BROWNFIELD SOLUTIONS LTD

GEO-ENVIRONMENTAL ENGINEERING EXCELLENCE

BLUE PHOENIX

Tilbury Docks, Essex

Phase I Geo-Environmental Assessment Report

JW/C5441/12238

July 2023

PROJECT QUALITY CONTROL DATA SHEET

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Issued By:	**Client:**	**Engineer**
Brownfield Solutions Ltd Unit 5 Alfred Court Saxon Business Park Stoke Prior Bromsgrove Worcestershire B60 4AD Tel: 01215 729014 brownfield-solutions.com	Blue Phoenix 1 Victoria Stables Essex Way Bourne Lincolnshire PE10 9JZ	Stirling Maynard Stirling House Rightwell East Bretton Peterborough PE3 8DJ
	Contact:	Contact: Robert Everett

Written by:

J Wheaton
BSc (Hons) FGS
Senior Project Engineer

Checked by:

A J Hewitt
BSc (Hons) MSc CGeol CSci FGS
Director

Approved by:

J M Jacob
BSc (Hons) CGeol FGS
Director

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1.0 INTRODUCTION

1.1 Context

This report describes a desk-based Phase I Geo-Environmental Assessment Report carried out by Brownfield Solutions Limited (BSL) for Blue Phoenix as instructed by Stirling Maynard on a site at the Tilbury Docks, Tilbury and has been completed in general accordance with the following guidance:

- Environment Agency guidance - Land Contamination: Risk Management (LCRM).
- BS 10175:2011+A2:2017 Investigation of Potentially Contaminated Sites.
- BS5930: 2015+A1:2020 Code of Practice for Ground Investigations.
- BS EN 1997-1:2004+A1:2013 Eurocode 7. Geotechnical design. General rules plus UK National Annex.
- BS EN 1997-2:2007 Eurocode 7 Geotechnical design. Ground investigation and testing plus UK National Annex.

Definitions of terms and acronyms used within this report is presented in Section 8.0.

1.2 Proposed Development

The proposed development is for a continued commercial end-use, involving expansion of the existing Incinerator Bottom Ash (IBA) processing facility to enable an increase in processing capacity. The site is to be extended, with demolition of some of the existing buildings and structures, construction of a lagoon for surface water attenuation and process water storage, and construction of a new access and loading ramp. The proposed development is shown on the Schematic Layout, Drawing No. P22161-SMCE-ZZ-XX-DR-C-0010 Rev P02, provided to BSL by Stirling Maynard.

1.3 Objectives and Scope

The objectives of this assessment were to determine the environmental setting and ground conditions of the site, highlighting potential areas of concern that may govern the redevelopment.

The scope of works comprises a Phase I Assessment and site walk-over, with a review of the site, surroundings, historical uses and environmental setting in order to develop a preliminary Conceptual Site Model (CSM).

This report is intended to meet the requirements of a Preliminary Investigation as defined in BS10175:2011+A2:2017 and has been produced in general accordance with the recommendations for a Tier 1 Preliminary Risk Assessment as described in LCRM guidance.

1.4 Limitations

This Phase 1 Geo-Environmental Assessment Report has been prepared in accordance with the relevant legislative framework, guidance and risk assessment methodology as outlined in Appendix A.

The findings and opinions conveyed via this assessment are based on information obtained from a number of sources as detailed within this report, BSL have assumed this information is correct and reliable. Nevertheless, BSL cannot and does not guarantee the authenticity or reliability of the information it has relied upon.

BSL have used reasonable skill, care and diligence in the production of this report. There may be other conditions prevailing on the site which are outside the scope of work and have not been highlighted by

this assessment and therefore have not been taken into account by this report. Responsibility cannot be accepted for such site conditions not revealed by the assessment.

This report has been prepared for the sole use and reliance of the Client, Blue Phoenix. No other third party may rely upon or reproduce the contents of this report without the written permission of Brownfield Solutions Ltd (BSL); a charge may be levied against such approval. If any unauthorised third party comes into possession of this report, then they rely on it at their own risk and BSL do not owe them any Duty of Care.

Any recommendations made in this report should be confirmed with the Regulatory Authorities prior to implementation to ensure compliance.

This assessment has been based on the proposed planning layouts provided. Any subsequent change to the planning layout may have an impact on the validity of recommendations made within this report. Furthermore, new information, changed practices or new legislation may necessitate revised interpretation of the report after the date of its submission.

The site plans enclosed in this report should not be scaled off. Any site boundary line depicted on plans does not imply legal ownership of land.

Notwithstanding site observations concerning the presence or otherwise of archaeological issues, asbestos-containing materials (ACM) or invasive weeds (e.g. Japanese knotweed), this report does not constitute a formal survey of these potential issues and specialist advice should be sought.

2.0 THE SITE

2.1 Location

The site is located at the Tilbury Docks, Tilbury, RM18 7HA, centred on National Grid Reference 563067, 175910 as shown on the Site Location Plan, Drawing No. C5441/01.

2.2 Site Description

A site reconnaissance survey was carried out at the site on 13th July 2023. The main site features and potential issues identified during this survey are detailed below and are shown on the Site Features Plan, Drawing No. C5441/02. A selection of photographs from the site walkover are presented to the rear of this report.

Feature	Description
Site Area	5.64 hectares.
Site Access	Access to the site is gained through the Tilbury Docks, which is accessed off St Andrew's Road (A1089) to the north-east of the site.
Current Land Use and Site Features	The site comprises an existing Incinerator Bottom Ash (IBA) processing facility owned by Blue Phoenix in the west of the site, comprised predominantly aggregate storage, with a processing facility in the centre west of the site, and lagoons in the north-west and south-west. In the east and north-east of the site, a number of large warehouse style structures are present, predominantly in use for storage of plywood timber and paper products. Building 38A is a covered, open sided storage area. In the centre of the site is an open yard area. A small area of car parking, with container offices are present in the south of the site. Several manhole covers are noted on-site, predominantly indicated to be for water, drainage and electricity. A small electrical sub-station is noted in the centre of the site, adjacent to the open yard area. The aggregate stockpiles in the north appeared to be unprocessed, with stockpiles appearing to comprise a mixture of ash, slag and clinker, alongside predominantly metal, with some plastic, paper and fabric. To the south of the processing facility, a number of large stockpiles, with signage noting the stockpiles to be Type 1, 6F2 and 6F4. Some smaller walled areas included ferrous and non-ferrous wastes.
Potential Sources of Gross Contamination	An above ground 10,000l diesel storage tank (AST) was noted in the centre west of the site. The diesel tank was situated on a concrete pad, and spill kits were available. A small area of indicated leakage appeared to be present. Adjacent to the diesel tank was a number of containers and IBCs. Two IBCs containing AdBlue were present, both on plastic spill trays. Two material storage cabinets were present with lockable roller shutter doors. These were not opened but are likely to contain chemicals or other potentially contaminative materials, as the cabinets included spill trays. Lockable cabinets for oxygen and gas containers were recorded in the east of the site, however the cabinets were empty at the time of the walkover.
Vegetation	No formal areas of vegetation or soft landscaping are present. Some sparse patches of rough vegetation were observed.
Topography	The site is generally flat, ranging between circa 3.5 and 5.5 mAOD. The western site of the site is flat, and the eastern boundary slopes gently toward the north-east.
Site Boundaries	The site boundaries are generally open to the adjacent docks to the north, east and south. To the west, the watercourse of the Docks is present. The boundaries of the Blue Phoenix area to the north, east and south are formed of steel palisade fencing, and is open to the west. In the north and east, the boundaries are predominantly formed by the walls of the buildings on-site. A short section of the south-eastern boundary is formed of concrete panel wall.

Feature	Description
Surrounding Area	The site is set within the commercial / industrial Tilbury Docks area, built upon one of the three main piers observable. Waterways are present adjacent to the south-west, south and south-east, with other industry present to the north-west, north, north-east and east. Further afield, the port town of Tilbury is present to the north-east of the site.

3.0 GEO-ENVIRONMENTAL SETTING

3.1 Historical Setting

A review of the available historical Ordnance Survey Maps and satellite imagery has been conducted, with the pertinent issues that may have affected the site, or its environs, summarised below. The Historical Maps are presented in Appendix B. A review of the historical industrial data within the geo-environmental data report has also been undertaken below, the report is presented in Appendix C.

Notable features on site, and potentially contaminative or geotechnically relevant features within 100m of the site boundary have been presented. Any features that have potentially been infilled will be considered up to 250m from the site boundary.

Feature	Distance (m) & Direction	Years Present	Description
Dockyard / Warehouses	From on-site	1895 – Present Day	The earliest development in the area sees the construction of the *'Tilbury Docks'* by the mapping of 1895 (historical information indicates the dock was constructed between July 1882 and April 1886), comprising a main dock and three branch docks. *'West Branch Docks'* is present adjacent to the east of the site, comprising eight warehouses, with associated railway lines (see below). West Branch Docks forms part of the wider Tilbury Docks. An additional warehouse is added to the north between 1907 and 1916, and one warehouse is demolished between 1938 and 1946, but no other major changes occur, and the site remains undeveloped within the general environs of the dockyard with the warehouses on mapping until circa 1966, when a large expansion of the Tilbury Docks is initiated. Expansion appears to be complete in the early 1970s, with warehouses now present on-site and directly to the south. Further on-site warehouse expansion occurs between 1993 and 2001, with warehouses being constructed and demolished throughout the 2000's and 2010s, until the current site layout is complete. The use of the warehouses is not outlined on any mapping, however the recent satellite imagery indicates the majority of the dockland on and adjacent to the site to predominantly be for aggregate recycling, production, disposal and supply. At the time of the walkover, the majority of the warehouses on-site were utilised for storage of plywood and reels of paper products, with the 'Blue Phoenix' warehouse housing machinery used for processing the aggregate.
Railway Lines	From on-site	1895 - 1970	As part of the construction of the docks between 1870 and 1895, a number of railway lines were built, connecting the docks/warehouses with the main *'London, Tilbury & Southend Railway'* line, which ran in a north-west to south-east direction, at closes circa 450m north-east of the site. The nearest line is present directly adjacent to the eastern boundary of the site, running between the site and the warehouses that sit alongside *'West Branch Docks'*. Over time, the layout of the railway network is adjusted as warehouses and buildings are built or demolished. Between circa 1916 and 1938, a line is shown to run through the centre/north of the site in a north-east to south-west direction, shown to have been demolished circa 1938. Between 1955 and 1966, two lines have been constructed running through the site from the north-western to the south-eastern end. They are demolished by 1971 alongside all other railway lines.

In summary, the map evidence indicates that the site has remained open marshland, with railway lines bisecting the site, until the 1960s and 1970s, when expansion of the dockyard spread into the site boundary. Since then, the site has developed into its current use for aggregate recycling, production and disposal, as well as storage of plywood and paper products.

Historical land use in the surrounding area has been predominantly commercial/industrial, comprising additional dockyard.

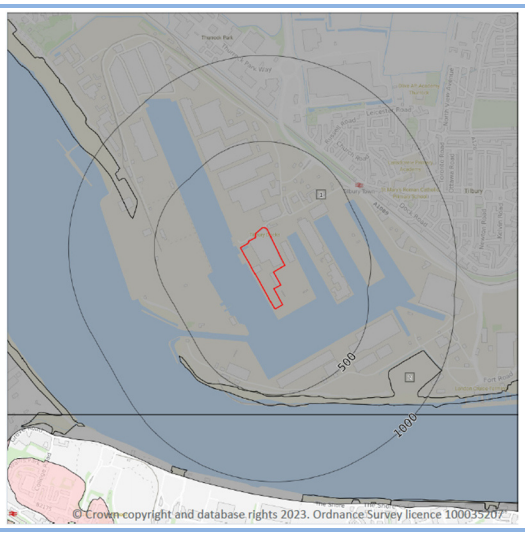
3.2 Published Geology

The following publications of the British Geological Survey (BGS) were examined in respect of the geology underlying the site:

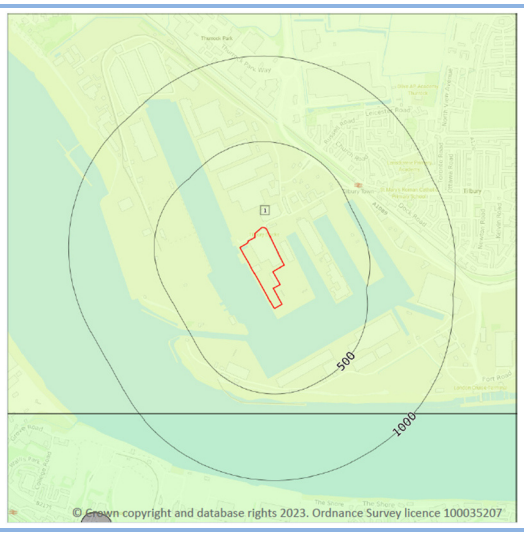
- British Geological Survey (BGS) 1:50,000 Scale Geological Map Sheet 271 Dartford. Solid and Drift Edition.
- BGS GeoIndex Onshore.
- Coal Authority Interactive Map.
- Geo-Environmental Data Report.

Extracts of the 1:10,000 geological mapping from the Geo-Environmental Data Report are presented below for reference:

BGS 1:10 000 Superficial Geology



BGS 1:10 000 Solid Geology



Made Ground

BGS mapping indicates the entirety of the site to be underlain by Made Ground (mainly landfill, flood defences or road and railway embankments). Information from the Geo-Environmental Data Report presented in Appendix C also indicates that the site is underlain by made ground.

Superficial Deposits

The site is indicated to be underlain by Alluvium. This stratum typically comprises silt.

Solid Geology

The deeper solid geology is indicated to be part of the Chalk Group Formation, comprising chalk, which includes the following:

- Lewes Nodular Chalk Formation.
- Seaford Chalk Formation.
- Newhaven Chalk Formation.

No faults are shown on or within an influencing distance of the site.

3.3 BGS Exploratory Hole Records

There are 2 No. BGS exploratory hole records within a relevant distance of the site (assumed as an approximate 50m radius).

A summary of the ground conditions is presented in the table below.

Reference	Distance from Site (m) and Direction	Depth Made Ground (m)	Depth Superficial Deposits (m)	Depth Solid Geology (m)
TQ67NW165	On-site	-	0.00 – 0.83: Mottled clay 0.83 – 1.14: Peat 1.14 – 4.87: Stiff mud 4.87 – 6.40: Peat 6.40 – 8.76: Stiff mud 8.76 – 9.37: Peat 9.37 – 9.67: Sand 9.67 – 12.65: Ballast	-
TQ67NW575	44m North	0.00 – 0.30: Tarmac 0.30 – 0.60: Gravel 0.60 – 1.10: Silty clay 1.10 – 1.70: Gravelly slightly clayey sand 1.70 – 1.90: Slightly sandy silty clay	1.90 – 5.45: Silty CLAY 5.45 – 6.00: PEAT 6.00 – 8.05: Silty CLAY 8.05 – 9.00: PEAT 9.00 – 9.30: Silty CLAY 9.30 – 11.00: PEAT 11.00 – 13.30: Silty CLAY 13.30 – 20.60: Sandy GRAVEL	20.60 – 25.00: Clayey SILT (Weathered CHALK) 25.00 – 30.00: CHALK

The BGS Borehole Logs are presented in Appendix D.

3.4 Mining and Mineral Extraction

The site is outside the area of a designated coalfield or brine extraction area and no further consideration of coal mining/brine related risks is required.

3.5 Hydrogeology

Based on the inferred geology, a summary of the Environment Agency aquifer designations is presented in the table below:

Stratum	Coverage	Aquifer Designation
Alluvium	Full Site	Secondary Aquifer (Undifferentiated). The classification is assigned where it is not possible to attribute either category A or B to the aquifer.
Chalk Group Formation	Full Site	Principal Aquifer. This is 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.

A summary of the pertinent hydrogeological features within the Geo-Environmental Data Report are provided below:

Feature	Distance (m) & Direction	Details
Nearest Active Groundwater Abstraction	1085m S	Licence No: 9/40/01/0092/A/GR/R1 Details: Boiler Feed Direct Source: Southern Region Groundwater Point: Point A, Borehole at Kimberly Clark Annual Volume (m3): 320,000 Original Start Date: 01/04/2018

Feature	Distance (m) & Direction	Details
Nearest Active Potable Groundwater Abstraction	-	None within 2000m.
Source Protection Zones	-	None within 500m.

3.6 Hydrology

A summary of the pertinent hydrological aspects within the Geo-Environmental Data Report are provided below:

Feature	Distance (m) & Direction	Details
Nearest Watercourse	15m SW 500m S and W	Tilbury Docks, manmade. River Thames
Nearest Surface Water Abstraction	1356m SW	Licence No: 9/40/01/0522/S Details: Mineral Washing Direct Source: Southern Region Surface Waters Point: Point A, Tidal River Thames at Swanscombe Annual Volume (m3): 45,500 Original Start Date: 06/02/1990
Closest Active Licenced Discharge Consent	-	None within 500m.

Information obtained from the Environment Agency (EA) Risk of Flooding from Rivers and the Sea (RoFRaS) database indicates that the risk of flooding across the site is very low (less than 1 in 1000 chance of flooding in any given year).

The entire site is indicated to lie within both EA designated Zone 2 and Zone 3 flood plains.

The British Geological Survey indicate there is a potential for groundwater flooding at the subject site, with a moderate to high risk rating.

No further consideration of flood risk is undertaken in this report. Specialist flood risk advice should be sought with regards to drainage and flooding.

3.7 Landfill and Waste Management Sites

There are no active or historic landfill sites recorded within 500m.

There are 4 No. current waste management sites recorded within 250m of the site, which fall under a total of 10 No. entries. They are summarised in the below table:

Site Name	Distance (m) & Direction	Details
Tilbury I B A Facility	43m W	Type of site: Material Recycling Treatment Facility Size: 75,000 tonnes Original Issue Date: 25/06/2012
Port of Tilbury London Ltd	52m NE 60m E	Type of site: Transfer Station taking Non-Biodegradable Wastes Size: 25,000 tonnes Original Issue Date: 29/05/2018
Tilbury New Site	85m SE 95m SE	Type of site: Treatment of Waste Wood Size: 25,000 tonnes Original Issue Date: 18/01/2012

Site Name	Distance (m) & Direction	Details
Berth 5, Port of Tilbury	166m NE	Type of site: Inert & Excavation Waste Transfer Station (WTS) Size: 25,000 tonnes Original Issue Date: 11/04/2013

There are two historical waste sites within 250m of the site, both dated 1864 with the only information available recording the type of site as 'refuse'. They are 207m and 239m N of the site and are likely to have been identified from the historical maps.

3.8 Environmental Regulatory Data

A summary of the relevant environmental aspects, both on site and within 250m of the site contained in the Geo-Environmental Data Report, are presented in the table below:

Entry	On-site	0 – 50m	50 – 250m	Details
Recent Industrial Land Uses	0	4	21	The four recent industrial land uses within 50m of the site pertain to two travelling cranes, 11m S and 11m W, a mooring post 19m W and a pylon 38m NW of the site. Other uses are predominantly pylons/masts, travelling cranes or electricity sub-stations.
Current or Recent Fuel Stations	0	0	0	-
Licensed Industrial Activities (Part A(1))	3	0	0	The three nearby Licenced Industrial Activities are all on-site, held by Ballast Phoenix Ltd/Blue Phoenix Ltd for recovery or a mix of recovery and disposal of non-hazardous waste, including treatment of slags and ashes. The licence was originally issued in 2016, and is still recorded as effective. The record related to Ballast Phoenix Ltd was superseded by the other records.
Licensed Pollutant Release (Part A(2)/B)	0	0	0	-
Radioactive Substances	0	0	0	-
Pollution Incidents (EA/NRW)	0	0	2	The nearest pollution incident occurred 145m NW of the site in 2003, where contaminated firefighting run-off caused a Category 3 (Minor) impact to water and land. The other incident occurred 200m NE of the site in 2001, where gas and fuel oils caused a Category 3 (Minor) impact to water and air.

With regard to the entries identified above, only the electrical sub-stations are considered to be of significant relevance to be carried forward to the preliminary CSM. No other entries require further consideration.

3.9 Radon

Information from the environmental database report indicates the property is in an area where <1% of properties are above the Action Level for radon, and therefore radon protective measures are not required in accordance with BRE Report 211 'Radon – Guidance on protective measures for new dwellings' 2015 Edition.

3.10 UXO Risk

In accordance with CIRIA Report C681, BSL have reviewed non-specialist UXO data for the site using the online Zetica Bomb Risk Mapping data.

The map indicates the site to be in an area where the bomb risk is moderate. A copy of the map is presented in Appendix E.

The 1950 and 1951 OS mapping shows a "ruin" circa 60m south of the site, suggesting bomb damage. This is most likely as a result of WWII bombing.

Since the site is considered to be at moderate bomb risk, in order to determine if and what further action may be required to mitigate the risk, a preliminary risk assessment has been undertaken by Brimstone, ref. PRA 23-2176, issued on 6th July 2023. The full report is presented in Appendix F and a summary of the pertinent points is given below:

- The site is situated within the WWII-era Urban District of Thurrock, which sustained 44.4 bombs / 1,000 acres, a moderate bombing density.
- Bomb census mapping does not record any bombing incidents within the site footprint, with the closest records circa 375m south-west of the site, however the information source is not comprehensive.
- Mapping records show a significant number of incidents occurring over the docks.
- A structure immediately south-east of the site is indicated to have been cleared between pre and post-WWII mapping, which is potentially indicative of bomb damage occurring.
- Tilbury Docks was identified as a primary Luftwaffe bombing target during WWII.
- Tilbury Docks was designated as an embarkation point and marshalling area during the preparations for D-Day. The docks were also involved when Operation Overlord occurred, used for the construction of Mulberry Harbours.
- On 19th August 2020, a bomb disposal squad was called to Tilbury Docks following the discovery of a UXB circa 155m east of the site. An additional find is known to have occurred in 1991, however it's not known whether this occurred on-site.
- The ground cover historically present across the majority of the site (marshland, vegetation) is likely to have presented conditions unconducive to the visual detection of UXBs.
- Recommendations are for the completion of a Stage 2 Detailed Risk Assessment in order to further assess the risk to proposed works. In lieu of a Detailed UXO Assessment, on-site support for any planned ground works is recommended.

4.0 PHASE 1 SUMMARY AND RISK ASSESSMENT

4.1 Introduction

The risk posed by any contaminants in soil or groundwater will depend on the nature and level of the source, the probability of exposure occurring, the potential pollution pathway and the likely effects on the receptors.

A contaminant is defined as a substance that has the potential to cause harm, a risk is considered to exist if such a substance is present at sufficient concentrations to cause harm and if a pathway is present through which a receptor could be exposed to the contaminant.

The following sections discuss the identified potential on-site and off-site sources, and any pollution that could impact receptors via the pathways associated with the proposed development. Pollution linkages are assessed which may represent a risk to human health and/or controlled water receptors from the information gained from the Phase I Assessment searches. The assessment has been carried out on a qualitative basis and aims to produce a complete and comprehensive Preliminary Conceptual Site Model.

Three potential impacts exist for any given site and all three need to be considered in the qualitative risk assessment, these are:

- On-site impacts.
- The site impacting its surroundings.
- Off-site sources impacting the subject site.

4.2 Potential Contaminative Sources

On-Site
From the information obtained, the following sources have been identified which may affect the redevelopment of the site for commercial end use:

- Made ground / built up ground associated with the previous development.
- Alluvium
- Peat
- Dockyard / Warehouses
- Diesel and AdBlue containers
- Electrical sub-station
- Railway lines

Railway lines themselves are not typically significantly contaminative, with the main contaminative process being from material that falls from trains, which is generally either rare or involves small volumes of material. As well as this, the railway lines were all removed over 50 years ago, and therefore it's unlikely that any further contamination will have occurred. Given this, it is not considered that the railway lines will pose a significant risk to site end-users, and is not considered further.

Off-Site
No nearby off-site sources have been identified which may affect the redevelopment of the site.

Associated Contaminants

The contaminants commonly associated with the potential sources of contamination identified are tabulated below:

Contaminative Sources	Department of the Environment Industry Profile or Other Source	Commonly Associated Contaminants
On Site		
Made Ground	-	Heavy metals, polycyclic aromatic hydrocarbons (PAHs), asbestos, ground gases (carbon dioxide and methane).
Alluvium	CIRIA C665	Typical concentrations of methane 0-5% and carbon dioxide 0-10%.
Peat	CIRIA C665	Typical concentrations of methane 10-90% and carbon dioxide 0-5%.
Dockyard / Warehouses	Dockyards and dockland	Heavy metals, polycyclic aromatic hydrocarbons (PAHs), asbestos, polychlorinated biphenyls (PCBs)
Tanks / IBCs	-	Petroleum hydrocarbons (TPHs)
Electricity Substation	Electrical Works	Polychlorinated biphenyls (PCBs)

4.3 Pathways

A pathway is defined as a medium by which a contaminant comes into contact with, or otherwise impacts a receptor.

At this stage the potential contaminants identified above are considered to present potential risks to site end users and controlled waters through the following pathways:

Potential Pathways	
Pathways in respect to Human Health	• Dermal contact with contamination. • Inhalation of dusts. • Inhalation of gases or vapours in both indoor and outdoor air.
Pathways in respect to Controlled Waters – Surface water	• Surface run-off /over land flow. • Drainage discharge. • Base flow from groundwater.
Pathways in respect to Controlled Waters – Groundwater	• Leaching of mobile contamination into groundwater via the unsaturated zone. • Migration of perched groundwater in any permeable soils or along existing or proposed service runs. • Migration into the saturated zone and flow through the aquifers underlying the site.
Pathways in respect to Property/structures/water pipes	• Direct contact with substances deleterious to building materials and potable water supply pipelines. • Migration of ground gases (methane) into confined spaces (explosion and damage to property).

4.4 Receptors

The identified receptors are listed below:

- Commercial end users (human health).
- Structures/Property/Potable water supply pipes.
- Nearest watercourse. River Thames (Controlled waters).
- Superficial Aquifer. Alluvium (Controlled waters).
- Bedrock Aquifer. Chalk Group Formation (Controlled waters).

Under current UK health and safety legislation, employers are required to carry out their own appropriate site-specific risk assessments and mitigation to protect employees. It has been assumed that any future construction works onsite will be undertaken in compliance with these requirements. Therefore, construction workers have not been specifically considered as part of this assessment.

4.5 Preliminary Conceptual Site Model (CSM)

The information obtained in the previous sections has been used to compile a Preliminary CSM. The identified potential contaminants and receptors have been assessed in the table below as to whether a plausible source-pathway-receptor pollutant linkage for the proposed end use of the site exists. The risk classification has been estimated in accordance with information in the BSL Guidance and Methodology in Appendix A.

The Preliminary CSM's are presented in the tables overleaf, any assessed risk above moderate will possibly require further action:

Human Health						
Potential Source	Potential Pathway	Potential Receptor	Likelihood	Severity	Level of Risk	Justification
On site Made Ground / Built Up Ground Metals, PAHs, asbestos	Root uptake, ingestion, direct contact, inhalation of dusts / vapours	End-users	Unlikely	Medium	Low	Given the sites use, and that the area was formerly marshland, it's likely that some form of infilling of the ground has occurred to ensure the area is suitable for use. As well as this, a number of phases of development of the site and surrounding area has occurred throughout history, and therefore it's highly likely that made ground will be present beneath the site. Given the industrial use of the area, it's possible that made ground beneath the site will be potentially contaminative. However, the site is currently surfaced entirely in hardstanding or buildings, and this is not indicated to change with the proposed development. The presence of hardstanding across the commercial development will break the pathway to site end users, thus mitigating the potential risks. The risk is considered to be low.
On site Made Ground / Built Up Ground Metals and organic contamination	Migration into/chemical attack of water supply pipelines	Water Pipelines / End users	Low likelihood	Medium	Moderate / Low	Contaminants within the soil/groundwater could potentially attack the clean potable water supply pipe, contaminants should be assessed to determine the correct pipe material and level of precautions required.
On site Made Ground / Built Up Ground Ground Gas (carbon dioxide and methane)	Migration into confined spaces, inhalation and asphyxiation/ explosion	End-users / property / structures	Low likelihood	Severe	Moderate	Historic mapping indicates that the with the exception of changes to the structures on-site, the majority of made ground deposition is likely to have ceased by the early 1970s, when the latest expansion phase of Tilbury Docks was completed. Given this, it's likely that any significant degassing of the emplaced made ground will have ceased. However, due to risks associated with gas build-up, risks are generally considered to be severe. Risks are considered to be moderate.
On site Dockyard / Warehouses Metals, PAHs, PCBs, asbestos	Ingestion, direct contact, inhalation of dusts / vapours	End-users	Low likelihood	Medium	Moderate / Low	It is unknown what the historic uses of the warehouses present on-site and in the vicinity of the site have been utilised for, and a wide range of potentially contaminative processes or contaminated material storage may have occurred. However, currently, the warehouses are used predominantly for storage of timber and paper materials, and therefore are not considered to be presently contaminative. The western part of the site and the wider surrounding area is presently used for aggregate processing, with the processing of incinerator bottom ash (IBA) being undertaken in the west of the site. This product is a form of ash produced from incineration facilities, and is used in construction for bulk fill, asphalt and concrete

Human Health						
Potential Source	Potential Pathway	Potential Receptor	Likelihood	Severity	Level of Risk	Justification
						products. The source of the incineration ash is not known to BSL, and therefore a number of potential contaminants could be present, chiefly heavy metals and PAHs. Stockpiles of unprocessed and processed IBA have been noted on-site, open to the air, and therefore contaminant pathways are present. As well as this, the handling of dry bulk materials creates a number of possibilities for spills, and spread of contaminated wind-blown dusts. However, given the site is active, and the proposed development does not alter the proposed end-use, it is expected that mitigation measures are currently in place to ensure site users are not negatively affected by potential contamination. As well as this, the on-site activities are undertaken under a Part A(1) permit, and therefore controls are likely to be present on environmental emissions and contamination. All personnel were required to wear full PPE when working on-site, and all potentially contaminative areas were sufficiently signposted, and stored so as to minimise potential contamination. A number of water sprayers were present, to minimise wind-blown dusts, and wheel washing was in place along the western carriageway of the site to reduce tracking of dusts. All aggregates and wastes were on hardstanding, signposted and segregated. All of the above are indicators of the site being well managed and maintained, which will reduce the potential for a contaminative event occurring. As the site is underlain entirely by hardstanding, the pathways from any contaminants in below ground soils will be blocked, thus mitigating risks. Given the above, it's considered that there is a low likelihood of a contaminative event occurring, and risks are considered to be moderate / low.
On site Tanks / IBCs TPHs	Ingestion, direct contact, inhalation of vapours	End-users	Unlikely	Medium	Low	The tanks and IBCs recorded were on concrete pads and/or spill trays, with spill kits present. Some evidence of minor leaking from the filling point of the diesel tank was recorded, but was onto hardstanding, and unlikely to have leached to soils. Any leaks are likely to be from filling and maintenance works, and therefore are likely to be sporadic and of low volume. The IBCs were indicated to contain AdBlue, which is a non-toxic liquid, and therefore is not contaminative. Safety warning signs were present, and all containers were labelled. As the site is underlain entirely by hardstanding, the pathways from any contaminants in below ground soils will be blocked, thus mitigating risks. As well as this, all site personnel are required to wear full PPE when working on-site,

Human Health						
Potential Source	Potential Pathway	Potential Receptor	Likelihood	Severity	Level of Risk	Justification
						which will mitigate risks of dermal contact with contaminative materials. Given the above, it's considered to be unlikely that a contaminative event will occur, and risks are considered to be low.
On site Natural Geology - Alluvium, Peat Ground Gas	Migration into confined spaces, inhalation and asphyxiation/ explosion	End-users / property / structures	Low likelihood	Severe	Moderate	Both alluvium and peat are organic rich, and have typical concentrations of gas which can potentially require gas protection measures. On-site historic borehole logs indicate several bands of peat to be present beneath the site. The risk is considered to be moderate, although further investigation is required to quantify the risk or gas protection measures may need to be installed.
On site Electricity Substation PCBs	Ingestion, direct contact, inhalation of dusts	End-users	Unlikely	Medium	Low	The mobility of this contaminant is low and any volumes present are likely to be small. In addition, the proposed development has been and will be covered in hardstanding which will break the pathway to site end users. The sub-station construction was noted as having metal trays at the base of each section, which would likely catch any leaks. The risk is considered to be low.

Controlled Waters						
Potential Source	Potential Pathway	Potential Receptor	Likelihood	Severity	Level of Risk	Justification
Made Ground / Built Up Ground Metals, PAHs	Overland flow / leaching through unsaturated zone / migration through saturated zone	River Thames (Surface waters)	Unlikely	Medium	Low	It is likely that the dockyard is built using concrete, which will inhibit lateral migration of contaminants from below ground soils into the watercourse. As well as this, the site is underlain entirely by hardstanding, which should reduce the leaching potential of any contaminants present on-site. The majority of made ground is likely to have been emplaced circa 50 years ago, and therefore it's likely that organic contaminants will have significantly degraded over this time. Inorganic contaminants, such as metals, generally do not degrade as easily, however they migrate less easily. As well as this, the soils beneath the site are indicated to be predominantly cohesive, which will also inhibit migration. Given this, and the presence of hardstanding/concrete, it's unlikely that they will have migrated into the watercourse. Risks are considered to be low.
	Leaching through unsaturated zone / Migration through saturated zone	Secondary (Undifferent-iated) Aquifer (Groundwater)	Unlikely	Medium	Low	The site is currently surfaced in hardstanding and will remain so, which will reduce the risk to controlled waters. The soils beneath the site are indicated to be predominantly cohesive, which will inhibit migration of contaminants. Risks are considered to be low.
	Migration through saturated zone	Principal Aquifer (Groundwater)	Unlikely	Medium	Low	There are no groundwater abstraction licences or Source Protection Zones near the site. The soils beneath the site are indicated to be predominantly cohesive, which will inhibit migration of contaminants. Historic borehole logs on-site indicate the bedrock to be circa 20m bgl, and therefore significant vertical migration would need to occur to encounter the Principal Aquifer. As stated above, the site is currently surfaced in hardstanding and will remain so, which will reduce the risk to controlled waters. Risks are considered to be low.
Dockyard / Warehouses Metals, PAHs, TPHs, PCBs	Overland flow / leaching through unsaturated zone / migration through saturated zone	River Thames (Surface waters)	Unlikely	Medium	Low	The river Thames is present adjacent to the south-western boundary of the site. Stockpiles of aggregate were noted adjacent to the watercourse, with water misting was in place to prevent wind-blown dusts from blowing into the watercourse. There is a potential that spills of material will occur periodically through transfer, however they're likely to be rare, and low volume. Given this, risks are considered to be low.

Controlled Waters						
Potential Source	**Potential Pathway**	**Potential Receptor**	**Likelihood**	**Severity**	**Level of Risk**	**Justification**
Dockyard / Warehouses Metals, PAHs, TPHs, PCBs	Leaching through unsaturated zone / Migration through saturated zone	Secondary (Undifferent-iated) Aquifer (Groundwater)	Low likelihood	Medium	Moderate / Low	The site is currently surfaced in hardstanding and will remain so, which will reduce the risk to controlled waters. The soils beneath the site are indicated to be predominantly cohesive, which will inhibit migration of contaminants. Risks are considered to be moderate / low.
	Migration through saturated zone	Principal Aquifer (Groundwater)	Unlikely	Medium	Low	There are no groundwater abstraction licences or Source Protection Zones near the site. The soils beneath the site are indicated to be predominantly cohesive, which will inhibit migration of contaminants. Historic borehole logs on-site indicate the bedrock to be circa 20m bgl, and therefore significant vertical migration would need to occur to encounter the Principal Aquifer. As stated above, the site is currently surfaced in hardstanding and will remain so, which will reduce the risk to controlled waters. Risks are considered to be low.

Human Health Risk – Soils Contamination Summary
Based on the preliminary CSM and the current use of the site, the overall risk from land contamination at the site is considered to be **low to moderate / low** for a redeveloped site. This would need to be confirmed by appropriate intrusive investigation, testing and assessment.

Human Health Risk – Ground Gas Summary
Potential on-site gas source has been identified associated with made ground / infilled ground, Alluvium and peat deposits. Potentially viable linkages are considered to exist and the preliminary CSM considers these sources to be of **moderate** risk.

In accordance with BS8576 and CIRIA C665 as set out in Appendix A of this report, the gas generation potential is considered to be very low. The sensitivity of the development is low on account of the proposed commercial use.

In line with current guidance, it is recommended that ground gas monitoring should comprise 4 visits over a 1-month period.

Controlled Waters Risk - Summary
Based on the preliminary CSM, BSL believes the overall risk to controlled waters at the site is **low to moderate / low**.

The above assessed level of risk will need to be confirmed by intrusive investigation and quantitative risk assessment.

5.0 PRELIMINARY GEOTECHNICAL ASSESSMENT

5.1 Hazard Identification

A preliminary geotechnical hazard identification exercise has been undertaken in general accordance with the Highways England document CD 622, 'Managing geotechnical risk'. Potential geotechnical hazards based on the expected ground conditions are listed below:

- Made ground of unknown nature; if placed in a non-engineered manner may cause excessive settlement of foundations, highways and infrastructure.
- Low strength, compressible ground (peat and soft organic clays); may cause excessive settlement of foundations, highways and infrastructure.
- Presence of obstructions in the ground from historical developments (e.g relict foundations) causing difficulties with excavations or penetrative works (e.g. piling).
- Compressibility of the chalk may lead to structural damage caused by differential settlement.
- Dissolution features within the chalk can collapse leading to rapid settlement.
- Shallow groundwater/groundwater rise causing resulting in difficulties with excavations due to trench collapse.
- Flooding; the site lies within Zone 2 and Zone 3 floodplains.
- UXO; the site lies within an area at moderate risk from unexploded ordnance.

The site is indicated to be underlain by chalk. CIRIA C574 “Engineering in Chalk” provides further guidance when building over areas of chalk bedrock. Risks are typically more prevalent where low density and weaker chalk is present. Solution features are common phenomena within chalk areas and are formed by dissolution of the chalk as a result of chemical weathering. This can result in sinkholes in the chalk near surface or pipes within the chalk mass and these features are often infilled with soft or loose materials. The potential risk will need to be addressed as part of onsite intrusive investigations.

The conclusions of the Preliminary UXO Desk Study recommends that a Stage 2 Detailed Risk Assessment is carried out for the site. In lieu of a Detailed UXO Assessment, on-site support for any proposed ground works is recommended.

The above identified geotechnical hazards will need to be considered as part of further investigations and assessments.

5.2 Foundation and Geotechnical Design

The proposed development will comprise redevelopment and extension of the existing commercial development. The type of foundation solution should be informed by an onsite intrusive investigation to confirm ground conditions and obtain geotechnical parameters for preliminary foundation and floor slab design.

5.3 Sustainable Drainage Systems (SuDS)

Given the site is underlain by low permeability clays, and is adjacent to the River Thames, it is unlikely that drainage to SuDS such as traditional soakaways will be suitable. It is considered that the existing drainage systems will likely be utilised on-site.

Where soakaways are utilised overlying chalk the concentrated ingress of water into the chalk can initiate new dissolution features, particularly in low-density chalk, and destabilise the loose backfill of existing features. The risk of this is considered to be low given the depth of overlying clays and the likely unsuitability of soakaways.

6.0 OTHER DEVELOPMENT CONSTRAINTS

6.1 Constraint Identification

A formal survey of asbestos within structures is not covered in this report. It should be noted that an asbestos demolition survey will be required prior to any demolition of structures. If asbestos is present in soils, these will need to be dealt with in accordance with the Control of Asbestos Regulations (CAR) 2012.

No invasive species have been noted during the walkover, and limited vegetation was noted on-site, however it may be prudent to undertake a specialist survey prior to any works on site.

Notwithstanding any site observations concerning archaeological or ecological features, this report does not constitute a formal survey of these potential issues and specialist advice should be sought.

The preliminary risk assessment undertaken within this Phase I Assessment may identify potential risks to site demolition and construction workers. However, full consideration of occupational health and safety issues is beyond the scope of this report, with employers required to carry out their own site-specific risk assessments and mitigation as appropriate.

7.0 CONCLUSIONS AND RECOMMENDATIONS

7.1 Geo-Environmental Summary

The site has been used historically and presently as part of Tilbury Docks, based on the continued commercial development, the overall risk to human health from on-site soils contamination is considered to be low to moderate / low.

The risk from permanent ground gases is considered to be moderate.

The overall risk to controlled waters is considered to be low to moderate / low.

Intrusive investigations will be required to confirm the above assessed levels of risks and determine remedial requirements, if any.

7.2 Geotechnical Summary

Intrusive investigations will be required to confirm the most suitable foundation solution and to obtain parameters for concrete classification, floor slab and highways design.

Drainage to SuDS is unlikely to be a viable option for the site, subject to intrusive investigation and testing.

7.3 Further Work

To confirm the risks to the identified receptors and confirm the ground conditions in respect to the identified geotechnical and geo-environmental risks, an appropriate intrusive investigation will need to be undertaken. The following further works are recommended, although this list is not exhaustive and should be read in conjunction with any planning conditions that are applicable to the site:

- Demolition Asbestos survey.
- Intrusive ground investigation comprising:
  - Windowless sampling and cable percussive drilling.
  - Installation of standpipes in boreholes to allow gas concentrations and groundwater levels to be monitored.
  - The undertaking of soil infiltration rate testing.
  - Geotechnical testing of soils
  - Contamination analyses of soil and groundwater
- Assessment and recommendations based on the above, including requirements for further work, if necessary.

8.0 ABBREVIATIONS AND DEFINITIONS

GLOSSARY	
Term / Abbreviation	**Definition**
AST	Above Ground Storage Tank.
B(a)P	Benzo (a) Pyrene.
BGS	British Geological Survey.
BRE	Building Research Establishment.
BS	British Standard.
BSL	Brownfield Solutions Ltd.
BTEX	Benzene, Toluene, Ethylbenzene, Xylenes.
CBR	California Bearing Ratio (used in pavement/highways design).
CAR 2012	Control of Asbestos Regulations (2012).
CBCB	Cheshire Brine Compensation Board.
CBCD	Cheshire Brine Compensation District.
CBR	California Bearing Ratio.
CIEH	Chartered Institute of Environmental Health.
CIRIA	Construction Industry Research Association.
CL:AIRE	Contaminated Land: Applications in Real Environments.
CLEA	Contaminated Land Exposure Assessment.
CLO	Contaminated Land Officer.
COMAH	Control of Major Accident Hazards.
Contamination	Presence of a substance which is in, on or under land, and which has the potential to cause significant harm or to cause significant pollution of controlled water. There is no assumption in this definition that harm results from the presence of the contamination. Naturally enhanced concentrations of harmful substances can fall within this definition of contamination. Contamination may relate to soils, surface water, groundwater or ground gas.
Controlled Waters	Inland freshwater (any lake, pond or watercourse above the freshwater limit), water contained in underground strata and any coastal water between the limit of highest tide or the freshwater line to the three-mile limit of territorial waters.
CPT	Cone Penetration Test.
CSM	Conceptual Site Model. A schematic hypothesis of the nature and sources of contamination, potential migration pathways (including description of the ground and groundwater) and potential receptors, developed on the basis of the information from the preliminary investigation and refined during subsequent phases of investigation and which is an essential part of the risk assessment process. The conceptual site model is initially derived from the information obtained by the preliminary investigation (i.e. the Phase I Phase I Assessment). This conceptual model is used to focus subsequent investigations, where these are considered to be necessary, in order to meet the objectives of the investigations and the risk assessment. The results of intrusive investigations can provide additional data that can be used to further refine the conceptual site model.
DCP	Dynamic Cone Penetrometer.
DNAPL	Dense Non-Aqueous Phase Liquid.
DoWCoP	Definition of Waste Code of Practice.
DWS	Drinking Water Standard.
EA	Environment Agency.
EHO	Environmental health Officer.
EQS	Environmental Quality Standard.
GAC	Generic Assessment Criteria.

GLOSSARY	
Term / Abbreviation	**Definition**
GDR	Geotechnical Design Report.
GFR	Geotechnical Feedback Report.
GIR	Ground Investigation Report.
GSV	Gas Screening Value.
Harm	Adverse effect on the health of living organisms, or other interference with ecological systems of which they form part, and, in the case of human health, including property/structures and water supply pipelines.
Hazard	Inherently dangerous quality of a substance, procedure or event.
HDPE	High Density Polyethylene.
HSV	Hand Shear Vane.
K	Modulus of Subgrade Reaction.
LCRM	Land Contamination: Risk Management (EA guidance).
LNAPL	Light Non-Aqueous Phase Liquid (petrol, diesel, kerosene).
LOD	Limit of Detection (for particular method adopted).
MMP	Materials Management Plan.
Mv	Modulus of Volume of Compressibility.
ND	Not Detected.
NHBC	National House Building Council.
NR	Not Recorded.
OS	Ordnance Survey.
PAH	Polycyclic Aromatic Hydrocarbon.
Pathway	Mechanism or route by which a contaminant comes into contact with, or otherwise affects, a receptor.
PCB	Poly-Chlorinated Biphenyl.
PCSM	Preliminary Conceptual Site Model.
pH	Scale used to specify how acidic or basic a water-based solution is.
PHC	Petroleum Hydrocarbons.
PID	Photo Ionisation Detector.
PNEC	Predicted No-Effect Concentration.
Precision	Level of agreement within a series of measurements of a parameter.
PSD	Particle Size Distribution.
PVC	Polyvinyl Chloride.
Receptor	Human health, living organisms, ecological systems, controlled waters (surface waters and groundwater within aquifers), atmosphere, structures and utilities that could potentially be adversely affected by contaminant(s).
Risk	Probability of the occurrence, magnitude and consequences of an unwanted adverse effect on a receptor.
Risk Assessment	Process of establishing, to the extent possible, the existence, nature and significance of risk.
Sampling	Methods and techniques used to obtain a representative sample of the material under investigation.
SOM	Soil Organic Matter.
Source	Location from which contamination is, or was, derived. This could possibly be the location of the highest soil, groundwater or gas concentration of the contaminant(s).
SPT	Standard Penetration Test.
SVOCs	Semi Volatile Organic Compounds.
TOC	Total Organic Carbon.
TPH CWG	Total Petroleum Hydrocarbon (Criteria Working Group).

GLOSSARY	
Term / Abbreviation	**Definition**
TVOCs	Total volatile organic compounds.
UCS	Unconfined Compressive Strength.
Uncertainty	Parameter, associated with the result of a measurement that characterises the dispersion of the values that could reasonably be attributed to the measurement.
UST	Underground Storage Tank.
UXO	Unexploded Ordnance.
VCCs	Vibro Concrete Columns.
VSCs	Vibro Stone Columns
VOCs	Volatile Organic Compounds.
WAC	Waste Assessment Criteria.
WFD (in waste context)	Waste Framework Directive.
WFD (in water context)	Water Framework Directive.
Units	**Definition**
°	Degrees
Φ	Phi angle (in degrees)
g/l	Grams per Litre
Km	Kilometres
kPa	Kilo Pascal (Equivalent to kN/m^2)
$KN/m^2/mm$	Kilo Newton per metered squared per millimeter
kN/m^2	Kilo Newtons per metre squared
kPa	Kilo Pascal (Equivalent to kN/m^2)
l/hr	Litres per hour
MJ/kg	Mega joule per kilogram
MN	Mega Newton
M^2/MN	Mega Newton per metre squared
M	Metres
m bgl	Metres Below Ground Level
m OD	Metres Ordnance Datum (sea level)
µg/l	Micrograms per Litre (parts per billion)
µm	Micrometre
mb	Millibars (atmospheric pressure)
mg/kg	Milligrams per kilogram (parts per million)
mg/m^3	Milligram per metre cubed
mm	Millimetre
ppb	Parts Per Billion
Ppm	Parts Per Million

9.0 REFERENCES

BS 5930+A1:2020: 'Code of Practice for Site Investigations'. 2020.

BS 10175:2011+A2:2017 'Investigation of Potentially Contaminated sites - code of practice'. 2017.

BRE Report BR211, Scivyer, C. 'Radon – Guidance on protective measures for new buildings' 2015 Edition.

CIRIA C574 'Engineering in Chalk'. 2002.

CIRIA C665 'Assessing Risks Posed by Hazardous Ground Gases to Buildings'. 2007.

CIRIA C681 'Unexploded Ordnance (UXO) A guide for the construction industry'. 2009.

CIRIA C753 'The SuDS Manual'. 2015.

CL:AIRE RB17 'A Pragmatic Approach to Ground Gas Risk Assessment'. 2012.

Department of the Environment. 'Industry Profiles' - 48 separate publications available from The Stationery Office, London. 1995.

DEFRA and the Environment Agency, CLR Report No 11 'Model Procedures for the Management of Contaminated Land'. 2004. [Withdrawn 2019.]

Environment Agency (EA) - Land Contamination Risk Management (LCRM). 2019.

Health and Safety Executive (HSE). Control of Asbestos Regulations (CAR). 2012.

Highways England. CD 622, 'Managing geotechnical risk'. 2020.

National Planning Policy Framework (NPPF). 2021.

National Planning Policy Framework - Technical Guidance. March 2012.

Water Framework Directive, 2000.

DRAWINGS

REV	DATE	DESCRIPTION	DRW	CHK
P01	12.12.22	Issued For Comment	SA	RME
P02	14.12.22	Updated to Clients comments	SA	RME

KEY

Site Boundary

Client
BLUE PHOENIX

Project Title
REDEVELOPMENT OF TILBURY DOCK SITE

Drawing Title
SCHEMATIC LAYOUT

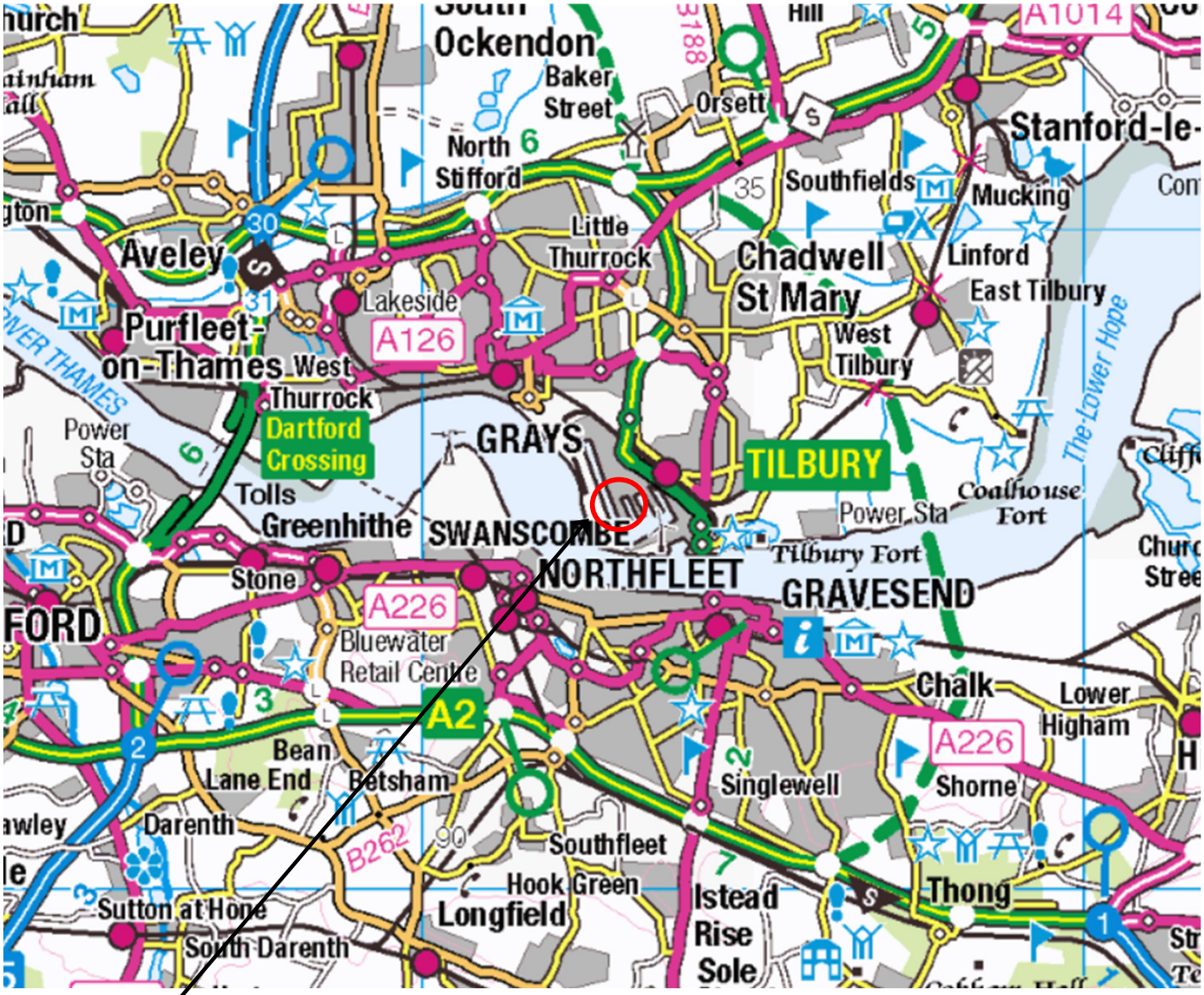
Job No.	Originator	Zone	Level	Type	Role
P22161	SMCE	ZZ	XX	DR	C

Drawing No. 0100 — Revision P02

Drawn	Checked	Date	Scale	Size
SA	RME	06.12.22	1:1000	A1

Purpose Of Issue: FOR COMMENT — Status: S3

STIRLINGMAYNARD
CONSULTING ENGINEERS
Stirling House Rightwell Bretton Peterborough PE3 8DJ
Tel 01733 262319 Fax 01733 331527
email enquiries@stirlingmaynard.com www.stirlingmaynard.com



SITE LOCATION

NEAREST POSTCODE: RM18 7HA

SITE ENTRANCE WHAT3WORDS: ///BRIGHT.SIZES.LANES

REV	DATE	DESCRIPTION	BY	CKD

BROWNFIELD SOLUTIONS LTD
GEO-ENVIRONMENTAL ENGINEERING EXCELLENCE

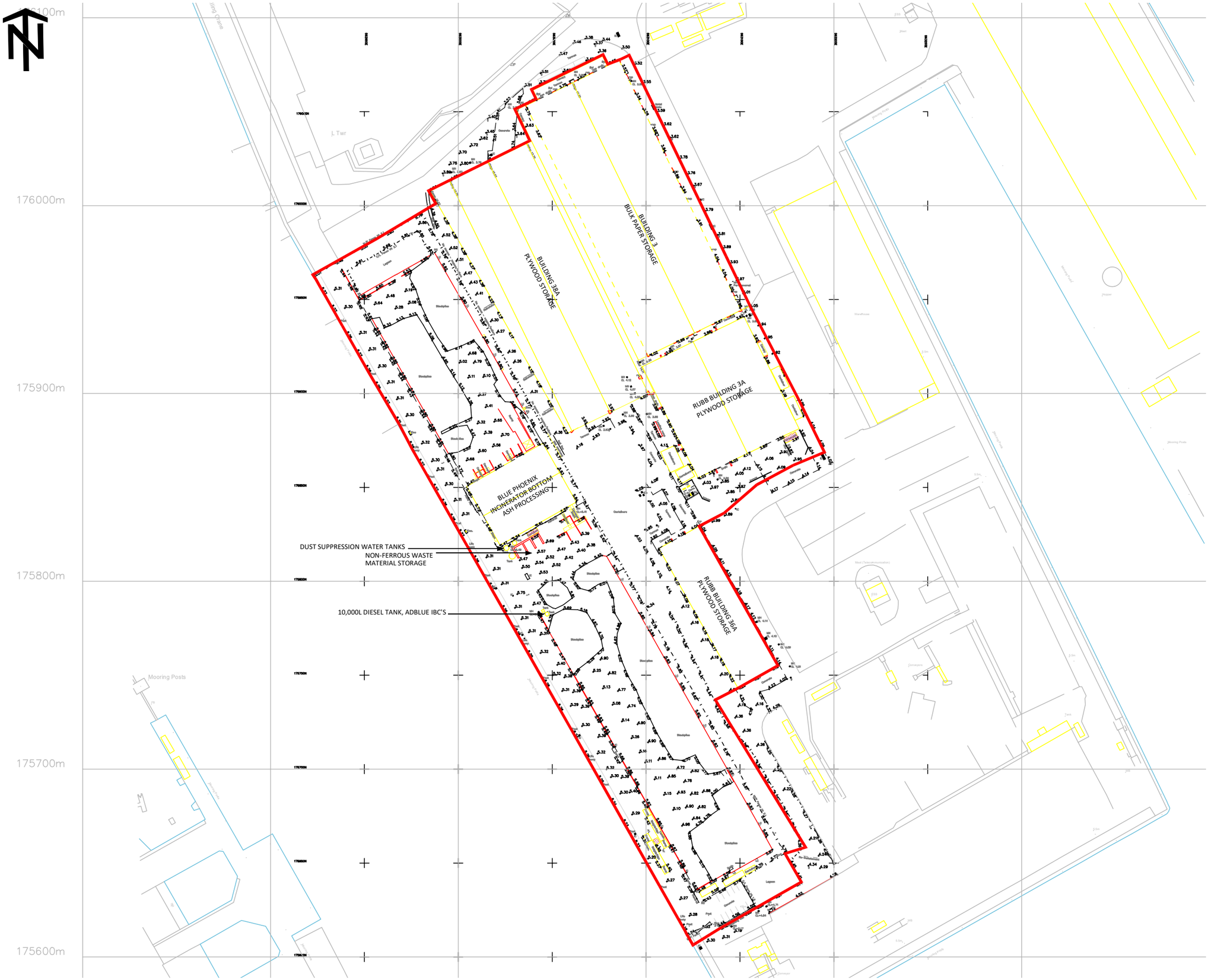
CLIENT: BLUE PHOENIX

PROJECT TITLE: TILBURY DOCKS, ESSEX

DRAWING TITLE: SITE LOCATION PLAN

DRAWING No.	REVISION	SCALE	DATE
C5441/01	-	NTS	04/07/23

DRAWN BY	CHECKED BY
SD	JW



KEY

APPROXIMATE SITE BOUNDARY

NOTES

1. ALL DIMENSIONS TO BE CHECKED ON SITE BEFORE COMMENCING WORKS. ANY DISCREPANCIES ARE TO BE REPORTED TO THE ARCHITECT & ENGINEER FOR VERIFICATION. FIGURED DIMENSIONS ONLY ARE TO BE TAKEN FROM THIS DRAWING.
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REV	DATE	DESCRIPTION	BY	CKD

BROWNFIELD SOLUTIONS LTD

CLIENT

BLUE PHOENIX

PROJECT TITLE

TILBURY DOCKS, ESSEX

DRAWING TITLE

SITE FEATURES PLAN

DRAWING No.	REVISION	SCALE	DATE
C5441/02	-	NTS	17/07/23

DRAWN BY	CHECKED BY
JW	XXX

PHOTOGRAPHS

Photograph 1: Diesel Tank

Photograph 2: IBCs / Chemical Storage

Photograph 3: Empty Propane Storage

Photograph 4: Waste Storage Bins

Photograph 5: On-site Substation

Photograph 6: IBA Processing Facility

Photograph 7: Inside Building 38A

Photograph 8: Inside Building 3

Photograph 9: Inside RUBB Building 36A

Photograph 10: Inside Building 3A

Photograph 11: Unprocessed IBA

Photograph 12: Processed IBA

APPENDIX A

BSL Methodology and Guidance

BSL Phase I Geo-Environmental Assessment Reports - Methodology and Guidance

This Appendix provides information on the approaches, methods and guidance used by Brownfield Solutions Ltd in the preparation of this report.

The term 'geo-environmental' is used to describe aspects relating to ground-related environmental issues (such as potential soils and groundwater contamination). The term 'geotechnical' is used to describe aspects relating to the physical nature of the site (such as foundation requirements). It should be noted that this is an integrated investigation and these two main aspects are related, unless otherwise specified within the report.

Phase I reports are written in general accordance with the description of a Preliminary Investigation as defined in BS10175:2011+A2:2017 and are also produced in general accordance with the recommendations for a Tier 1 Preliminary Risk Assessment as described in LCRM guidance

The first stage of the investigation and assessment of a site is the Preliminary Investigation/Tier 1 Preliminary Risk Assessment, often referred to as a Phase 1 Desk Study, comprising a desk study and walk-over survey and collation of desk-based searches, which culminates in the Preliminary Risk Assessment and the development of a preliminary/initial Conceptual Site Model (CSM). From this are identified any potential geotechnical and geo-environmental hazards and the qualitative degree of risk associated with them.

From the geo-environmental perspective, the hazard Identification process uses professional judgement to evaluate all the hazards in terms of possible contaminant linkages (of source-pathway-receptor). Possible contaminant linkages are potentially unacceptable risks in terms of the current contaminated land regime legal framework and require either remediation or further assessment. These are normally addressed via intrusive ground investigation and generic risk assessment as part of Phase II investigations and reports.

Contaminated Land - Legislative Background

Land contamination can be addressed in several ways, e.g. during planning, under Part 2A, following an incident, during an investigation into environmental damages, or during the application of an environmental permit, or its surrender.

For the planning process the key test is **as a minimum the site cannot be determined as contaminated land**, e.g. there is not significant harm, significant possibility of significant harm to human health or that there is not significant harm to, or the significant possibility that the pollution of controlled waters will occur.

Environmental liabilities and risks have been evaluated in terms of a source -pathway - target relationship in accordance with the approach set out in:

- The 1995 Environment Act.
- The Contaminated Land Statutory Guidance, DEFRA – April 2012.
- The Contaminated Land (England) Regulations 2006.
- The Contaminated Land (England) Amendment Regulations 2012.
- Water Resources Act.
- Water Framework Directive.
- Environmental Damage Regulations.
- Environment Agency (EA) - Land Contamination Risk Management (LCRM) 2019.

Contaminated land is defined within the legislative framework as land which is in such condition by reason of substances in, on or under the land that:

1) Significant harm is being caused or there is a significant possibility of such harm being caused.
2) Significant pollution of controlled waters is being or is likely to be caused.

The potential for harm is based on the presence of three factors:

Source - substances that are potential contaminants or pollutants that may cause harm.
Pathway - a potential route by which contaminants can move from the source to the receptor , and the impact of that migration on the source e.g. ;attenuation.
Receptor - a receptor that may be harmed, for example the water environment, humans and water, considering the sensitivity of the receptor

Where a source, pathway and target are all present a pollutant linkage exists and there is potential for harm to be caused. The presence of a source does not automatically imply that a contamination problem exists, since contamination must be defined in terms of pollutant linkages and unacceptable risk of harm. The nature and importance of both pathways and receptors are site specific and will vary according to the intended end use of the site, its characteristics and its surroundings.

The key principle which supports the SPR approach is 'suitable for use' criteria. This requires remedial action only where contamination is considered to pose unacceptable actual or potential risks to health or the environment and, taking into account the proposed use of the site.

Relevant Guidance Documents
This report has been prepared in accordance with the list of guidance below, however the list is not exhaustive:

- DETR: Circular 02/2000: Environmental Protection Act 1990: Part IIA: Contaminated land. 2012.
- Environment Agency technical advice to third parties on Pollution of Controlled Waters for Part IIA of the EPA1990, May 2002.
- BS 10175:2011+A2:2017.
- Environment Agency (EA) - Land Contamination Risk Management (LCRM). 2019.

- Groundwater Protection - https://www.gov.uk/government/collections/groundwater-protection.
- UK Technical Advisory Group (UKTAG) - - Water Framework Directive
- Incidents and their classification: the Common Incident Classification Scheme (CICS) – Used by the Environment Agency to classify pollution incidents.

