

# Land off Prince Consort Road, Hebburn, Tyne and Wear Desk Based Study (Phase 1) Report

3 June 2015 Project HEB/15024.1

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Appendix A Site Plan & Proposed Layout (Study Area)

Appendix B Historical Maps

Appendix C Coal Authority Report



### **Executive Summary**

Intersoil was commissioned to undertake a desk study on a plot off Prince Consort Road, Hebburn. The site is adjacent to the River Tyne. The site is currently used for parking. It is fenced and falls gently toward the Tyne where a wooden wharf in poor repair is present. The area is largely hard surfaced with tarmac and some concrete slabs are present along one boundary. A walkover survey noted frequent asbestos cement fragments within exposed made ground between the wooden wharf and the tarmac covered yard. There was also debris forming the slope to the Tyne below the wharf.

Reference to historical maps show the site has been raised and has been used for shipbuilding with a jetty and slipway present at some time in the past. More recently, it was used as a light engineering works. There is an inert landfill site immediately east of the site and both shipbuilding, engineering and a major alkaline works were present at some time in the past close to the south of the site, together with another landfill site.

The site is located next to the River Tyne. It is thought to be tidal at Hebburn. The site is shown to be underlain by made ground and alluvium overlying Pennine Coal Measures. The drift is shown to be classed as non-productive with regards to groundwater resources. The solid geology is classed as a Secondary Aquifer.

A Coal Authority Report does not reveal the presence of shallow coal seams or recorded working at shallow depth.

The site has been exposed to a number of previous phases of development. Made ground is expected to be thick and heterogeneous with relict foundations and obstructions at depth. Given the proposed change in land use, a detailed soils investigation using cable percussion boreholes and trial pits and including soil gas and groundwater monitoring is recommended to properly characterise ground and geotechnical conditions.

An assessment of perceived risk suggests that the conditions on site offer a medium risk to potential receptors. An asbestos survey of the soils is recommended prudent prior to progressing geotechnical or other environmental investigations, or other work.



Our Ref No. 15014.1 Date: 3 June 2015

Mr T Smith & Tyne and Wear LGV Smiths Yard Abbotsford Road Felling NE10 0EX

# Land off Prince Consort Road, Hebburn Desk Based Study (Phase 1) Report

# 1. Introduction, Purpose & Objectives

Intersoil was commissioned to undertake a desk study on a plot of land off Prince Consort Road, Hebburn. The site is adjacent to the River Tyne.

This report documents the Phase 1 work. This report has been prepared with reference to guidelines published for use for developers and consultants by a group of Local Authorities<sup>1</sup>. The report has been prepared for use solely by Mr T Smith and should not be used or relied upon by third parties. Where referenced, depths are from surface and distances are stated in metres (m).

The purpose of this report is to provide an overview of the environmental and historical context of the site via various desk based searches. The report is valid for 12 months from issue. An aerial photograph (taken from the Groundsure Environmental Search) is presented below:



Aerial Photograph (dated 2009)

<sup>&</sup>lt;sup>1</sup> Yorkshire and Humberside Pollution Advisory Committee - YAHPAC



### 2. Site Location & Description

A walkover survey was undertaken on the 2<sup>nd</sup> June 2015. The site is centred on O.S. Grid Reference 430100E, 564900N. A benchmark just east of the gates indicates an elevation of 5.5m above Ordnance Datum. The site is broadly triangular in shape and has an area in the order of 0.28 hectares. Access is from a gated entrance off Prince Consort Road, Hebburn. The site is surrounded by a palisade fence. The surface topography falls gently westward to the Tyne which forms the western boundary. The river is in the order of 5m below surface level. A wooden jetty/wharf is present. It is in a poor state of repair. The majority of the ground within the eastern half of the site is covered in tarmac and is currently used for parking. There are two concrete slabs from former buildings along the northern boundary. Some relict brick walls were exposed around part of one slab.

There appears to have been some clearance recently and there are a number of low mounds of concrete and soils. The soils contain brick, some wire, slate and occasional pieces of suspected chrysotile. There is a narrow band of exposed gravel next to the wooden quay. Made ground is exposed at the surface and appears to contain much clay and gravel, brick, concrete demolition rubble, wood, a little ash and several pieces of suspected asbestos cement. There is also much debris forming an irregular slope into the Tyne beneath the wharf.

The site is set within an area of mixed commercial and residential land use.

A number of photographs (plates), taken during the site walkover, are presented below



Looking west from the entrance



Looking south along the wharfside



View looking northwards



View across rough ground adjacent to wharf



# 3. Development History

A number of maps previously issued by the Ordnance Survey were acquired via Groundsure and selected large scale maps are presented in the Appendix. Table 1 shows the main features:

Date	Onsite	Offsite	Comments
1857	Majority of site below high tide mark. Shown as shingle. Building-possible boat shed encroaches into extreme east of site	Brick manufacturer factory 50 south Ponds 100m east and north east Ballast hills immediately north of site along river bank	Majority of site shown as shingle as riverbank
1897	Site shown with jetty and shipbuilding yard	New cement factory 150m north Timber yard 100m east Brickworks closed Substantial alkaline works 200m south – Tenants Works	Jetty shown and shipbuilding yard onsite
1916	Little change	Timber pond developed immediately north of the site Alkaline Works extended. Several tanks shown east of the site	-
1941	Jetty and slips no longer shown Shipbuilding yard no longer shown	Cement works no longer shown Alkaline works cleared	Jetty and slips absent
1956	Shown as light engineering works Two large buildings on site	Some slipways shown north and south of the site	Part of light engineering works
1969	Little change	Little change	-
1975	Engineering works expanded	Engineering works south of site	Engineering works expanded
1993	Little change	New commercial development shown to north east of site	

TABLE 1: SUMMARY OF HISTORICAL LAND USE

Based on scrutiny of the historical maps, the site has been previously developed as a jetty and slipway within a shipbuilding yard. Later the site was redeveloped as a light engineering business. It has since been cleared of buildings. There was a substantial alkaline works south of the site for some time.



# 4. Environmental Database Search

A Groundsure report was acquired<sup>2</sup> as part of the study and the following aspects of environmental information are summarised as follows:

Description	Onsite	Close	Comments
	(Y/N)	to site (Y/N)	
Landfill Site	N	Y	10m east of site. Prince Consort Road –King Georges Field. Inert Waste. Licence ST022, ST2. Last activity 1960 130m south – Hebburn Quayside. Commercial, household/inert – ST023,ST1 1940-1973
Waste Transfer and treatment	N	N	-
Licence and Permits	N	Y	Hastings Metal Finishers Units 7&8 Prince Consort Ind Est. 50m and 112m north List 2 substances – chromium, zinc, nickel, copper
Radioactive Licencing	N	N	-
Hazardous substances licensing and Dangerous substances	N	N	-
Control of Major Accident Hazards	N	N	-
Emissions to air	N	N	-
Contraventions of groundwater or pollution	N	Y	Nearest is minor incident 68m NE – minor impact land – Jan 2003 Minor incident tyres – 100m west
Contaminated land Register	N	N	-
Past Land uses	Y	Y	Wharf and slipway on site and near site See historical map section
Contemporary Land uses	Y	Y	Wharf and slipway on site and near site 80m NE commercial industrial estate 95m NE DWH Engineering – Unit 5
Flooding	Y	Y	Pluvial risk possible Low and Medium risk from rivers and sea
Other	Y	Y	See mining, geology and other sections

TABLE 2: ENVIRONMENTAL DATA

<sup>&</sup>lt;sup>2</sup> SG-BAR-2134353 dated 3 June 2015 – not included but salient aspects summarised above.



