This data is sourced from the Forestry Commission.

12.4 Environmental Stewardship Schemes

Records within 250m	0

Environmental Stewardship covers a range of schemes that provide financial incentives to farmers, foresters and land managers to look after and improve the environment. The schemes identified may be historical schemes that have now expired, or may still be active.

This data is sourced from Natural England.

12.5 Countryside Stewardship Schemes

Records within 250m	0

Countryside Stewardship covers a range of schemes that provide financial incentives to farmers, foresters and land managers to look after and improve the environment. Main objectives are to improve the farmed environment for wildlife and to reduce diffuse water pollution.

This data is sourced from Natural England.

13 Habitat designations

13.1 Priority Habitat Inventory

Records within 250m	0

Habitats of principal importance as named under Natural Environment and Rural Communities Act (2006) Section 41.

This data is sourced from Natural England.

13.2 Habitat Networks

Records within 250m	0

Habitat networks for 18 priority habitat networks (based primarily, but not exclusively, on the priority habitat inventory) and areas suitable for the expansion of networks through restoration and habitat creation.

This data is sourced from Natural England.

13.3 Open Mosaic Habitat

Records within 250m	0

Sites verified as Open Mosaic Habitat. Mosaic habitats are brownfield sites that are identified under the UK Biodiversity Action Plan as a priority habitat due to the habitat variation within a single site, supporting an array of invertebrates.

This data is sourced from Natural England.

13.4 Limestone Pavement Orders

Records within 250m	0

Limestone pavements are outcrops of limestone where the surface has been worn away by natural means over millennia. These rocks have the appearance of paving blocks, hence their name. Not only do they have geological interest, they also provide valuable habitats for wildlife. These habitats are threatened due to their removal for use in gardens and water features. Many limestone pavements have been designated as SSSIs which affords them some protection. In addition, Section 34 of the Wildlife and Countryside Act 1981 gave them additional protection via the creation of Limestone Pavement Orders, which made it a criminal offence to remove any part of the outcrop. The associated Limestone Pavement Priority Habitat is part of the UK Biodiversity Action Plan priority habitat in England.

This data is sourced from Natural England.

14 Geology 1:10,000 scale - Availability

Site Outline

Search buffers in metres (m)

- Full coverage
- Partial coverage
- No coverage

14.1 10k Availability

Records within 500m	1

An indication on the coverage of 1:10,000 scale geology data for the site, the most detailed dataset provided by the British Geological Survey. Either 'Full', 'Partial' or 'No coverage' for each geological theme.

Features are displayed on the Geology 1:10,000 scale - Availability map on **page 114 >**

ID	Location	Artificial	Superficial	Bedrock	Mass movement	Sheet No.
1	On site	No coverage	No coverage	No coverage	No coverage	NoCov

This data is sourced from the British Geological Survey.

Geology 1:10,000 scale - Artificial and made ground

14.2 Artificial and made ground (10k)

Records within 500m	0

Details of made, worked, infilled, disturbed and landscaped ground at 1:10,000 scale. Artificial ground can be associated with potentially contaminated material, unpredictable engineering conditions and instability.

This data is sourced from the British Geological Survey.

Geology 1:10,000 scale - Superficial

14.3 Superficial geology (10k)

Records within 500m	0

Superficial geological deposits at 1:10,000 scale. Also known as 'drift', these are the youngest geological deposits, formed during the Quaternary. They rest on older deposits or rocks referred to as bedrock.

This data is sourced from the British Geological Survey.

14.4 Landslip (10k)

Records within 500m	0

Mass movement deposits on BGS geological maps at 1:10,000 scale. Primarily superficial deposits that have moved down slope under gravity to form landslips. These affect bedrock, other superficial deposits and artificial ground.

This data is sourced from the British Geological Survey.

Geology 1:10,000 scale - Bedrock

14.5 Bedrock geology (10k)

Records within 500m	0

Bedrock geology at 1:10,000 scale. The main mass of rocks forming the Earth and present everywhere, whether exposed at the surface in outcrops or concealed beneath superficial deposits or water.

This data is sourced from the British Geological Survey.

14.6 Bedrock faults and other linear features (10k)

Records within 500m	0

Linear features at the ground or bedrock surface at 1:10,000 scale of six main types; rock, fault, fold axis, mineral vein, alteration area or landform. Features are either observed or inferred, and relate primarily to bedrock.

This data is sourced from the British Geological Survey.

15 Geology 1:50,000 scale - Availability

Site Outline

Search buffers in metres (m)

Geological map tile

15.1 50k Availability

Records within 500m	1

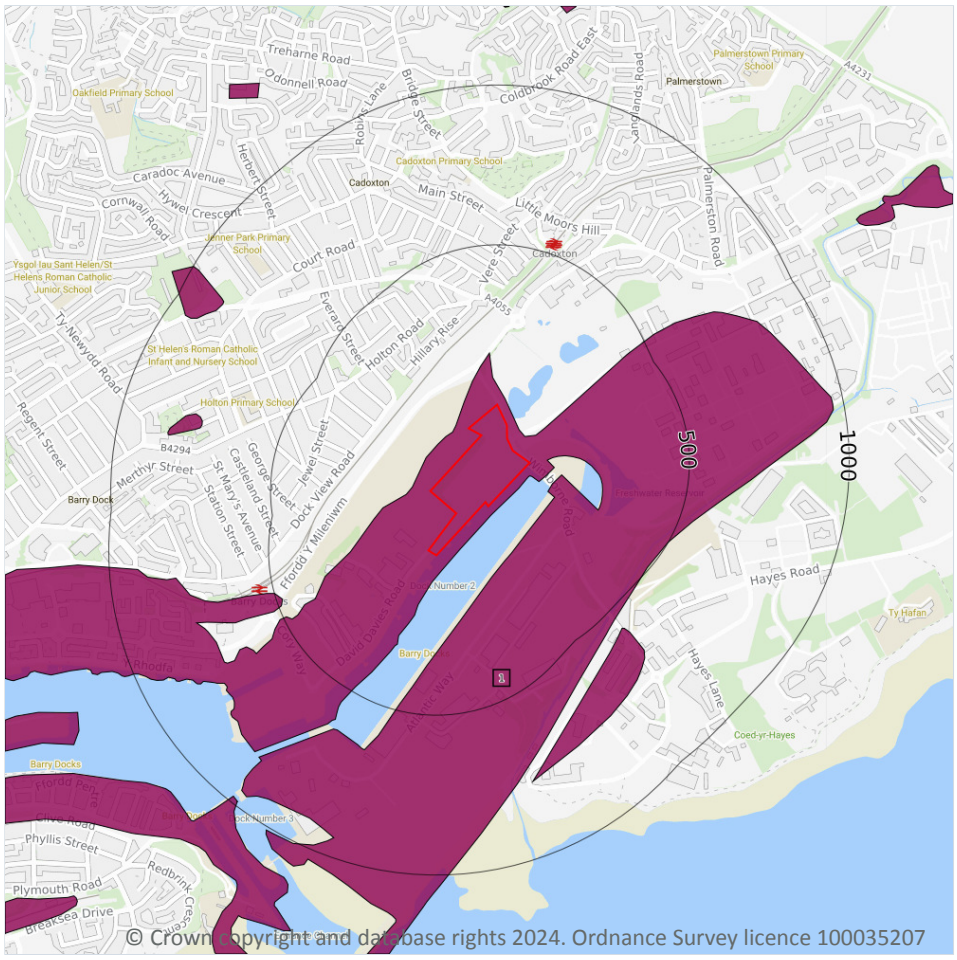
An indication on the coverage of 1:50,000 scale geology data for the site. Either 'Full' or 'No coverage' for each geological theme. Where 50k data is not available, this area has been filled in with 625k scale data.

Features are displayed on the Geology 1:50,000 scale - Availability map on **page 118 >**

ID	Location	Artificial	Superficial	Bedrock	Mass movement	Sheet No.
1	**On site**	**Full**	**Full**	**Full**	**Full**	**EW263_cardiff_v4**

This data is sourced from the British Geological Survey.

Geology 1:50,000 scale - Artificial and made ground



Site Outline

Search buffers in metres (m)

- Made ground
- Worked ground
- Infilled ground
- Disturbed ground
- Landscaped ground

15.2 Artificial and made ground (50k)

Records within 500m	1

Details of made, worked, infilled, disturbed and landscaped ground at 1:50,000 scale. Artificial ground can be associated with potentially contaminated material, unpredictable engineering conditions and instability.

Features are displayed on the Geology 1:50,000 scale - Artificial and made ground map on **page 119 >**

ID	Location	LEX Code	Description	Rock description
1	On site	MGR-ARTDP	MADE GROUND (UNDIVIDED)	ARTIFICIAL DEPOSIT

This data is sourced from the British Geological Survey.

15.3 Artificial ground permeability (50k)

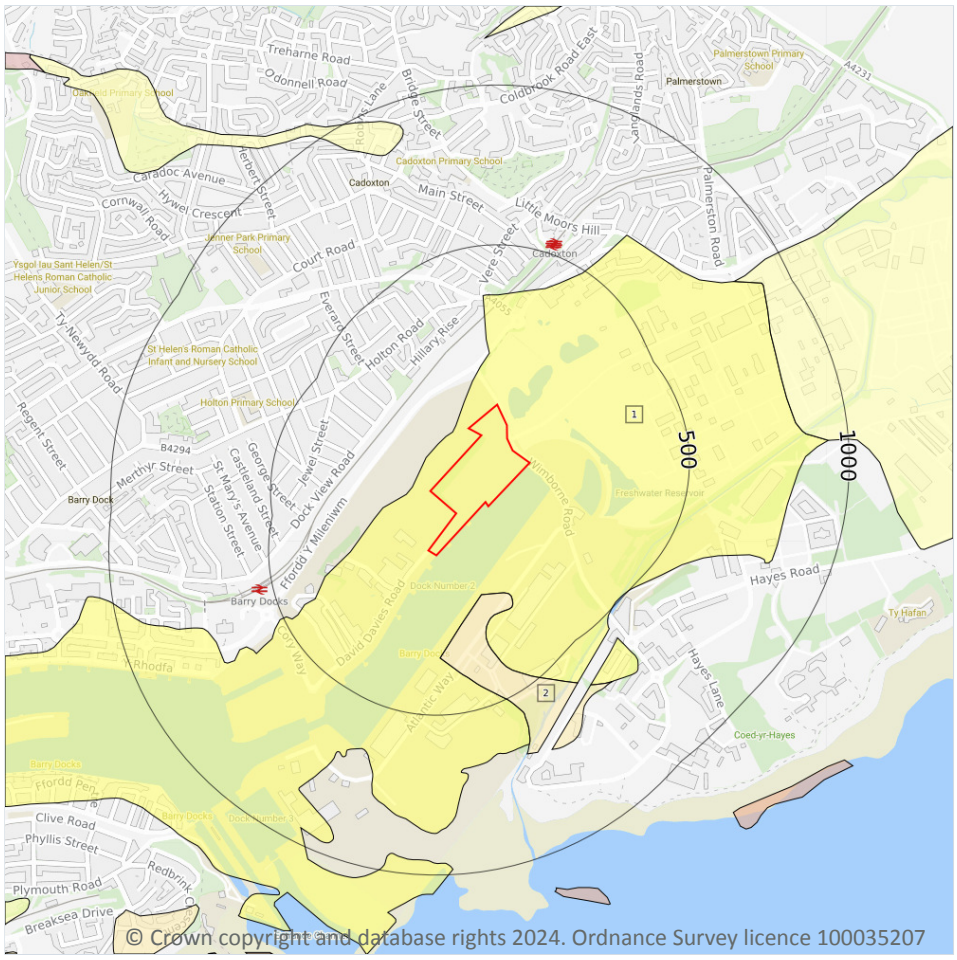
Records within 50m	1

A qualitative classification of estimated rates of vertical movement of water from the ground surface through the unsaturated zone of any artificial deposits (the zone between the land surface and the water table).

Location	Flow type	Maximum permeability	Minimum permeability
On site	**Mixed**	**Very High**	**Low**

This data is sourced from the British Geological Survey.

Geology 1:50,000 scale - Superficial



Site Outline

Search buffers in metres (m)

Landslip (50k)

Superficial geology (50k)
Please see table for more details.

15.4 Superficial geology (50k)

Records within 500m	2

Superficial geological deposits at 1:50,000 scale. Also known as 'drift', these are the youngest geological deposits, formed during the Quaternary. They rest on older deposits or rocks referred to as bedrock.

Features are displayed on the Geology 1:50,000 scale - Superficial map on **page 121 >**

ID	Location	LEX Code	Description	Rock description
1	**On site**	**TFD-XCZS**	**TIDAL FLAT DEPOSITS**	**CLAY, SILT AND SAND**
2	187m S	BSA-S	BLOWN SAND	SAND

This data is sourced from the British Geological Survey.

15.5 Superficial permeability (50k)

Records within 50m	1

A qualitative classification of estimated rates of vertical movement of water from the ground surface through the unsaturated zone of any superficial deposits (the zone between the land surface and the water table).

Location	Flow type	Maximum permeability	Minimum permeability
On site	**Intergranular**	**Moderate**	**Very Low**

This data is sourced from the British Geological Survey.

15.6 Landslip (50k)

Records within 500m	0

Mass movement deposits on BGS geological maps at 1:50,000 scale. Primarily superficial deposits that have moved down slope under gravity to form landslips. These affect bedrock, other superficial deposits and artificial ground.

This data is sourced from the British Geological Survey.

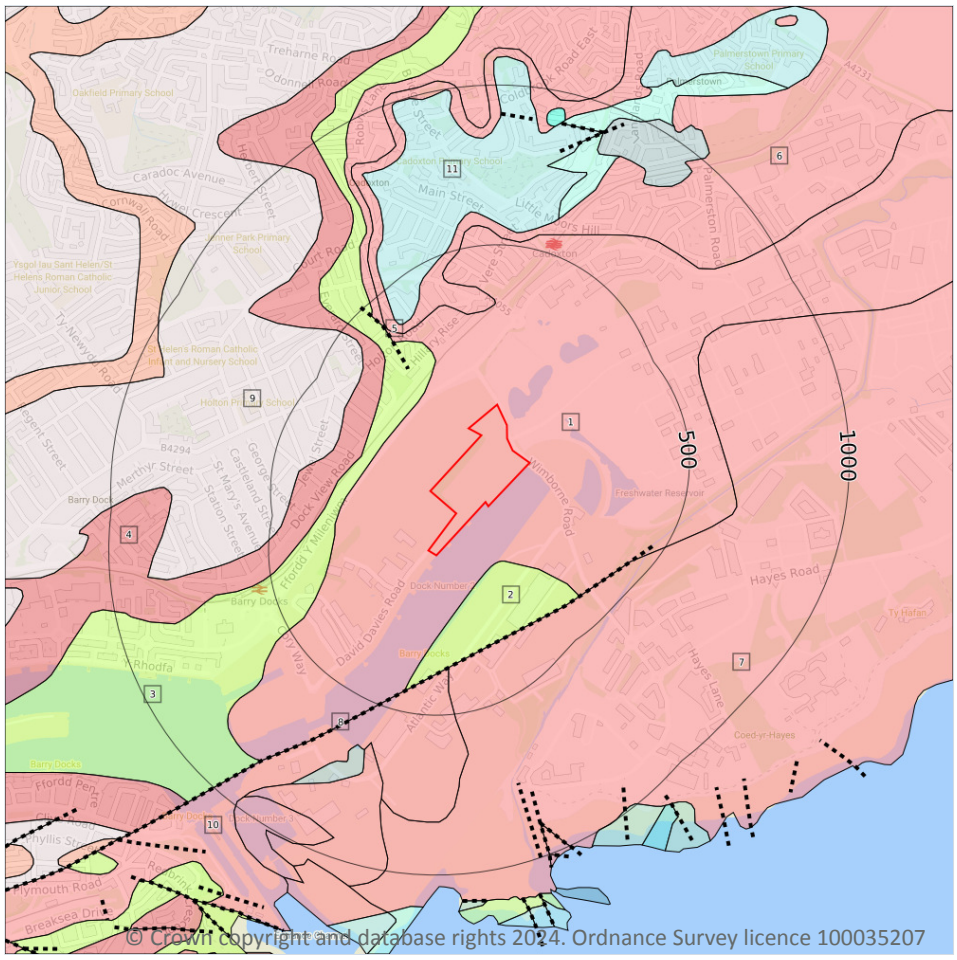
15.7 Landslip permeability (50k)

Records within 50m	0

A qualitative classification of estimated rates of vertical movement of water from the ground surface through the unsaturated zone of any landslip deposits (the zone between the land surface and the water table).

This data is sourced from the British Geological Survey.

Geology 1:50,000 scale - Bedrock



Site Outline

Search buffers in metres (m)

Bedrock faults and other linear features (50k)

Bedrock geology (50k)
Please see table for more details.

15.8 Bedrock geology (50k)

Records within 500m **9**

Bedrock geology at 1:50,000 scale. The main mass of rocks forming the Earth and present everywhere, whether exposed at the surface in outcrops or concealed beneath superficial deposits or water.

Features are displayed on the Geology 1:50,000 scale - Bedrock map on **page 123 >**

ID	Location	LEX Code	Description	Rock age
1	**On site**	**MMG-MDST**	**MERCIA MUDSTONE GROUP - MUDSTONE**	**-**
2	149m S	BAN-MDST	BLUE ANCHOR FORMATION - MUDSTONE	NORIAN
3	177m NW	BAN-MDST	BLUE ANCHOR FORMATION - MUDSTONE	NORIAN

ID	Location	LEX Code	Description	Rock age
4	242m W	PNG-MDLM	PENARTH GROUP - MUDSTONE AND LIMESTONE, INTERBEDDED	RHAETIAN
6	295m N	MMMF-CONG	MERCIA MUDSTONE GROUP (MARGINAL FACIES) - CONGLOMERATE	-
7	328m S	MMMF-CONG	MERCIA MUDSTONE GROUP (MARGINAL FACIES) - CONGLOMERATE	-
9	330m W	STM-LSMD	ST MARY'S WELL BAY MEMBER - LIMESTONE AND MUDSTONE, INTERBEDDED	RHAETIAN
10	353m S	MMG-MDST	MERCIA MUDSTONE GROUP - MUDSTONE	-
11	380m NW	FPL-LMST	FRIARS POINT LIMESTONE FORMATION - LIMESTONE	TOURNAISIAN

This data is sourced from the British Geological Survey.

15.9 Bedrock permeability (50k)

Records within 50m	**1**

A qualitative classification of estimated rates of vertical movement of water from the ground surface through the unsaturated zone of bedrock (the zone between the land surface and the water table).

Location	Flow type	Maximum permeability	Minimum permeability
On site	**Fracture**	**Low**	**Low**

This data is sourced from the British Geological Survey.

15.10 Bedrock faults and other linear features (50k)

Records within 500m	**2**

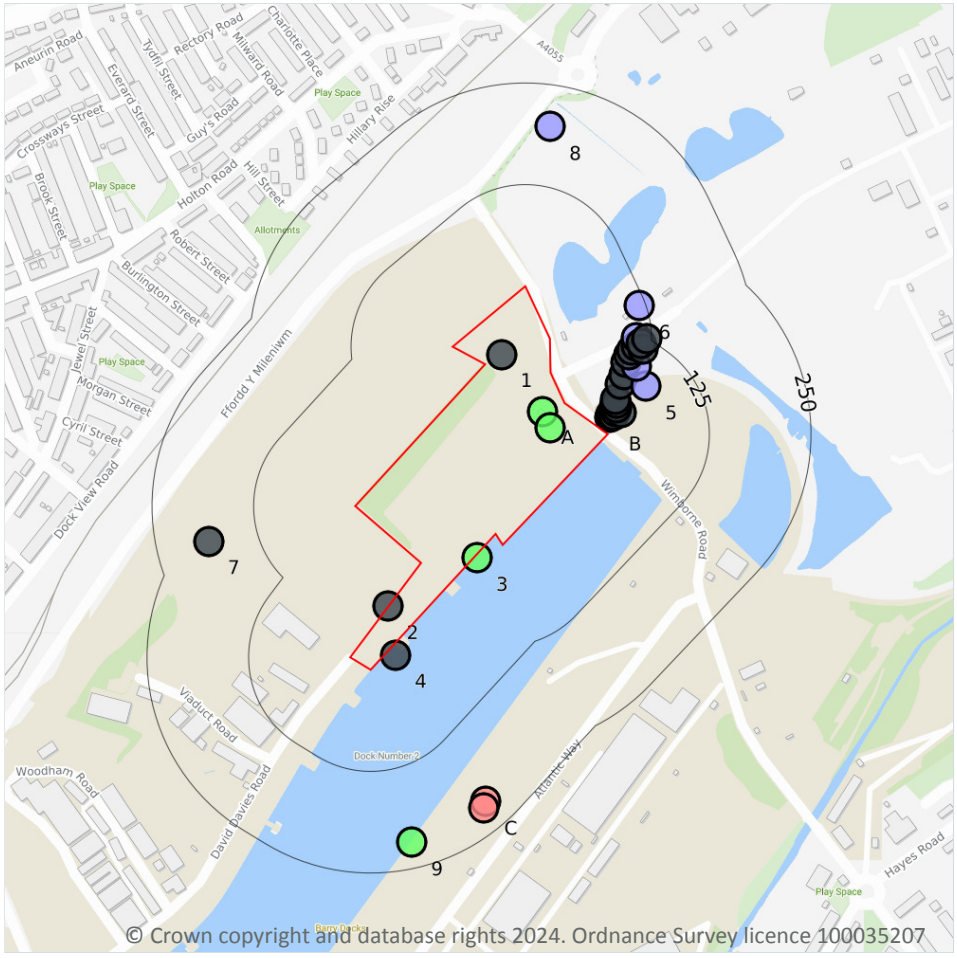
Linear features at the ground or bedrock surface at 1:50,000 scale of six main types; rock, fault, fold axis, mineral vein, alteration area or landform. Features are either observed or inferred, and relate primarily to bedrock.

Features are displayed on the Geology 1:50,000 scale - Bedrock map on **page 123 >**

ID	Location	Category	Description
5	266m NW	FAULT	Fault, observed, displacement unknown
8	328m S	FAULT	Fault, inferred

This data is sourced from the British Geological Survey.

16 Boreholes



16.1 BGS Boreholes

Records within 250m	33

The Single Onshore Boreholes Index (SOBI); an index of over one million records of boreholes, shafts and wells from all forms of drilling and site investigation work held by the British Geological Survey. Covering onshore and nearshore boreholes dating back to at least 1790 and ranging from one to several thousand metres deep.

Features are displayed on the Boreholes map on **page 125 >**

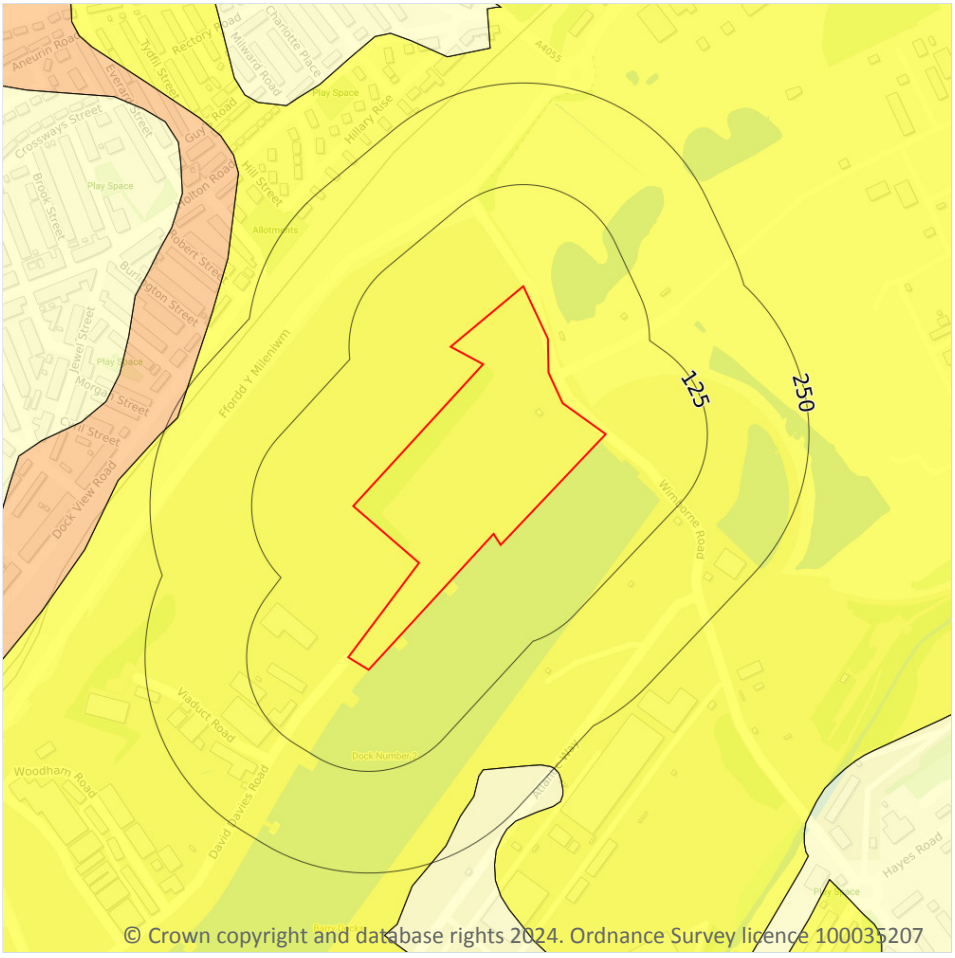
ID	Location	Grid reference	Name	Length	Confidential	Web link
1	On site	313040 168280	CRANE BEAM, BARRY. NO.5	-	Y	N/A
A	On site	313090 168210	CRANE BEAM, BARRY DOCKS, NO.4	24.6	N	378026 ↗
A	On site	313100 168190	BARRY DOCKS, NORTH END DOCK NO.2, 2	18.29	N	378068 ↗

ID	Location	Grid reference	Name	Length	Confidential	Web link
2	1m SW	312900 167970	COKE HANDLING PLANT NO.2B	-	Y	N/A
3	3m S	313010 168030	BARRY DOCKS, NORTH END DOCK NO.2, 1	23.01	N	378067 ↗
4	11m SW	312910 167910	COKE HANDLING PLANT NO.3	-	Y	N/A
B	18m E	313173 168202	CM161N - Barry Pumping Station TP1B	-	Y	N/A
B	22m E	313174 168206	CM161N - Barry Pumping Station TP1C	-	Y	N/A
B	23m E	313178 168205	CM161N - Barry Pumping Station TP1A	-	Y	N/A
B	27m E	313180 168209	CM161N - Barry Pumping Station TP1	-	Y	N/A
B	31m E	313187 168208	CM161N - Barry Pumping Station TP4	-	Y	N/A
B	33m NE	313179 168216	CM161N - Barry Pumping Station TP2	-	Y	N/A
B	33m E	313182 168214	CM161N - Barry Pumping Station TP2A	-	Y	N/A
B	37m NE	313181 168220	CM161N - Barry Pumping Station TP2B	-	Y	N/A
B	40m NE	313180 168225	CM161N - Barry Pumping Station TP3	-	Y	N/A
B	59m NE	313186 168243	CM161N - Barry Pumping Station TP5	-	Y	N/A
B	71m NE	313191 168255	CM161N - Barry Pumping Station TP6	-	Y	N/A
5	76m NE	313218 168241	BARRY EASTERN DRAINAGE, SECOND GROUP. 53	1.83	N	377929 ↗
B	85m NE	313193 168270	CM161N - Barry Pumping Station TP7	-	Y	N/A
B	89m NE	313206 168266	BARRY EASTERN DRAINAGE, SECOND GROUP. 52	1.83	N	377928 ↗
B	94m NE	313197 168279	CM161N - Barry Pumping Station TP8	-	Y	N/A
B	100m NE	313200 168285	CM161N - Barry Pumping Station TP9	-	Y	N/A
B	106m NE	313206 168290	CM161N - Barry Pumping Station TP10	-	Y	N/A
B	106m NE	313206 168301	BARRY EASTERN DRAINAGE, SECOND GROUP. 51	1.83	N	377927 ↗
B	110m NE	313214 168286	CM161N - Barry Pumping Station TP13	-	Y	N/A
B	112m NE	313212 168294	CM161N - Barry Pumping Station TP11	-	Y	N/A
6	118m NE	313210 168340	BARRY EASTERN DRAINAGE, SECOND GROUP. 46-50	8.84	N	377926 ↗
B	119m NE	313219 168299	CM161N - Barry Pumping Station TP12	-	Y	N/A
7	185m W	312680 168050	COKE HANDLING PLANT NO.1	-	Y	N/A
8	199m N	313100 168560	BARRY DOCK, DEPOT FOR S.W.E.B.	2.21	N	377993 ↗
C	215m S	313020 167730	BARRY DOCK	74.37	N	378231 ↗

ID	Location	Grid reference	Name	Length	Confidential	Web link
9	218m S	312930 167680	CRANE BEAM, BARRY DOCKS, NO.1	13.5	N	378023 ↗
C	220m S	313018 167722	J. RANKO CO LTD, BARRY DOCK	74.37	N	377938 ↗

This data is sourced from the British Geological Survey.