Relevant Legislative Documents
The following is a non-exhaustive list of legislative framework documents that has been considered in the production of this report:

- The Environmental Protection Act 1990: Part 2A Contaminated Land Statutory Guidance (2012).
- The Environment Protection Act (1990).
- The Water Resources Act (1991).
- The Environment Act (1995).
- The Contaminated Land (England) Act (2000).
- The Pollution Prevention and Control (England and Wales) Regulations (2000).
- The Landfill Regulations (England and Wales) Regulations (2002).
- The Landfill (England and Wales) (Amendment) Regulations (2004).
- Contaminated Land (England) Regulations (2012).
- The Environmental Damage (Prevention and Remediation) Regulations (2009).
- Environmental Permitting Regulations (England and Wales) Regulations (2010).
- The Water Environment (Water Framework Directive) (England and Wales) Regulations 2017
- Health and Safety at Work Act.
- National Planning Policy Framework (NPPF)(2021).

Contaminated Land Risk Assessment Approach

Contaminated Land Risk Assessment is a technique that identifies and considers the associated risk, determines whether the risks are significant and whether action needs to be taken. The four main stages of risk assessment are:

Hazard Identification ➡ Hazard Assessment ➡ Risk Estimation ➡ Risk Evaluation.

LCRM outlines the framework to be followed for risk assessment in the UK. The framework is designed to be consistent with UK legislation and policies including planning. The starting point of the risk assessment is to identify the context of the problem and the objectives of the process. Under LCRM, three tiers of risk assessment exist – Stage/Tier Preliminary Risk Assessment, Stage 2 Generic Quantitative and Stage 3 Detailed Quantitative.

Further information can be found at the below site:
https://www.gov.uk/government/publications/land-contamination-risk-management-lcrm

Formulating and developing a conceptual model for the site is an important requirement of risk assessment, this supports the identification and assessment of pollutant linkages. Development of the conceptual model forms the main part of preliminary risk assessment, and the model is subsequently refined or revised as more information and understanding is obtained through the risk assessment process.

Risk is a combination of the likelihood of an event occurring and the magnitude of its consequences. Therefore, both the likelihood and the consequences of an event must be taken into account when assessing risk.

The risk assessment process needs to take into account the degree of confidence required in decisions. Identification of uncertainties is an essential step in risk assessment.

The likelihood of an event is classified on a four-point system using the following terms and definitions from CIRIA C552, with reference to Incidents and their classification: the Common Incident Classification Scheme

(CICS), Environmental Protection Act 1990: Part 2A – Contaminated Land Statutory Guidance 2012 and other guidance as appropriate which will be detailed within the main body of the report if applied.

The likelihood of a given receptor being impacted is related to a number of factors, e.g. the geology which could inhibit contaminant migration. For example, a site with a significant thickness of clay between it and a receptor may reduce migration of contamination via the subsurface, which will reduce the likelihood of a given receptor being impacted. The geology or drainage for example could offer a preferential pathway e.g. mines shafts/faults increasing the likelihood and potential magnitude of an impact. The depth of contamination will also affect the exposure pathway, for example petroleum hydrocarbons at depth are unlikely to reach a receptor via dermal contact but could via vapour pathways which will influence the likelihood of an impact being felt e.g. if there are no buildings on site.

The terms and definitions used for the assessment of the likelihood are provided below:

High likelihood: There is a pollution linkage and an event appears very likely in the short term and almost inevitable over the long term, or there is evidence at the receptor of harm or pollution.
Examples - Extensive areas with concentrations above saturation limits for mobile contamination e.g. petroleum hydrocarbons within the water table.

Likely: There is a pollution linkage and all the elements are present and in the right place, which means it is probable that an event will occur. Circumstances are such that the event is not inevitable, but possible in the short term and likely over the long term.
Examples – Localised areas of contaminants with concentrations above saturation limits for mobile contamination e.g. localised petroleum hydrocarbons within the water table; shallow contamination above relevant human health generic assessment criteria is present with little or no hardstanding,

Low likelihood: There is a pollution linkage and circumstances are possible under which an event could occur. However, it is by no means certain even over a longer period such event would take place, and is less likely in the short term.
Examples - A thickness/distance of low permeability deposits preventing contaminant migration to a receptor is present; a site is mostly covered hard standing preventing exposure to soil contamination.

Unlikely: There is a pollution linkage but circumstances are such that it is improbable the event would occur even in the long term.
Examples – A site is underlain by a substantial thickness of low permeability clays, between the source and potential receptors which will inhibit significantly, but not completely rule out migration to sensitive receptors.

The severity is also classified using a system based on CIRIA C552, with reference to Incidents and their classification: the Common Incident Classification Scheme (CICS), Environmental Protection Act 1990: Part 2A – Contaminated Land Statutory Guidance 2012 and other guidance as appropriate which will be detailed within the main body of the report, if applied. The terms and definitions are:

Severe: Short term (acute) risk to human health likely to result in 'significant harm' as defined by the Environment Protection Act 1990, Part IIA. Short-term risk of pollution of sensitive water resources. Catastrophic damage to buildings or property. A short-term risk to a particular ecosystem or organism forming part of that ecosystem (note definition of ecosystem in 'Draft Circular on Contaminated Land', DETR 2000);
Examples – High concentrations of contaminant on surface of recreation area, major spillage of contaminants from site into controlled waters, explosion causing building to collapse.

Medium: Chronic damage to human health ('significant harm' as defined in DETR 2000). Pollution of sensitive water resources. A significant change in a particular ecosystem or organism forming part of that ecosystem (note definition of ecosystem in 'Draft Circular on Contaminated Land', DETR 2000);
Examples - Concentrations of contaminants exceed the generic assessment criteria, leaching of contaminants from a site to a Principal or Secondary Aquifer, death of species within a designated nature reserve.

Mild: Pollution of non-sensitive water resources. Significant damage to crops, buildings, structures and services ('significant harm' as defined in 'Draft Circular on Contaminated Land', DETR 2000). Damage to sensitive buildings, structures, services or the environment.
Examples – Pollution of non-classified groundwater or damage to buildings rendering it unsafe to occupy.

Minor: harm, not necessarily significant harm, which may result in financial loss or expenditure to resolve. Non-permanent health effects to human health (easily prevented by use of personal protective clothing etc). Easily repairable effects of damage to buildings, structures and services.
Examples – Presence of contaminants at such concentrations PPE is required during site work, loss of plants in landscaping scheme or discolouration of concrete.

Once the likelihood and severity have been determined, a risk category can be assigned using the table below.

		Consequences			
		Severe	Medium	Mild	Minor
Probability	Highly likely	Very high	High	Moderate	Moderate/low
	Likely	High	Moderate	Moderate/low	Low
	Low likelihood	Moderate	Moderate/low	Low	Very low
	Unlikely	Moderate/low	Low	Very Low	Very low
	No Linkage	Negligible			

Definitions of the risk categories obtained from the above table are as follows together with an assessment of the further work that might be required:

Very high: There is a high probability that severe harm could arise to a designated receptor from an identified hazard or there is evidence that severe harm is currently happening. This risk, if realised, could result in substantial liability. Urgent investigation and remediation are likely to be required.

High: Harm is likely to arise to a designated receptor from an identified hazard. Realisation of the risk is likely to present a substantial liability. Urgent investigation is required and remedial works may be necessary in the short term and are likely over the longer term.

Moderate: 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, or if any harm were to occur it would be more likely to be relatively mild. Investigation is normally required to clarify the risk and determine the liability. Some remedial works may be required in the longer term.

Low: It is possible that harm could arise to a designated receptor from an identified hazard, but it is likely that this harm, if realised, would at worst normally be mild.

Very Low: There is a low possibility that harm could arise to a receptor. In the event of such harm being realised, it is not likely to be severe.

Some linkages may be identified which constitutes a theoretical connection between a source and a receptor, but professional judgement shows them not to be possible for some reason. These are labelled 'no linkage' in the summary table, which give rise to a **negligible** risk category and no further action is required.

Ground Gas Risk Assessment Guidance

BS8485:2015+A1:2019, BS 8576:2013, CIRIA C665 and CL:AIRE RB17 are the current guidance which gives up-to-date advice on all aspects of ground gas. They outline good practice in investigation, the collection of relevant data and monitoring programmes in a risk-based approach to ground gas contamination.

Within BS8485:2015+A1:2019, BS 8576:2013 and CIRIA C665, two semi-quantitative methods are set out for the assessment of risk:

1 For low rise housing with a ventilated under floor void at minimum 150 mm (Boyle and Witherington).
2 For all other development types (Wilson and Card).

Both methods use the concept of Gas Screening Values (GSVs) to identify levels of risk. The mitigation and management of potentially unacceptable risk is described with reference to both passive and active systems of gas. Source removal is also discussed as an option. A sperate approach is discussed under the RB17 header further below.

The aim of the guidance is for a consistent approach to decision making, particularly relating to the scope of protective design measures on a site-specific basis.

Legislative Framework
BS8485:2015+A1:2019, BS 8576:2013 and CIRIA C665 provides technical guidance, however they also recognise the context into which the guidance has to be employed. Government policy is based upon a "suitable for use approach", which is relevant to both the current and proposed future use of land. When considering the current use of land, Part IIA of the Environment Protection Act 1990 provides the regulatory regime. The presence of hazardous ground gases could provide the "source" in a "pollutant linkage" which could lead the regulator to determine that considerable harm or there is a significant possibility of such harm being caused. Under such circumstances, the regulator would determine the land to be "contaminated land" under the provisions of the Act, setting out the process of remediation as described in the DETR Circular 02/2000 *Statutory guidance on contaminated land.*

Generation Potential of Sources
BS 8576:2013 Figure 6 provides a basis for assessing the generation potential from sources identified as part of the Phase I Assessment. These are summarised below:

Generation Potential	Typical Sources
Very Low	• Natural carbonate soil and strata, e.g. chalk and limestone. • Natural soil strata with a low degradable organic content, e.g. alluvium, peat. • In-filled pond less than 15 m diameter, in-filled before 1930s to 1940s. • Made ground with low degradable organic content (e.g. up to 5% organic material such as pieces of wood, pieces of paper, rags, etc. with a high proportion of ash and no food or other easily degradable waste). • Mine workings shallow or shaft (where there is clear evidence that they are flooded). • Inert landfill sites.
Low	• Natural soil strata with a high degradable organic content (DOC). • Made ground with total organic carbon (TOC) up to 6% (e.g. dock silt, no food or other easily degradable waste). • Foundry sand (includes phenolic binders, rags and wood that decay, albeit at low rates). • Landfill 1945 to mid 1960s (see also Moderate below).
Moderate	• Sewage sludge. • Mine workings – unflooded, more than 50 years since last worked (gas is liberated from coal when mine workings are excavated; this continues for up to about 50 years). • Landfill 1945 to mid 1960s (this could also be "low" or, if disturbed, "high").

Generation Potential	Typical Sources
High	• Landfill mid 1960s to early 1990s. • Mine workings – unflooded – less than 50 years since last worked.
Very High	• Municipal landfill sites. • Landfill early 1990s onward.

Frequency and Duration of Monitoring

The monitoring period for a specific site covers the "worst case" scenario. A "worst case" scenario will typically occur during falling atmospheric pressure and, in particular, weather conditions such as rainfall, frost and dry weather.

The benefits of the additional information and whether it is likely to change the scope of gas protection should be considered, as are the consequences of failing to characterise adequately pollutant linkages. Investigations concerned with soil gas are required to provide monitoring data sufficient to allow prediction of worst case conditions enabling the confident assessment of risk and subsequent design of appropriate gas protection schemes. Monitoring programmes should not be an academic exercise in data collection. CL:AIRE publication TB17 "Ground Gas Monitoring and 'Worst-Case' Conditions" provides further guidance.

Below are matrices that will aid in determining an appropriate number of gas monitoring visits and the length of monitoring period.

Typical/idealised periods of monitoring

		Generation of Potential Source				
		Very Low	Low	Moderate	High	Very High
Sensitivity of Development	Low (Commercial)	1 month	2 months	3 months	6 months	12 months
	Moderate (Apartments)	2 months	3 months	6 months	12 months	24 months
	High (Low rise Residential)	3 months	6 months	6 months	12 months	24 months

Typical/idealised frequency of monitoring/Number of Visits Required

		Gas Generation of Potential Source				
		Very Low	Low	Moderate	High	Very High
Sensitivity of Development	Low (Commercial)	4	6	6	12	12
	Moderate (Apartments)	6	6	9	12	24
	High (Low rise Residential)	6	9	12	24	24

Note

1 NHBC guidance also recommends this period of monitoring (Boyle and Witherington, 2007).
2 Generation potential of sources based on descriptions within BS 8576:2013.
3 At least two sets of readings should be at low and falling atmospheric pressure (but not restricted to periods below <1000 mb) known as worst case conditions. Historical data can be used as part of the data set (Table 5.5b).

It is recommended that newly installed monitoring wells are left for 24 hours to allow the soil gas to reach equilibrium. It should be recognised, however, that some soil gas regimes could take considerably longer (up to seven days). Interpretation of any initial readings should take this equilibrium process into account.

RB17 Approach

CL:AIRE RB17 (Card et al 2012) is a pragmatic approach to ground gas risk assessment and was developed because gas concentration, pressure and flow rate measured in a well headspace may not be representative of the conditions in the surrounding formation.

In these low-risk situations, the approach is to use the conceptual site model and the estimation of the likely gas generation from a source to identify where or if gas monitoring is required to better define the risks.

Under this approach, for sites with natural soils only with no credible methane source, then no action is required (no monitoring or gas protection measures) as this represents Characteristic Situation 1 (CS1).

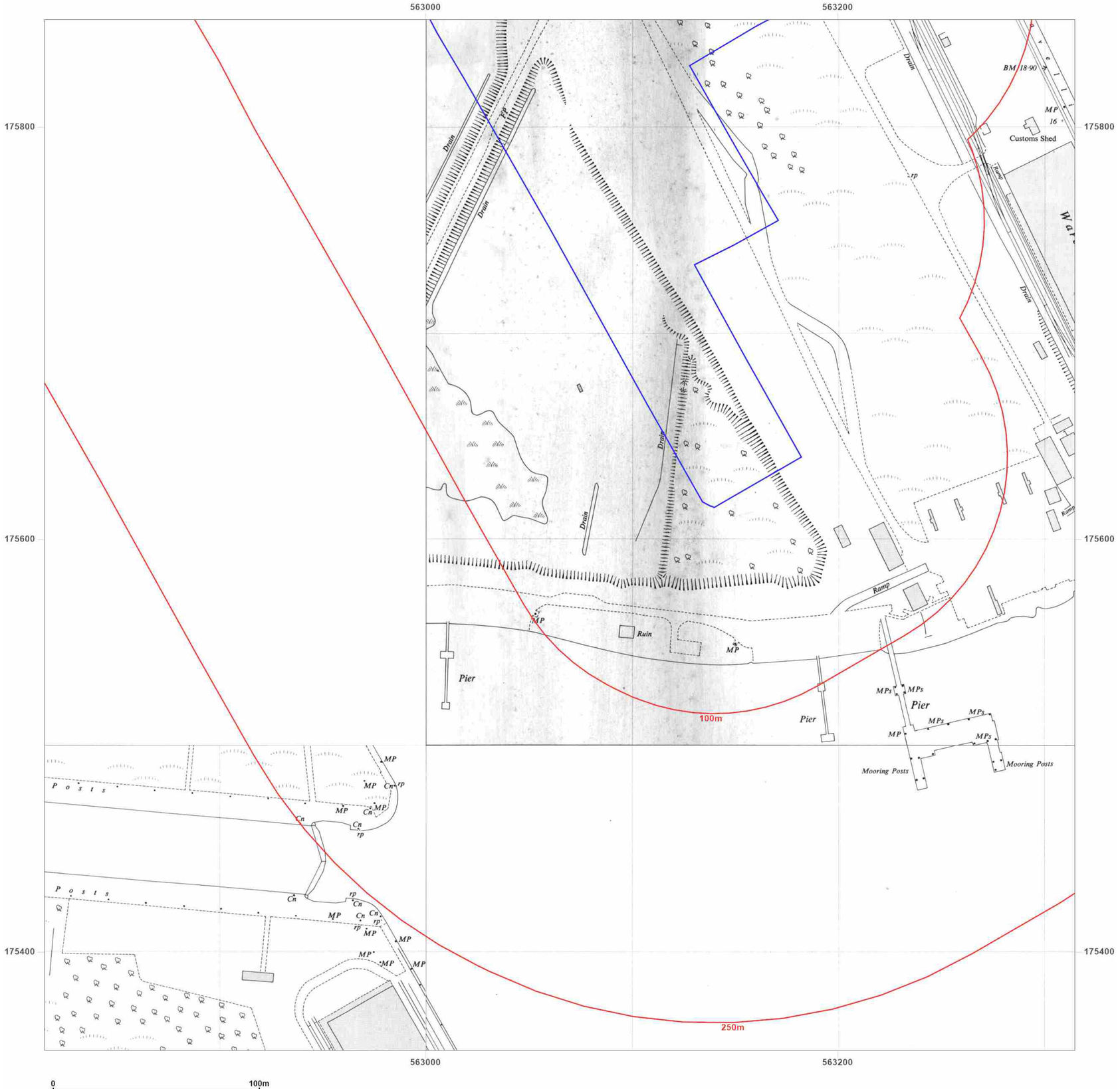
Unexploded Ordnance (UXO) Guidance

Clients have a legal duty under the CDM 2015 Regulations to provide designers and contractors with project-specific health and safety information needed to identify hazards and risks. This includes the possibility of unexploded ordnance (UXO) being encountered on the site. Further details are given in CIRIA report C681.

BSL carry out non-specialist UXO screening exercises by considering any evidence of UK defence activities on or near the site evident from gathered desk study information and the unexploded aerial delivered bomb (UXB) online risk maps produced by Zetica. Other data sources are available, but as a first stage screening exercise the freely available online Zetica maps have been used. The level of risk stated is that determined by Zetica, a company experienced and considered competent in the assessment of UXO.

APPENDIX B

Historical Maps



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Report Ref: BRO-B4Q-BKA-B49-CXB_1250_1_1
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Map Name: National Grid
Map date: **1950**
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Printed at: 1:2,000

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Surveyed 1950
Revised 1950
Edition N/A
Copyright N/A
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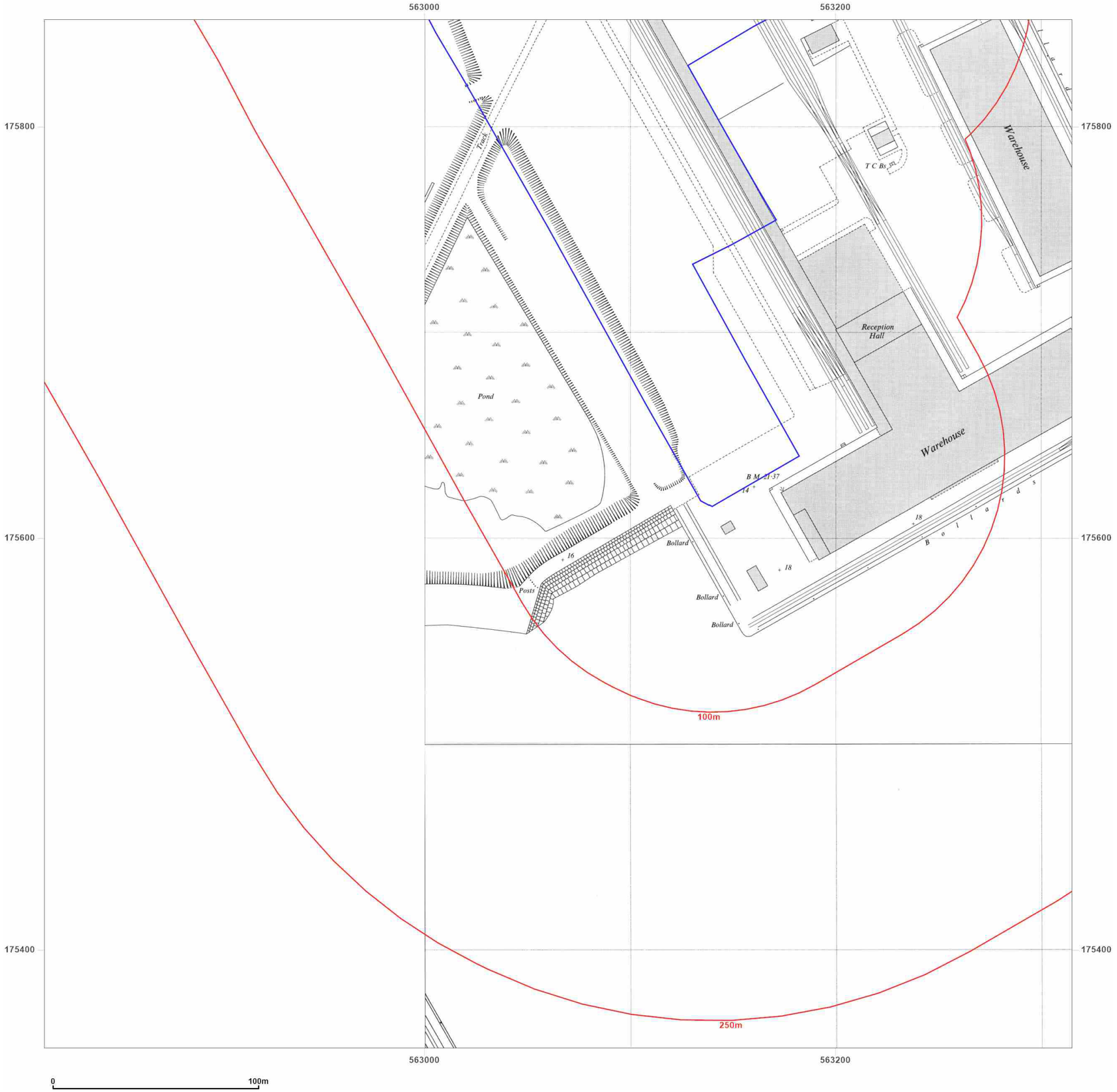

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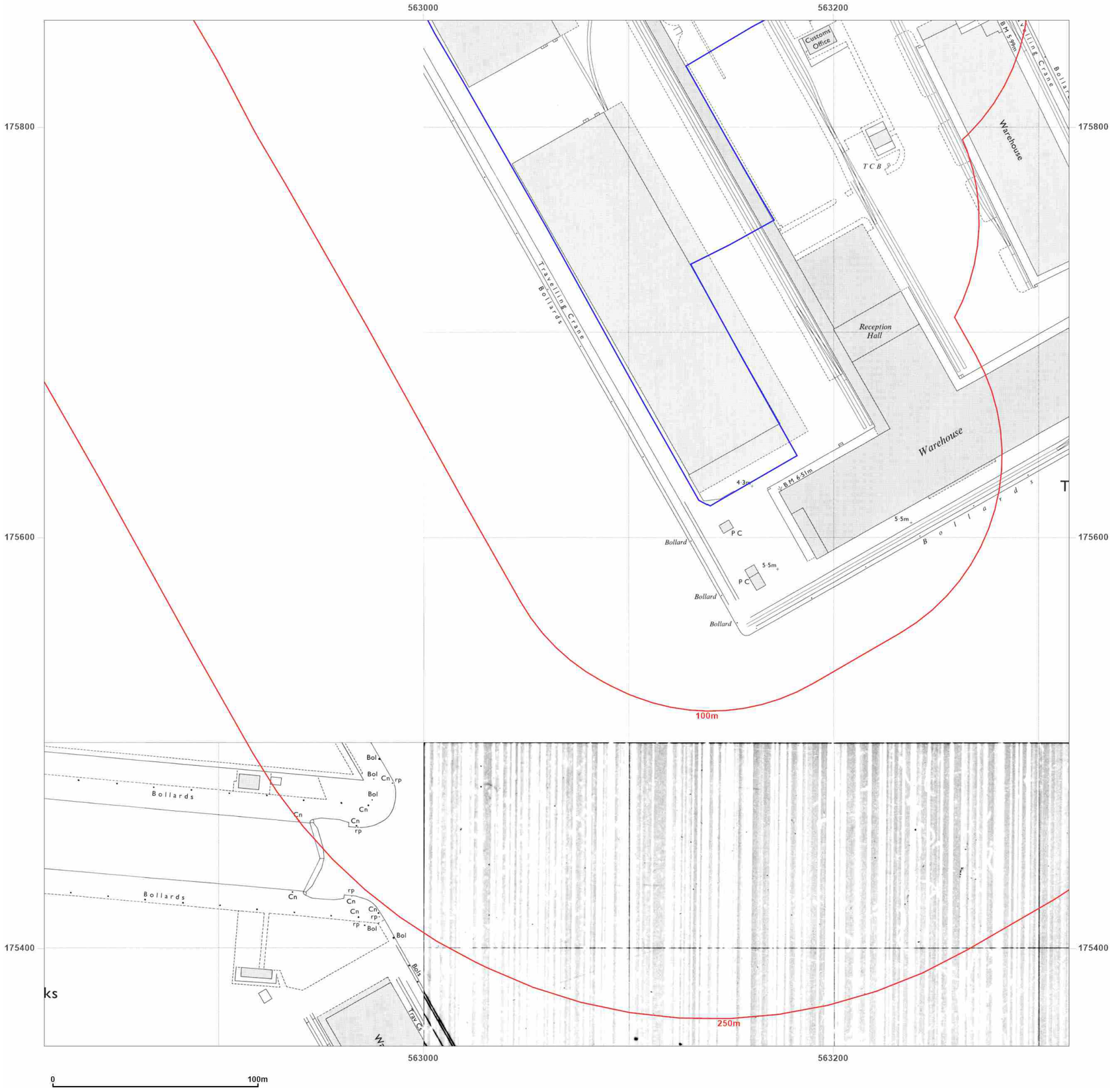

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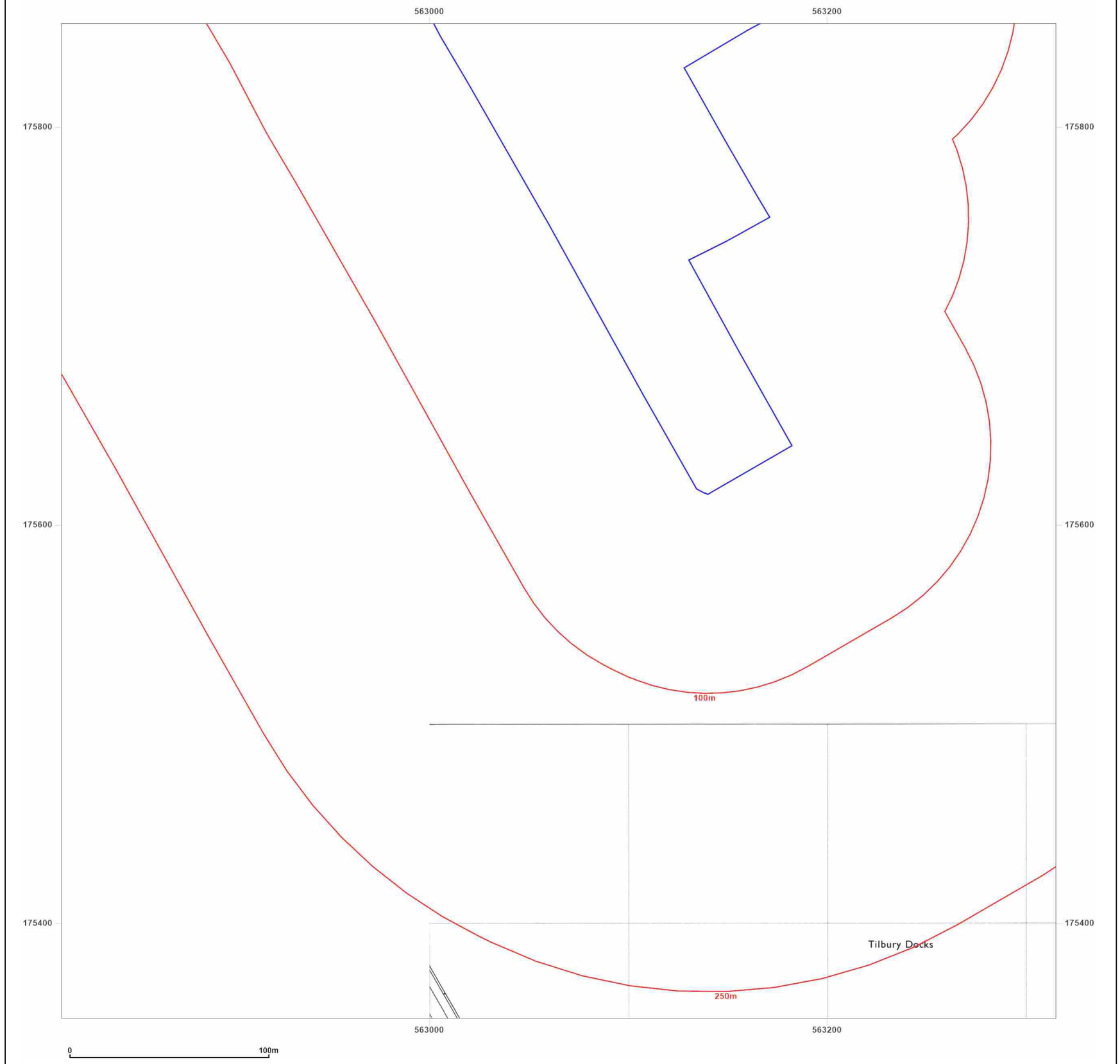

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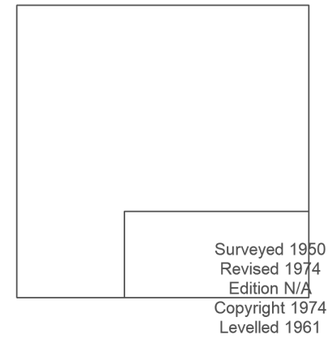

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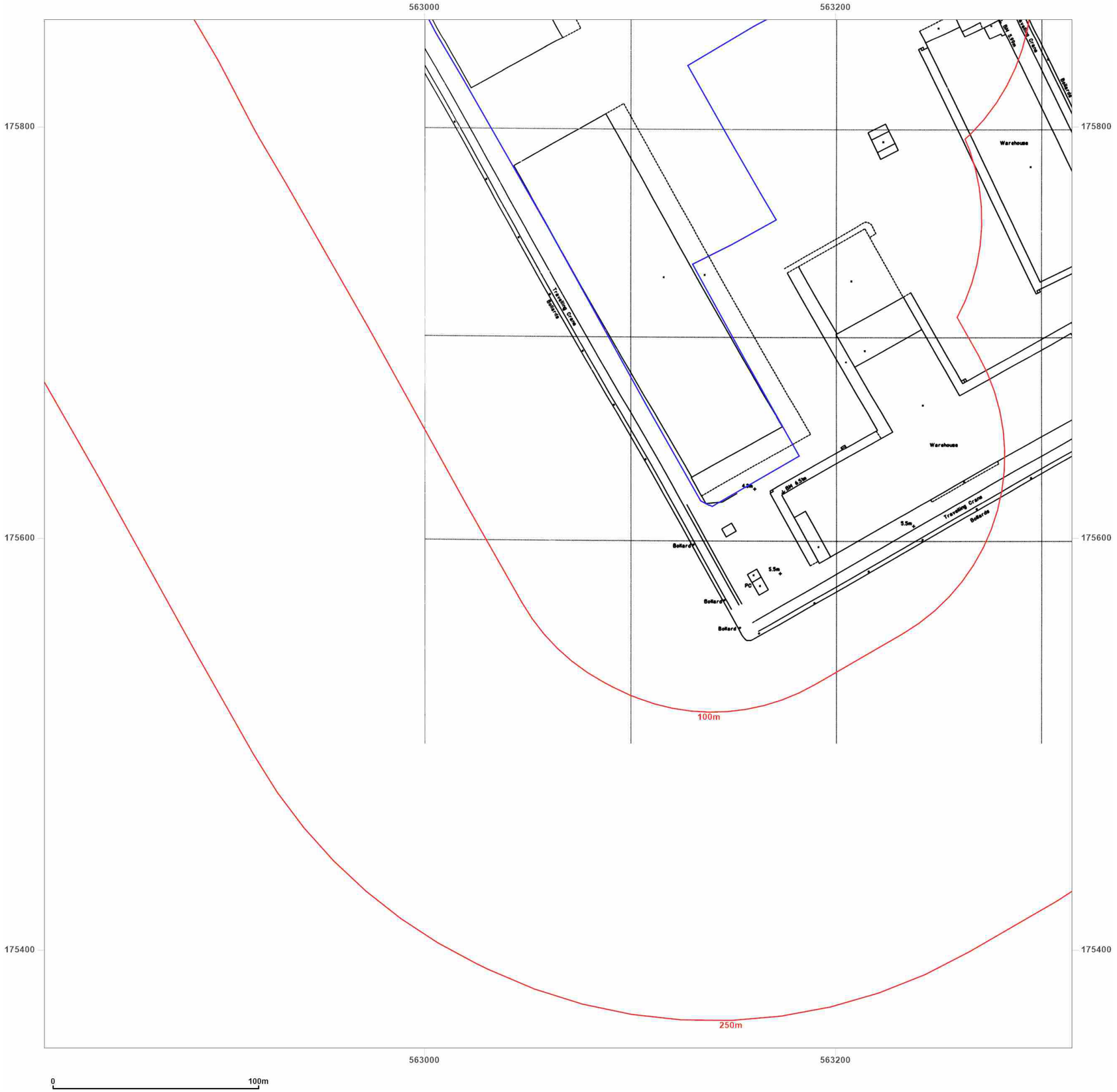

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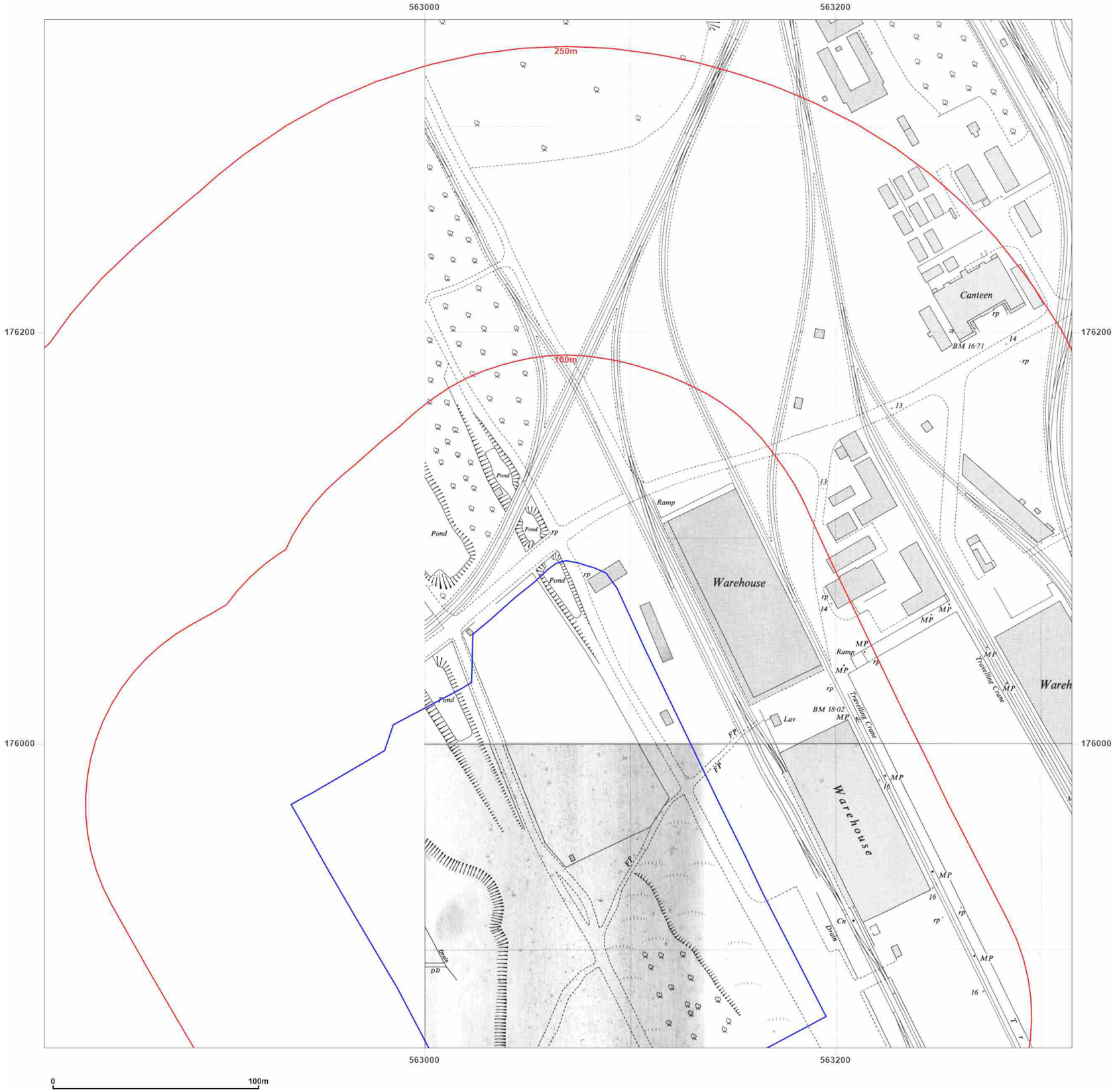

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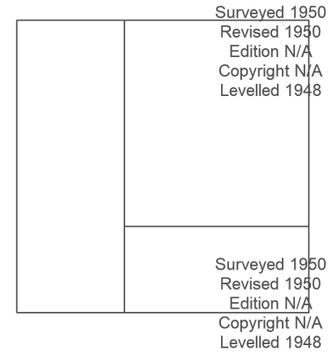

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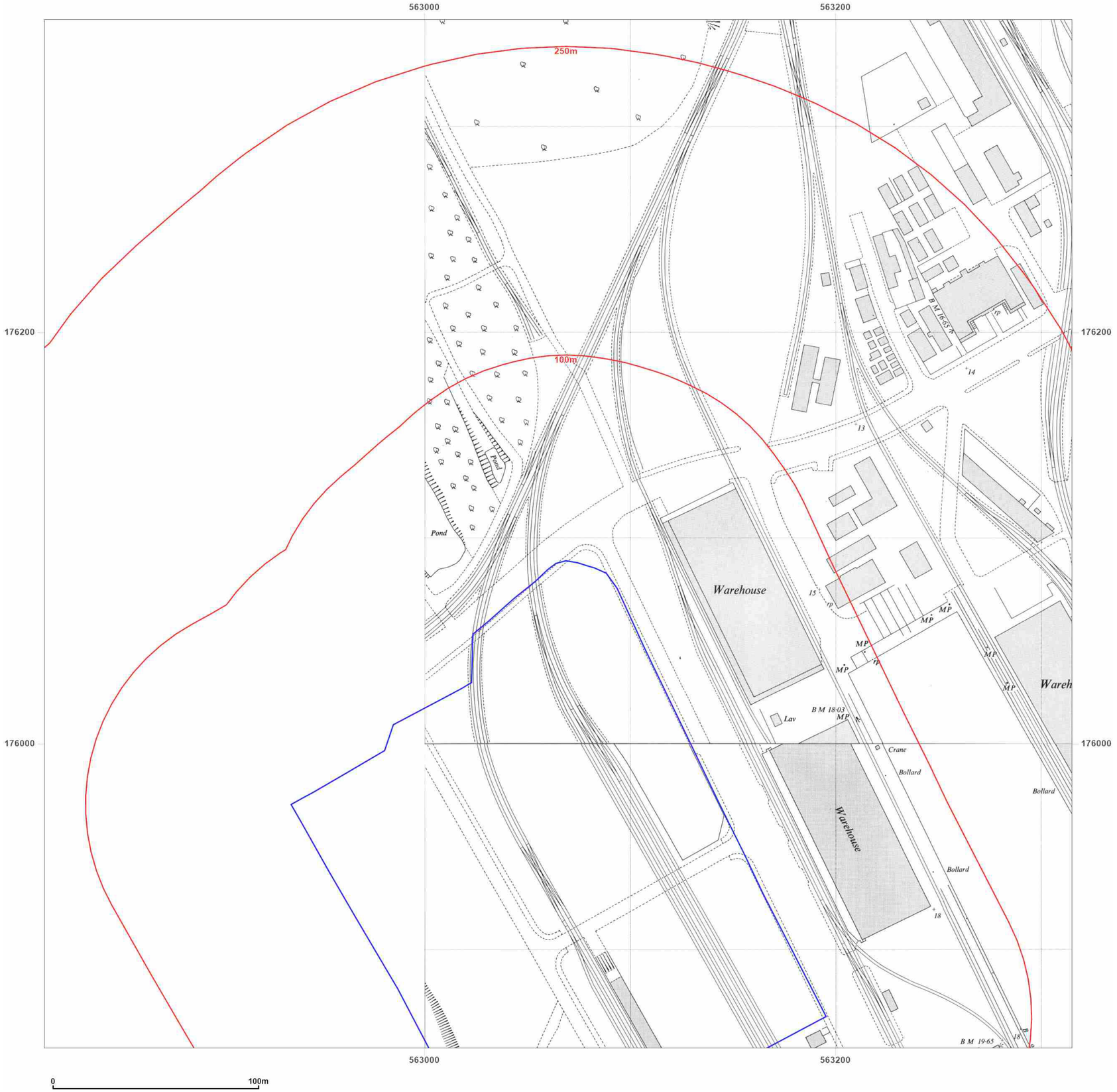

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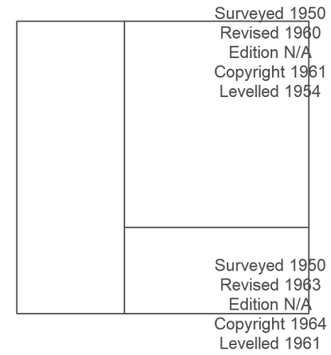

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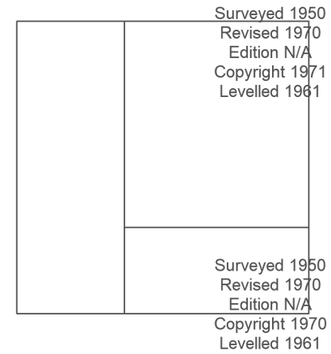

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GEO-ENVIRONMENTAL ENGINEERING EXCELLENCE

Site Details:

PORT OF TILBURY, TILBURY
FREEPORT, TILBURY, RM18
7HA

Client Ref: C5441-4339-SD
Report Ref: BRO-B4Q-BKA-B49-CXB_1250_1_2
Grid Ref: 563065, 176102

Map Name: National Grid
Map date: **1984**
Scale: 1:1,250
Printed at: 1:2,000

N
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Surveyed 1961
Revised 1984
Edition N/A
Copyright 1984
Levelled 1961

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GEO-ENVIRONMENTAL ENGINEERING EXCELLENCE

Site Details:

PORT OF TILBURY, TILBURY FREEPORT, TILBURY, RM18 7HA

Client Ref: C5441-4339-SD
Report Ref: BRO-B4Q-BKA-B49-CXB_1250_1_2
Grid Ref: 563065, 176102

Map Name: National Grid

Map date: **1993**

Scale: 1:1,250

Printed at: 1:2,000

N
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Surveyed 1993
Revised 1993
Edition N/A
Copyright 1993
Levelled N/A

Surveyed N/A
Revised N/A
Edition N/A
Copyright 1993
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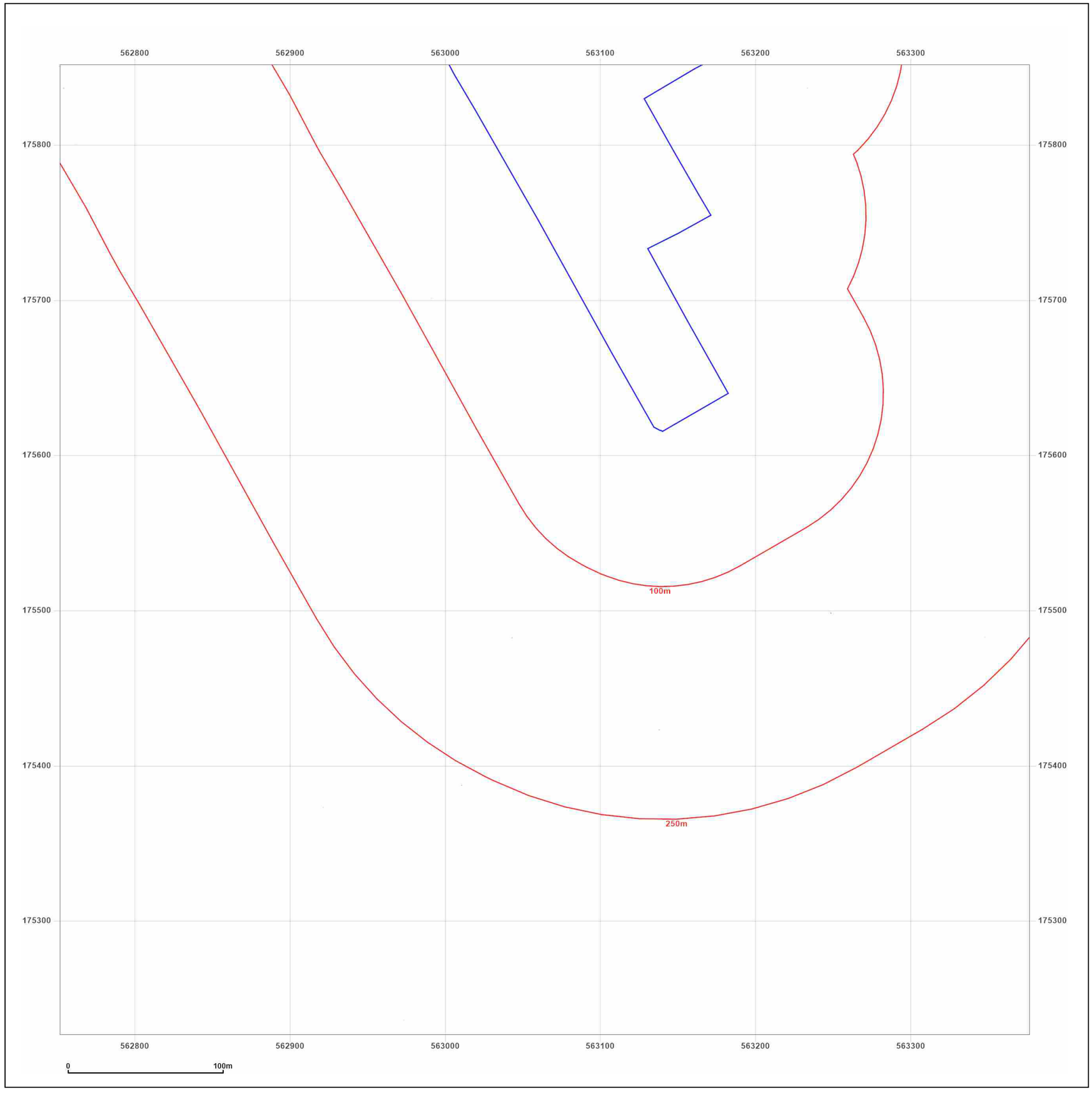

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GEO-ENVIRONMENTAL ENGINEERING EXCELLENCE

Site Details:

PORT OF TILBURY, TILBURY FREEPORT, TILBURY, RM18 7HA

Client Ref: C5441-4339-SD
Report Ref: BRO-B4Q-BKA-B49-CXB_LS_1_1
Grid Ref: 563064, 175539

Map Name: County Series
Map date: **1870**
Scale: 1:2,500
Printed at: 1:2,500

N
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Surveyed 1870
Revised N/A
Edition N/A
Copyright N/A
Levelled N/A

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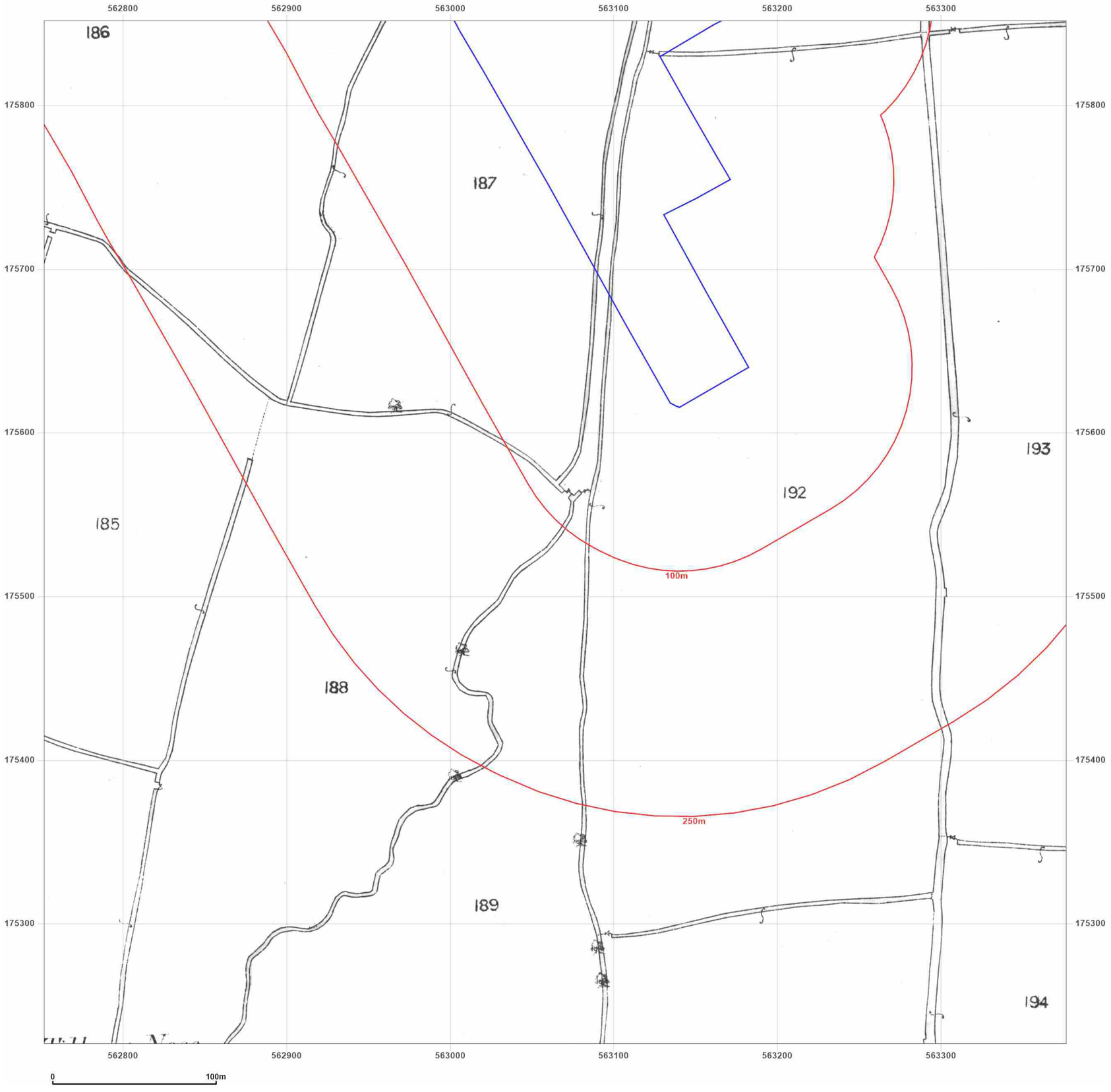

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Site Details:

PORT OF TILBURY, TILBURY FREEPORT, TILBURY, RM18 7HA

Client Ref: C5441-4339-SD
Report Ref: BRO-B4Q-BKA-B49-CXB_LS_1_1
Grid Ref: 563064, 175539

Map Name: County Series
Map date: **1870**
Scale: 1:2,500
Printed at: 1:2,500

N
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Surveyed N/A
Revised N/A
Edition N/A
Copyright N/A
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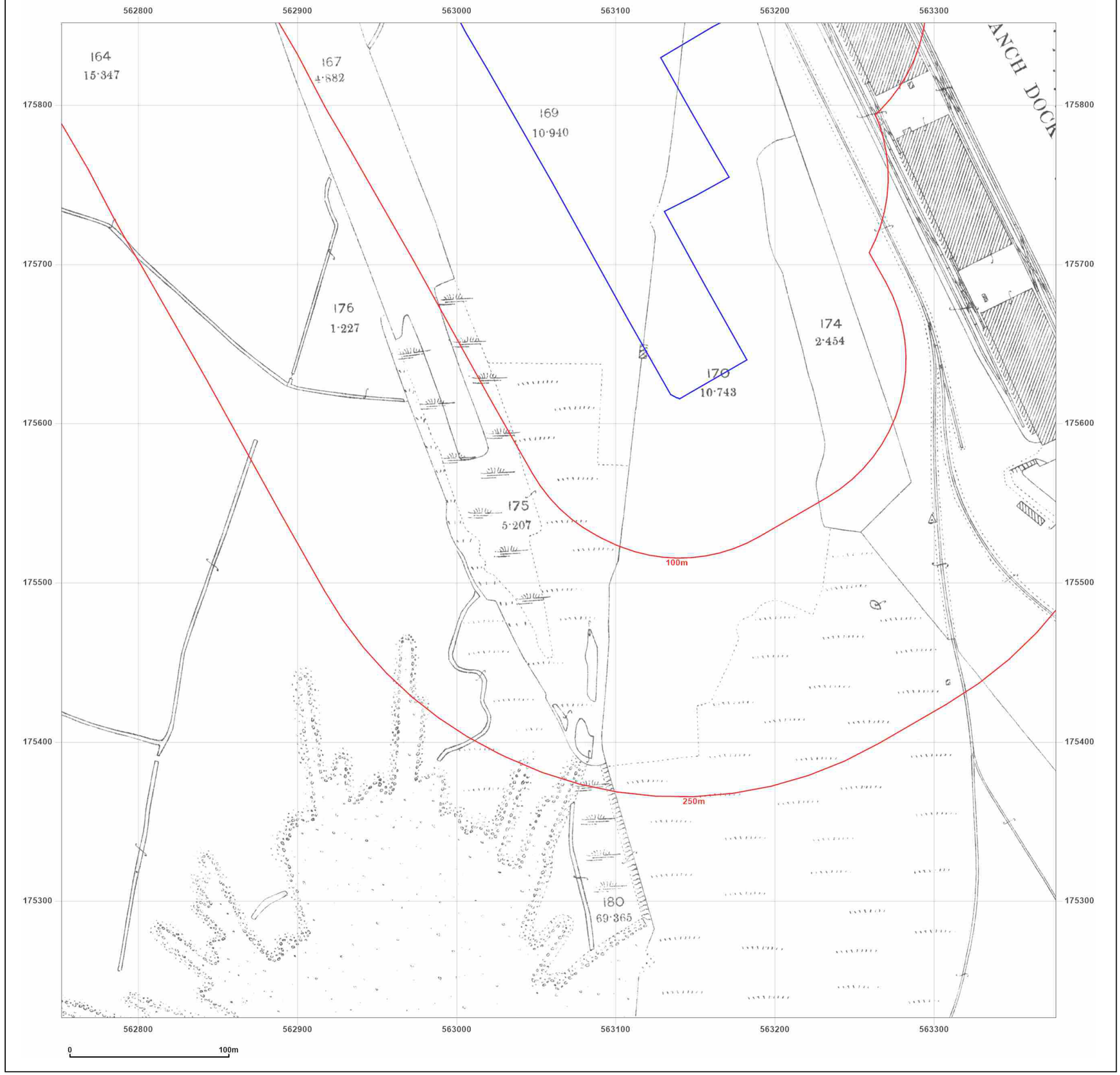

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GEO-ENVIRONMENTAL ENGINEERING EXCELLENCE

Site Details:

PORT OF TILBURY, TILBURY
FREEPORT, TILBURY, RM18
7HA

Client Ref: C5441-4339-SD
Report Ref: BRO-B4Q-BKA-B49-CXB_LS_1_1
Grid Ref: 563064, 175539

Map Name: County Series

Map date: **1898**

Scale: 1:2,500

Printed at: 1:2,500

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Surveyed 1898
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Edition N/A
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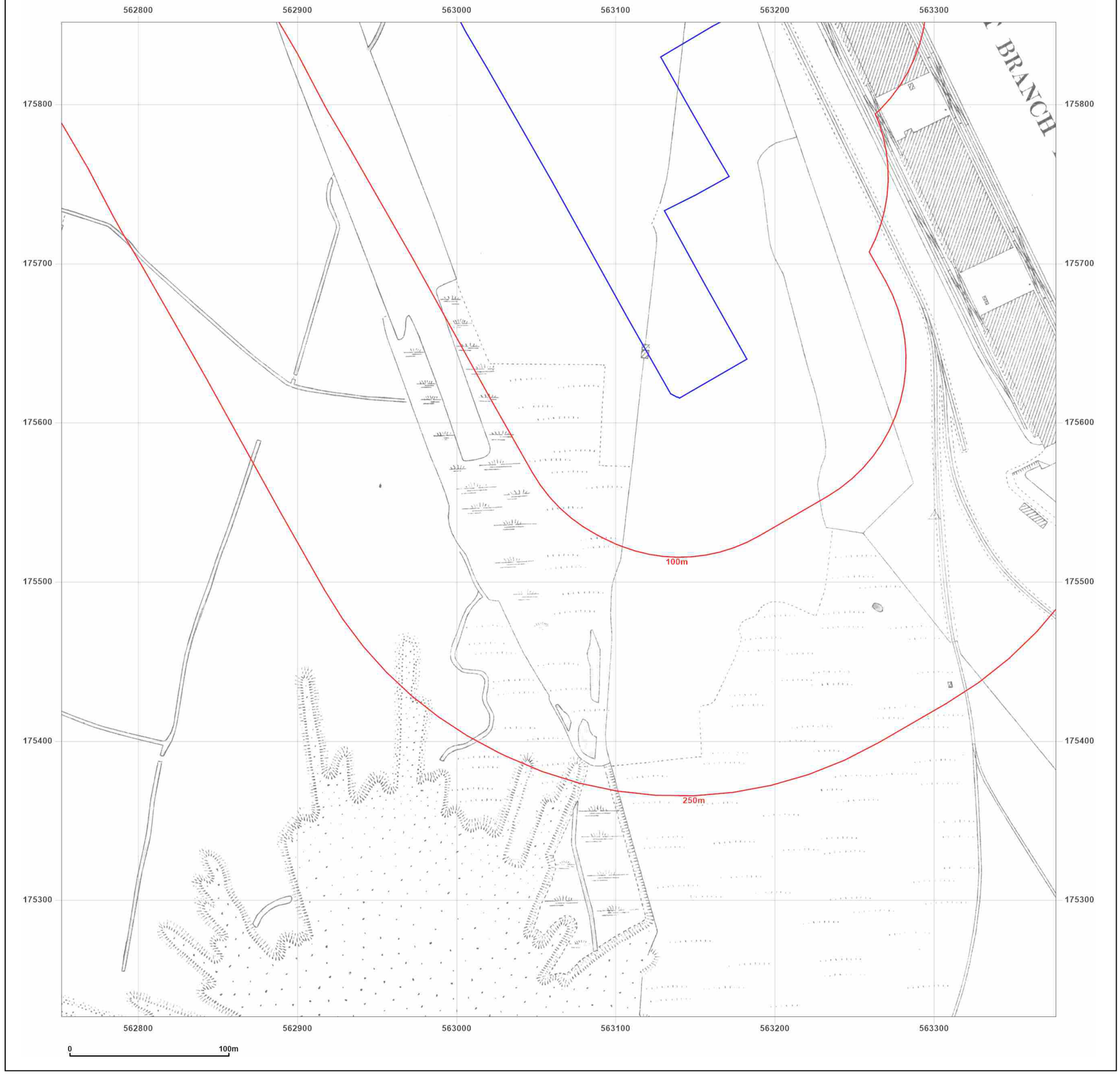

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Site Details:

PORT OF TILBURY, TILBURY
FREEPORT, TILBURY, RM18
7HA

Client Ref: C5441-4339-SD
Report Ref: BRO-B4Q-BKA-B49-CXB_LS_1_1
Grid Ref: 563064, 175539

Map Name: County Series

Map date: **1898**

Scale: 1:2,500

Printed at: 1:2,500

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

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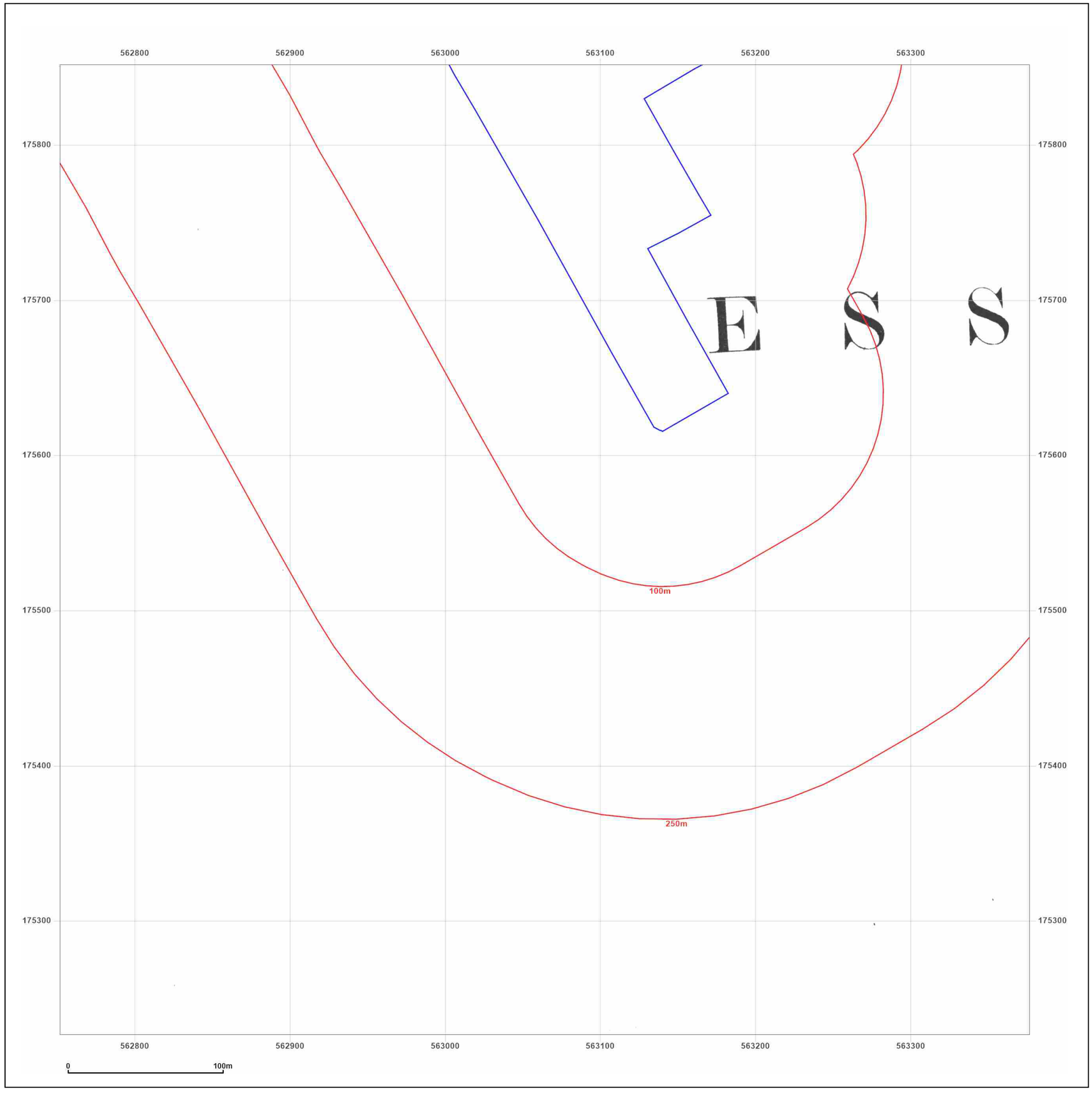

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GEO-ENVIRONMENTAL ENGINEERING EXCELLENCE

Site Details:

PORT OF TILBURY, TILBURY FREEPORT, TILBURY, RM18 7HA

Client Ref: C5441-4339-SD
Report Ref: BRO-B4Q-BKA-B49-CXB_LS_1_1
Grid Ref: 563064, 175539

Map Name: County Series
Map date: **1909**
Scale: 1:2,500
Printed at: 1:2,500

N
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Surveyed 1909
Revised 1909
Edition N/A
Copyright N/A
Levelled N/A