## 5. Geology, Mining & Previous Investigations

### Geology

Information published by the British Geological Survey shows the site as underlain by made ground and surrounded by made ground and alluvium. This typically comprises silt and clay, sand and gravel. The solid geology comprises Pennine Middle Coal Measures. This typically comprises cyclical deposits of siltstones, sandstones and mudstones with coal seams.

### Mining

The site is within the North East Coalfield. A Coal Authority Report was acquired and is appended. It shows the following:

- 4 seams mined from 160m to 420m below ground level
- Coal last worked in 1947
- No known mine entries within 20m of the site
- No subsidence claims within 50m of the site
- No record of mine gas
- Reserves may exist which may be worked in the future

### **Previous Investigations**

A number of boreholes were sunk north of the site in the Tyne for the Portland Cement Quay. They proved made ground and mud overlying up to 46ft of sand and silt. A number of other boreholes are understood to have been sunk north east of the site to between 10 and 15m depth. The details are however, unavailable at this time.

### 6. Radon

Reference to the Indicative Atlas of Radon in England and Wales shows the study area as falling within an area where less than 1% of properties may be affected by radon. It is unlikely that radon measures will be required for new development.

# 7. Hydrogeology

The superficial deposits are shown to be classed as 'unknown' (non-productive) in terms of groundwater resources. The solid geology is shown to be a 'Secondary A' aquifer. Secondary A aquifers have the potential to be vulnerable from contaminants present within sub-surface strata. There are no groundwater abstraction boreholes or wells near the site. The site is not within a Source Protection Zone. It is thought that the Tyne is tidal at Hebburn and groundwater will be impacted by saline intrusion.



## 8. Hydrology

The nearest surface water feature is the adjacent River Tyne. There are two outfalls for storm overflow and sewage within or close to the site. There are a considerable number of other records relating to outfalls noted along the bank of the Tyne. Locally, surface water flow is likely to be impacted by hard surfacing and drainage installed as part of previous development.

### 9. Historic Contaminating Land Uses

Based on an assessment of the historical maps and environmental information provided, the site has been exposed to the following:

Major Contaminative use Onsite	Engineering works	
	Shipbuilding yard	
Minor Contaminative use Onsite	Jettys and wharfs	
Offsite Contaminative use	Landfill St Georges Field	
(immediate vicinity)	Shipbuilding south of the site	
	Cement factory north	
	Engineering works south	
	Alkaline works and rail network south	
Offsite Contaminative use	Landfill	
(wider area)	Industrial Estate including engineering works and metal	
	finishers north of the site	
Other Possible Issues	Buried obstructions	
	Thick made ground	
	Buried services (sewers)	

TABLE 3: SUMMARY OF CONTAMINATIVE EXPOSURE/OTHER ISSUES

### 10. Desk Study Assessment

The data collated from site has been assessed and the following possible receptors have been considered within a 'conceptual model'. This is a summarised assessment which outlines the potential issues within or near the site that may impact the proposed development.

#### **Potential Sources**

In general, potential sources of contamination relate to determinants within the made ground which may contain toxic or phytotoxic substances which may be viewed as a potential hazard. Historical maps supplemented by other search data have revealed that the site was a former shipyard and engineering works. It has a largely commercial and industrial past and the land has been raised over the years. Made ground is expected to be variable in thickness and its quality, heterogeneous. Some fragments of asbestos have been noted where concrete has been removed from the surface. Ash may contain residual metals and be acidic. Some colliery spoil may also



be present. Demolition from building rubble and buried obstructions and relict foundations are anticipated.

### **Potential Pathways**

These are the means by which sources of contamination may reach sensitive receptors. This may comprise:

- Dermal contact
- Ingestion
- Inhalation
- Migration in dust
- Migration in vapours
- Groundwater
- Surfacewater

### **Potential Receptors**

There are a number of potential receptors to be considered when re-development is planned. These may comprise:

- Construction Workers
- Future End Users
- The Public and users of adjoining land
- Property (concrete and utilities)
- Vegetation
- Animals
- Surface Water

For a potential hazard to be present there must be a relationship between the source and the receptors (or those at risk from contamination). This is termed the *source-pathway-receptor* relationship. Assuming all 3 elements are present, there are various combinations which may appear to be relevant to this site, albeit remote. A number of these are or may be perceived to be either likely (in terms of occurrence) or unlikely and a risk rating (in terms of potential effects or impact) has been assigned accordingly. The Conceptual Model provides information on relevant relationships that are thought possible or likely based on the sites current use.

The proposed use for the site is residential with private gardens. This land use, as opposed to commercial or industrial, is significantly more sensitive to ground contamination than the existing or previous uses. Table 4 sets out the perceived risks to a number of receptors based on the walkover survey and search information:



Receptor	Pathway	Effects	Potential	Risk Rating
Shallow Groundwater from offsite source	Percolation through made ground	Contamination of perched water and drainage	LOW	LOW
Groundwater in soils and Bedrock	Percolation from perched water	Contamination of groundwater	LOW	LOW
Construction Workers. Site Operatives	Dermal Contact Ingestion Inhalation	Health Effects	MED- HIGH	MED- HIGH
Public & Neighbours	Inhalation & Ingestion to Public	Health Effects	MED	MED
Site users	Inhalation, dermal contact and ingestion	Contamination from previous development and soil gas migration	MED	MED
Surface Water	Migration via perched water	Contamination from drainage and perched water migration	LOW- MED	LOW- MED
Property	Direct Contact	Aggressive Ground Conditions Soil Gas	MED	MED
Wildlife (Burrowing mammals or foragers)	Dermal Contact Ingestion Inhalation	Health Effects	LOW	LOW

TABLE 4: CONCEPTUAL MODEL & PRELIMINARY RISK (PERCEIVED) ASSESSMENT

This investigation has identified a 'medium' risk category for most of the elements related to soil contamination and possible development liabilities. There is a perceived elevated (high) risk to construction workers at this time as a result of possible asbestos and made ground of uncertain quality. Thick and variable made ground may be expected to be present. The geochemical condition of any made ground or backfill within the site is uncertain. There may however, be localised conditions which may give rise to development liabilities and costs over and above those of a typical Greenfield site. A soil investigation would be required to accurately identify ground conditions.

### 11. Soil Investigation Requirements

The presence and nature of any made ground on site is uncertain at this time and a soil survey would be needed to establish the geotechnical nature and geochemical composition of the ground. Should development be planned, a soils investigation of appropriate scope should be undertaken. It is anticipated that foundations will need to be piled. Five boreholes using cable percussion methods may be undertaken together with soil gas and water monitoring boreholes. Depths of boring will depend on conditions. Trial Pitting would also be beneficial to assess the presence of asbestos, buried obstructions, excavation stability, speed and nature of water ingress



and the presence of overly coarse materials. The analysis of soils and groundwater should include analysis for heavy metals, hydrocarbons including polyaromatic hydrocarbons (PAH), polychlorinated biphenols (PCB), tributyltin (TBT), Triphenyltin together with other inorganic and organic determinants. It would be prudent to undertake an asbestos survey of the soils prior to progressing any further work. An appropriate soils investigation is required, in any case, to meet the requirements of the Building Regulations.