17 Natural ground subsidence - Shrink swell clays



17.1 Shrink swell clays

Records within 50m	1

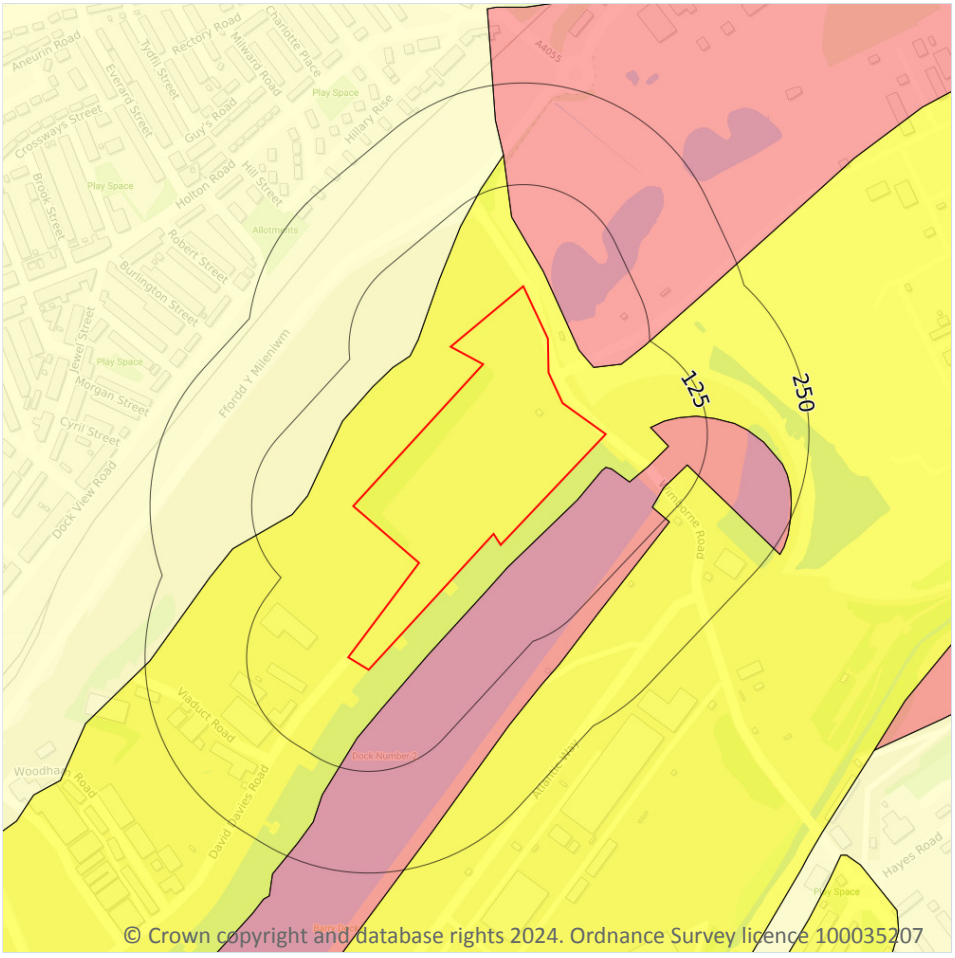
The potential hazard presented by soils that absorb water when wet (making them swell), and lose water as they dry (making them shrink). This shrink-swell behaviour is controlled by the type and amount of clay in the soil, and by seasonal changes in the soil moisture content (related to rainfall and local drainage).

Features are displayed on the Natural ground subsidence - Shrink swell clays map on **page 128 >**

Location	Hazard rating	Details
On site	**Very low**	**Ground conditions predominantly low plasticity.**

This data is sourced from the British Geological Survey.

Natural ground subsidence - Running sands



17.2 Running sands

Records within 50m	4

The potential hazard presented by rocks that can contain loosely-packed sandy layers that can become fluidised by water flowing through them. Such sands can 'run', removing support from overlying buildings and causing potential damage.

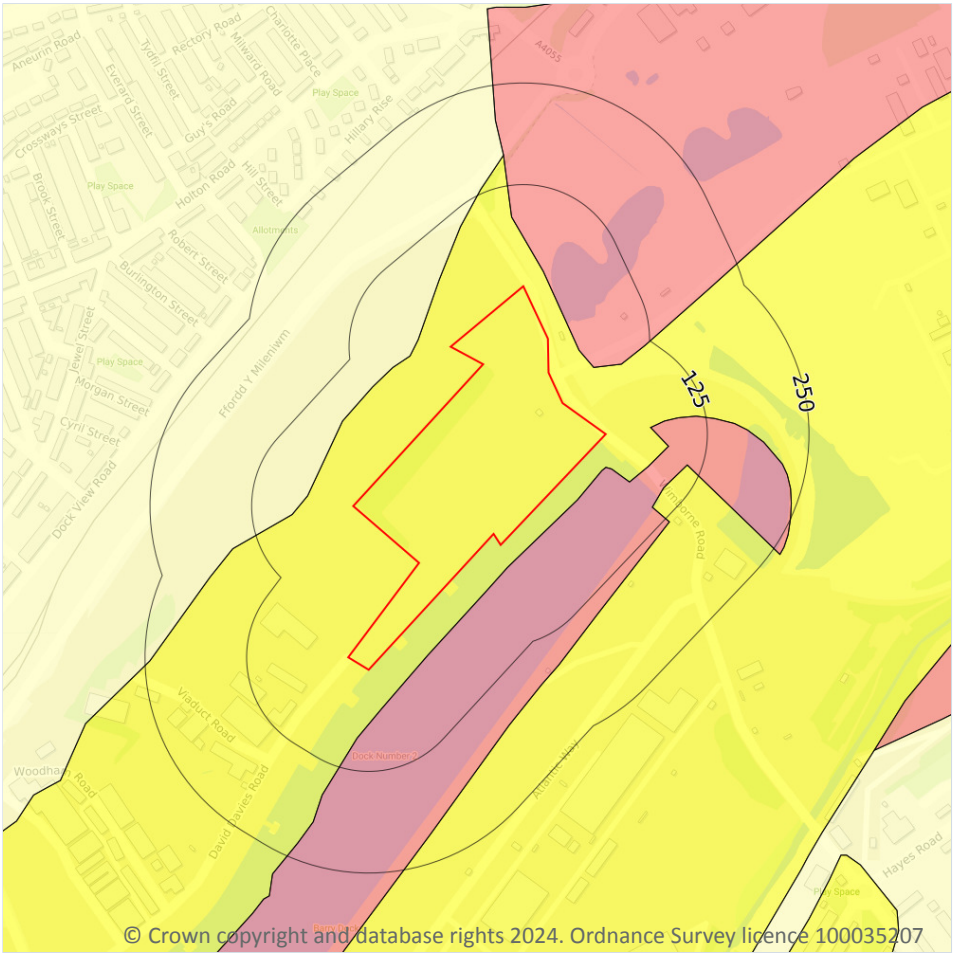
Features are displayed on the Natural ground subsidence - Running sands map on **page 129 >**

Location	Hazard rating	Details
On site	**Very low**	**Running sand conditions are unlikely. No identified constraints on land use due to running conditions unless water table rises rapidly.**

Location	Hazard rating	Details
26m SE	Moderate	Running sand conditions are probably present. Constraints may apply to land uses involving excavation or the addition or removal of water.
29m NE	Moderate	Running sand conditions are probably present. Constraints may apply to land uses involving excavation or the addition or removal of water.
41m NW	Negligible	Running sand conditions are not thought to occur whatever the position of the water table. No identified constraints on lands use due to running conditions.

This data is sourced from the British Geological Survey.

Natural ground subsidence - Compressible deposits



Site Outline

Search buffers in metres (m)

- No data
- Negligible
- Very low
- Low
- Moderate
- High

17.3 Compressible deposits

Records within 50m	4

The potential hazard presented by types of ground that may contain layers of very soft materials like clay or peat and may compress if loaded by overlying structures, or if the groundwater level changes, potentially resulting in depression of the ground and disturbance of foundations.

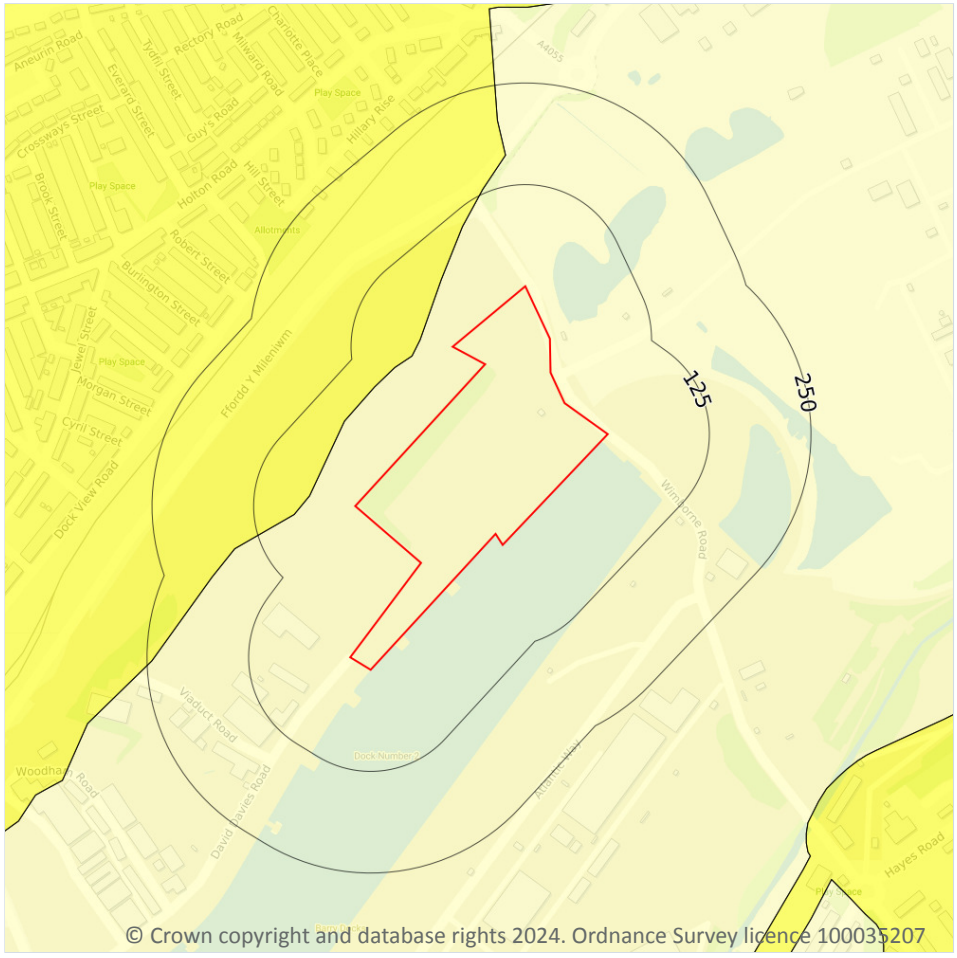
Features are displayed on the Natural ground subsidence - Compressible deposits map on **page 131 >**

Location	Hazard rating	Details
On site	**Very low**	**Compressibility and uneven settlement problems are not likely to be significant on the site for most land uses.**

Location	Hazard rating	Details
26m SE	Moderate	Compressibility and uneven settlement hazards are probably present. Land use should consider specifically the compressibility and variability of the site.
29m NE	Moderate	Compressibility and uneven settlement hazards are probably present. Land use should consider specifically the compressibility and variability of the site.
41m NW	Negligible	Compressible strata are not thought to occur.

This data is sourced from the British Geological Survey.

Natural ground subsidence - Collapsible deposits



Site Outline

Search buffers in metres (m)

- No data
- Negligible
- Very low
- Low
- Moderate
- High

17.4 Collapsible deposits

Records within 50m	2

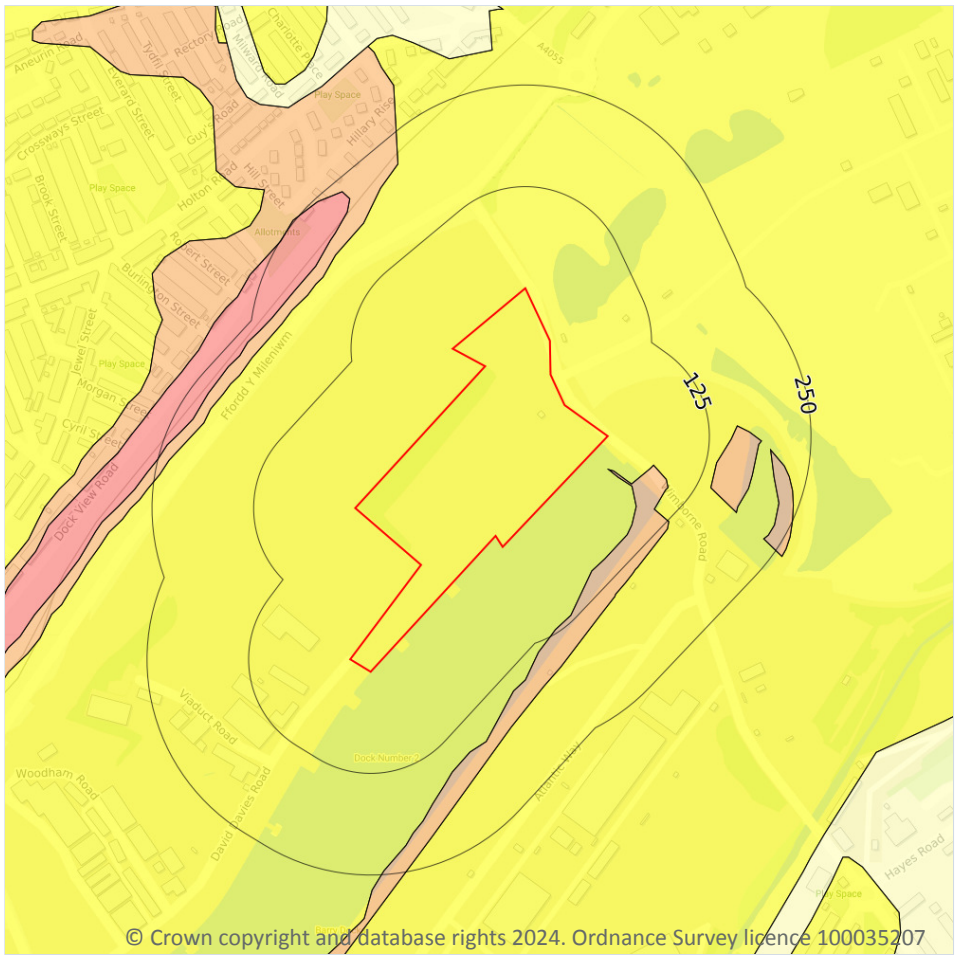
The potential hazard presented by natural deposits that could collapse when a load (such as a building) is placed on them or they become saturated with water.

Features are displayed on the Natural ground subsidence - Collapsible deposits map on **page 133 >**

Location	Hazard rating	Details
On site	**Negligible**	**Deposits with potential to collapse when loaded and saturated are believed not to be present.**
41m NW	Very low	Deposits with potential to collapse when loaded and saturated are unlikely to be present.

This data is sourced from the British Geological Survey.

Natural ground subsidence - Landslides



17.5 Landslides

Records within 50m	2

The potential for landsliding (slope instability) to be a hazard assessed using 1:50,000 scale digital maps of superficial and bedrock deposits, combined with information from the BGS National Landslide Database and scientific and engineering reports.

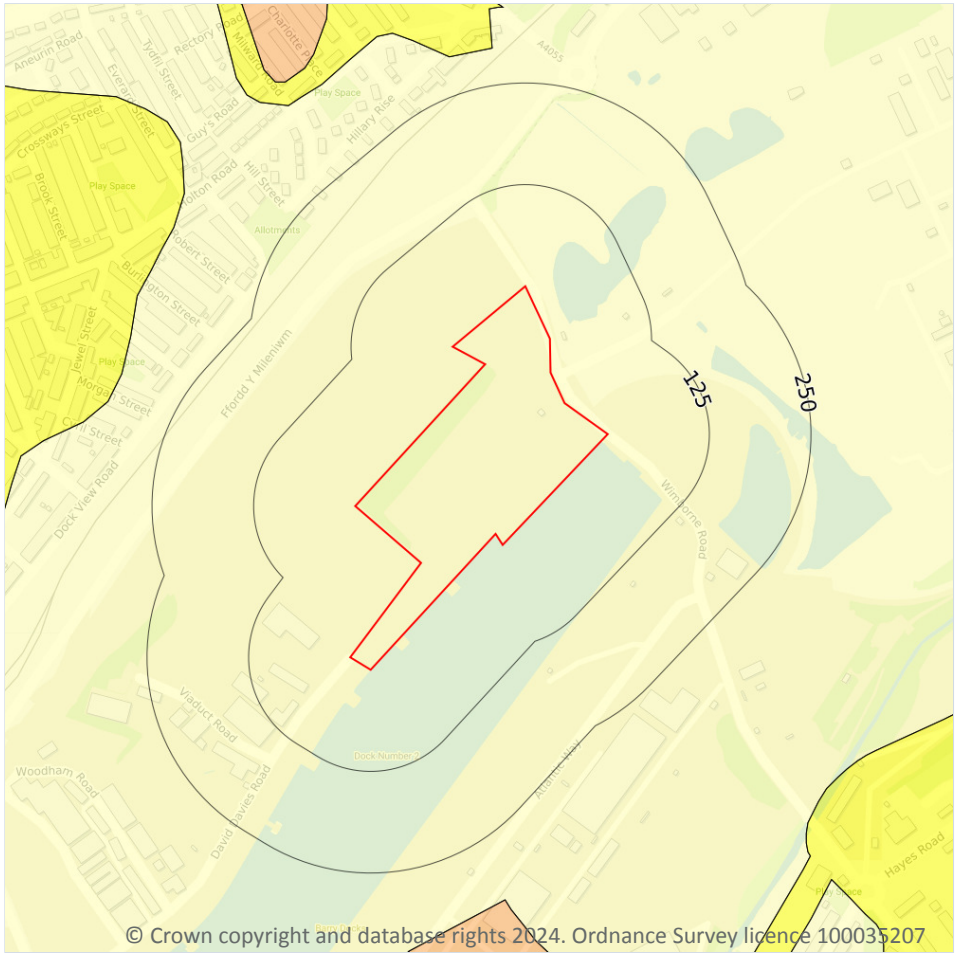
Features are displayed on the Natural ground subsidence - Landslides map on **page 134 >**

Location	Hazard rating	Details
On site	**Very low**	**Slope instability problems are not likely to occur but consideration to potential problems of adjacent areas impacting on the site should always be considered.**

Location	Hazard rating	Details
29m E	Low	Slope instability problems may be present or anticipated. Site investigation should consider specifically the slope stability of the site.

This data is sourced from the British Geological Survey.

Natural ground subsidence - Ground dissolution of soluble rocks



Site Outline

Search buffers in metres (m)

- No data
- Negligible
- Very low
- Low
- Moderate
- High

17.6 Ground dissolution of soluble rocks

Records within 50m	1

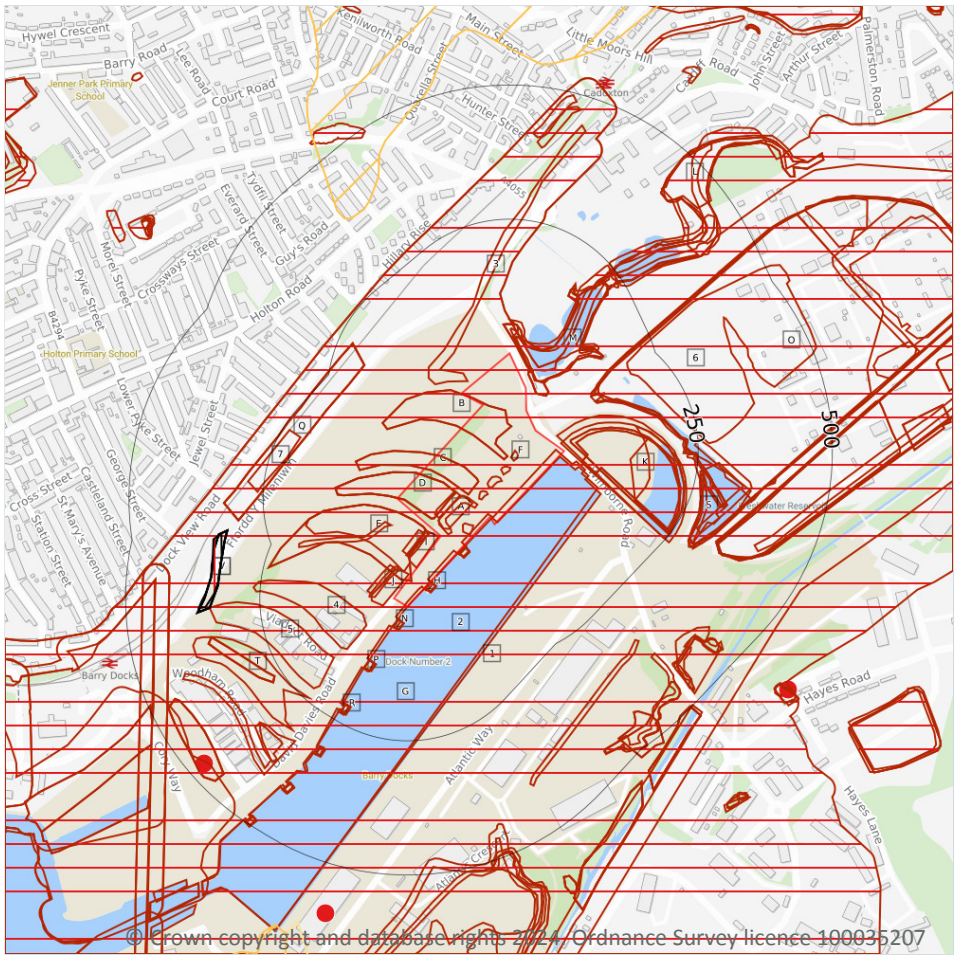
The potential hazard presented by ground dissolution, which occurs when water passing through soluble rocks produces underground cavities and cave systems. These cavities reduce support to the ground above and can cause localised collapse of the overlying rocks and deposits.

Features are displayed on the Natural ground subsidence - Ground dissolution of soluble rocks map on **page 136 >**

Location	Hazard rating	Details
On site	**Negligible**	**Soluble rocks are either not thought to be present within the ground, or not prone to dissolution. Dissolution features are unlikely to be present.**

This data is sourced from the British Geological Survey.

18 Mining and ground workings



Site Outline

Search buffers in metres (m)

BritPits

Surface ground workings

Underground workings

Underground mining extents

Historical mineral planning areas

TCA non-coal mining

Non Coal Mining

Sporadic underground mining of restricted extent possible

Localised small scale underground mining possible

Small scale mining possible

Underground mining known or likely within or in close proximity

Underground mining known within or in very close proximity

18.1 BritPits

Records within 500m	1

BritPits (an abbreviation of British Pits) is a database maintained by the British Geological Survey of currently active and closed surface and underground mineral workings. Details of major mineral handling sites, such as wharfs and rail depots are also held in the database.

Features are displayed on the Mining and ground workings map on **page 138 >**

ID	Location	Details	Description
AE	468m SW	Name: Woodham Road Railway Embankment Address: CARDIFF, Glamorgan Commodity: Secondary Status: Ceased	Type: Site where demolition of man-made structure leads to arisings of material for refuse as aggregate or stone Status description: Site which, at date of entry, has ceased to extract minerals. May be considered as Closed by operator. May be considered to have Active, Dormant or Expired planning permissions by Mineral Planning Authority

This data is sourced from the British Geological Survey.

18.2 Surface ground workings

Records within 250m	**76**

Historical land uses identified from Ordnance Survey mapping that involved ground excavation at the surface. These features may or may not have been subsequently backfilled.