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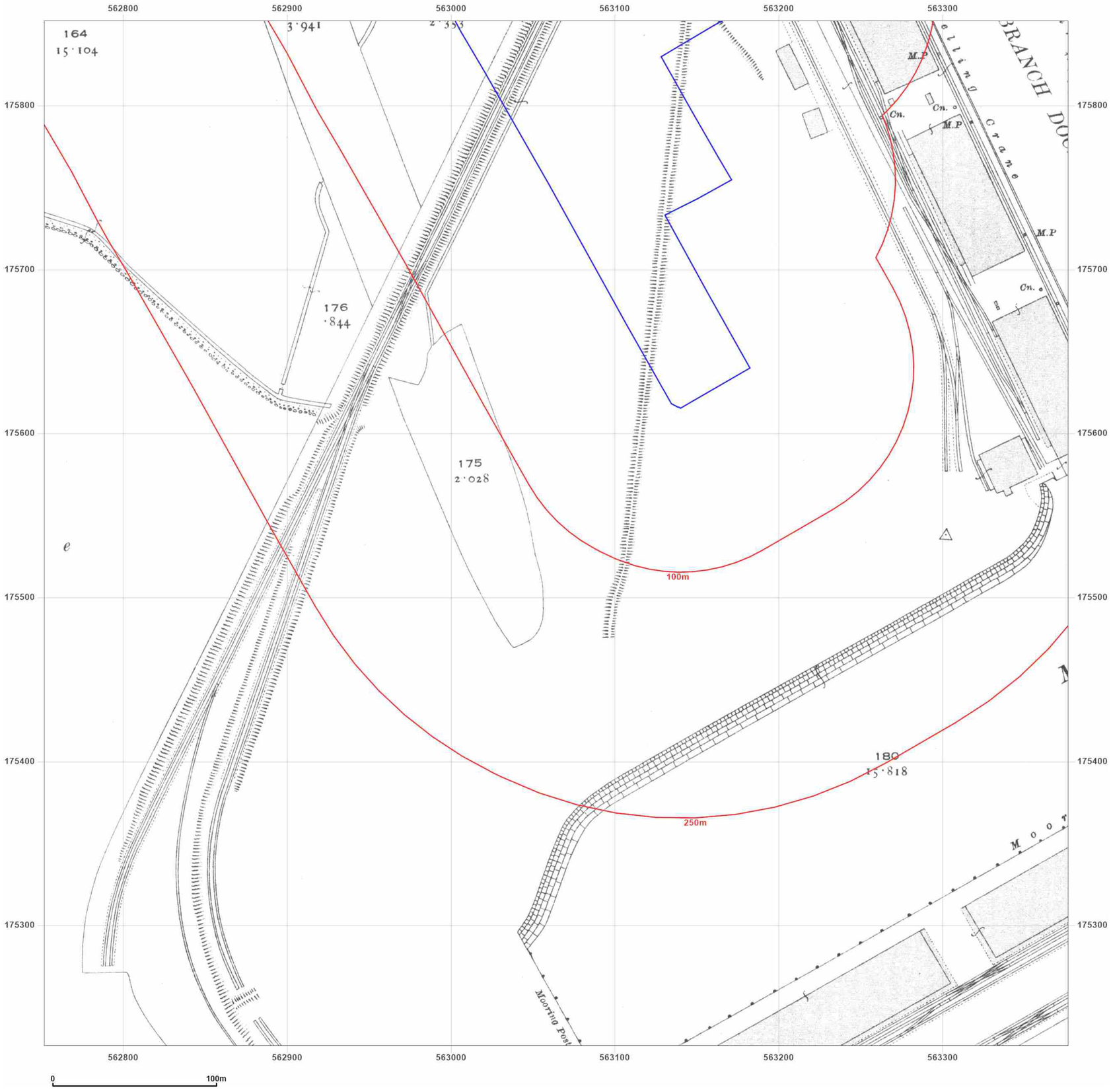

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Site Details:

PORT OF TILBURY, TILBURY
FREEPORT, TILBURY, RM18
7HA

Client Ref: C5441-4339-SD
Report Ref: BRO-B4Q-BKA-B49-CXB_LS_1_1
Grid Ref: 563064, 175539

Map Name: County Series

Map date: **1920**

Scale: 1:2,500

Printed at: 1:2,500

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Surveyed 1920
Revised 1920
Edition N/A
Copyright N/A
Levelled N/A

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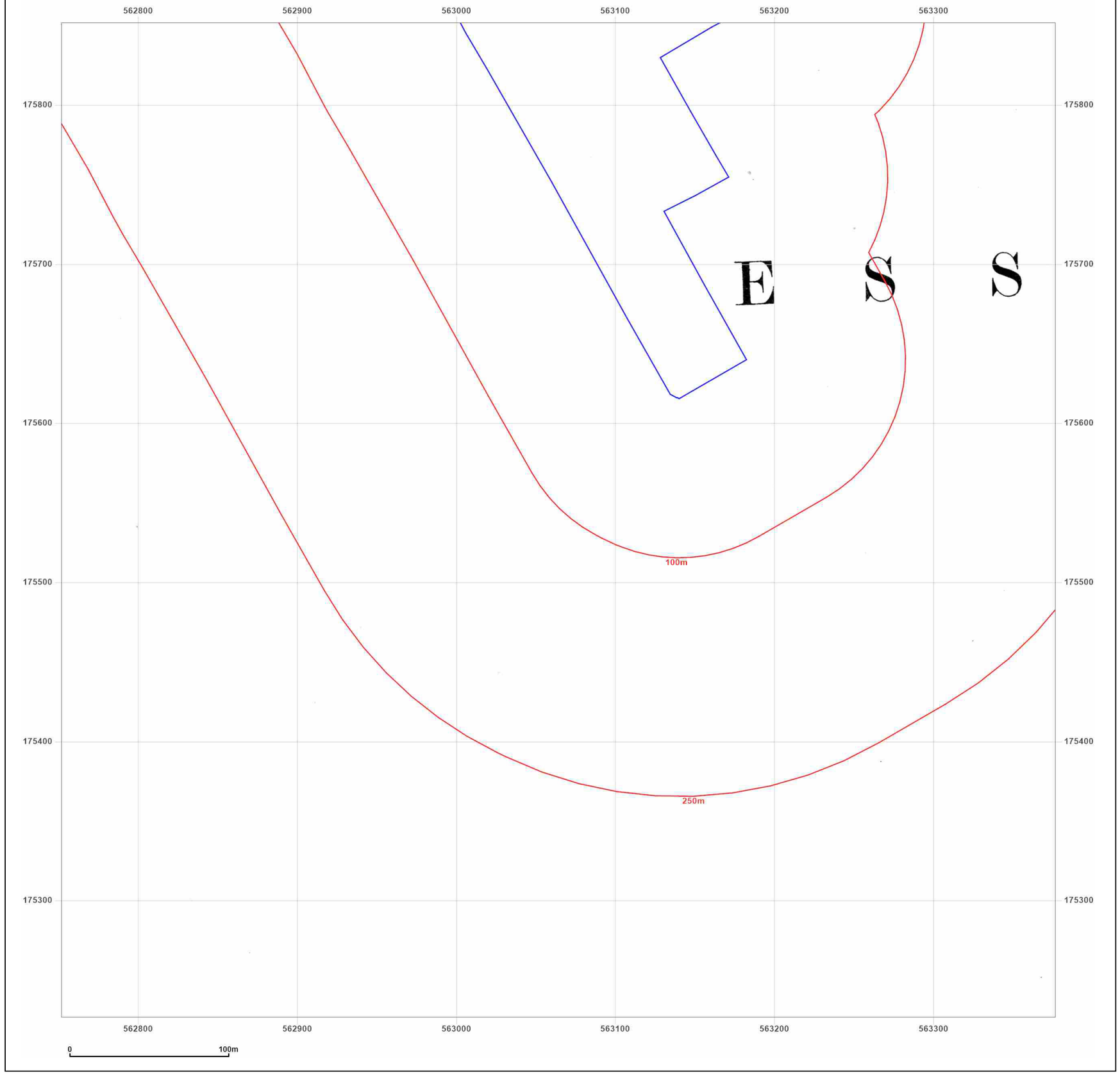

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GEO-ENVIRONMENTAL ENGINEERING EXCELLENCE

Site Details:

PORT OF TILBURY, TILBURY FREEPORT, TILBURY, RM18 7HA

Client Ref: C5441-4339-SD
Report Ref: BRO-B4Q-BKA-B49-CXB_LS_1_1
Grid Ref: 563064, 175539

Map Name: County Series
Map date: **1932**
Scale: 1:2,500
Printed at: 1:2,500

N
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Surveyed 1932
Revised N/A
Edition N/A
Copyright N/A
Levelled N/A

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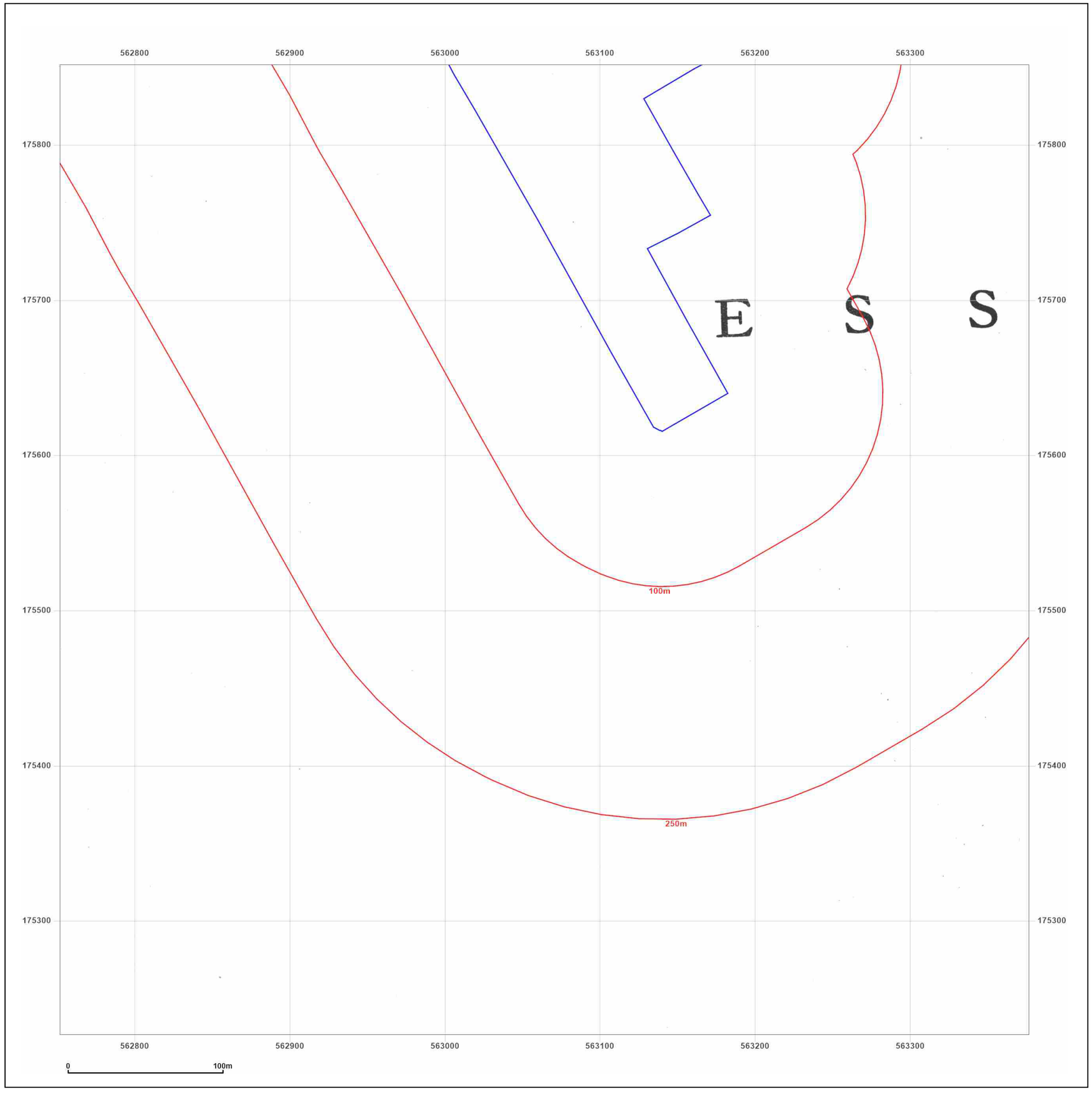

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GEO-ENVIRONMENTAL ENGINEERING EXCELLENCE

Site Details:

PORT OF TILBURY, TILBURY FREEPORT, TILBURY, RM18 7HA

Client Ref: C5441-4339-SD
Report Ref: BRO-B4Q-BKA-B49-CXB_LS_1_1
Grid Ref: 563064, 175539

Map Name: County Series
Map date: **1939**
Scale: 1:2,500
Printed at: 1:2,500

N
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Surveyed 1939
Revised 1939
Edition N/A
Copyright N/A
Levelled N/A

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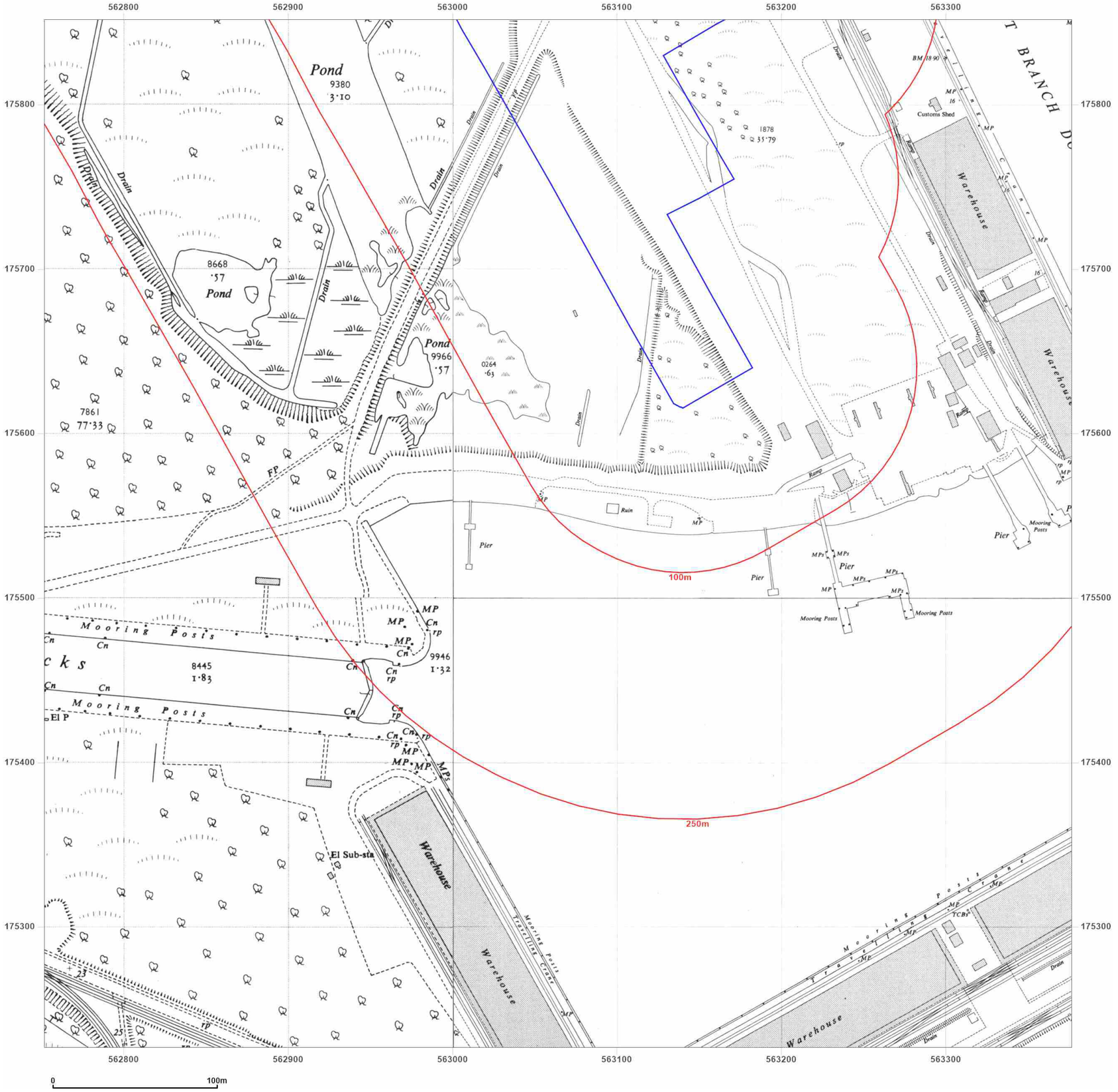

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GEO-ENVIRONMENTAL ENGINEERING EXCELLENCE

Site Details:

PORT OF TILBURY, TILBURY
FREEPORT, TILBURY, RM18
7HA

Client Ref: C5441-4339-SD
Report Ref: BRO-B4Q-BKA-B49-CXB_LS_1_1
Grid Ref: 563064, 175539

Map Name: National Grid

Map date: **1950-1951**

Scale: 1:2,500

Printed at: 1:2,500

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Surveyed 1951
Revised 1951
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1950
Revised 1950
Edition N/A
Copyright N/A
Levelled 1948

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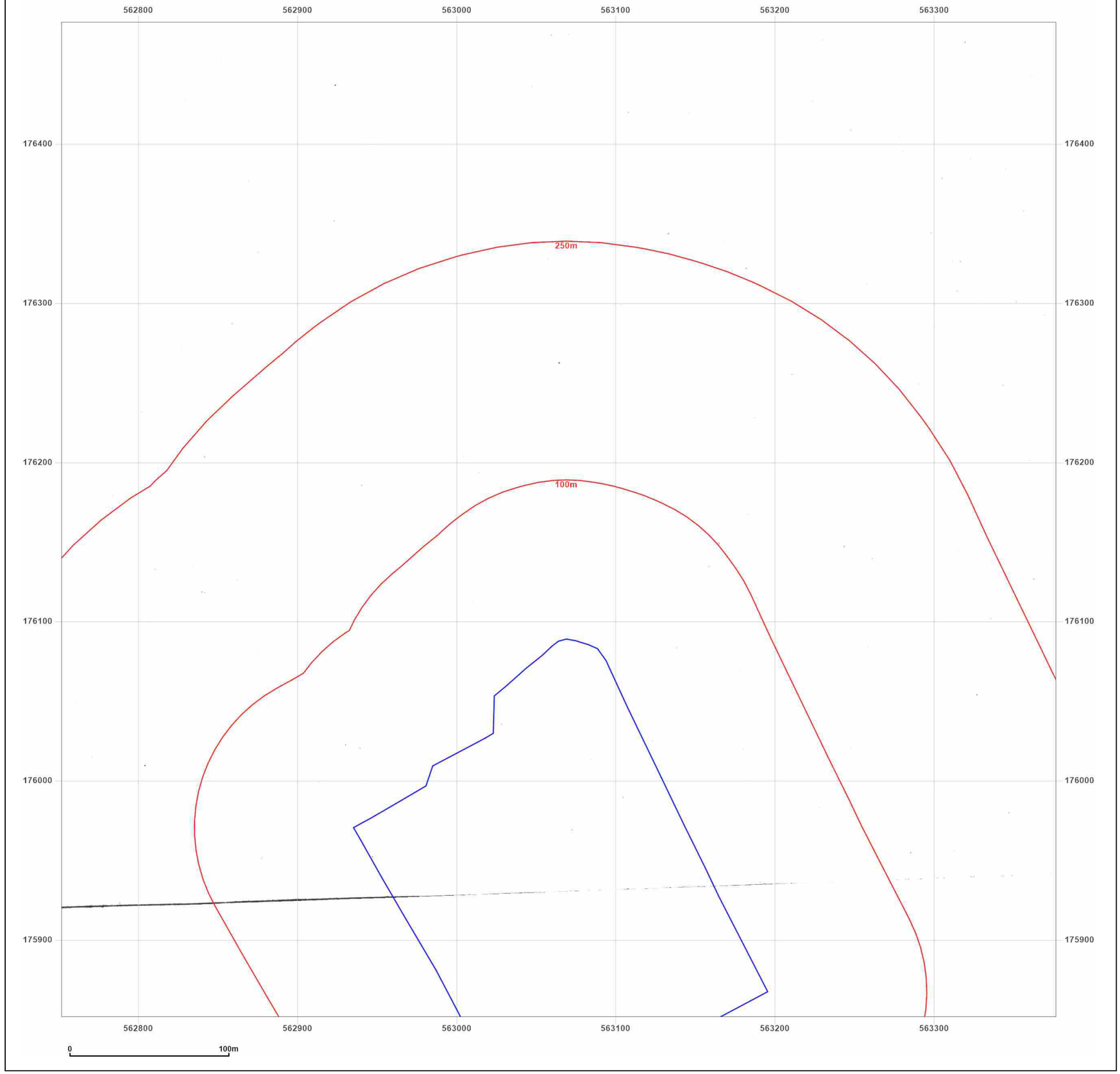

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GEO-ENVIRONMENTAL ENGINEERING EXCELLENCE

Site Details:

PORT OF TILBURY, TILBURY FREEPORT, TILBURY, RM18 7HA

Client Ref: C5441-4339-SD
Report Ref: BRO-B4Q-BKA-B49-CXB_LS_1_2
Grid Ref: 563064, 176164

Map Name: County Series

Map date: **1864**

Scale: 1:2,500

Printed at: 1:2,500

N
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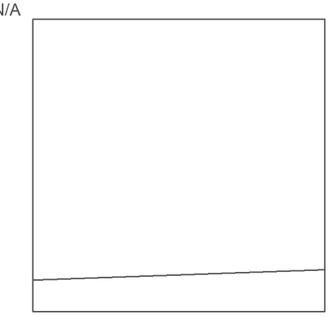
Surveyed 1864
Revised 1864
Edition N/A
Copyright N/A
Levelled N/A



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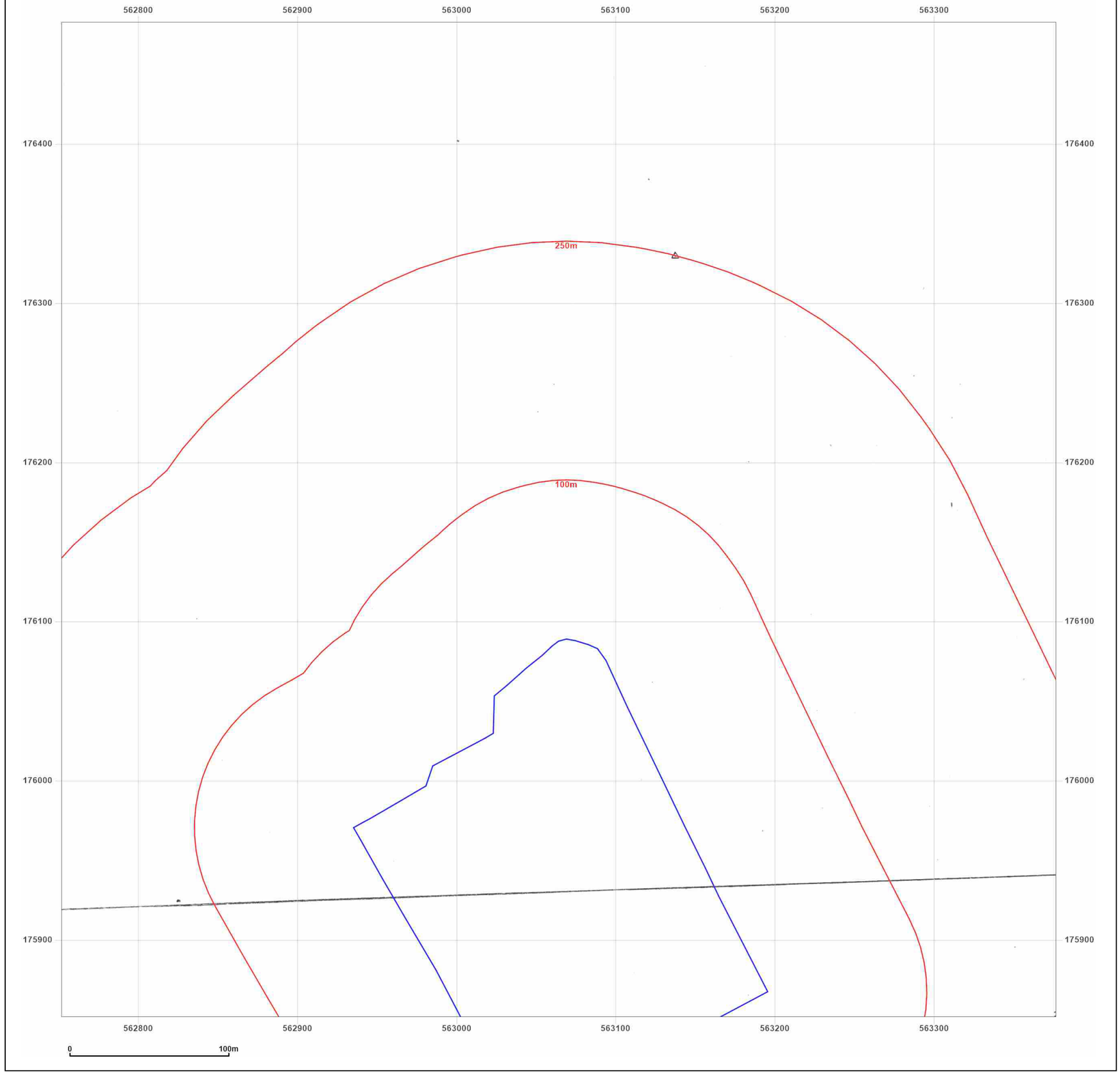

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GEO-ENVIRONMENTAL ENGINEERING EXCELLENCE

Site Details:

PORT OF TILBURY, TILBURY FREEPORT, TILBURY, RM18 7HA

Client Ref: C5441-4339-SD
Report Ref: BRO-B4Q-BKA-B49-CXB_LS_1_2
Grid Ref: 563064, 176164

Map Name: County Series

Map date: **1866-1870**

Scale: 1:2,500

Printed at: 1:2,500

N
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Surveyed 1866
Revised 1866
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1870
Revised N/A
Edition N/A
Copyright N/A
Levelled N/A

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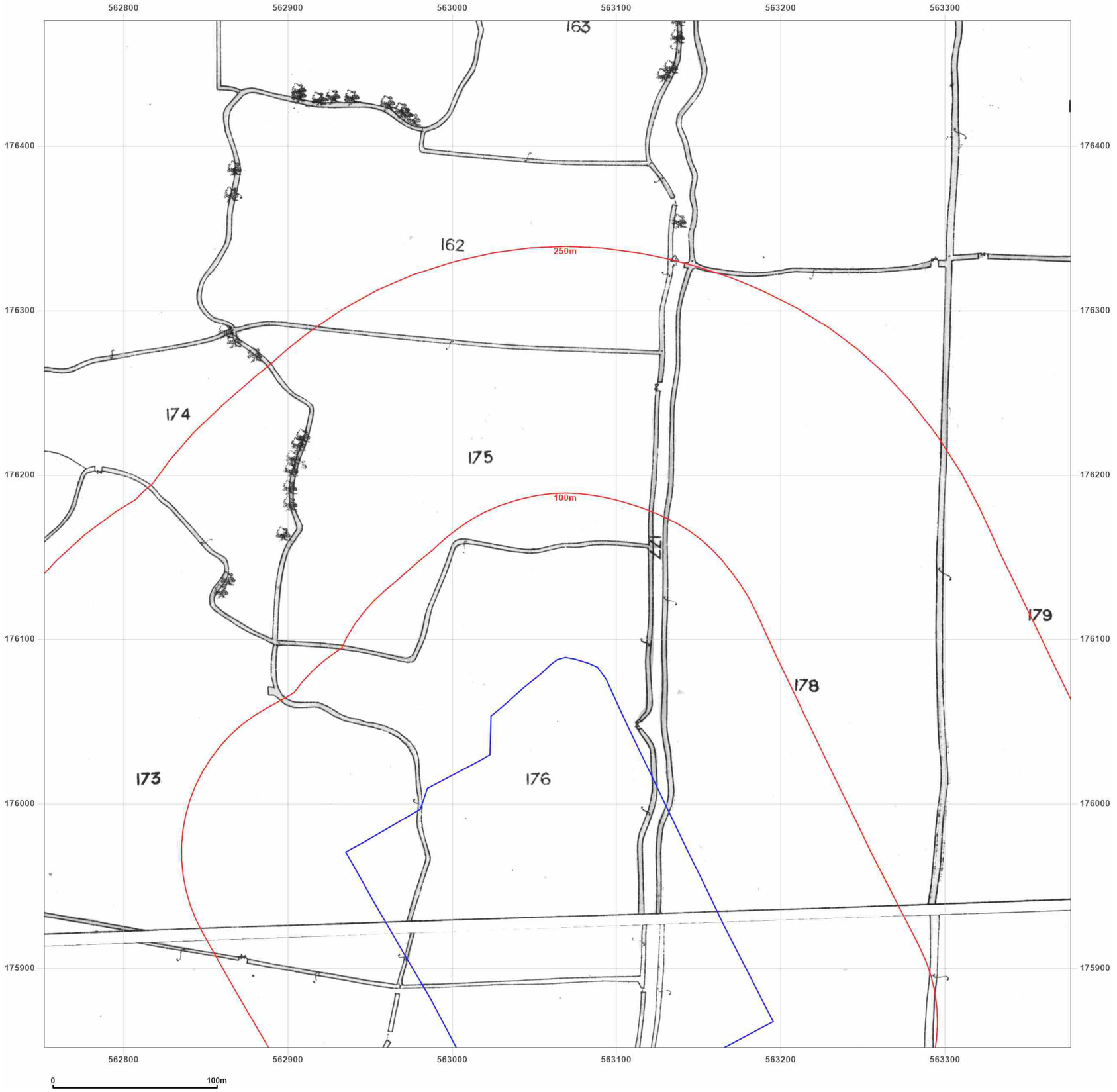

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GEO-ENVIRONMENTAL ENGINEERING EXCELLENCE

Site Details:

PORT OF TILBURY, TILBURY
FREEPORT, TILBURY, RM18
7HA

Client Ref: C5441-4339-SD
Report Ref: BRO-B4Q-BKA-B49-CXB_LS_1_2
Grid Ref: 563064, 176164

Map Name: County Series
Map date: **1867-1870**
Scale: 1:2,500
Printed at: 1:2,500

N
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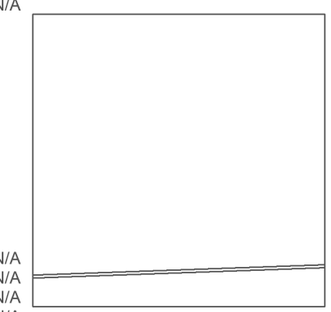
Surveyed 1867
Revised 1867
Edition N/A
Copyright N/A
Levelled N/A



Surveyed N/A
Revised N/A
Edition N/A
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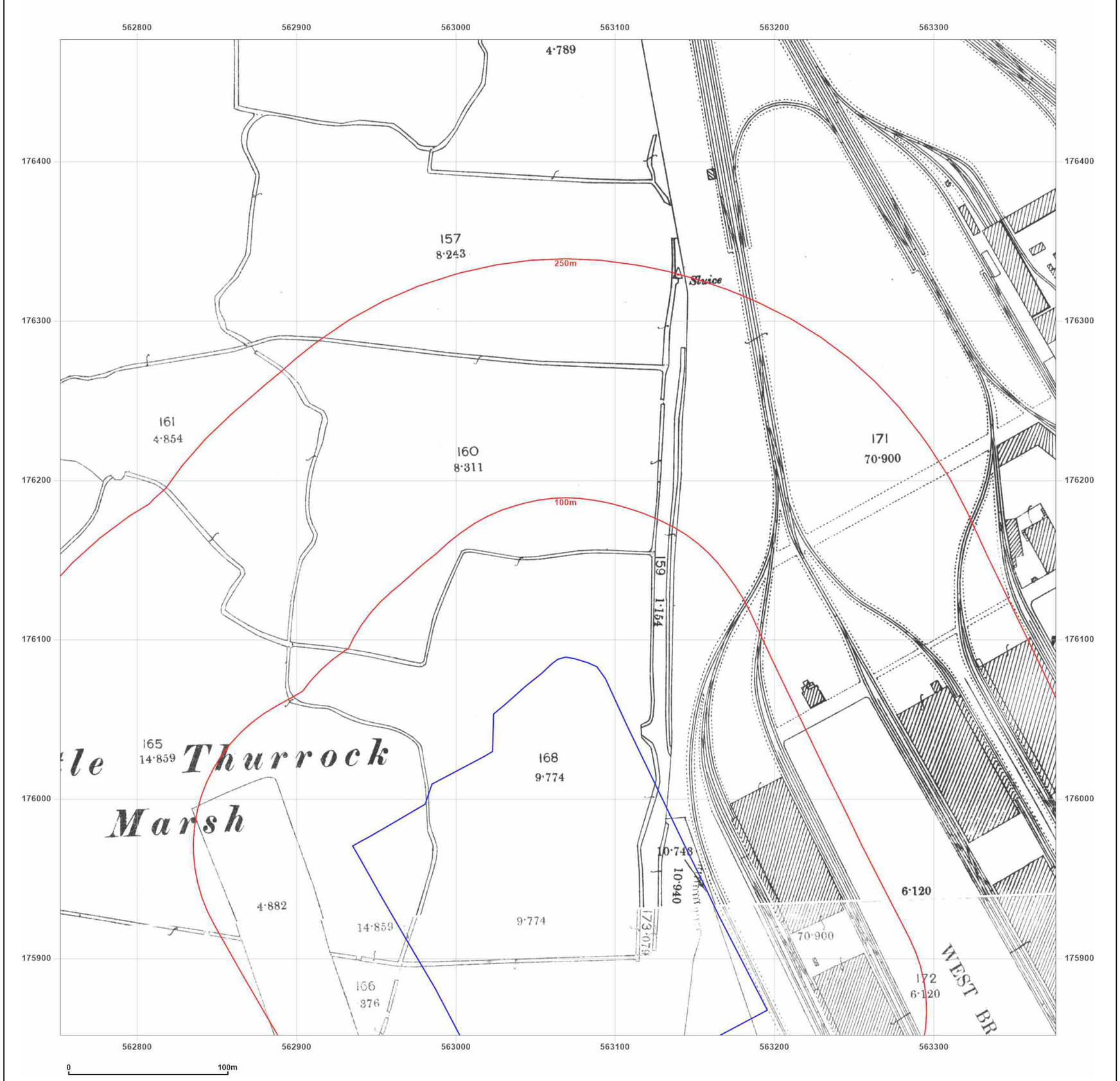

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GEO-ENVIRONMENTAL ENGINEERING EXCELLENCE

Site Details:

PORT OF TILBURY, TILBURY FREEPORT, TILBURY, RM18 7HA

Client Ref: C5441-4339-SD
Report Ref: BRO-B4Q-BKA-B49-CXB_LS_1_2
Grid Ref: 563064, 176164

Map Name: County Series
Map date: **1897-1898**
Scale: 1:2,500
Printed at: 1:2,500

N
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Surveyed 1897
Revised 1897
Edition N/A
Copyright N/A
Levelled N/A

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

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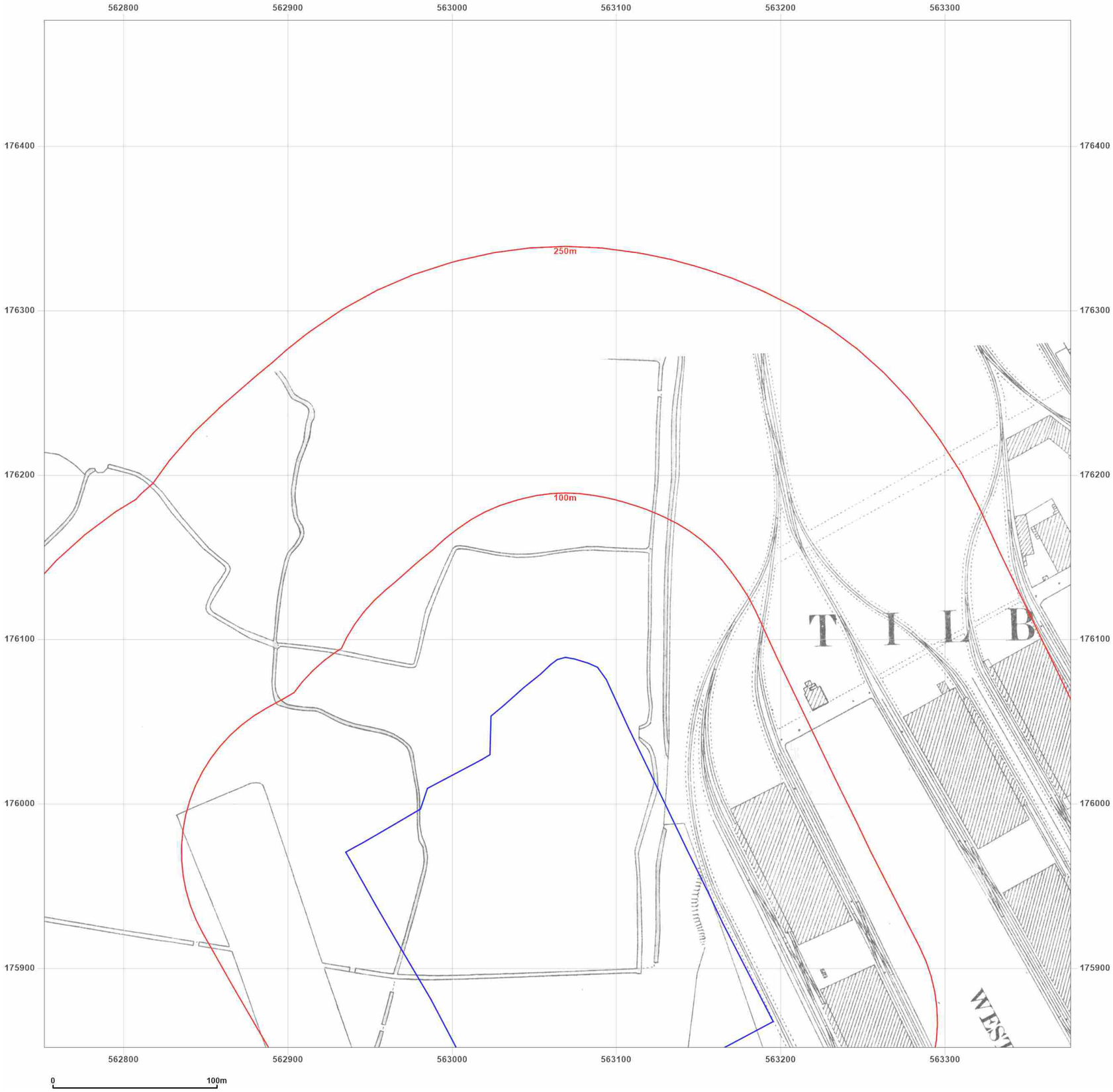

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GEO-ENVIRONMENTAL ENGINEERING EXCELLENCE

Site Details:

PORT OF TILBURY, TILBURY FREEPORT, TILBURY, RM18 7HA

Client Ref: C5441-4339-SD
Report Ref: BRO-B4Q-BKA-B49-CXB_LS_1_2
Grid Ref: 563064, 176164

Map Name: County Series

Map date: **1898**

Scale: 1:2,500

Printed at: 1:2,500

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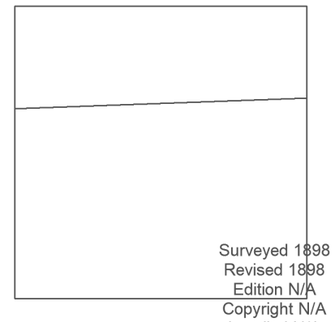

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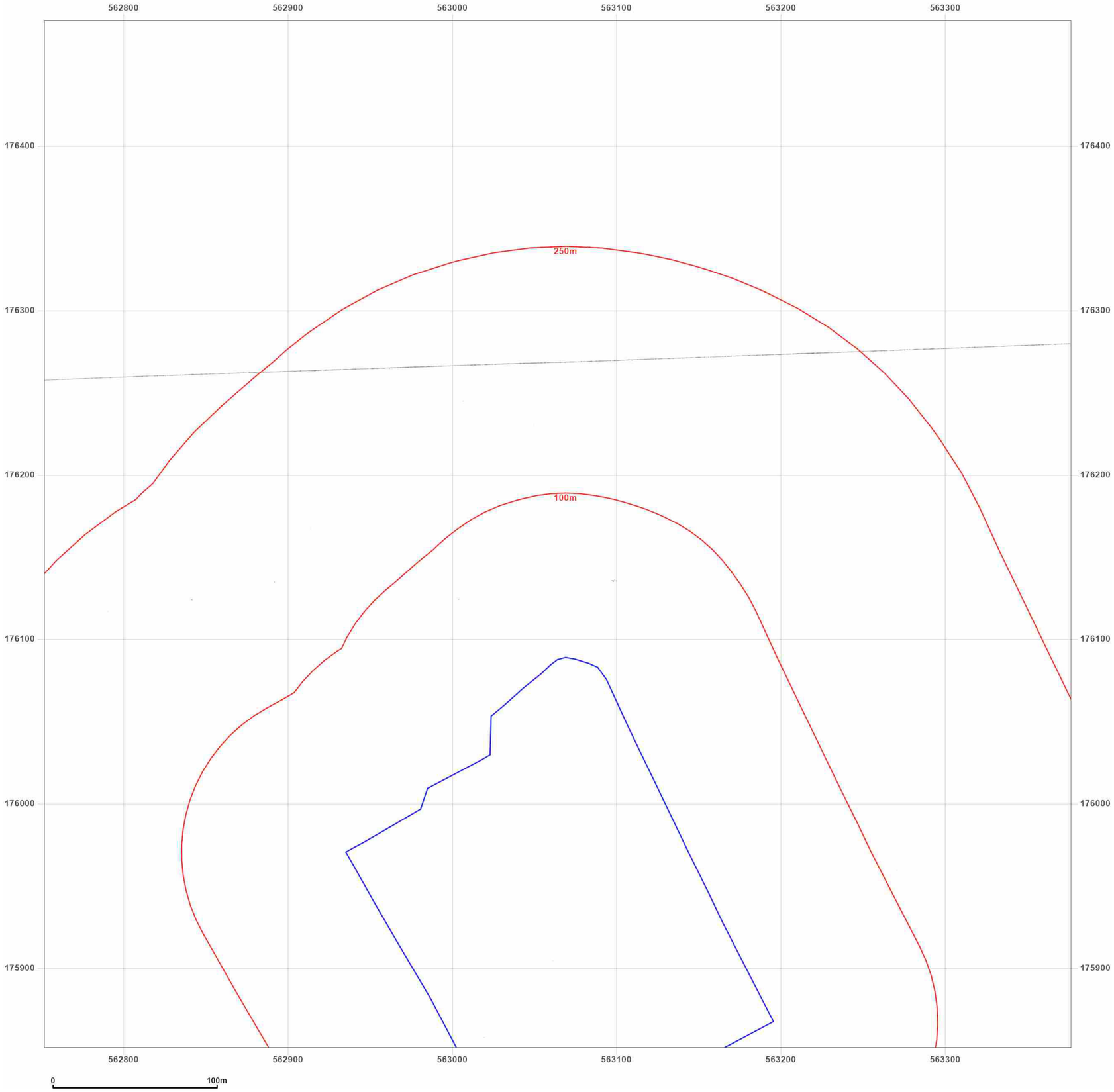

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GEO-ENVIRONMENTAL ENGINEERING EXCELLENCE

Site Details:

PORT OF TILBURY, TILBURY FREEPORT, TILBURY, RM18 7HA

Client Ref: C5441-4339-SD
Report Ref: BRO-B4Q-BKA-B49-CXB_LS_1_2
Grid Ref: 563064, 176164

Map Name: County Series

Map date: **1909**

Scale: 1:2,500

Printed at: 1:2,500

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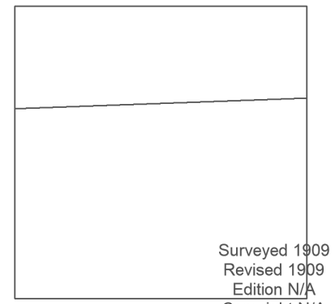

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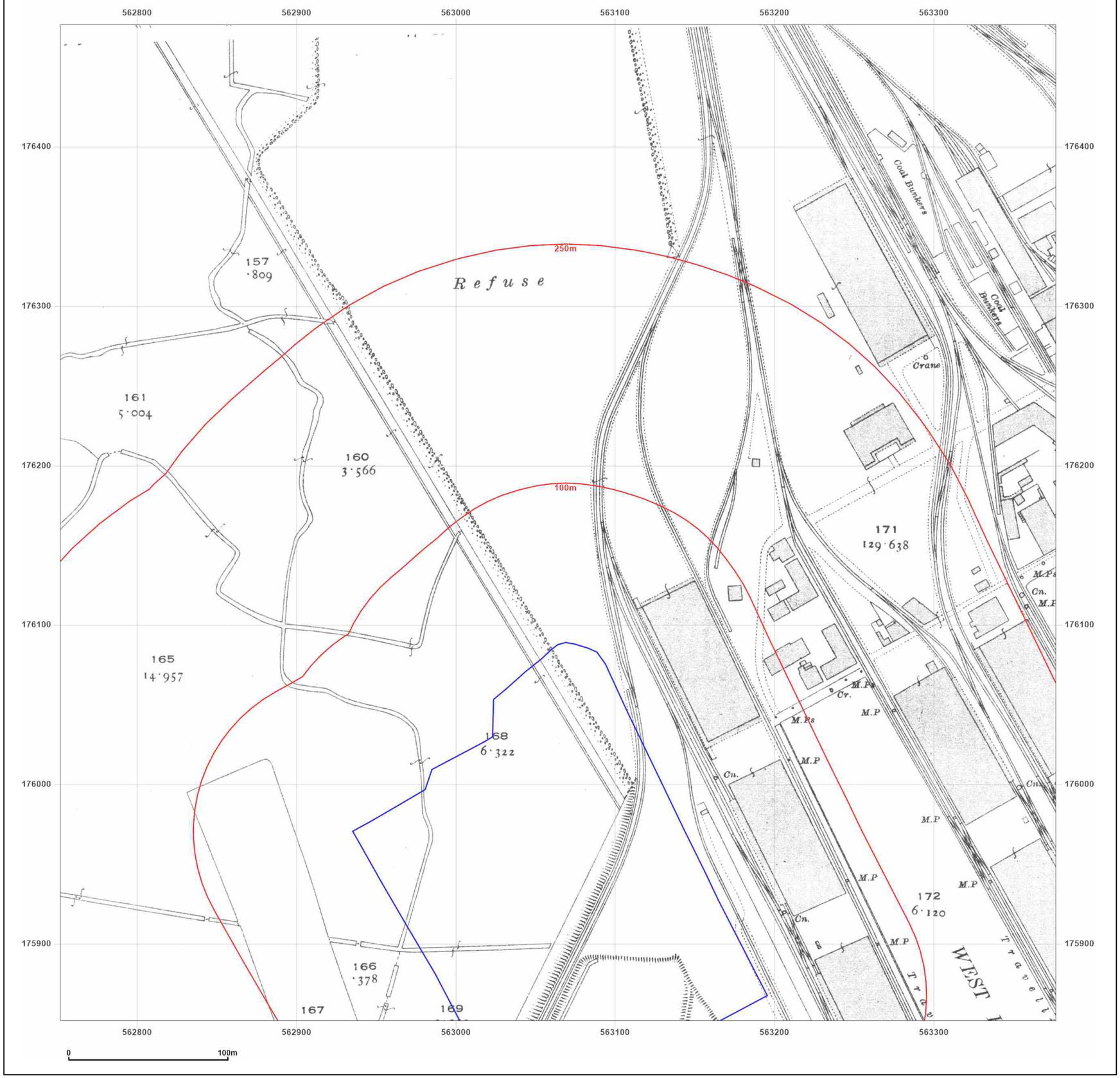

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GEO-ENVIRONMENTAL ENGINEERING EXCELLENCE

Site Details:

PORT OF TILBURY, TILBURY FREEPORT, TILBURY, RM18 7HA

Client Ref: C5441-4339-SD
Report Ref: BRO-B4Q-BKA-B49-CXB_LS_1_2
Grid Ref: 563064, 176164

Map Name: County Series
Map date: **1920**
Scale: 1:2,500
Printed at: 1:2,500

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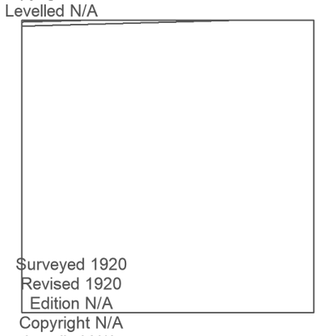
Surveyed 1920
Revised 1920
Edition N/A
Copyright N/A
Levelled N/A



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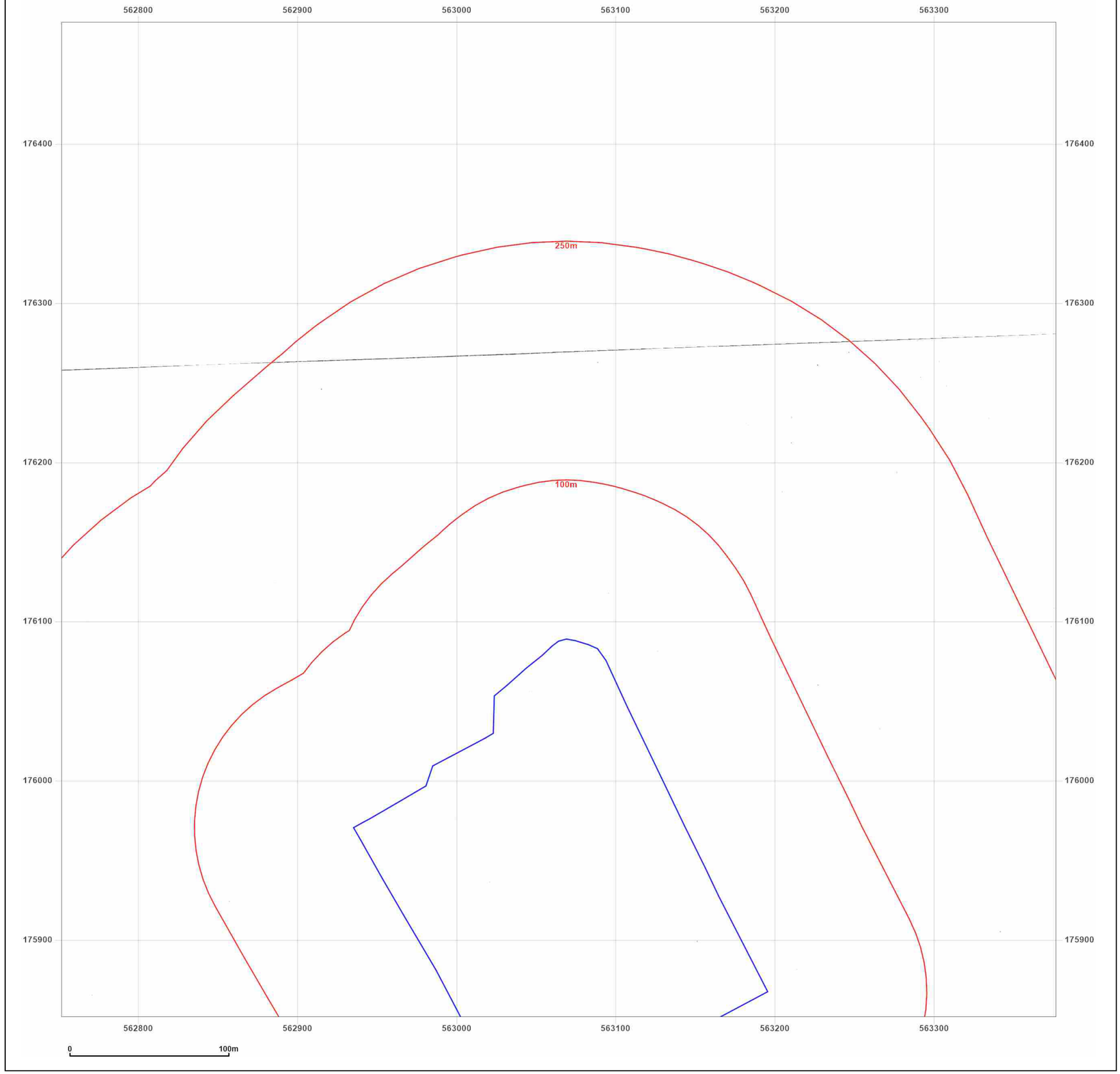

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GEO-ENVIRONMENTAL ENGINEERING EXCELLENCE

Site Details:

PORT OF TILBURY, TILBURY FREEPORT, TILBURY, RM18 7HA

Client Ref: C5441-4339-SD
Report Ref: BRO-B4Q-BKA-B49-CXB_LS_1_2
Grid Ref: 563064, 176164

Map Name: County Series

Map date: **1932**

Scale: 1:2,500

Printed at: 1:2,500

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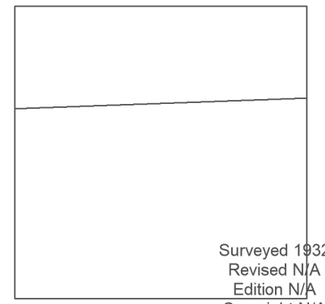

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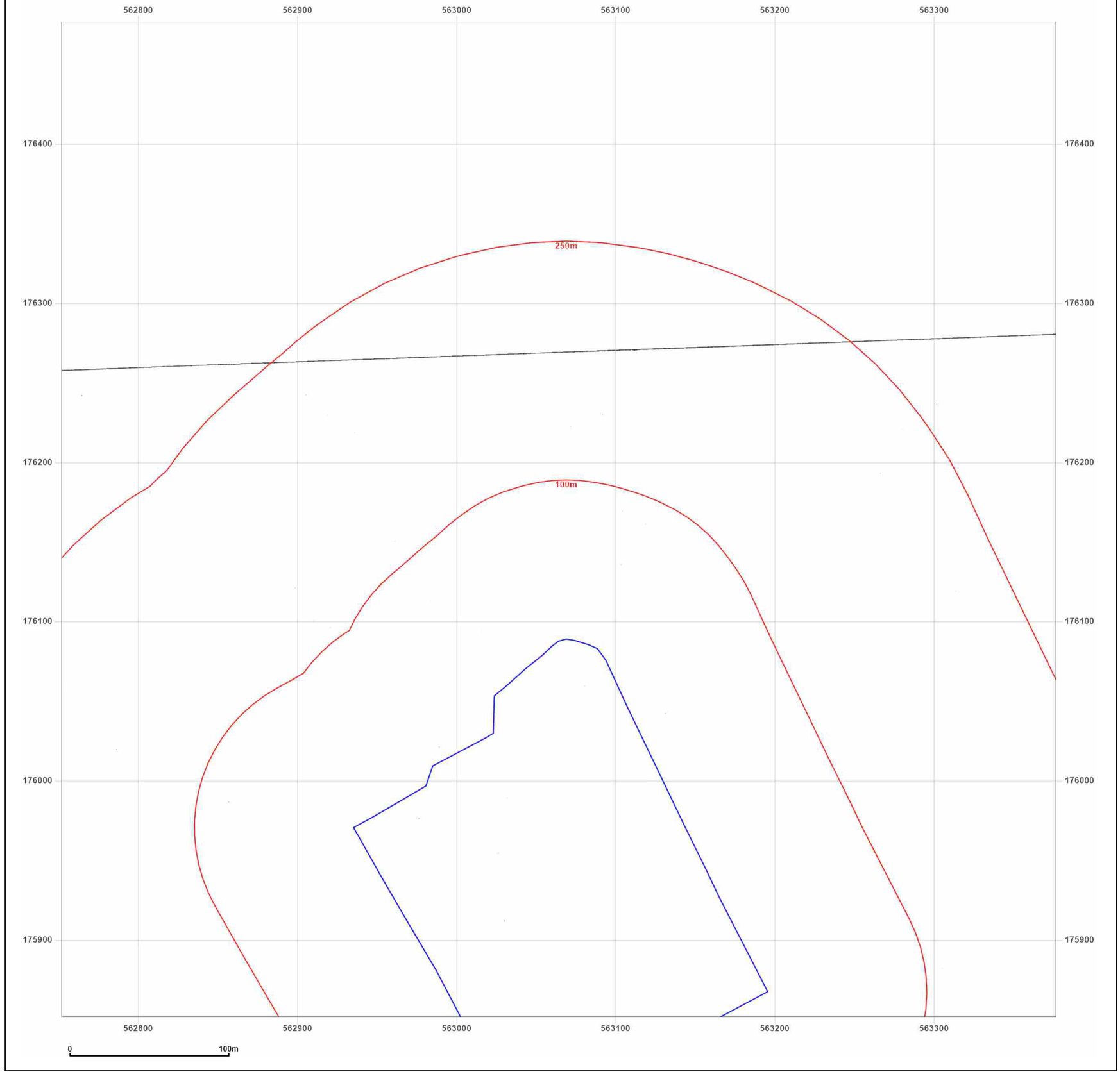

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GEO-ENVIRONMENTAL ENGINEERING EXCELLENCE

Site Details:

PORT OF TILBURY, TILBURY FREEPORT, TILBURY, RM18 7HA

Client Ref: C5441-4339-SD
Report Ref: BRO-B4Q-BKA-B49-CXB_LS_1_2
Grid Ref: 563064, 176164

Map Name: County Series

Map date: **1939**

Scale: 1:2,500

Printed at: 1:2,500

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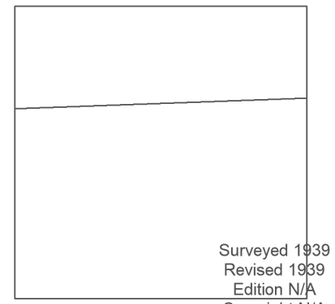

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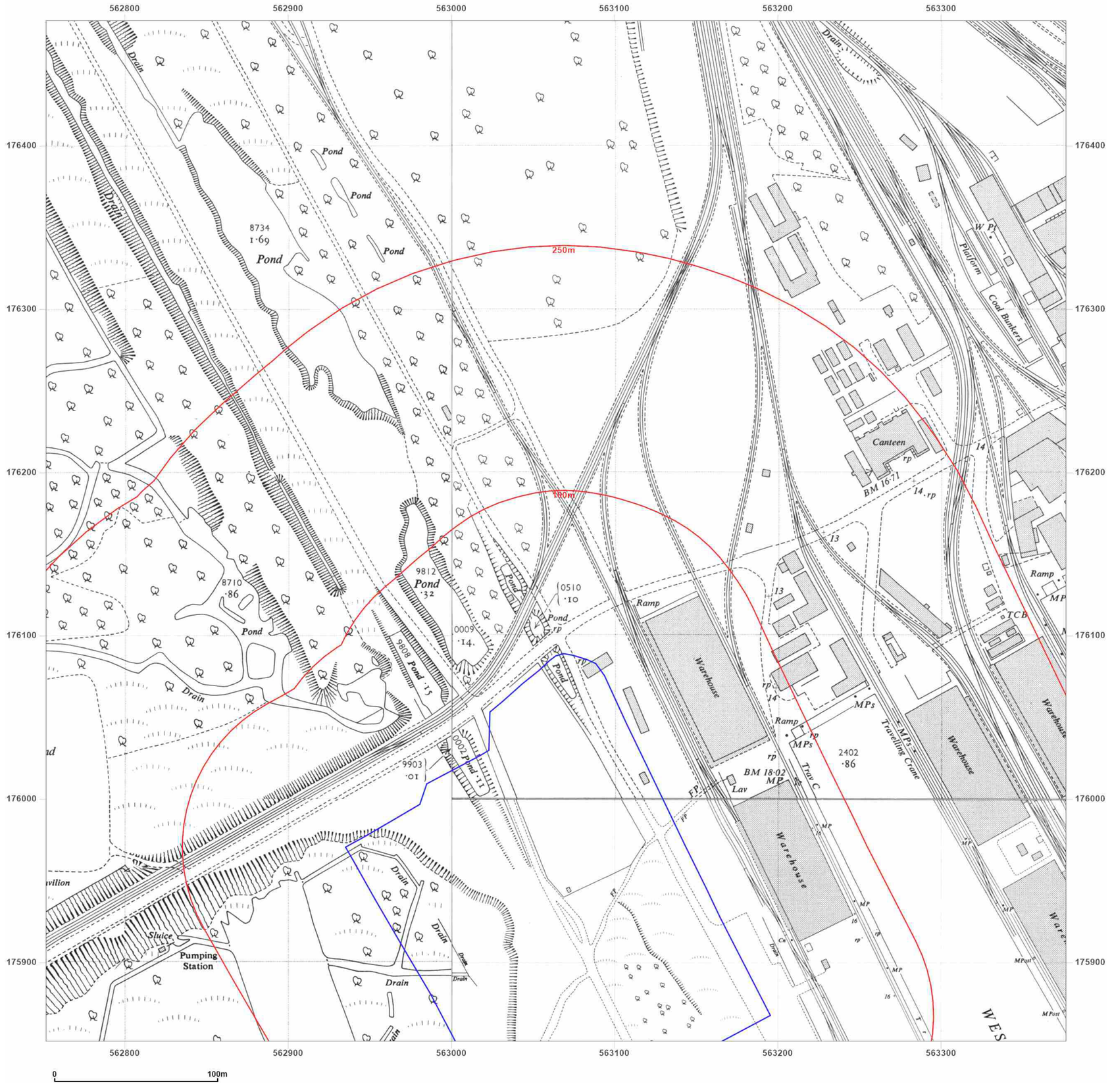

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GEO-ENVIRONMENTAL ENGINEERING EXCELLENCE

Site Details:

PORT OF TILBURY, TILBURY
FREEPORT, TILBURY, RM18
7HA

Client Ref: C5441-4339-SD
Report Ref: BRO-B4Q-BKA-B49-CXB_LS_1_2
Grid Ref: 563064, 176164

Map Name: National Grid

Map date: **1950-1951**

Scale: 1:2,500

Printed at: 1:2,500

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Surveyed 1951 Revised 1951 Edition N/A Copyright N/A Levelled 1948	Surveyed 1951 Revised 1951 Edition N/A Copyright N/A Levelled N/A
Surveyed 1951 Revised 1951 Edition N/A Copyright N/A Levelled N/A	Surveyed 1950 Revised 1950 Edition N/A Copyright N/A Levelled 1948

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Site Details:

PORT OF TILBURY, TILBURY FREEPORT, TILBURY, RM18 7HA

Client Ref: C5441-4339-SD
Report Ref: BRO-B4Q-BKA-B49-CXB_LS_1_2
Grid Ref: 563064, 176164

Map Name: National Grid

Map date: **1972**

Scale: 1:2,500

Printed at: 1:2,500

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Revised 1971
Edition N/A
Copyright 1972
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Site Details:

PORT OF TILBURY, TILBURY FREEPORT, TILBURY, RM18 7HA

Client Ref: C5441-4339-SD
Report Ref: BRO-B4Q-BKA-B49-CXB_LS_1_2
Grid Ref: 563064, 176164

Map Name: National Grid
Map date: **1972**
Scale: 1:2,500
Printed at: 1:2,500

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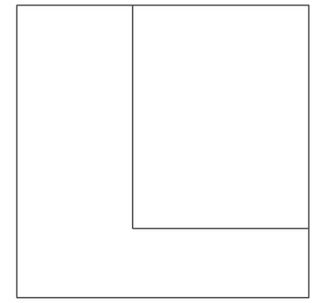
Surveyed N/A
Revised N/A
Edition N/A
Copyright N/A
Levelled N/A