### 12. Summary & Conclusions

Intersoil was commissioned to undertake a desk based study for a plot at the end of Prince Consort Road at Hebburn. The site is adjacent to the River Tyne. The following summary is provided:

- The site is currently used for parking. It is fenced and falls gently toward the Tyne where a wooden wharf in poor repair is present. The area is largely hard surfaced with tarmac and some concrete slabs are present along one boundary. A walkover survey noted frequent asbestos cement fragments within exposed made ground between the wooden wharf and the tarmac covered yard. There was also debris forming the slope to the Tyne below the wharf.
- Reference to historical maps show the site has been raised and has been used for shipbuilding with a jetty and slipway present at some time in the past. More recently, it was used as a light engineering works. There is an inert landfill site immediately east of the site and both shipbuilding, engineering and a major alkaline works were present at some time in the past close to the south of the site, together with another landfill site.
- The site is located next to the River Tyne. It is thought to be tidal at Hebburn. The site is shown to be underlain by made ground and alluvium overlying Pennine Coal Measures. The drift is shown as non-productive. The solid geology is classed as a Secondary Aquifer.
- A Coal Authority Report does not reveal the presence of shallow coal seams or recorded working at shallow depth.
- The site has been exposed to a number of phases of development. Made ground is expected to be thick and heterogeneous with relict foundations and obstructions at depth. Given the proposed change in land use, a detailed soils investigation using cable percussion boreholes and including soil gas and groundwater monitoring is recommended to properly characterise ground and geotechnical conditions. An assessment of perceived risk suggests that the conditions on site offer a medium risk to potential receptors. An asbestos survey of the soils is recommended prudent prior to progressing geotechnical or other environmental investigations, or other work.



# **APPENDICES**



Client:

Address:

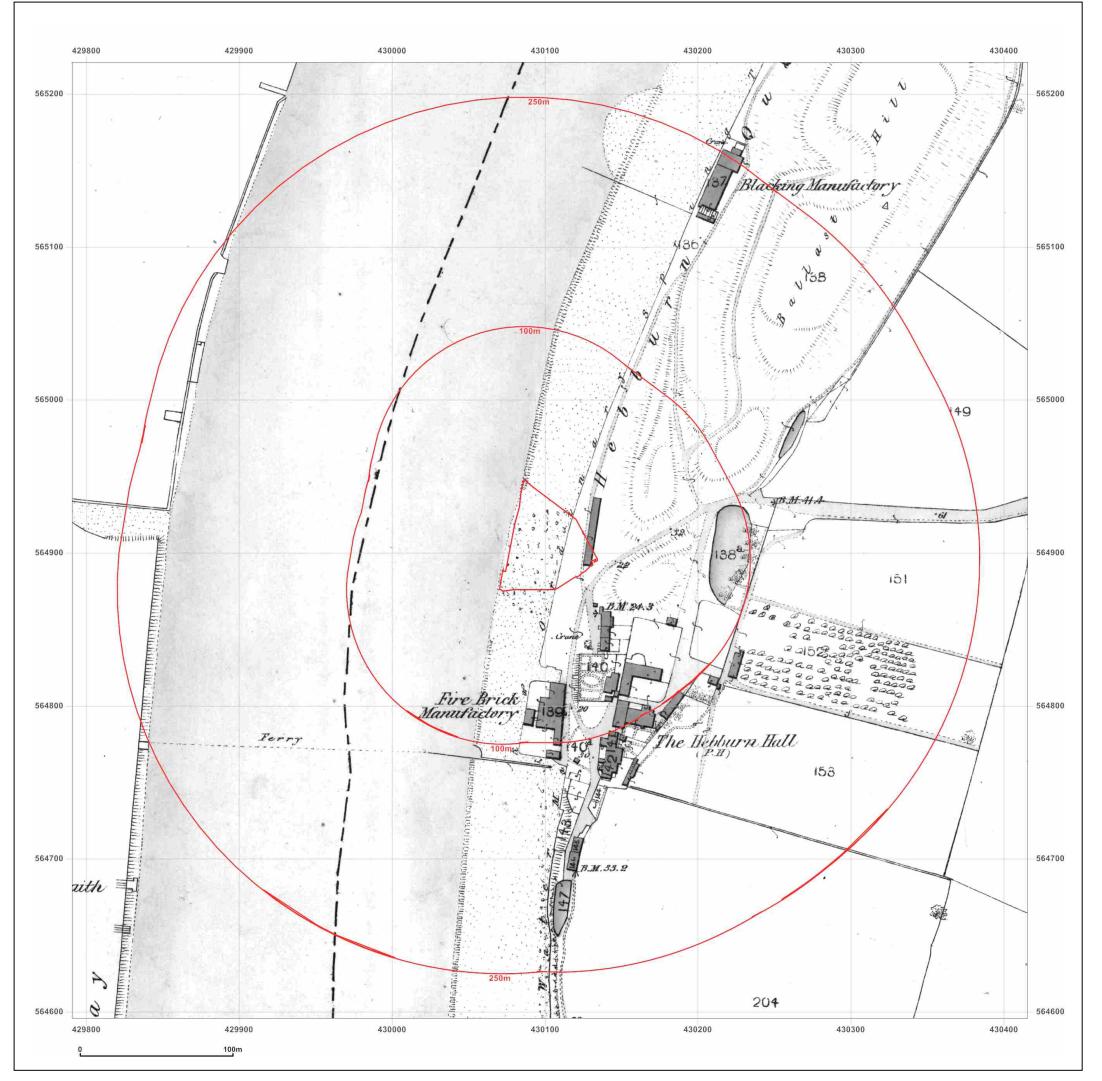
2 Prince Consort Road
Hebburn
Tyne and Wear
NE31 1EH

Project:
New Development
Drawing Title:
Proposed Site Plan
Scale:
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Date:
04/03/2015
Drawn:
G.Z Checked:B.W Dwg No.
1425\_03

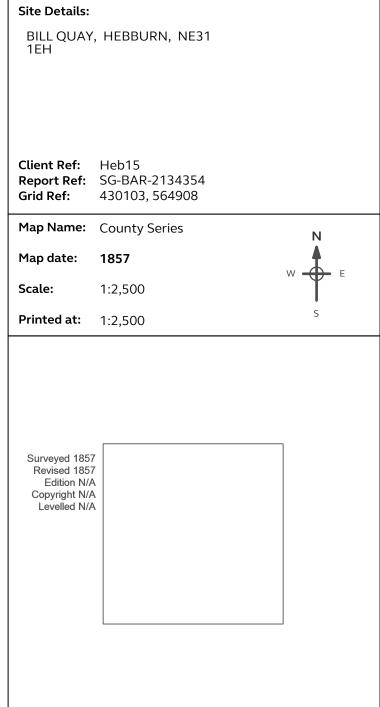
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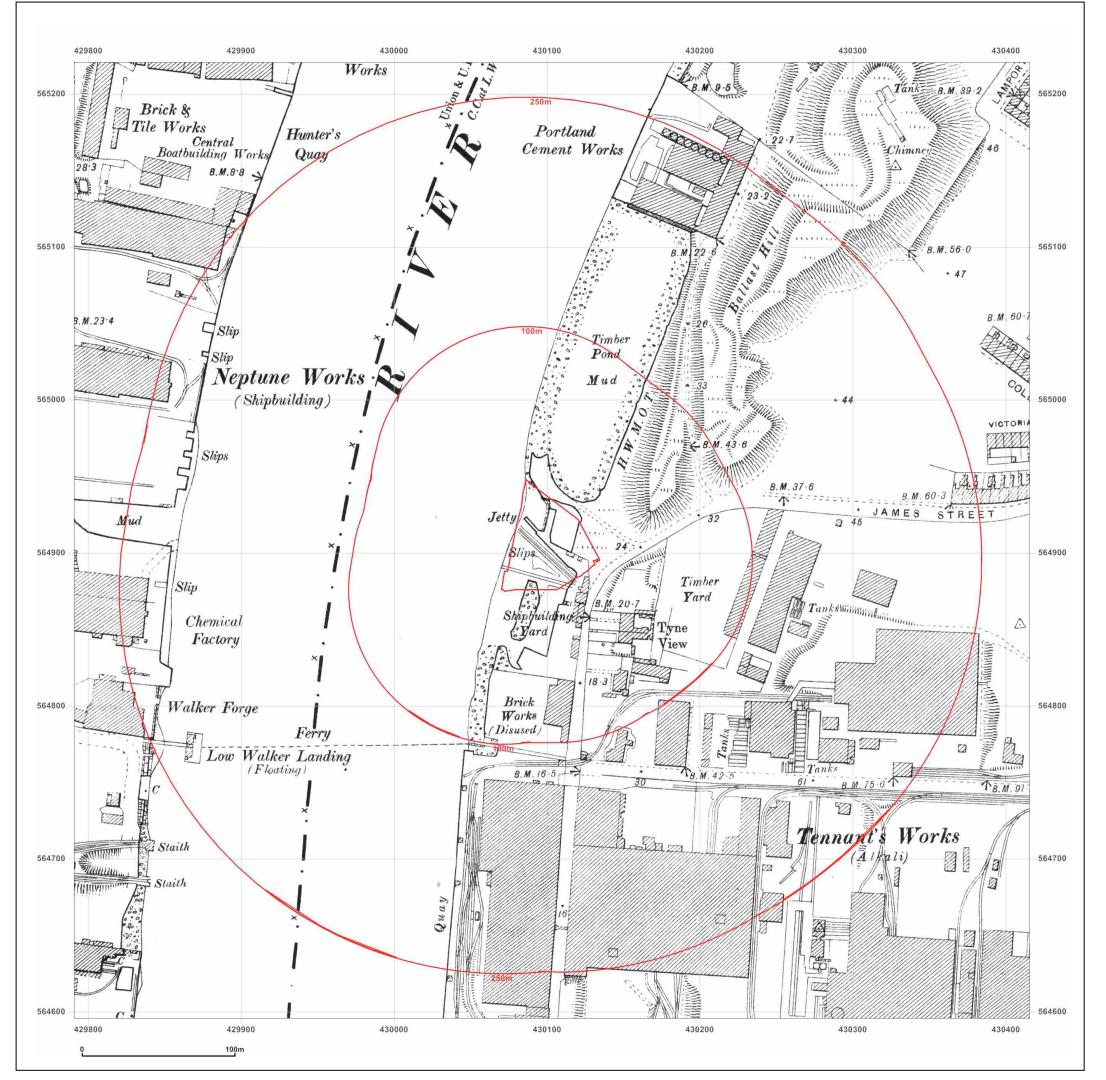