Features are displayed on the Mining and ground workings map on **page 138 >**

ID	Location	Land Use	Year of mapping	Mapping scale
1	**On site**	**Docks**	**1947**	**1:10560**
2	**On site**	**Docks**	**1921**	**1:10560**
A	**On site**	**Unspecified Ground Workings**	**1921**	**1:10560**
A	**On site**	**Unspecified Ground Workings**	**1915**	**1:10560**
A	**On site**	**Unspecified Ground Workings**	**1898**	**1:10560**
A	**On site**	**Unspecified Pit**	**1878**	**1:10560**
B	**On site**	**Unspecified Ground Workings**	**1973**	**1:10000**
B	**On site**	**Unspecified Ground Workings**	**1982**	**1:10000**
C	**On site**	**Unspecified Pit**	**1973**	**1:10000**
C	**On site**	**Unspecified Pit**	**1982**	**1:10000**
D	**On site**	**Unspecified Pit**	**1973**	**1:10000**
D	**On site**	**Unspecified Pit**	**1965**	**1:10560**
D	**On site**	**Unspecified Pit**	**1982**	**1:10000**
E	**On site**	**Unspecified Ground Workings**	**1973**	**1:10000**
E	**On site**	**Unspecified Ground Workings**	**1982**	**1:10000**

ID	Location	Land Use	Year of mapping	Mapping scale
F	**On site**	**Unspecified Ground Workings**	**1915**	**1:10560**
F	**On site**	**Unspecified Ground Workings**	**1915**	**1:10560**
F	**On site**	**Unspecified Ground Workings**	**1915**	**1:10560**
F	**On site**	**Unspecified Pit**	**1915**	**1:10560**
G	**On site**	**Dock**	**1915**	**1:10560**
G	**On site**	**Dock**	**1898**	**1:10560**
H	0m SW	Coal Tips	1915	1:10560
I	1m SW	Unspecified Ground Workings	1921	1:10560
H	2m SW	Coal Tips	1921	1:10560
H	2m SW	Coal Tips	1947	1:10560
A	2m S	Coal Tips	1915	1:10560
A	3m S	Coal Tips	1921	1:10560
A	3m S	Coal Tips	1947	1:10560
J	5m SW	Unspecified Ground Workings	1921	1:10560
K	7m E	Timber Pond	1915	1:10560
E	8m SW	Unspecified Ground Workings	1965	1:10560
I	9m SW	Unspecified Ground Workings	1915	1:10560
3	10m N	Unspecified Pit	1991	1:10000
K	12m E	Timber Pond	1898	1:10560
L	15m NE	Ponds	1973	1:10000
L	15m NE	Ponds	1965	1:10560
L	15m NE	Ponds	1982	1:10000
I	16m SW	Unspecified Ground Workings	1898	1:10560
M	20m NE	Pond	1898	1:10560
K	21m E	Timber Pond	1921	1:10560
K	21m E	Timber Pond	1947	1:10560
M	21m NE	Pond	1915	1:10560
L	23m N	Ponds	1991	1:10000

ID	Location	Land Use	Year of mapping	Mapping scale
J	25m SW	Unspecified Ground Workings	1915	1:10560
K	27m E	Water Body	1973	1:10000
K	27m E	Water Body	1965	1:10560
N	29m SW	Coal Tips	1915	1:10560
N	29m SW	Coal Tips	1921	1:10560
N	29m SW	Coal Tips	1947	1:10560
J	31m SW	Unspecified Ground Workings	1898	1:10560
E	45m SW	Unspecified Heap	1878	1:10560
4	65m SW	Unspecified Pit	1973	1:10000
O	108m NE	Timber Pond	1947	1:10560
O	110m NE	Water Body	1921	1:10560
O	121m NE	Water Body	1965	1:10560
P	121m SW	Coal Tips	1921	1:10560
P	121m SW	Coal Tips	1947	1:10560
P	122m SW	Coal Tips	1915	1:10560
K	125m E	Water Body	1982	1:10000
O	125m NE	Water Body	1973	1:10000
O	125m NE	Water Body	1982	1:10000
K	142m E	Pond	1991	1:10000
5	157m SW	Unspecified Pit	1973	1:10000
Q	189m NW	Cuttings	1991	1:10000
Q	189m NW	Cuttings	1973	1:10000
Q	189m NW	Cuttings	1982	1:10000
6	190m NE	Water Body	1991	1:10000
7	213m W	Cuttings	1965	1:10560
R	215m SW	Coal Tips	1921	1:10560
R	215m SW	Coal Tips	1947	1:10560
R	216m SW	Coal Tips	1915	1:10560

ID	Location	Land Use	Year of mapping	Mapping scale
8	220m NE	Pond	1915	1:10560
S	230m E	Unspecified Ground Workings	1915	1:10560
T	244m SW	Unspecified Pit	1973	1:10000
S	244m E	Unspecified Ground Workings	1898	1:10560
L	248m NE	Pond	1898	1:10560

This is data is sourced from Ordnance Survey/Groundsure.

18.3 Underground workings

Records within 1000m	**5**

Historical land uses identified from Ordnance Survey mapping that indicate the presence of underground workings e.g. mine shafts.

Features are displayed on the Mining and ground workings map on **page 138 >**

ID	Location	Land Use	Year of mapping	Mapping scale
V	322m W	Tunnel	1982	1:10000
V	322m W	Tunnel	1991	1:10000
V	322m W	Tunnel	1973	1:10000
V	322m W	Tunnel	1947	1:10560
V	329m W	Tunnel	1898	1:10560

This is data is sourced from Ordnance Survey/Groundsure.

18.4 Underground mining extents

Records within 500m	**0**

This data identifies underground mine workings that could present a potential risk, including adits and seam workings. These features have been identified from BGS Geological mapping and mine plans sourced from the BGS and various collections and sources.

This data is sourced from Groundsure.

18.5 Historical Mineral Planning Areas

Records within 500m	0

Boundaries of mineral planning permissions for England and Wales. This data was collated between the 1940s (and retrospectively to the 1930s) and the mid 1980s. The data includes permitted, withdrawn and refused permissions.

This data is sourced from the British Geological Survey.

18.6 Non-coal mining

Records within 1000m	4

The potential for historical non-coal mining to have affected an area. The assessment is drawn from expert knowledge and literature in addition to the digital geological map of Britain. Mineral commodities may be divided into seven general categories - vein minerals, chalk, oil shale, building stone, bedded ores, evaporites and 'other' commodities (including ball clay, jet, black marble, graphite and chert).

Features are displayed on the Mining and ground workings map on **page 138 >**

ID	Location	Name	Commodity	Class	Likelihood
10	380m NW	Not available	Vein Mineral	B	Underground mine workings may have occurred in the past or current mines may be working at significant depth to modern engineering standards. Potential for difficult ground conditions are unlikely and are at a level where they need not be considered.
20	621m S	Not available	Vein Mineral	A	Underground mine workings are uncommon, although the geology is similar to that worked elsewhere. Potential for difficult ground conditions are unlikely and are at a level where they need not be considered.
21	641m SW	Not available	Vein Mineral	B	Underground mine workings may have occurred in the past or current mines may be working at significant depth to modern engineering standards. Potential for difficult ground conditions are unlikely and are at a level where they need not be considered.
-	915m SW	Not available	Vein Mineral	A	Underground mine workings are uncommon, although the geology is similar to that worked elsewhere. Potential for difficult ground conditions are unlikely and are at a level where they need not be considered.

This data is sourced from the British Geological Survey.

18.7 JPB mining areas

Records on site	0

Areas which could be affected by former coal and other mining. This data includes some mine plans unavailable to the Coal Authority.

This data is sourced from Johnson Poole and Bloomer.

18.8 The Coal Authority non-coal mining

Records within 500m	0

This data provides an indication of the potential zone of influence of recorded underground non-coal mining workings. Any and all analysis and interpretation of Coal Authority Data in this report is made by Groundsure, and is in no way supported, endorsed or authorised by the Coal Authority. The use of the data is restricted to the terms and provisions contained in this report. Data reproduced in this report may be the copyright of the Coal Authority and permission should be sought from Groundsure prior to any re-use.

This data is sourced from The Coal Authority.

18.9 Researched mining

Records within 500m	0

This data indicates areas of potential mining identified from alternative or archival sources, including; BGS Geological paper maps, Lidar data, aerial photographs (from World War II onwards), archaeological data services, websites, Tithe maps, and various text/plans from collected books and reports. Some of this data is approximate and Groundsure have interpreted the resultant risk area and, where possible, specific areas of risk have been captured.

This data is sourced from Groundsure.

18.10 Mining record office plans

Records within 500m	0

This dataset is representative of Mining Record Office and/or plan extents held by Groundsure and should be considered approximate. Where possible, plans have been located and any specific areas of risk they depict have been captured.

This data is sourced from Groundsure.

18.11 BGS mine plans

Records within 500m	0

This dataset is representative of BGS mine plans held by Groundsure and should be considered approximate. Where possible, plans have been located and any specific areas of risk they depict have been captured.

This data is sourced from Groundsure.

18.12 Coal mining

Records on site	0

Areas which could be affected by past, current or future coal mining.

This data is sourced from the Coal Authority.

18.13 Brine areas

Records on site	0

The Cheshire Brine Compensation District indicates areas that may be affected by salt and brine extraction in Cheshire and where compensation would be available where damage from this mining has occurred. Damage from salt and brine mining can still occur outside this district, but no compensation will be available.

This data is sourced from the Cheshire Brine Subsidence Compensation Board.

18.14 Gypsum areas

Records on site	0

Generalised areas that may be affected by gypsum extraction.

This data is sourced from British Gypsum.

18.15 Tin mining

Records on site	0

Generalised areas that may be affected by historical tin mining.

This data is sourced from Groundsure.

18.16 Clay mining

Records on site	0

Generalised areas that may be affected by kaolin and ball clay extraction.

This data is sourced from the Kaolin and Ball Clay Association (UK).

19 Ground cavities and sinkholes

19.1 Natural cavities

Records within 500m	0

Industry recognised national database of natural cavities. Sinkholes and caves are formed by the dissolution of soluble rock, such as chalk and limestone, gulls and fissures by cambering. Ground instability can result from movement of loose material contained within these cavities, often triggered by water.

This data is sourced from Stantec UK Ltd.

19.2 Mining cavities

Records within 1000m	0

Industry recognised national database of mining cavities. Degraded mines may result in hazardous subsidence (crown holes). Climatic conditions and water escape can also trigger subsidence over mine entrances and workings.

This data is sourced from Stantec UK Ltd.

19.3 Reported recent incidents

Records within 500m	0

This data identifies sinkhole information gathered from media reports and Groundsure's own records. This data goes back to 2014 and includes relative accuracy ratings for each event and links to the original data sources. The data is updated on a regular basis and should not be considered a comprehensive catalogue of all sinkhole events. The absence of data in this database does not mean a sinkhole definitely has not occurred during this time.

This data is sourced from Groundsure.

19.4 Historical incidents

Records within 500m	0

This dataset comprises an extract of 1:10,560, 1:10,000, 1:2,500 and 1:1,250 scale historical Ordnance Survey maps held by Groundsure, dating back to the 1840s. It shows shakeholes, deneholes and other 'holes' as noted on these maps. Dene holes are medieval chalk extraction pits, usually comprising a narrow shaft with a number of chambers at the base of the shaft. Shakeholes are an alternative name for suffusion sinkholes, most commonly found in the limestone landscapes of North Yorkshire but also extensively noted around the Brecon Beacons National Park.

Not all 'holes' noted on Ordnance Survey mapping will necessarily be present within this dataset.

This data is sourced from Groundsure.

19.5 National karst database

Records within 500m	0

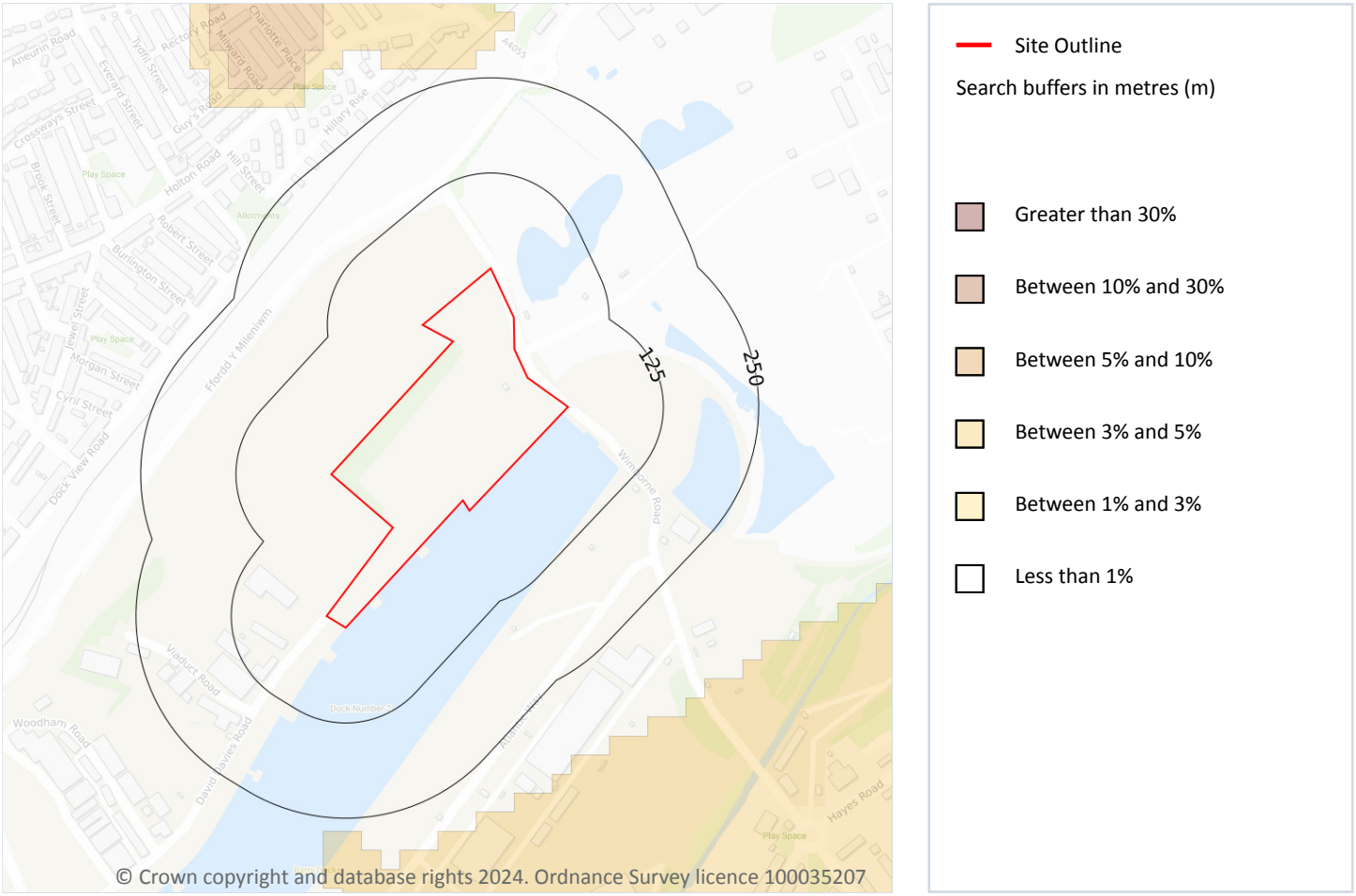
This is a comprehensive database of national karst information gathered from a wide range of sources. BGS have collected data on five main types of karst feature: Sinkholes, stream links, caves, springs, and incidences of associated damage to buildings, roads, bridges and other engineered works.

Since the database was set up in 2002 data covering most of the evaporite karst areas of the UK have now been added, along with data covering about 60% of the Chalk, and 35% of the Carboniferous Limestone outcrops. Many of the classic upland karst areas have yet to be included. Recorded so far are: Over 800 caves, 1300 stream sinks, 5600 springs, 10,000 sinkholes.

The database is not yet complete, and not all records have been verified. The absence of data does not mean that karst features are not present at a site. A reliability rating is included with each record.

This data is sourced from the British Geological Survey.

20 Radon



20.1 Radon

Records on site	1

The Radon Potential data classifies areas based on their likelihood of a property having a radon level at or above the Action Level in Great Britain. The dataset is intended for use at 1:50,000 scale and was derived from both geological assessments and indoor radon measurements (more than 560,000 records). A minimum 50m buffer should be considered when searching the maps, as the smallest detectable feature at this scale is 50m. The findings of this section should supersede any estimations derived from the Indicative Atlas of Radon in Great Britain (1:100,000 scale).

Features are displayed on the Radon map on **page 149 >**

Location	Estimated properties affected	Radon Protection Measures required
On site	**Less than 1%**	**None**

This data is sourced from the British Geological Survey and UK Health Security Agency.

21 Soil chemistry

21.1 BGS Estimated Background Soil Chemistry

Records within 50m **15**

The estimated values provide the likely background concentration of the potentially harmful elements Arsenic, Cadmium, Chromium, Lead and Nickel in topsoil. The values are estimated primarily from rural topsoil data collected at a sample density of approximately 1 per 2 km^2. In areas where rural soil samples are not available, estimation is based on stream sediment data collected from small streams at a sampling density of 1 per 2.5 km^2; this is the case for most of Scotland, Wales and southern England. The stream sediment data are converted to soil-equivalent concentrations prior to the estimation.

Location	Arsenic	Bioaccessible Arsenic	Lead	Bioaccessible Lead	Cadmium	Chromium	Nickel
On site	**15 mg/kg**	**No data**	**100 mg/kg**	**60 mg/kg**	**1.8 mg/kg**	**60 - 90 mg/kg**	**15 - 30 mg/kg**
On site	**15 mg/kg**	**No data**	**100 mg/kg**	**60 mg/kg**	**1.8 mg/kg**	**60 - 90 mg/kg**	**15 - 30 mg/kg**
On site	**15 mg/kg**	**No data**	**100 mg/kg**	**60 mg/kg**	**1.8 mg/kg**	**60 - 90 mg/kg**	**15 - 30 mg/kg**
On site	**15 mg/kg**	**No data**	**100 mg/kg**	**60 mg/kg**	**1.8 mg/kg**	**60 - 90 mg/kg**	**15 - 30 mg/kg**
On site	**15 mg/kg**	**No data**	**100 mg/kg**	**60 mg/kg**	**1.8 mg/kg**	**60 - 90 mg/kg**	**15 - 30 mg/kg**
16m S	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
16m S	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
16m S	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
16m S	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
26m SE	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
41m NW	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
41m S	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
41m S	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
41m S	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
41m S	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg

This data is sourced from the British Geological Survey.

21.2 BGS Estimated Urban Soil Chemistry

Records within 50m	0

Estimated topsoil chemistry of Arsenic, Cadmium, Chromium, Copper, Nickel, Lead, Tin and Zinc and bioaccessible Arsenic and Lead in 23 urban centres across Great Britain. These estimates are derived from interpolation of the measured urban topsoil data referred to above and provide information across each city between the measured sample locations (4 per km^2).

This data is sourced from the British Geological Survey.

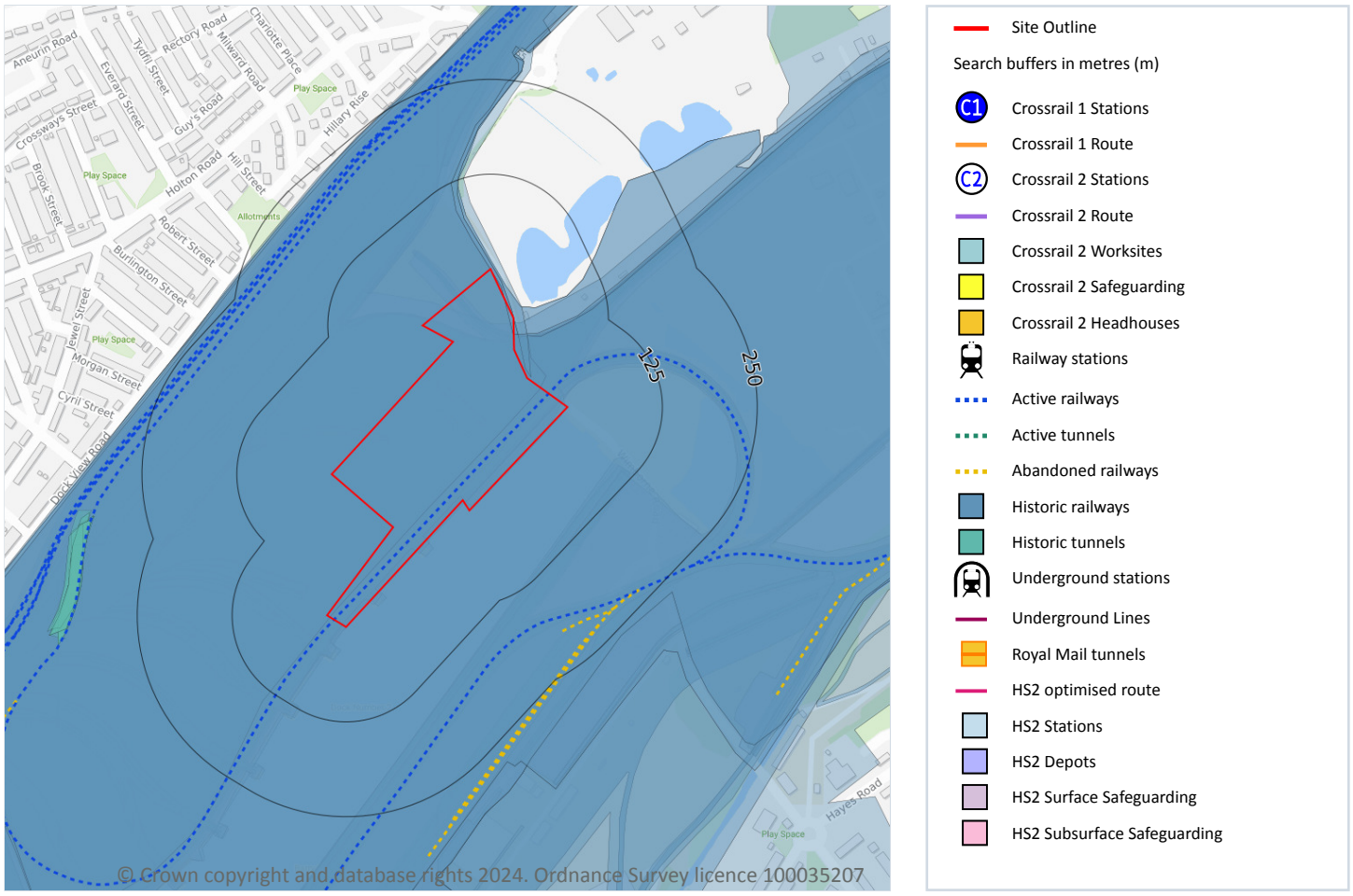
21.3 BGS Measured Urban Soil Chemistry

Records within 50m	0

The locations and measured total concentrations (mg/kg) of Arsenic, Cadmium, Chromium, Copper, Nickel, Lead, Tin and Zinc in urban topsoil samples from 23 urban centres across Great Britain. These are collected at a sample density of 4 per km^2.

This data is sourced from the British Geological Survey.

22 Railway infrastructure and projects



22.1 Underground railways (London)

Records within 250m	0

Details of all active London Underground lines, including approximate tunnel roof depth and operational hours.

This data is sourced from publicly available information by Groundsure.

22.2 Underground railways (Non-London)

Records within 250m	0

Details of the Merseyrail system, the Tyne and Wear Metro and the Glasgow Subway. Not all parts of all systems are located underground. The data contains location information only and does not include a depth assessment.

This data is sourced from publicly available information by Groundsure.

22.3 Railway tunnels

Records within 250m	0

Railway tunnels taken from contemporary Ordnance Survey mapping.

This data is sourced from the Ordnance Survey.

22.4 Historical railway and tunnel features

Records within 250m	41

Railways and tunnels digitised from historical Ordnance Survey mapping as scales of 1:1,250, 1:2,500, 1:10,000 and 1:10,560.

Features are displayed on the Railway infrastructure and projects map on **page 153 >**

Location	Land Use	Year of mapping	Mapping scale
On site	**Railway Sidings**	**1954**	**1250**
On site	**Railway Sidings**	**1973**	**1250**
On site	**Railway Sidings**	**1955**	**1250**
On site	**Railway Sidings**	**1955**	**2500**
On site	**Railway Sidings**	**1954**	**2500**
On site	**Railway Sidings**	**1990**	**1250**
On site	**Railway Sidings**	**1900**	**2500**
On site	**Railway Sidings**	**1920**	**2500**
On site	**Railway Sidings**	**1943**	**2500**
On site	**Railway Sidings**	**1947**	**10560**
On site	**Railway Sidings**	**1915**	**10560**
On site	**Railway Sidings**	**1898**	**10560**
On site	**Railway Sidings**	**1982**	**10000**
On site	**Railway Sidings**	**1921**	**10560**
On site	**Railway Sidings**	**1991**	**10000**
On site	**Railway Sidings**	**1973**	**10000**
On site	**Railway Sidings**	**1965**	**10560**

Location	Land Use	Year of mapping	Mapping scale
34m SW	Railway Sidings	1955	1250
37m SW	Railway Sidings	1971	1250
37m N	Railway Sidings	1954	2500
81m NW	Railway Sidings	1990	1250
96m W	Railway Sidings	1972	1250
109m E	Railway Sidings	1955	1250
109m E	Railway Sidings	1955	2500
114m E	Railway Sidings	1973	1250
117m SE	Railway Sidings	1955	2500
123m NW	Railway Sidings	1990	1250
124m N	Railway Sidings	1955	2500
147m N	Railway Sidings	1970	1250
147m N	Railway Sidings	1955	1250
148m N	Railway Sidings	1988	1250
148m N	Railway Sidings	1990	1250
149m W	Railway Sidings	1972	1250
172m S	Railway Sidings	1955	2500
174m S	Railway Sidings	1989	1250
179m S	Railway Sidings	1989	1250
189m W	Railway Sidings	1954	1250
206m SE	Railway Sidings	1973	1250
221m SW	Railway Sidings	1955	1250
227m SE	Railway Sidings	1955	1250
245m SE	Railway Sidings	1963	1250

This data is sourced from Ordnance Survey/Groundsure.

22.5 Royal Mail tunnels

Records within 250m	0

The Post Office Railway, otherwise known as the Mail Rail, is an underground railway running through Central London from Paddington Head District Sorting Office to Whitechapel Eastern Head Sorting Office. The line is 10.5km long. The data includes details of the full extent of the tunnels, the depth of the tunnel, and the depth to track level.