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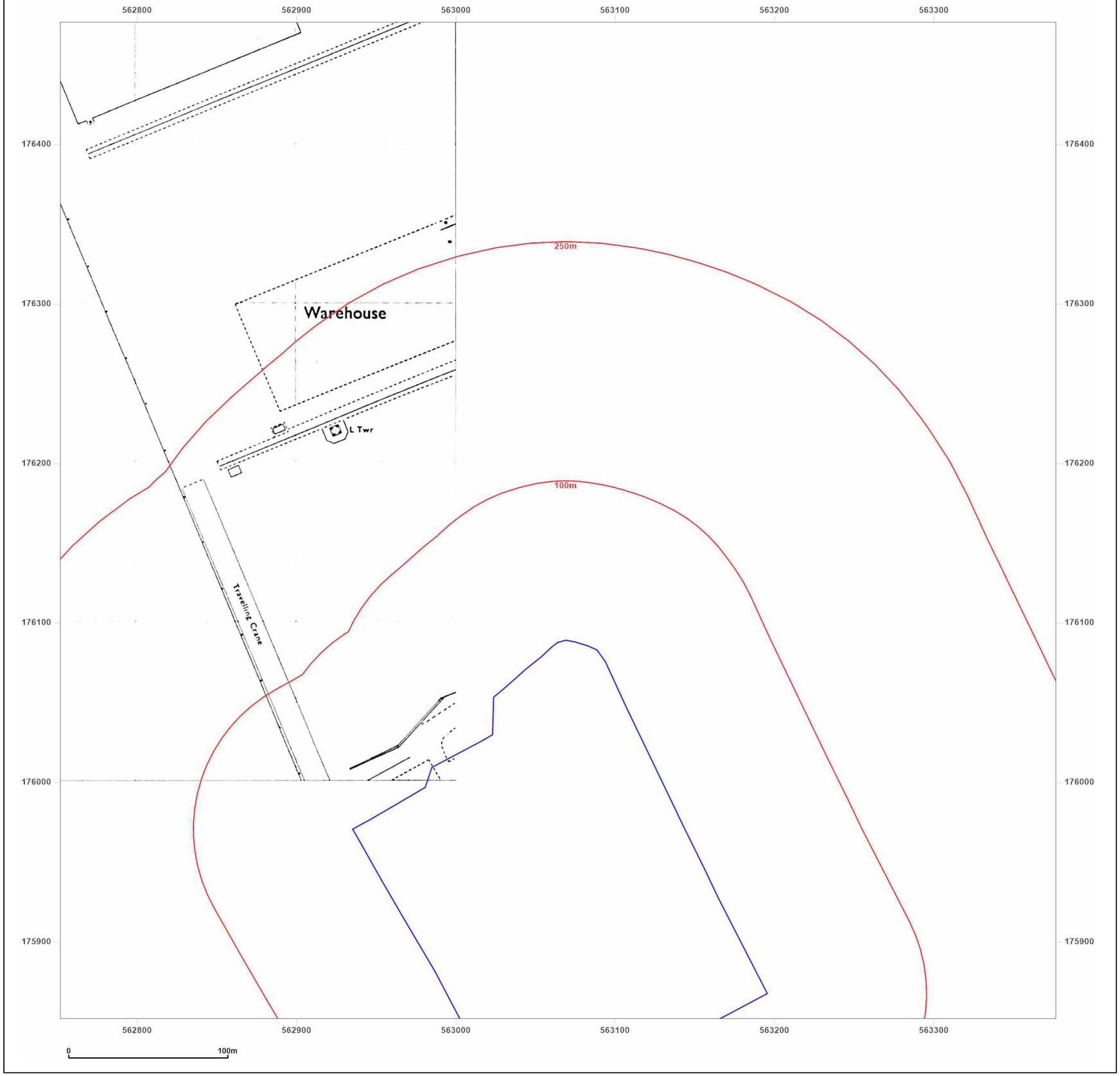

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GEO-ENVIRONMENTAL ENGINEERING EXCELLENCE

Site Details:

PORT OF TILBURY, TILBURY FREEPORT, TILBURY, RM18 7HA

Client Ref: C5441-4339-SD
Report Ref: BRO-B4Q-BKA-B49-CXB_LS_1_2
Grid Ref: 563064, 176164

Map Name: National Grid

Map date: **1980**

Scale: 1:2,500

Printed at: 1:2,500

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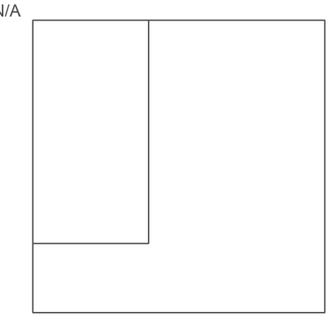
Surveyed 1980
Revised 1980
Edition N/A
Copyright 1980
Levelled N/A



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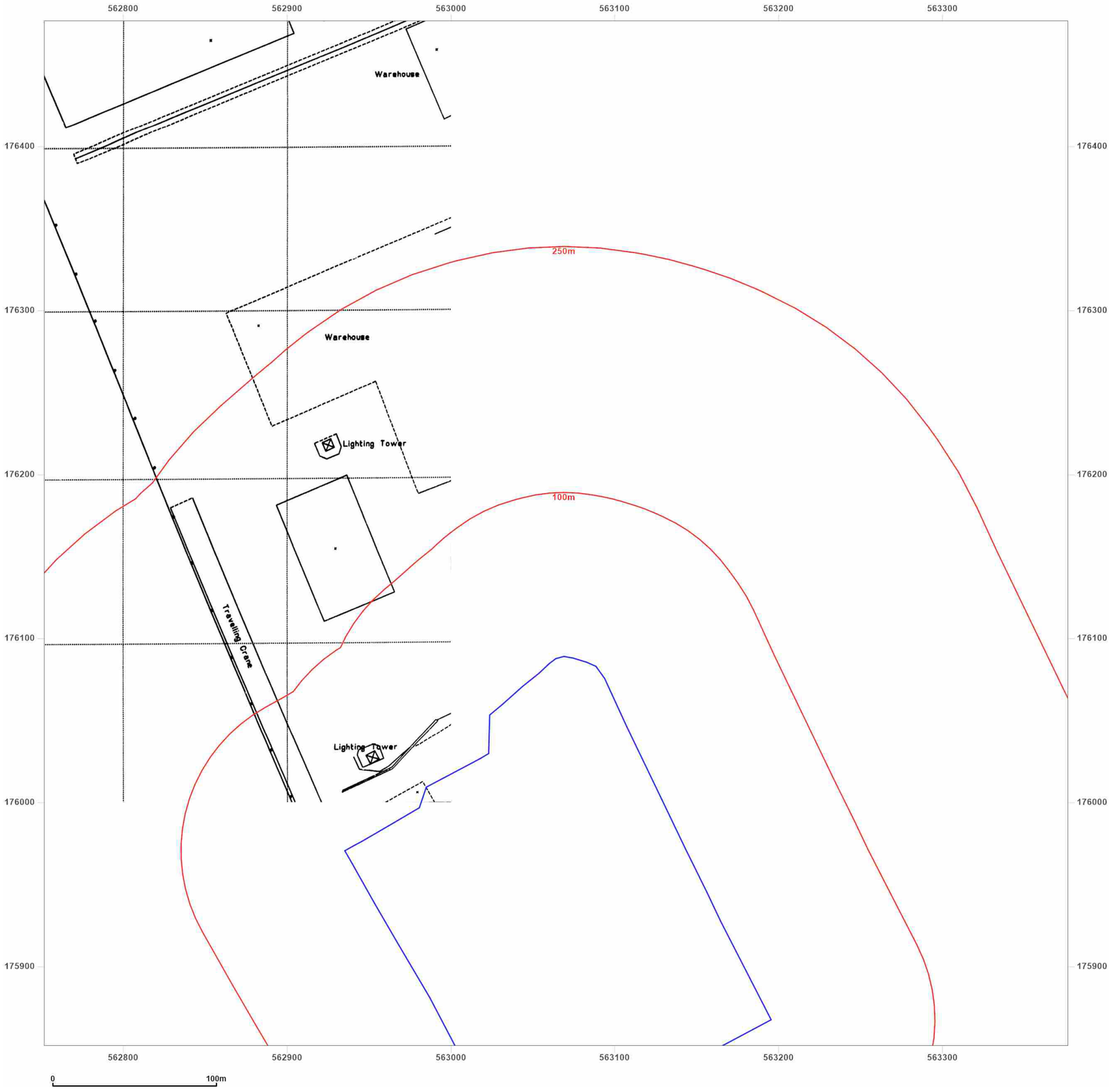

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GEO-ENVIRONMENTAL ENGINEERING EXCELLENCE

Site Details:

PORT OF TILBURY, TILBURY FREEPORT, TILBURY, RM18 7HA

Client Ref: C5441-4339-SD
Report Ref: BRO-B4Q-BKA-B49-CXB_LS_1_2
Grid Ref: 563064, 176164

Map Name: National Grid
Map date: **1993**
Scale: 1:2,500
Printed at: 1:2,500

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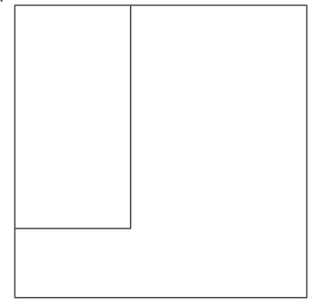
Surveyed N/A
Revised N/A
Edition N/A
Copyright 1993
Levelled N/A



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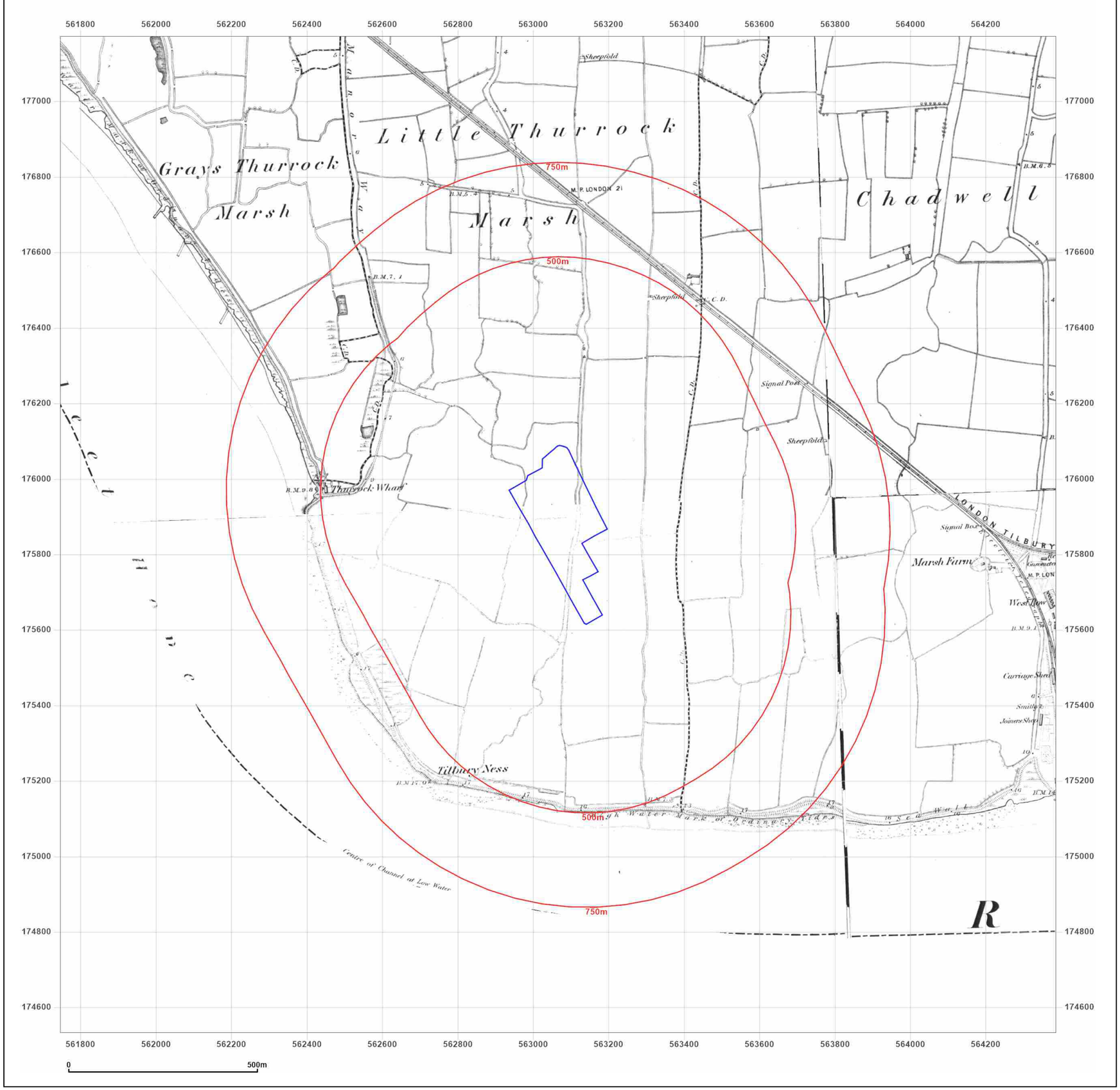

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GEO-ENVIRONMENTAL ENGINEERING EXCELLENCE

Site Details:

PORT OF TILBURY, TILBURY FREEPORT, TILBURY, RM18 7HA

Client Ref: C5441-4339-SD
Report Ref: BRO-B4Q-BKA-B49-CXB
Grid Ref: 563065, 175852

Map Name: County Series

Map date: **1863-1865**

Scale: 1:10,560

Printed at: 1:10,560

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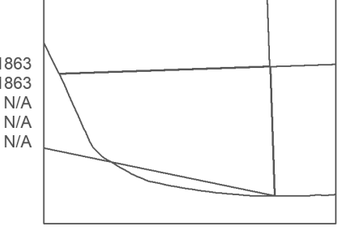
Surveyed 1865
Revised 1865
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1865
Revised 1865
Edition N/A
Copyright N/A
Levelled N/A



Surveyed 1863
Revised 1863
Edition N/A
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Surveyed 1863
Revised 1863
Edition N/A
Copyright N/A
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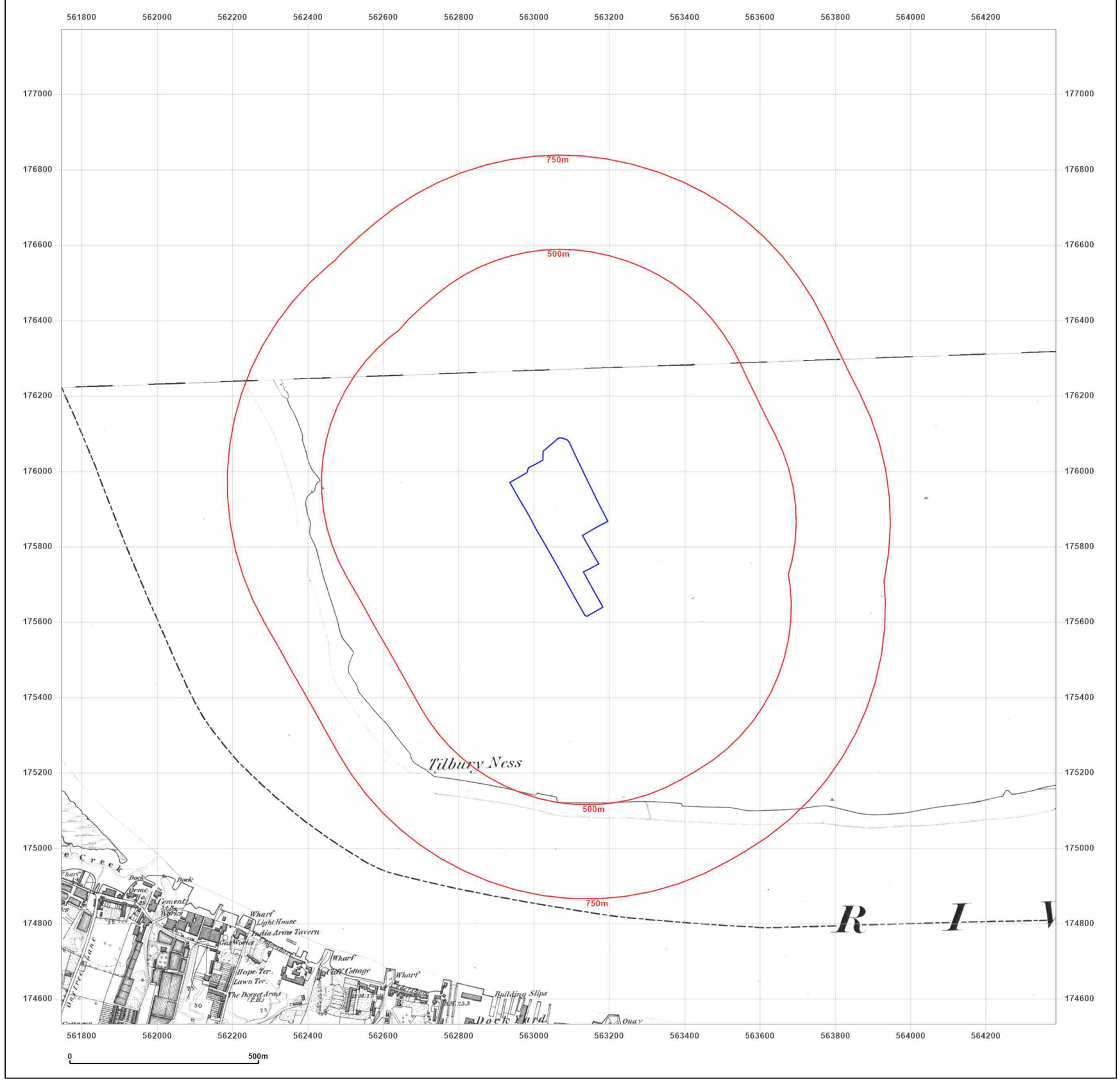

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GEO-ENVIRONMENTAL ENGINEERING EXCELLENCE

Site Details:

PORT OF TILBURY, TILBURY FREEPORT, TILBURY, RM18 7HA

Client Ref: C5441-4339-SD
Report Ref: BRO-B4Q-BKA-B49-CXB
Grid Ref: 563065, 175852

Map Name: County Series

Map date: **1865**

Scale: 1:10,560

Printed at: 1:10,560

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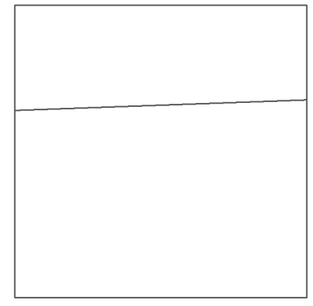

Surveyed 1865
Revised 1865
Edition N/A
Copyright N/A
Levelled N/A

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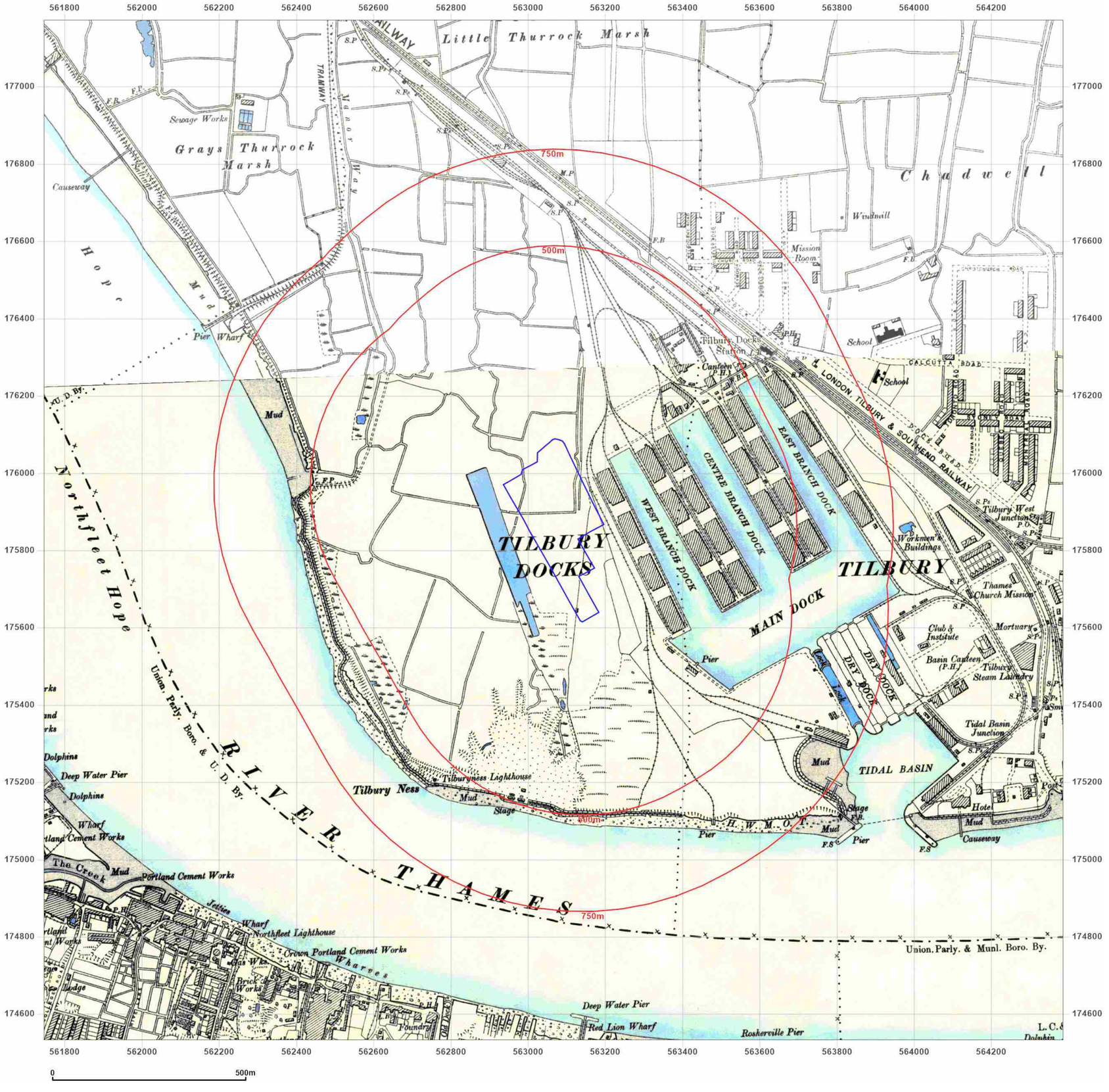

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GEO-ENVIRONMENTAL ENGINEERING EXCELLENCE

Site Details:

PORT OF TILBURY, TILBURY FREEPORT, TILBURY, RM18 7HA

Client Ref: C5441-4339-SD
Report Ref: BRO-B4Q-BKA-B49-CXB
Grid Ref: 563065, 175852

Map Name: County Series

Map date: **1895**

Scale: 1:10,560

Printed at: 1:10,560

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Edition 1899
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Revised 1895
Edition N/A
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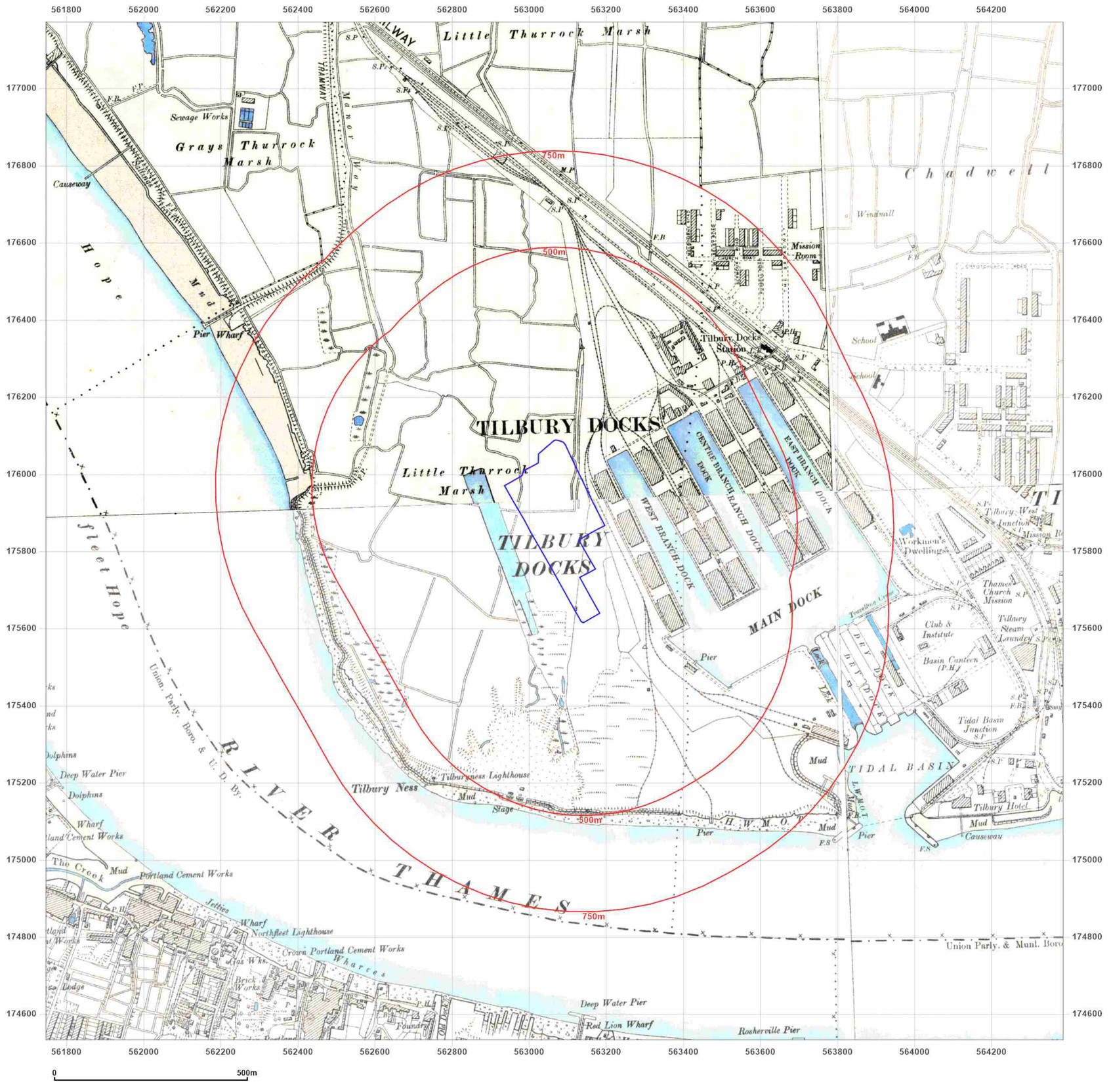

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GEO-ENVIRONMENTAL ENGINEERING EXCELLENCE

Site Details:

PORT OF TILBURY, TILBURY
FREEPORT, TILBURY, RM18
7HA

Client Ref: C5441-4339-SD
Report Ref: BRO-B4Q-BKA-B49-CXB
Grid Ref: 563065, 175852

Map Name: County Series

Map date: **1895-1898**

Scale: 1:10,560

Printed at: 1:10,560

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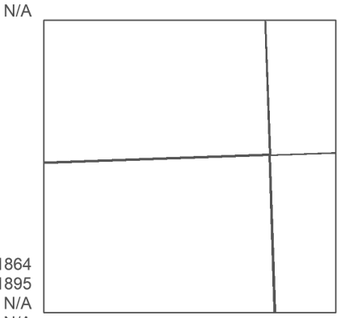
Surveyed 1866
Revised 1895
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1866
Revised 1895
Edition N/A
Copyright N/A
Levelled N/A



Surveyed 1864
Revised 1895
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1862
Revised 1895
Edition N/A
Copyright N/A
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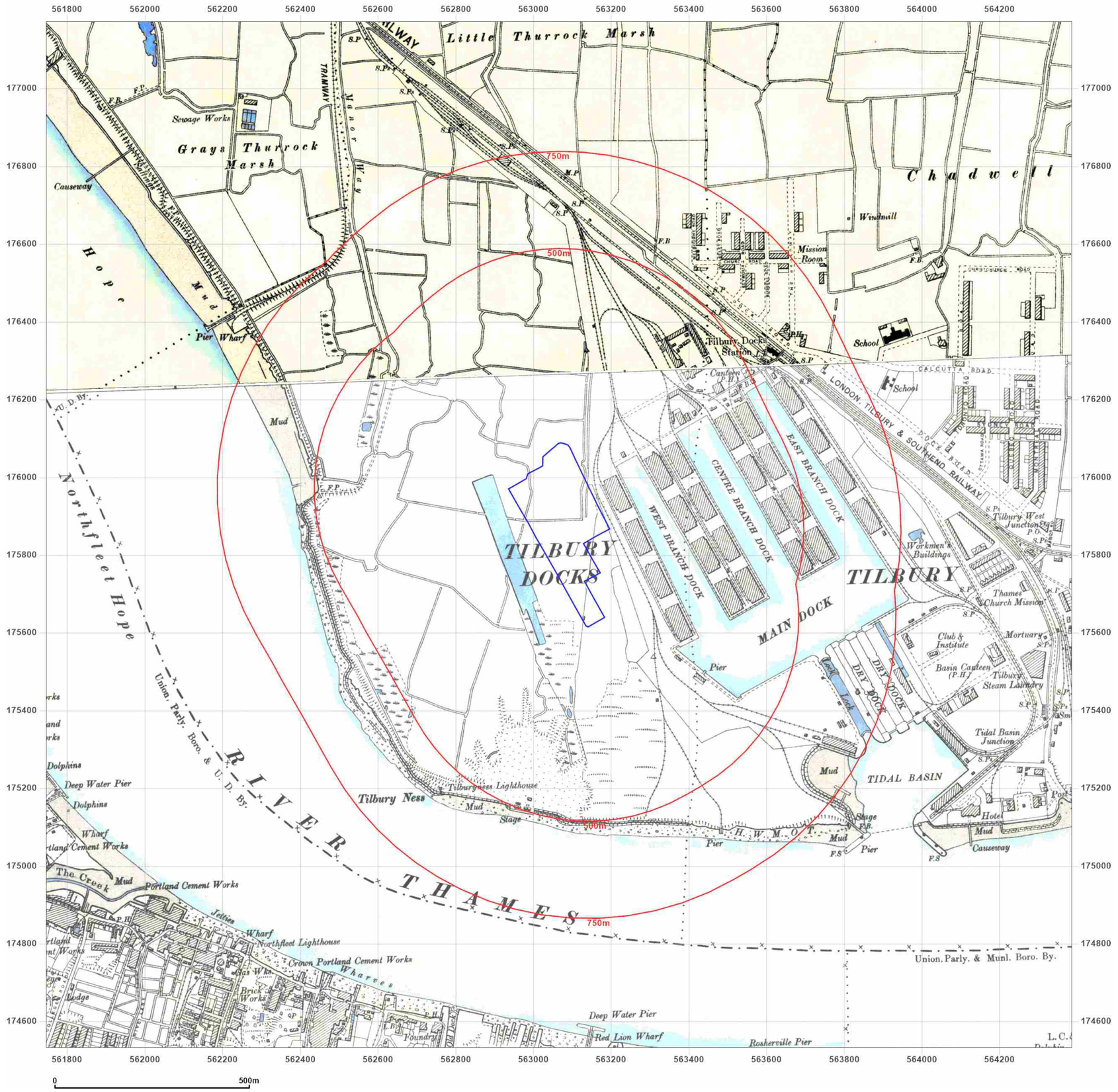

BROWNFIELD SOLUTIONS LTD
GEO-ENVIRONMENTAL ENGINEERING EXCELLENCE

Site Details:

PORT OF TILBURY, TILBURY
FREEPORT, TILBURY, RM18
7HA

Client Ref: C5441-4339-SD
Report Ref: BRO-B4Q-BKA-B49-CXB
Grid Ref: 563065, 175852

Map Name: County Series

Map date: **1895-1899**

Scale: 1:10,560

Printed at: 1:10,560

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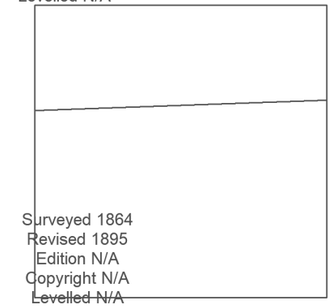
Surveyed 1866
Revised 1895
Edition N/A
Copyright N/A
Levelled N/A



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Revised 1895
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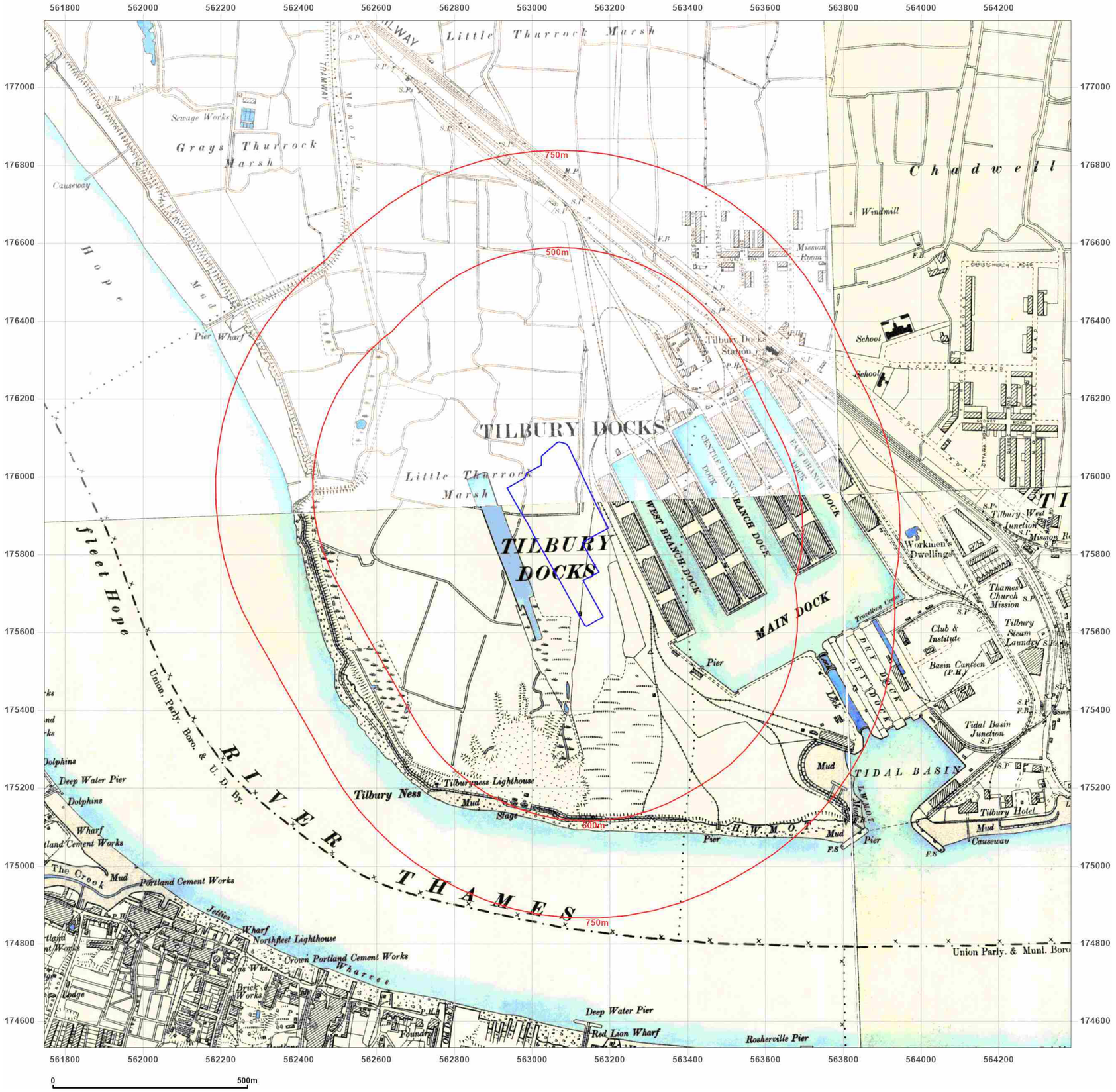

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GEO-ENVIRONMENTAL ENGINEERING EXCELLENCE

Site Details:

PORT OF TILBURY, TILBURY
FREEPORT, TILBURY, RM18
7HA

Client Ref: C5441-4339-SD
Report Ref: BRO-B4Q-BKA-B49-CXB
Grid Ref: 563065, 175852

Map Name: County Series

Map date: **1895-1899**

Scale: 1:10,560

Printed at: 1:10,560

N
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Surveyed 1866
Revised 1895
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1866
Revised 1895
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1866
Revised 1895
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1866
Revised 1895
Edition N/A
Copyright N/A
Levelled N/A

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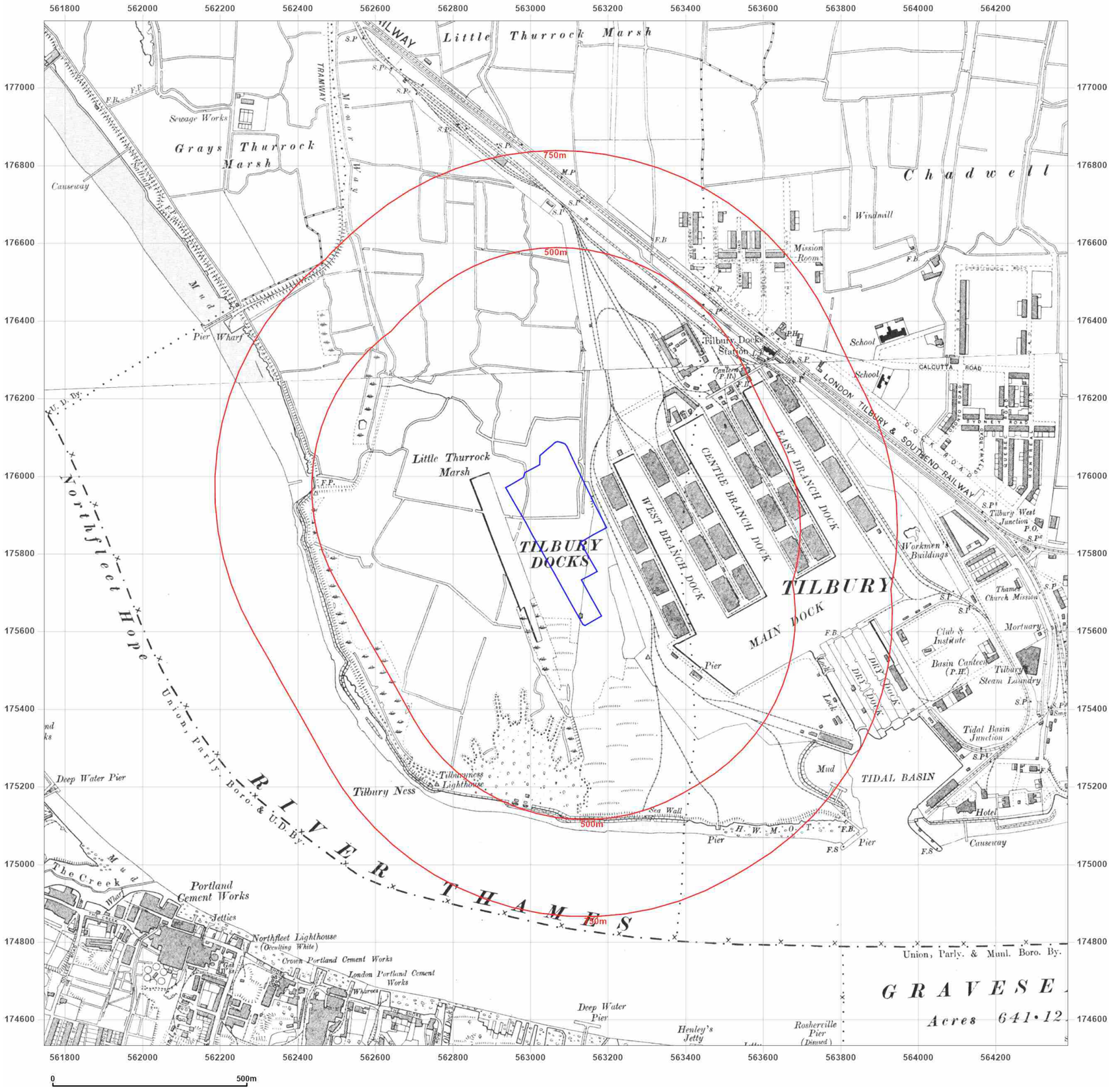

Site Details:

PORT OF TILBURY, TILBURY
FREEPORT, TILBURY, RM18
7HA

Client Ref: C5441-4339-SD
Report Ref: BRO-B4Q-BKA-B49-CXB
Grid Ref: 563065, 175852

Map Name: County Series

Map date: **1907-1910**

Scale: 1:10,560

Printed at: 1:10,560

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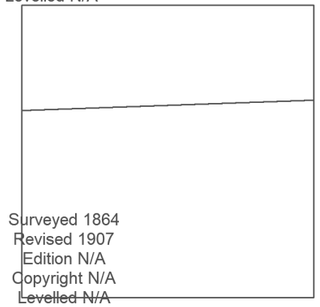
Surveyed 1864
Revised 1907
Edition 1910
Copyright N/A
Levelled N/A



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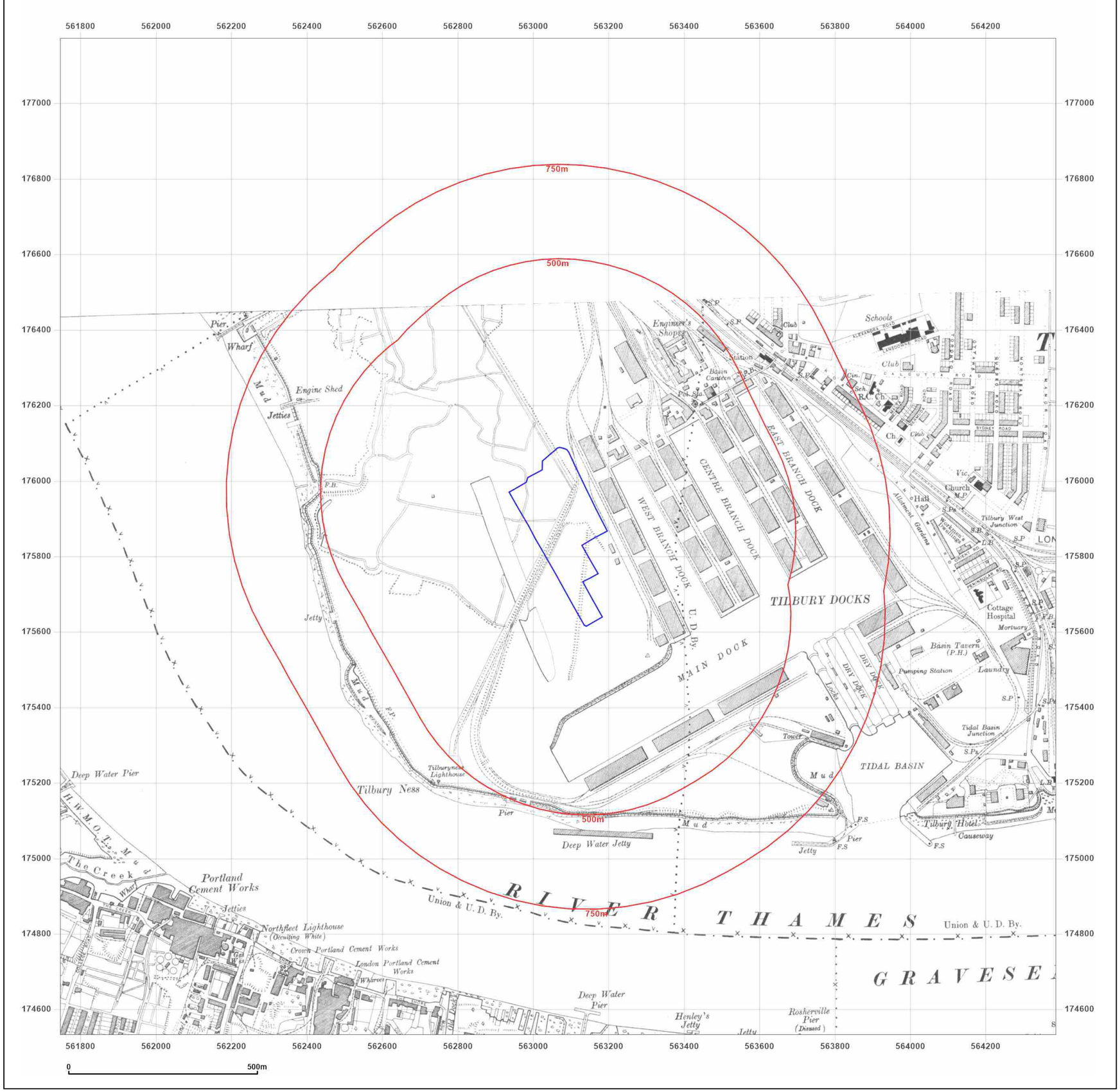

BROWNFIELD SOLUTIONS LTD
GEO-ENVIRONMENTAL ENGINEERING EXCELLENCE

Site Details:

PORT OF TILBURY, TILBURY
FREEPORT, TILBURY, RM18
7HA

Client Ref: C5441-4339-SD
Report Ref: BRO-B4Q-BKA-B49-CXB
Grid Ref: 563065, 175852

Map Name: County Series

Map date: **1916**

Scale: 1:10,560

Printed at: 1:10,560

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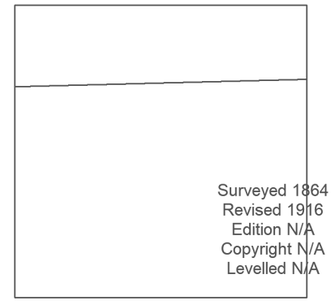

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Production date: 04 July 2023

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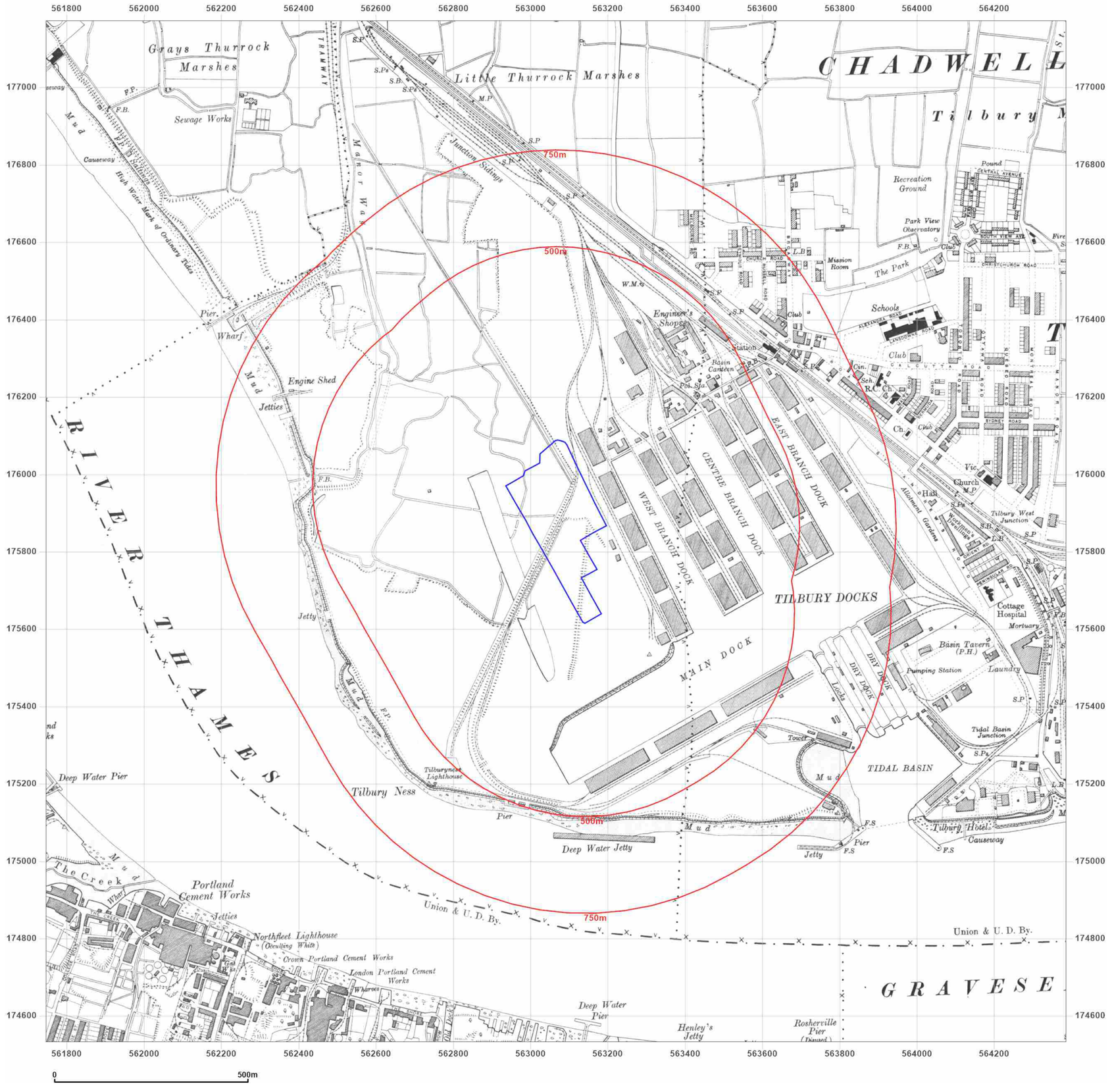

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GEO-ENVIRONMENTAL ENGINEERING EXCELLENCE

Site Details:

PORT OF TILBURY, TILBURY
FREEPORT, TILBURY, RM18
7HA

Client Ref: C5441-4339-SD
Report Ref: BRO-B4Q-BKA-B49-CXB
Grid Ref: 563065, 175852

Map Name: County Series

Map date: **1923**

Scale: 1:10,560

Printed at: 1:10,560

N
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Surveyed 1864
Revised 1923
Edition N/A
Copyright N/A
Levelled N/A

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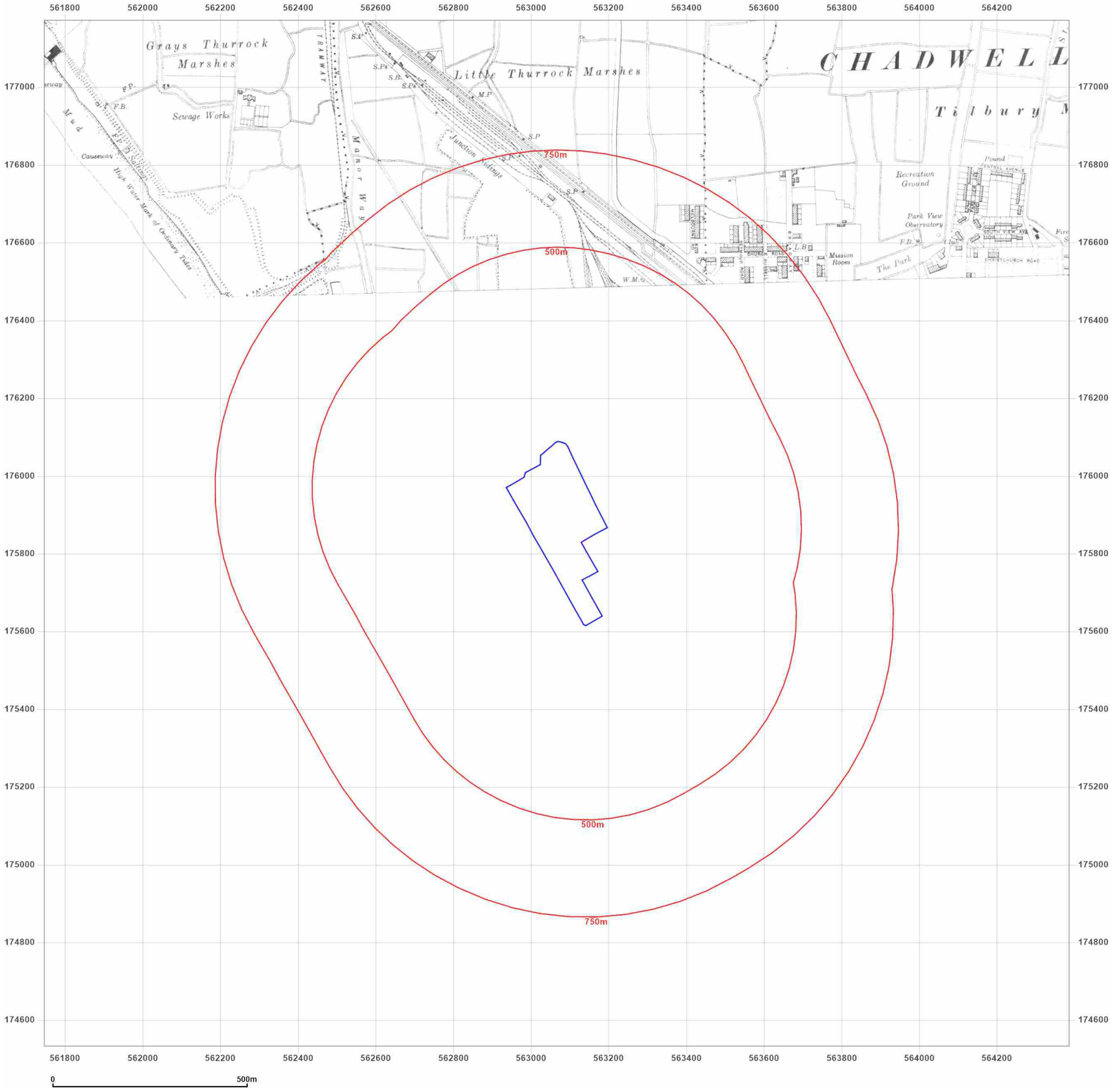

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GEO-ENVIRONMENTAL ENGINEERING EXCELLENCE

Site Details:

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FREEPORT, TILBURY, RM18
7HA

Client Ref: C5441-4339-SD
Report Ref: BRO-B4Q-BKA-B49-CXB
Grid Ref: 563065, 175852

Map Name: County Series

Map date: **1923**

Scale: 1:10,560

Printed at: 1:10,560

N
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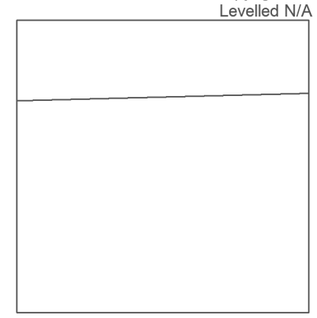
S

Surveyed 1864
Revised 1923
Edition 1923
Copyright N/A
Levelled N/A



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Site Details:

PORT OF TILBURY, TILBURY
FREEPORT, TILBURY, RM18
7HA

Client Ref: C5441-4339-SD
Report Ref: BRO-B4Q-BKA-B49-CXB
Grid Ref: 563065, 175852

Map Name: County Series

Map date: **1932**

Scale: 1:10,560

Printed at: 1:10,560

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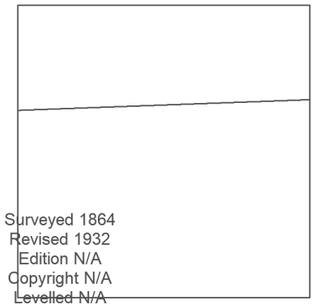

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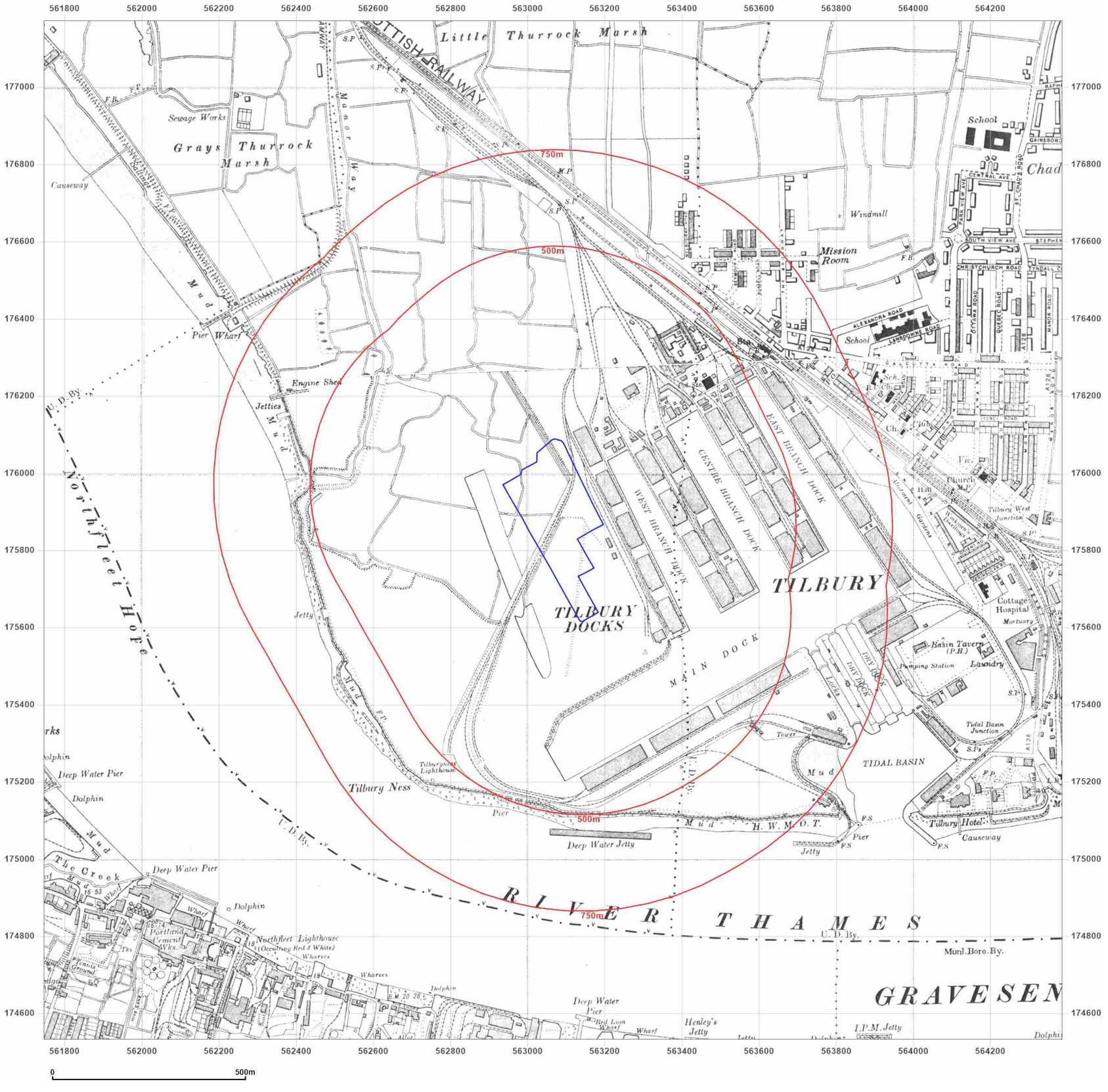

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Site Details:

PORT OF TILBURY, TILBURY
FREEPORT, TILBURY, RM18
7HA

Client Ref: C5441-4339-SD
Report Ref: BRO-B4Q-BKA-B49-CXB
Grid Ref: 563065, 175852

Map Name: County Series

Map date: **1938**

Scale: 1:10,560

Printed at: 1:10,560

N
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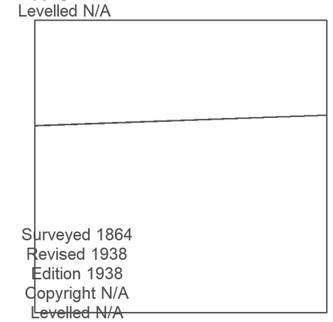
Surveyed 1864
Revised 1938
Edition 1938
Copyright N/A
Levelled N/A



Surveyed 1864
Revised 1938
Edition 1938
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Levelled N/A

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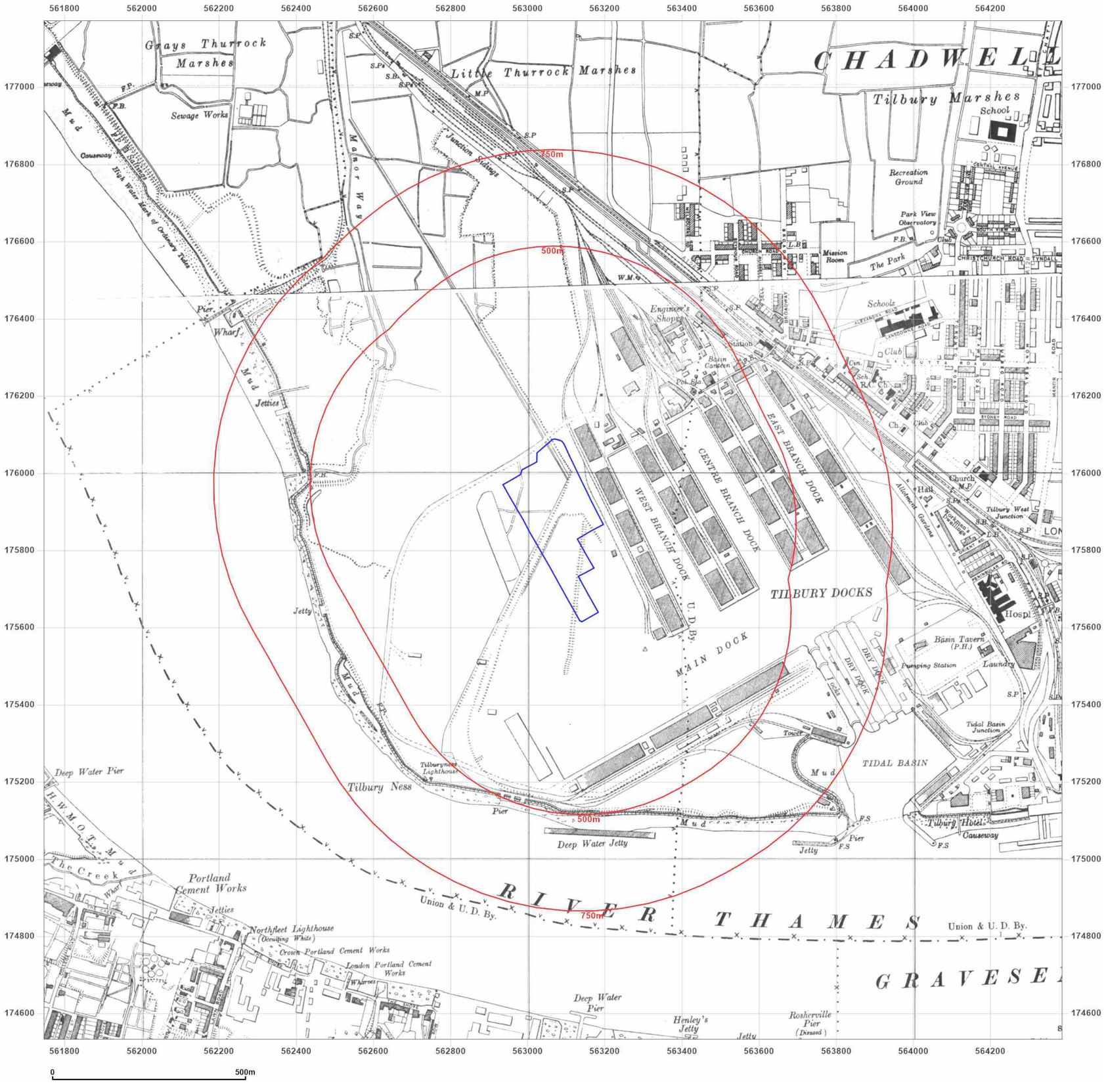

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GEO-ENVIRONMENTAL ENGINEERING EXCELLENCE

Site Details:

PORT OF TILBURY, TILBURY
FREEPORT, TILBURY, RM18
7HA

Client Ref: C5441-4339-SD
Report Ref: BRO-B4Q-BKA-B49-CXB
Grid Ref: 563065, 175852

Map Name: County Series

Map date: **1938**

Scale: 1:10,560

Printed at: 1:10,560

N
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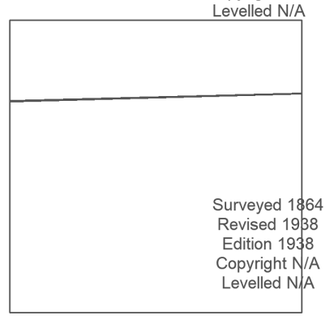
S