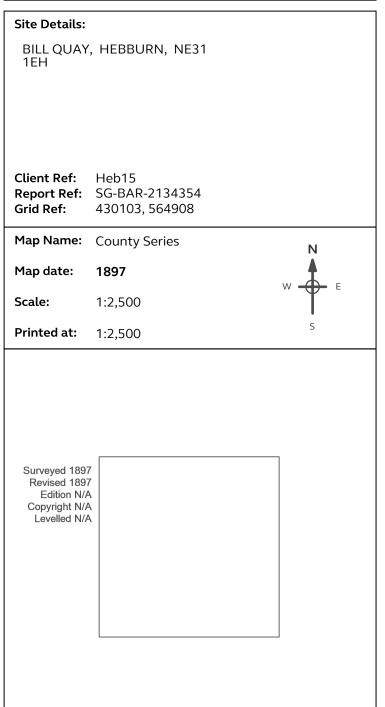


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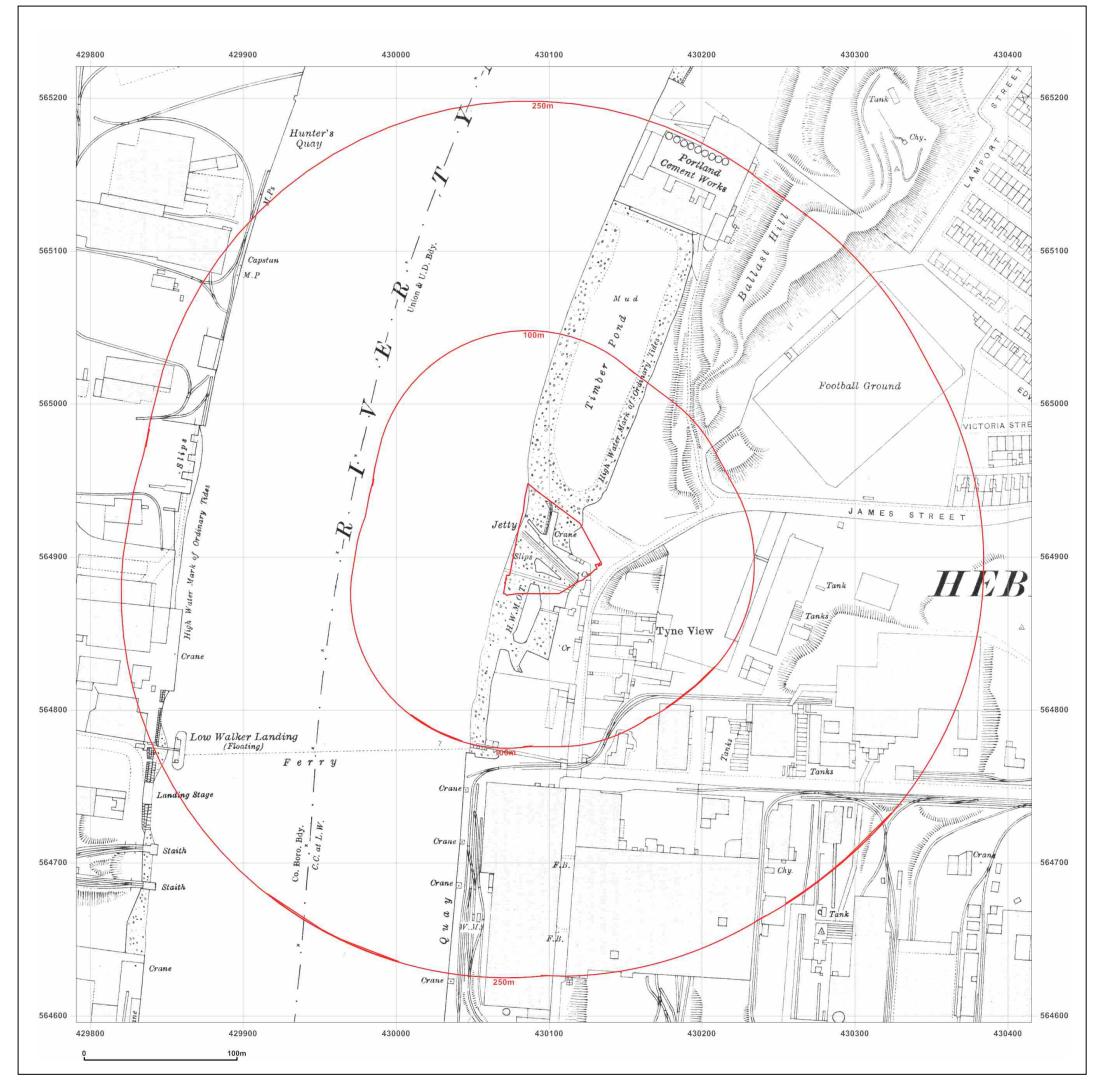