This data is sourced from Groundsure/the Postal Museum.

22.6 Historical railways

Records within 250m	3

Former railway lines, including dismantled lines, abandoned lines, disused lines, historic railways and razed lines.

Features are displayed on the Railway infrastructure and projects map on **page 153 >**

Location	Description
201m SE	Abandoned
227m SE	Disused
227m SE	Disused

This data is sourced from OpenStreetMap.

22.7 Railways

Records within 250m	7

Currently existing railway lines, including standard railways, narrow gauge, funicular, trams and light railways.

Features are displayed on the Railway infrastructure and projects map on **page 153 >**

Location	Name	Type
On site	**Barry Docks Railway**	**rail**
196m NW	Barry Docks Railway	rail
205m NW	Not given	Multi Track
205m NW	Barry Line	rail
210m NW	Barry Line	rail
228m N	Not given	Multi Track

Location	Name	Type
229m N	Not given	Multi Track

This data is sourced from Ordnance Survey and OpenStreetMap.

22.8 Crossrail 1

Records within 500m	0

The Crossrail railway project links 41 stations over 100 kilometres from Reading and Heathrow in the west, through underground sections in central London, to Shenfield and Abbey Wood in the east.

This data is sourced from publicly available information by Groundsure.

22.9 Crossrail 2

Records within 500m	0

Crossrail 2 is a proposed railway linking the national rail networks in Surrey and Hertfordshire via an underground tunnel through London.

This data is sourced from publicly available information by Groundsure.

22.10 HS2

Records within 500m	0

HS2 is a proposed high speed rail network running from London to Manchester and Leeds via Birmingham. Main civils construction on Phase 1 (London to Birmingham) of the project began in 2019, and it is currently anticipated that this phase will be fully operational by 2026. Construction on Phase 2a (Birmingham to Crewe) is anticipated to commence in 2021, with the service fully operational by 2027. Construction on Phase 2b (Crewe to Manchester and Birmingham to Leeds) is scheduled to begin in 2023 and be operational by 2033.

This data is sourced from HS2 ltd.

Data providers

Groundsure works with respected data providers to bring you the most relevant and accurate information. To find out who they are and their areas of expertise see https://www.groundsure.com/sources-reference ↗.

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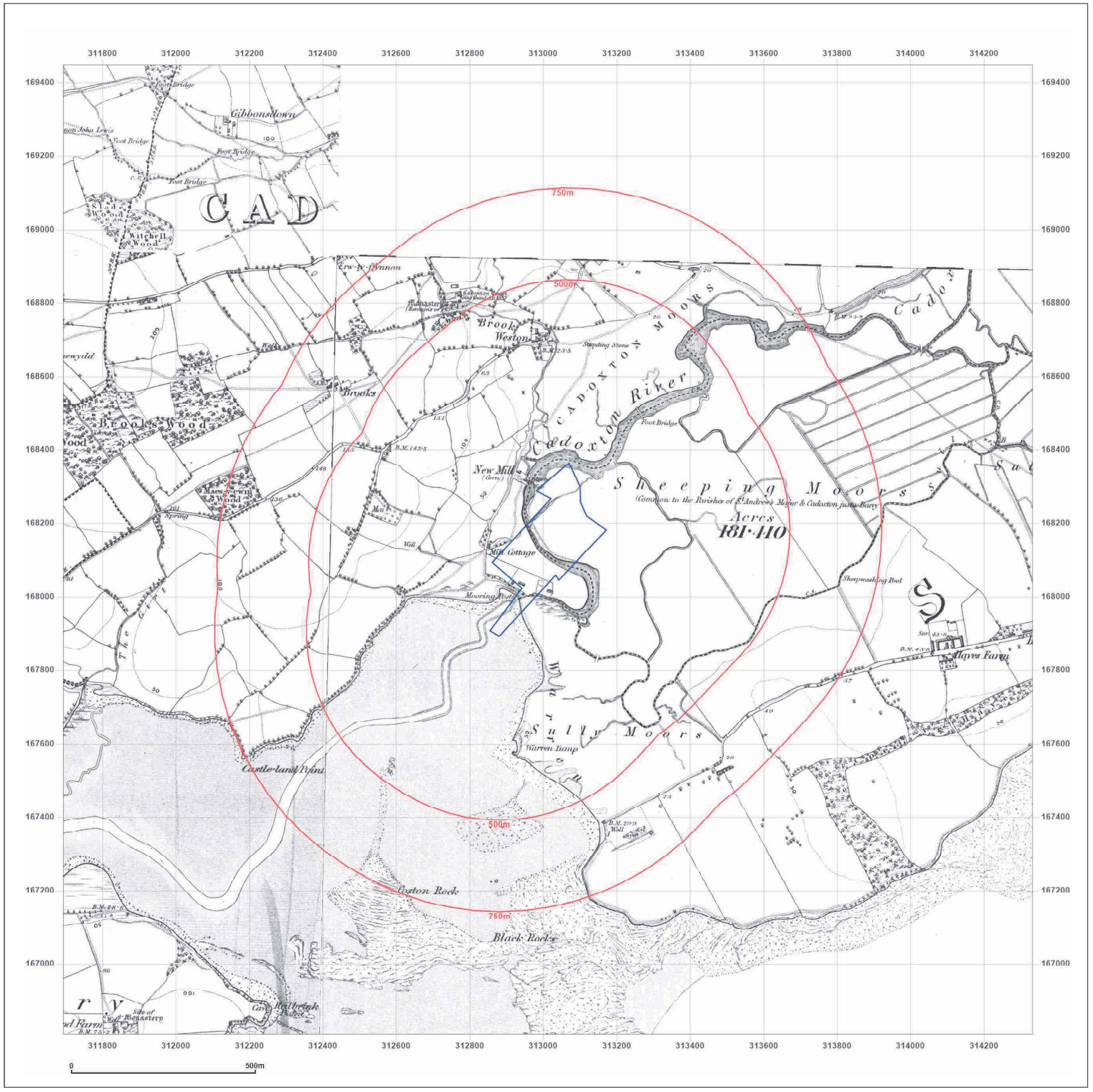
APPENDIX C – Historical Maps



Groundsure INSIGHTS

Site Details:

31 WIMBORNE ROAD, BARRY
DOCKS, VALE OF GLAMORGAN,
CF63 3DH

Client Ref: LAM060/BAR128.D
Report Ref: GS-8QJ-AQI-5AH-S12
Grid Ref: 313012, 168127

Map Name: County Series
Map date: **1878-1879**
Scale: 1:10,560
Printed at: 1:10,560

N
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Surveyed 1879
Revised 1879
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1878
Revised 1878
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1878
Revised 1878
Edition N/A
Copyright N/A
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Surveyed 1878
Revised 1878
Edition N/A
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Levelled N/A

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Production date: 23 May 2024

Map legend available at:
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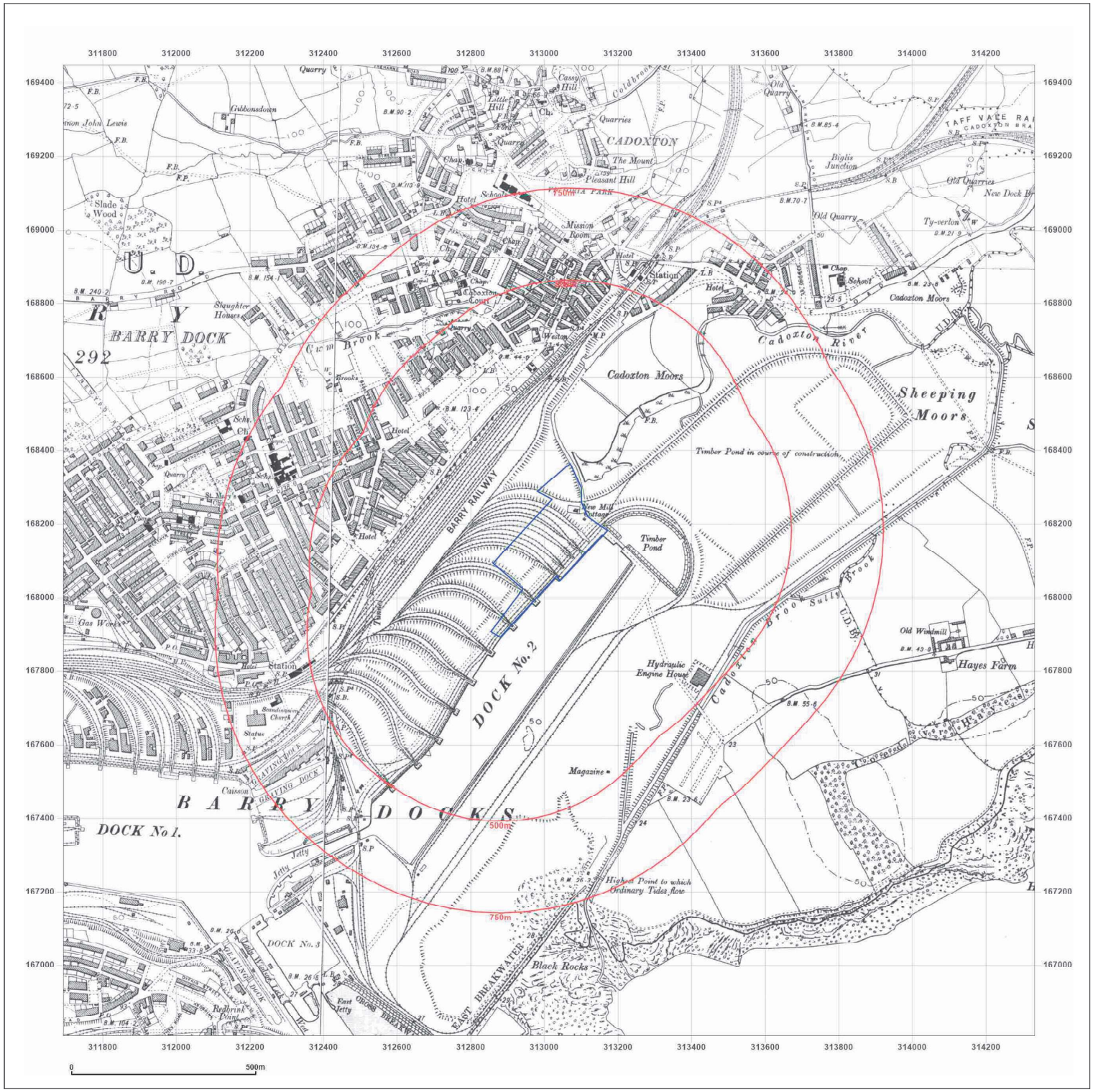

Groundsure INSIGHTS

Site Details:

31 WIMBORNE ROAD, BARRY
DOCKS, VALE OF GLAMORGAN,
CF63 3DH

Client Ref: LAM060/BAR128.D
Report Ref: GS-8QJ-AQI-5AH-S12
Grid Ref: 313012, 168127

Map Name: County Series
Map date: **1898**
Scale: 1:10,560
Printed at: 1:10,560

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Surveyed 1878
Revised 1898
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1878
Revised 1898
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1876
Revised 1898
Edition N/A
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Surveyed 1876
Revised 1898
Edition N/A
Copyright N/A
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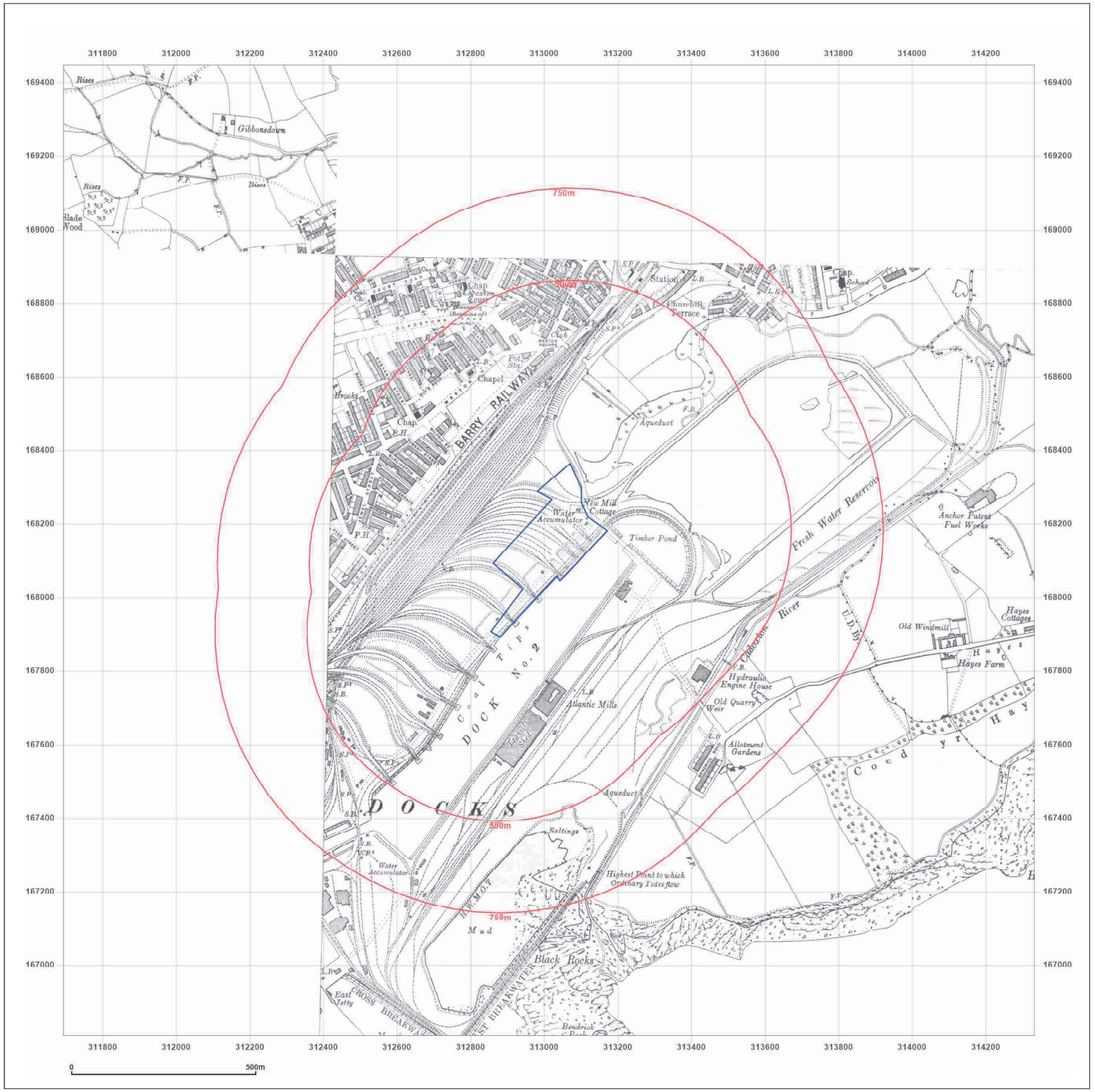

Groundsure INSIGHTS

Site Details:

31 WIMBORNE ROAD, BARRY
DOCKS, VALE OF GLAMORGAN,
CF63 3DH

Client Ref: LAM060/BAR128.D
Report Ref: GS-8QJ-AQI-5AH-S12
Grid Ref: 313012, 168127

Map Name: County Series
Map date: 1915
Scale: 1:10,560
Printed at: 1:10,560

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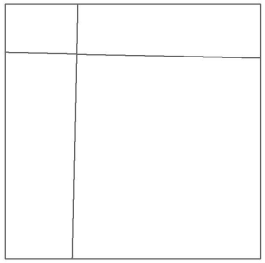
Surveyed 1877
Revised 1915
Edition N/A
Copyright N/A
Levelled N/A



Surveyed 1876
Revised 1915
Edition N/A
Copyright N/A
Levelled N/A

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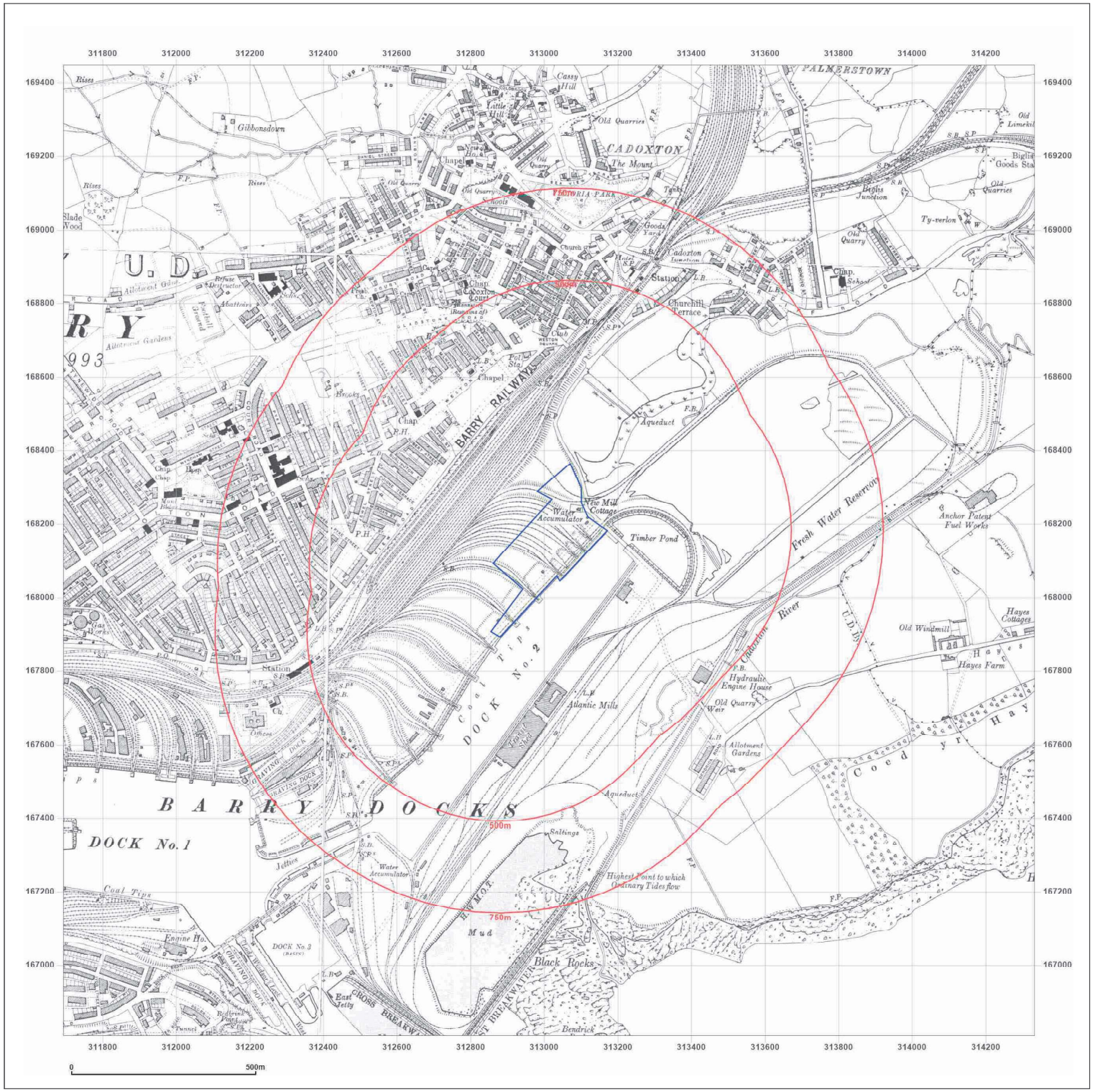

Groundsure INSIGHTS

Site Details:

31 WIMBORNE ROAD, BARRY
DOCKS, VALE OF GLAMORGAN,
CF63 3DH

Client Ref: LAM060/BAR128.D
Report Ref: GS-8QJ-AQI-5AH-S12
Grid Ref: 313012, 168127

Map Name: County Series
Map date: **1921-1922**
Scale: 1:10,560
Printed at: 1:10,560

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Surveyed 1877
Revised 1922
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1878
Revised 1922
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1876
Revised 1921
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1877
Revised 1921
Edition N/A
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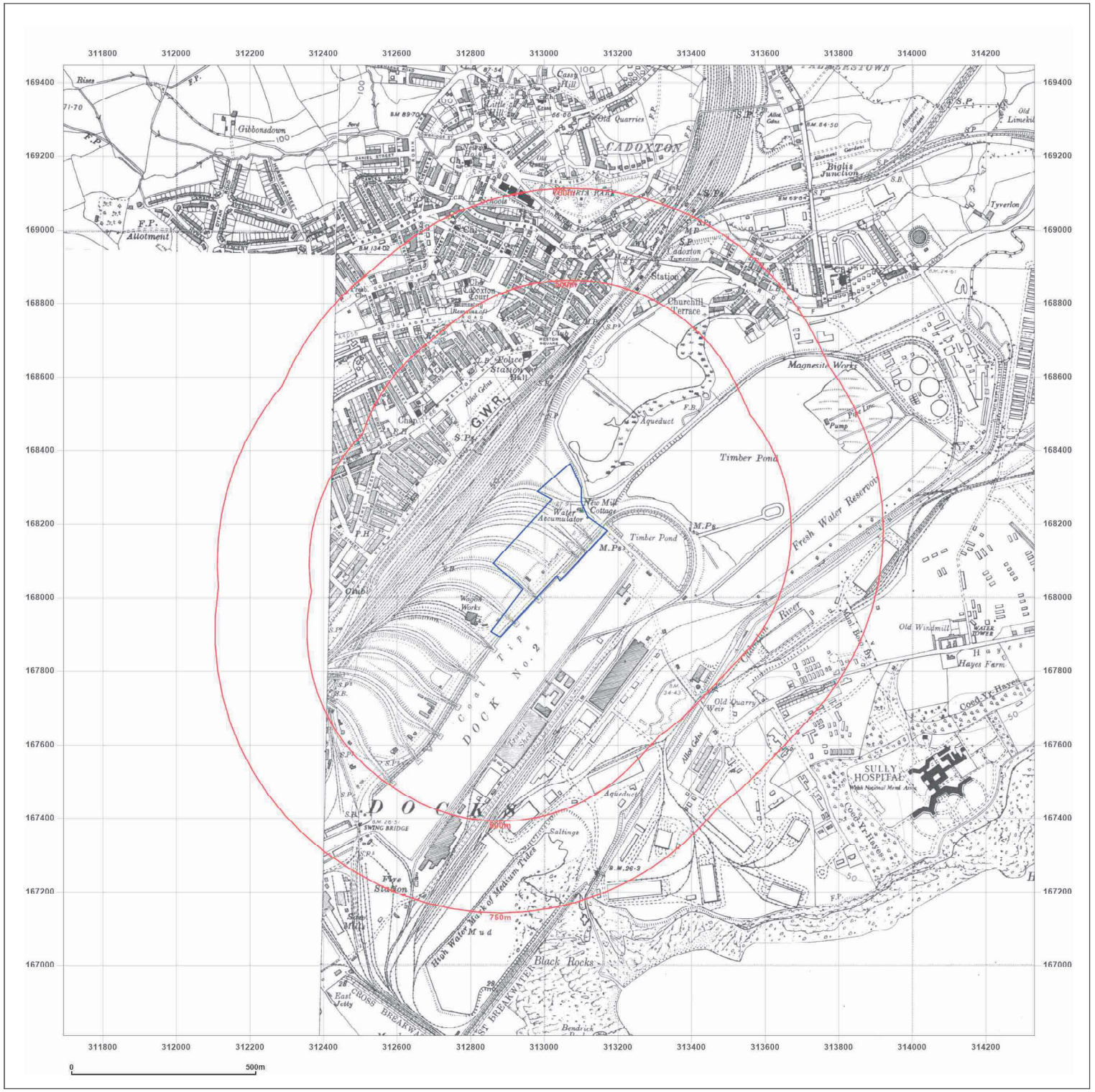

Groundsure INSIGHTS

Site Details:

31 WIMBORNE ROAD, BARRY
DOCKS, VALE OF GLAMORGAN,
CF63 3DH

Client Ref: LAM060/BAR128.D
Report Ref: GS-8QJ-AQI-5AH-S12
Grid Ref: 313012, 168127

Map Name: County Series
Map date: 1947
Scale: 1:10,560
Printed at: 1:10,560

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Surveyed 1877
Revised 1947
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1877
Revised 1947
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1876
Revised 1947
Edition N/A
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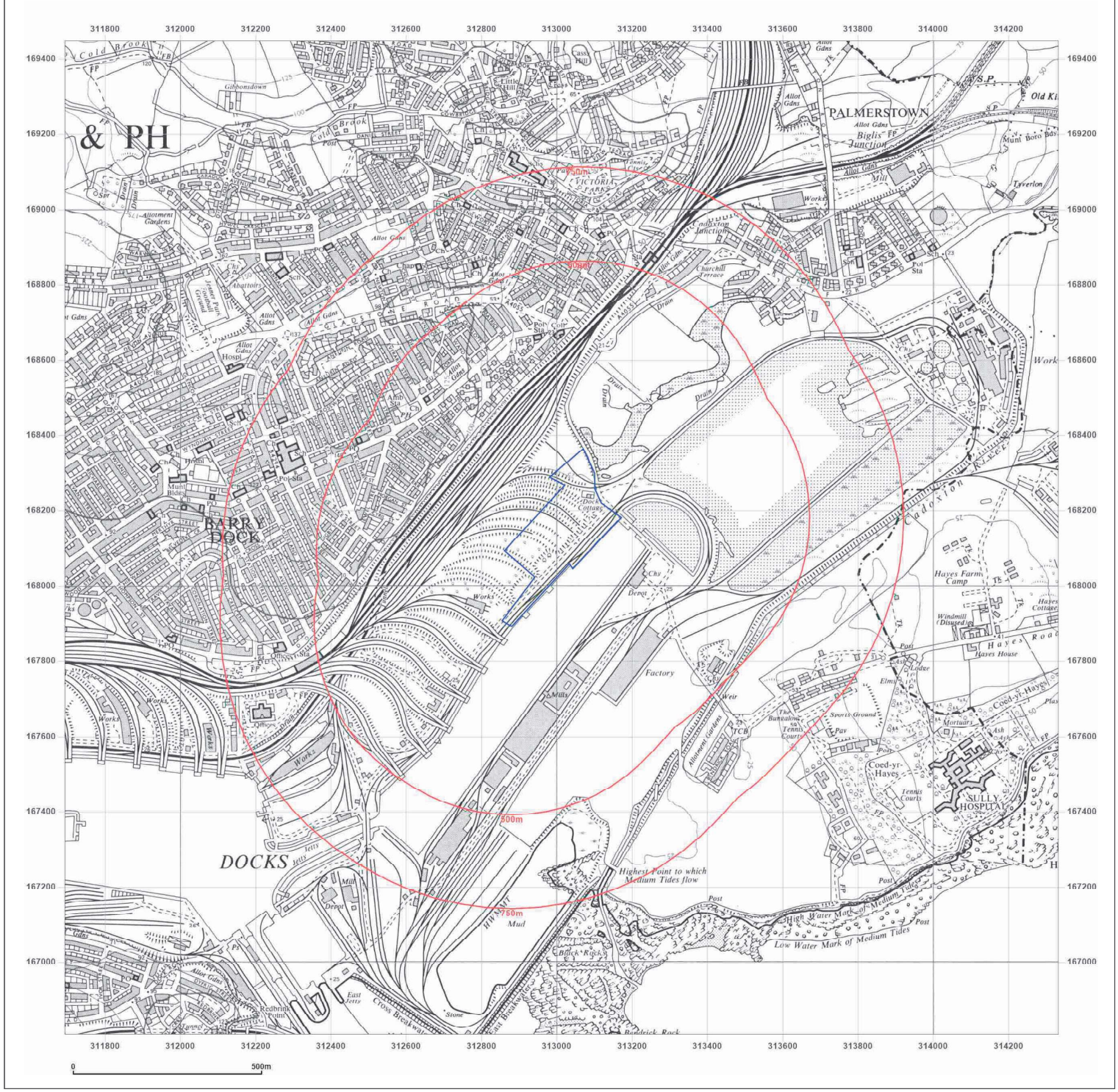