Surveyed 1864
Revised 1938
Edition N/A
Copyright N/A
Levelled N/A



Surveyed 1864
Revised 1938
Edition 1938
Copyright N/A
Levelled N/A

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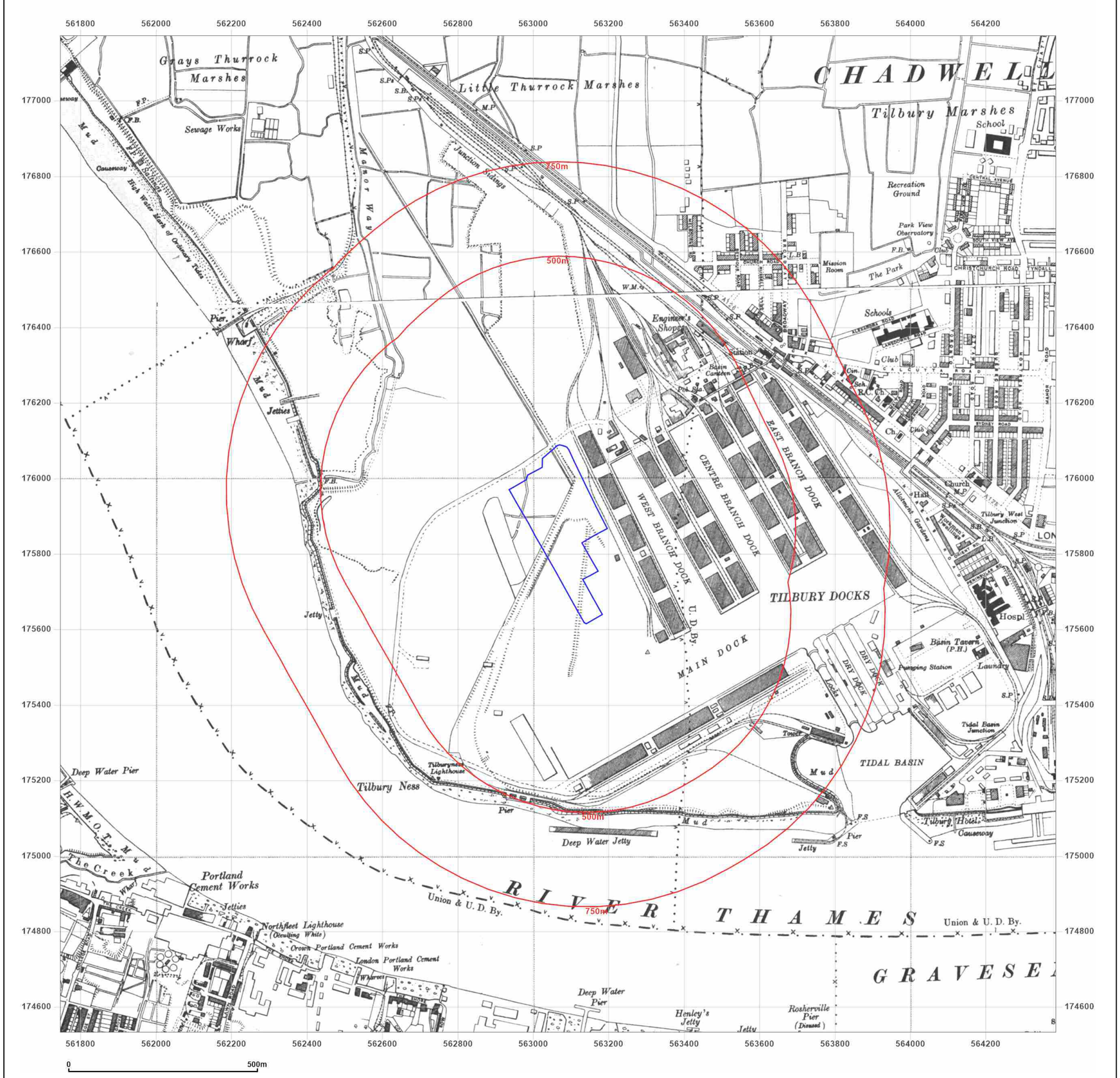

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GEO-ENVIRONMENTAL ENGINEERING EXCELLENCE

Site Details:

PORT OF TILBURY, TILBURY FREEPORT, TILBURY, RM18 7HA

Client Ref: C5441-4339-SD
Report Ref: BRO-B4Q-BKA-B49-CXB
Grid Ref: 563065, 175852

Map Name: County Series

Map date: **1938**

Scale: 1:10,560

Printed at: 1:10,560

N
W E
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Surveyed 1864
Revised 1938
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1866
Revised 1938
Edition N/A
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Levelled N/A

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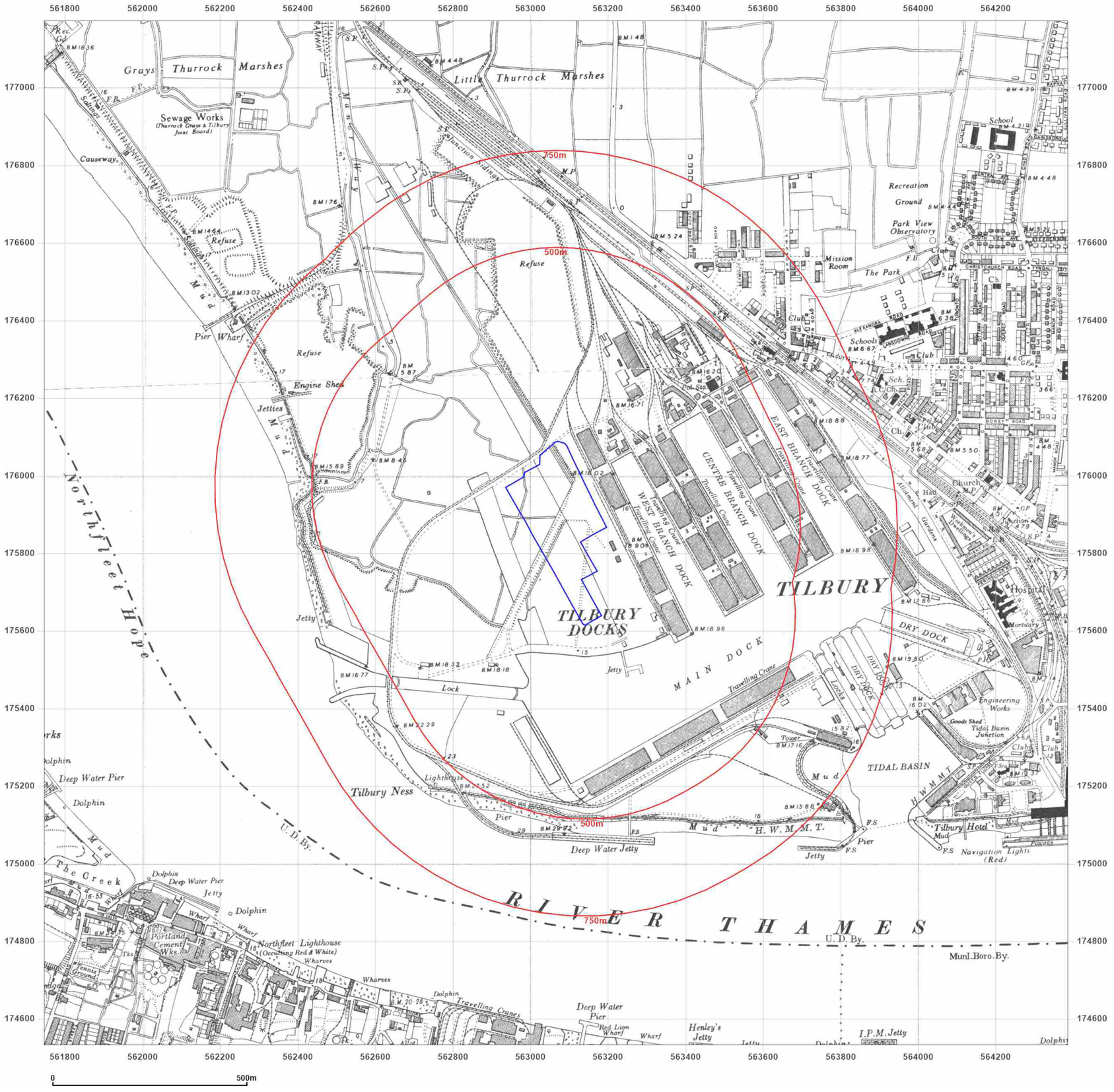

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GEO-ENVIRONMENTAL ENGINEERING EXCELLENCE

Site Details:

PORT OF TILBURY, TILBURY
FREEPORT, TILBURY, RM18
7HA

Client Ref: C5441-4339-SD
Report Ref: BRO-B4Q-BKA-B49-CXB
Grid Ref: 563065, 175852

Map Name: County Series

Map date: **1946-1947**

Scale: 1:10,560

Printed at: 1:10,560

N
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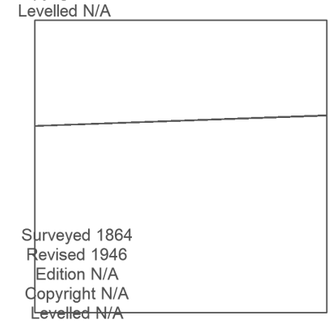
Surveyed 1864
Revised 1947
Edition N/A
Copyright N/A
Levelled N/A



Surveyed 1864
Revised 1946
Edition N/A
Copyright N/A
Levelled N/A

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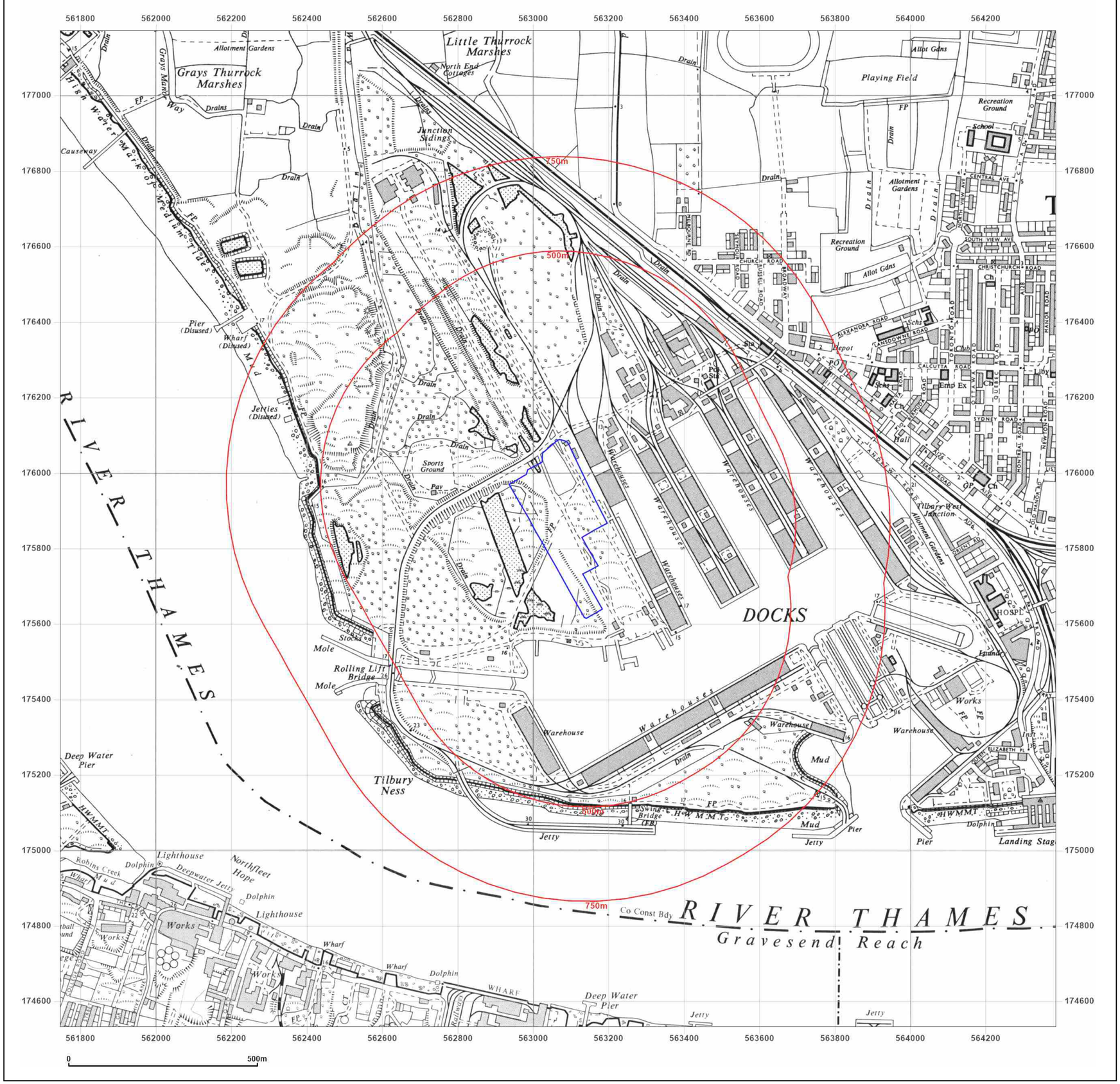

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GEO-ENVIRONMENTAL ENGINEERING EXCELLENCE

Site Details:

PORT OF TILBURY, TILBURY
FREEPORT, TILBURY, RM18
7HA

Client Ref: C5441-4339-SD
Report Ref: BRO-B4Q-BKA-B49-CXB
Grid Ref: 563065, 175852

Map Name: Provisional

Map date: **1955**

Scale: 1:10,560

Printed at: 1:10,560

N
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Surveyed 1864
Revised 1955
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1864
Revised 1955
Edition N/A
Copyright N/A
Levelled N/A

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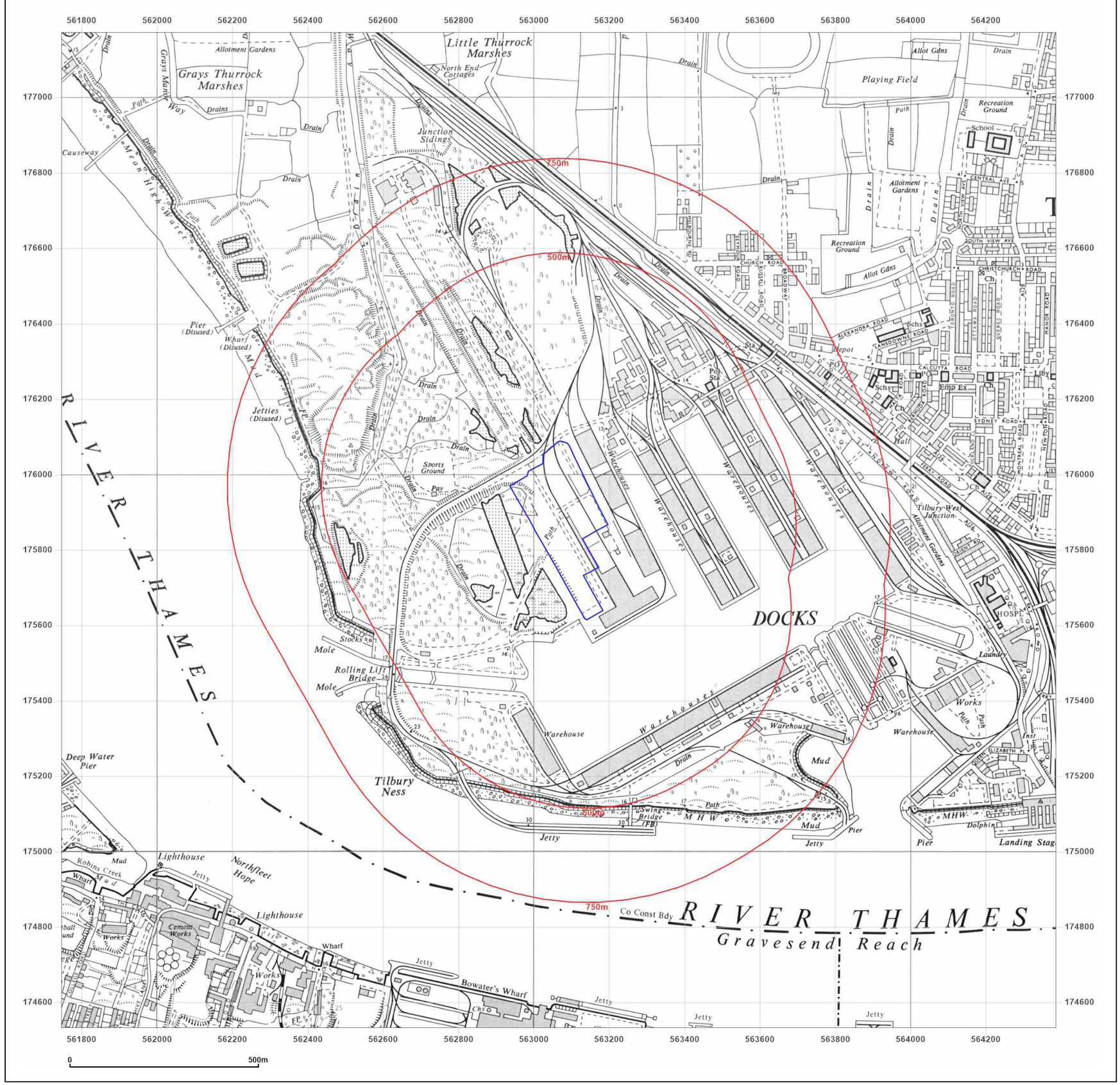

Site Details:

PORT OF TILBURY, TILBURY FREEPORT, TILBURY, RM18 7HA

Client Ref: C5441-4339-SD
Report Ref: BRO-B4Q-BKA-B49-CXB
Grid Ref: 563065, 175852

Map Name: Provisional

Map date: **1966**

Scale: 1:10,560

Printed at: 1:10,560

N
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Revised 1966
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1966
Revised 1966
Edition N/A
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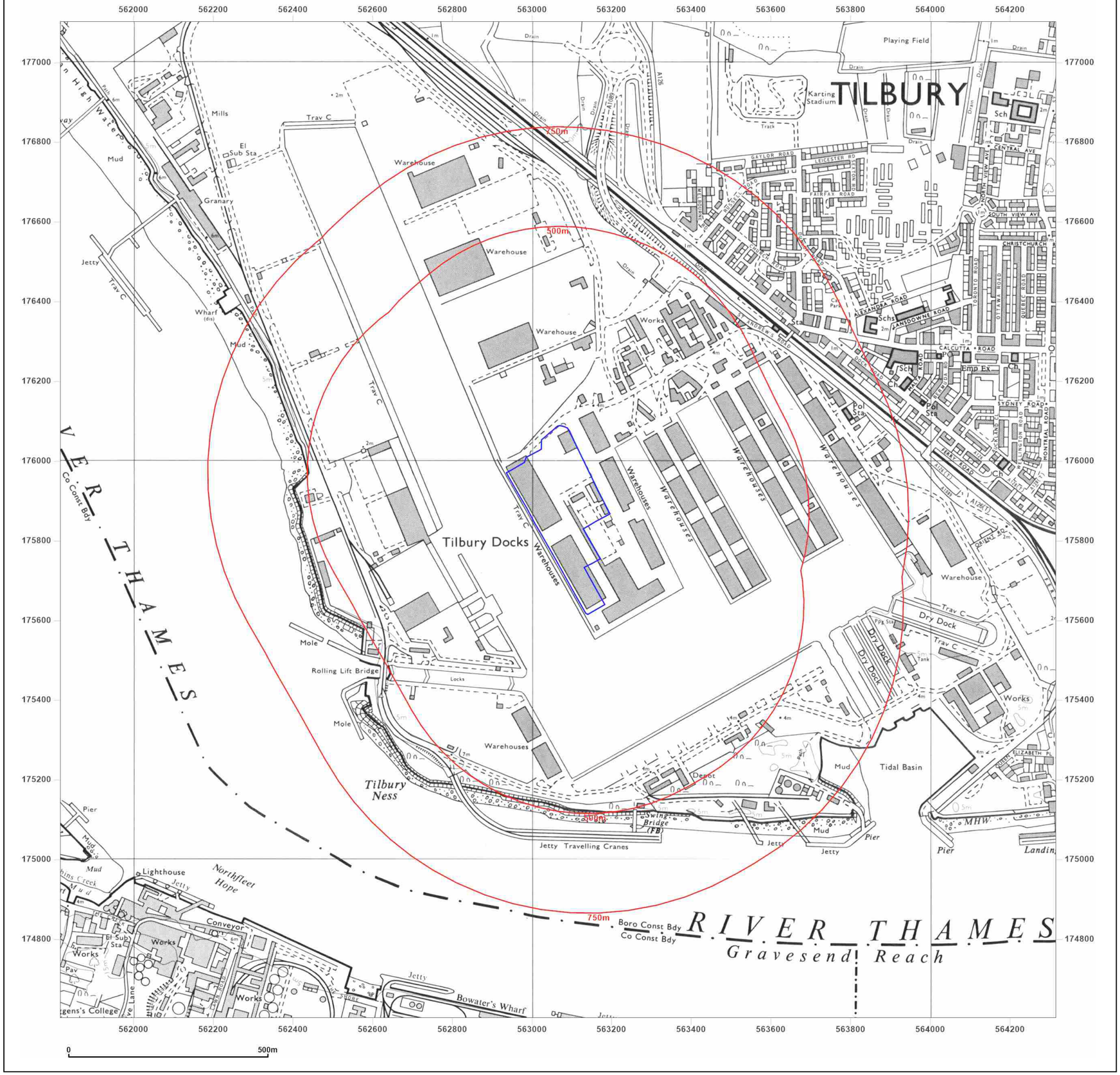

Site Details:

PORT OF TILBURY, TILBURY
FREEPORT, TILBURY, RM18
7HA

Client Ref: C5441-4339-SD
Report Ref: BRO-B4Q-BKA-B49-CXB
Grid Ref: 563065, 175852

Map Name: National Grid

Map date: **1971-1973**

Scale: 1:10,000

Printed at: 1:10,000

N
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Surveyed 1973
Revised 1973
Edition N/A
Copyright N/A
Levelled N/A

~~Surveyed 1971~~
Revised 1971
Edition N/A
Copyright N/A
Levelled N/A

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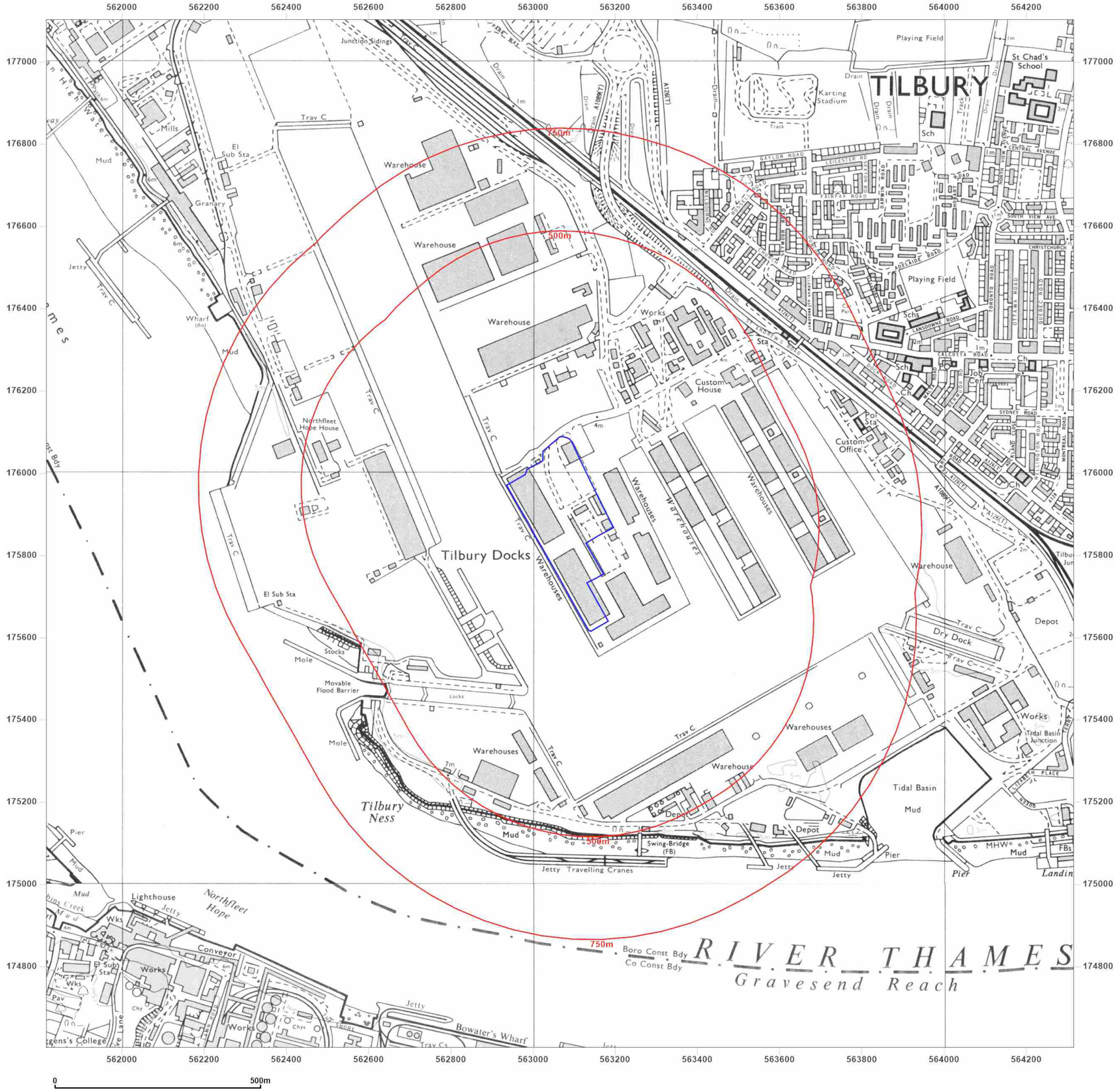

BROWNFIELD SOLUTIONS LTD
GEO-ENVIRONMENTAL ENGINEERING EXCELLENCE

Site Details:

PORT OF TILBURY, TILBURY
FREEPORT, TILBURY, RM18
7HA

Client Ref: C5441-4339-SD
Report Ref: BRO-B4Q-BKA-B49-CXB
Grid Ref: 563065, 175852

Map Name: National Grid

Map date: **1977-1982**

Scale: 1:10,000

Printed at: 1:10,000

N
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Surveyed 1981
Revised 1982
Edition N/A
Copyright N/A
Levelled N/A

~~Surveyed 1977~~
Revised 1977
Edition N/A
Copyright N/A
Levelled N/A

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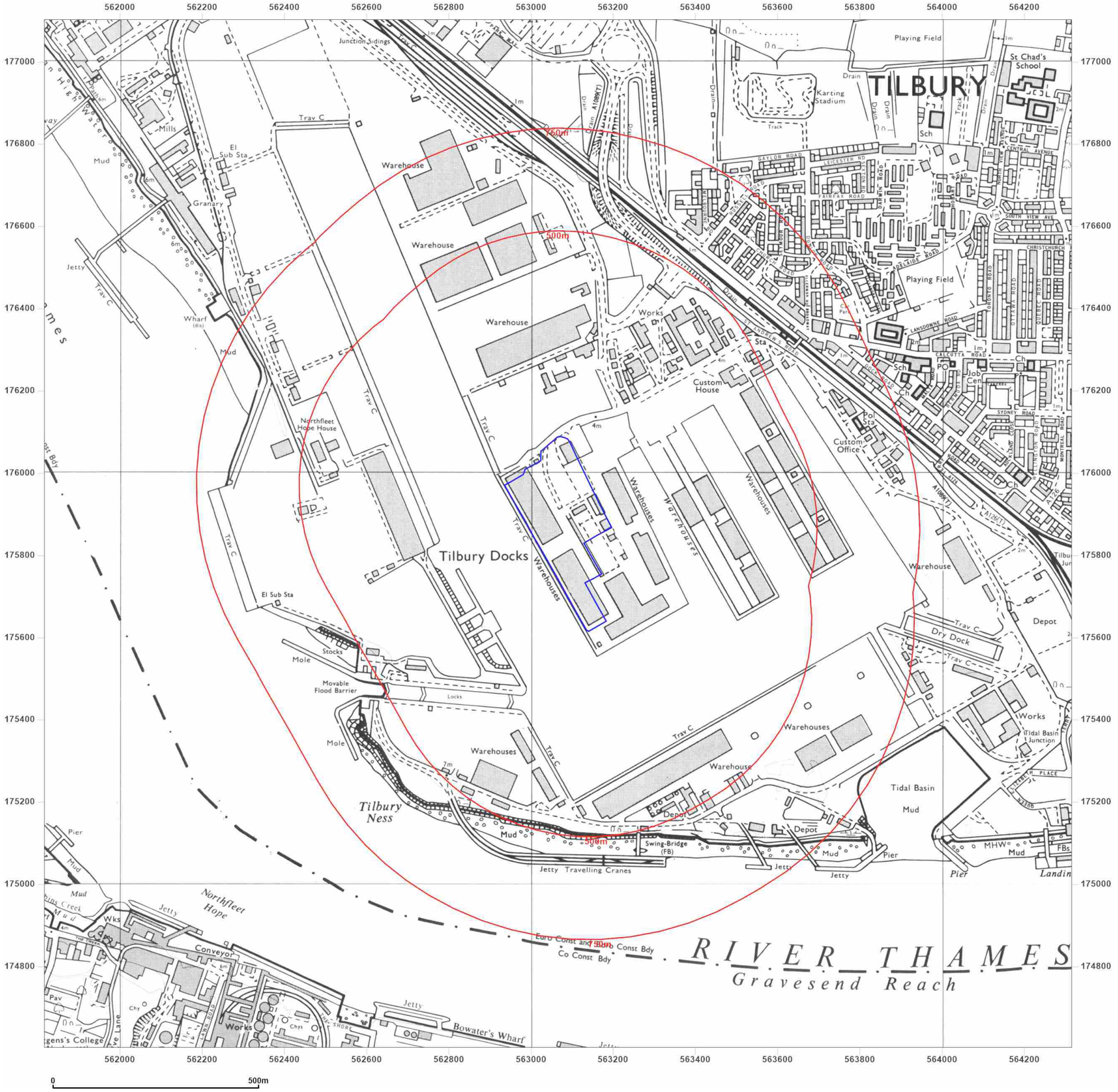

BROWNFIELD SOLUTIONS LTD
GEO-ENVIRONMENTAL ENGINEERING EXCELLENCE

Site Details:

PORT OF TILBURY, TILBURY
FREEPORT, TILBURY, RM18
7HA

Client Ref: C5441-4339-SD
Report Ref: BRO-B4Q-BKA-B49-CXB
Grid Ref: 563065, 175852

Map Name: National Grid

Map date: **1990-1992**

Scale: 1:10,000

Printed at: 1:10,000

N
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Surveyed 1981
Revised 1992
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1988
Revised 1990
Edition N/A
Copyright N/A
Levelled N/A

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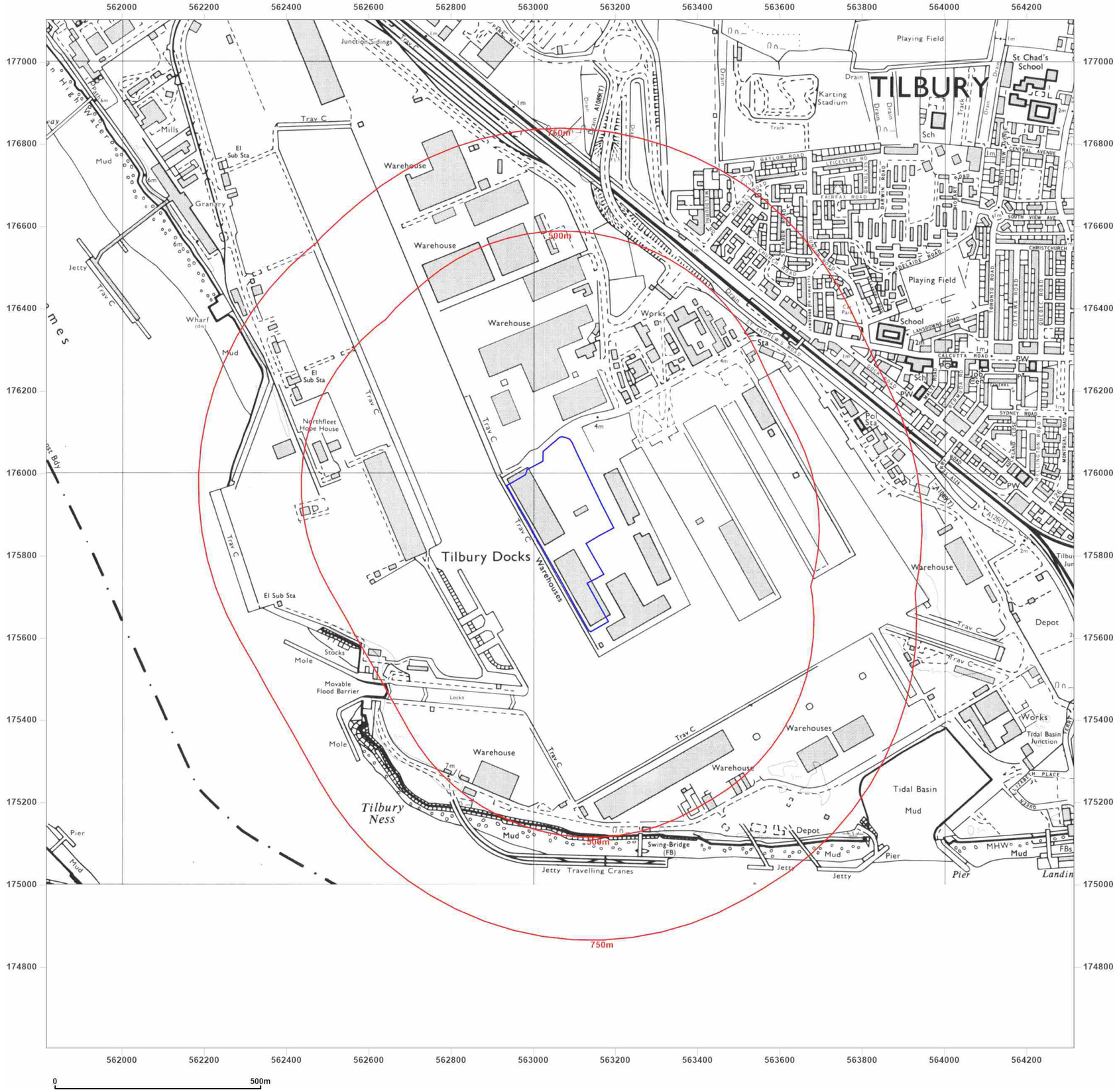

BROWNFIELD SOLUTIONS LTD
GEO-ENVIRONMENTAL ENGINEERING EXCELLENCE

Site Details:

PORT OF TILBURY, TILBURY
FREEPORT, TILBURY, RM18
7HA

Client Ref: C5441-4339-SD
Report Ref: BRO-B4Q-BKA-B49-CXB
Grid Ref: 563065, 175852

Map Name: National Grid

Map date: **1993**

Scale: 1:10,000

Printed at: 1:10,000

N
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Surveyed 1981
Revised 1993
Edition N/A
Copyright N/A
Levelled N/A

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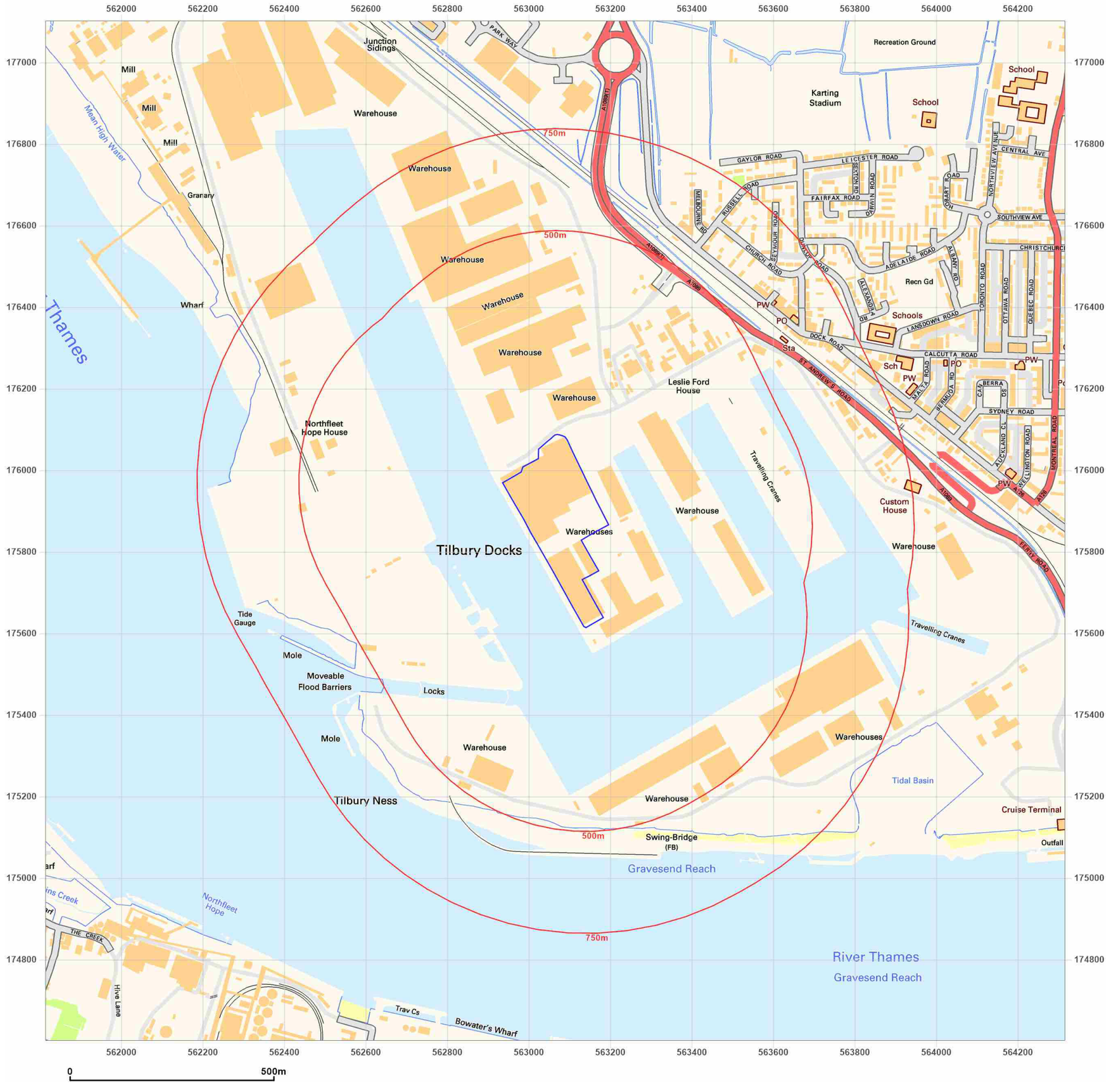

BROWNFIELD SOLUTIONS LTD
GEO-ENVIRONMENTAL ENGINEERING EXCELLENCE

Site Details:

PORT OF TILBURY, TILBURY
FREEPORT, TILBURY, RM18
7HA

Client Ref: C5441-4339-SD
Report Ref: BRO-B4Q-BKA-B49-CXB
Grid Ref: 563065, 175852

Map Name: National Grid

Map date: **2001**

Scale: 1:10,000

Printed at: 1:10,000

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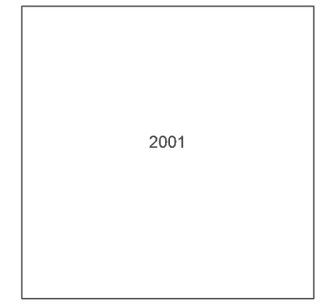

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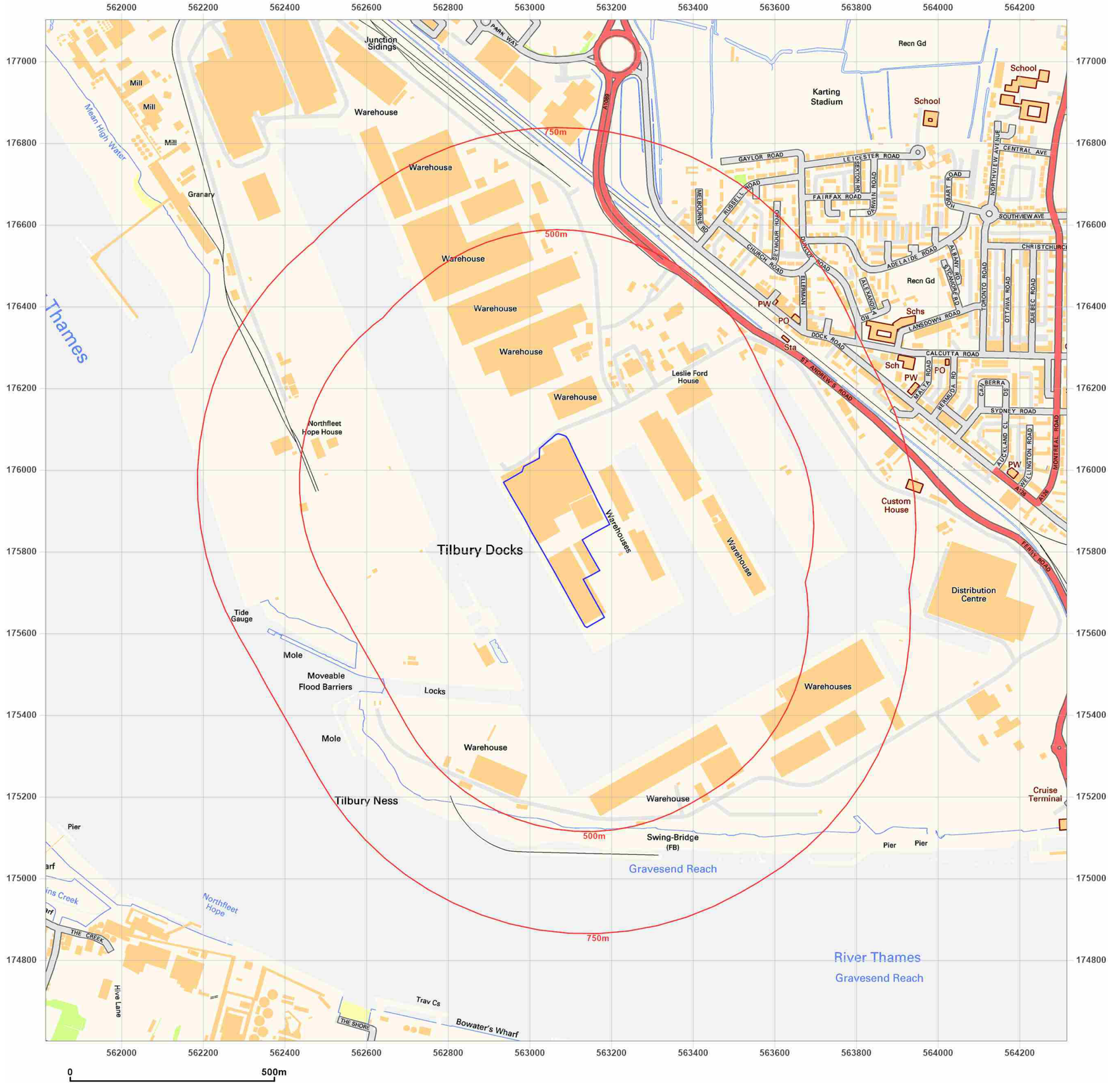

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GEO-ENVIRONMENTAL ENGINEERING EXCELLENCE

Site Details:

PORT OF TILBURY, TILBURY
FREEPORT, TILBURY, RM18
7HA

Client Ref: C5441-4339-SD
Report Ref: BRO-B4Q-BKA-B49-CXB
Grid Ref: 563065, 175852

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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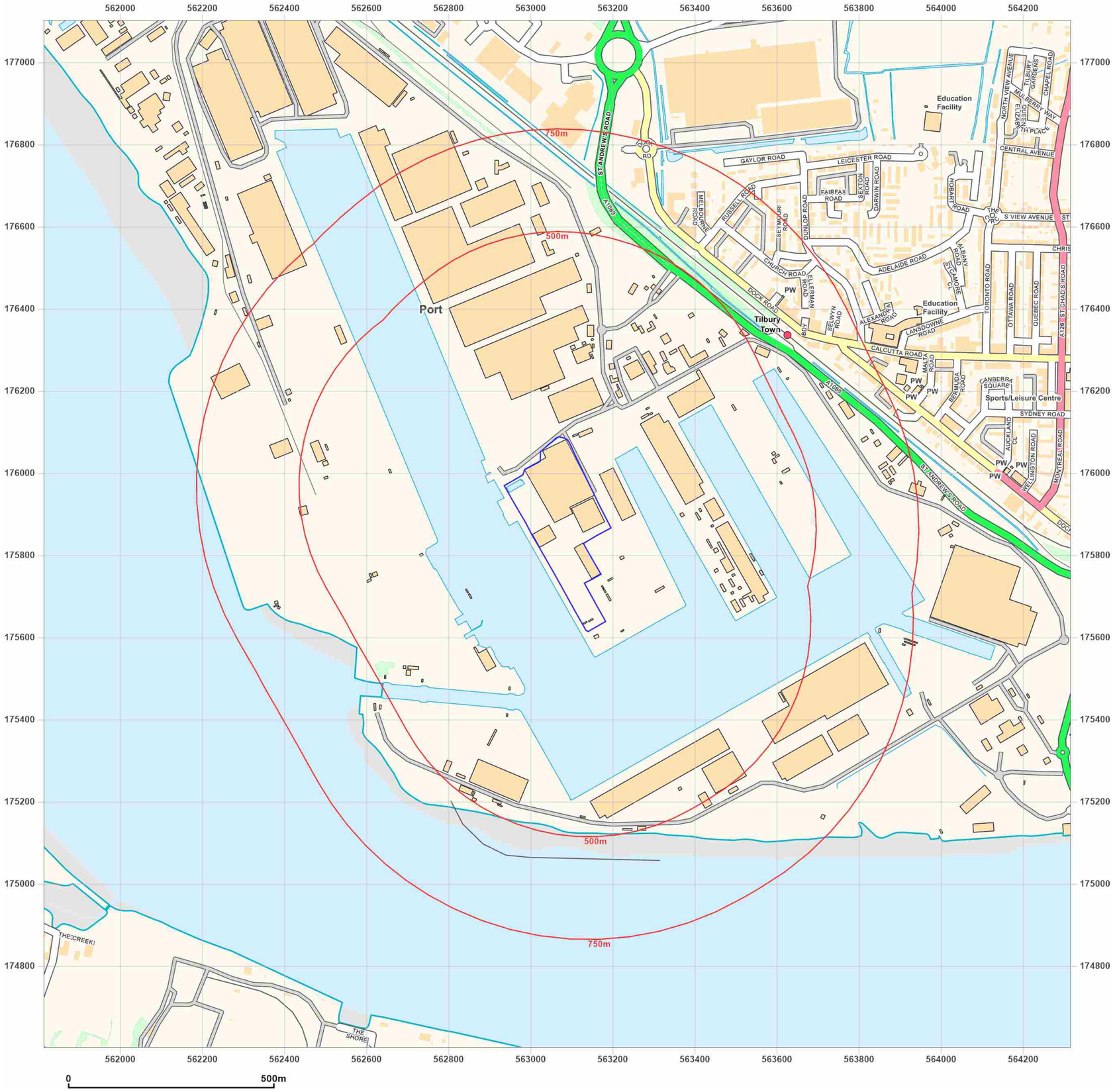

BROWNFIELD SOLUTIONS LTD
GEO-ENVIRONMENTAL ENGINEERING EXCELLENCE

Site Details:

PORT OF TILBURY, TILBURY FREEPORT, TILBURY, RM18 7HA

Client Ref: C5441-4339-SD
Report Ref: BRO-B4Q-BKA-B49-CXB
Grid Ref: 563065, 175852

Map Name: National Grid
Map date: **2023**
Scale: 1:10,000
Printed at: 1:10,000

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S

2023

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APPENDIX C

Geo-Environmental Data Report

Groundsure
LOCATION INTELLIGENCE

Enviro+Geo Insight

PORT OF TILBURY, TILBURY FREEPORT, TILBURY, RM18 7HA

Order Details

Date: 04/07/2023

Your ref: C5441-4339-SD

Our Ref: BRO-SQF-W2P-N9C-2NF

Site Details

Location: 563067 175910

Area: 5.64 ha

Authority: Thurrock Council ↗

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

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 >	29	7	24	44	-
19 >	1.2 >	Historical tanks >	0	0	0	7	-
20 >	1.3 >	Historical energy features >	0	0	1	2	-
20	1.4	Historical petrol stations	0	0	0	0	-
21	1.5	Historical garages	0	0	0	0	-
21	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
22 >	2.1 >	Historical industrial land uses >	53	12	48	79	-
29 >	2.2 >	Historical tanks >	0	0	0	10	-
30 >	2.3 >	Historical energy features >	0	0	3	3	-
31	2.4	Historical petrol stations	0	0	0	0	-
31	2.5	Historical garages	0	0	0	0	-
Page	Section	Waste and landfill >	On site	0-50m	50-250m	250-500m	500-2000m
32	3.1	Active or recent landfill	0	0	0	0	-
32	3.2	Historical landfill (BGS records)	0	0	0	0	-
33	3.3	Historical landfill (LA/mapping records)	0	0	0	0	-
33	3.4	Historical landfill (EA/NRW records)	0	0	0	0	-
33 >	3.5 >	Historical waste sites >	0	0	2	2	-
34 >	3.6 >	Licensed waste sites >	0	1	9	19	-
43 >	3.7 >	Waste exemptions >	0	1	3	16	-
Page	Section	Current industrial land use >	On site	0-50m	50-250m	250-500m	500-2000m
46 >	4.1 >	Recent industrial land uses >	0	4	21	-	-
48 >	4.2 >	Current or recent petrol stations >	0	0	0	1	-
48	4.3	Electricity cables	0	0	0	0	-
49	4.4	Gas pipelines	0	0	0	0	-
49	4.5	Sites determined as Contaminated Land	0	0	0	0	-

49 >	4.6 >	Control of Major Accident Hazards (COMAH) >	2	0	0	0	-
49	4.7	Regulated explosive sites	0	0	0	0	-
50 >	4.8 >	Hazardous substance storage/usage >	0	0	1	0	-
50	4.9	Historical licensed industrial activities (IPC)	0	0	0	0	-
50 >	4.10 >	Licensed industrial activities (Part A(1)) >	3	0	0	4	-
52	4.11	Licensed pollutant release (Part A(2)/B)	0	0	0	0	-
52 >	4.12 >	Radioactive Substance Authorisations >	0	0	0	1	-
52	4.13	Licensed Discharges to controlled waters	0	0	0	0	-
53	4.14	Pollutant release to surface waters (Red List)	0	0	0	0	-
53	4.15	Pollutant release to public sewer	0	0	0	0	-
53	4.16	List 1 Dangerous Substances	0	0	0	0	-
53	4.17	List 2 Dangerous Substances	0	0	0	0	-
53 >	4.18 >	Pollution Incidents (EA/NRW) >	0	0	2	1	-
54	4.19	Pollution inventory substances	0	0	0	0	-
54	4.20	Pollution inventory waste transfers	0	0	0	0	-
54	4.21	Pollution inventory radioactive waste	0	0	0	0	-

Page	Section	Hydrogeology >	On site	0-50m	50-250m	250-500m	500-2000m
55 >	5.1 >	Superficial aquifer >	Identified (within 500m)				
56 >	5.2 >	Bedrock aquifer >	Identified (within 500m)				
57 >	5.3 >	Groundwater vulnerability >	Identified (within 50m)				
58 >	5.4 >	Groundwater vulnerability- soluble rock risk >	Identified (within 0m)				
59 >	5.5 >	Groundwater vulnerability- local information >	Identified (within 0m)				
60 >	5.6 >	Groundwater abstractions >	0	0	0	0	9
63 >	5.7 >	Surface water abstractions >	0	0	0	0	1
63	5.8	Potable abstractions	0	0	0	0	0
63	5.9	Source Protection Zones	0	0	0	0	-
64	5.10	Source Protection Zones (confined aquifer)	0	0	0	0	-

Page	Section	Hydrology >	On site	0-50m	50-250m	250-500m	500-2000m
65 >	6.1 >	Water Network (OS MasterMap) >	0	0	1	-	-

66 >	6.2 >	Surface water features >	1	1	0	-	-
66 >	6.3 >	WFD Surface water body catchments >	1	-	-	-	-
66 >	6.4 >	WFD Surface water bodies >	1	0	0	-	-
67 >	6.5 >	WFD Groundwater bodies >	1	-	-	-	-
Page	Section	River and coastal flooding >	On site	0-50m	50-250m	250-500m	500-2000m
68 >	7.1 >	Risk of flooding from rivers and the sea >	Very Low (within 50m)				
69	7.2	Historical Flood Events	0	0	0	-	-
69	7.3	Flood Defences	0	0	0	-	-
69 >	7.4 >	Areas Benefiting from Flood Defences >	2	0	0	-	-
70	7.5	Flood Storage Areas	0	0	0	-	-
71 >	7.6 >	Flood Zone 2 >	Identified (within 50m)				
72 >	7.7 >	Flood Zone 3 >	Identified (within 50m)				
Page	Section	Surface water flooding >					
73 >	8.1 >	Surface water flooding >	1 in 30 year, 0.3m - 1.0m (within 50m)				
Page	Section	Groundwater flooding >					
75 >	9.1 >	Groundwater flooding >	High (within 50m)				
Page	Section	Environmental designations >	On site	0-50m	50-250m	250-500m	500-2000m
76 >	10.1 >	Sites of Special Scientific Interest (SSSI) >	0	0	0	0	1
77	10.2	Conserved wetland sites (Ramsar sites)	0	0	0	0	0
77	10.3	Special Areas of Conservation (SAC)	0	0	0	0	0
77	10.4	Special Protection Areas (SPA)	0	0	0	0	0
77	10.5	National Nature Reserves (NNR)	0	0	0	0	0
78	10.6	Local Nature Reserves (LNR)	0	0	0	0	0
78	10.7	Designated Ancient Woodland	0	0	0	0	0
78	10.8	Biosphere Reserves	0	0	0	0	0
78	10.9	Forest Parks	0	0	0	0	0
79	10.10	Marine Conservation Zones	0	0	0	0	0
79 >	10.11 >	Green Belt >	0	0	0	0	1
79	10.12	Proposed Ramsar sites	0	0	0	0	0

79	10.13	Possible Special Areas of Conservation (pSAC)	0	0	0	0	0
80	10.14	Potential Special Protection Areas (pSPA)	0	0	0	0	0
80	10.15	Nitrate Sensitive Areas	0	0	0	0	0
80 >	10.16 >	Nitrate Vulnerable Zones >	0	0	0	0	1
81 >	10.17 >	SSSI Impact Risk Zones >	1	-	-	-	-
82 >	10.18 >	SSSI Units >	0	0	0	0	5
Page	Section	Visual and cultural designations	On site	0-50m	50-250m	250-500m	500-2000m
86	11.1	World Heritage Sites	0	0	0	-	-
86	11.2	Area of Outstanding Natural Beauty	0	0	0	-	-
86	11.3	National Parks	0	0	0	-	-
86	11.4	Listed Buildings	0	0	0	-	-
87	11.5	Conservation Areas	0	0	0	-	-
87	11.6	Scheduled Ancient Monuments	0	0	0	-	-
87	11.7	Registered Parks and Gardens	0	0	0	-	-
Page	Section	Agricultural designations >	On site	0-50m	50-250m	250-500m	500-2000m
88 >	12.1 >	Agricultural Land Classification >	Non Agricultural (within 250m)				
89	12.2	Open Access Land	0	0	0	-	-
89	12.3	Tree Felling Licences	0	0	0	-	-
89	12.4	Environmental Stewardship Schemes	0	0	0	-	-
89	12.5	Countryside Stewardship Schemes	0	0	0	-	-
Page	Section	Habitat designations >	On site	0-50m	50-250m	250-500m	500-2000m
90	13.1	Priority Habitat Inventory	0	0	0	-	-
90 >	13.2 >	Habitat Networks >	0	0	1	-	-
91	13.3	Open Mosaic Habitat	0	0	0	-	-
91	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
92 >	14.1 >	10k Availability >	Identified (within 500m)				
93 >	14.2 >	Artificial and made ground (10k) >	1	0	0	0	-
94 >	14.3 >	Superficial geology (10k) >	1	0	0	1	-

95	14.4	Landslip (10k)	0	0	0	0	-
96 >	14.5 >	Bedrock geology (10k) >	1	0	0	0	-
97	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
98 >	15.1 >	50k Availability >	Identified (within 500m)				
99 >	15.2 >	Artificial and made ground (50k) >	1	0	0	0	-
100 >	15.3 >	Artificial ground permeability (50k) >	1	0	-	-	-
101 >	15.4 >	Superficial geology (50k) >	1	0	0	1	-
102 >	15.5 >	Superficial permeability (50k) >	Identified (within 50m)				
102	15.6	Landslip (50k)	0	0	0	0	-
102	15.7	Landslip permeability (50k)	None (within 50m)				
103 >	15.8 >	Bedrock geology (50k) >	1	0	0	0	-
104 >	15.9 >	Bedrock permeability (50k) >	Identified (within 50m)				
104	15.10	Bedrock faults and other linear features (50k)	0	0	0	0	-
Page	Section	Boreholes >	On site	0-50m	50-250m	250-500m	500-2000m
105 >	16.1 >	BGS Boreholes >	1	3	24	-	-
Page	Section	Natural ground subsidence >					
107 >	17.1 >	Shrink swell clays >	Low (within 50m)				
108 >	17.2 >	Running sands >	Low (within 50m)				
110 >	17.3 >	Compressible deposits >	High (within 50m)				
112 >	17.4 >	Collapsible deposits >	Negligible (within 50m)				
113 >	17.5 >	Landslides >	Very low (within 50m)				
114 >	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
116 >	18.1 >	BritPits >	0	0	1	0	-
117 >	18.2 >	Surface ground workings >	32	23	36	-	-
120	18.3	Underground workings	0	0	0	0	0
120	18.4	Underground mining extents	0	0	0	0	-
121	18.5	Historical Mineral Planning Areas	0	0	0	0	-

121	18.6	Non-coal mining	0	0	0	0	0
121	18.7	JPB mining areas	None (within 0m)				
121	18.8	The Coal Authority non-coal mining	0	0	0	0	-
122	18.9	Researched mining	0	0	0	0	-
122	18.10	Mining record office plans	0	0	0	0	-
122	18.11	BGS mine plans	0	0	0	0	-
122	18.12	Coal mining	None (within 0m)				
122	18.13	Brine areas	None (within 0m)				
123	18.14	Gypsum areas	None (within 0m)				
123	18.15	Tin mining	None (within 0m)				
123	18.16	Clay mining	None (within 0m)				
Page	Section	Ground cavities and sinkholes	On site	0-50m	50-250m	250-500m	500-2000m
124	19.1	Natural cavities	0	0	0	0	-
124	19.2	Mining cavities	0	0	0	0	0
124	19.3	Reported recent incidents	0	0	0	0	-
124	19.4	Historical incidents	0	0	0	0	-
125	19.5	National karst database	0	0	0	0	-
Page	Section	**Radon** >					
126 >	**20.1** >	**Radon** >	Less than 1% (within 0m)				
Page	Section	**Soil chemistry** >	On site	0-50m	50-250m	250-500m	500-2000m
128 >	**21.1** >	**BGS Estimated Background Soil Chemistry** >	6	0	-	-	-
128	21.2	BGS Estimated Urban Soil Chemistry	0	0	-	-	-
129	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
130	22.1	Underground railways (London)	0	0	0	-	-
130	22.2	Underground railways (Non-London)	0	0	0	-	-
131	22.3	Railway tunnels	0	0	0	-	-
131 >	**22.4** >	**Historical railway and tunnel features** >	18	10	25	-	-
133	22.5	Royal Mail tunnels	0	0	0	-	-

133	22.6	Historical railways	0	0	0	-	-
133	22.7	Railways	0	0	0	-	-
134	22.8	Crossrail 1	0	0	0	0	-
134	22.9	Crossrail 2	0	0	0	0	-
134	22.10	HS2	0	0	0	0	-

Recent aerial photograph

Capture Date: 31/05/2021

Site Area: 5.64ha

Recent site history - 2015 aerial photograph

Capture Date: 30/06/2015

Site Area: 5.64ha

Recent site history - 2012 aerial photograph

Capture Date: 25/05/2012

Site Area: 5.64ha

Recent site history - 2009 aerial photograph

Capture Date: 27/09/2009

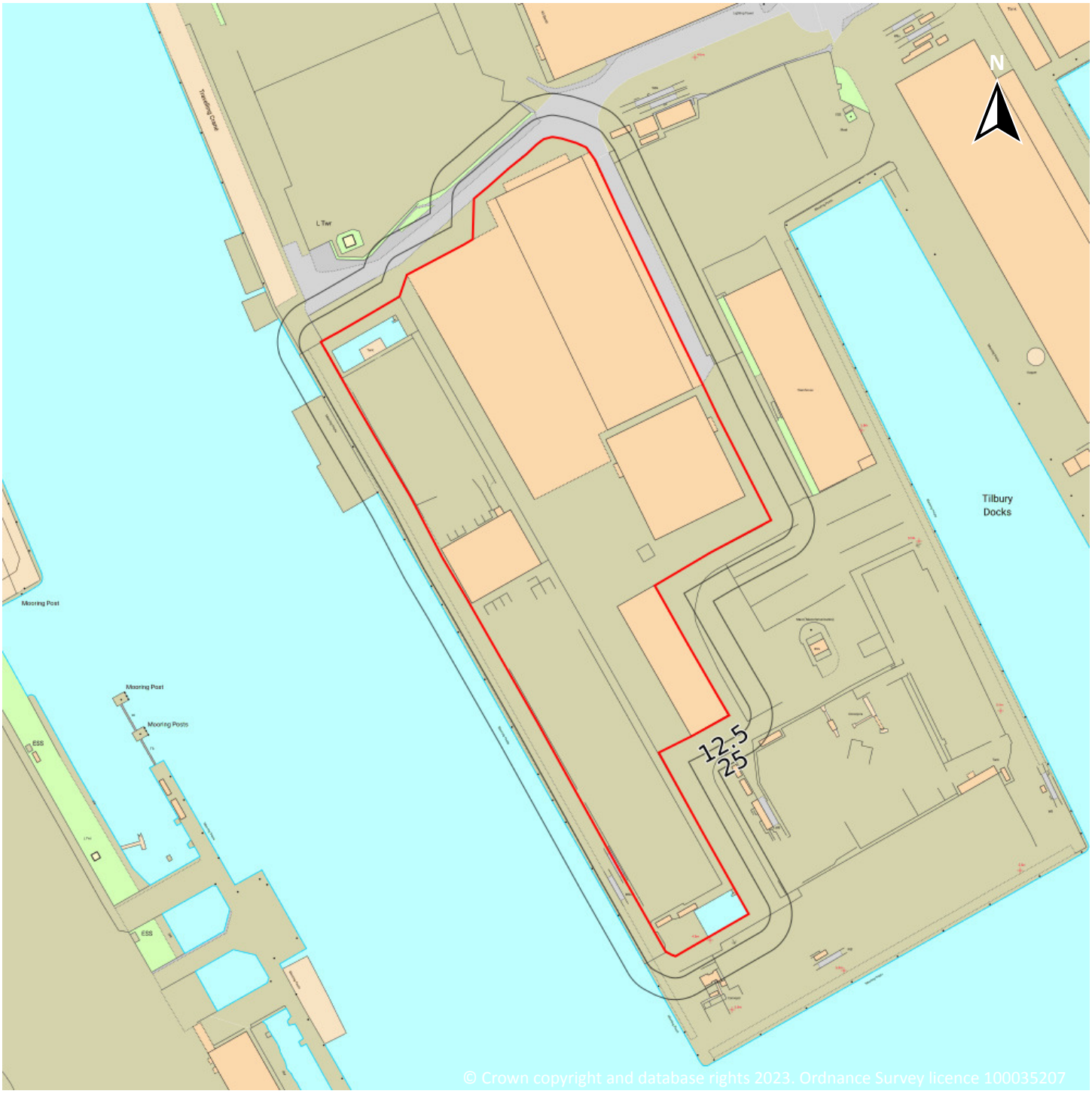
Site Area: 5.64ha

Recent site history - 1999 aerial photograph

Capture Date: 03/09/1999

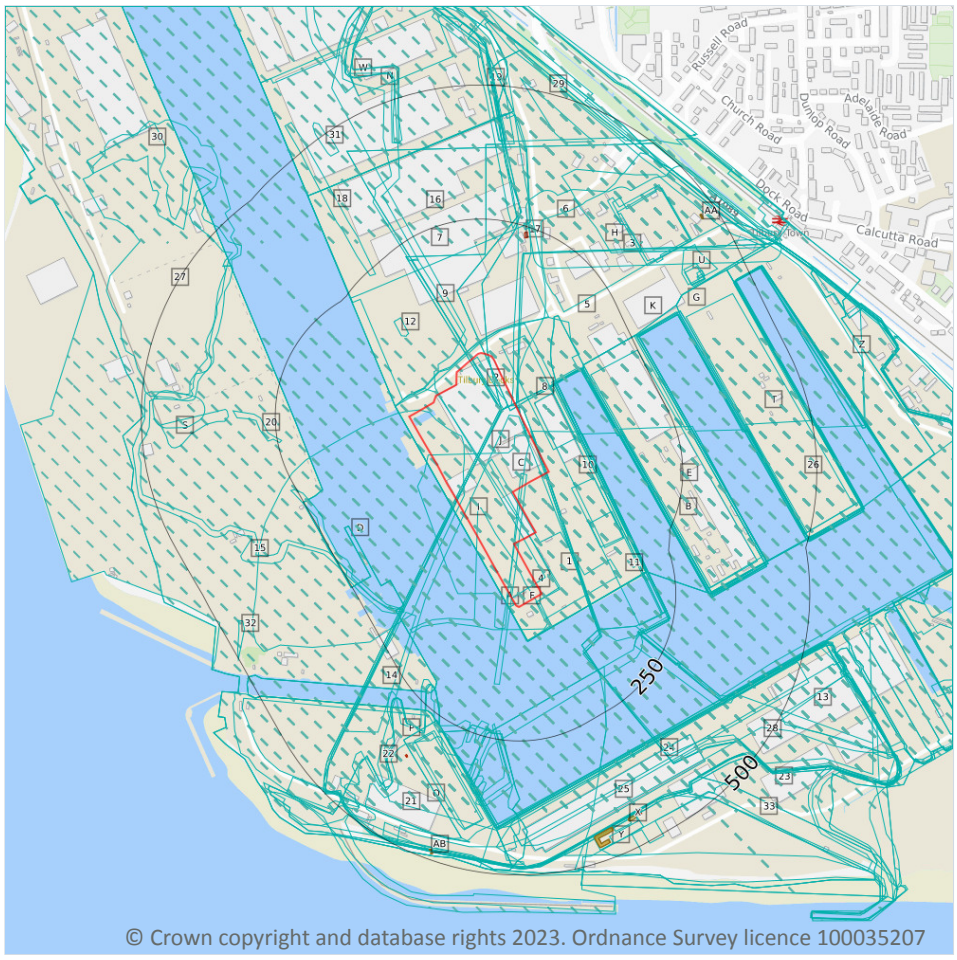
Site Area: 5.64ha

OS MasterMap site plan



Site Area: 5.64ha

1 Past land use



Site Outline

Search buffers in metres (m)