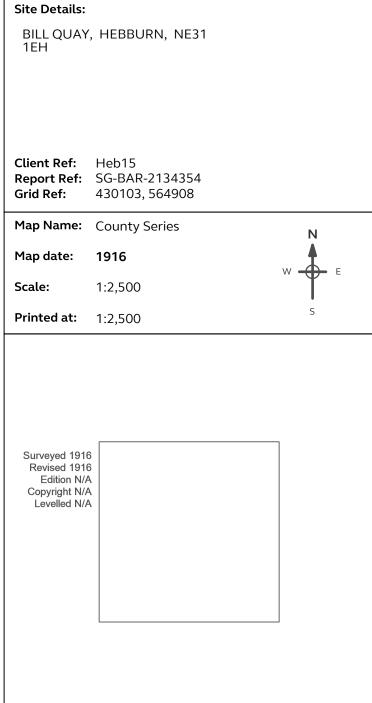


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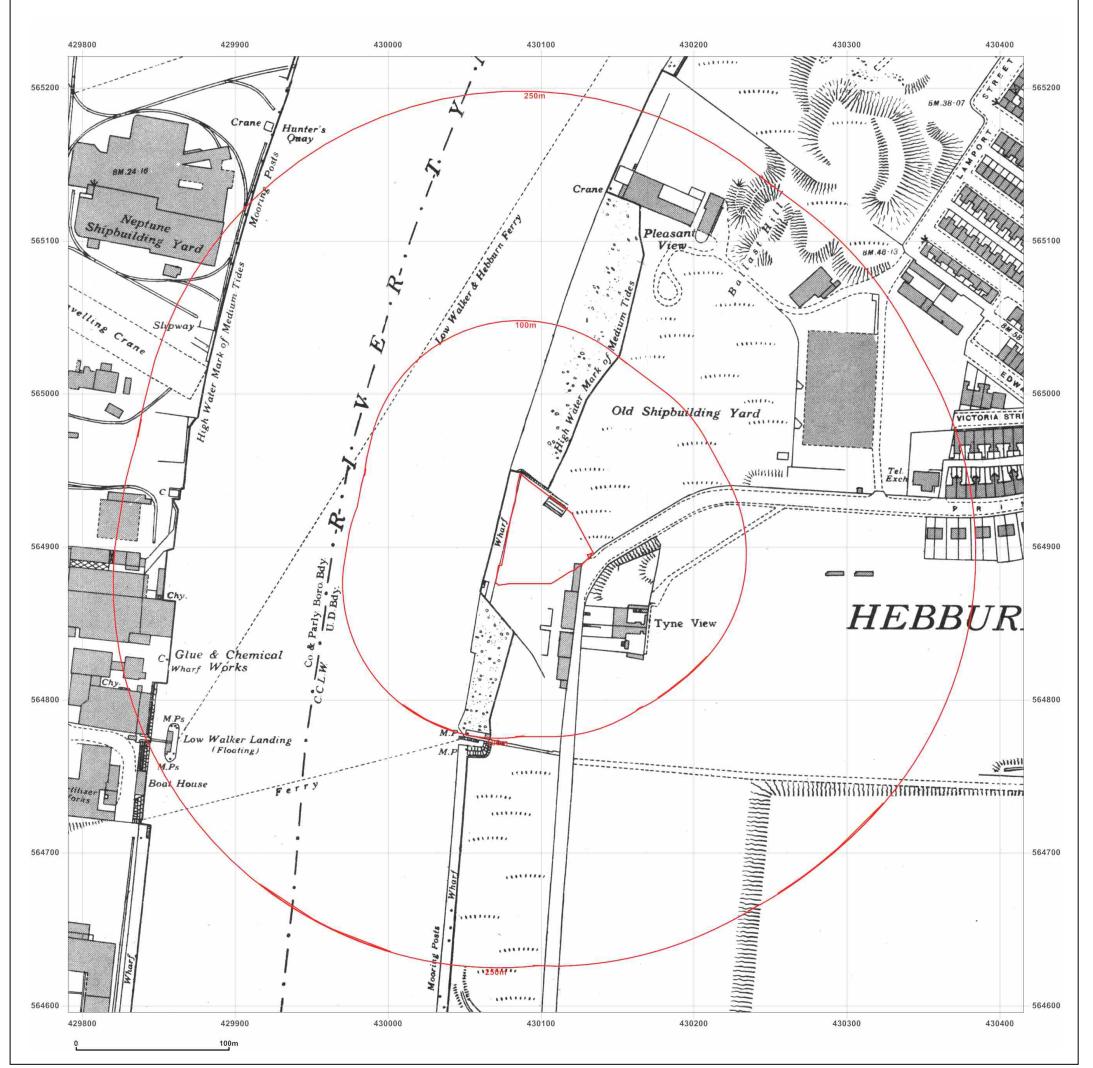




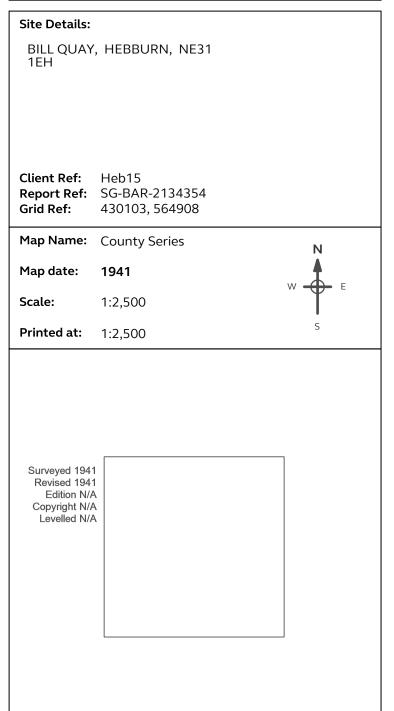


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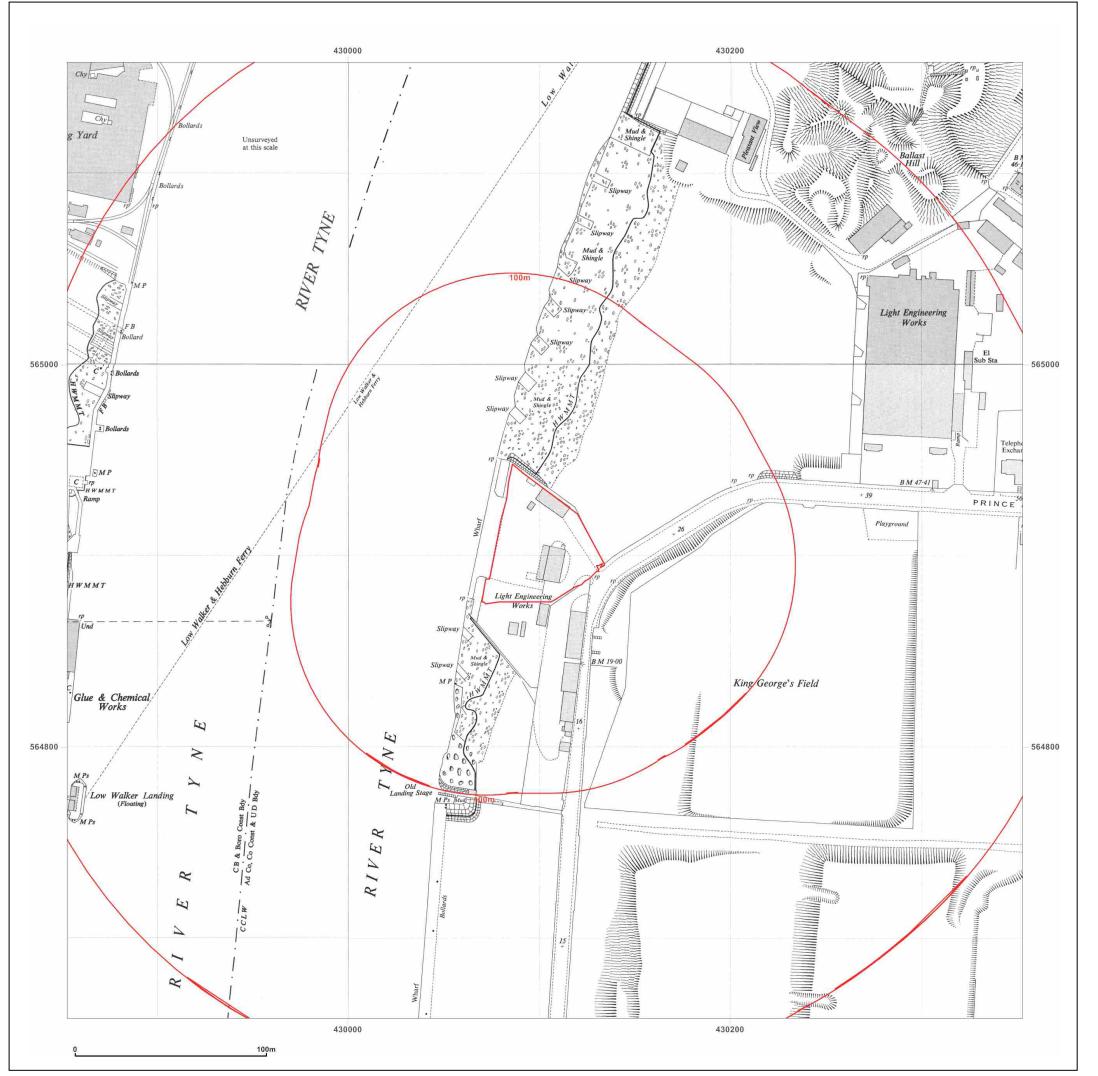