Groundsure INSIGHTS

Site Details:

31 WIMBORNE ROAD, BARRY
DOCKS, VALE OF GLAMORGAN,
CF63 3DH

Client Ref: LAM060/BAR128.D
Report Ref: GS-8QJ-AQI-5AH-S12
Grid Ref: 313012, 168127

Map Name: Provisional
Map date: 1965
Scale: 1:10,560
Printed at: 1:10,560

N
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Surveyed 1877
Revised 1947
Edition N/A
Copyright 1965
Levelled N/A

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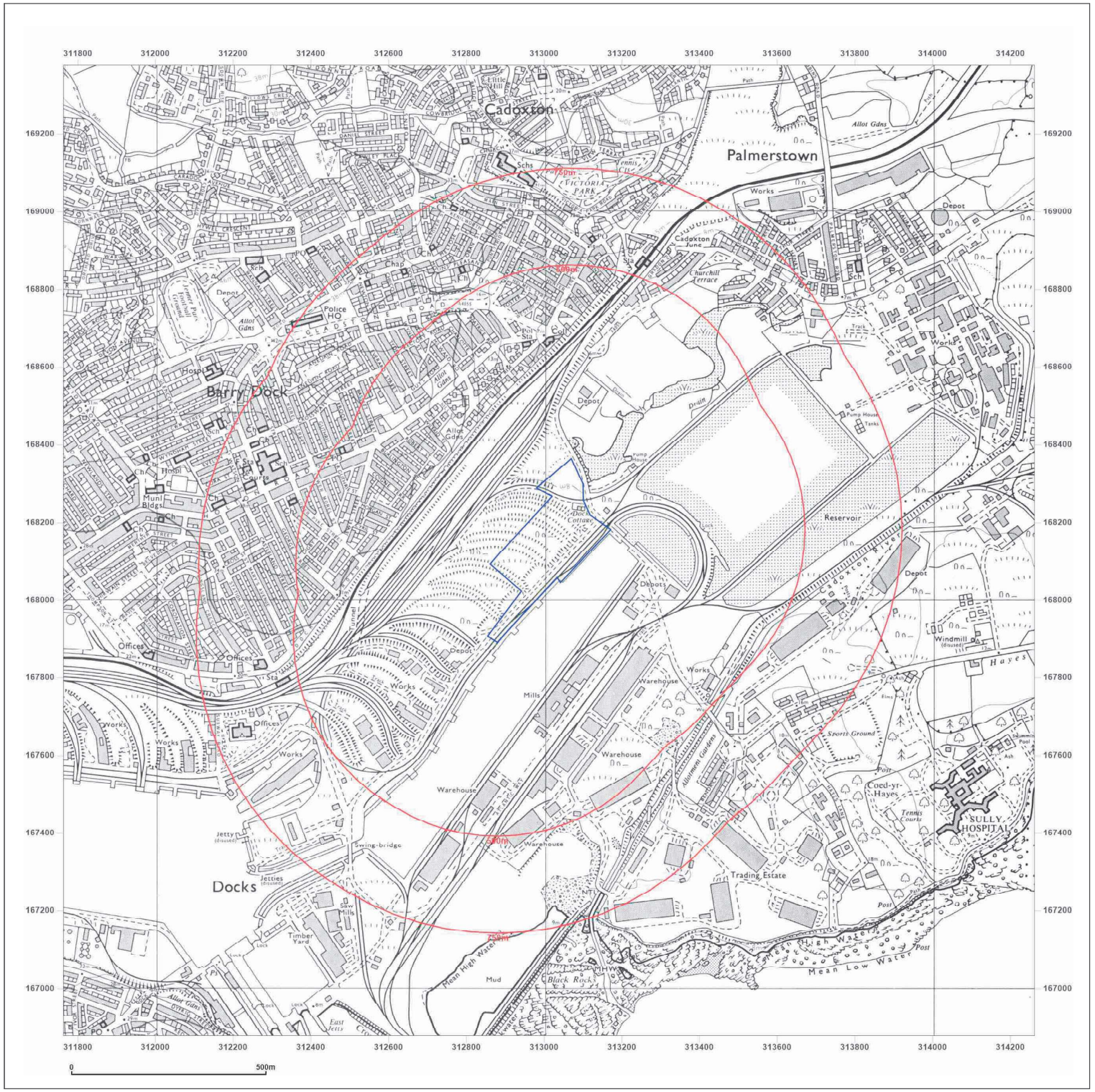

Groundsure INSIGHTS

Site Details:

31 WIMBORNE ROAD, BARRY
DOCKS, VALE OF GLAMORGAN,
CF63 3DH

Client Ref: LAM060/BAR128.D
Report Ref: GS-8QJ-AQI-5AH-S12
Grid Ref: 313012, 168127

Map Name: National Grid
Map date: 1975
Scale: 1:10,000
Printed at: 1:10,000

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Surveyed 1972
Revised 1975
Edition N/A
Copyright 1975
Levelled N/A

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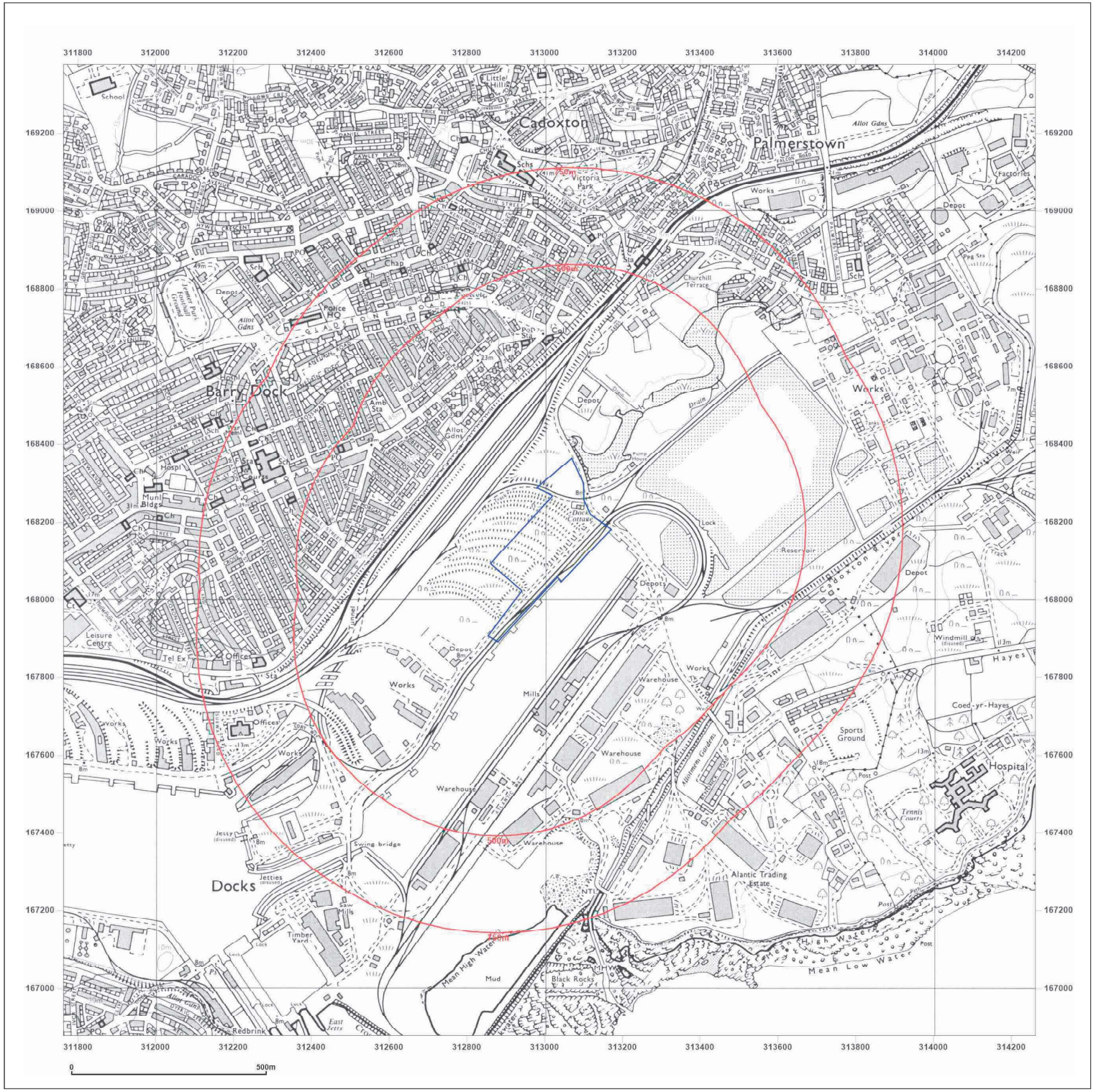

Groundsure INSIGHTS

Site Details:

31 WIMBORNE ROAD, BARRY
DOCKS, VALE OF GLAMORGAN,
CF63 3DH

Client Ref: LAM060/BAR128.D
Report Ref: GS-8QJ-AQI-5AH-S12
Grid Ref: 313012, 168127

Map Name: National Grid
Map date: 1982
Scale: 1:10,000
Printed at: 1:10,000

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Surveyed 1979
Revised 1982
Edition N/A
Copyright N/A
Levelled N/A

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Client Ref: LAM060/BAR128.D
Report Ref: GS-8QJ-AQI-5AH-S12
Grid Ref: 313012, 168127

Map Name: National Grid
Map date: 1991
Scale: 1:10,000
Printed at: 1:10,000

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Surveyed 1990
Revised 1991
Edition N/A
Copyright N/A
Levelled N/A

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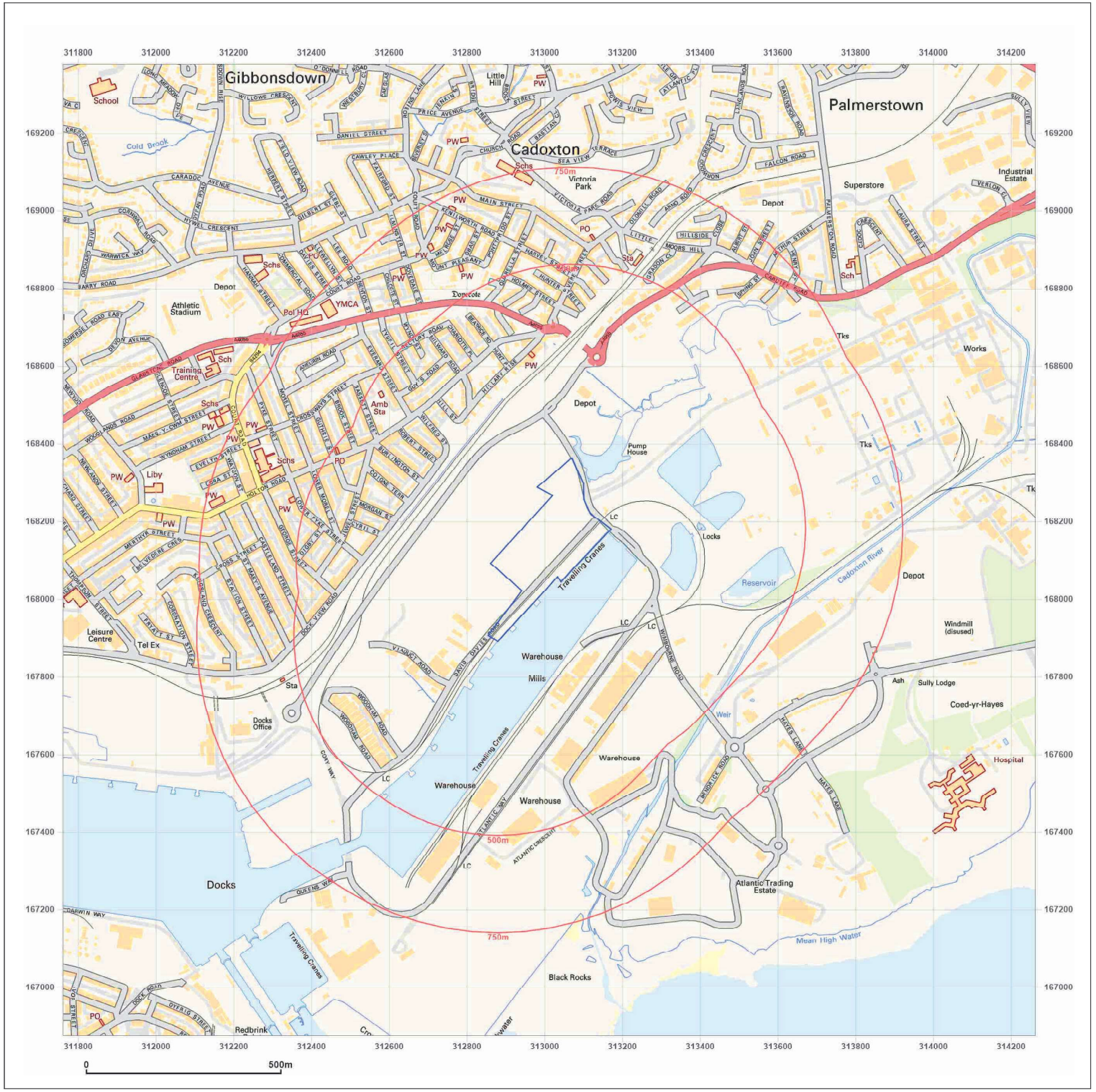

Groundsure INSIGHTS

Site Details:

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DOCKS, VALE OF GLAMORGAN,
CF63 3DH

Client Ref: LAM060/BAR128.D
Report Ref: GS-8QJ-AQI-5AH-S12
Grid Ref: 313012, 168127

Map Name: National Grid
Map date: 2001
Scale: 1:10,000
Printed at: 1:10,000

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2001

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Site Details:

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DOCKS, VALE OF GLAMORGAN,
CF63 3DH

Client Ref: LAM060/BAR128.D
Report Ref: GS-8QJ-AQI-5AH-S12
Grid Ref: 313012, 168127

Map Name: National Grid
Map date: 2010
Scale: 1:10,000
Printed at: 1:10,000

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2010

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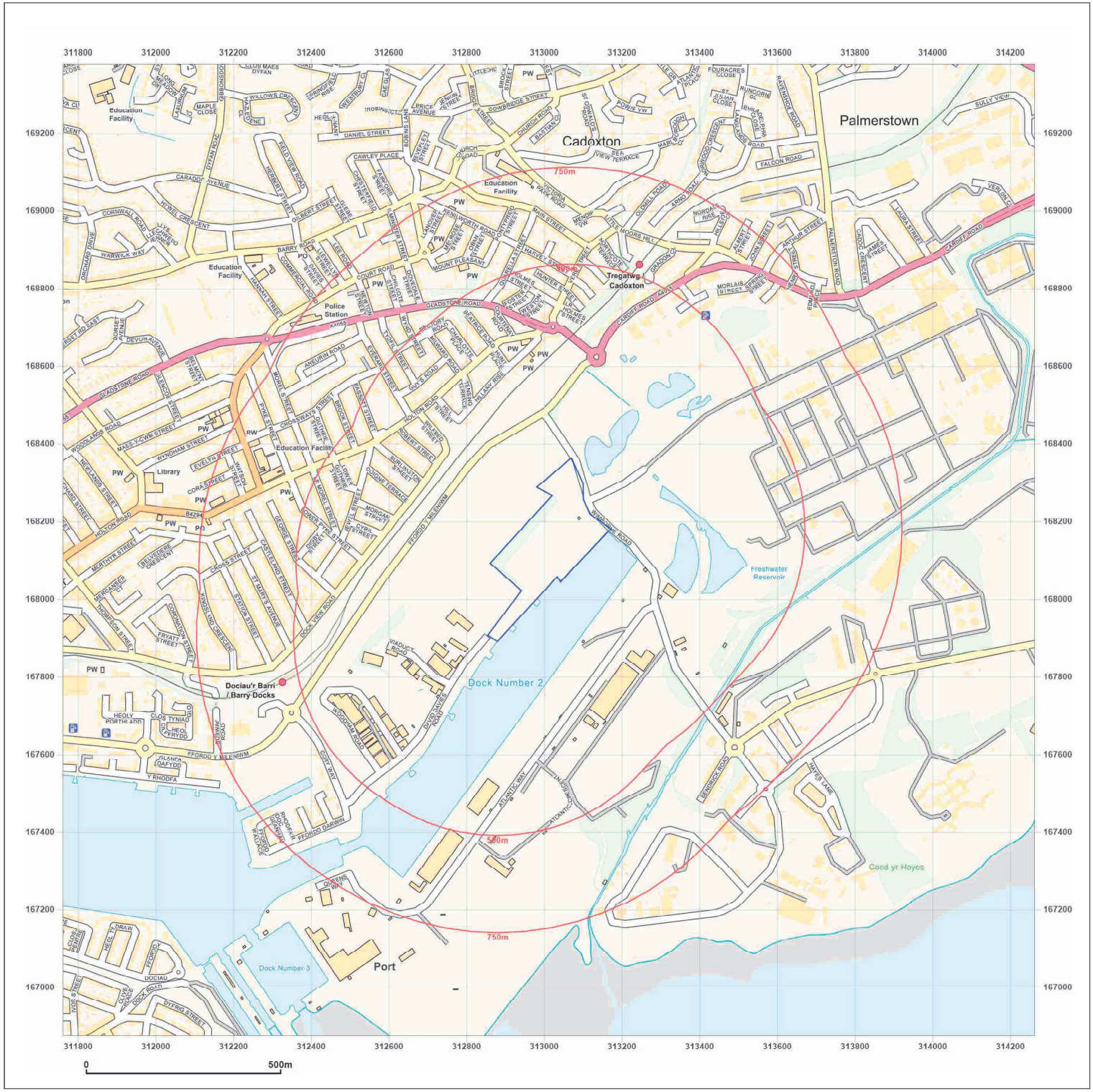

Groundsure INSIGHTS

Site Details:

31 WIMBORNE ROAD, BARRY
DOCKS, VALE OF GLAMORGAN,
CF63 3DH

Client Ref: LAM060/BAR128.D
Report Ref: GS-8QJ-AQI-5AH-S12
Grid Ref: 313012, 168127

Map Name: National Grid
Map date: 2024
Scale: 1:10,000
Printed at: 1:10,000

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2024

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APPENDIX D – Site Photographs

PLATE 1 –Looking westwards across the site from site entrance off Wimbourne Road

PLATE 2 – Looking into the area in the north-eastern corner

PLATE 3 –Substation on the site

PLATE 4 – Looking westwards along the southern part of the site

PLATE 5 – Storage bays with a tank in the background

PLATE 6 – Looking north eastwards from the water edge to former offices, weighbridge and sub-station

PLATE 7 –Southern side of the site looking towards Winbourne Road

PLATE 8 – Looking westwards to the end of the site

PLATE 9 –The tank on the site

PLATE 10 – Looking towards the western site entrance

PLATE 11 –Looking eastwards along the northern edge of the concrete surfaced area with the storage bays

PLATE 12 – The former offices and weighbridge viewed from northern side

PLATE 13 –Looking southwards along the eastern boundary.

PLATE 14 – Location of WS01

PLATE 15 –WS01 cores

PLATE 16 – Location of WS02

PLATE 17 –WS02 cores

PLATE 18 –Location of WS03

PLATE 19 –WS02 cores

PLATE 20 –Location of WS04

PLATE 21 –WS04 cores

PLATE 22 –Location of WS05

PLATE 23 –WS05 cores

PLATE 24 –Location of WS06

PLATE 25 –WS06 cores

PLATE 26 –Location of WS07

PLATE 27 –WS07 cores

PLATE 28 –Location of WS08

PLATE 19 –WS08 cores

APPENDIX E – Exploratory Hole Logs

ADVANCED INVESTIGATION SYSTEMS LTD
Tel: 07970 460 427
Email: enquiries@windowsampling.com
Web: www.windowsampling.com

BOREHOLE RECORD
(Window Sampling)

Borehole Number
WS01

Site: Wimbourne Road, Barry Docks, Barry, South Glamorgan	**Engineer:** Forge Environmental Management Ltd	**Drilling Equipment:** Competitor 130	
Client: South West Wood Products Ltd	**Elevation mAOD:** **Easting:** **Northing:**	**Start:** 05/03/2024 **Finish:** 05/03/2024	**Scale:** 1:50

GROUND WATER | **SAMPLING & IN SITU TESTING** | **STRATA RECORD** | Sheet 1 of 1

Strike	Well	Depth (m)	Depth/Type (m)	Standard Penetration Testing	Sampler / Recovery	Depth mBGL	Depth mAOD	Key	Description
					Broken out				CONCRETE
					116mm WLS: 100%	1	-1.0		MADE GROUND: firm to stiff friable dark grey brown / dark grey / grey sandy silty very gravelly CLAY with brick concrete mudstone limestone coal.
					101mm WLS: 80%	2	-2.0		MADE GROUND: firm locally stiff brown grey / dark grey / grey variegated locally sandy slightly gravelly silty CLAY. Gravel is fine medium coarse angular limestone mudstone gravel.
Moderate Flow		2.85 3.00			92mm WLS: 100%	3	-3.0		MADE GROUND: soft to firm locally stiff grey locally brown grey & dark grey variegated slightly gravelly silty CLAY. Gravel is fine medium coarse angular limestone & mudstone.
						4	-4.0		
					70mm WS: 70%	5	-5.0		Soft becoming firm & stiff towards base grey locally grey brown variegated thinly laminated locally slightly sandy silty CLAY.
						6	-6.0		
						7	-7.0		
						8	-8.0		
						9	-9.0		
						10	-10.0		

Remarks / Well Installation / Casing Details

50mm ID slotted well screen installed to 5.0m BGL.

AGS

ES ES Sample
● □ Disturbed Sample
W Water Sample
Φ Bulk Sample
U Undisturbed Sample

WLS Windowless Sampler
WS Window Sampler
▽ Depth to water strike
▼ Standing water depth

Job No. AD0209

ADVANCED INVESTIGATION SYSTEMS LTD
Tel: 07970 460 427
Email: enquiries@windowsampling.com
Web: www.windowsampling.com

BOREHOLE RECORD
(Window Sampling)

Borehole Number
WS02

Site: Wimbourne Road, Barry Docks, Barry, South Glamorgan	**Engineer:** Forge Environmental Management Ltd	**Drilling Equipment:** Competitor 130	
Client: South West Wood Products Ltd	**Elevation mAOD:** **Easting:** **Northing:**	**Start:** 05/03/2024 **Finish:** 05/03/2024	**Scale:** 1:50

GROUND WATER | **SAMPLING & IN SITU TESTING** | **STRATA RECORD** | Sheet 1 of 1

Strike	Well	Depth (m)	Depth/Type (m)	Standard Penetration Testing	Sampler / Recovery	Depth mBGL	Depth mAOD	Key	Description
					Broken out				CONCRETE
					116mm WLS: 100%	1	-1.0		MADE GROUND: (loose) dark grey brown / grey / light grey gravelly clayey silty fine medium coarse SAND. Gravel is fine medium coarse limestone mudstone brick mortar.
					101mm WLS: 90%	2	-2.0		MADE GROUND: soft light grey silty sandy gravelly CLAY. Gravel is fine medium coarse angular limestone & mudstone.
Moderate Flow		2.50 3.00			92mm WLS: 50%	3	-3.0		
						4	-4.0		
					70mm WS: 70%	5	-5.0		
						6	-6.0		
						7	-7.0		
						8	-8.0		
						9	-9.0		
						10	-10.0		

Remarks / Well Installation / Casing Details

50mm ID slotted well screen installed to 5.0m BGL.

AGS

ES ES Sample
● □ Disturbed Sample
W Water Sample
Φ Bulk Sample
U Undisturbed Sample

WLS Windowless Sampler
WS Window Sampler
▽ Depth to water strike
▼ Standing water depth

Job No. AD0209

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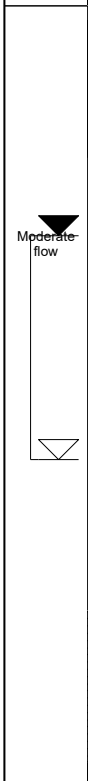
Email: enquiries@windowsampling.com
Web: www.windowsampling.com

BOREHOLE RECORD
(Window Sampling)

Borehole Number
WS03

Site: Wimbourne Road, Barry Docks, Barry, South Glamorgan	**Engineer:** Forge Environmental Management Ltd	**Drilling Equipment:** Competitor 130	
Client: South West Wood Products Ltd	**Elevation mAOD:** **Easting:** **Northing:**	**Start:** 05/03/2024 **Finish:** 05/03/2024	**Scale:** 1:50

GROUND WATER | **SAMPLING & IN SITU TESTING** | **STRATA RECORD** | Sheet 1 of 1



Strike	Well	Depth (m)	Depth/Type (m)	Standard Penetration Testing	Sampler / Recovery	Depth mBGL	Depth mAOD	Key	Description
					Broken out				CONCRETE
					116mm WLS: 100%	1	-1.0		MADE GROUND: stiff dark brown grey locally dark red brown sandy silty CLAY with occasional mudstone gravel.
					101mm WLS: 90%	2	-2.0		MADE GROUND: firm to stiff red brown sandy silty CLAY. Rare mudstone gravel.
									MADE GROUND: soft red brown SILT.
		1.52 3.00			92mm WLS: 80%	3	-3.0		MADE GROUND: (loose) grey slightly gravelly clayey silty fine medium SAND. Gravel is fine medium coarse limestone mudstone.
						4	-4.0		Stiff grey thinly laminated locally slightly sandy silty CLAY.
					70mm WS: 80%	5	-5.0		
						6	-6.0		
						7	-7.0		
						8	-8.0		
						9	-9.0		
						10	-10.0		

Remarks / Well Installation / Casing Details

50mm ID slotted well screen installed to 4.0m BGL.