Historical industrial land uses

Historical tanks

Historical energy features

1.1 Historical industrial land uses

Records within 500m	104

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**	**Unspecified Warehouse**	**1966**	**2138637**

ID	Location	Land use	Dates present	Group ID
2	On site	Refuse Heap	1946	2158922
3	On site	Unspecified Dock	1898	2171221
4	On site	Docks	1932 - 1946	2190380
5	On site	Docks	1895	2193641
6	On site	Railway Sidings	1966	2232404
A	On site	Unspecified Pits	1955	2141811
A	On site	Unspecified Heap	1938	2231720
B	On site	Docks	1916	2168808
B	On site	Docks	1907	2168809
B	On site	Railway Sidings	1863 - 1947	2209400
B	On site	Dock	1895	2211551
C	On site	Unspecified Warehouses	1993	2169442
C	On site	Unspecified Warehouses	1973	2235237
D	On site	Unspecified Pit	1955 - 1966	2173834
E	On site	Unspecified Docks	1888	2175886
E	On site	Unspecified Docks	1898	2284513
F	On site	Dock	1923	2189799
F	On site	Railway Sidings	1923	2285273
G	On site	Railway Sidings	1955	2201696
G	On site	Docks	1955	2216389
H	On site	Unspecified Commercial/Industrial	1923	2204401
H	On site	Railway Sidings	1923	2223001
I	On site	Unspecified Docks	1898	2205981
I	On site	Unspecified Warehouses	1982 - 1992	2254706
J	On site	Unspecified Disused Wharf	1973 - 1982	2225872
J	On site	Dock	1993	2236786
J	On site	Docks	1982	2275598
K	On site	Railway Sidings	1888 - 1898	2270828

ID	Location	Land use	Dates present	Group ID
C	13m SW	Docks	1992	2225006
C	13m SW	Dock	1993	2252368
C	13m SW	Dock	1973	2279361
7	14m N	Unspecified Warehouse	1993	2295266
8	24m N	Unspecified Warehouses	1955 - 1966	2223057
9	27m N	Refuse Heap	1946	2158921
10	33m E	Unspecified Warehouses	1982 - 1992	2177095
B	52m E	Unspecified Warehouses	1966	2274668
B	78m E	Railway Sidings	1898	2214185
B	78m E	Railway Sidings	1898	2271034
11	102m SE	Unspecified Warehouses	1955	2249537
12	115m NW	Cuttings	1955 - 1966	2175778
13	121m SE	Dock	1895	2268647
L	143m NE	Dock	1923	2232038
L	143m NE	Railway Sidings	1923	2293683
L	151m NE	Unspecified Warehouses	1955 - 1993	2249080
K	156m E	Dock	1895	2225420
M	158m NE	Unspecified Works	1973 - 1993	2272101
14	172m SW	Cuttings	1938	2129958
15	186m SW	Refuse Heap	1946	2158920
D	186m SW	Unspecified Ground Workings	1966	2134382
16	187m N	Unspecified Warehouse	1973 - 1992	2170154
M	190m N	Unspecified Commercial/Industrial	1947	2286784
N	207m N	Refuse	1947	2135497
O	215m S	Unspecified Ground Workings	1895	2251248
P	215m S	Unspecified Ground Workings and Heaps	1888	2142704
O	216m S	Unspecified Ground Workings	1907	2187502
O	216m S	Unspecified Ground Workings	1895	2293121

ID	Location	Land use	Dates present	Group ID
18	238m NW	Cuttings	1955 - 1966	2224104
19	240m N	Refuse	1947	2135498
20	242m W	Unspecified Pit	1955 - 1966	2197532
21	255m S	Railway Sidings	1955 - 1966	2267789
Q	260m S	Dock	1938 - 1946	2231073
Q	260m S	Railway Sidings	1946	2249066
22	262m S	Unspecified Warehouses	1982 - 1993	2219206
O	279m S	Unspecified Warehouses	1973	2190254
O	284m S	Unspecified Warehouse	1955 - 1966	2196625
M	295m NE	Unspecified Commercial/Industrial	1888 - 1895	2184377
23	335m S	Docks	1938	2216390
M	336m NE	Engineer's Shops	1916	2141477
R	337m S	Docks	1938	2241910
S	337m W	Unspecified Pit	1955 - 1966	2259209
M	338m NE	Unspecified Commercial/Industrial	1907	2241131
M	341m NE	Unspecified Commercial/Industrial	1895	2284105
R	344m S	Dock	1923	2240684
R	344m S	Railway Sidings	1923	2292550
24	347m S	Unspecified Warehouses	1955 - 1966	2210892
T	350m NE	Railway Sidings	1923	2215454
T	350m NE	Dock	1923	2286147
T	358m NE	Unspecified Warehouses	1955 - 1993	2178873
25	365m SE	Unspecified Warehouse	1982 - 1993	2218094
26	378m E	Dock	1895	2272957
S	382m W	Unspecified Wharf	1865	2157331
27	383m W	Unspecified Ground Workings	1955 - 1966	2256111
28	384m S	Railway Sidings	1938	2169619
U	386m NE	Police Station	1955 - 1966	2170027

ID	Location	Land use	Dates present	Group ID
U	391m NE	Police Station	1932 - 1946	2253416
U	392m NE	Police Station	1916	2228307
N	393m N	Unspecified Warehouse	1973 - 1982	2196234
N	393m N	Unspecified Warehouse	1992 - 1993	2238781
U	395m NE	Police Station	1923	2216373
V	396m N	Gravel Pit	1938	2139089
29	397m N	Railway Sidings	1923 - 1938	2243805
V	398m N	Refuse Heap	1938	2158924
U	411m NE	Police Station	1938	2169872
W	419m N	Refuse Heap	1938	2258270
W	421m N	Gravel Pit	1938	2139088
30	434m NW	Refuse	1947	2135494
Y	442m SE	Unspecified Depot	1982 - 1992	2222304
Y	442m SE	Unspecified Tanks	1982 - 1992	2255043
31	458m NW	Cuttings	1955 - 1966	2236235
32	458m SW	Unspecified Ground Workings	1966	2134379
Z	465m NE	Railway Sidings	1923	2172605
Z	465m NE	Dock	1923	2213936
33	472m SE	Unspecified Depot	1973	2261272

This data is sourced from Ordnance Survey / Groundsure.

1.2 Historical tanks

Records within 500m	**7**

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
X	444m S	Tanks	1966 - 1974	407284
Y	446m S	Unspecified Tank	1970	368821
Y	446m S	Tanks	1966 - 1974	394599
AA	469m NE	Unspecified Tank	1971 - 1984	406741
AA	469m NE	Unspecified Tank	1971	393261
AB	481m S	Unspecified Tank	1898	368819
AB	486m S	Tank or Trough	1898	379963

This data is sourced from Ordnance Survey / Groundsure.

1.3 Historical energy features

Records within 500m	**3**

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
17	229m N	Electricity Substation	1984 - 1998	270726
P	345m S	Electricity Substation	1950 - 1951	277830
X	441m SE	Electricity Substation	1974	248057

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	0

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'.

This data is sourced from Ordnance Survey / Groundsure.

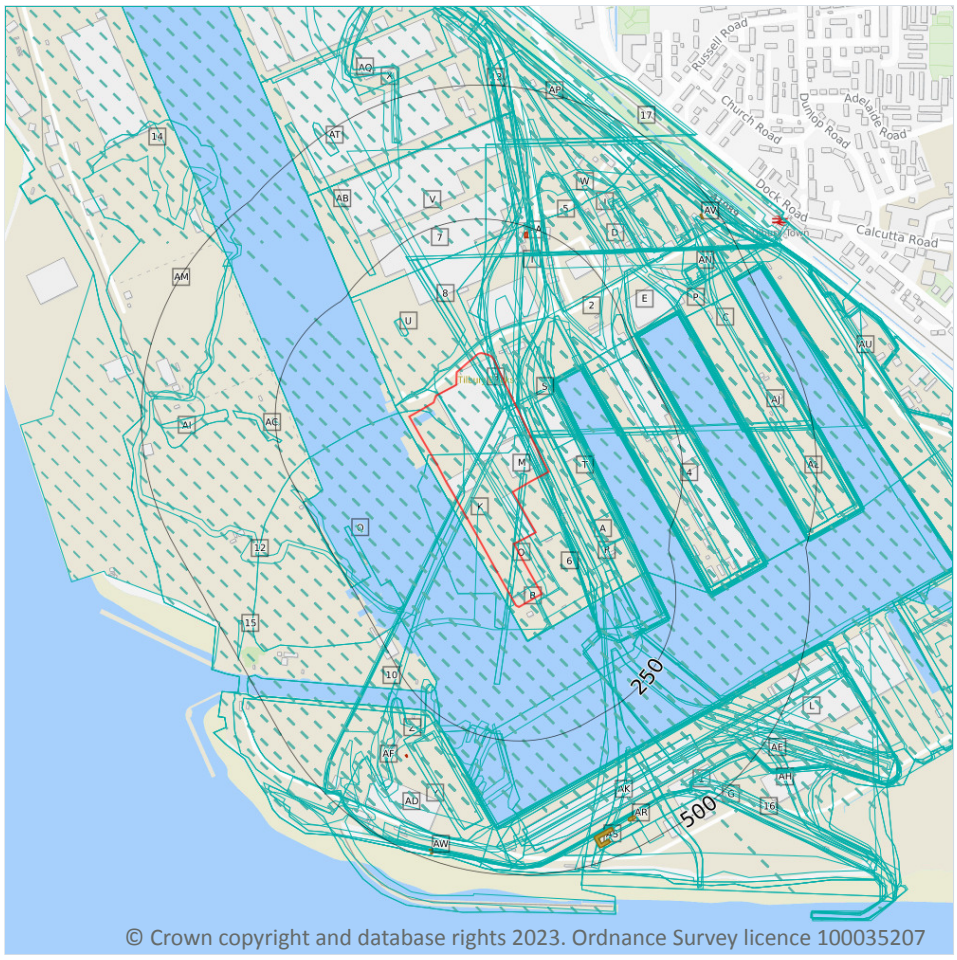
1.6 Historical military land

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



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Site Outline

Search buffers in metres (m)

Historical industrial land uses

Historical tanks

Historical energy features

2.1 Historical industrial land uses

Records within 500m	192

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 22 >**

ID	Location	Land Use	Date	Group ID
1	**On site**	**Railway Sidings**	**1895**	**2270828**
2	**On site**	**Railway Sidings**	**1946**	**2209400**
3	**On site**	**Refuse Heap**	**1946**	**2158922**

ID	Location	Land Use	Date	Group ID
4	On site	Unspecified Docks	1888	2175886
5	On site	Railway Sidings	1966	2232404
6	On site	Unspecified Warehouse	1966	2138637
A	On site	Dock	1895	2211551
A	On site	Railway Sidings	1932	2209400
A	On site	Docks	1932	2190380
A	On site	Docks	1916	2168808
A	On site	Railway Sidings	1938	2209400
B	On site	Dock	1923	2189799
B	On site	Railway Sidings	1923	2285273
C	On site	Docks	1895	2193641
C	On site	Docks	1938	2190380
C	On site	Railway Sidings	1938	2209400
C	On site	Railway Sidings	1938	2209400
C	On site	Docks	1938	2190380
C	On site	Docks	1938	2190380
D	On site	Railway Sidings	1923	2223001
D	On site	Unspecified Commercial/Industrial	1923	2204401
E	On site	Railway Sidings	1895	2270828
E	On site	Unspecified Dock	1898	2171221
E	On site	Unspecified Dock	1898	2171221
F	On site	Docks	1946	2190380
F	On site	Docks	1938	2190380
F	On site	Docks	1938	2190380
G	On site	Railway Sidings	1907	2209400
G	On site	Railway Sidings	1895	2270828
H	On site	Docks	1907	2168809
H	On site	Docks	1895	2193641

ID	Location	Land Use	Date	Group ID
I	**On site**	**Railway Sidings**	**1916**	**2209400**
J	**On site**	**Railway Sidings**	**1898**	**2270828**
J	**On site**	**Railway Sidings**	**1898**	**2270828**
K	**On site**	**Unspecified Docks**	**1898**	**2205981**
K	**On site**	**Unspecified Docks**	**1898**	**2205981**
K	**On site**	**Unspecified Warehouses**	**1982**	**2254706**
K	**On site**	**Unspecified Warehouses**	**1992**	**2254706**
L	**On site**	**Unspecified Dock**	**1898**	**2171221**
L	**On site**	**Unspecified Dock**	**1898**	**2171221**
M	**On site**	**Unspecified Warehouses**	**1993**	**2169442**
M	**On site**	**Unspecified Warehouses**	**1973**	**2235237**
N	**On site**	**Dock**	**1993**	**2236786**
N	**On site**	**Docks**	**1982**	**2275598**
N	**On site**	**Unspecified Disused Wharf**	**1982**	**2225872**
N	**On site**	**Unspecified Disused Wharf**	**1973**	**2225872**
O	**On site**	**Unspecified Heap**	**1938**	**2231720**
O	**On site**	**Unspecified Pits**	**1955**	**2141811**
O	**On site**	**Unspecified Heap**	**1938**	**2231720**
P	**On site**	**Railway Sidings**	**1955**	**2201696**
P	**On site**	**Docks**	**1955**	**2216389**
Q	**On site**	**Unspecified Pit**	**1955**	**2173834**
Q	**On site**	**Unspecified Pit**	**1966**	**2173834**
I	3m E	Railway Sidings	1888	2270828
R	3m E	Railway Sidings	1898	2270828
R	3m E	Railway Sidings	1898	2270828
M	13m SW	Dock	1993	2252368
M	13m SW	Dock	1973	2279361
M	13m SW	Docks	1992	2225006

ID	Location	Land Use	Date	Group ID
7	14m N	Unspecified Warehouse	1993	2295266
S	24m N	Unspecified Warehouses	1955	2223057
S	24m N	Unspecified Warehouses	1966	2223057
8	27m N	Refuse Heap	1946	2158921
T	33m E	Unspecified Warehouses	1992	2177095
T	33m E	Unspecified Warehouses	1982	2177095
A	52m E	Unspecified Warehouses	1966	2274668
A	78m E	Railway Sidings	1898	2214185
A	78m E	Railway Sidings	1898	2271034
A	102m SE	Unspecified Warehouses	1955	2249537
U	115m NW	Cuttings	1966	2175778
U	116m NW	Cuttings	1955	2175778
9	121m SE	Dock	1895	2268647
I	143m NE	Dock	1923	2232038
I	143m NE	Railway Sidings	1923	2293683
I	151m NE	Unspecified Warehouses	1993	2249080
I	151m NE	Unspecified Warehouses	1982	2249080
I	151m NE	Unspecified Warehouses	1973	2249080
I	151m NE	Unspecified Warehouses	1992	2249080
I	151m NE	Unspecified Warehouses	1955	2249080
I	151m NE	Unspecified Warehouses	1966	2249080
I	155m E	Unspecified Dock	1898	2171221
I	155m E	Railway Sidings	1898	2270828
I	155m E	Unspecified Dock	1898	2171221
I	155m E	Railway Sidings	1898	2270828
I	156m E	Dock	1895	2225420
J	158m NE	Unspecified Works	1993	2272101
J	158m NE	Unspecified Works	1982	2272101

ID	Location	Land Use	Date	Group ID
J	158m NE	Unspecified Works	1973	2272101
J	158m NE	Unspecified Works	1992	2272101
10	172m SW	Cuttings	1938	2129958
11	181m N	Railway Sidings	1947	2209400
12	186m SW	Refuse Heap	1946	2158920
Q	186m SW	Unspecified Ground Workings	1966	2134382
V	187m N	Unspecified Warehouse	1982	2170154
V	187m N	Unspecified Warehouse	1973	2170154
V	187m N	Unspecified Warehouse	1992	2170154
J	190m N	Unspecified Commercial/Industrial	1947	2286784
W	192m N	Docks	1938	2190380
W	192m N	Docks	1938	2190380
W	203m N	Railway Sidings	1907	2209400
W	203m N	Railway Sidings	1895	2270828
W	204m N	Railway Sidings	1938	2209400
X	207m N	Refuse	1947	2135497
W	208m N	Railway Sidings	1888	2270828
Y	215m S	Unspecified Ground Workings	1895	2251248
Z	215m S	Unspecified Ground Workings and Heaps	1888	2142704
Y	216m S	Unspecified Ground Workings	1907	2187502
Y	216m S	Unspecified Ground Workings	1895	2293121
AB	238m NW	Cuttings	1955	2224104
AB	238m NW	Cuttings	1966	2224104
13	240m N	Refuse	1947	2135498
AC	242m W	Unspecified Pit	1955	2197532
AC	242m W	Unspecified Pit	1966	2197532
AD	255m S	Railway Sidings	1955	2267789
AD	255m S	Railway Sidings	1966	2267789

ID	Location	Land Use	Date	Group ID
AE	260m S	Railway Sidings	1946	2249066
AE	260m S	Dock	1946	2231073
AF	262m S	Unspecified Warehouses	1993	2219206
AF	262m S	Unspecified Warehouses	1982	2219206
AF	262m S	Unspecified Warehouses	1992	2219206
Y	279m S	Unspecified Warehouses	1973	2190254
Y	284m S	Unspecified Warehouse	1955	2196625
Y	284m S	Unspecified Warehouse	1966	2196625
J	295m NE	Unspecified Commercial/Industrial	1888	2184377
AG	335m S	Dock	1938	2231073
AH	335m S	Docks	1938	2216390
AH	335m S	Docks	1938	2216390
J	336m NE	Engineer's Shops	1916	2141477
AG	337m S	Docks	1938	2241910
AG	337m S	Docks	1938	2241910
AI	337m W	Unspecified Pit	1955	2259209
AI	337m W	Unspecified Pit	1966	2259209
J	338m NE	Unspecified Commercial/Industrial	1907	2241131
J	338m NE	Unspecified Commercial/Industrial	1895	2184377
J	341m NE	Unspecified Commercial/Industrial	1895	2284105
AG	344m S	Dock	1923	2240684
AG	344m S	Railway Sidings	1923	2292550
AE	347m S	Unspecified Warehouses	1955	2210892
AE	347m S	Unspecified Warehouses	1966	2210892
AJ	350m NE	Dock	1923	2286147
AJ	350m NE	Railway Sidings	1923	2215454
AJ	358m NE	Unspecified Warehouses	1993	2178873
AJ	358m NE	Unspecified Warehouses	1982	2178873

ID	Location	Land Use	Date	Group ID
AJ	358m NE	Unspecified Warehouses	1973	2178873
AJ	358m NE	Unspecified Warehouses	1992	2178873
AJ	358m NE	Unspecified Warehouses	1955	2178873
AJ	358m NE	Unspecified Warehouses	1966	2178873
AK	365m SE	Unspecified Warehouse	1993	2218094
AK	365m SE	Unspecified Warehouse	1982	2218094
AK	365m SE	Unspecified Warehouse	1992	2218094
AL	378m E	Dock	1895	2272957
AL	380m E	Unspecified Dock	1898	2171221
AL	380m E	Railway Sidings	1898	2270828
AL	380m E	Unspecified Dock	1898	2171221
AL	380m E	Railway Sidings	1898	2270828
AI	382m W	Unspecified Wharf	1865	2157331
AM	383m W	Unspecified Ground Workings	1955	2256111
AM	383m W	Unspecified Ground Workings	1966	2256111
AG	384m S	Railway Sidings	1938	2169619
AG	384m SE	Railway Sidings	1938	2169619
AN	386m NE	Police Station	1955	2170027
AN	386m NE	Police Station	1966	2170027
AN	391m NE	Police Station	1938	2253416
AN	391m NE	Police Station	1946	2253416
AN	392m NE	Police Station	1938	2253416
AN	392m NE	Police Station	1916	2228307
AN	393m NE	Police Station	1932	2253416
X	393m N	Unspecified Warehouse	1993	2238781
X	393m N	Unspecified Warehouse	1982	2196234
X	393m N	Unspecified Warehouse	1973	2196234
X	393m N	Unspecified Warehouse	1992	2238781

ID	Location	Land Use	Date	Group ID
AN	395m NE	Police Station	1923	2216373
AO	396m N	Gravel Pit	1938	2139089
AP	397m N	Railway Sidings	1923	2243805
AO	398m N	Refuse Heap	1938	2158924
AP	401m N	Railway Sidings	1938	2243805
AP	403m N	Railway Sidings	1938	2243805
AN	411m NE	Police Station	1938	2169872
AQ	419m N	Refuse Heap	1938	2258270
AQ	421m N	Gravel Pit	1938	2139088
14	434m NW	Refuse	1947	2135494
AS	442m SE	Unspecified Tanks	1982	2255043
AS	442m SE	Unspecified Depot	1982	2222304
AS	442m SE	Unspecified Tanks	1992	2255043
AS	442m SE	Unspecified Depot	1992	2222304
AT	458m NW	Cuttings	1955	2236235
AT	458m NW	Cuttings	1966	2236235
15	458m SW	Unspecified Ground Workings	1966	2134379
AU	465m NE	Dock	1923	2213936
AU	465m NE	Railway Sidings	1923	2172605
16	472m SE	Unspecified Depot	1973	2261272
17	476m NE	Railway Sidings	1923	2243805

This data is sourced from Ordnance Survey / Groundsure.

2.2 Historical tanks

Records within 500m	10

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 22 >**

ID	Location	Land Use	Date	Group ID
AR	444m S	Tanks	1974	407284
AR	444m S	Tanks	1966	407284
AS	446m S	Unspecified Tank	1970	368821
AS	446m S	Tanks	1974	394599
AS	446m S	Tanks	1966	394599
AV	469m NE	Unspecified Tank	1984	406741
AV	469m NE	Unspecified Tank	1971	393261
AV	470m NE	Unspecified Tank	1971	406741
AW	481m S	Unspecified Tank	1898	368819
AW	486m S	Tank or Trough	1898	379963

This data is sourced from Ordnance Survey / Groundsure.

2.3 Historical energy features

Records within 500m	**6**

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 22 >**

ID	Location	Land Use	Date	Group ID
AA	229m N	Electricity Substation	1998	270726
AA	229m N	Electricity Substation	1993	270726
AA	230m N	Electricity Substation	1984	270726
Z	345m S	Electricity Substation	1951	277830
Z	345m S	Electricity Substation	1950	277830
AR	441m SE	Electricity Substation	1974	248057

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.

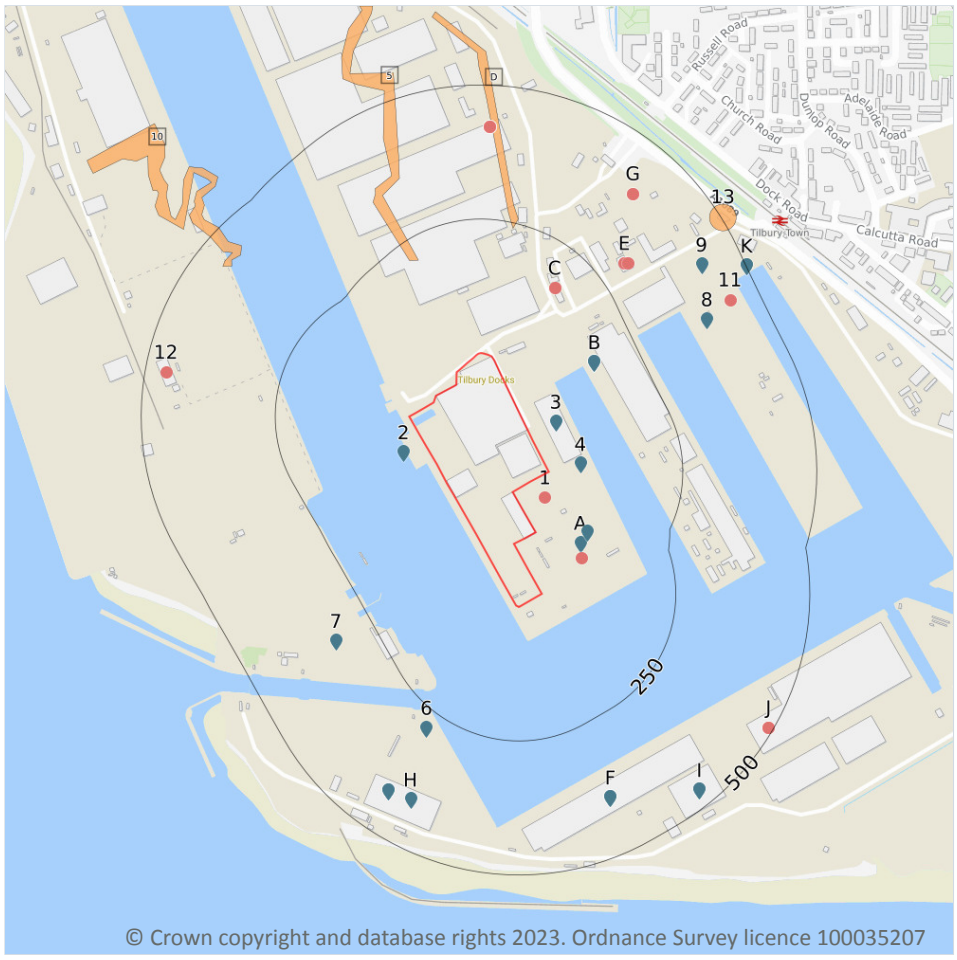
2.5 Historical garages

Records within 500m	0

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'.

This data is sourced from Ordnance Survey / Groundsure.

3 Waste and landfill



Site Outline

Search buffers in metres (m)

Historical waste sites

Licensed waste sites

Waste exemptions

3.1 Active or recent landfill

Records within 500m	0

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

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	0

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

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

3.4 Historical landfill (EA/NRW records)

Records within 500m	0

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.

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

3.5 Historical waste sites

Records within 500m	4

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 32 >**

ID	Location	Address	Further Details	Date
5	207m N	Site Address: N/A	Type of Site: Refuse Planning application reference: N/A Description: N/A Data source: Historic Mapping Data Type: Polygon	1864
D	239m N	Site Address: N/A	Type of Site: Refuse Planning application reference: N/A Description: N/A Data source: Historic Mapping Data Type: Polygon	1864
10	434m NW	Site Address: N/A	Type of Site: Refuse Planning application reference: N/A Description: N/A Data source: Historic Mapping Data Type: Polygon	1864

ID	Location	Address	Further Details	Date
13	477m NE	Site Address: Thames House, St Andrews Road, Tilbury, Essex, RM18 7EH	Type of Site: Waste Transfer Station Planning application reference: 18/01430/FUL Description: Scheme comprises change of use from light industrial to sui-generis transfer station and temporary storage of asbestos waste. Data source: Historic Planning Application Data Type: Point	01/10/2018

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

3.6 Licensed waste sites

Records within 500m **29**

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

Features are displayed on the Waste and landfill map on **page 32 >**

ID	Location	Details		
2	43m W	Site Name: Tilbury I B A Facility Site Address: Port Of Tilbury, Berth 36-38, Tilbury, Essex, RM18 7EH Correspondence Address: -	Type of Site: Material Recycling Treatment Facility Size: >= 75000 tonnes Environmental Permitting Regulations (Waste) Licence Number: BAL144 EPR reference: EA/EPR/BB3239RD/V003 Operator: Ballast Phoenix Ltd Waste Management licence No: 103206 Annual Tonnage: 275000	Issue Date: 25/06/2012 Effective Date: - Modified: 21/07/2016 Surrendered Date: - Expiry Date: - Cancelled Date: - Status: To PPC
3	52m NE	Site Name: Port Of Tilbury London Ltd Site Address: Leslie Ford House, Tilbury Freeport, Tilbury, Essex, RM18 7EH Correspondence Address: -	Type of Site: Transfer Station taking Non-Biodegradable Wastes Size: 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: POR001 EPR reference: EA/EPR/FB3805KA/A001 Operator: Port Of Tilbury London Ltd Waste Management licence No: 404528 Annual Tonnage: 250000	Issue Date: 29/05/2018 Effective Date: - Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Issued

ID	Location	Details		
4	60m E	Site Name: Port Of Tilbury London Ltd Site Address: Leslie Ford House, Tilbury Freeport, Tilbury, Essex, RM18 7EH Correspondence Address: -	Type of Site: Transfer Station taking Non-Biodegradable Wastes Size: >= 75000 tonnes Environmental Permitting Regulations (Waste) Licence Number: POR001 EPR reference: EA/EPR/FB3805KA/A001 Operator: Port Of Tilbury London Ltd Waste Management licence No: 404528 Annual Tonnage: 250000	Issue Date: 29/05/2018 Effective Date: - Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Issued
A	85m SE	Site Name: Tilbury New Site Site Address: Tilbury Docks, Tilbury, Essex, RM18 7HB Correspondence Address: -	Type of Site: Treatment of waste wood 75000 tps Size: 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: HWR001 EPR reference: EA/EPR/BB3332AE/A001 Operator: Hadfield Wood Recyclers Ltd Waste Management licence No: 103209 Annual Tonnage: 74999	Issue Date: 18/01/2012 Effective Date: - Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Issued
A	95m SE	Site Name: Tilbury New Site Site Address: Tilbury Docks, Tilbury, Essex, RM18 7HB Correspondence Address: -	Type of Site: Treatment of waste wood 75000 tps Size: >= 75000 tonnes Environmental Permitting Regulations (Waste) Licence Number: HWR001 EPR reference: EA/EPR/BB3332AE/V002 Operator: Enva Wood Recycling Manchester Limited Waste Management licence No: 103209 Annual Tonnage: 199999	Issue Date: 18/01/2012 Effective Date: - Modified: 04/09/2020 Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Modified

ID	Location	Details		
B	166m NE	Site Name: Berth 5, Port Of Tilbury London Site Address: Port Of Tilbury London Limited, Leslie Ford House, Tilbury Freeport, Tilbury, Essex, RM18 7EH Correspondence Address: -	Type of Site: Inert & Excavation WTS Size: >= 75000 tonnes Environmental Permitting Regulations (Waste) Licence Number: WAL165 EPR reference: EA/EPR/PB3933DJ/V003 Operator: S Walsh & Son Limited Waste Management licence No: 400251 Annual Tonnage: 249999	Issue Date: 11/04/2013 Effective Date: - Modified: 25/01/2018 Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Modified
B	166m NE	Site Name: Berth 5, Port Of Tilbury London Site Address: Leslie Ford House, Tilbury Freeport, Tilbury, Essex, RM18 7EH Correspondence Address: -	Type of Site: Inert & Excavation WTS Size: 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: WAL165 EPR reference: EA/EPR/PB3933DJ/A001 Operator: S Walsh And Sons Limited Waste Management licence No: 400251 Annual Tonnage: 0	Issue Date: 11/04/2013 Effective Date: - Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Issued
B	166m NE	Site Name: Berth 5, Port Of Tilbury London Site Address: Port Of Tilbury London Ltd, Leslie Ford House, Tilbury Freeport, Tilbury, Essex, RM18 7EH Correspondence Address: -	Type of Site: Inert & Excavation WTS Size: 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: WAL165 EPR reference: EA/EPR/PB3933DJ/V002 Operator: S Walsh And Son Limited Waste Management licence No: 400251 Annual Tonnage: 249999	Issue Date: 11/04/2013 Effective Date: - Modified: 08/11/2013 Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Modified
B	166m NE	Site Name: Berth 5, Port Of Tilbury London Site Address: Port Of Tilbury London Limited, Leslie Ford House, Tilbury Freeport, Tilbury, Essex, RM18 7EH Correspondence Address: -	Type of Site: Inert & Excavation WTS Size: 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: WAL165 EPR reference: EA/EPR/PB3933DJ/V003 Operator: S Walsh & Son Limited Waste Management licence No: 400251 Annual Tonnage: 249999	Issue Date: 11/04/2013 Effective Date: - Modified: 25/01/2018 Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Modified

ID	Location	Details		
B	166m NE	Site Name: Berth 5, Port Of Tilbury London Site Address: Port Of Tilbury London Limited, Leslie Ford House, Tilbury Freeport, Tilbury, Essex, RM18 7EH Correspondence Address: -	Type of Site: Inert & Excavation WTS Size: 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: WAL165 EPR reference: EA/EPR/PB3933DJ/V003 Operator: S. Walsh & Son Limited Waste Management licence No: 400251 Annual Tonnage: 249999	Issue Date: 11/04/2013 Effective Date: - Modified: 25/01/2018 Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Modified
6	284m S	Site Name: Berth 34 Site Address: Port Of Tilbury London, Tilbury Freeport, RM18 7EH Correspondence Address: -	Type of Site: Physical Treatment Facility Size: >= 75000 tonnes Environmental Permitting Regulations (Waste) Licence Number: SWA001 EPR reference: EA/EPR/KB3209CF/A001 Operator: S Walsh & Son Limited Waste Management licence No: 407606 Annual Tonnage: 250000	Issue Date: 08/03/2022 Effective Date: - Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Issued
7	326m SW	Site Name: Tilbury Point Site Address: Dock Road, Tilbury Point, Tilbury, Essex, RM17 6UR Correspondence Address: -	Type of Site: Deposit of waste to land as a recovery operation Size: 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: BSG003 EPR reference: EA/EPR/DB3809KP/A001 Operator: Bournewood Sand & Gravel Limited Waste Management licence No: 403095 Annual Tonnage: 370	Issue Date: 06/10/2016 Effective Date: - Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Issued

ID	Location	Details		
8	389m NE	Site Name: European Metal Recycling Site Address: 13-20 Berth, Tilbury Dock, Tilbury, Essex, RM18 7EH Correspondence Address: -	Type of Site: Metal Recycling Site (mixed MRS's) Size: >= 75000 tonnes Environmental Permitting Regulations (Waste) Licence Number: EUR001 EPR reference: EA/EPR/VP3094NK/V002 Operator: European Metal Recycling Ltd Waste Management licence No: 71484 Annual Tonnage: 300000	Issue Date: 01/04/2008 Effective Date: - Modified: 01/06/2012 Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Modified
F	395m S	Site Name: Tilbury Dock Alternative Fuel Storage Facility Site Address: Dockside North Of Sheds 32 And 33, Port Tilbury, Tilbury, Essex, RM18 7NS Correspondence Address: -	Type of Site: Household, Commercial & Industrial Waste T Stn Size: 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: STU041 EPR reference: EA/EPR/CB3503MG/S002 Operator: Suez Recycling And Recovery U K Ltd Waste Management licence No: 402099 Annual Tonnage: 0	Issue Date: 21/12/2017 Effective Date: - Modified: - Surrendered Date: 05/12/2018 Expiry Date: - Cancelled Date: - Status: Surrendered
F	395m S	Site Name: Tilbury Dock Alternative Fuel Storage Facility Site Address: Sheds 32 And 33, Port Of Tilbury, Tilbury, Essex, RM18 7NS Correspondence Address: -	Type of Site: Household, Commercial & Industrial Waste T Stn Size: 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: SIT806 EPR reference: EA/EPR/ZP3434EU/S004 Operator: Suez Recycling And Recovery Uk Ltd Waste Management licence No: 402083 Annual Tonnage: 0	Issue Date: 30/01/2015 Effective Date: - Modified: - Surrendered Date: 22/11/2018 Expiry Date: - Cancelled Date: - Status: Surrendered

ID	Location	Details		
F	395m S	Site Name: Tilbury Dock Alternative Fuel Storage Facility Site Address: Sheds 32 And 33, Port Of Tilbury, Tilbury, Essex, RM18 7NS Correspondence Address: -	Type of Site: Household, Commercial & Industrial Waste T Stn Size: 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: SIT806 EPR reference: EA/EPR/ZP3434EU/V002 Operator: Sita U K Limited Waste Management licence No: 402083 Annual Tonnage: 179999	Issue Date: 30/01/2015 Effective Date: - Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Issued
F	395m S	Site Name: Tilbury Dock Alternative Fuel Storage Facility Site Address: Dockside North Of Sheds 32 And 33, Port Tilbury, Tilbury, Essex, RM18 7NS Correspondence Address: -	Type of Site: Household, Commercial & Industrial Waste T Stn Size: >= 75000 tonnes Environmental Permitting Regulations (Waste) Licence Number: STU041 EPR reference: EA/EPR/CB3503MG/S002 Operator: Suez Recycling And Recovery Uk Ltd Waste Management licence No: 402099 Annual Tonnage: 0	Issue Date: 21/12/2017 Effective Date: - Modified: - Surrendered Date: Dec 5 2018 12:00AM Expiry Date: - Cancelled Date: - Status: Surrendered
F	395m S	Site Name: Tilbury Dock Alternative Fuel Storage Facility Site Address: Dockside North Of Sheds 32 And 33, Port Tilbury, Tilbury, Essex, RM18 7NS Correspondence Address: -	Type of Site: Household, Commercial & Industrial Waste T Stn Size: 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: STU041 EPR reference: EA/EPR/CB3503MG/S002 Operator: Suez Recycling And Recovery Uk Ltd Waste Management licence No: 402099 Annual Tonnage: 0	Issue Date: 21/12/2017 Effective Date: - Modified: - Surrendered Date: Dec 5 2018 12:00AM Expiry Date: - Cancelled Date: - Status: Surrendered

ID	Location	Details		
H	414m S	Site Name: Tilbury Docks Waste Transfer Station Site Address: Tilbury Docks Waste Transfer Station, Tilbury Freeport, Tilbury, Essex, RM18 7DP Correspondence Address: -	Type of Site: 75kte HCI Waste TS + treatment Size: 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: RRR001 EPR reference: EA/EPR/DB3803LZ/S002 Operator: Riverside Resource Recovery Limited Waste Management licence No: 403050 Annual Tonnage: 0	Issue Date: 15/09/2016 Effective Date: - Modified: - Surrendered Date: 10/10/2019 Expiry Date: - Cancelled Date: - Status: Surrendered
H	421m S	Site Name: 34/34 A Tilbury Docks Site Address: Tilbury Freeport, Tilbury, Essex, RM18 7DP Correspondence Address: -	Type of Site: Material Recycling Treatment Facility Size: 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: NOR066 EPR reference: EA/EPR/TP3995EW/S003 Operator: Nordic Recycling Limited Waste Management licence No: 100024 Annual Tonnage: 0	Issue Date: 07/11/2007 Effective Date: - Modified: 14/10/2014 Surrendered Date: 06/03/2017 Expiry Date: - Cancelled Date: - Status: Surrendered
H	421m S	Site Name: Nordic Recycling Limited Site Address: 34/34 A, Tilbury Docks, Tilbury Freeport, Tilbury, Essex, RM18 7EH Correspondence Address: -	Type of Site: Material Recycling Treatment Facility Size: >= 75000 tonnes Environmental Permitting Regulations (Waste) Licence Number: NOR066 EPR reference: EA/EPR/TP3995EW/A001 Operator: Nordic Recycling Ltd Waste Management licence No: 100024 Annual Tonnage: 200000	Issue Date: 07/11/2007 Effective Date: - Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Issued
H	421m S	Site Name: Nordic Recyclling Limited Site Address: 34/34 A, Tilbury Docks, Tilbury Freeport, Tilbury, Essex, RM18 7EH Correspondence Address: Berth 6, Basin 3, Chatham Docks, Gillingham, Kent, ME4 2SR	Type of Site: Physical Treatment Facility Size: >= 75000 tonnes Environmental Permitting Regulations (Waste) Licence Number: NOR066 EPR reference: - Operator: Nordic Recycling Ltd Waste Management licence No: 100024 Annual Tonnage: 0	Issue Date: 07/11/2007 Effective Date: - Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Issued

ID	Location	Details		
H	421m S	Site Name: 34/34 A Tilbury Docks Site Address: Tilbury Freeport, Tilbury, Essex, RM18 7DP Correspondence Address: -	Type of Site: Material Recycling Treatment Facility Size: >= 75000 tonnes Environmental Permitting Regulations (Waste) Licence Number: NOR066 EPR reference: EA/EPR/TP3995EW/S003 Operator: Nordic Recycling Limited Waste Management licence No: 100024 Annual Tonnage: 0	Issue Date: 07/11/2007 Effective Date: - Modified: 14/10/2014 Surrendered Date: Mar 6 2017 12:00AM Expiry Date: - Cancelled Date: - Status: Surrendered
9	424m NE	Site Name: Bulks Terminal Site Address: Leslie Ford House, Tilbury Freeport, Tilbury, Essex, RM18 7EH Correspondence Address: -	Type of Site: Household, Commercial & Industrial Waste T Stn Size: >= 75000 tonnes Environmental Permitting Regulations (Waste) Licence Number: POT025 EPR reference: EA/EPR/EP3501UC/A001 Operator: Port Of Tilbury London Limited Waste Management licence No: 402819 Annual Tonnage: 249999	Issue Date: 31/01/2018 Effective Date: - Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Issued
I	470m SE	Site Name: Tilbury Dock Shed 32a Site Address: Tilbury Dock Shed 32a, Port Of Tilbury, Tilbury, Essex, RM18 7NS Correspondence Address: -	Type of Site: Household, Commercial & Industrial Waste T Stn Size: 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: SUE001 EPR reference: EA/EPR/FB3108LF/S002 Operator: Suez Recycling And Recovery U K Ltd Waste Management licence No: 404041 Annual Tonnage: 0	Issue Date: 02/08/2017 Effective Date: - Modified: - Surrendered Date: 14/11/2018 Expiry Date: - Cancelled Date: - Status: Surrendered

ID	Location	Details		
I	470m SE	Site Name: Tilbury Dock Shed 32a Site Address: Tilbury Dock Shed 32a, Port Of Tilbury, Tilbury, Essex, RM18 7NS Correspondence Address: -	Type of Site: Household, Commercial & Industrial Waste T Stn Size: >= 75000 tonnes Environmental Permitting Regulations (Waste) Licence Number: SUE001 EPR reference: EA/EPR/FB3108LF/S002 Operator: Suez Recycling And Recovery Uk Ltd Waste Management licence No: 404041 Annual Tonnage: 0	Issue Date: 02/08/2017 Effective Date: - Modified: - Surrendered Date: Nov 14 2018 12:00AM Expiry Date: - Cancelled Date: - Status: Surrendered
I	470m SE	Site Name: Tilbury Dock Shed 32a Site Address: Tilbury Dock Shed 32a, Port Of Tilbury, Tilbury, Essex, RM18 7NS Correspondence Address: -	Type of Site: Household, Commercial & Industrial Waste T Stn Size: 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: SUE001 EPR reference: EA/EPR/FB3108LF/S002 Operator: Suez Recycling And Recovery Uk Ltd Waste Management licence No: 404041 Annual Tonnage: 0	Issue Date: 02/08/2017 Effective Date: - Modified: - Surrendered Date: Nov 14 2018 12:00AM Expiry Date: - Cancelled Date: - Status: Surrendered
K	499m NE	Site Name: - Site Address: 21, Berth, Tilbury Docks, Tilbury, Essex, RM18 7JT Correspondence Address: -	Type of Site: Transfer Station taking Non-Biodegradable Wastes Size: >= 25000 tonnes 75000 tonnes Environmental Permitting Regulations (Waste) Licence Number: POW001 EPR reference: EA/EPR/GP3699NE/S002 Operator: Powell Duffryn Shipping Ltd Waste Management licence No: 70356 Annual Tonnage: 30000	Issue Date: 30/03/1994 Effective Date: - Modified: - Surrendered Date: 23/09/2004 Expiry Date: - Cancelled Date: - Status: Surrendered

ID	Location	Details		
K	499m NE	Site Name: - Site Address: 21, Berth, Tilbury Docks, Tilbury, Essex, RM18 7JT Correspondence Address: -	Type of Site: Transfer Station taking Non-Biodegradable Wastes Size: >= 75000 tonnes Environmental Permitting Regulations (Waste) Licence Number: POW001 EPR reference: EA/EPR/GP3699NE/S002 Operator: Powell Duffryn Shipping Ltd Waste Management licence No: 70356 Annual Tonnage: 30000	Issue Date: 30/03/1994 Effective Date: - Modified: - Surrendered Date: Sep 23 2004 12:00AM Expiry Date: - Cancelled Date: - Status: Surrendered

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

3.7 Waste exemptions

Records within 500m **20**

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 32 >**

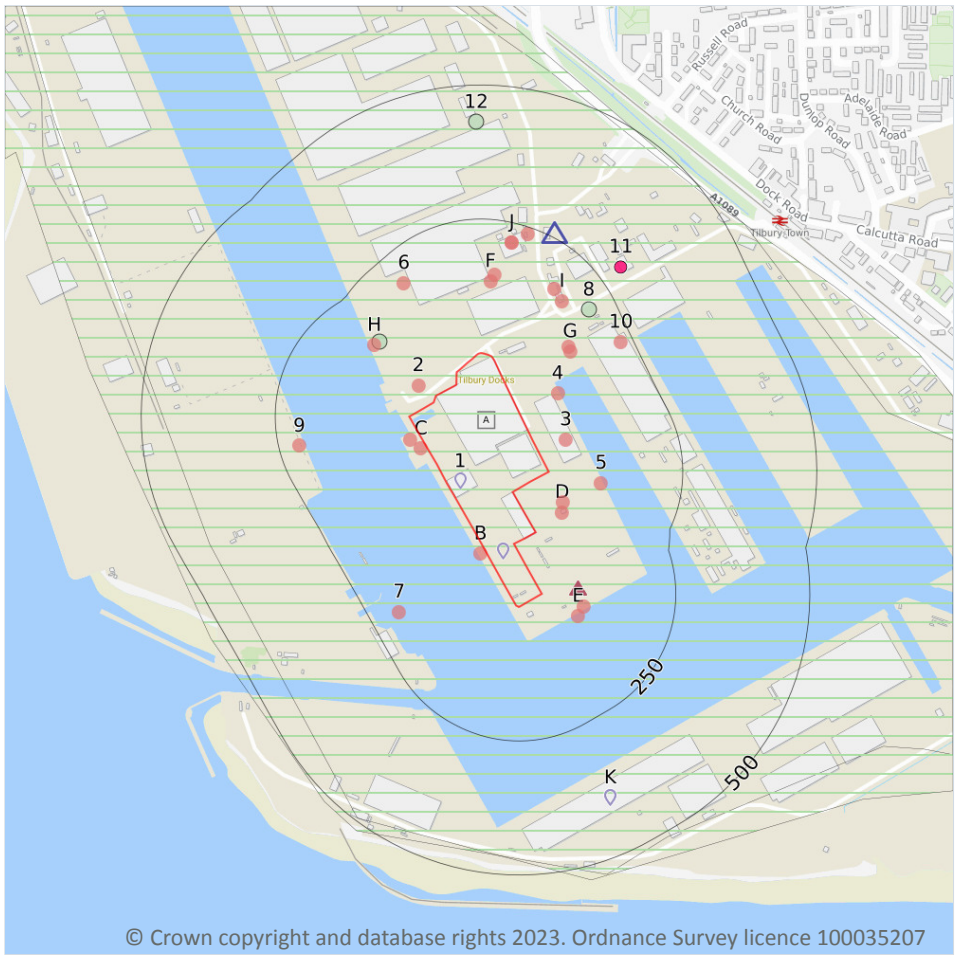
ID	Location	Site	Reference	Category	Sub-Category	Description
1	40m SE	LESLIE FORD HOUSE TILBURY FREEPORT TILBURY ESSEX RM18 7EH	EPR/NF0405XC/A001	Storing waste exemption	Non-Agricultural Waste Only	Storage of waste in a secure place
A	97m SE	Tilbury Dock TILBURY Essex RM18 7EH	EPR/XH0470SA/A001	Treating waste exemption	Non-Agricultural Waste Only	Screening and blending of waste
C	172m N	npa - Tenants Row Tilbury Thurrock RM18 7JJ	EPR/FF0708CR/A001	Storing waste exemption	Non-Agricultural Waste Only	Storage of waste in secure containers
C	172m N	npa - Tenants Row Tilbury Thurrock RM18 7JJ	EPR/FF0708CR/A001	Storing waste exemption	Non-Agricultural Waste Only	Storage of waste in a secure place
E	301m NE	LESLIE FORD HOUSE, TILBURY, RM18 7EH	WEX124012	Storing waste exemption	Not on a farm	Storage of waste in a secure place
E	301m NE	-	WEX263592	Storing waste exemption	Not on a farm	Storage of waste in a secure place

ID	Location	Site	Reference	Category	Sub-Category	Description
E	308m NE	LESLIE FORD HOUSE TILBURY FREEPORT TILBURY ESSEX RM18 7EH	EPR/SF0107ZW/A001	Storing waste exemption	Non-Agricultural Waste Only	Storage of waste in a secure place
G	401m NE	Shed 46, Tilbury Docks, Tilbury, RM18 7EH	WEX083128	Treating waste exemption	Not on a farm	Preparatory treatments (baling, sorting, shredding etc)
G	401m NE	External Land Adjacent to Shed 46, Tilbury Docks, Tilbury, RM18 7EH	WEX061924	Storing waste exemption	Not on a farm	Storage of waste in a secure place
D	421m N	Tilbury Docksc/o 26 Berth Workshop, Enterprise Distribtuion Centre, Tilbury Dock, Tilbury, RM18 7EH	WEX130263	Storing waste exemption	Not on a farm	Storage of waste in secure containers
D	421m N	Tilbury Docksc/o 42 Berth Workshop, Convential Operations, Tilbury Dock, Tilbury, RM18 7EH	WEX130267	Storing waste exemption	Not on a farm	Storage of waste in secure containers
D	422m N	Port of Tilbury London Port Engineering Tilbury RM18 7EH	EPR/ZF0334VY/A001	Treating waste exemption	Non-Agricultural Waste Only	Crushing waste fluorescent tubes
D	422m N	Port Of Tilbury 47 Berth Tilbury Dock RM18 7EH	EPR/CF0604MV/A001	Storing waste exemption	Non-Agricultural Waste Only	Storage of waste in secure containers
D	422m N	Convential Operations Berth 42, Tilbury Dock Essex RM18 7EH	EPR/CF0804MD/A001	Storing waste exemption	Non-Agricultural Waste Only	Storage of waste in secure containers
D	422m N	Enterprise Distribution Centre Berth 26 Tilbury Dock Essex RM18 7EH	EPR/CF0904MJ/A001	Storing waste exemption	Non-Agricultural Waste Only	Storage of waste in secure containers
11	445m NE	-	WEX300683	Using waste exemption	Not on a Farm	Use of waste in construction
12	461m W	SITE 41, NORTHFLEET HOPE HOUSE, TILBURY DOCKS, TILBURY, RM18 7HX	WEX148319	Using waste exemption	Not on a farm	Use of waste in construction
J	492m SE	Tilbury Port, Tilbury Docks, Tilbury, RM18 7EH	WEX241177	Storing waste exemption	Not on a farm	Storage of waste in a secure place
J	492m SE	Tilbury Docksc/o 42 Berth Workshop, Convential Operations, Tilbury Dock, Tilbury, RM18 7EH	WEX272296	Storing waste exemption	Not on a farm	Storage of waste in secure containers

ID	Location	Site	Reference	Category	Sub-Category	Description
J	492m SE	Tilbury Docksc/o 26 Berth Workshop, Enterprise Distribtuion Centre, Tilbury Dock, Tilbury, RM18 7EH	WEX272297	Storing waste exemption	Not on a farm	Storage of waste in secure containers

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

4 Current industrial land use



Site Outline

Search buffers in metres (m)

- Recent industrial land uses
- Current or recent petrol stations
- Control of Major Accident Hazards
- Hazardous substance storage/usage
- Part A(1) industrial activities
- Radioactive Substance Authorisations
- Pollution Incidents (EA/NRW)

4.1 Recent industrial land uses

Records within 250m	25

Current potentially contaminative industrial sites.

Features are displayed on the Current industrial land use map on **page 46 >**

ID	Location	Company	Address	Activity	Category
B	11m S	Travelling Crane	Essex, RM18	Travelling Cranes and Gantries	Industrial Features
C	11m W	Travelling Crane	Essex, RM18	Travelling Cranes and Gantries	Industrial Features
C	19m W	Mooring Posts	Essex, RM18	Moorings and Unloading Facilities	Water

ID	Location	Company	Address	Activity	Category
2	38m NW	Pylon	Essex, RM18	Electrical Features	Infrastructure and Facilities
3	56m E	Fielding Transport	43, Berth Tilbury Freeport, Tilbury, Essex, RM18 7HB	Distribution and Haulage	Transport, Storage and Delivery
D	61m SE	Electricity Sub Station	Essex, RM18	Electrical Features	Infrastructure and Facilities
D	63m SE	Mast (Telecommunication)	Essex, RM18	Telecommunications Features	Infrastructure and Facilities
E	80m SE	Mooring Posts	Essex, RM18	Moorings and Unloading Facilities	Water
4	80m NE	Travelling Crane	Essex, RM18	Travelling Cranes and Gantries	Industrial Features
E	82m SE	Travelling Crane	Essex, RM18	Travelling Cranes and Gantries	Industrial Features
5	100m E	Travelling Crane	Essex, RM18	Travelling Cranes and Gantries	Industrial Features
F	135m N	Electricity Sub Station	Essex, RM18	Electrical Features	Infrastructure and Facilities
G	135m NE	Mast	Essex, RM18	Telecommunications Features	Infrastructure and Facilities
G	137m NE	Electricity Sub Station	Essex, RM18	Electrical Features	Infrastructure and Facilities
H	148m NW	Travelling Crane	Essex, RM18	Travelling Cranes and Gantries	Industrial Features
F	149m N	Pylon	Essex, RM18	Electrical Features	Infrastructure and Facilities
I	167m NE	World Freight Consultants	15, Tennants Row, Tilbury, Essex, RM18 7EH	Distribution and Haulage	Transport, Storage and Delivery
I	172m N	Total Forwarding Ltd	11, Tenants Row, Tilbury Freeport, Tilbury, Essex, RM18 7JD	Distribution and Haulage	Transport, Storage and Delivery
6	191m NW	Pylon	Essex, RM18	Electrical Features	Infrastructure and Facilities
7	196m SW	Mooring Posts	Essex, RM18	Moorings and Unloading Facilities	Water

ID	Location	Company	Address	Activity	Category
9	212m W	Travelling Crane	Essex, RM18	Travelling Cranes and Gantries	Industrial Features
J	214m N	P T G Treatments Ltd	Berth 40 Workshop, -, Tilbury, Essex, RM18 7HP	Special Purpose Machinery and Equipment	Industrial Products
J	214m N	Hughes Associates F M	Berth 40 Workshop, -, Tilbury, Essex, RM18 7HP	Container and Storage	Transport, Storage and Delivery
10	228m NE	Tilbury Green Power - Biomass (dedicated) (BEIS)	Tilbury Docks, Essex, -, Essex, RM18 7NU	Energy Production	Industrial Features
J	237m N	Electricity Sub Station	Essex, RM18	Electrical Features	Infrastructure and Facilities

This data is sourced from Ordnance Survey.

4.2 Current or recent petrol stations

Records within 500m	**1**

Open, closed, under development and obsolete petrol stations.

Features are displayed on the Current industrial land use map on **page 46 >**

ID	Location	Company	Address	LPG	Status
J	258m N	CERTAS ENERGY	Port Of Tilbury, Tilbury, Thurrock, RM18 7EH	No	Non-Retail

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	2

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 46 >**

ID	Location	Company	Address	Operational status	Tier
A	**On site**	**Laing National Ltd**	**Laing National Ltd, Tilbury Starch Works, Tilbury Docks**	**Historical NIHHS Site**	**-**
A	**On site**	**Port Of Tilbury London Ltd**	**Port Of Tilbury London Ltd, Tilbury Freeport, Tilbury, RM18 7EH**	**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 46 >**

ID	Location	Details	
E	67m SE	Application reference number: 97/00732/HSC Application status: Approved Application date: 09/10/1997 Address: Port of Tilbury London Ltd, Leslie Ford house, Tilbury Freeport, Tilbury, Essex, England, RM18 7JB	Details: Hazardous Substances consent for the handling of ammonium nitrate products Enforcement: No Enforcement Notified Date of enforcement: No Enforcement Notified Comment: No Enforcement Notified

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	7

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 46 >**

ID	Location	Details	
1	**On site**	**Operator: Ballast Phoenix Ltd** **Installation Name: Tilbury IBA Facility - EPR/CP3732WS** **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: CP3732WS** **Original Permit Number: CP3732WS**	**EPR Reference: -** **Issue Date: 21/07/2016** **Effective Date: 21/07/2016** **Last date noted as effective: 21/03/2023** **Status: Superceded**

ID	Location	Details	
B	**On site**	**Operator: Blue Phoenix Limited** **Installation Name: Tilbury IBA Facility - EPR/CP3732WS** **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: TP3906BG** **Original Permit Number: CP3732WS**	**EPR Reference: -** **Issue Date: 06/02/2020** **Effective Date: 06/02/2020** **Last date noted as effective: 21/03/2023** **Status: Effective**
B	**On site**	**Operator: BLUE PHOENIX LIMITED** **Installation Name: Tilbury IBA Facility - EPR/CP3732WS** **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: BB3239RD** **Original Permit Number: CP3732WS**	**EPR Reference: EPR/BB3239RD** **Issue Date: 06/02/2020** **Effective Date: 06/02/2020** **Last date noted as effective: 25/05/2023** **Status: Effective**
K	394m S	Operator: SUEZ RECYCLING AND RECOVERY UK LTD Installation Name: Tilbury Dock Alternative Fuel Facility Process: RECOVERY OR A MIX OF RECOVERY AND DISPOSAL OF > 50 T/D NON-HAZARDOUS WASTE (> 100 T/D IF ONLY AD) INVOLVING PRE-TREATMENT OF WASTE FOR INCINERATION OR CO-INCINERATION Permit Number: ZP3434EU Original Permit Number: ZP3434EU	EPR Reference: EPR/ZP3434EU Issue Date: 22/11/2018 Effective Date: 22/11/2018 Last date noted as effective: 25/05/2023 Status: Surrendered
K	394m S	Operator: SUEZ RECYCLING AND RECOVERY UK LTD Installation Name: TILBURY DOCK ALTERNATIVE FUEL FACILITY Process: RECOVERY OR A MIX OF RECOVERY AND DISPOSAL OF > 50 T/D NON-HAZARDOUS WASTE (> 100 T/D IF ONLY AD) INVOLVING PRE-TREATMENT OF WASTE FOR INCINERATION OR CO-INCINERATION Permit Number: KP3436RG Original Permit Number: ZP3434EU	EPR Reference: - Issue Date: - Effective Date: - Last date noted as effective: 01/04/2017 Status: DETERMINATION
K	394m S	Operator: SITA UK Limited Installation Name: Tilbury Dock Alternative Fuel Facility Process: RECOVERY OR A MIX OF RECOVERY AND DISPOSAL OF > 50 T/D NON-HAZARDOUS WASTE (> 100 T/D IF ONLY AD) INVOLVING PRE-TREATMENT OF WASTE FOR INCINERATION OR CO-INCINERATION Permit Number: TP3136WE Original Permit Number: ZP3434EU	EPR Reference: - Issue Date: 30/01/2015 Effective Date: 30/01/2015 Last date noted as effective: 21/03/2023 Status: Superceded

ID	Location	Details	
K	394m S	Operator: SUEZ Recycling and Recovery UK Ltd Installation Name: Tilbury Dock Alternative Fuel Facility Process: RECOVERY OR A MIX OF RECOVERY AND DISPOSAL OF > 50 T/D NON-HAZARDOUS WASTE (> 100 T/D IF ONLY AD) INVOLVING PRE-TREATMENT OF WASTE FOR INCINERATION OR CO-INCINERATION Permit Number: YP3135QC Original Permit Number: ZP3434EU	EPR Reference: - Issue Date: - Effective Date: 22/11/2018 Last date noted as effective: 21/03/2023 Status: Surrender Effective

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

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

Records within 500m	**0**

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.

This data is sourced from Local Authority records.

4.12 Radioactive Substance Authorisations

Records within 500m	**1**

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

Features are displayed on the Current industrial land use map on **page 46 >**

ID	Location	Address	Details	
11	293m NE	Leslie Ford House, Tilbury Freeport, Tilbury, RM18 7EH	Operator: Secretary of State for Home Affairs Type: - Permission number: CE4775 Date of approval: -	Effective from: - Last date of update: 01/01/2020 Status: Surrendered

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

4.13 Licensed Discharges to controlled waters

Records within 500m	**0**

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

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	3

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 46 >**

ID	Location	Details	
H	145m NW	Incident Date: 14/11/2003 Incident Identification: 201717 Pollutant: Contaminated Water Pollutant Description: Firefighting Run-Off	Water Impact: Category 3 (Minor) Land Impact: Category 3 (Minor) Air Impact: Category 4 (No Impact)
8	200m NE	Incident Date: 21/12/2001 Incident Identification: 49216 Pollutant: Oils and Fuel Pollutant Description: Gas and Fuel Oils	Water Impact: Category 3 (Minor) Land Impact: Category 4 (No Impact) Air Impact: Category 4 (No Impact)
12	430m N	Incident Date: 05/09/2002 Incident Identification: 105752 Pollutant: Other Pollutant Pollutant Description: Other	Water Impact: Category 4 (No Impact) 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.