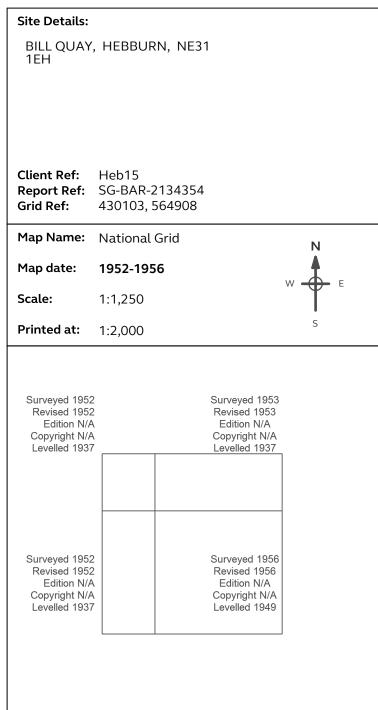


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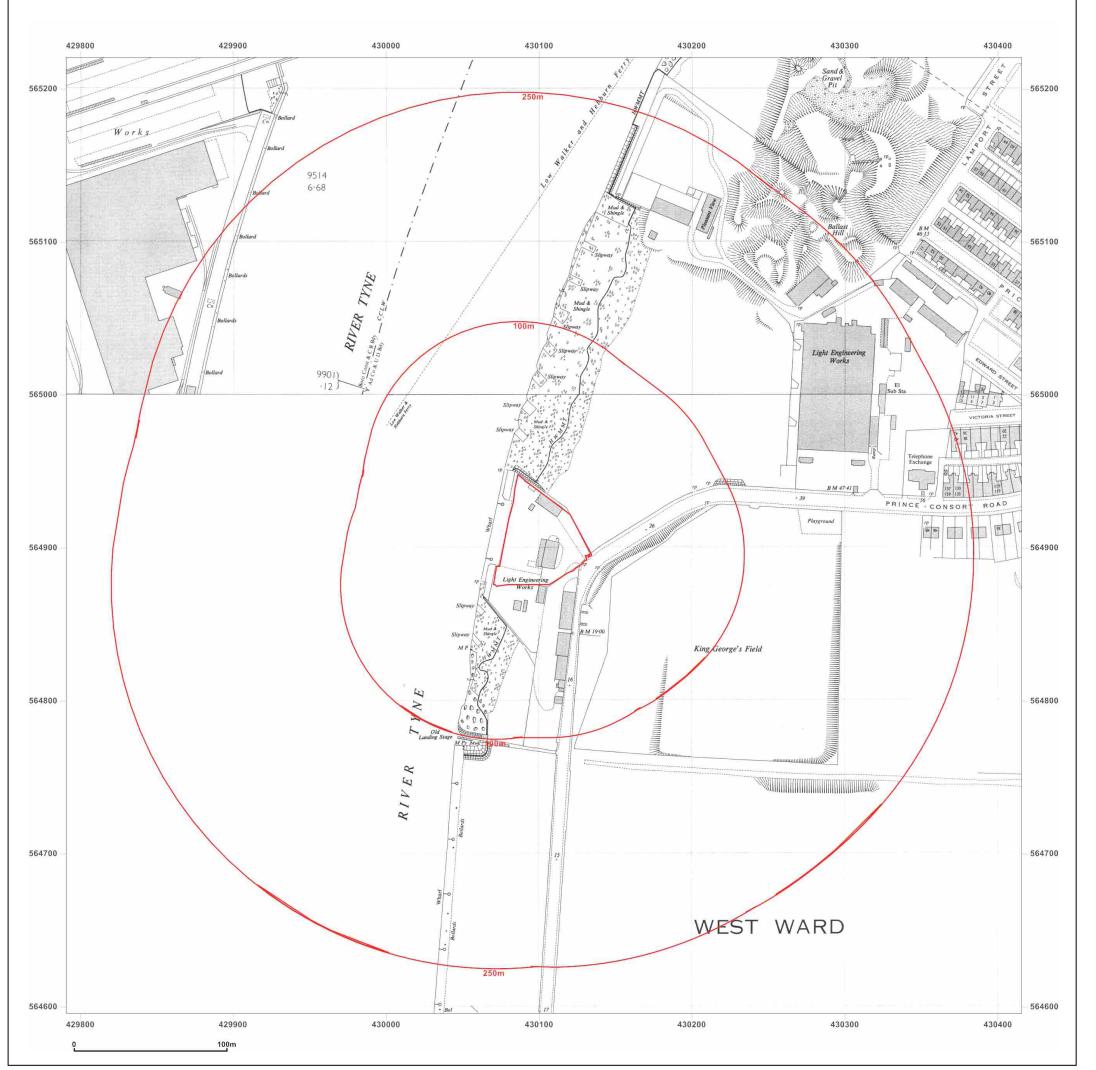