AGS

ES ES Sample
● □ Disturbed Sample
W Water Sample
Φ Bulk Sample
U Undisturbed Sample

WLS Windowless Sampler
WS Window Sampler
▽ Depth to water strike
▼ Standing water depth

Job No. AD0209

ADVANCED INVESTIGATION SYSTEMS LTD
Tel: 07970 460 427
Email: enquiries@windowsampling.com
Web: www.windowsampling.com

BOREHOLE RECORD
(Window Sampling)

Borehole Number
WS04

Site: Wimbourne Road, Barry Docks, Barry, South Glamorgan	**Engineer:** Forge Environmental Management Ltd	**Drilling Equipment:** Competitor 130	
Client: South West Wood Products Ltd	**Elevation mAOD:** **Easting:** **Northing:**	**Start:** 06/03/2024 **Finish:** 06/03/2024	**Scale:** 1:50

GROUND WATER | **SAMPLING & IN SITU TESTING** | **STRATA RECORD** | Sheet 1 of 1

Strike	Well	Depth (m)	Depth/Type (m)	Standard Penetration Testing	Sampler / Recovery	Depth mBGL	Depth mAOD	Key	Description
					Broken out				CONCRETE
									MADE GROUND: grey / dark grey clayey silty fine medium coarse SAND & GRAVEL of angular mudstone.
					116mm WLS: 100%	1	-1.0		MADE GROUND: firm locally stiff brown grey / dark grey / grey variegated sandy slightly gravelly silty CLAY. Gravel is fine medium coarse angular limestone mudstone graveez.
Moderate Flow		1.84 2.00			101mm WLS: 80%	2	-2.0		
					92mm WLS: 90%	3	-3.0		
						4	-4.0		Stiff grey locally grey brown thinly laminated locally slightly sandy silty CLAY.
					70mm WS: 90%	5	-5.0		
						6	-6.0		
						7	-7.0		
						8	-8.0		
						9	-9.0		
						10	-10.0		

Remarks / Well Installation / Casing Details

50mm ID slotted well screen installed to 5.0m BGL.

AGS

ES ES Sample
● □ Disturbed Sample
W Water Sample
Φ Bulk Sample
U Undisturbed Sample

WLS Windowless Sampler
WS Window Sampler
▽ Depth to water strike
▼ Standing water depth

Job No. AD0209

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BOREHOLE RECORD
(Window Sampling)

Borehole Number
WS05

Site: Wimbourne Road, Barry Docks, Barry, South Glamorgan	**Engineer:** Forge Environmental Management Ltd	**Drilling Equipment:** Competitor 130	
Client: South West Wood Products Ltd	**Elevation mAOD:** **Easting:** **Northing:**	**Start:** 05/03/2024 **Finish:** 05/03/2024	**Scale:** 1:50

GROUND WATER | **SAMPLING & IN SITU TESTING** | **STRATA RECORD** | Sheet 1 of 1

Strike	Well	Depth (m)	Depth/Type (m)	Standard Penetration Testing	Sampler / Recovery	Depth mBGL	Depth mAOD	Key	Description
					Broken out				CONCRETE
									MADE GROUND: (Loose) grey / brown grey silty clayey fine medium coarse SAND & GRAVEL of brick concrete limestone mudstone. Occasional cobble.
					116mm WLS: 100%	1	-1.0		MADE GROUND: hard friable dark grey black sandy gravelly SILT (compressed coal dust & limestone mudstone gravel).
									MADE GROUND: very stiff becoming stiff grey locally brown grey slightly sandy gravelly silty CLAY. Gravel is angular limestone mudstone.
					101mm WLS: 100%	2	-2.0		MADE GROUND: soft to firm grey locally brown grey & dark grey variegated slightly gravelly silty CLAY. Gravel is fine medium coarse angular limestone & mudstone.
					92mm WLS: 100%	3	-3.0		
Slow Seepage						4	-4.0		Stiff grey locally grey brown thinly laminated locally slightly sandy silty CLAY.
		4.40 5.00			70mm WS: 80%	5	-5.0		
						6	-6.0		
						7	-7.0		
						8	-8.0		
						9	-9.0		
						10	-10.0		

Remarks / Well Installation / Casing Details

50mm ID slotted well screen installed to 5.0m BGL.

AGS

ES ES Sample
● □ Disturbed Sample
W Water Sample
Φ Bulk Sample
U Undisturbed Sample

WLS Windowless Sampler
WS Window Sampler
▽ Depth to water strike
▼ Standing water depth

Job No. AD0209

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BOREHOLE RECORD
(Window Sampling)

Borehole Number
WS06

Site: Wimbourne Road, Barry Docks, Barry, South Glamorgan	**Engineer:** Forge Environmental Management Ltd	**Drilling Equipment:** Competitor 130	
Client: South West Wood Products Ltd	**Elevation mAOD:** **Easting:** **Northing:**	**Start:** 07/03/2024 **Finish:** 07/03/2024	**Scale:** 1:50

GROUND WATER | **SAMPLING & IN SITU TESTING** | **STRATA RECORD** | Sheet 1 of 1

Strike	Well	Depth (m)	Depth/Type (m)	Standard Penetration Testing	Sampler / Recovery	Depth mBGL	Depth mAOD	Key	Description
					Broken out				CONCRETE
					116mm WLS: 100%	1	-1.0		MADE GROUND: grey / red brown / brown clayey silty fine medium coarse SAND & GRAVEL (& COBBLES) of brick mudstone limestone concrete.
					101mm WLS: 90%	2	-2.0		MADE GROUND: grey / light brown / dark grey variegated clayey silty fine medium coarse SAND & GRAVEL of fine medium coarse limestone mudstone. Locally with horizons of firm sandy gravelly silty Clay
Moderate Flow		2.70 3.00			92mm WLS: 90%	3	-3.0		
					79mm WS: 60%	4	-4.0		
						5	-5.0		
						6	-6.0		
						7	-7.0		
						8	-8.0		
						9	-9.0		
						10	-10.0		

Remarks / Well Installation / Casing Details

4.00m BGL: borehole terminated - collapsing sides. 50mm ID slotted well screen installed to 3.0m BGL.

AGS

ES ES Sample
● □ Disturbed Sample
W Water Sample
Φ Bulk Sample
U Undisturbed Sample

WLS Windowless Sampler
WS Window Sampler
▽ Depth to water strike
▼ Standing water depth

Job No. AD0209

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BOREHOLE RECORD
(Window Sampling)

Borehole Number
WS07

Site: Wimbourne Road, Barry Docks, Barry, South Glamorgan	**Engineer:** Forge Environmental Management Ltd	**Drilling Equipment:** Competitor 130	
Client: South West Wood Products Ltd	**Elevation mAOD:** **Easting:** **Northing:**	**Start:** 07/03/2024 **Finish:** 07/03/2024	**Scale:** 1:50

GROUND WATER | **SAMPLING & IN SITU TESTING** | **STRATA RECORD** | Sheet 1 of 1

Strike	Well	Depth (m)	Depth/Type (m)	Standard Penetration Testing	Sampler / Recovery	Depth mBGL	Depth mAOD	Key	Description
									CONCRETE
					Broken out				MADE GROUND: grey / red brown / brown clayey silty fine medium coarse SAND & GRAVEL (& COBBLES) of brick mudstone limestone concret coal.
					116mm WLS: 100%	1	-1.0		MADE GROUND: grey / light brown / dark grey variegated clayey silty fine medium coarse SAND & GRAVEL of fine medium coarse limestone mudstone.
					101mm WLS: 100%	2	-2.0		
Moderate Flow									
		2.69			92mm WLS: 80%	3	-3.0		Firm to stiff becoming soft at base grey locally brown grey & dark grey silty CLAY.
		3.00				4	-4.0		
					70mm WS: 60%	5	-5.0		
						6	-6.0		
						7	-7.0		
						8	-8.0		
						9	-9.0		
						10	-10.0		

Remarks / Well Installation / Casing Details

50mm ID slotted well screen installed to 3.0m BGL.

AGS

ES ES Sample
● □ Disturbed Sample
W Water Sample
Φ Bulk Sample
U Undisturbed Sample

WLS Windowless Sampler
WS Window Sampler
▽ Depth to water strike
▼ Standing water depth

Job No. AD0209

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BOREHOLE RECORD
(Window Sampling)

Borehole Number
WS08

Site: Wimbourne Road, Barry Docks, Barry, South Glamorgan	**Engineer:** Forge Environmental Management Ltd	**Drilling Equipment:** Competitor 130	
Client: South West Wood Products Ltd	**Elevation mAOD:** **Easting:** **Northing:**	**Start:** 06/03/2024 **Finish:** 06/03/2024	**Scale:** 1:50

GROUND WATER | **SAMPLING & IN SITU TESTING** | **STRATA RECORD** | Sheet 1 of 1

Strike	Well	Depth (m)	Depth/Type (m)	Standard Penetration Testing	Sampler / Recovery	Depth mBGL	Depth mAOD	Key	Description
					Broken out				CONCRETE
					116mm WLS: 100%	1	-1.0		MADE GROUND: (loose) light yellow brown silty fine medium SAND locally with soft clayey silt lenses.
					101mm WLS: 100%	2	-2.0		
Moderate Flow									
		2.55 3.00			92mm WLS: 100%	3	-3.0		MADE GROUND: (loose) light red brown silty gravelly fine medium SAND. Gravel is angular fine medium mudstone gravel.
						4	-4.0		
									Firm thinly laminated light red brown sandy silty CLAY.
					70mm WS: 70%	5	-5.0		
						6	-6.0		
						7	-7.0		
						8	-8.0		
						9	-9.0		
						10	-10.0		

Remarks / Well Installation / Casing Details

50mm ID slotted well screen installed to 3.0m BGL.

AGS

ES ES Sample
● □ Disturbed Sample
W Water Sample
Φ Bulk Sample
U Undisturbed Sample

WLS Windowless Sampler
WS Window Sampler
▽ Depth to water strike
▼ Standing water depth

Job No. AD0209

APPENDIX F – Soil Chemical Test Results

Forge Environmental Management Ltd
The Forge
Chilthorne Domer
Yeovil
Somerset
BA21 3PY

e: richard@forgeeml.co.uk

i2 Analytical Ltd.
7 Woodshots Meadow,
Croxley Green
Business Park,
Watford,
Herts,
WD18 8YS

t: 01923 225404
f: 01923 237404
e: reception@i2analytical.com

Analytical Report Number : 24-008072

Project / Site name:	Barry Docks	**Samples received on:**	11/03/2024
Your job number:	LAM BAR128.D	**Samples instructed on/ Analysis started on:**	11/03/2024
Your order number:	BAR128 691	**Analysis completed by:**	19/03/2024
Report Issue Number:	1	**Report issued on:**	22/03/2024
Samples Analysed:	10 soil samples - 9 water samples		

Signed:

Dominika Liana
Junior Reporting Specialist
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41-711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils - 4 weeks from reporting
leachates - 2 weeks from reporting
waters - 2 weeks from reporting
asbestos - 6 months from reporting

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Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement.
Application of uncertainty of measurement would provide a range within which the true result lies.
An estimate of measurement uncertainty can be provided on request.

Analytical Report Number: 24-008072
Project / Site name: Barry Docks
Your Order No: BAR128 691

Lab Sample Number				140460	140461	140462	140463	140464
Sample Reference				WS01	WS02	WS02	WS03	WS04
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.30	0.30-0.50	0.80-0.90	0.30-0.50	0.30-0.40
Date Sampled				07/03/2024	07/03/2024	07/03/2024	07/03/2024	07/03/2024
Time Taken				1140	1230	1235	1350	1445
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Stone Content	%	0.1	NONE	55.1	< 0.1	58.6	< 0.1	32.4
Moisture Content	%	0.01	NONE	3.7	11	15	11	12
Total mass of sample received	kg	0.1	NONE	0.8	1.3	0.4	0.4	1.3
Asbestos								
Asbestos in Soil Detected/Not Detected	Type	N/A	ISO 17025	Not-detected	Not-detected	Not-detected	Not-detected	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	MLO	MLO	MLO	MLO	MLO
Actinolite detected	Type	N/A	ISO 17025	-	-	-	-	-
Amosite detected	Type	N/A	ISO 17025	-	-	-	-	-
Anthophyllite detected	Type	N/A	ISO 17025	-	-	-	-	-
Chrysotile detected	Type	N/A	ISO 17025	-	-	-	-	-
Crocidolite detected	Type	N/A	ISO 17025	-	-	-	-	-
Tremolite detected	Type	N/A	ISO 17025	-	-	-	-	-
Asbestos Containing Material Types Detected (ACM)	Type	N/A	ISO 17025	-	-	-	-	-
General Inorganics								
pH (L099)	pH Units	N/A	MCERTS	7.8	8.5	10.3	10	10.8
Total Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Free Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Water Soluble Sulphate as SO_4 16hr extraction (2:1)	mg/kg	2.5	MCERTS	100	220	570	640	520
Water Soluble SO_4 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	51.4	110	282	319	262
Sulphide	mg/kg	1	MCERTS	15	76	41	500	130
Elemental Sulphur	mg/kg	5	MCERTS	< 5.0	22	93	94	< 5.0
Organic Matter (automated)	%	0.1	MCERTS	5.9	4	5.3	2	1.3
Total Phenols								
Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Speciated PAHs								
Naphthalene	mg/kg	0.05	MCERTS	0.19	0.56	0.54	0.29	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	0.16	< 0.05	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	0.39	0.17	0.1	< 0.05
Fluorene	mg/kg	0.05	MCERTS	0.2	0.54	0.21	0.14	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	0.54	4.1	1.6	0.62	0.73
Anthracene	mg/kg	0.05	MCERTS	< 0.05	1.1	0.31	0.17	0.34
Fluoranthene	mg/kg	0.05	MCERTS	0.29	5.4	2.3	0.97	1.1
Pyrene	mg/kg	0.05	MCERTS	0.34	4.3	1.9	0.87	1
Benzo(a)anthracene	mg/kg	0.05	MCERTS	< 0.05	2.6	1.2	0.6	0.47
Chrysene	mg/kg	0.05	MCERTS	0.43	2.9	1.7	0.67	0.57
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	0.36	2.8	1.6	0.87	0.57
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	0.12	1.6	0.76	0.32	0.27
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05	2.4	1.2	0.61	< 0.05
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	0.33	1.5	0.66	0.39	0.27
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	0.72	0.22	0.11	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	0.32	1.5	0.77	0.44	0.3
Total PAH								
Speciated Total EPA-16 PAHs	mg/kg	0.8	ISO 17025	3.11	32.5	15.2	7.17	5.61

Analytical Report Number: 24-008072
Project / Site name: Barry Docks
Your Order No: BAR128 691

Lab Sample Number				140460	140461	140462	140463	140464
Sample Reference				WS01	WS02	WS02	WS03	WS04
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.30	0.30-0.50	0.80-0.90	0.30-0.50	0.30-0.40
Date Sampled				07/03/2024	07/03/2024	07/03/2024	07/03/2024	07/03/2024
Time Taken				1140	1230	1235	1350	1445
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Heavy Metals / Metalloids								
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	14	16	20	7.9	7.6
Boron (water soluble)	mg/kg	0.2	MCERTS	0.8	9.4	6	2.2	19
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	1	4.7	1.5	0.6	2.1
Chromium (hexavalent)	mg/kg	1.8	MCERTS	< 1.8	< 1.8	< 1.8	< 1.8	< 1.8
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	54	38	27	25	340
Copper (aqua regia extractable)	mg/kg	1	MCERTS	110	300	94	39	210
Lead (aqua regia extractable)	mg/kg	1	MCERTS	93	320	300	74	240
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	0.6	0.3	< 0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	38	49	26	18	78
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	330	780	560	220	1100
Petroleum Hydrocarbons								
TPHCWG - Aliphatic >C5 - C6 HS_1D_AL	mg/kg	0.02	NONE	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020
TPHCWG - Aliphatic >C6 - C8 HS_1D_AL	mg/kg	0.02	NONE	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020
TPHCWG - Aliphatic >C8 - C10 HS_1D_AL	mg/kg	0.05	NONE	< 0.050	< 0.050	< 0.050	< 0.050###	< 0.050###
TPHCWG - Aliphatic >C10 - C12 EH_CU_1D_AL	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPHCWG - Aliphatic >C12 - C16 EH_CU_1D_AL	mg/kg	2	MCERTS	2.2	3.6	< 2.0	5.9	9
TPHCWG - Aliphatic >C16 - C21 EH_CU_1D_AL	mg/kg	8	MCERTS	< 8.0	9.1	< 8.0	19	26
TPHCWG - Aliphatic >C21 - C35 EH_CU_1D_AL	mg/kg	8	MCERTS	66	55	50	230	230
TPHCWG - Aliphatic >C5 - C35 EH_CU+HS_1D_AL	mg/kg	10	NONE	69	68	50	250#	270#
TPHCWG - Aromatic >EC5 - EC7 HS_1D_AR	mg/kg	0.01	NONE	< 0.010	0.026	< 0.010	< 0.010	< 0.010
TPHCWG - Aromatic >EC7 - EC8 HS_1D_AR	mg/kg	0.01	NONE	< 0.010	0.013	< 0.010	< 0.010	< 0.010
TPHCWG - Aromatic >EC8 - EC10 HS_1D_AR	mg/kg	0.05	NONE	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
TPHCWG - Aromatic >EC10 - EC12 EH_CU_1D_AR	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPHCWG - Aromatic >EC12 - EC16 EH_CU_1D_AR	mg/kg	2	MCERTS	2.8	< 2.0	< 2.0	< 2.0	3.1
TPHCWG - Aromatic >EC16 - EC21 EH_CU_1D_AR	mg/kg	10	MCERTS	< 10	14	10	< 10	18
TPHCWG - Aromatic >EC21 - EC35 EH_CU_1D_AR	mg/kg	10	MCERTS	53	41	36	47	81
TPHCWG - Aromatic >EC5 - EC35 EH_CU+HS_1D_AR	mg/kg	10	NONE	56	55	46	47	100

Analytical Report Number: 24-008072
Project / Site name: Barry Docks
Your Order No: BAR128 691

Lab Sample Number				140460	140461	140462	140463	140464
Sample Reference				WS01	WS02	WS02	WS03	WS04
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.30	0.30-0.50	0.80-0.90	0.30-0.50	0.30-0.40
Date Sampled				07/03/2024	07/03/2024	07/03/2024	07/03/2024	07/03/2024
Time Taken				1140	1230	1235	1350	1445
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
VOCs								
Chloromethane	µg/kg	5	ISO 17025	< 5.0##	< 5.0##	< 5.0##	< 5.0	< 5.0
Chloroethane	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Bromomethane	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Vinyl Chloride	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Trichlorofluoromethane	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,1-Dichloroethene	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,1,2-Trichloro 1,2,2-Trifluoroethane	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Trans 1,2-dichloroethylene	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,1-Dichloroethane	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
2,2-Dichloropropane	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Chloroform	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,1,1-Trichloroethane	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,2-Dichloroethane	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,1-Dichloropropene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Cis-1,2-dichloroethene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Benzene	µg/kg	5	MCERTS	< 5.0	26	< 5.0	< 5.0	< 5.0
Carbontetrachloride	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,2-Dichloropropane	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Trichloroethene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Dibromomethane	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Bromodichloromethane	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Cis-1,3-dichloropropene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Trans-1,3-dichloropropene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Toluene	µg/kg	5	MCERTS	< 5.0	13	< 5.0	< 5.0	< 5.0
1,1,2-Trichloroethane	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,3-Dichloropropane	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Dibromochloromethane	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Tetrachloroethene	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,2-Dibromoethane	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Chlorobenzene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,1,1,2-Tetrachloroethane	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Ethylbenzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
p & m-Xylene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Styrene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Bromoform	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
o-Xylene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Isopropylbenzene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,1,2,2-Tetrachloroethane	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Bromobenzene	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
n-Propylbenzene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
2-Chlorotoluene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
4-Chlorotoluene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,3,5-Trimethylbenzene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
tert-Butylbenzene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,2,4-Trimethylbenzene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
sec-Butylbenzene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,3-Dichlorobenzene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
p-Isopropyltoluene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,4-Dichlorobenzene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,2-Dichlorobenzene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0

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Lab Sample Number				140460	140461	140462	140463	140464
Sample Reference				WS01	WS02	WS02	WS03	WS04
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.30	0.30-0.50	0.80-0.90	0.30-0.50	0.30-0.40
Date Sampled				07/03/2024	07/03/2024	07/03/2024	07/03/2024	07/03/2024
Time Taken				1140	1230	1235	1350	1445
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Butylbenzene	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,2-Dibromo-3-chloropropane	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,2,4-Trichlorobenzene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Hexachlorobutadiene	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,2,3-Trichlorobenzene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
SVOCs								
Aniline	mg/kg	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Phenol	mg/kg	0.2	ISO 17025	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
2-Chlorophenol	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Bis(2-chloroethyl)ether	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
1,3-Dichlorobenzene	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
1,2-Dichlorobenzene	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
1,4-Dichlorobenzene	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Bis(2-chloroisopropyl)ether	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
2-Methylphenol	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Hexachloroethane	mg/kg	0.05	ISO 17025	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Nitrobenzene	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
4-Methylphenol	mg/kg	0.2	NONE	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Isophorone	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
2-Nitrophenol	mg/kg	0.3	NONE	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
2,4-Dimethylphenol	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Bis(2-chloroethoxy)methane	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
1,2,4-Trichlorobenzene	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
2,4-Dichlorophenol	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
4-Chloroaniline	mg/kg	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Hexachlorobutadiene	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
4-Chloro-3-methylphenol	mg/kg	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
2,4,6-Trichlorophenol	mg/kg	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
2,4,5-Trichlorophenol	mg/kg	0.2	NONE	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
2-Methylnaphthalene	mg/kg	0.1	NONE	0.5	0.6	0.5	0.2	< 0.1
2-Chloronaphthalene	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Dimethylphthalate	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
2,6-Dinitrotoluene	mg/kg	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
2,4-Dinitrotoluene	mg/kg	0.2	NONE	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Dibenzofuran	mg/kg	0.2	MCERTS	< 0.2	0.3	< 0.2	< 0.2	< 0.2
4-Chlorophenyl phenyl ether	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Diethyl phthalate	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
4-Nitroaniline	mg/kg	0.2	NONE	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Azobenzene	mg/kg	0.3	NONE	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Bromophenyl phenyl ether	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Hexachlorobenzene	mg/kg	0.3	MCERTS	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30
Carbazole	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Dibutyl phthalate	mg/kg	0.2	NONE	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Anthraquinone	mg/kg	0.3	NONE	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Butyl benzyl phthalate	mg/kg	0.3	NONE	< 0.3	0.6	< 0.3	< 0.3	< 0.3

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Lab Sample Number				140460	140461	140462	140463	140464
Sample Reference				WS01	WS02	WS02	WS03	WS04
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.30	0.30-0.50	0.80-0.90	0.30-0.50	0.30-0.40
Date Sampled				07/03/2024	07/03/2024	07/03/2024	07/03/2024	07/03/2024
Time Taken				1140	1230	1235	1350	1445
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
PCBs by GC-MS								
PCB Congener 28	mg/kg	0.001	MCERTS	< 0.001	0.007	-	< 0.001	0.037
PCB Congener 52	mg/kg	0.001	MCERTS	< 0.001	0.01	-	0.004	0.012
PCB Congener 101	mg/kg	0.001	MCERTS	< 0.001	0.023	-	0.007	0.009
PCB Congener 118	mg/kg	0.001	MCERTS	< 0.001	0.015	-	0.005	0.007
PCB Congener 138	mg/kg	0.001	MCERTS	< 0.001	0.028	-	0.008	0.01
PCB Congener 153	mg/kg	0.001	MCERTS	< 0.001	0.021	-	0.007	0.006
PCB Congener 180	mg/kg	0.001	MCERTS	< 0.001	0.011	-	< 0.001	0.003
Total PCBs	mg/kg	0.007	MCERTS	< 0.007	0.12	-	0.03	0.084

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

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Lab Sample Number				140465	140466	140467	140468	140469
Sample Reference				WS05	WS06	WS06	WS07	WS08
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.10-0.20	0.30-0.80	1.60-1.90	0.30-0.70	0.20-0.70
Date Sampled				07/03/2024	07/03/2024	07/03/2024	07/03/2024	07/03/2024
Time Taken				1300	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Stone Content	%	0.1	NONE	< 0.1	51.9	69	55.5	< 0.1
Moisture Content	%	0.01	NONE	2.1	9.9	6.7	5.8	12
Total mass of sample received	kg	0.1	NONE	1.3	1.3	1.3	0.3	1.3
Asbestos								
Asbestos in Soil Detected/Not Detected	Type	N/A	ISO 17025	Not-detected	Detected	Not-detected	Not-detected	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	MLO	MLO	MLO	MLO	MLO
Actinolite detected	Type	N/A	ISO 17025	-	Not-detected	-	-	-
Amosite detected	Type	N/A	ISO 17025	-	Not-detected	-	-	-
Anthophyllite detected	Type	N/A	ISO 17025	-	Not-detected	-	-	-
Chrysotile detected	Type	N/A	ISO 17025	-	Detected	-	-	-
Crocidolite detected	Type	N/A	ISO 17025	-	Not-detected	-	-	-
Tremolite detected	Type	N/A	ISO 17025	-	Not-detected	-	-	-
Asbestos Containing Material Types Detected (ACM)	Type	N/A	ISO 17025	-	Loose Fibrous Debris	-	-	-
General Inorganics								
pH (L099)	pH Units	N/A	MCERTS	10.5	9.3	9.2	10.6	8.3
Total Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Free Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Water Soluble Sulphate as SO_4 16hr extraction (2:1)	mg/kg	2.5	MCERTS	380	190	140	320	39
Water Soluble SO_4 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	191	92.8	71.4	159	19.4
Sulphide	mg/kg	1	MCERTS	92	5.1	< 1.0	72	5
Elemental Sulphur	mg/kg	5	MCERTS	10	< 5.0	< 5.0	< 5.0	< 5.0
Organic Matter (automated)	%	0.1	MCERTS	3	2	0.7	2.6	0.9
Total Phenols								
Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Speciated PAHs								
Naphthalene	mg/kg	0.05	MCERTS	< 0.05	0.21	< 0.05	7.4	0.24
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	0.13	< 0.05	1	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	0.52	0.57	< 0.05	0.47	< 0.05
Fluorene	mg/kg	0.05	MCERTS	0.51	0.43	< 0.05	0.74	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	1.6	5.4	0.14	3	0.26
Anthracene	mg/kg	0.05	MCERTS	< 0.05	1.5	< 0.05	1.1	0.07
Fluoranthene	mg/kg	0.05	MCERTS	2.8	12	0.09	6.8	0.19
Pyrene	mg/kg	0.05	MCERTS	2.7	11	0.07	5.2	0.14
Benzo(a)anthracene	mg/kg	0.05	MCERTS	1.8	6.5	< 0.05	4.7	< 0.05
Chrysene	mg/kg	0.05	MCERTS	2.2	6.3	< 0.05	4.9	0.09
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	3	6.6	< 0.05	5.7	< 0.05
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	1.5	3.6	< 0.05	2.9	< 0.05
Benzo(a)pyrene	mg/kg	0.05	MCERTS	2.5	7.1	< 0.05	4.6	< 0.05
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	1.8	4	< 0.05	2.7	< 0.05
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	1.1	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	1.9	4.2	< 0.05	2.8	< 0.05
Total PAH								
Speciated Total EPA-16 PAHs	mg/kg	0.8	ISO 17025	22.7	69.6	< 0.80	55.1	0.99