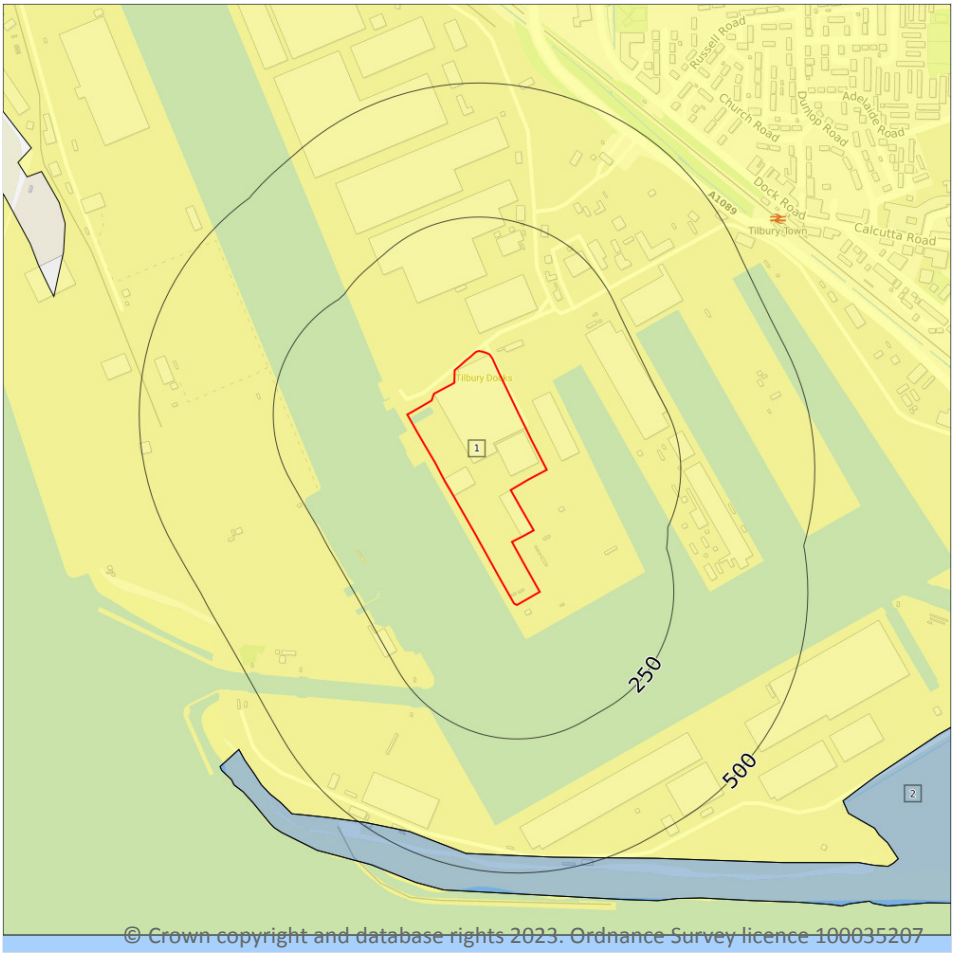
4.21 Pollution inventory radioactive waste

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



Site Outline

Search buffers in metres (m)

- Principal
- Secondary A
- Secondary B
- Secondary Undifferentiated
- Unproductive
- Unknown

5.1 Superficial aquifer

Records within 500m	2

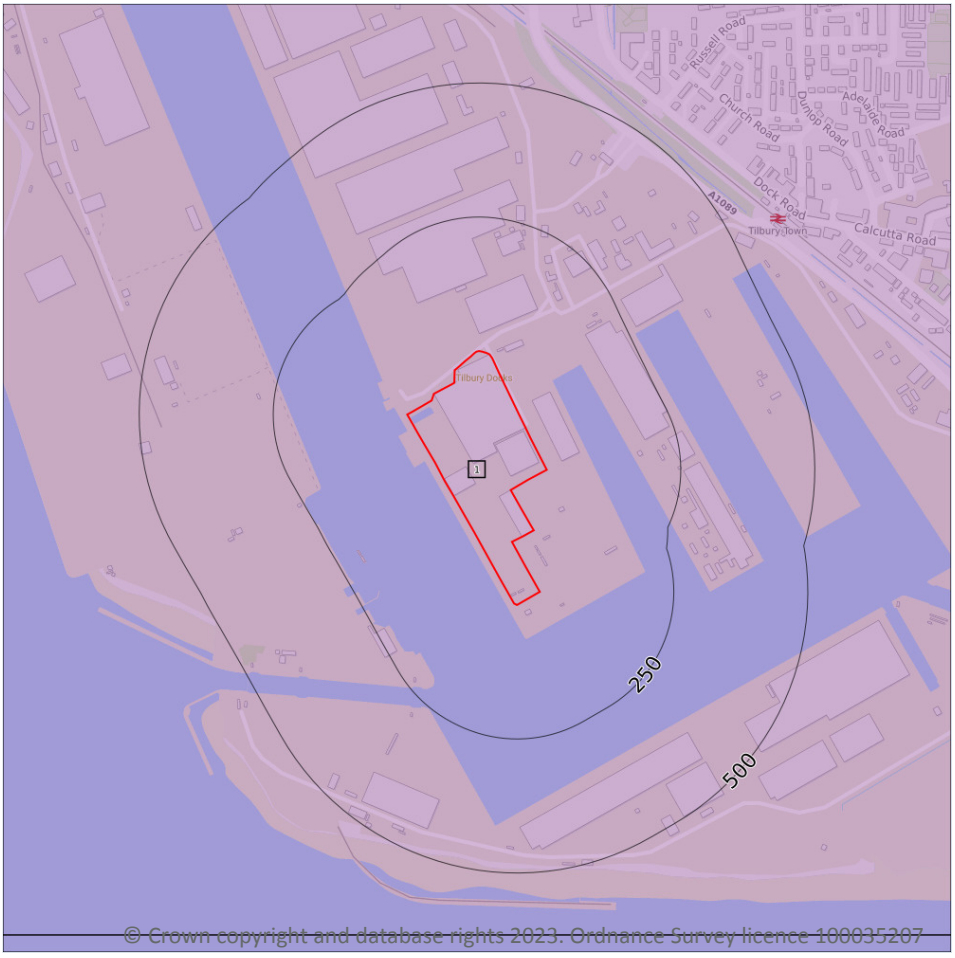
Aquifer status of groundwater held within superficial geology.

Features are displayed on the Hydrogeology map on **page 55 >**

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	467m S	Unproductive	These are rock layers or drift deposits with low permeability that have negligible significance for water supply or river base flow

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

Bedrock aquifer



Site Outline

Search buffers in metres (m)

- Principal
- Secondary A
- Secondary B
- Secondary Undifferentiated
- Unproductive

5.2 Bedrock aquifer

Records within 500m	1

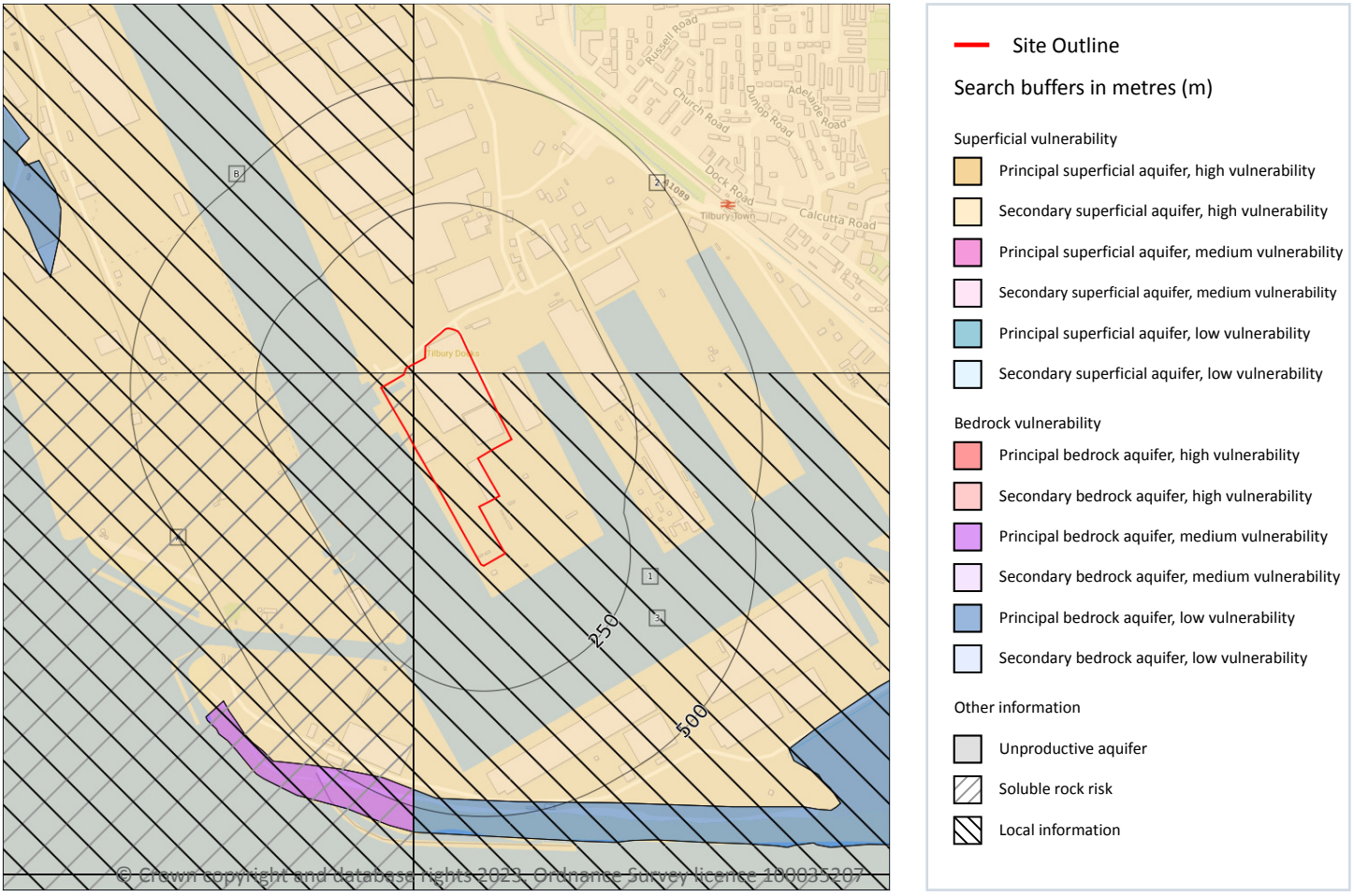
Aquifer status of groundwater held within bedrock geology.

Features are displayed on the Bedrock aquifer map on **page 56 >**

ID	Location	Designation	Description
1	On site	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

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	4

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 57 >**

ID	Location	Summary	Soil / surface	Superficial geology	Bedrock geology
1	On site	Summary Classification: Secondary superficial aquifer - High Vulnerability Combined classification: Productive Bedrock Aquifer, Productive Superficial Aquifer	Leaching class: High Infiltration value: >70% Dilution value: <300mm/year	Vulnerability: High Aquifer type: Secondary Thickness: >10m Patchiness value: >90% Recharge potential: Low	Vulnerability: Low Aquifer type: Principal Flow mechanism: Well connected fractures
2	On site	Summary Classification: Secondary superficial aquifer - High Vulnerability Combined classification: Productive Bedrock Aquifer, Productive Superficial Aquifer	Leaching class: High Infiltration value: >70% Dilution value: <300mm/year	Vulnerability: High Aquifer type: Secondary Thickness: >10m Patchiness value: >90% Recharge potential: Low	Vulnerability: Low Aquifer type: Principal Flow mechanism: Well connected fractures
A	On site	Summary Classification: Secondary superficial aquifer - High Vulnerability Combined classification: Productive Bedrock Aquifer, Productive Superficial Aquifer	Leaching class: High Infiltration value: >70% Dilution value: <300mm/year	Vulnerability: High Aquifer type: Secondary Thickness: >10m Patchiness value: >90% Recharge potential: No Data	Vulnerability: Medium Aquifer type: Principal Flow mechanism: Well connected fractures
B	On site	Summary Classification: Secondary superficial aquifer - High Vulnerability Combined classification: Productive Bedrock Aquifer, Productive Superficial Aquifer	Leaching class: High Infiltration value: >70% Dilution value: <300mm/year	Vulnerability: High Aquifer type: Secondary Thickness: >10m Patchiness value: >90% Recharge potential: Low	Vulnerability: Low Aquifer type: Principal 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	1

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
A	**Significant soluble rocks are likely to be present. Problems unlikely except with considerable surface or subsurface water flow.**	**2.0%**

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

5.5 Groundwater vulnerability- local information

Records on site	3

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 ↗.

ID	Summary	Additional information
3	**Potentially increased vulnerability of the bedrock aquifer due to limited cover by superficial deposits**	**Removal of, or limited cover of, superficial deposits within the River Thames**
A	**Potentially increased vulnerability of the bedrock aquifer due to limited cover by superficial deposits**	**Removal of, or limited cover of, superficial deposits within the River Thames**
B	**Potentially increased vulnerability of the bedrock aquifer due to limited cover by superficial deposits**	**Removal of, or limited cover of, superficial deposits within the River Thames**

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	9

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 60 >**

ID	Location	Details	
-	1085m S	Status: Active Licence No: 9/40/01/0092/A/GR/R1 Details: Boiler Feed Direct Source: Southern Region Groundwater Point: POINT A, BOREHOLE AT KIMBERLY CLARK, NORTHFLEET Data Type: Point Name: Kimberly-Clark Limited Easting: 562759 Northing: 174599	Annual Volume (m^3): 320000 Max Daily Volume (m^3): 1309 Original Application No: NPS/WR/024286 Original Start Date: 01/04/2018 Expiry Date: 31/03/2030 Issue No: 1 Version Start Date: 01/04/2018 Version End Date: -
-	1092m S	Status: Historical Licence No: 9/40/01/0092/A/GR Details: Boiler Feed Direct Source: Southern Region Groundwater Point: POINT 1, GREENSAND BOREHOLE, NORTHFLEET. Data Type: Point Name: Kimberly-Clark Limited Easting: 562860 Northing: 174560	Annual Volume (m^3): - Max Daily Volume (m^3): - Original Application No: - Original Start Date: - Expiry Date: - Issue No: 100 Version Start Date: 27/05/1966 Version End Date: -
-	1093m S	Status: Historical Licence No: 9/40/01/0092/A/GR Details: Boiler Feed Direct Source: Southern Region Groundwater Point: POINT A, BOREHOLE AT KIMBERLY CLARK, NORTHFLEET Data Type: Point Name: Kimberly-Clark Limited Easting: 562760 Northing: 174590	Annual Volume (m^3): 400000 Max Daily Volume (m^3): 1309 Original Application No: - Original Start Date: 27/05/1966 Expiry Date: 31/03/2018 Issue No: 101 Version Start Date: 24/04/2002 Version End Date: -
-	1365m S	Status: Active Licence No: 9/40/01/0092/B/GR Details: Process Water Direct Source: Southern Region Groundwater Point: BOREHOLE 4, CRETE HALL ROAD, NORTHFLEET. Data Type: Point Name: Kimberly-Clark Limited Easting: 562980 Northing: 174260	Annual Volume (m^3): 4710000 Max Daily Volume (m^3): 19656 Original Application No: WR.1969D Original Start Date: 27/05/1966 Expiry Date: - Issue No: 100 Version Start Date: 01/07/1996 Version End Date: -
-	1527m S	Status: Historical Licence No: 9/40/01/0092/A/GR Details: Boiler Feed Direct Source: Southern Region Groundwater Point: POINT 2, GREENSAND BOREHOLE, NORTHFLEET. Data Type: Point Name: Kimberly-Clark Limited Easting: 562830 Northing: 174120	Annual Volume (m^3): - Max Daily Volume (m^3): - Original Application No: - Original Start Date: - Expiry Date: - Issue No: 100 Version Start Date: 27/05/1966 Version End Date: -

ID	Location	Details	
-	1540m S	Status: Historical Licence No: 9/40/01/0092/A/GR Details: Boiler Feed Direct Source: Southern Region Groundwater Point: POINT B, BOREHOLE AT KIMBERLY CLARK, NORTHFLEET Data Type: Point Name: Kimberly-Clark Limited Easting: 562770 Northing: 174120	Annual Volume (m^3): 400000 Max Daily Volume (m^3): 1309 Original Application No: - Original Start Date: 27/05/1966 Expiry Date: 31/03/2018 Issue No: 101 Version Start Date: 24/04/2002 Version End Date: -
-	1546m S	Status: Active Licence No: 9/40/01/0092/A/GR/R1 Details: Boiler Feed Direct Source: Southern Region Groundwater Point: POINT B, BOREHOLE AT KIMBERLY CLARK, NORTHFLEET Data Type: Point Name: Kimberly-Clark Limited Easting: 562772 Northing: 174114	Annual Volume (m^3): 320000 Max Daily Volume (m^3): 1309 Original Application No: NPS/WR/024286 Original Start Date: 01/04/2018 Expiry Date: 31/03/2030 Issue No: 1 Version Start Date: 01/04/2018 Version End Date: -
-	1959m W	Status: Active Licence No: 01/158/R01 Details: Mineral Washing Direct Source: Southern Region Groundwater Point: BOREHOLE AT SWANSCOMBE MARSHES Data Type: Point Name: Cemex UK Materials Ltd Easting: 560976 Northing: 175941	Annual Volume (m^3): 26300 Max Daily Volume (m^3): 105 Original Application No: NPS/WR/030687 Original Start Date: 01/04/2014 Expiry Date: 31/03/2026 Issue No: 2 Version Start Date: 21/12/2018 Version End Date: -
-	1965m W	Status: Historical Licence No: 01/158 Details: Mineral Washing Direct Source: Southern Region Groundwater Point: A BOREHOLE AT SWANSCOMBE MARSHES Data Type: Point Name: Cemex UK Materials Ltd Easting: 560970 Northing: 175920	Annual Volume (m^3): 26300 Max Daily Volume (m^3): 105 Original Application No: - Original Start Date: 01/12/2005 Expiry Date: 31/03/2014 Issue No: 1 Version Start Date: 18/10/2006 Version End Date: -

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

5.7 Surface water abstractions

Records within 2000m	1

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 60 >**

ID	Location	Details	
-	1356m SW	Status: Active Licence No: 9/40/01/0522/S Details: Mineral Washing Direct Source: Southern Region Surface Waters Point: POINT A, TIDAL RIVER THAMES AT SWANSCOMBE. Data Type: Point Name: Robert Brett & Sons Ltd Easting: 561870 Northing: 175100	Annual Volume (m^3): 45500 Max Daily Volume (m^3): 375 Original Application No: 169/872 Original Start Date: 06/02/1990 Expiry Date: - Issue No: 101 Version Start Date: 01/01/2002 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	0

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

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

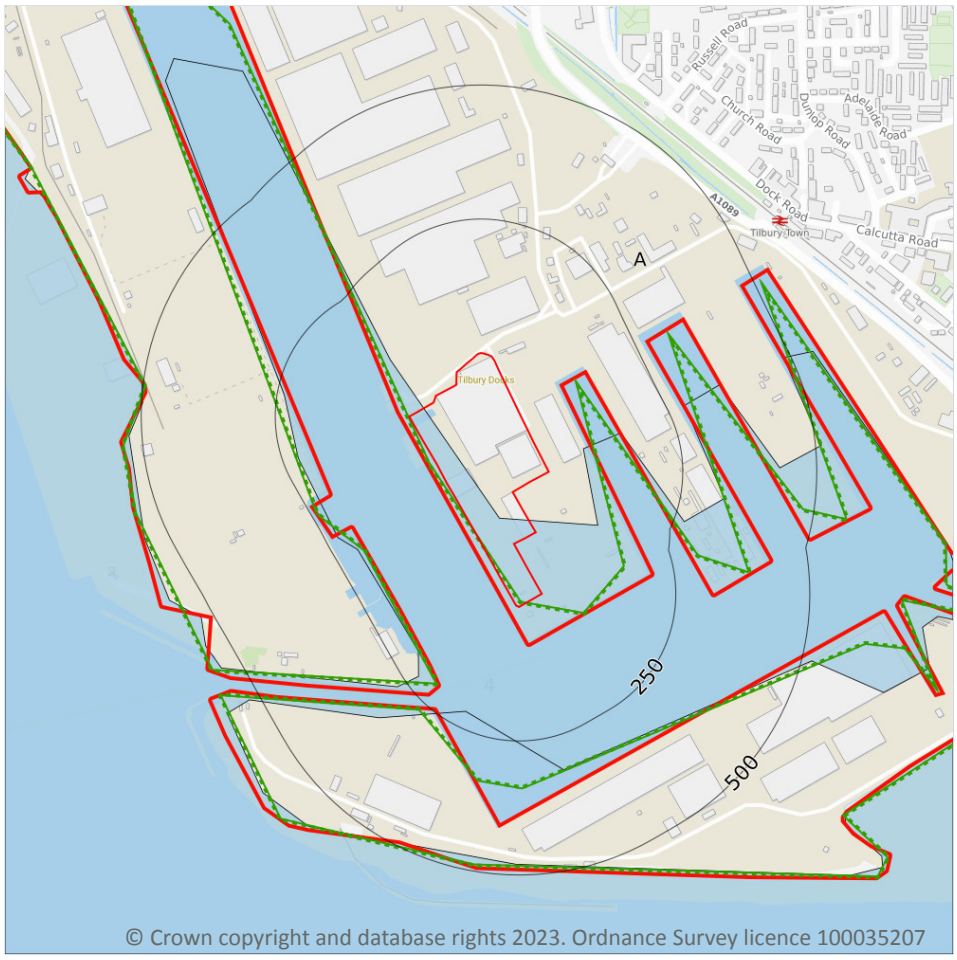
5.10 Source Protection Zones (confined aquifer)

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	**1**

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 65 >**

ID	Location	Type of water feature	Ground level	Permanence	Name
4	101m S	Lake, loch or reservoir.	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	2

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 65 >**

This data is sourced from the Ordnance Survey.

6.3 WFD Surface water body catchments

Records on site	1

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 65 >**

ID	Location	Type	Water body catchment	Water body ID	Operational catchment	Management catchment
A	**On site**	**Coastal Catchment**	**Not part of a river WB catchment**	**126**	**Mardyke**	**South Essex**

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. Click on the water body ID in the table to visit the EA Catchment Explorer to find out more about each water body listed.

Features are displayed on the Hydrology map on **page 65 >**

ID	Location	Type	Name	Water body ID	Overall rating	Chemical rating	Ecological rating	Year
2	**On site**	**Transi**	**THAMES MIDDLE**	**GB530603911402** ↗	**Moderate**	**Fail**	**Moderate**	**2019**

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

6.5 WFD Groundwater bodies

Records on site	1

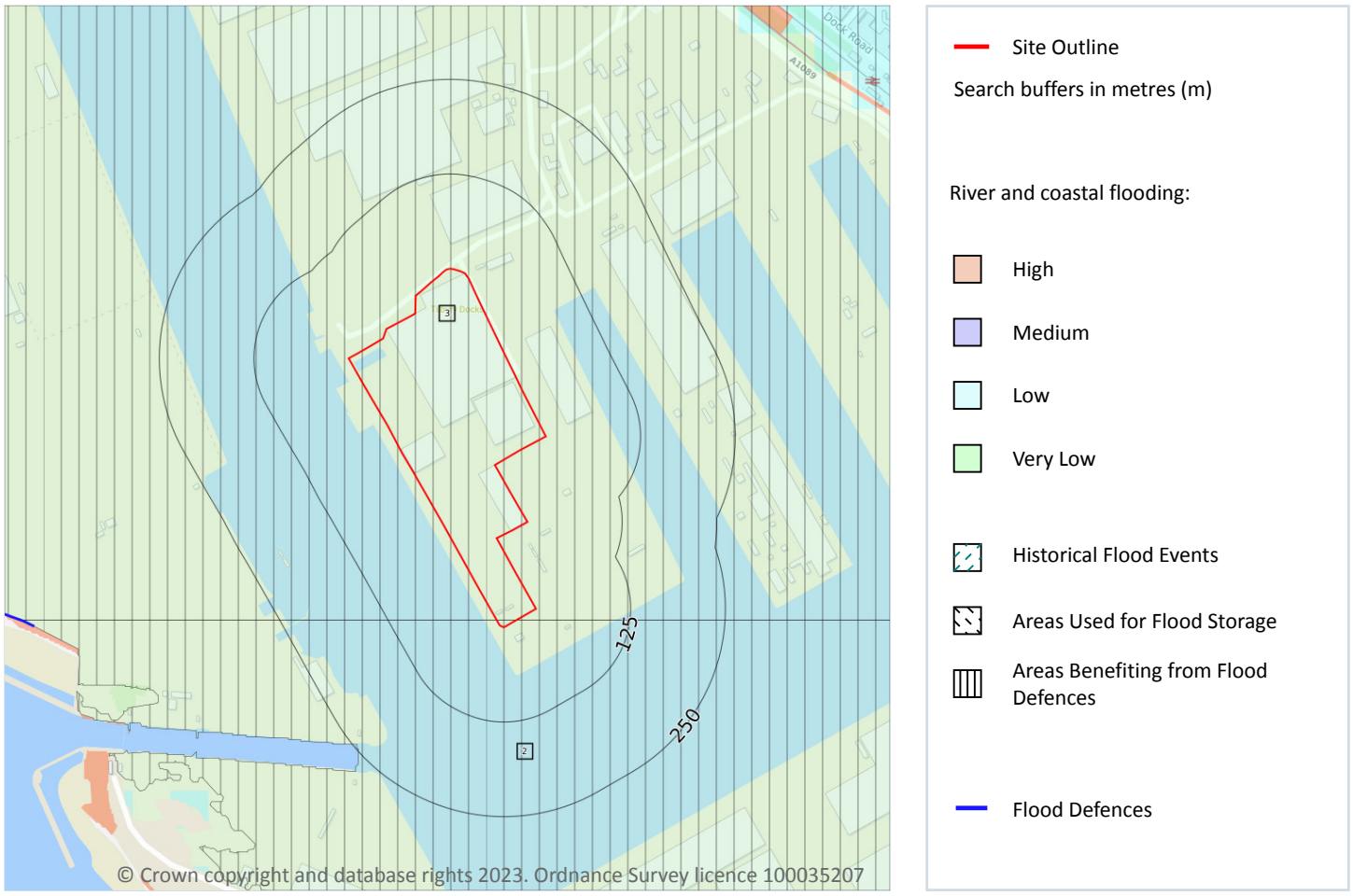
Groundwater bodies are also covered by the Directive and the same regime of objectives and reporting detailed in the previous section is in place. Click on the water body ID in the table to visit the EA Catchment Explorer to find out more about each groundwater body listed.

Features are displayed on the Hydrology map on **page 65 >**

ID	Location	Name	Water body ID	Overall rating	Chemical rating	Quantitative	Year
A	**On site**	**South Essex Thurrock Chalk**	**GB40601G401100** ↗	**Poor**	**Poor**	**Poor**	**2019**

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	1

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 68 >**

Distance	Flood risk category
On site	**Very Low**
0 - 50m	Very Low

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	**2**

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 68 >**

ID	Location	
2	**On site**	**Area benefiting from flood defences**
3	**On site**	**Area benefiting from flood defences**

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

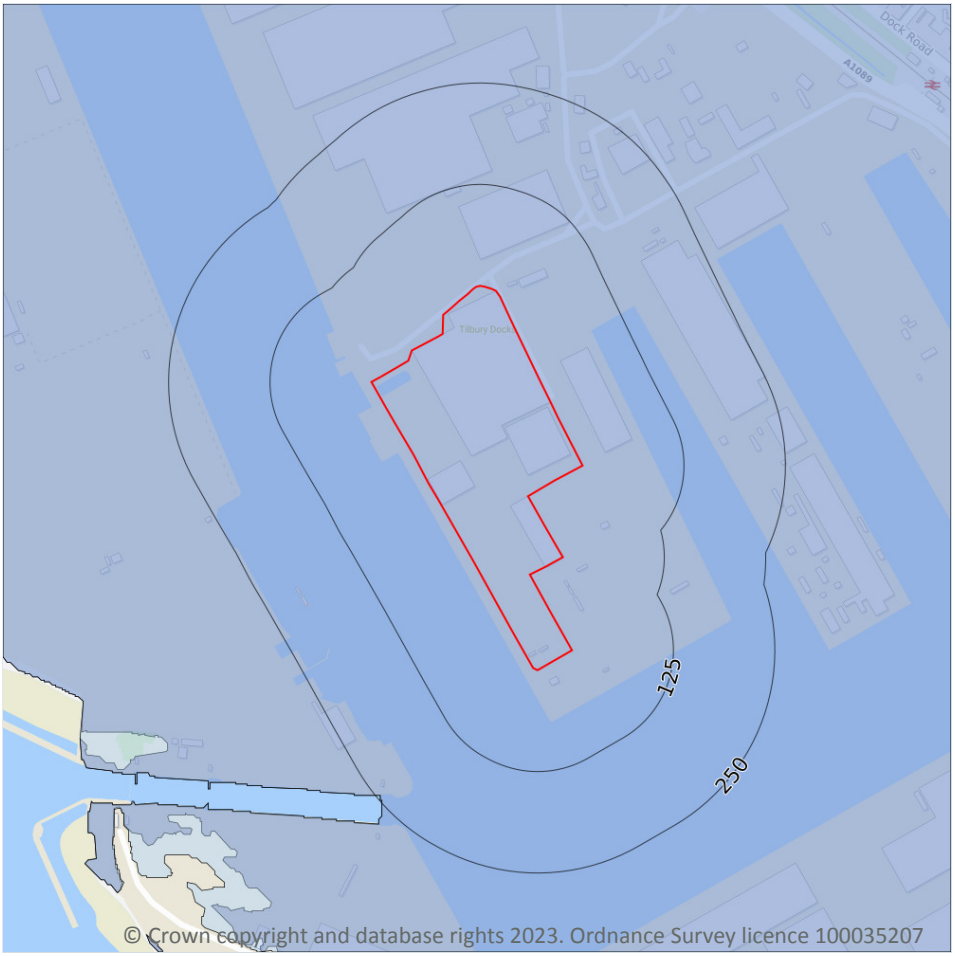
7.5 Flood Storage Areas

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 68 >**

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

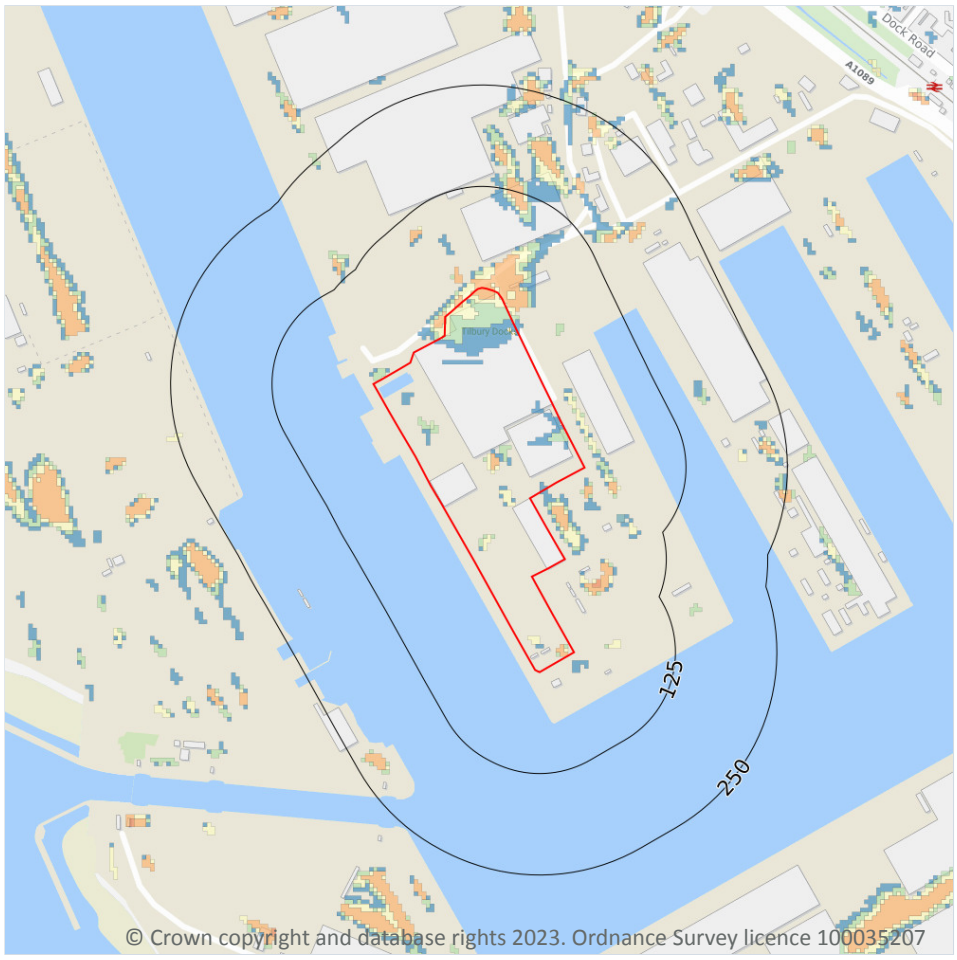
Areas of land at risk of flooding, when the presence of flood defences are ignored. Covering land with a 1 in 100 (1%) or greater chance of flooding each year from rivers or a 1 in 200 (0.5%) or greater chance of flooding each year from the sea.

Features are displayed on the River and coastal flooding map on **page 68 >**

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, 0.1m - 0.3m**
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 73 >**

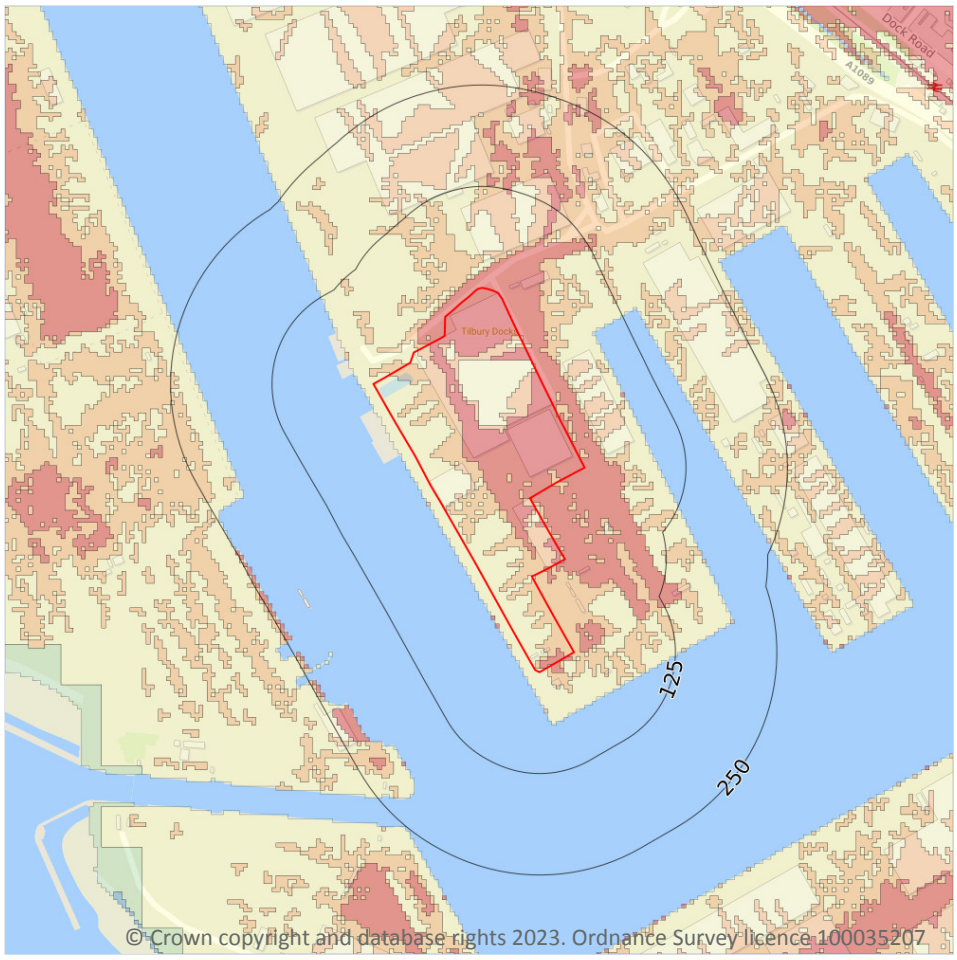
The data shown on the map and in the table above shows the highest likelihood of flood events happening at the site. Lower likelihood events may have greater flood depths and hence a greater potential impact on a site.

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 0.1m and 0.3m
1 in 30 year	Between 0.1m and 0.3m

This data is sourced from Ambiental Risk Analytics.

9 Groundwater flooding



Site Outline

Search buffers in metres (m)

High

Moderate - High

Moderate

Low

Negligible

9.1 Groundwater flooding

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

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 75 >**

This data is sourced from Ambiental Risk Analytics.

10 Environmental designations

Site Outline

Search buffers in metres (m)

Sites of Special Scientific Interest (SSSI)

Green Belt

10.1 Sites of Special Scientific Interest (SSSI)

Records within 2000m	1

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 76 >**

ID	Location	Name	Data source
-	1718m W	Swanscombe Peninsula	Natural England

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	0

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.

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	1

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

Features are displayed on the Environmental designations map on **page 76 >**

ID	Location	Name	Local Authority name
1	615m N	London	Thurrock

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

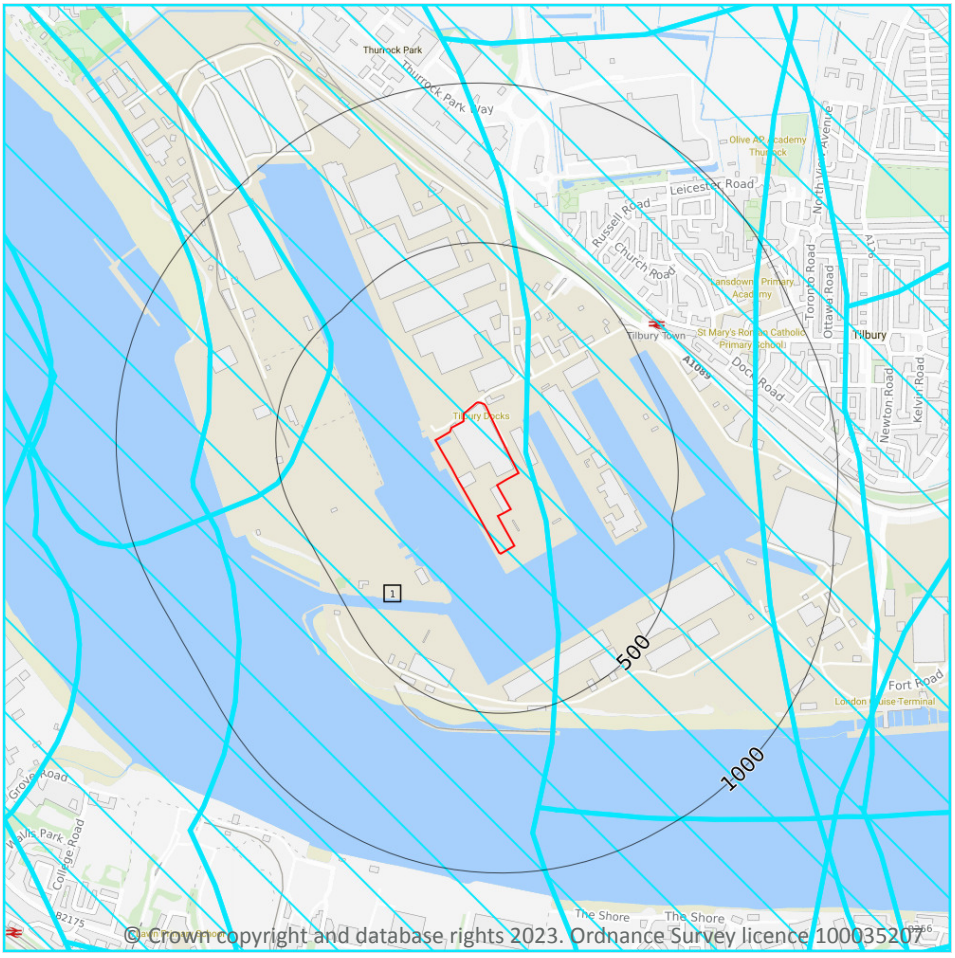
Records within 2000m	1

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.

Location	Name	Type	NVZ ID	Status
1771m S	North Kent	Groundwater	65	Existing

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

SSSI Impact Zones and Units



Site Outline

Search buffers in metres (m)

SSSI Impact Risk Zones

SSSI Units

- Not recorded
- Favourable
- Unfavourable - Recovering
- Unfavourable - No change
- Unfavourable - Declining
- Partially destroyed
- Destroyed

10.17 SSSI Impact Risk Zones

Records on site	1

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.

Features are displayed on the SSSI Impact Zones and Units map on **page 81 >**

ID	Location	Type of developments requiring consultation
1	On site	**All applications - All planning applications (except householder) outside or extending outside existing settlements/urban areas affecting greenspace, farmland, semi natural habitats or landscape features such as trees, hedges, streams, rural buildings/structures. Infrastructure - Pipelines and underground cables, pylons and overhead cables. Any transport proposal including road, rail and by water (excluding routine maintenance). Airports, helipads and other aviation proposals. Wind and Solar - Solar schemes with footprint > 0.5ha, all wind turbines. Minerals, Oil and Gas - Planning applications for quarries, including: new proposals, Review of Minerals Permissions (ROMP), extensions, variations to conditions etc. Oil & gas exploration/extraction. Rural non-residential - Large non residential developments outside existing settlements/urban areas where footprint exceeds 1ha. Residential - Residential development of 50 units or more. Rural residential - Any residential development of 50 or more houses outside existing settlements/urban areas. Air pollution - Any industrial/agricultural development that could cause AIR POLLUTION (incl: industrial processes, livestock & poultry units with floorspace > 500m², slurry lagoons & digestate stores > 200m², manure stores > 250t). Combustion - General combustion processes >20MW energy input. Incl: energy from waste incineration, other incineration, landfill gas generation plant, pyrolysis/gasification, anaerobic digestion, sewage treatment works, other incineration/ combustion. Waste - Landfill. Incl: inert landfill, non-hazardous landfill, hazardous landfill. Composting - Any composting proposal with more than 75000 tonnes maximum annual operational throughput. Incl: open windrow composting, in-vessel composting, anaerobic digestion, other waste management. Discharges - Any discharge of water or liquid waste of more than 20m³/day to ground (ie to seep away) or to surface water, such as a beck or stream. Water supply - Large infrastructure such as warehousing / industry where total net additional gross internal floorspace following development is 1,000m² or more. Notes: Strategic solutions for recreational impacts are in place. Please contact your Local Planning Authority as they have the information to advise on specific requirements.**

This data is sourced from Natural England.

10.18 SSSI Units

Records within 2000m	5

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.

Features are displayed on the SSSI Impact Zones and Units map on **page 81 >**

ID:	-
Location:	1718m W
SSSI name:	Swanscombe Peninsula
Unit name:	Swanscombe Mudflat
Broad habitat:	
Condition:	Favourable

Reportable features:

Feature name	Feature condition	Date of assessment
Assemblages of breeding birds - Mixed: Lowland open waters and their margins, Lowland fen and Lowland damp grassland	Favourable	11/03/2021
Invert. assemblage F111 bare sand & chalk	Favourable	11/03/2021
Invert. assemblage F112 open short sward	Favourable	11/03/2021
Invert. assemblage M311 saltmarsh and transitional brackish marsh	Favourable	11/03/2021

ID: -
Location: 1743m W
SSSI name: Swanscombe Peninsula
Unit name: Botany Marsh East
Broad habitat:
Condition: Favourable
Reportable features:

Feature name	Feature condition	Date of assessment
Assemblages of breeding birds - Mixed: Lowland open waters and their margins, Lowland fen and Lowland damp grassland	Favourable	11/03/2021
Assemblages of breeding birds - Scrub	Favourable	11/03/2021
Invert. assemblage F111 bare sand & chalk	Favourable	11/03/2021
Invert. assemblage F112 open short sward	Favourable	11/03/2021
Invert. assemblage M311 saltmarsh and transitional brackish marsh	Favourable	11/03/2021
Invert. assemblage W211 open water on disturbed sediments	Favourable	11/03/2021
Vascular Plant Species: Carex divisa, Divided Sedge	Favourable	11/03/2021
Vascular Plant Species: Lathyrus aphaca, Yellow Vetchling	Favourable	11/03/2021

ID: -
Location: 1822m W
SSSI name: Swanscombe Peninsula
Unit name: Swanscombe Sea Wall
Broad habitat:
Condition: Favourable
Reportable features:

Feature name	Feature condition	Date of assessment
Assemblages of breeding birds - Mixed: Lowland open waters and their margins, Lowland fen and Lowland damp grassland	Favourable	11/03/2021
Assemblages of breeding birds - Scrub	Favourable	11/03/2021
Invert. assemblage F111 bare sand & chalk	Favourable	11/03/2021
Invert. assemblage F112 open short sward	Favourable	11/03/2021
Invert. assemblage M311 saltmarsh and transitional brackish marsh	Favourable	11/03/2021
Vascular Plant Species: Bupleurum tenuissimum, Slender Hare's-ear	Favourable	11/03/2021
Vascular Plant Species: Carex divisa, Divided Sedge	Favourable	11/03/2021
Vascular Plant Species: Lathyrus aphaca, Yellow Vetchling	Favourable	11/03/2021
Vascular Plant Species: Vicia bithynica, Bithynian Vetch	Favourable	11/03/2021

ID: -
Location: 1870m W
SSSI name: Swanscombe Peninsula
Unit name: Broadness
Broad habitat:
Condition: Favourable
Reportable features:

Feature name	Feature condition	Date of assessment
Assemblages of breeding birds - Mixed: Lowland open waters and their margins, Lowland fen and Lowland damp grassland	Favourable	11/03/2021
Assemblages of breeding birds - Scrub	Favourable	11/03/2021
Invert. assemblage F111 bare sand & chalk	Favourable	11/03/2021
Invert. assemblage F112 open short sward	Favourable	11/03/2021
Invert. assemblage M311 saltmarsh and transitional brackish marsh	Favourable	11/03/2021
Vascular Plant Species: Bupleurum tenuissimum, Slender Hare's-ear	Favourable	11/03/2021
Vascular Plant Species: Lathyrus aphaca, Yellow Vetchling	Favourable	11/03/2021
Vascular Plant Species: Vicia bithynica, Bithynian Vetch	Favourable	11/03/2021

ID: -
Location: 1986m W
SSSI name: Swanscombe Peninsula
Unit name: Botany Marsh West, North
Broad habitat:
Condition: Favourable
Reportable features:

Feature name	Feature condition	Date of assessment
Assemblages of breeding birds - Mixed: Lowland open waters and their margins, Lowland fen and Lowland damp grassland	Favourable	11/03/2021
Invert. assemblage M311 saltmarsh and transitional brackish marsh	Favourable	11/03/2021
Invert. assemblage W211 open water on disturbed sediments	Favourable	11/03/2021
Vascular Plant Species: Bupleurum tenuissimum, Slender Hare's-ear	Favourable	11/03/2021
Vascular Plant Species: Carex divisa, Divided Sedge	Favourable	11/03/2021
Vascular Plant Species: Lathyrus aphaca, Yellow Vetchling	Favourable	11/03/2021

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.

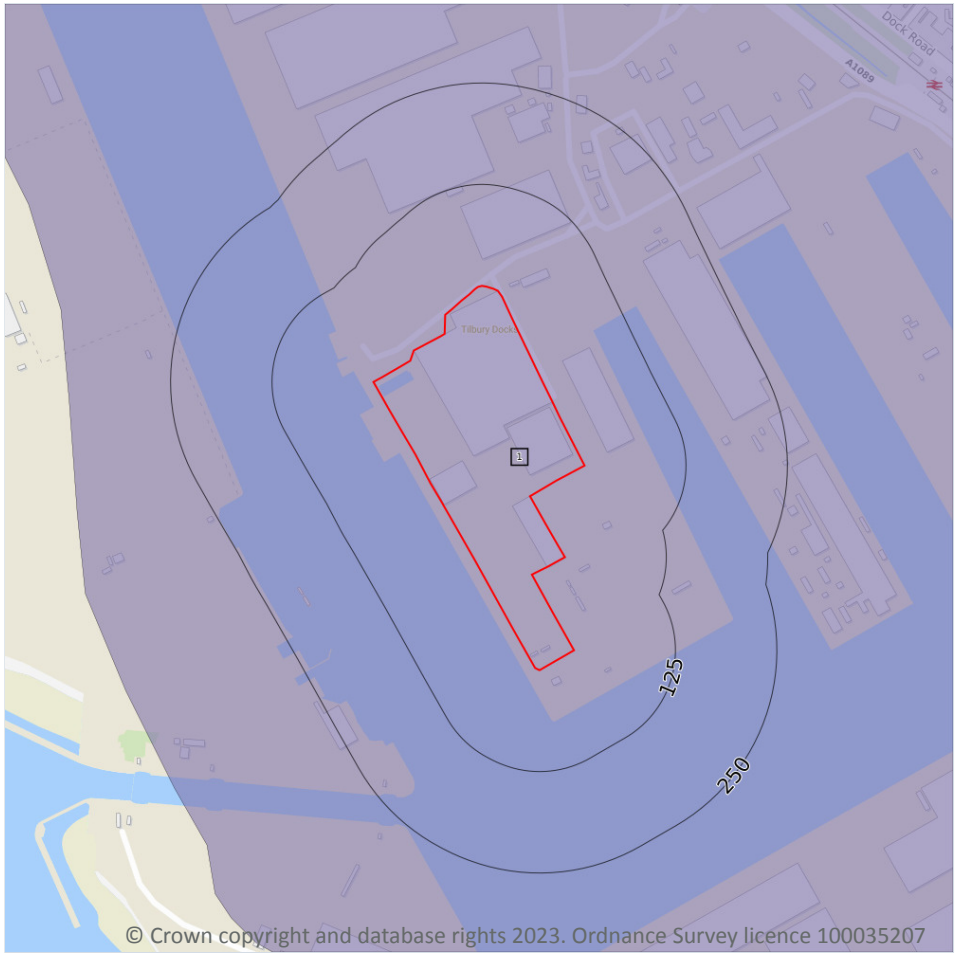
11.7 Registered Parks and Gardens

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



Site Outline

Search buffers in metres (m)

- Grade 1 - excellent quality
- Grade 2 - very good quality
- Grade 3 - good to moderate quality
- Grade 3a - good quality
- Grade 3b - moderate quality
- Grade 4 - poor quality
- Grade 5 - very poor quality
- Non-agricultural land
- Urban land
- Exclusion land
- Tree felling licences
- Open Access land

12.1 Agricultural Land Classification

Records within 250m	1

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.

Features are displayed on the Agricultural designations map on **page 88 >**

ID	Location	Classification	Description
1	**On site**	**Non Agricultural**	-

This data is sourced from Natural England.

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

Site Outline

Search buffers in metres (m)

Priority Habitat Inventory
Open Mosaic Habitat
Limestone Pavement Orders

Habitat Networks
Primary Habitat
Restorable Habitat
Associated Habitats
Habitat Restoration-Creation
Network Enhancement Zone 1
Network Enhancement Zone 2

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	1

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.

Features are displayed on the Habitat designations map on **page 90 >**

ID	Location	Type	Habitat
1	216m S	Network Enhancement Zone 2	Not specified

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

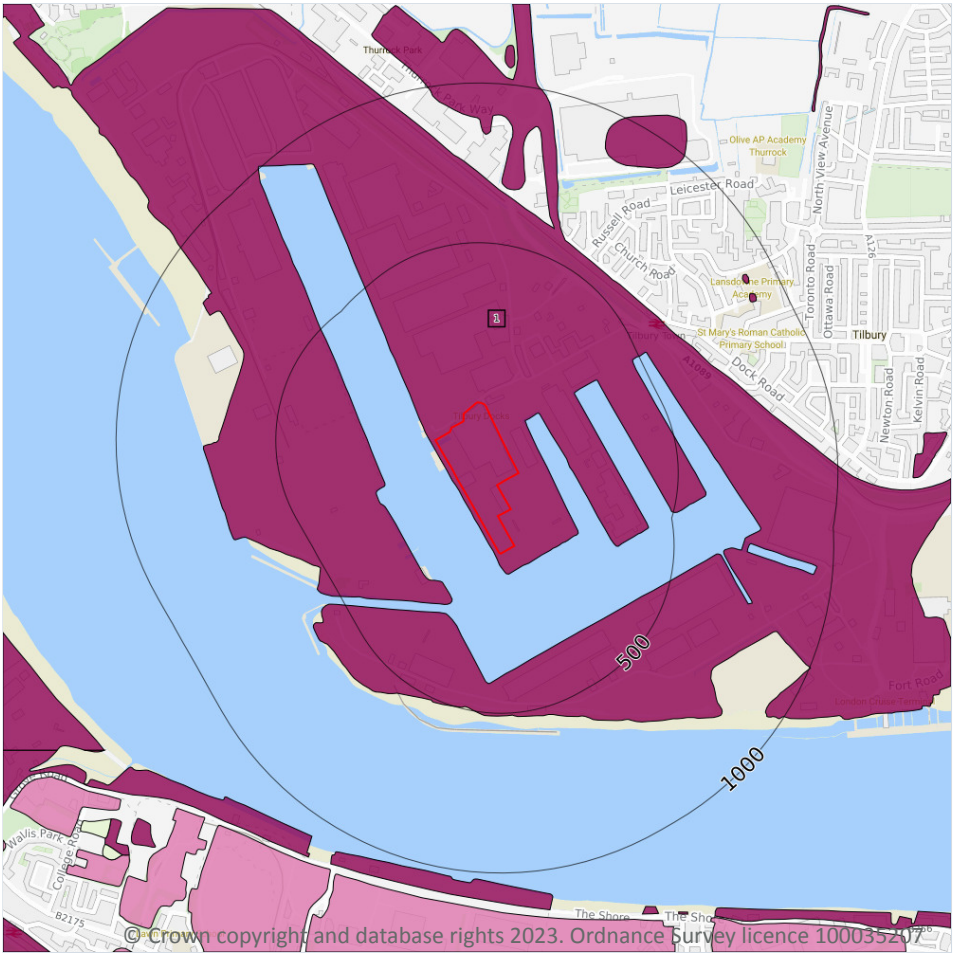
An indication on the coverage of 1:10,000 scale geology data for the site, the most detailed dataset provided by the British Geological Survey. Either 'Full', 'Partial' or 'No coverage' for each geological theme.

Features are displayed on the Geology 1:10,000 scale - Availability map on **page 92 >**

ID	Location	Artificial	Superficial	Bedrock	Mass movement	Sheet No.
1	**On site**	**Full**	**Full**	**Full**	**No coverage**	**TQ67NW**

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	1

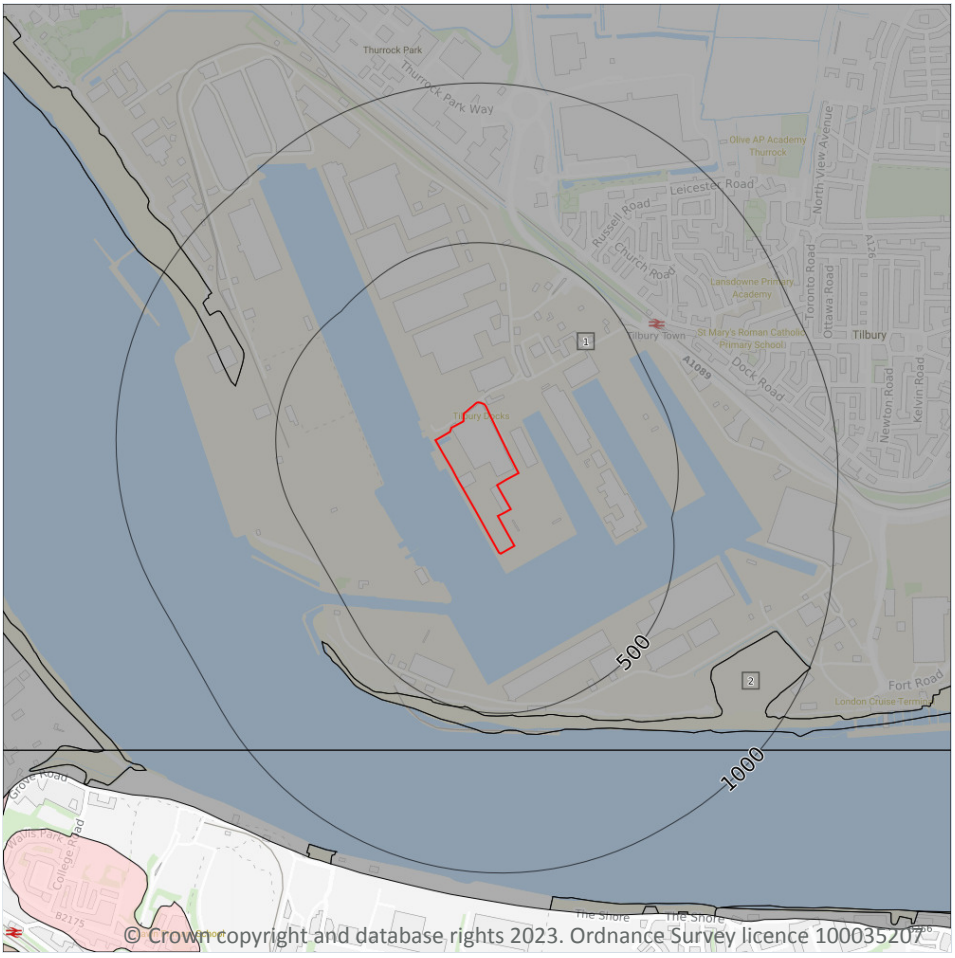
Details of made, worked, infilled, disturbed and landscaped ground at 1:10,000 scale. Artificial ground can be associated with potentially contaminated material, unpredictable engineering conditions and instability.

Features are displayed on the Geology 1:10,000 scale - Artificial and made ground map on **page 93 >**

ID	Location	LEX Code	Description	Rock description
1	**On site**	**MGR-UKNOWN**	**Made Ground (Undivided)**	**Unknown/unclassified Entry**

This data is sourced from the British Geological Survey.

Geology 1:10,000 scale - Superficial



Site Outline

Search buffers in metres (m)

Landslip (10k)

Superficial geology (10k)
Please see table for more details.

14.3 Superficial geology (10k)

Records within 500m	2

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.

Features are displayed on the Geology 1:10,000 scale - Superficial map on **page 94 >**

ID	Location	LEX Code	Description	Rock description
1	**On site**	**ALV-Z**	**Alluvium - Silt (unlithified Deposits Coding Scheme)**	**Silt**
2	492m S	TRD-Z	Tidal River Or Creek Deposits - Silt	Silt

This data is sourced from the British Geological Survey.

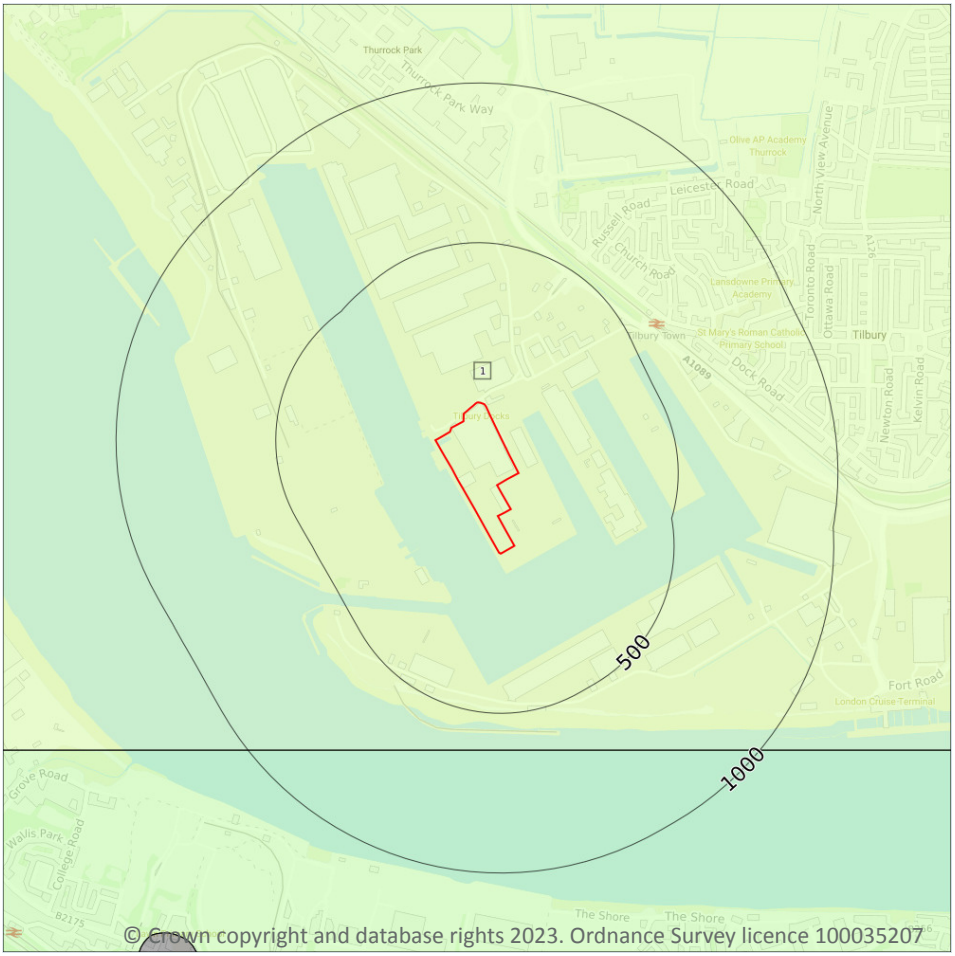
14.4 Landslip (10k)

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



Site Outline

Search buffers in metres (m)

Bedrock faults and other linear features (10k)

Bedrock geology (10k)
Please see table for more details.

14.5 Bedrock geology (10k)

Records within 500m	1

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.

Features are displayed on the Geology 1:10,000 scale - Bedrock map on **page 96 >**

ID	Location	LEX Code	Description	Rock age
1	**On site**	**CK-CHLK**	**Chalk Group - Chalk**	**Maastrichtian Age - Cenomanian Age**

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

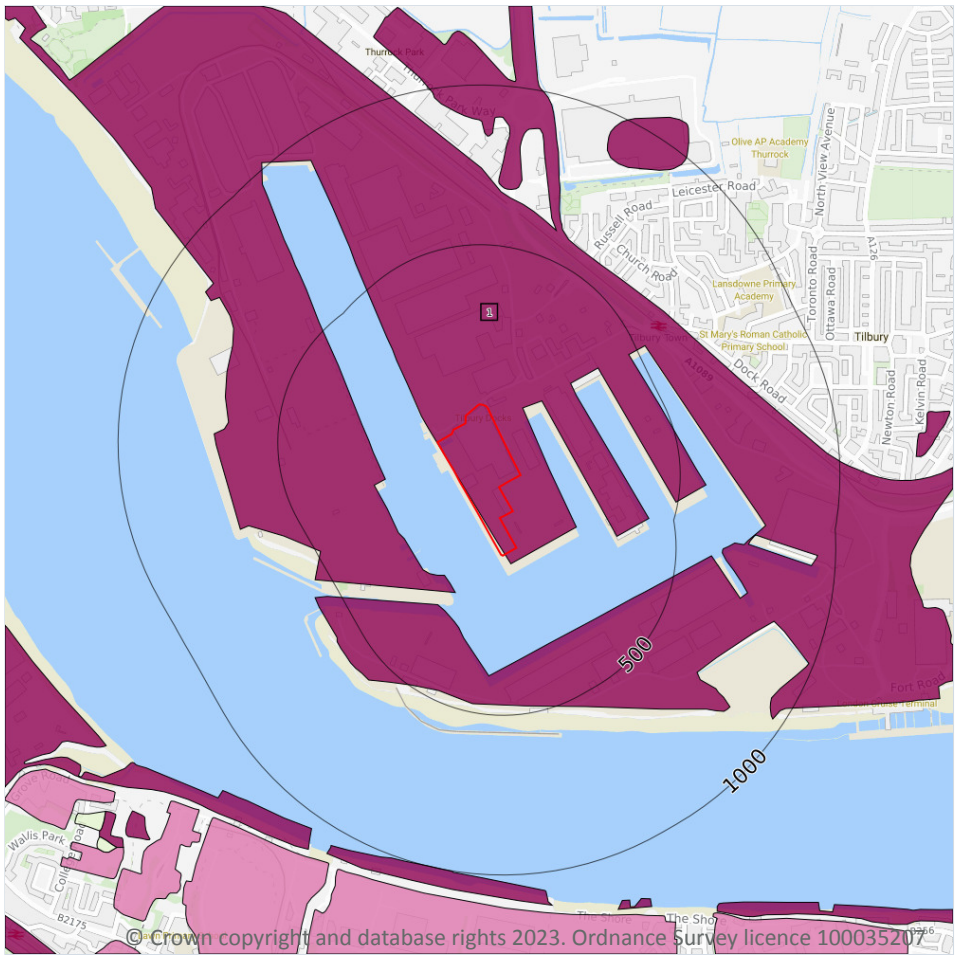
An indication on the coverage of 1:50,000 scale geology data for the site. Either 'Full' or 'No coverage' for each geological theme.