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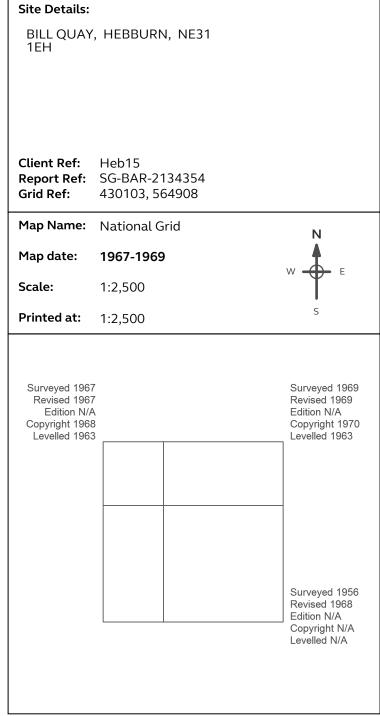
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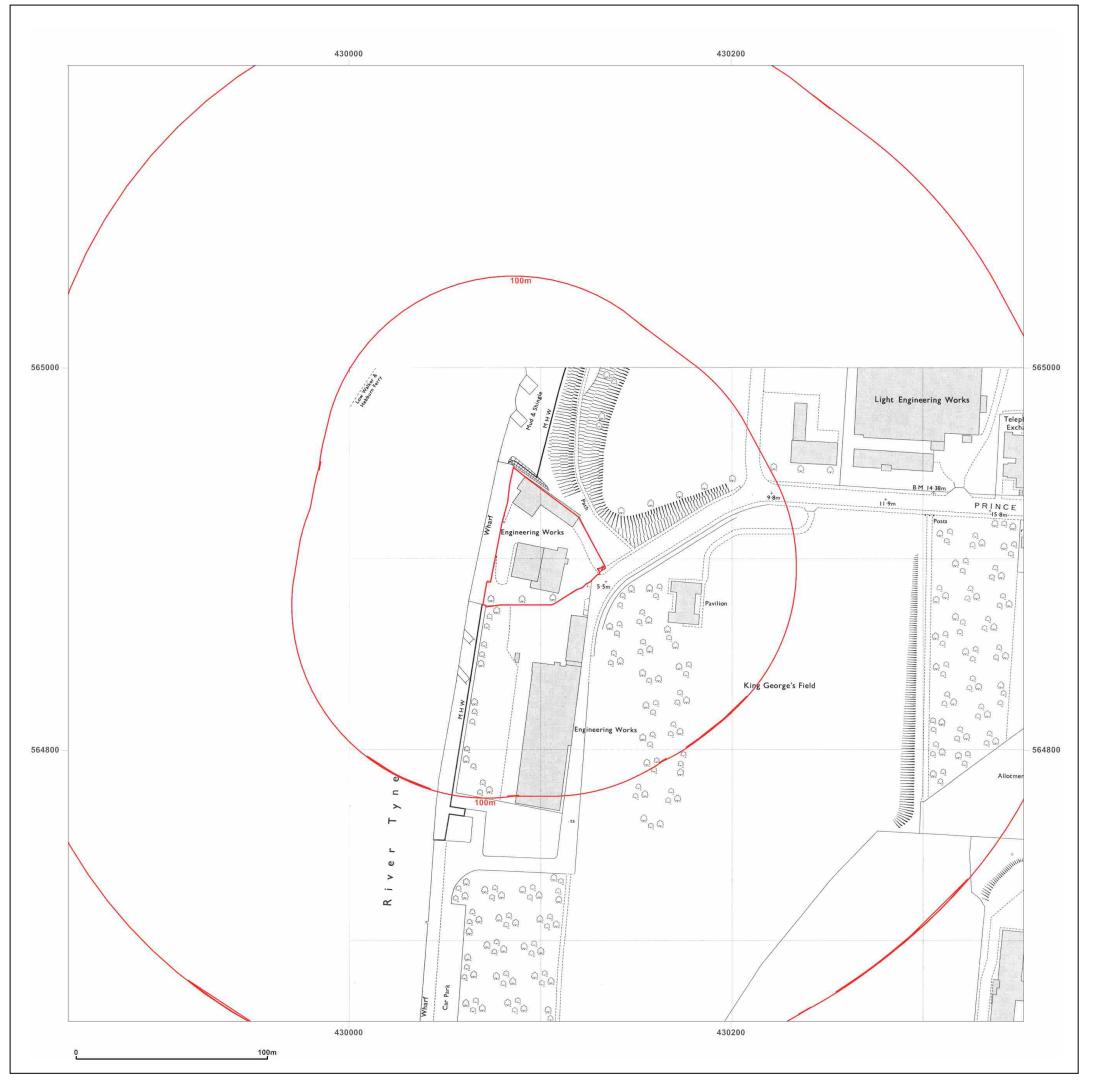


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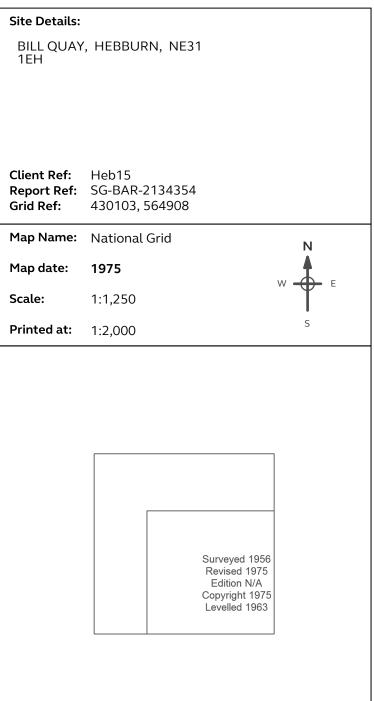
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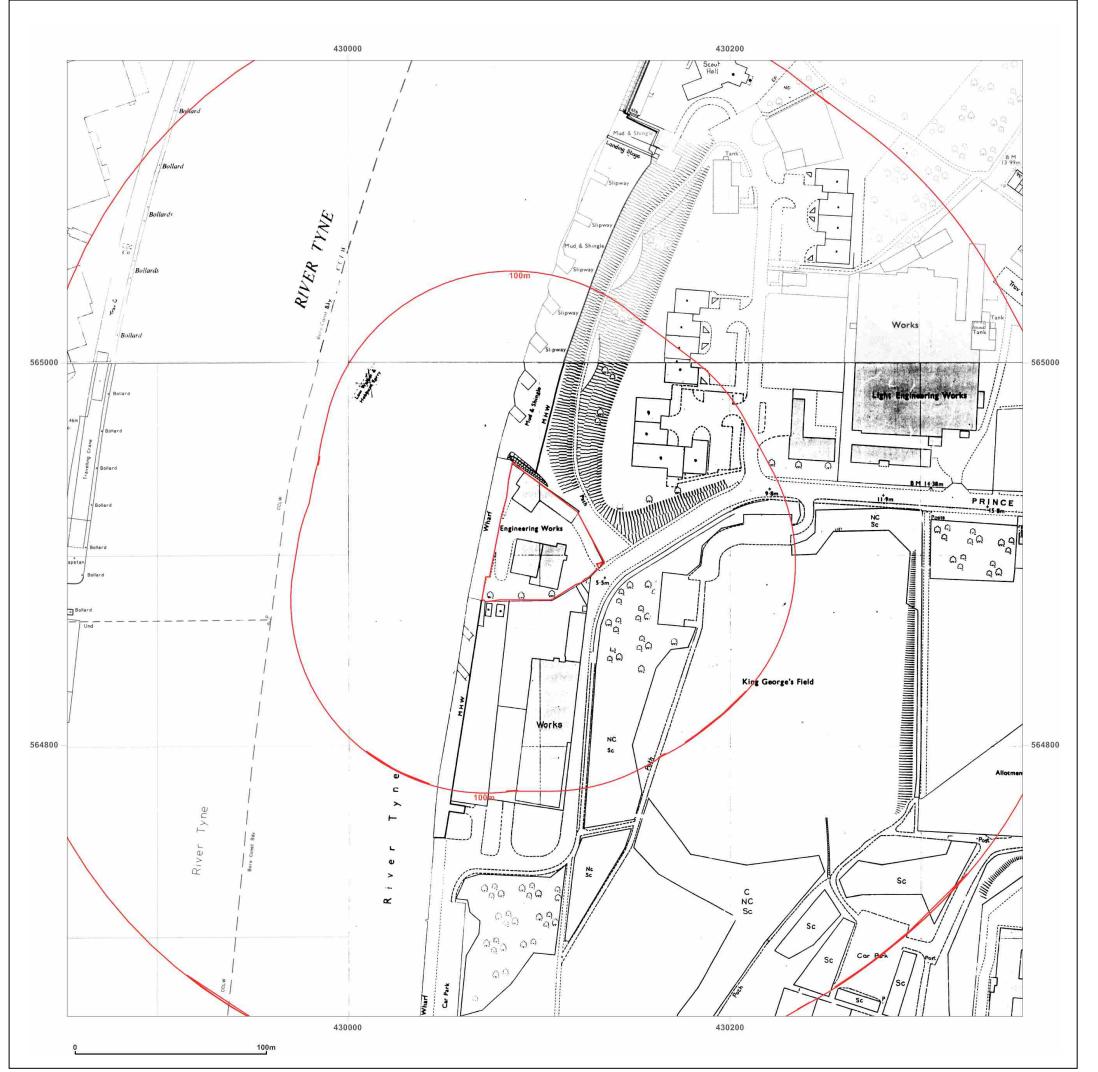