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Lab Sample Number				140465	140466	140467	140468	140469
Sample Reference				WS05	WS06	WS06	WS07	WS08
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.10-0.20	0.30-0.80	1.60-1.90	0.30-0.70	0.20-0.70
Date Sampled				07/03/2024	07/03/2024	07/03/2024	07/03/2024	07/03/2024
Time Taken				1300	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Heavy Metals / Metalloids								
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	7.4	15	4.8	8.3	11
Boron (water soluble)	mg/kg	0.2	MCERTS	4	0.6	2	1.2	0.5
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	1.5	< 0.2	< 0.2	0.6	< 0.2
Chromium (hexavalent)	mg/kg	1.8	MCERTS	< 1.8	< 1.8	< 1.8	< 1.8	< 1.8
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	390	36	20	27	14
Copper (aqua regia extractable)	mg/kg	1	MCERTS	380	37	33	120	22
Lead (aqua regia extractable)	mg/kg	1	MCERTS	220	97	14	110	18
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	32	21	18	19	13
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	700	160	54	220	43
Petroleum Hydrocarbons								
TPHCWG - Aliphatic >C5 - C6 HS_1D_AL	mg/kg	0.02	NONE	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020
TPHCWG - Aliphatic >C6 - C8 HS_1D_AL	mg/kg	0.02	NONE	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020
TPHCWG - Aliphatic >C8 - C10 HS_1D_AL	mg/kg	0.05	NONE	< 0.050###	< 0.050	< 0.050	< 0.050	< 0.050
TPHCWG - Aliphatic >C10 - C12 EH_CU_1D_AL	mg/kg	1	MCERTS	4.5	< 1.0	< 1.0	4	< 1.0
TPHCWG - Aliphatic >C12 - C16 EH_CU_1D_AL	mg/kg	2	MCERTS	150	2.3	< 2.0	15	< 2.0
TPHCWG - Aliphatic >C16 - C21 EH_CU_1D_AL	mg/kg	8	MCERTS	290	8.2	< 8.0	< 8.0	< 8.0
TPHCWG - Aliphatic >C21 - C35 EH_CU_1D_AL	mg/kg	8	MCERTS	510	23	< 8.0	39	< 8.0
TPHCWG - Aliphatic >C5 - C35 EH_CU+HS_1D_AL	mg/kg	10	NONE	960#	33	< 10	58	< 10
TPHCWG - Aromatic >EC5 - EC7 HS_1D_AR	mg/kg	0.01	NONE	< 0.010	< 0.010	< 0.010	< 0.010	0.014
TPHCWG - Aromatic >EC7 - EC8 HS_1D_AR	mg/kg	0.01	NONE	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
TPHCWG - Aromatic >EC8 - EC10 HS_1D_AR	mg/kg	0.05	NONE	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
TPHCWG - Aromatic >EC10 - EC12 EH_CU_1D_AR	mg/kg	1	MCERTS	4.2	< 1.0	< 1.0	5.1	< 1.0
TPHCWG - Aromatic >EC12 - EC16 EH_CU_1D_AR	mg/kg	2	MCERTS	46	3.7	< 2.0	13	< 2.0
TPHCWG - Aromatic >EC16 - EC21 EH_CU_1D_AR	mg/kg	10	MCERTS	89	29	< 10	17	< 10
TPHCWG - Aromatic >EC21 - EC35 EH_CU_1D_AR	mg/kg	10	MCERTS	160	47	< 10	58	< 10
TPHCWG - Aromatic >EC5 - EC35 EH_CU+HS_1D_AR	mg/kg	10	NONE	300	80	< 10	93	< 10

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Lab Sample Number				140465	140466	140467	140468	140469
Sample Reference				WS05	WS06	WS06	WS07	WS08
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.10-0.20	0.30-0.80	1.60-1.90	0.30-0.70	0.20-0.70
Date Sampled				07/03/2024	07/03/2024	07/03/2024	07/03/2024	07/03/2024
Time Taken				1300	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
VOCs								
Chloromethane	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Chloroethane	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Bromomethane	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Vinyl Chloride	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Trichlorofluoromethane	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,1-Dichloroethene	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,1,2-Trichloro 1,2,2-Trifluoroethane	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Trans 1,2-dichloroethylene	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,1-Dichloroethane	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
2,2-Dichloropropane	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Chloroform	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,1,1-Trichloroethane	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,2-Dichloroethane	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,1-Dichloropropene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Cis-1,2-dichloroethene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Benzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	16
Carbontetrachloride	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,2-Dichloropropane	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Trichloroethene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Dibromomethane	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Bromodichloromethane	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Cis-1,3-dichloropropene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Trans-1,3-dichloropropene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Toluene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	9.3
1,1,2-Trichloroethane	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,3-Dichloropropane	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Dibromochloromethane	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Tetrachloroethene	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,2-Dibromoethane	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Chlorobenzene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,1,1,2-Tetrachloroethane	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Ethylbenzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
p & m-Xylene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Styrene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Bromoform	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
o-Xylene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Isopropylbenzene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,1,2,2-Tetrachloroethane	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Bromobenzene	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
n-Propylbenzene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
2-Chlorotoluene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
4-Chlorotoluene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,3,5-Trimethylbenzene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
tert-Butylbenzene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,2,4-Trimethylbenzene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
sec-Butylbenzene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,3-Dichlorobenzene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
p-Isopropyltoluene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,4-Dichlorobenzene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,2-Dichlorobenzene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0

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Project / Site name: Barry Docks
Your Order No: BAR128 691

Lab Sample Number				140465	140466	140467	140468	140469
Sample Reference				WS05	WS06	WS06	WS07	WS08
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.10-0.20	0.30-0.80	1.60-1.90	0.30-0.70	0.20-0.70
Date Sampled				07/03/2024	07/03/2024	07/03/2024	07/03/2024	07/03/2024
Time Taken				1300	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Butylbenzene	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,2-Dibromo-3-chloropropane	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,2,4-Trichlorobenzene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Hexachlorobutadiene	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,2,3-Trichlorobenzene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
SVOCs								
Aniline	mg/kg	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Phenol	mg/kg	0.2	ISO 17025	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
2-Chlorophenol	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Bis(2-chloroethyl)ether	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
1,3-Dichlorobenzene	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
1,2-Dichlorobenzene	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
1,4-Dichlorobenzene	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Bis(2-chloroisopropyl)ether	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
2-Methylphenol	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Hexachloroethane	mg/kg	0.05	ISO 17025	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Nitrobenzene	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
4-Methylphenol	mg/kg	0.2	NONE	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Isophorone	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
2-Nitrophenol	mg/kg	0.3	NONE	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
2,4-Dimethylphenol	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Bis(2-chloroethoxy)methane	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
1,2,4-Trichlorobenzene	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
2,4-Dichlorophenol	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
4-Chloroaniline	mg/kg	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Hexachlorobutadiene	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
4-Chloro-3-methylphenol	mg/kg	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
2,4,6-Trichlorophenol	mg/kg	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
2,4,5-Trichlorophenol	mg/kg	0.2	NONE	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
2-Methylnaphthalene	mg/kg	0.1	NONE	0.3	0.2	< 0.1	2.3	< 0.1
2-Chloronaphthalene	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Dimethylphthalate	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
2,6-Dinitrotoluene	mg/kg	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
2,4-Dinitrotoluene	mg/kg	0.2	NONE	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Dibenzofuran	mg/kg	0.2	MCERTS	< 0.2	0.2	< 0.2	0.7	< 0.2
4-Chlorophenyl phenyl ether	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Diethyl phthalate	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
4-Nitroaniline	mg/kg	0.2	NONE	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Azobenzene	mg/kg	0.3	NONE	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Bromophenyl phenyl ether	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Hexachlorobenzene	mg/kg	0.3	MCERTS	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30
Carbazole	mg/kg	0.3	MCERTS	< 0.3	0.3	< 0.3	< 0.3	< 0.3
Dibutyl phthalate	mg/kg	0.2	NONE	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Anthraquinone	mg/kg	0.3	NONE	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Butyl benzyl phthalate	mg/kg	0.3	NONE	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3

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Your Order No: BAR128 691

Lab Sample Number				140465	140466	140467	140468	140469
Sample Reference				WS05	WS06	WS06	WS07	WS08
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.10-0.20	0.30-0.80	1.60-1.90	0.30-0.70	0.20-0.70
Date Sampled				07/03/2024	07/03/2024	07/03/2024	07/03/2024	07/03/2024
Time Taken				1300	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
PCBs by GC-MS								
PCB Congener 28	mg/kg	0.001	MCERTS	< 0.001	< 0.001	-	< 0.001	< 0.001
PCB Congener 52	mg/kg	0.001	MCERTS	< 0.001	< 0.001	-	0.003	< 0.001
PCB Congener 101	mg/kg	0.001	MCERTS	0.007	< 0.001	-	0.005	< 0.001
PCB Congener 118	mg/kg	0.001	MCERTS	0.006	< 0.001	-	0.005	< 0.001
PCB Congener 138	mg/kg	0.001	MCERTS	0.008	< 0.001	-	0.008	< 0.001
PCB Congener 153	mg/kg	0.001	MCERTS	0.006	< 0.001	-	0.006	< 0.001
PCB Congener 180	mg/kg	0.001	MCERTS	< 0.001	< 0.001	-	< 0.001	< 0.001
Total PCBs	mg/kg	0.007	MCERTS	0.026	< 0.007	-	0.027	< 0.007

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

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Project / Site name: Barry Docks

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Lab Sample Number				140451	140452	140453	140454	140455
Sample Reference				DOCK	WS01	WS02	WS03	WS04
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled				07/03/2024	07/03/2024	07/03/2024	07/03/2024	07/03/2024
Time Taken				1135	1215	1250	1400	1435
Analytical Parameter (Water Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
General Inorganics								
pH (L099)	pH Units	N/A	ISO 17025	8.4	7.2	7.8	7.4	8
Total Cyanide (Low Level 1 µg/l)	µg/l	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Free Cyanide (Low Level 1 µg/l)	µg/l	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Sulphate as SO_4	mg/l	0.045	ISO 17025	1360	10.4	269	22.7	7.57
Sulphide	µg/l	5	NONE	< 5.0	< 5.0	5	< 5.0	< 5.0
Total Phenols								
Total Phenols (Monohydric) Low Level 1ug/l	µg/l	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Speciated PAHs								
Naphthalene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Acenaphthylene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	0.12	< 0.01	< 0.01
Acenaphthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	2.7	< 0.01	3.9
Fluorene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	0.82	< 0.01	0.48
Phenanthrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	1.8	0.23	0.09
Anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	0.69	< 0.01	0.1
Fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	2.6	0.35	0.28
Pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	1.8	0.3	0.17
Benzo(a)anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	0.88	0.17	< 0.01
Chrysene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	1.2	0.2	< 0.01
Benzo(b)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	1.4	0.24	< 0.01
Benzo(k)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	0.38	0.08	< 0.01
Benzo(a)pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	0.9	0.18	< 0.01
Indeno(1,2,3-cd)pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	0.46	0.09	< 0.01
Dibenz(a,h)anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	0.18	< 0.01	< 0.01
Benzo(ghi)perylene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	0.49	0.1	< 0.01
Total PAH								
Total EPA-16 PAHs	µg/l	0.16	ISO 17025	< 0.16	< 0.16	16.4	1.94	4.99

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Project / Site name: Barry Docks

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Lab Sample Number				140451	140452	140453	140454	140455
Sample Reference				DOCK	WS01	WS02	WS03	WS04
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled				07/03/2024	07/03/2024	07/03/2024	07/03/2024	07/03/2024
Time Taken				1135	1215	1250	1400	1435
Analytical Parameter (Water Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Heavy Metals / Metalloids								
Arsenic (dissolved)	µg/l	0.15	ISO 17025	2.04	6.27	12.1	3.17	17.7
Cadmium (dissolved)	µg/l	0.02	ISO 17025	< 0.02	0.03	< 0.02	< 0.02	0.02
Chromium (dissolved)	µg/l	0.2	ISO 17025	0.9	< 0.2	0.3	0.2	0.4
Copper (dissolved)	µg/l	0.5	ISO 17025	3.5	1.2	1.7	0.7	3.7
Lead (dissolved)	µg/l	0.2	ISO 17025	< 0.2	0.3	0.5	0.6	0.4
Mercury (dissolved)	µg/l	0.05	ISO 17025	< 0.05	0.08	< 0.05	< 0.05	< 0.05
Nickel (dissolved)	µg/l	0.5	ISO 17025	0.5	3.3	3.3	2.5	3
Selenium (dissolved)	µg/l	0.6	ISO 17025	-	< 0.6	3.3	2.4	-
Zinc (dissolved)	µg/l	0.5	ISO 17025	3.9	23	3.8	2.8	7.2
Boron (dissolved)	µg/l	10	ISO 17025	1500	1100	4700	670	2400
Chromium (hexavalent)	µg/l	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Selenium (dissolved)	µg/l	4	ISO 17025	< 4.0	-	-	-	< 4.0
Petroleum Hydrocarbons								
TPH - Aliphatic >C5 - C6 $_{HS\_1D\_AL}$	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH - Aliphatic >C6 - C8 $_{HS\_1D\_AL}$	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH - Aliphatic >C8 - C10 $_{HS\_1D\_AL}$	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH - Aliphatic >C10 - C12 $_{EH\_1D\_AL\_MS}$	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH - Aliphatic >C12 - C16 $_{EH\_1D\_AL\_MS}$	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH - Aliphatic >C16 - C21 $_{EH\_1D\_AL\_MS}$	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH - Aliphatic >C21 - C35 $_{EH\_1D\_AL\_MS}$	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH - Aliphatic >C5 - C35 $_{HS+EH\_1D\_AL\_MS}$	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH - Aromatic >EC5 - EC7 $_{HS\_1D\_AR}$	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH - Aromatic >EC7 - EC8 $_{HS\_1D\_AR}$	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH - Aromatic >EC8 - EC10 $_{HS\_1D\_AR}$	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH - Aromatic >EC10 - EC12 $_{EH\_1D\_AR\_MS}$	µg/l	10	NONE	< 10	< 10	15	< 10	< 10
TPH - Aromatic >EC12 - EC16 $_{EH\_1D\_AR\_MS}$	µg/l	10	NONE	< 10	< 10	70	< 10	40
TPH - Aromatic >EC16 - EC21 $_{EH\_1D\_AR\_MS}$	µg/l	10	NONE	< 10	< 10	90	< 10	40
TPH - Aromatic >EC21 - EC35 $_{EH\_1D\_AR\_MS}$	µg/l	10	NONE	< 10	< 10	60	< 10	< 10
TPH - Aromatic >EC5 - EC35 $_{HS+EH\_1D\_AR\_MS}$	µg/l	10	NONE	< 10	< 10	240	< 10	80

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Project / Site name: Barry Docks

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Lab Sample Number				140451	140452	140453	140454	140455
Sample Reference				DOCK	WS01	WS02	WS03	WS04
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled				07/03/2024	07/03/2024	07/03/2024	07/03/2024	07/03/2024
Time Taken				1135	1215	1250	1400	1435
Analytical Parameter (Water Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
VOCs								
Chloromethane	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
Chloroethane	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
Bromomethane	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
Vinyl Chloride	µg/l	3	NONE	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
Trichlorofluoromethane	µg/l	3	NONE	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
1,1-Dichloroethene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
1,1,2-Trichloro-1,2,2-trifluoroethane	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
Trans 1,2-dichloroethylene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
MTBE (Methyl Tertiary Butyl Ether)	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
1,1-Dichloroethane	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
2,2-Dichloropropane	µg/l	3	NONE	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
Chloroform	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
1,1,1-Trichloroethane	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
1,2-Dichloroethane	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
1,1-Dichloropropene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
Cis-1,2-dichloroethene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
Benzene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
Carbontetrachloride	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
1,2-Dichloropropane	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
Trichloroethene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
Dibromomethane	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
Bromodichloromethane	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
Cis-1,3-dichloropropene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
Trans-1,3-dichloropropene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
Toluene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
1,1,2-Trichloroethane	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
1,3-Dichloropropane	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
Dibromochloromethane	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
Tetrachloroethene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
1,2-Dibromoethane	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
Chlorobenzene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
1,1,1,2-Tetrachloroethane	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
Ethylbenzene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
p & m-xylene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
Styrene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
Bromoform	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
o-xylene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
Isopropylbenzene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
1,1,2,2-Tetrachloroethane	µg/l	3	NONE	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
Bromobenzene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
n-Propylbenzene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
2-Chlorotoluene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
4-Chlorotoluene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
1,3,5-Trimethylbenzene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
tert-Butylbenzene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
1,2,4-Trimethylbenzene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
sec-Butylbenzene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
1,3-Dichlorobenzene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
p-Isopropyltoluene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
1,4-Dichlorobenzene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
1,2-Dichlorobenzene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0

Analytical Report Number: 24-008072
Project / Site name: Barry Docks

Your Order No: BAR128 691

Lab Sample Number				140451	140452	140453	140454	140455
Sample Reference				DOCK	WS01	WS02	WS03	WS04
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled				07/03/2024	07/03/2024	07/03/2024	07/03/2024	07/03/2024
Time Taken				1135	1215	1250	1400	1435
Analytical Parameter (Water Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Butylbenzene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
1,2-Dibromo-3-chloropropane	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
1,2,4-Trichlorobenzene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
Hexachlorobutadiene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
1,2,3-Trichlorobenzene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
SVOCs								
Aniline	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Phenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
2-Chlorophenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Bis(2-chloroethyl)ether	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
1,3-Dichlorobenzene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
1,2-Dichlorobenzene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
1,4-Dichlorobenzene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Bis(2-chloroisopropyl)ether	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
2-Methylphenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Hexachloroethane	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Nitrobenzene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
4-Methylphenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Isophorone	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
2-Nitrophenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
2,4-Dimethylphenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Bis(2-chloroethoxy)methane	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
1,2,4-Trichlorobenzene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
2,4-Dichlorophenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
4-Chloroaniline	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Hexachlorobutadiene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
4-Chloro-3-methylphenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
2,4,6-Trichlorophenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
2,4,5-Trichlorophenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
2-Methylnaphthalene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	0.24
2-Chloronaphthalene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Dimethylphthalate	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
2,6-Dinitrotoluene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
2,4-Dinitrotoluene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Dibenzofuran	µg/l	0.05	NONE	< 0.05	< 0.05	0.43	< 0.05	0.66
4-Chlorophenyl phenyl ether	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Diethyl phthalate	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
4-Nitroaniline	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Azobenzene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Bromophenyl phenyl ether	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Hexachlorobenzene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Carbazole	µg/l	0.05	NONE	< 0.05	< 0.05	0.37	< 0.05	< 0.05
Dibutyl phthalate	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Anthraquinone	µg/l	0.05	NONE	< 0.05	< 0.05	0.34	< 0.05	< 0.05
Butyl benzyl phthalate	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
3+4-Methylphenol	µg/l	0.1	NONE	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

Analytical Report Number: 24-008072
Project / Site name: Barry Docks

Your Order No: BAR128 691

Lab Sample Number				140456	140457	140458	140459
Sample Reference				WS05	WS06	WS07	WS08
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled				07/03/2024	07/03/2024	07/03/2024	07/03/2024
Time Taken				1315	None Supplied	None Supplied	None Supplied
Analytical Parameter (Water Analysis)	**Units**	**Limit of detection**	**Accreditation Status**				
General Inorganics							
pH (L099)	pH Units	N/A	ISO 17025	7.7	8.4	I/S	11.4
Total Cyanide (Low Level 1 µg/l)	µg/l	1	NONE	< 1.0	< 1.0	I/S	< 1.0
Free Cyanide (Low Level 1 µg/l)	µg/l	1	NONE	< 1.0	< 1.0	I/S	< 1.0
Sulphate as SO_4	mg/l	0.045	ISO 17025	40.3	64.8	155	166
Sulphide	µg/l	5	NONE	< 5.0	< 5.0	9.3	18
Total Phenols							
Total Phenols (Monohydric) Low Level 1ug/l	µg/l	1	NONE	< 1.0	< 1.0	I/S	< 1.0
Speciated PAHs							
Naphthalene	µg/l	0.01	ISO 17025	0.43	< 0.01	I/S	< 0.01
Acenaphthylene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	I/S	< 0.01
Acenaphthene	µg/l	0.01	ISO 17025	0.27	< 0.01	I/S	< 0.01
Fluorene	µg/l	0.01	ISO 17025	0.16	< 0.01	I/S	< 0.01
Phenanthrene	µg/l	0.01	ISO 17025	0.27	< 0.01	I/S	< 0.01
Anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	I/S	< 0.01
Fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	I/S	< 0.01
Pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	I/S	< 0.01
Benzo(a)anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	I/S	< 0.01
Chrysene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	I/S	< 0.01
Benzo(b)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	I/S	< 0.01
Benzo(k)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	I/S	< 0.01
Benzo(a)pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	I/S	< 0.01
Indeno(1,2,3-cd)pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	I/S	< 0.01
Dibenz(a,h)anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	I/S	< 0.01
Benzo(ghi)perylene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	I/S	< 0.01
Total PAH							
Total EPA-16 PAHs	µg/l	0.16	ISO 17025	1.13	< 0.16	I/S	< 0.16

Analytical Report Number: 24-008072
Project / Site name: Barry Docks

Your Order No: BAR128 691

Lab Sample Number				140456	140457	140458	140459
Sample Reference				WS05	WS06	WS07	WS08
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled				07/03/2024	07/03/2024	07/03/2024	07/03/2024
Time Taken				1315	None Supplied	None Supplied	None Supplied
Analytical Parameter (Water Analysis)	**Units**	**Limit of detection**	**Accreditation Status**				
Heavy Metals / Metalloids							
Arsenic (dissolved)	µg/l	0.15	ISO 17025	15.3	4.59	8	10.1
Cadmium (dissolved)	µg/l	0.02	ISO 17025	0.03	< 0.02	< 0.02	0.03
Chromium (dissolved)	µg/l	0.2	ISO 17025	0.4	1.5	0.7	2.1
Copper (dissolved)	µg/l	0.5	ISO 17025	1.9	2.7	2	57
Lead (dissolved)	µg/l	0.2	ISO 17025	< 0.2	< 0.2	< 0.2	< 0.2
Mercury (dissolved)	µg/l	0.05	ISO 17025	< 0.05	< 0.05	< 0.05	< 0.05
Nickel (dissolved)	µg/l	0.5	ISO 17025	5.4	0.7	1	4.2
Selenium (dissolved)	µg/l	0.6	ISO 17025	6.9	2.2	2.9	5.6
Zinc (dissolved)	µg/l	0.5	ISO 17025	19	1.8	1.1	1.2
Boron (dissolved)	µg/l	10	ISO 17025	1600	290	380	200
Chromium (hexavalent)	µg/l	5	ISO 17025	< 5.0	< 5.0	I/S	< 5.0
Selenium (dissolved)	µg/l	4	ISO 17025	-	-	-	-
Petroleum Hydrocarbons							
TPH - Aliphatic >C5 - C6 $_{HS\_1D\_AL}$	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
TPH - Aliphatic >C6 - C8 $_{HS\_1D\_AL}$	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
TPH - Aliphatic >C8 - C10 $_{HS\_1D\_AL}$	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
TPH - Aliphatic >C10 - C12 $_{EH\_1D\_AL\_MS}$	µg/l	10	NONE	< 10	< 10	I/S	< 10
TPH - Aliphatic >C12 - C16 $_{EH\_1D\_AL\_MS}$	µg/l	10	NONE	< 10	< 10	I/S	< 10
TPH - Aliphatic >C16 - C21 $_{EH\_1D\_AL\_MS}$	µg/l	10	NONE	< 10	< 10	I/S	< 10
TPH - Aliphatic >C21 - C35 $_{EH\_1D\_AL\_MS}$	µg/l	10	NONE	< 10	< 10	I/S	< 10
TPH - Aliphatic >C5 - C35 $_{HS+EH\_1D\_AL\_MS}$	µg/l	10	NONE	< 10	< 10	< 10	< 10
TPH - Aromatic >EC5 - EC7 $_{HS\_1D\_AR}$	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
TPH - Aromatic >EC7 - EC8 $_{HS\_1D\_AR}$	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
TPH - Aromatic >EC8 - EC10 $_{HS\_1D\_AR}$	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
TPH - Aromatic >EC10 - EC12 $_{EH\_1D\_AR\_MS}$	µg/l	10	NONE	24	< 10	I/S	< 10
TPH - Aromatic >EC12 - EC16 $_{EH\_1D\_AR\_MS}$	µg/l	10	NONE	50	< 10	I/S	< 10
TPH - Aromatic >EC16 - EC21 $_{EH\_1D\_AR\_MS}$	µg/l	10	NONE	40	< 10	I/S	< 10
TPH - Aromatic >EC21 - EC35 $_{EH\_1D\_AR\_MS}$	µg/l	10	NONE	< 10	< 10	I/S	< 10
TPH - Aromatic >EC5 - EC35 $_{HS+EH\_1D\_AR\_MS}$	µg/l	10	NONE	110	< 10	< 10	< 10