Features are displayed on the Geology 1:50,000 scale - Availability map on **page 98 >**

ID	Location	Artificial	Superficial	Bedrock	Mass movement	Sheet No.
1	**On site**	**Full**	**Full**	**Full**	**Full**	**EW271_dartford_v4**

This data is sourced from the British Geological Survey.

Geology 1:50,000 scale - Artificial and made 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 99 >**

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 101 >**

ID	Location	LEX Code	Description	Rock description
1	**On site**	**ALV-XCZSP**	**ALLUVIUM**	**CLAY, SILT, SAND AND PEAT**
2	467m S	TRD-XCZ	TIDAL RIVER OR CREEK DEPOSITS	CLAY AND SILT

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	1

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 103 >**

ID	Location	LEX Code	Description	Rock age
1	**On site**	**LSNCK-CHLK**	**LEWES NODULAR CHALK FORMATION, SEAFORD CHALK FORMATION AND NEWHAVEN CHALK FORMATION (UNDIFFERENTIATED) - CHALK**	**TURONIAN**

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**	**Very High**	**Very High**

This data is sourced from the British Geological Survey.

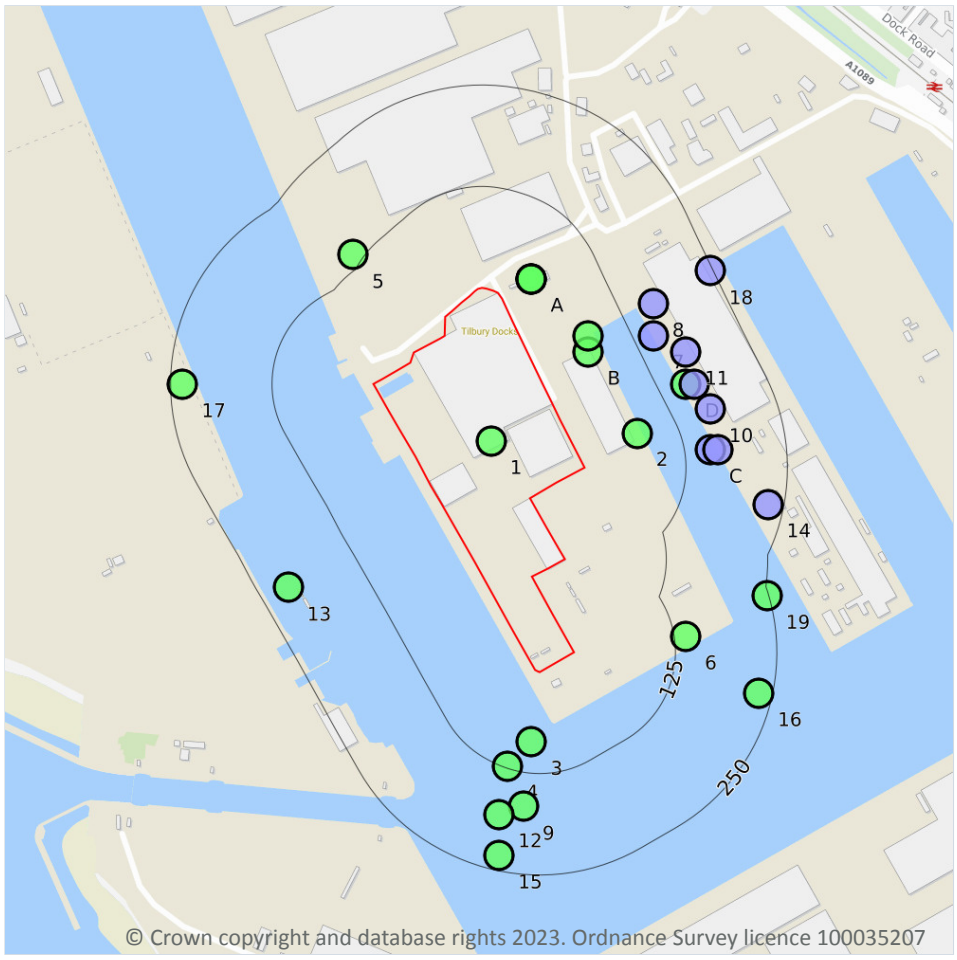
15.10 Bedrock faults and other linear features (50k)

Records within 500m	**0**

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.

This data is sourced from the British Geological Survey.

16 Boreholes



Site Outline

Search buffers in metres (m)

Confidential

0 - 10m

10 - 30m

30m+

Unknown

16.1 BGS Boreholes

Records within 250m	28

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.

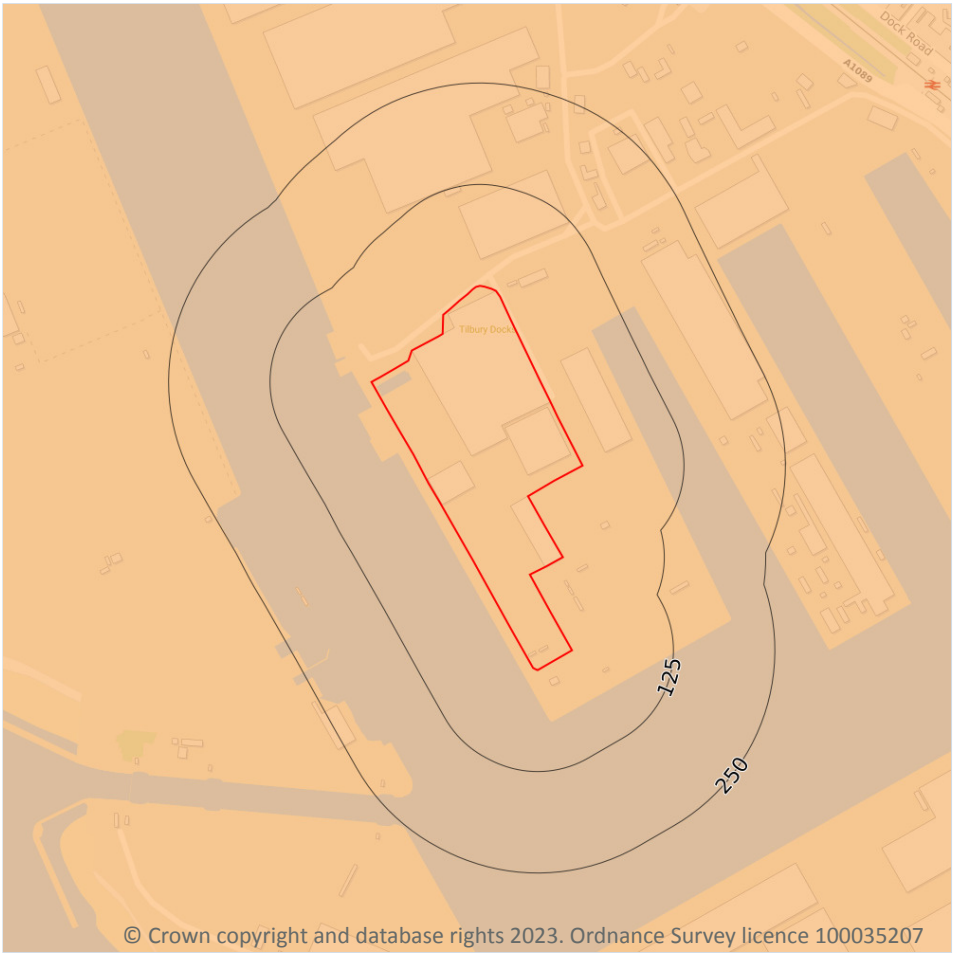
Features are displayed on the Boreholes map on **page 105 >**

ID	Location	Grid reference	Name	Length	Confidential	Web link
1	**On site**	**563080 175900**	**TILBURY DOCKS 3**	**12.64**	**N**	**815130** ↗
A	44m N	563130 176100	TILBURY WESTERN PENINSULA A	30.0	N	15624874 ↗

ID	Location	Grid reference	Name	Length	Confidential	Web link
A	44m N	563130 176100	TILBURY WESTERN PENINSULA B	30.0	N	15624875 ↗
A	44m N	563130 176100	TILBURY WESTERN PENINSULA C	30.0	N	15624876 ↗
B	68m NE	563200 176010	EAST AND WEST INDIA DOCK EXTENSION VI	10.05	N	815245 ↗
B	77m NE	563200 176030	EAST AND WEST INDIA DOCK EXTENSION 30	18.28	N	815205 ↗
2	77m E	563260 175910	EAST AND WEST INDIA DOCK EXTENSION VII	10.36	N	815244 ↗
3	86m S	563130 175530	TILBURY DOCKS 9	24.76	N	815136 ↗
4	122m S	563100 175500	TILBURY DOCKS 10	23.62	N	815137 ↗
5	137m NW	562910 176130	TILBURY DOCKS 4	12.87	N	815131 ↗
6	139m SE	563320 175660	TILBURY DOCKS 2	16.45	N	815129 ↗
7	149m NE	563280 176030	BULK STORAGE FACILITY PORT OF TILBURY TP 02	3.0	N	815326 ↗
C	156m E	563350 175890	BULK STORAGE FACILITY PORT OF TILBURY TP 06	3.0	N	815330 ↗
D	158m E	563320 175970	EAST AND WEST INDIA DOCK EXTENSION V	10.05	N	815246 ↗
8	166m NE	563280 176070	BULK STORAGE FACILITY PORT OF TILBURY TP 01	2.0	N	815325 ↗
C	166m E	563360 175890	EAST AND WEST INDIA DOCK EXTENSION IV	8.22	N	815247 ↗
D	167m E	563330 175970	BULK STORAGE FACILITY PORT OF TILBURY TP 04	3.0	N	815328 ↗
9	167m S	563120 175450	TRILBURY MAIN DOCK EXTENSION	17.67	N	815100 ↗
10	171m E	563350 175940	BULK STORAGE FACILITY PORT OF TILBURY TP 05	3.0	N	815329 ↗
11	176m NE	563320 176010	BULK STORAGE FACILITY PORT OF TILBURY TP 03	2.0	N	815327 ↗
12	183m S	563090 175440	TILBURY DOCKS 11	24.68	N	815138 ↗
13	215m SW	562830 175720	TILBURY DOCKS 8	15.92	N	815135 ↗
14	230m E	563421 175822	CEMENT GRINDING TERMINAL PORT OF TILBURY TP4	3.0	N	18356554 ↗
15	231m S	563090 175390	TRILBURY MAIN DOCK EXTENSION	16.91	N	815099 ↗
16	233m SE	563410 175590	TILBURY DOCKS 1	22.63	N	815128 ↗
17	235m W	562700 175970	TILBURY DOCKS 7	15.84	N	815134 ↗
18	246m NE	563350 176110	EAST AND WEST INDIA DOCK EXTENSION 15A	9.9	N	815227 ↗
19	248m SE	563420 175710	EAST AND WEST INDIA DOCK EXTENSION 5	10.66	N	815180 ↗

This data is sourced from the British Geological Survey.

17 Natural ground subsidence - Shrink swell clays



Site Outline

Search buffers in metres (m)

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

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 107 >**

Location	Hazard rating	Details
On site	**Low**	**Ground conditions predominantly medium plasticity.**

This data is sourced from the British Geological Survey.

Natural ground subsidence - Running sands

Site Outline

Search buffers in metres (m)

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

17.2 Running sands

Records within 50m	2

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.

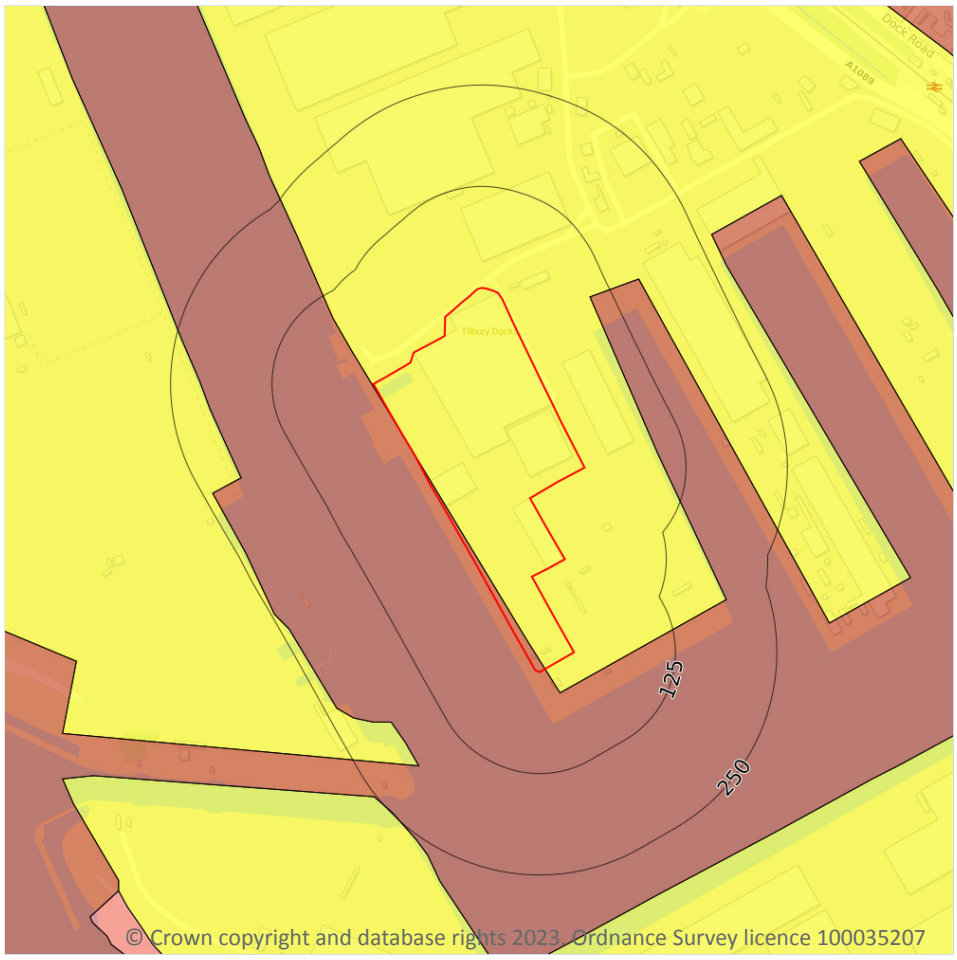
Features are displayed on the Natural ground subsidence - Running sands map on **page 108 >**

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
On site	**Low**	**Running sand conditions may be present. Constraints may apply to land uses involving excavation or the addition or removal of water.**

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	2

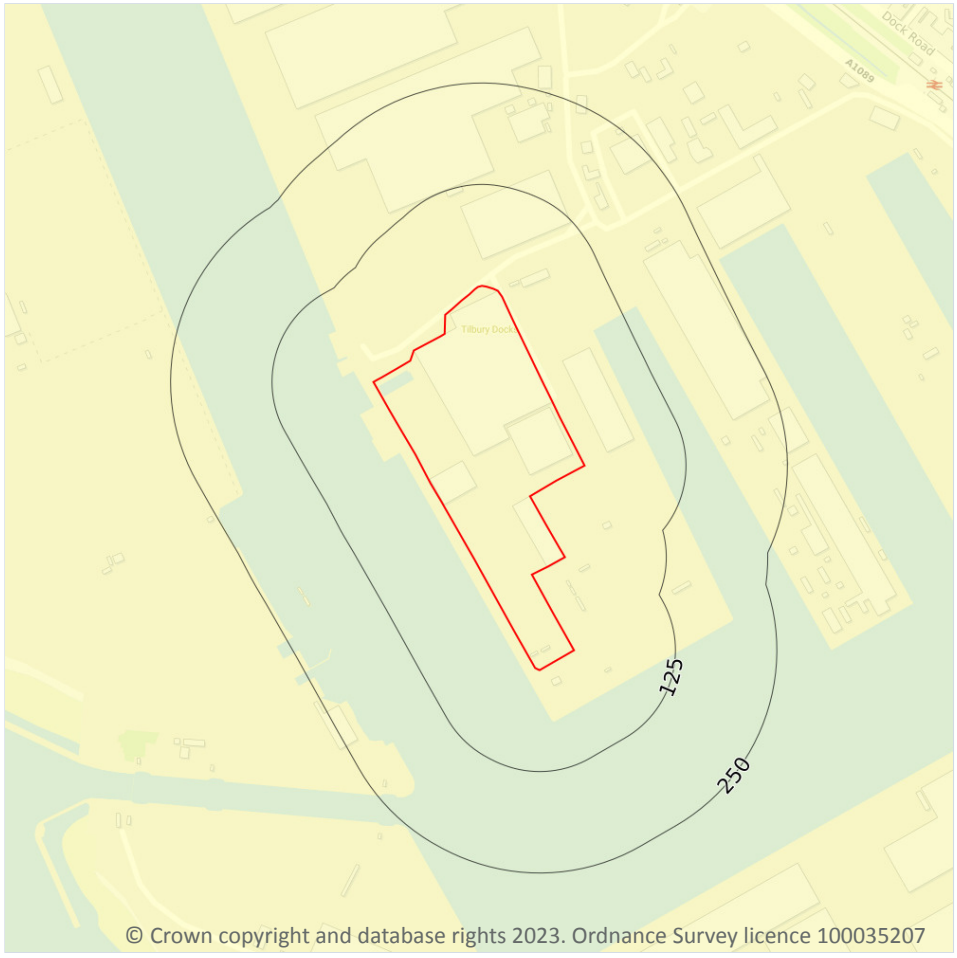
The potential hazard presented by types of ground that may contain layers of very soft materials like clay or peat and may compress if loaded by overlying structures, or if the groundwater level changes, potentially resulting in depression of the ground and disturbance of foundations.

Features are displayed on the Natural ground subsidence - Compressible deposits map on **page 110 >**

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.**
On site	**High**	**Highly compressible strata present. Significant constraint on land use depending on thickness.**

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	1

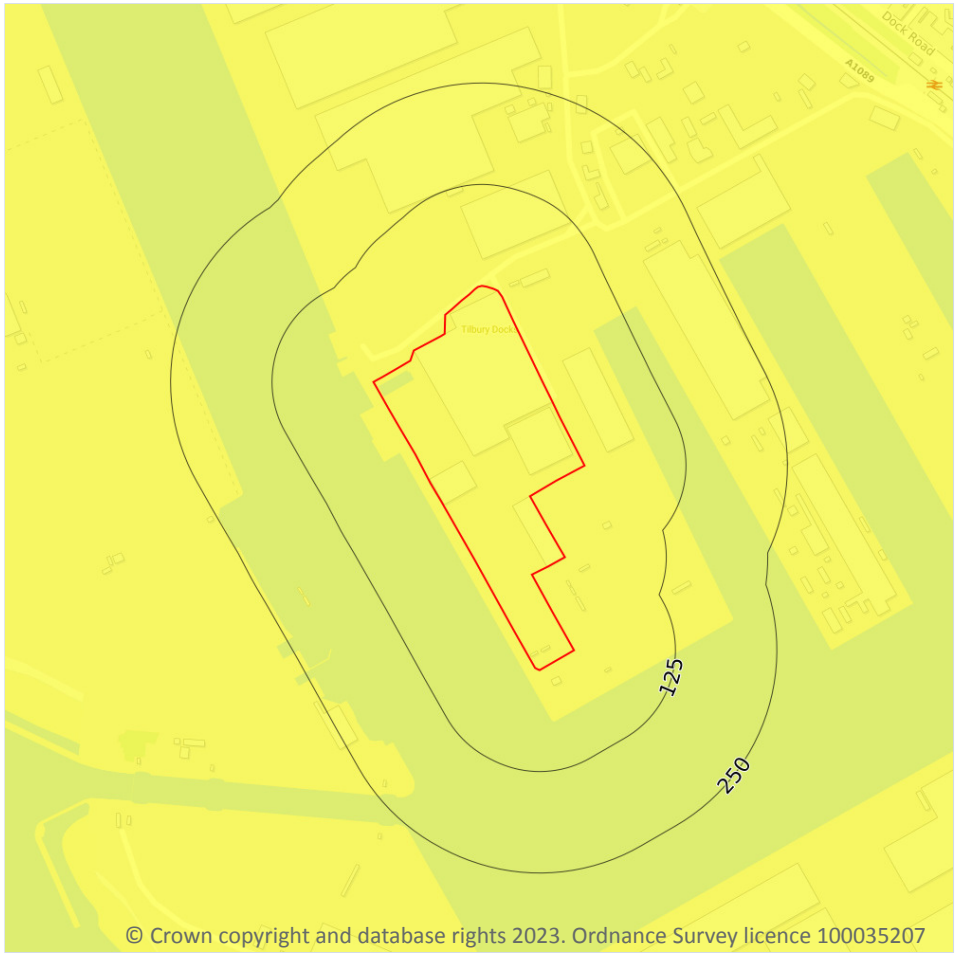
The potential hazard presented by natural deposits that could collapse when a load (such as a building) is placed on them or they become saturated with water.

Features are displayed on the Natural ground subsidence - Collapsible deposits map on **page 112 >**

Location	Hazard rating	Details
On site	**Negligible**	**Deposits with potential to collapse when loaded and saturated are believed not to be present.**

This data is sourced from the British Geological Survey.

Natural ground subsidence - Landslides



Site Outline

Search buffers in metres (m)

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

17.5 Landslides

Records within 50m	1

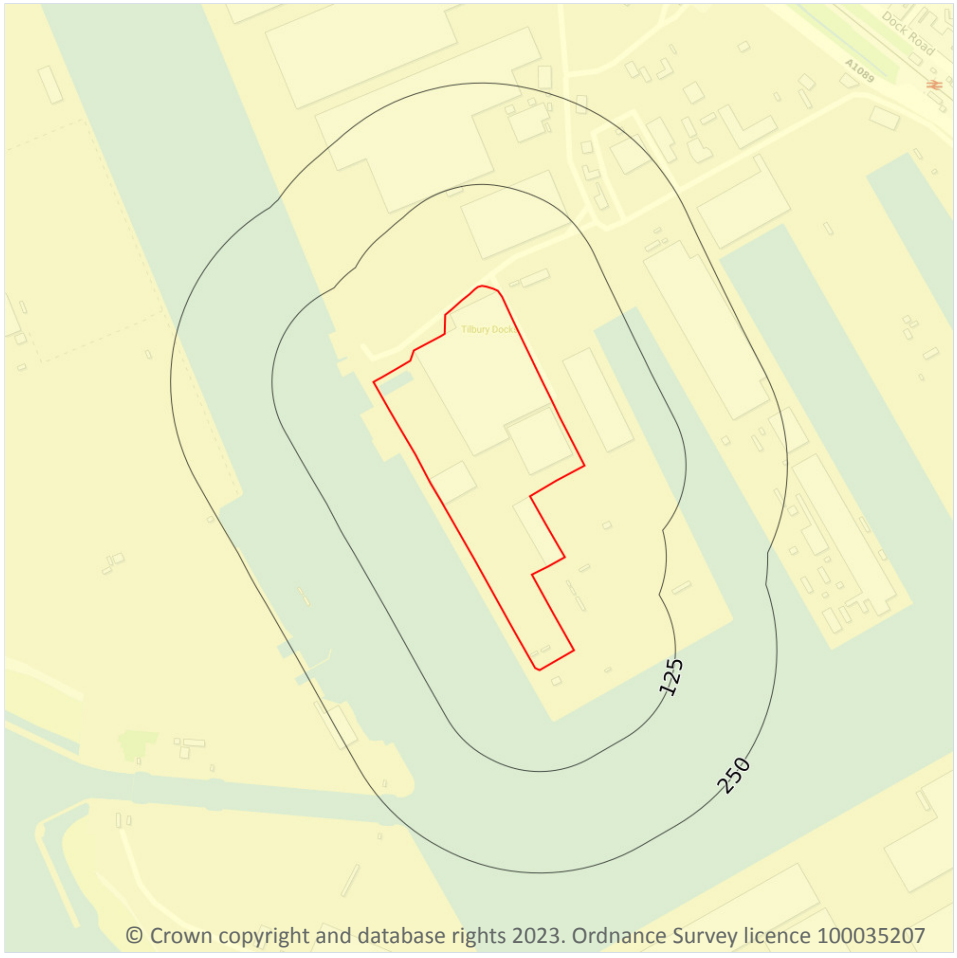
The potential for landsliding (slope instability) to be a hazard assessed using 1:50,000 scale digital maps of superficial and bedrock deposits, combined with information from the BGS National Landslide Database and scientific and engineering reports.

Features are displayed on the Natural ground subsidence - Landslides map on **page 113 >**

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.**

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

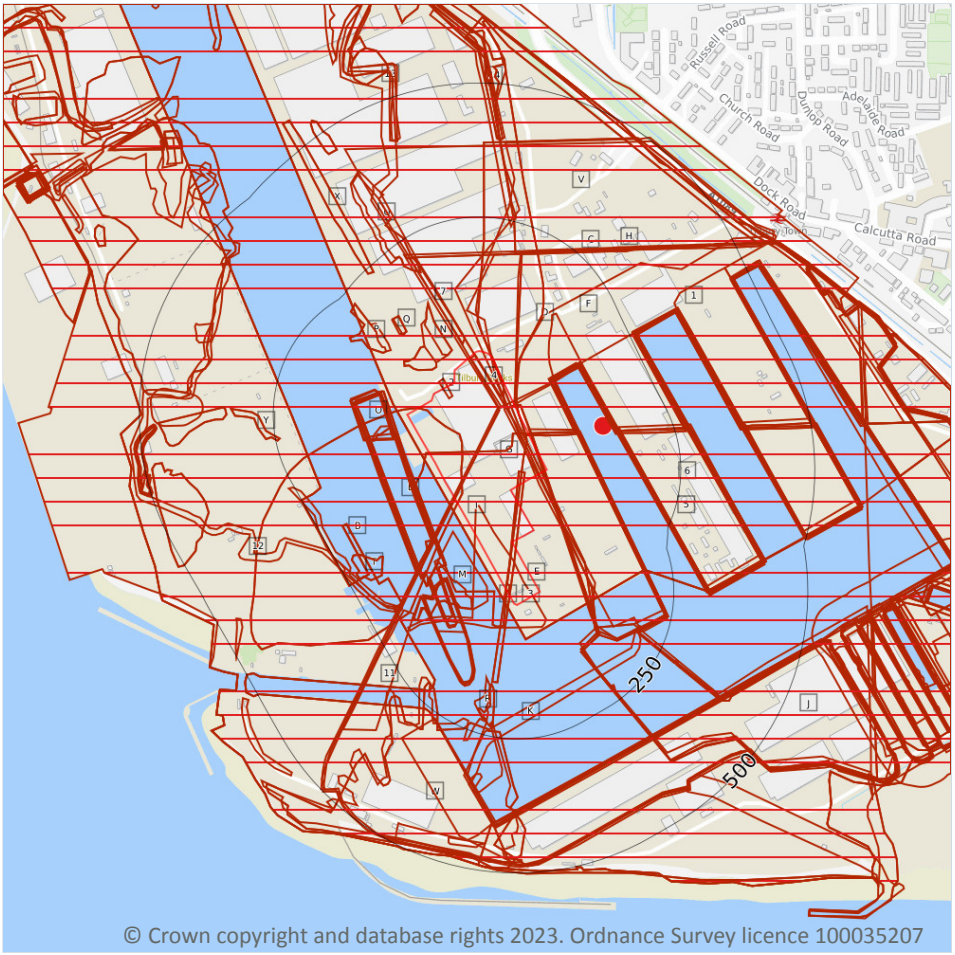
The potential hazard presented by ground dissolution, which occurs when water passing through soluble rocks produces underground cavities and cave systems. These cavities reduce support to the ground above and can cause localised collapse of the overlying rocks and deposits.

Features are displayed on the Natural ground subsidence - Ground dissolution of soluble rocks map on **page 114 >**

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 116 >**

ID	Location	Details	Description
9	130m E	Name: Tilbury Docks Address: Tilbury Docks, TILBURY, Essex Commodity: Crushed Rock Status: Active	Type: Sea, river or canal wharf where mineral commodities are unloaded and stored Status description: Site which is actively extracting mineral products, or in the case of wharfs and rail depots, is actively handing minerals

This data is sourced from the British Geological Survey.

18.2 Surface ground workings

Records within 250m	91

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 116 >**

ID	Location	Land Use	Year of mapping	Mapping scale
1	On site	Docks	1955	1:10560
2	On site	Pond	1955	1:10560
3	On site	Dock	1923	1:10560
4	On site	Refuse Heap	1946	1:10560
5	On site	Docks	1916	1:10560
6	On site	Unspecified Docks	1888	1:10560
A	On site	Unspecified Pits	1955	1:10560
A	On site	Unspecified Heap	1938	1:10560
A	On site	Unspecified Heap	1938	1:10560
B	On site	Unspecified Pit	1955	1:10560
B	On site	Unspecified Pit	1966	1:10560
C	On site	Docks	1938	1:10560
C	On site	Docks	1895	1:10560
C	On site	Docks	1938	1:10560
C	On site	Docks	1938	1:10560
D	On site	Docks	1938	1:10560
D	On site	Docks	1938	1:10560
D	On site	Docks	1946	1:10560
E	On site	Docks	1932	1:10560
E	On site	Dock	1895	1:10560
F	On site	Docks	1907	1:10560
F	On site	Docks	1895	1:10560

ID	Location	Land Use	Year of mapping	Mapping scale
G	**On site**	**Dock**	**1993**	**1:10000**
G	**On site**	**Docks**	**1982**	**1:10000**
G	**On site**	**Unspecified Disused Wharf**	**1982**	**1:10000**
G	**On site**	**Unspecified Disused Wharf**	**1973**	**1:10000**
H	**On site**	**Unspecified Dock**	**1898**	**1:10560**
H	**On site**	**Unspecified Dock**	**1898**	**1:10560**
I	**On site**	**Unspecified Docks**	**1898**	**1:10560**
I	**On site**	**Unspecified Docks**	**1898**	**1:10560**
J	**On site**	**Unspecified Dock**	**1898**	**1:10560**
J	**On site**	**Unspecified Dock**	**1898**	**1:10560**
K	13m SW	Docks	1992	1:10000
K	13m SW	Dock	1993	1:10000
K	13m SW	Dock	1973	1:10000
7	27m N	Refuse Heap	1946	1:10560
L	28m NW	Pond	1888	1:10560
L	28m NW	Water Body	1907	1:10560
L	28m NW	Water Body	1895	1:10560
M	29m S	Pond	1966	1:10560
N	30m N	Pond	1955	1:10560
N	30m N	Pond	1966	1:10560
L	32m NW	Water Body	1932	1:10560
L	33m NW	Pond	1923	1:10560
L	34m NW	Pond	1946	1:10560
N	35m NW	Ponds	1955	1:10560
L	35m NW	Pond	1938	1:10560
L	36m W	Pond	1955	1:10560
L	36m W	Pond	1966	1:10560
L	36m W	Water Body	1895	1:10560

ID	Location	Land Use	Year of mapping	Mapping scale
L	36m NW	Water Body	1916	1:10560
O	38m NW	Pond	1895	1:10560
L	38m W	Pond	1938	1:10560
O	39m NW	Pond	1898	1:10560
O	39m NW	Pond	1898	1:10560
M	65m S	Pond	1955	1:10560
M	85m S	Water Body	1932	1:10560
M	87m S	Pond	1946	1:10560
M	88m S	Pond	1923	1:10560
M	88m S	Pond	1938	1:10560
M	90m S	Pond	1916	1:10560
P	115m NW	Pond	1966	1:10560
Q	115m NW	Cuttings	1966	1:10560
Q	116m NW	Cuttings	1955	1:10560
P	119m NW	Pond	1955	1:10560
8	121m SE	Dock	1895	1:10560
10	143m NE	Dock	1923	1:10560
R	147m S	Ponds	1895	1:10560
S	155m E	Unspecified Dock	1898	1:10560
S	155m E	Unspecified Dock	1898	1:10560
R	155m S	Ponds	1907	1:10560
R	155m S	Ponds	1895	1:10560
S	156m E	Dock	1895	1:10560
T	171m SW	Pond	1955	1:10560
T	171m SW	Pond	1966	1:10560
11	172m SW	Cuttings	1938	1:10560
U	181m N	Pond	1955	1:10560
U	181m N	Pond	1966	1:10560

ID	Location	Land Use	Year of mapping	Mapping scale
12	186m SW	Refuse Heap	1946	1:10560
B	186m SW	Unspecified Ground Workings	1966	1:10560
V	192m N	Docks	1938	1:10560
V	192m N	Docks	1938	1:10560
13	207m N	Refuse	1947	1:10560
W	215m S	Unspecified Ground Workings	1895	1:10560
W	216m S	Unspecified Ground Workings	1907	1:10560
W	216m S	Unspecified Ground Workings	1895	1:10560
X	238m NW	Cuttings	1955	1:10560
X	238m NW	Cuttings	1966	1:10560
14	240m N	Refuse	1947	1:10560
Y	242m W	Unspecified Pit	1955	1:10560
Y	242m W	Unspecified Pit	1966	1:10560

This is data is sourced from Ordnance Survey/Groundsure.

18.3 Underground workings

Records within 1000m	0

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

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	0

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).

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

Site Outline

Search buffers in metres (m)

Greater than 30%

Between 10% and 30%

Between 5% and 10%

Between 3% and 5%

Between 1% and 3%

Less than 1%

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 126 >**

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	6

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 - 25 mg/kg**	**No data**	**100 - 200 mg/kg**	**60 - 120 mg/kg**	**1.8 mg/kg**	**90 - 120 mg/kg**	**30 - 45 mg/kg**
On site	**15 mg/kg**	**No data**	**100 - 200 mg/kg**	**60 - 120 mg/kg**	**1.8 mg/kg**	**60 - 90 mg/kg**	**15 - 30 mg/kg**
On site	**15 mg/kg**	**No data**	**100 - 200 mg/kg**	**60 - 120 mg/kg**	**1.8 mg/kg**	**60 - 90 mg/kg**	**15 - 30 mg/kg**
On site	**15 mg/kg**	**No data**	**100 - 200 mg/kg**	**60 - 120 mg/kg**	**1.8 mg/kg**	**60 - 90 mg/kg**	**15 - 30 mg/kg**
On site	**15 mg/kg**	**No data**	**100 - 200 mg/kg**	**60 - 120 mg/kg**	**1.8 mg/kg**	**60 - 90 mg/kg**	**15 - 30 mg/kg**
On site	**15 mg/kg**	**No data**	**100 - 200 mg/kg**	**60 - 120 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.

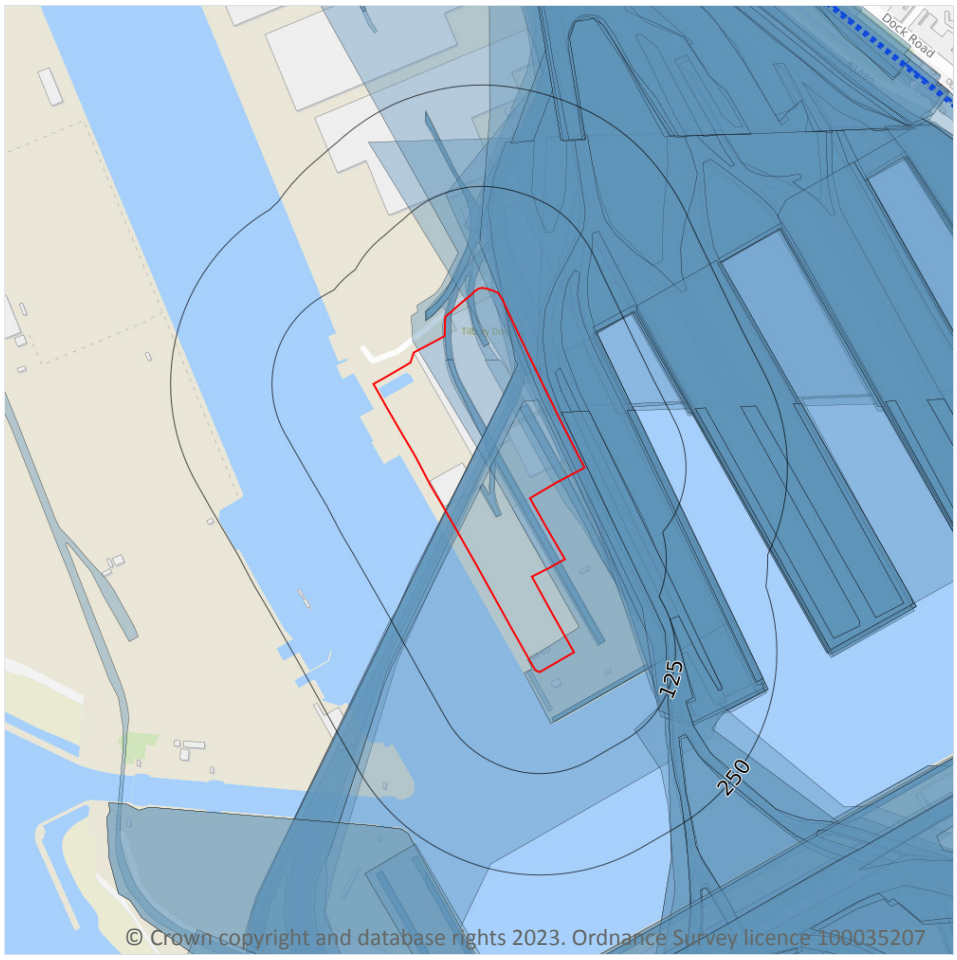
21.3 BGS Measured Urban Soil Chemistry

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



Site Outline

Search buffers in metres (m)

- Crossrail 1 Stations
- Crossrail 1 Route
- Crossrail 2 Stations
- Crossrail 2 Route
- Crossrail 2 Worksites
- Crossrail 2 Safeguarding
- Crossrail 2 Headhouses
- Railway stations
- Active railways
- Active tunnels
- Abandoned railways
- Historic railways
- Historic tunnels
- Underground stations
- Underground Lines
- Royal Mail tunnels
- HS2 optimised route
- HS2 Stations
- HS2 Depots
- HS2 Surface Safeguarding
- HS2 Subsurface Safeguarding

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	53

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 130 >**

Location	Land Use	Year of mapping	Mapping scale
On site	**Railway Sidings**	**1920**	**2500**
On site	**Railway Sidings**	**1964**	**1250**
On site	**Railway Sidings**	**1970**	**1250**
On site	**Railway Sidings**	**1961**	**1250**
On site	**Railway Sidings**	**1971**	**1250**
On site	**Railway Sidings**	**1971**	**2500**
On site	**Railway Sidings**	**1970**	**2500**
On site	**Railway Sidings**	**1897**	**2500**
On site	**Railway Sidings**	**1938**	**10560**
On site	**Railway Sidings**	**1923**	**10560**
On site	**Railway Sidings**	**1895**	**10560**
On site	**Railway Sidings**	**1946**	**10560**
On site	**Railway Sidings**	**1932**	**10560**
On site	**Railway Sidings**	**1907**	**10560**
On site	**Railway Sidings**	**1916**	**10560**
On site	**Railway Sidings**	**1898**	**10560**
On site	**Railway Sidings**	**1955**	**10560**

Location	Land Use	Year of mapping	Mapping scale
On site	**Railway Sidings**	**1966**	**10560**
0m E	Railway Sidings	1898	2500
3m E	Railway Sidings	1888	10560
3m E	Railway Sidings	1898	10560
5m S	Railway Sidings	1964	1250
12m N	Railway Sidings	1950	1250
13m N	Railway Sidings	1951	2500
20m E	Railway Sidings	1964	1250
20m E	Railway Sidings	1970	1250
21m NE	Railway Sidings	1950	2500
22m NE	Railway Sidings	1950	1250
55m E	Railway Sidings	1970	2500
55m E	Railway Sidings	1970	1250
72m E	Railway Sidings	1950	2500
73m E	Railway Sidings	1950	1250
78m E	Railway Sidings	1898	10560
106m N	Railway Sidings	1961	1250
141m NE	Railway	1897	-
143m NE	Railway Sidings	1923	10560
145m NE	Railway	1920	-
149m NE	Railway Sidings	1970	2500
149m NE	Railway Sidings	1950	2500
149m NE	Railway Sidings	1964	1250
149m NE	Railway Sidings	1970	1250
149m NE	Railway Sidings	1950	1250
155m E	Railway Sidings	1898	10560
159m NE	Railway	1920	-
181m N	Railway Sidings	1947	10560

Location	Land Use	Year of mapping	Mapping scale
200m NE	Railway Sidings	1970	2500
200m NE	Railway Sidings	1950	2500
203m N	Railway Sidings	1907	10560
203m N	Railway Sidings	1895	10560
204m N	Railway Sidings	1938	10560
206m NE	Railway	1897	-
208m N	Railway Sidings	1888	10560
226m E	Railway Sidings	1950	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	0

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

This data is sourced from OpenStreetMap.

22.7 Railways

Records within 250m	0

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

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 ↗.

Terms and conditions

Groundsure's Terms and Conditions can be accessed at this link: https://www.groundsure.com/terms-and-conditions-april-2023/ ↗.

APPENDIX D

BGS Exploratory Hole Records

TQ 67 NW 1/65

SECTION OF boring AT Tilbury

6308 7590

One inch Map (NS) 271 Six-inch Map

Made by LeGrand, Sutcliffe & Gell Date 1923

Communicated by P.L.A.

HEIGHT ABOVE O.D. 3·205 (0·98 m) WATER LEVEL 14·5' down

YIELD

Borehole N° 3

	THICKNESS. Feet.	THICKNESS. Inches.	DEPTH. Feet.	DEPTH. Inches.
Mottled Clay	2	9	2	9
Peat	1	—	3	9
Stiff mud	12	3	16	-
Peat.	5	—	21	-
Stiff mud	7	9	28	9
Peat	2	—	30	9
Sand	1	—	31	9
Ballast.	9	9	41	6

Diam of bore 7¼"

Site

See attached maps

Confidential

6313
7610

GEOTECHNICAL DEVELOPMENTS

GEOTECHNICAL INVESTIGATION SERVICES
Telephone (0926) 813747. Fax (0926) 813302.

BOREHOLE LOG

Borehole A

Sheet 1 of 3

Method	Date	Site
Cable Percussion	27/07/94 - 29/07/94	New Shed, Western Peninsular, Tilbury Free Port

Dia mm	Coord	Ground Level m.OD	Client
150mm	631000E 761000N		Clark Smith Partnership

Soil Samples/Tests Type/Test	Depth m.	Field Records	OD Level m.	Depth m.	Description of Strata	Legend
					Tarmac over concrete. (FILL) (0.30)	
D1	0.30			0.30		
B1	0.60 - 0.90			0.60	Greyish white fine to coarse limestone gravel. (FILL) (0.30)	
W1	0.90	STRIKE at 0.9m			Soft to firm grey brown to black silty organic clay with fine to coarse gravel, wood and organic remains. (FILL) (0.50)	
C1 N=3	1.10 - 1.55	Seepage, after 15 mins rose to 0.8m ,3/1,0,1,1		1.10		
					Very loose grey brown to dark grey gravelly slightly clayey fine to coarse sand, with occasional pockets of soft to firm brown to grey brown peaty clay. (FILL) (0.60)	
D2	1.70			1.70		
B2	1.10 - 1.60					
D3	1.90			1.90		
U1 (8)	2.00 - 2.40				Soft grey, bluish grey, buff and brownish green mottled slightly sandy silty clay with some fine and medium gravel. (POSSIBLY FILL) (0.20)	
D4	2.45			2.45		
U2 (19)	3.00 - 3.40				Soft to firm light to dark grey/light greyish green/black/buff mottled silty CLAY with occasional organic matter (preserved wood). (ALLUVIUM) (0.55)	
D5	3.45	Water level at 3.4m 29/7/94 am			Firm stiff light bluish grey to dark grey speckled black in places, closely blocky fissured (brown staining on fissure planes) silty CLAY. (ALLUVIUM) (1.55)	
U3 (15)	4.00 - 4.40			4.00		
D6	4.60				Very soft to soft light grey to grey/light greenish grey silty CLAY, with occasional organic matter (preserved wood), and with thin bands of firm dark brown to black amorphous peat below 5.25m. (ALLUVIUM) (1.45)	
U4 (9)	5.00 - 5.40	Water level at 5.1m 29/7/94 pm				
D7	5.45			5.45		
U5 (8)	6.00 - 6.40				Firm brown to black fibrous PEAT. (ESTUARINE PEAT) (0.55)	
D8	6.45	Water level at 6.3m 28/7/94 am		6.00	Very soft to soft light grey to grey silty CLAY, with some organic matter. (ALLUVIUM) (0.45)	
U6 (9)	7.00 - 7.40			6.45	Soft to firm light greenish grey and grey brown silty CLAY with much organic matter. (ALLUVIUM) (1.60)	
D9	7.45					
U7 (15)	8.00 - 8.40					
D10	8.45			8.05	Firm dark brown to black fibrous PEAT. (ESTUARINE PEAT) (0.95)	
U8 (8)	9.00 - 9.45			9.00		
D11	9.45			9.30	Very soft to soft light grey silty CLAY, with some organic matter, with pockets of black spongy amorphous peat below 9.22m. (ALLUVIUM) (0.30)	
U9 (7)	10.00 - 10.40			10.00	Firm dark brown to black thinly laminated fibrous slightly clayey PEAT. (ESTUARINE PEAT) (0.70)	

Remarks

*S14 48 blows for 225mm (test), *S18 49 blows for 225mm (test).
Chiselling from 0.3 to 1.1m for 1 hour.
Groundwater encountered at 0.9m.

Logged by	Scale	End Casing Depth m.	Job No.
SF	1:50	25.00	E70894

Sample/Test key:
U () U100 sample (blows)
D Disturbed sample
B Bulk sample
W Water sample
- Progress & Day

Penetration Tests
S () Standard (N value)
C () Cone (N value)
* Blows and penetration when 300mm not achieved

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BOREHOLE LOG

Borehole A

Method	Date	Site
Cable Percussion	27/07/94 - 29/07/94	New Shed, Western Peninsular, Tilbury Free Port

Dia mm	Coord	Ground Level m.OD	Client
150mm	631000E 761000N		Clark Smith Partnership

Soil Samples/Tests Type/Test	Depth m.	Field Records	OD Level m.	Depth m.	Description of Strata	Legend
		Water level at 10.2 28/7/94 am & 4/8/94 am			Friable dark brown to black amorphous slightly clayey PEAT, with thin bands of very soft light to dark grey/buff mottled silty clay. (ESTUARINE PEAT) (0.45)	
D12	10.45			10.45		
U10 (10)	11.00 - 11.40			11.00	Firm dark brown to black thinly laminated amorphous PEAT. (ESTUARINE PEAT) (0.55)	
D13	11.45			11.45	Soft light grey thinly laminated silty CLAY, with some organic matter. (ALLUVIUM) (0.45)	
U11 (10)	12.00 - 12.40				Soft to firm light grey to dark grey mottled thinly laminated silty CLAY, organic in places, with much organic matter below 12.45m. (ALLUVIUM) (1.85)	
D14	12.45					
S2 N=25	13.30 - 13.75	,4/4,4,8,9		13.30	Medium dense to dense dark grey to black sandy subangular to rounded fine to coarse flint GRAVEL, with occasional cobbles, and with pockets of greyish green sandy clay from 14.5-16.0m. (THAMES VALLEY GRAVEL) (7.30)	
B3	13.30 - 13.80					
C3 N=34	14.50 - 14.95	,3/1,5,12,16				
B4	14.50 - 15.00					
C4 N=39	15.50 - 15.95	,5/6,8,11,14				
B5	15.50 - 16.00					
C5 N=40	16.50 - 16.95	,6/6,6,12,16				
B6	16.50 - 17.00					
C6 N=29	17.50 - 17.95	,6/6,7,9,7				
B7	17.50 - 18.00					
C7 N=39	18.50 - 18.95	,6/4,6,12,17				
B8	18.50 - 19.00					
C8 N=23	19.50 - 19.95	,5/4,7,7,5				
B9	19.50 - 20.00					

Remarks

*S14 48 blows for 225mm (test), *S18 49 blows for 225mm (test).
Chiselling from 0.3 to 1.1m for 1 hour.
Groundwater encountered at 0.9m.

Logged by	Scale	End Casing Depth m.	Job No.
SF	1:50	25.00	E70894

Sample/Test key:
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BOREHOLE LOG

Borehole A

Method	Date	Site
Cable Percussion	27/07/94 - 29/07/94	New Shed, Western Peninsular, Tilbury Free Port

Dia mm	Coord	Ground Level m.OD	Client
150mm	631000E 761000N		Clark Smith Partnership

Soil Samples/Tests Type/Test	Depth m.	Field Records	OD Level m.	Depth m.	Description of Strata	Legend
S9 N=4 D16	20.60 - 21.05 20.60	,4/1,1,1,1		20.60	Firm white/greyish white clayey SILT, with many lithorelics of blocky hard/very weak chalk and occasional bands of angular to subrounded flint gravels. Fragments of chalk ranging in size from 5mm to in excess of 100mm (broken fragments). (WEATHERED UPPER CHALK IV-V) (4.40)	
S10N=7 D17	21.50 - 21.95 21.50	,3/1,2,2,2				
S11N=8 D18	22.50 - 22.95 22.50	,3/2,2,2,2				
S12N=11 D19	23.50 - 23.95 23.50	,4/2,2,3,4				
S13N=16 D20	24.50 - 24.95 24.50	,8/3,4,4,5		25.00	Hard/weak white/grey white very closely to closely jointed blocky CHALK, with occasional firm putty chalk and bands of angular to subrounded flint gravels. (UPPER CHALK II-III) (5.00)	
S14* D21	25.50 - 25.88 25.50	,7/4,30,14,				
S15N=29 D22	26.50 - 26.95 26.50	,6/5,7,8,9				
S16N=34 D23	27.50 - 27.95 27.50	,8/5,7,9,13				
S17N=42 D24	28.50 - 28.95 28.50	,10/8,9,11,14				
S18* D25	29.50 - 29.88 29.50	,15/16,16,17,		30.00		

Remarks

*S14 48 blows for 225mm (test), *S18 49 blows for 225mm (test).
Chiselling from 0.3 to 1.1m for 1 hour.
Groundwater encountered at 0.9m.

Logged by	Scale	End Casing Depth m.	Job No.
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Penetration Tests
S () Standard (N value)
C () Cone (N value)
* Blows and penetration when 300mm not achieved

APPENDIX E

UXO Screening Map

UNEXPLODED BOMB RISK MAP

SITE LOCATION

Location: RM18 7HA,
Map Centre: 563213,175948

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**
transport	**dock**	**Luftwaffe targets**
utilities	**Bombing decoy**	**other**

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

The map indicates the potential for Unexploded Bombs (UXB) to be present as a result of World War Two (WWII) bombing.

You can incorporate the map into your preliminary risk assessment* for potential Unexploded Ordnance (UXO) for a site. Using this map, you can make an informed decision as to whether more in-depth detailed risk assessment* is necessary.

What do I do if my site is in a moderate or high risk area?

Generally, we recommend that a detailed UXO desk study and risk assessment is undertaken for sites in a moderate or high UXB risk area.

Similarly, if your site is near to a designated Luftwaffe target or bombing decoy then additional detailed research is recommended.

More often than not, this further detailed research will conclude that the potential for a significant UXO hazard to be present on your site is actually low.

Never plan site work or undertake a risk assessment using these maps alone. More detail is required, particularly where there may be a source of UXO from other military operations which are not reflected on these maps.

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

If both the map and other research confirms 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.

A low risk really means that there is no greater probability of encountering UXO than anywhere else in the UK.

If you are unsure whether other sources of UXO may be present, you can ask for one of our **pre-desk study assessments (PDSA)**

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 number of sources and should be used in conjunction with the accompanying notes on our website: **(https://zeticauxo.com/downloads-and-resources/risk-maps/)**

It is important to note that this map is not a UXO risk assessment and should not be reported as such when reproduced.

*Preliminary and detailed UXO risk assessments are advocated as good practice by industry guidance such as CIRIA C681 'Unexploded Ordnance (UXO), a guide for the construction industry'.

APPENDIX F

Preliminary UXO Desk Study

STAGE 1 PRELIMINARY UXO RISK ASSESSMENT

REPORT REF: PRA 23-2176 | Revision: 0

Client: Brownfield Solutions Ltd.
Project: Tilbury Docks, Essex
Date: 06/07/2023
Author: CB

BRIMSTONE

Innovation Centre Medway, Maidstone Road,
Chatham, ME5 9FD
0207 117 2492
www.brimstoneuxo.com

INTRODUCTION

The Stage 1 Preliminary Risk Assessment is an initial screening assessment designed to highlight any sources of unexploded ordnance (UXO) with the potential to contaminate a given site.

The aim of the Stage 1 assessment is to identify or discount the need for further detailed research - a Stage 2 Detailed UXO Risk Assessment.

This desktop assessment has been researched and written by a dedicated Researcher / Risk Assessor and produced in accordance with the CIRIA C681 Guidelines: 'Unexploded Ordnance, a Guide for the Construction Industry' (published in 2009).

In preparation for this assessment, original wartime records, historic OS mapping and the *Brimstone UXO Sources Database* have been reviewed. The latter incorporates multiple datasets plotting the positions of a variety of domestic military sites and confirmed historic German bombing targets.

The Stage 1 Preliminary Risk Assessment considers the following:

1. The Proposed Works
2. Enemy Action During WWI and WWII
3. British / Allied Military Activity
4. Historic Site Occupancy
5. Risk Mitigating Factors

THE SITE

The Site (approximately centred on the National Grid Ref: TQ 63077 75899) is situated in Tilbury, within the county of Essex, approximately 590m south-west of Tilbury Town railway station.
The Site comprises an area of Tilbury Docks, consisting of warehouses, smaller structures, hard surfaced yard areas and access roads. It is bound to the north by an access road and a hard surfaced goods yard, to the east by a hard surfaced access road, to the south by further yard areas and access roads and to the west by a dock.

THE PROPOSED WORKS

SI works will comprise four to six boreholes to 5m bgl, with an additional two boreholes to 20m bgl, possibly extending to 25m bgl. Development works will comprise the redevelopment of the existing structures to extend the Site capacity, retaining its commercial usage.

ENEMY ACTION DURING WWI AND WWII

Potential Source of UXO	Significant?	Details
WWI German Bombing	✗/✓	At least two air raids are known to have affected Tilbury during WWI, whilst AA guns in the area were called into action regularly. However, neither account of bombing refers to the Site area being affected.

WWII German Bombing	✓	British District Bombing Density Statistics	The Site is situated within the WWII-era Urban District of Thurrock, which sustained 44.4 bombs / 1,000 acres, a moderate bombing density.
		Evidence of Bomb Strikes / Damage	Bomb census mapping for Tilbury Docks does not record any bombing incidents within the Site footprint. The closest recorded incidents are plotted approximately 375m south-west of the Site. It should be noted that this map only covers two dates; as numerous raids are known to have occurred in the local area, this source is not comprehensive. A bomb plot map for Tilbury Docks was reviewed during the production of this assessment; however, the Site area was not visible within the available section of the map. The map records a significant number of incidents occurring over the docks. A comparison of pre- and post-WWII OS mapping indicates that a structure immediately south-east of the Site was cleared; this is potentially indicative of bomb damage occurring. This clearance is corroborated by WWII-era aerial photography. No immediately obvious evidence of bomb damage occurring on Site has been identified i.e. cratering. However, the ground cover present was not homogenous and was unkempt in areas, which may obscure any evidence of damage.
		Local Bombing Decoy Sites	None within a significant distance. Closest recorded decoy is plotted approximately 4.7km east.
		Local German Bombing targets	Tilbury Docks (situated on Site) was identified as a primary Luftwaffe bombing target during WWII. Tilbury Fort (approximately 1.9km south-east of the Site) was also identified as a target.
WWII German Cross Channel Artillery Shelling	✗	n/a	

BRITISH / ALLIED MILITARY ACTIVITY

Potential Source of UXO	Significant?	Details
WWII Home Guard (HG) Activity	✗/✓	No specific HG battalion appears to have been established for the local area, although a battalion may have been attached to the docks. Had HG troops been present in the vicinity, it cannot be ruled out that the Site may have been accessed by armed troops on patrol due to its undeveloped WWII-era composition.
Site Requisitioned for Wartime Military Use	✗/✓	The possibility that areas of the Site were requisitioned for temporary wartime use cannot be ruled out entirely (e.g. tented military camp, LAA gun battery, searchlight battery, RAF barrage balloon site). Potential tented camps have been identified on Site in the previously discussed aerial photography; further investigation will be required in order to determine if this hypothesis is correct.
Existing or Historic Army or RAF Training Area / Weapons Range	✗	n/a

Existing or Historic Military Bases and Other Installations	✓	Tilbury Docks was designated as an embarkation point and marshalling area during the preparations for D-Day. An embarkation hard (a concrete surface built to support landing craft and amphibious operations) is recorded on an in-house geodata set approximately 160m south-east of the Site. The docks were also involved when Operation Overlord occurred, used for the construction of Mulberry Harbours (floating breakwaters made of concrete units) and the PLUTO (Pipe-Lines Under The Ocean), underground oil pipelines under the English Channel.
Existing or Historic Munitions or Explosives Factories	×	n/a
Existing or Historic Military Defensive Fortifications	×/✓	Due to its importance as a port and its vulnerability as a possible point of a land-based invasion, numerous defensive military fortifications were erected in the wider area. None of these are recorded on Site on an in-house geodata set; the closest recorded position, a Spigot mortar emplacement, is plotted approximately 620m to the north-east.
WWII Light and / or Heavy Anti-Aircraft (LAA and HAA) Fire	×/✓	23 permanent HAA batteries were active within range of the Site during WWII. LAA guns are known to have defended Tilbury Docks and may have defended further vulnerable points within range of the Site. Luftwaffe activity in the immediate vicinity was relatively frequent. It is possible that an unexploded AA shell struck the Site and penetrated to a shallow depth within undeveloped areas.
Pipe-Mined Locations and Beach Minefields	×	n/a
UXO Finds	×/✓	On 19th August 2020, a bomb disposal squad was called to Tilbury Docks following the discovery of a UXB at 5 Berth (approximately 155m east).[1] An additional find is known to have occurred in 1991, where a 250kg HE UXB was discovered. It is not known whether the latter of these finds occurred on Site.
SITE HISTORY		
What was the Site occupancy historically, especially during WWI and WWII?	During WWII, the Site was predominantly occupied by undeveloped ground consisting of what appears to be marshland. Railway tracks can be seen to intersect the Site in the north-west, centre and south-east. Evidence of potential tented camps on Site has been identified in WWII-era aerial photography, although their presence cannot be confidently confirmed at the time of writing.	
RISK MITIGATING FACTORS		
Post-Conflict Ground Works	Post-WWII redevelopment on Site and in the immediate surrounds has been significant. By 1960, hard surfaced access roads had been laid on Site, intersecting the boundary throughout. By 1999, the entire Site footprint has been laid to hardstanding, whilst the warehouses currently present in the north / north-east of the Site were erected. Two further warehouses in the west of the Site were also present. By 2010, the southern-most warehouse had been cleared, followed by the north-western warehouse in 2011. By 2013, a smaller structure had been developed on the eastern border. The Site has retained this composition since.	
Likelihood of UXO Remaining	The risk associated with (any) very shallow buried (<1m bgl) UXO will have been largely mitigated. The risk associated with (any) shallow buried (1-2m bgl) UXO will have been partially mitigated. The risk associated with (any) deep buried UXO (>2m bgl) may have been partially mitigated, although the depths to which foundations associated with the warehouses could not be established and therefore, this cannot be confirmed.	

[1] https://www.essexlive.news/news/essex-news/port-tilbury-docks-ww2-bomb-4437893

CONCLUSIONS

German UXO:

- Although Thurrock was never the subject of a large-scale concentrated air raid, it did experience numerous small and medium-scale raids. This can be attributed to its vulnerable position close to Luftwaffe flight paths in and out of London, as well as the presence of primary bombing targets including Tilbury Docks (on Site). Consequently, the district suffered an elevated bombing density.
- Bomb census mapping for Tilbury Docks does not record any incidents occurring on Site; however, it should be noted that this map only covers two dates and is therefore not comprehensive. A local bomb plot map for Tilbury Docks was reviewed; however, the Site area was not covered by the visible section of the map. The two maps are not corroborative of each other, with the local map recording a significant number of incidents occurring over the docks. The acquisition of written incident records and the full local bomb plot map will be required in order to gain a better understanding of bombing over the Site area.
- Structural clearance (potentially indicative of bomb damage) has been identified to the immediate west of the Site. Although no immediately obvious evidence of bomb damage occurring on Site has been identified, the ground cover present may obscure any potential evidence of damage.
- The Site is likely to have experienced infrequent levels of access throughout WWII owing to its predominantly undeveloped nature, although activity related to the docks will have afforded it at least intermittent access and observation. This will have been predominantly in locations occupied by / adjacent to infrastructure i.e. railway tracks.
- However, the ground cover present is likely to have presented conditions unconducive to the visual detection of UXBs i.e. marshland, vegetation. The smallest German HE bomb dropped on Britain during WWII (also the most common) had a diameter of just 20cm, which could leave an easily obscured entry hole within such ground conditions. This is further emphasised by the discovery of UXBs on two previous occasions in the vicinity of Tilbury Docks, much of which was undeveloped during WWII.
- Although significant post-WWII redevelopment has occurred on Site, the precise depths to which associated excavations occurred could not be established and the majority are not anticipated to have been deep. Subsequently, any deep buried UXB falling on Site could potentially remain in situ and workers may be exposed to an encounter.

British / Allied UXO:

- Tilbury Docks played a significant role in Operation Overlord, most notably in the lead up to the D-Day landings during WWII, as well as being heavily fortified against a potential land-based German invasion. However, no explicit evidence of defensive installations being present on Site has been found.
- A potential tented camp has been identified on Site; others are known to have been present in the wider area. Further analysis will be required in order to establish if the camp was indeed present and whether this could have resulted in associated UXO contamination.
- 23 permanent HAA batteries were active within range of the Site during WWII. LAA guns are known to have defended Tilbury Docks. It is therefore possible that an unexploded AA shell struck the Site and penetrated to a shallow depth within undeveloped areas.

RECOMMENDATIONS

SI Works	A **Stage 2 Detailed Risk Assessment** is recommended in order to further assess the risk to proposed works. In lieu of a Detailed UXO Assessment, Brimstone recommends on-Site support for any planned ground works.
Development Works	

North West

William Smith House
173 – 183 Witton Street
Northwich
Cheshire
CW9 5LP

Tel: 01606 334 844

Midlands

Unit 5, Alfred Court
Saxon Business Park
Stoke Prior
Bromsgrove
Worcestershire
B60 4AD

Tel: 01215 729 014

www.brownfield-solutions.com