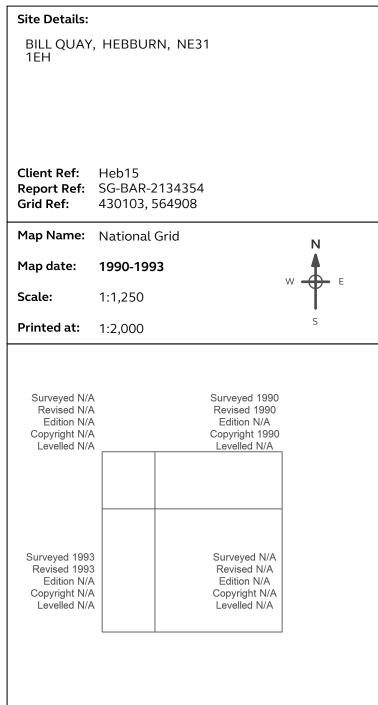


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Issued by:

The Coal Authority, Property Search Services, 200 Lichfield Lane, Berry Hill, Mansfield, Nottinghamshire, NG18 4RG Website: www.groundstability.com Phone: 0345 762 6848 DX 716176 MANSFIELD 5

INTERSOIL LTD 58 LOW FRIAR STREET NEWCASTLE UPON TYNE NE1 5UD Our reference: 51000891434001
Your reference: heb15
Date of your enquiry: 03 June 2015

Date of your enquiry: 03 June 2015

Date we received your enquiry: 03 June 2015

Date of issue: **03 June 2015** 

This report is for the property described in the address below and the attached plan.

# Non-Residential Coal Authority Mining Report

### CAR PARK, PRINCE CONSORT ROAD, HEBBURN, NE31 1EH

This report is based on and limited to the records held by, the Coal Authority, and the Cheshire Brine Subsidence Compensation Board's records, at the time we answer the search.

Coal mining	See comments below
Brine Compensation District	No

### Information from the Coal Authority

### **Underground coal mining**

### **Past**

The property is in the likely zone of influence from workings in 4 seams of coal at 160m to 320m depth, and last worked in 1947.

Any ground movement from these coal workings should have stopped by now.

#### Present

The property is not in the likely zone of influence of any present underground coal workings.

#### **Future**

The property is not in an area for which the Coal Authority is determining whether to grant a licence to remove coal using underground methods.

The property is not in an area for which a licence has been granted to remove or otherwise work coal using underground methods.

The property is not in an area that is likely to be affected at the surface from any planned future workings.

However, reserves of coal exist in the local area which could be worked at some time in the future.

No notice of the risk of the land being affected by subsidence has been given under section 46 of the Coal Mining Subsidence Act 1991.

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### Mine entries

There are no known coal mine entries within, or within 20 metres of, the boundary of the property.

### **Coal mining geology**

The Authority is not aware of any evidence of damage arising due to geological faults or other lines of weakness that have been affected by coal mining.

### **Opencast coal mining**

#### **Past**

The property is not within the boundary of an opencast site from which coal has been removed by opencast methods.

#### **Present**

The property does not lie within 200 metres of the boundary of an opencast site from which coal is being removed by opencast methods.

#### **Future**

The property is not within 800 metres of the boundary of an opencast site for which the Coal Authority is determining whether to grant a licence to remove coal by opencast methods.

The property is not within 800 metres of the boundary of an opencast site for which a licence to remove coal by opencast methods has been granted.

### Coal mining subsidence

The Coal Authority has not received a damage notice or claim for the subject property, or any property within 50 metres, since 31st October 1994.

There is no current Stop Notice delaying the start of remedial works or repairs to the property. The Authority is not aware of any request having been made to carry out preventive works before coal is worked under section 33 of the Coal Mining Subsidence Act 1991.

### Mine gas

There is no record of a mine gas emission requiring action by the Coal Authority within the boundary of the property.

### Hazards related to coal mining

The property has not been subject to remedial works, by or on behalf of the Authority, under its Emergency Surface Hazard Call Out procedures.

### Withdrawal of support

The property is not in an area for which a notice of entitlement to withdraw support has been published.

The property is not in an area for which a notice has been given under section 41 of the Coal Industry Act 1994, revoking the entitlement to withdraw support.

### Working facilities orders

The property is not in an area for which an Order has been made under the provisions of the Mines (Working Facilities and Support) Acts 1923 and 1966 or any statutory modification or amendment thereof.

### Payments to owners of former copyhold land

The property is not in an area for which a relevant notice has been published under the Coal Industry Act 1975/Coal Industry Act 1994.

\_

### Information from the Cheshire Brine Subsidence Compensation Board

The property lies outside the Cheshire Brine Compensation District.

#### **Additional Remarks**

Information provided by the Coal Authority in this report is compiled in response to the Law Society's Con29M Coal Mining and Brine Subsidence Claim enquiries. The said enquiries are protected by copyright owned by the Law Society of 113 Chancery Lane, London WC2A 1PL. Please note that Brine Subsidence Claim enquiries are only relevant for England and Wales. This report is prepared in accordance with the Law Society's Guidance Notes 2006, the User Guide 2006 and the Coal Authority and Cheshire Brine Board's Terms and Conditions applicable at the time the report was produced.

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Tax Point Date: 03 June 2015

Issued to: INTERSOIL LTD

58 LOW FRIAR STREET NEWCASTLE UPON TYNE

NE1 5UD

Property Search for: CAR PARK, PRINCE CONSORT ROAD,

HEBBURN, NE31 1EH

Reference Number: 51000891434001

Date of Issue: 03 June 2015

Cost: £59.00

VAT @ 20%: £11.80

Total Received: £70.80

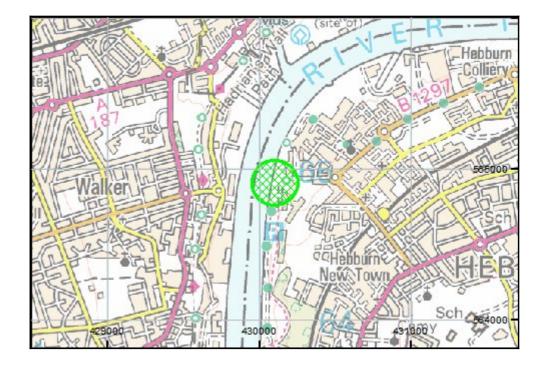
VAT Registration 598 5850 68

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### Location map



Approximate position of property



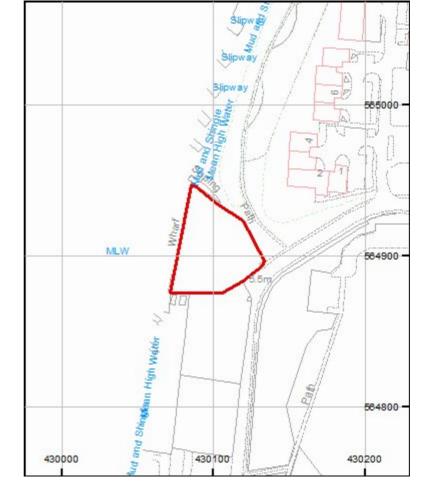
### **Enquiry boundary**

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### Key

Approximate position of enquiry boundary shown







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