Analytical Report Number: 24-008072
Project / Site name: Barry Docks

Your Order No: BAR128 691

Lab Sample Number				140456	140457	140458	140459
Sample Reference				WS05	WS06	WS07	WS08
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled				07/03/2024	07/03/2024	07/03/2024	07/03/2024
Time Taken				1315	None Supplied	None Supplied	None Supplied
Analytical Parameter (Water Analysis)	**Units**	**Limit of detection**	**Accreditation Status**				
VOCs							
Chloromethane	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0
Chloroethane	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0
Bromomethane	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0
Vinyl Chloride	µg/l	3	NONE	< 3.0	< 3.0	< 3.0	< 3.0
Trichlorofluoromethane	µg/l	3	NONE	< 3.0	< 3.0	< 3.0	< 3.0
1,1-Dichloroethene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0
1,1,2-Trichloro-1,2,2-trifluoroethane	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0
Trans 1,2-dichloroethylene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0
MTBE (Methyl Tertiary Butyl Ether)	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0
1,1-Dichloroethane	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0
2,2-Dichloropropane	µg/l	3	NONE	< 3.0	< 3.0	< 3.0	< 3.0
Chloroform	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0
1,1,1-Trichloroethane	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0
1,2-Dichloroethane	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0
1,1-Dichloropropene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0
Cis-1,2-dichloroethene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0
Benzene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0
Carbontetrachloride	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0
1,2-Dichloropropane	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0
Trichloroethene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0
Dibromomethane	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0
Bromodichloromethane	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0
Cis-1,3-dichloropropene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0
Trans-1,3-dichloropropene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0
Toluene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0
1,1,2-Trichloroethane	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0
1,3-Dichloropropane	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0
Dibromochloromethane	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0
Tetrachloroethene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0
1,2-Dibromoethane	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0
Chlorobenzene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0
1,1,1,2-Tetrachloroethane	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0
Ethylbenzene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0
p & m-xylene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0
Styrene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0
Bromoform	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0
o-xylene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0
Isopropylbenzene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0
1,1,2,2-Tetrachloroethane	µg/l	3	NONE	< 3.0	< 3.0	< 3.0	< 3.0
Bromobenzene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0
n-Propylbenzene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0
2-Chlorotoluene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0
4-Chlorotoluene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0
1,3,5-Trimethylbenzene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0
tert-Butylbenzene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0
1,2,4-Trimethylbenzene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0
sec-Butylbenzene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0
1,3-Dichlorobenzene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0
p-Isopropyltoluene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0
1,4-Dichlorobenzene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0
1,2-Dichlorobenzene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0

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Lab Sample Number				140456	140457	140458	140459
Sample Reference				WS05	WS06	WS07	WS08
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled				07/03/2024	07/03/2024	07/03/2024	07/03/2024
Time Taken				1315	None Supplied	None Supplied	None Supplied
Analytical Parameter (Water Analysis)	**Units**	**Limit of detection**	**Accreditation Status**				
Butylbenzene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0
1,2-Dibromo-3-chloropropane	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0
1,2,4-Trichlorobenzene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0
Hexachlorobutadiene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0
1,2,3-Trichlorobenzene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0

SVOCs

Aniline	µg/l	0.05	NONE	< 0.05	< 0.05	I/S	< 0.05
Phenol	µg/l	0.05	NONE	< 0.05	< 0.05	I/S	< 0.05
2-Chlorophenol	µg/l	0.05	NONE	< 0.05	< 0.05	I/S	< 0.05
Bis(2-chloroethyl)ether	µg/l	0.05	NONE	< 0.05	< 0.05	I/S	< 0.05
1,3-Dichlorobenzene	µg/l	0.05	NONE	< 0.05	< 0.05	I/S	< 0.05
1,2-Dichlorobenzene	µg/l	0.05	NONE	< 0.05	< 0.05	I/S	< 0.05
1,4-Dichlorobenzene	µg/l	0.05	NONE	< 0.05	< 0.05	I/S	< 0.05
Bis(2-chloroisopropyl)ether	µg/l	0.05	NONE	< 0.05	< 0.05	I/S	< 0.05
2-Methylphenol	µg/l	0.05	NONE	< 0.05	< 0.05	I/S	< 0.05
Hexachloroethane	µg/l	0.05	NONE	< 0.05	< 0.05	I/S	< 0.05
Nitrobenzene	µg/l	0.05	NONE	< 0.05	< 0.05	I/S	< 0.05
4-Methylphenol	µg/l	0.05	NONE	< 0.05	< 0.05	I/S	< 0.05
Isophorone	µg/l	0.05	NONE	< 0.05	< 0.05	I/S	< 0.05
2-Nitrophenol	µg/l	0.05	NONE	< 0.05	< 0.05	I/S	< 0.05
2,4-Dimethylphenol	µg/l	0.05	NONE	< 0.05	< 0.05	I/S	< 0.05
Bis(2-chloroethoxy)methane	µg/l	0.05	NONE	< 0.05	< 0.05	I/S	< 0.05
1,2,4-Trichlorobenzene	µg/l	0.05	NONE	< 0.05	< 0.05	I/S	< 0.05
2,4-Dichlorophenol	µg/l	0.05	NONE	< 0.05	< 0.05	I/S	< 0.05
4-Chloroaniline	µg/l	0.05	NONE	< 0.05	< 0.05	I/S	< 0.05
Hexachlorobutadiene	µg/l	0.05	NONE	< 0.05	< 0.05	I/S	< 0.05
4-Chloro-3-methylphenol	µg/l	0.05	NONE	< 0.05	< 0.05	I/S	< 0.05
2,4,6-Trichlorophenol	µg/l	0.05	NONE	< 0.05	< 0.05	I/S	< 0.05
2,4,5-Trichlorophenol	µg/l	0.05	NONE	< 0.05	< 0.05	I/S	< 0.05
2-Methylnaphthalene	µg/l	0.05	NONE	< 0.05	< 0.05	I/S	< 0.05
2-Chloronaphthalene	µg/l	0.05	NONE	< 0.05	< 0.05	I/S	< 0.05
Dimethylphthalate	µg/l	0.05	NONE	< 0.05	< 0.05	I/S	< 0.05
2,6-Dinitrotoluene	µg/l	0.05	NONE	< 0.05	< 0.05	I/S	< 0.05
2,4-Dinitrotoluene	µg/l	0.05	NONE	< 0.05	< 0.05	I/S	< 0.05
Dibenzofuran	µg/l	0.05	NONE	< 0.05	< 0.05	I/S	< 0.05
4-Chlorophenyl phenyl ether	µg/l	0.05	NONE	< 0.05	< 0.05	I/S	< 0.05
Diethyl phthalate	µg/l	0.05	NONE	< 0.05	< 0.05	I/S	< 0.05
4-Nitroaniline	µg/l	0.05	NONE	< 0.05	< 0.05	I/S	< 0.05
Azobenzene	µg/l	0.05	NONE	< 0.05	< 0.05	I/S	< 0.05
Bromophenyl phenyl ether	µg/l	0.05	NONE	< 0.05	< 0.05	I/S	< 0.05
Hexachlorobenzene	µg/l	0.05	NONE	< 0.05	< 0.05	I/S	< 0.05
Carbazole	µg/l	0.05	NONE	< 0.05	< 0.05	I/S	< 0.05
Dibutyl phthalate	µg/l	0.05	NONE	< 0.05	< 0.05	I/S	< 0.05
Anthraquinone	µg/l	0.05	NONE	< 0.05	< 0.05	I/S	< 0.05
Butyl benzyl phthalate	µg/l	0.05	NONE	< 0.05	< 0.05	I/S	< 0.05

3+4-Methylphenol	µg/l	0.1	NONE	< 0.10	< 0.10	I/S	< 0.10

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

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* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
140460	WS01	None Supplied	0.3	Brown loam with stones
140461	WS02	None Supplied	0.30-0.50	Brown loam and gravel
140462	WS02	None Supplied	0.80-0.90	Brown loam and clay with gravel and stones
140463	WS03	None Supplied	0.30-0.50	Brown clay and sand with gravel
140464	WS04	None Supplied	0.30-0.40	Brown loam and sand with gravel and stones
140465	WS05	None Supplied	0.10-0.20	Brown loam with gravel and vegetation
140466	WS06	None Supplied	0.30-0.80	Brown loam and sand with brick and stones
140467	WS06	None Supplied	1.60-1.90	Brown loam and sand with brick and stones
140468	WS07	None Supplied	0.30-0.70	Brown loam and sand with gravel and tar
140469	WS08	None Supplied	0.20-0.70	Brown loam and clay with gravel and vegetation

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Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Asbestos identification in Soil	Asbestos Identification with the use of polarised light microscopy in conjunction with dispersion staining techniques	In-house method based on HSG 248, 2021	A001B	D	ISO 17025
Organic matter (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate (Walkley Black Method)	In-house method	L009B	D	MCERTS
Sulphide in soil	Determination of sulphide in soil by acidification and heating to liberate hydrogen sulphide, trapped in an alkaline solution then assayed by ion selective electrode	In-house method	L010	D	MCERTS
Metals in water by ICP-MS (dissolved)	Determination of metals in water by acidification followed by ICP-MS. Accredited Matrices: SW, GW, PW except B=SW,GW, Hg=SW,PW, Al=SW,PW	In-house method based on USEPA Method 6020 & 200.8 for the determination of trace elements in water by ICP-MS	L012B	W	ISO 17025
Moisture Content	Moisture content, determined gravimetrically (up to 30°C)	In-house method	L019B	W	NONE
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight	In-house method based on British Standard Methods and MCERTS requirements.	L019B	D	NONE
Elemental sulphur in soil	Determination of elemental sulphur in soil by extraction in acetonitrile followed by HPLC	In-house method based on Secondsite Property Holdings Guidance for Assessing and Managing Potential	L021B	D	MCERTS
PCB's By GC-MS in soil	Determination of PCB by extraction with hexane followed by GC-MS	In-house method based on USEPA 8082	L027B	D	MCERTS
Sulphide in water	Determination of sulphide in water by ion selective electrode	In-house method	L029	W	NONE
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil	L038B	D	MCERTS
Boron, water soluble, in soil	Determination of water soluble boron in soil by hot water extract followed by ICP-OES	In-house method based on Second Site Properties version 3	L038B	D	MCERTS
Sulphate, water soluble, in soil (16hr extraction)	Sulphate, water soluble, in soil (16hr extraction)	In-house method	L038B	D	MCERTS
Metals in water by ICP-OES (dissolved)	Determination of metals in water by acidification followed by ICP-OES. Accredited Matrices: SW, GW, PW, PrW (Al, Cu, Fe,Zn)	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil	L039B	W	ISO 17025
Speciated EPA-16 PAHs and/or Semi-volatile organic compounds in soil	Determination of semi-volatile organic compounds (including PAH) in soil by extraction in dichloromethane and hexane followed by GC-MS	In-house method based on USEPA 8270	L064B	D	MCERTS
Total petroleum hydrocarbons with carbon banding by GC-MS in water	Determination of total petroleum hydrocarbons in water by GC-MS/GC-MS HS with carbon banding aliphatic and aromatic	In-house method	L070B	W	NONE
BTEX and/or Volatile organic compounds in soil	Determination of volatile organic compounds in soil by headspace GC-MS	In-house method based on USEPA 8260	L073B	W	MCERTS

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Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
BTEX and/or Volatile organic compounds in water	Determination of volatile organic compounds in water by headspace GC-MS. Accredited matrices: SW PW GW	In-house method based on USEPA 8260	L073B	W	ISO 17025
Total petroleum hydrocarbons with carbon banding by GC-FID/GC-MS HS in soil	Determination of total petroleum hydrocarbons in soil by GC-FID/GC-MS HS with carbon banding aliphatic and aromatic	In-house method	L076B/L088	D/W	MCERTS
Hexavalent chromium in soil	Determination of hexavalent chromium in soil by extraction in NaOH and addition of 1,5 diphenylcarbazide followed by colorimetry	In-house method	L080	W	MCERTS
Hexavalent chromium in water	Determination of hexavalent chromium in water by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry	In-house method by continuous flow analyser. Accredited Matrices SW, GW, PW	L080	W	ISO 17025
Free cyanide (low level) in water	Determination of free cyanide by distillation followed by colorimetry.Accredited matrices SW, GW, PW	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080	W	NONE
Free cyanide in soil	Determination of free cyanide by distillation followed by colorimetry	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080	W	MCERTS
Monohydric phenols (low level) in water	Determination of phenols in water by continuous flow analyser. Accredited matrices: SW PW GW	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080	W	NONE
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080	W	MCERTS
Total cyanide (low level) in water	Determination of total cyanide by distillation followed by colorimetry. Accredited matrices: SW PW GW	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080	W	NONE
Total cyanide in soil	Determination of total cyanide by distillation followed by colorimetry	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080	W	MCERTS
Total petroleum hydrocarbons by GC-MS HS in water	Determination of total petroleum hydrocarbons in water by GC-MS HS	In-house method	L088	W	ISO 17025
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement	In-house method	L099	D	MCERTS
pH at 20°C in water (automated)	Determination of pH in water by electrometric measurement. Accredited matrices: SW PW GW	In-house method	L099	W	ISO 17025
Speciated EPA-16 PAHs and/or Semi-volatile organic compounds in water	Determination of semi-volatile organic compounds (including PAH) in leachate by extraction in dichloromethane followed by GC-MS	In-house method based on USEPA 8270	L102B	W	ISO 17025
Phenols in water by GC-MS	Determination of phenols in water by GC-MS	In-house method	L102B	W	NONE

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Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Sulphate in water	Determination of sulphate in water after filtration by acidification followed by ICP-OES. Accredited Matrices SW, GW, PW	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil	L039B	W	ISO 17025

For method numbers ending in 'UK' or 'A' analysis have been carried out in our laboratory in the United Kingdom (Watford).
For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).
For method numbers ending in 'PL' or 'B' analysis have been carried out in our laboratory in Poland.
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.
Unless otherwise indicated, site information, order number, project number, sampling date, time, sample reference and depth are provided by the client. The instructed on date indicates the date on which this information was provided to the laboratory.

Information in Support of Analytical Results

List of HWOL Acronyms and Operators

Acronym	Descriptions
HS	Headspace Analysis
MS	Mass spectrometry
FID	Flame Ionisation Detector
GC	Gas Chromatography
EH	Extractable Hydrocarbons (i.e. everything extracted by the solvent(s))
CU	Clean-up - e.g. by Florisil®, silica gel
1D	GC - Single coil/column gas chromatography
2D	GC-GC - Double coil/column gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics
AR	Aromatics
#1	EH_2D_Total but with humics mathematically subtracted
#2	EH_2D_Total but with fatty acids mathematically subtracted
_	Operator - understore to separate acronyms (exception for +)
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total

- Data reported unaccredited due to quality control parameter failure associated with this result; other checks applied prior to reporting the data have been accepted. The result should be considered as being deviating and may be compromised
- Quality control parameter has a high recovery (outside of limit); however the associated result is below the reporting limit, other checks applied prior to reporting the data have been accepted. The result should be considered as being deviating and may be compromised
- Quality control parameter failure associated with this result; other checks applied prior to reporting the data have been accepted. The result should be considered as being deviating and may be compromised.

Sample Deviation Report

Analytical Report Number : 24-008072
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This deviation report indicates the sample and test deviations that apply to the samples submitted for analysis.Please note that the associated result(s) may be unreliable and should be interpreted with care.

Key: a - No sampling date b - Incorrect container c - Holding time d - Headspace e - Temperature

Sample ID	Other ID	Sample Type	Lab Sample Number	Sample Deviation	Test Name	Test Ref	Test Deviation
DOCK	N/A	W	140451	c	pH at 20°C in water (automated)	L099	c
WS01	N/A	W	140452	bc	BTEX and/or Volatile organic compounds in water	L073B	b
WS01	N/A	W	140452	bc	pH at 20°C in water (automated)	L099	c
WS02	N/A	W	140453	c	pH at 20°C in water (automated)	L099	c
WS03	N/A	W	140454	c	pH at 20°C in water (automated)	L099	c
WS04	N/A	W	140455	c	pH at 20°C in water (automated)	L099	c
WS05	N/A	W	140456	bc	BTEX and/or Volatile organic compounds in water	L073B	b
WS05	N/A	W	140456	bc	pH at 20°C in water (automated)	L099	c
WS06	N/A	W	140457	c	pH at 20°C in water (automated)	L099	c
WS07	N/A	W	140458	bc	Phenols in water by GC-MS	L102B	b
WS07	N/A	W	140458	bc	Speciated EPA-16 PAHs and/or Semi-volatile organic compounds in water	L102B	b
WS07	N/A	W	140458	bc	pH at 20°C in water (automated)	L099	c
WS08	N/A	W	140459	c	pH at 20°C in water (automated)	L099	c

APPENDIX G – R&D66 Qualitative Risk Assessment

Annex 4
Qualitative risk assessment

A4.1 Context

CIRIA RP599 Contaminated Land Risk Assessment Guide, provides a guide to good practice in assessing risks from contaminated land. This distinguishes between the processes of:

- **Risk estimation** – process of estimating risk that defined receptors will suffer harm.
- **Risk evaluation** – process of evaluating need for risk management action, with regard to magnitude of risks the level of uncertainty and, if remedial action is need the objectives and broad costs and benefits.

At Phase 1 the **risk estimation** will take the form of a qualitative risk assessment, which will be entirely based on the conceptual model for each potential end-use of the site. Comments on level of uncertainty will also need to be included for each source-pathway-target linkage to allow the confidence in the assessed risks to be understood. The results of the qualitative risk assessment will allow the **risk evaluation** to be concisely described in the following chapters.

At Phase 2 (or later stages) the **risk estimation** will comprise a number of sequential steps all based on the conceptual model:

1. Interpretation of site investigation data with respect to relevant generic assessment criteria (Tier 1);
2. Interpretation of site investigation data with respect to site specific assessment criteria if appropriate (Tier 2);
3. Site specific qualitative risk assessment including input from Tier 1 and Tier 2 [this procedure].

Comments on level of uncertainty will also be required for through the interpretation of site investigation data and the qualitative risk assessment. The results of the qualitative risk assessment will allow the **risk evaluation** to be concisely described.

A4.2 Introduction

The following classification has been developed from DOE Guide to Risk Assessment and Risk Management for Environmental Protection and the Statutory Guidance on Contaminated Land (Defra September 2006). The methodology differs from that presented in Contaminated Land Risk Assessment, A Guide to Good Practice (CIRIA C552, 2001), particularly in terms of the definitions of classification of consequence, which include a consideration of immediacy of hazards.

The key to the classification is that the designation of risk is based upon the consideration of both:

a) **the magnitude of the potential consequence (i.e. severity).**
[takes into account both the potential severity of the hazard and the sensitivity of the receptor]
b) **the magnitude of probability (i.e. likelihood).**
[takes into account both the presence of the hazard and receptor and the integrity of the pathway]

Annex 4 Qualitative risk assessment

A4.3 Classification of consequence

Classification	Definition	Examples
Severe	Highly elevated concentrations **likely** to result in "significant harm" to human health as defined by the EPA 1990, Part 2A, if exposure occurs. Equivalent to EA **Category 1** pollution incident including persistent and/or extensive effects on water quality; leading to closure of a potable abstraction point; major impact on amenity value or major damage to agriculture or commerce. Major damage to aquatic or other ecosystems, which is likely to result in a substantial adverse change in its functioning or harm to a species of special interest that endangers the long-term maintenance of the population. Catastrophic damage to crops, buildings or property.	Significant harm to humans is defined in circular 01/2006 as death, disease*, serious injury, genetic mutation, birth defects or the impairment of reproductive functions. Major fish kill in surface water from large spillage of contaminants from site. Highly elevated concentrations of List I and II substances present in groundwater close to small potable abstraction (high sensitivity). Explosion, causing building collapse (can also equate to immediate human health risk if buildings are occupied).
Medium	Elevated concentrations which could result in "significant harm" to human health as defined by the EPA 1990, Part 2A if exposure occurs. Equivalent to **EA Category 2** pollution incident including significant effect on water quality; notification required to abstractors; reduction in amenity value or significant damage to agriculture or commerce. Significant damage to aquatic or other ecosystems, which may result in a substantial adverse change in its functioning or harm to a species of special interest that may endanger the long-term maintenance of the population. Significant damage to crops, buildings or property.	Significant harm to humans is defined in circular 01/2006 as death, disease*, serious injury, genetic mutation, birth defects or the impairment of reproductive functions. Damage to building rendering it unsafe to occupy e.g. foundation damage resulting in instability. Ingress of contaminants through plastic potable water pipes.
Mild	Exposure to human health **unlikely** to lead to "significant harm". Equivalent to **EA Category 3** pollution incident including minimal or short lived effect on water quality; marginal effect on amenity value, agriculture or commerce. Minor or short lived damage to aquatic or other ecosystems, which is unlikely to result in a substantial adverse change in its functioning or harm to a species of special interest that would endanger the long-term maintenance of the population. Minor damage to crops, buildings or property.	Exposure could lead to slight short-term effects (e.g. mild skin rash). Surface spalling of concrete.
Minor	No measurable effect on humans. Equivalent to insubstantial pollution incident with no observed effect on water quality or ecosystems. Repairable effects of damage to buildings, structures and services.	The loss of plants in a landscaping scheme. Discoloration of concrete.

* For these purposes, disease is to be taken to mean an unhealthy condition of the body or a part of it and can include, for example, cancer, liver dysfunction or extensive skin ailments. Mental dysfunction is included only insofar as it is attributable to the effects of a pollutant on the body of the person concerned.

A4.4 Classification of probability

(only applies if there is a possibility of a pollutant linkage being present)

Category	Definition	Examples
High likelihood	There is pollutant linkage and an event would appear very likely in the short-term and almost inevitable over the long-term, or there is evidence at the receptor of harm or pollution.	*a) Elevated concentrations of toxic contaminants are present in soils in the top 0.5m in a residential garden.* *b) Ground/groundwater contamination could be present from chemical works, containing a number of USTs, having been in operation on the same site for over 50 years.*
Likely	There is pollutant linkage and all the elements are present and in the right place which means that it is probable that an event will occur. Circumstances are such that an event is not inevitable, but possible in the short-term and likely over the long-term.	*a) Elevated concentrations of toxic contaminants are present in soils at depths of 0.5-1.0m in a residential garden, or the top 0.5m in public open space.* *b) Ground/groundwater contamination could be present from an industrial site containing a UST present between 1970 and 1990. The tank is known to be single skin. There is no evidence of leakage although there are no records of integrity tests.*
Low likelihood	There is pollutant linkage and circumstances are possible under which an event could occur. However, it is by no means certain that even over a long period such an event would take place, and is less likely in the shorter term.	*a) Elevated concentrations of toxic contaminants are present in soils at depths >1m in a residential garden, or 0.5-1.0m in public open space.* *b) Ground/groundwater contamination could be present on a light industrial unit constructed in the 1990s containing a UST in operation over the last 10 years – the tank is double skinned but there is no integrity testing or evidence of leakage.*
Unlikely	There is pollutant linkage but circumstances are such that it is improbable that an event would occur even in the very long-term.	*a) Elevated concentrations of toxic contaminants are present below hardstanding.* *b) Light industrial unit <10 yrs old containing a double-skinned UST with annual integrity testing results available.*

Note: A pollution linkage must first be established before probability is classified. If there is no pollution linkage then there is no potential risk. If there is no pollution linkage then there is no need to apply tests for probability and consequence.

For example if there is surface contamination and a major aquifer is present at depth, but this major aquifer is overlain by an aquiclude of significant thickness then there is no pollution linkage and the risks to the major aquifer are not assessed. The report should identify both the source and the receptor but state that because there is no linkage there are no potential risks.

A.4.5 The classification of risk

Probability (Likelihood)		Consequence			
		Severe	**Medium**	**Mild**	**Minor**
	High likelihood	Very high risk	High risk	Moderate risk	Low risk
	Likely	High risk	Moderate risk	Moderate/low risk	Low risk
	Low likelihood	Moderate risk	Moderate/low risk	Low risk	Very low risk
	Unlikely	Moderate/low risk	Low risk	Very low risk	Very low risk

Annex 4 Qualitative risk assessment

A4.5.1 Description of the classified risks

Very high risk
There is a high probability that severe harm could arise to a designated receptor from an identified hazard at the site without remediation action OR there is evidence that severe harm to a designated receptor is already occurring. Realisation of that risk is likely to present a substantial liability to be site owner/or occupier. Investigation is required as a matter of urgency and remediation works likely to follow in the short-term.

High risk
Harm is likely to arise to a designated receptor from an identified hazard at the site without remediation action. Realisation of the risk is likely to present a substantial liability to the site owner/or occupier. Investigation is required as a matter of urgency to clarify the risk. Remediation works may be necessary in the short-term and are likely over the longer term.

Moderate risk
It is possible that harm could arise to a designated receptor from an identified hazard. However, it is either relatively unlikely that any such harm would be severe, and if any harm were to occur it is more likely, that the harm would be relatively mild. Further investigative work is normally required to clarify the risk and to determine the potential liability to site owner/occupier. Some remediation works may be required in the longer term.

Low risk
It is possible that harm could arise to a designated receptor from identified hazard, but it is likely at worst, that this harm if realised would normally be mild. It is unlikely that the site owner/or occupier would face substantial liabilities from such a risk. Further investigative work (which is likely to be limited) to clarify the risk may be required. Any subsequent remediation works are likely to be relatively limited.

Very low risk
It is a low possibility that harm could arise to a designated receptor, but it is likely at worst, that this harm if realised would normally be mild or minor.

No potential risk
There is no potential risk if no pollution linkage has been established.

Definitions	
Hazard	A property or situation which in certain circumstances could lead to harm. [The properties of different hazards must be assessed in relation to their potential to affect the various different receptors].
Risk	A combination of the probability or frequency of the occurrences of a defined hazard **AND** the magnitude of the consequences of that occurrence.
Probability	The mathematical expression of the chance of a particular event in a given period of time [e.g. probability of 0.2 is equivalent to 20% or a 1 in 5 chance].
Likelihood	Probability; the state or fact of being likely.
Consequences	The adverse effects (or harm) arising from a defined hazard which impairs the quality of the environment or human health in the short or longer term.
Pollution linkage	An identified pathway is capable of exposing a receptor to a contaminant and that contaminant is capable of harming the receptor.