South Bank, Redcar Teesworks

Client: South Tees Development Corporation

Local Planning Authority: Redcar & Cleveland Borough Council
Planning Reference: R/2020/0357/OOM
NGR: NZ 5321 9559

Date of Report: January 2022
Author: Nansi Rosenberg
Report No.: LIC02.03

Prospect Archaeology Ltd, Prospect House, Garden Lane, Sherburn-in-Elmet, Leeds, North Yorkshire LS25 6AT.
Tel 01977 681885. Email mail@prospectarc.com. www.prospectarc.com
Limited company registered in England 07130161

Contents

1.0 Introduction

1.1 South Tees Development Corporation (STDC) Has Been Granted Outline Planning Permission (R/2020/0357/OOM) for demolition of existing structures on site and the development of up to 418,000 sqm (gross) of general industry (use class B2) and storage or distribution facilities (use class B8) with office accommodation (use class B1), HGV and car parking and associated infrastructure works all matters reserved other than access. The permission is subject to a condition (number 14) which requires a programme of archaeological work to be undertaken in advance of remediation:

> *Prior to the commencement of the development, or in accordance with the phasing plan agreed through discharge of condition 4, a written scheme of investigation (WSI) for archaeological work shall be submitted to and approved in writing by the local planning authority. The WSI shall make provision for:*
> *i Before site remediation or development commences, archaeological evaluation of relevant borehole and test pit data*
> *ii During remediation archaeological monitoring of groundworks in selected areas of the site (to be agreed with the Council in accordance with parameters specified in the WSI)*
> *iii An archaeological watching brief/prior and, or strip map and, or record (as appropriate) of areas agreed as archaeologically sensitive*
> *iv Archaeological monitoring of deep excavations and piling in any areas indicated by the evaluation of borehole and test pit data to be of potential archaeological interest*
> *v The recording of the Riverside Pumping and Custom House to at Historic England Level 2/3, including photogrammetry and measured survey*
> *vi A general programme of works and monitoring arrangements, including reasonable notification to the local planning authority of commencement of works*
> *vii Details of staff involvement in carrying out the work (including specialists), and their qualifications and responsibilities*
> *viii The timetable for completing post-excavation assessment. Provision for the analysis, archiving and publication of the results of the archaeological surveys and excavations shall be secured to the satisfaction of the local planning authority by the developer before any of the business units on development is brought into use, as necessary. The development shall not without the prior written approval of the local planning authority be carried out otherwise than in accordance with the approved WSI.*
> *REASON: to ensure that any archaeological interest is appropriately recorded.*
> *REASON FOR PRE-COMMENCEMENT: A pre-commencement condition is required to ensure that no remains are disturbed or otherwise compromised by site excavation of other ground works.*

1.2 This Written Scheme of Investigation (WSI) has been prepared by Prospect Archaeology Ltd and details the staffing, methodology and timetable of the programme of works for investigation and recording works, excluding the works required at the Riverside Pumping and Custom House which

are dealt with separately. It complies with the Chartered Institute for Archaeologists' (CIfA) *Standard and guidance for archaeological field evaluation* (CIfA 2014), *Standard and guidance for archaeological excavation* (CiFA 2014) and *Standard and guidance for an archaeological watching brief* (CiFA 2014) in the their updated (2020) versions.

2.0 Site Location and Description

2.1 The site is a roughly rectangular parcel of land (although four areas within the overall redline are excluded from this application) covering up to 41.8ha of former industrial and storage land on the southern back of the Tees Estuary. It is centred on NGR NZ 5422 2224, lying between the Teesport and PD Ports to the north and Teesport Commerce Park to the south. The Tees Valley Railway marks the south-eastern boundary of the Site and the River Tees lies to the northwest.

2.2 The Site has been used for the iron and steel industries and for the storage of materials and freight rail infrastructure. The south-eastern corner of the site has previously been used for landfill and waste management facilities, specifically for the disposal of by-products from iron and steel making, cement, metals and non-hazardous waste.

3.0 Archaeological Background

3.1 The site has been the subject of desk-based assessment (Prospect Archaeology 2020). This documents the long and complex history of use of the Site for iron and steel production.

3.2 It is possible that the Site was dry land during early prehistory when sea levels were lower. However, a review of geotechnical information confirms that remediation works will not impact on levels below the material imported to raise the levels out of the estuary and as such no further work is required to establish the presence / absence of prehistoric activity.

3.3 During all historic periods, the Site is believed to have lain within the Tees Estuary and no-pre19th century activity is anticipated. The Site was reclaimed from the estuary during the second half of the 19th century. Initially the edge of the dry land was occupied by the Middlesbrough and Redcar Railway, which subsequently formed the southern boundary of the Site.

3.4 The South Bank Iron Works was developed adjacent to the railway at the southern end of the Site by 1863 by Bernhard Samuelson and John Vaughan who then sold it to Major Elwon. In 1879 it was producing steel and was bought by Bocklow, Vaughan & Co.

3.5 By 1895 about one-third of the Site had been reclaimed from the estuary, with piers and jetties carrying rail lines extending through the mud for import and export of materials for the iron and steel works further south. The South Bank Iron Works was the dominant industry within the Site but other industrial processing facilities were also present. The Antonien Works (Phosphate Manure) on the 25" 1895 map was later shown as 'Basic Slag Works'. Slag from the various ironworks was processed here and at other locations to be used in the construction of reclamation walls and also for making 'Scoria Blocks' which were used in paving roads and alleyways.

3.6 Elements of the 19th century Antonien Works may survive within the site and whilst the majority of the South Bank Iron Works lies outside the redline boundary, it is possible that part of the boiler house did fall within the Site.

3.7 First and Second World War defensive sites (a WWI submarine base and WWII heavy anti-aircraft gun battery) were located towards the north-eastern corner of the Site but monitoring of Site Investigation test pits has established that these no longer survive.

4.0 Scope of Works

4.1 The 19th century structures associated with the Iron and Steel Works require further investigation and, if appropriate, recording. The two structures identified for building recording, the Riverside Pumping House and Customs House, lie outside the scope of this WSI.

4.2 The need for and extent of recording of the Antonien Works and the South Bank boiler house are dependent on a detailed review of mapping and assessment of the site investigations carried out to understand the likely levels of survival.

4.3 In the area of the Antonien Works, map evidence indicates that following construction in the second half of the 19th century, the building was expanded in the 1920s but then appears to have been completely rebuilt by the 1960s. Site investigations identified made ground comprising 75-100% slag to beyond 4.2m depth (SBS_AUK_TP139). No brick or concrete structures were identified.

4.4 In the area of the South Bank boiler works, test pits and boreholes encountered slag and concrete only. A concrete surface found at 1.5m below ground level (BGL) could be a floor (SBC_AUK_TP104A). However, detailed assessment of the map evidence shows the earliest phase of the boiler house to lie outside the current application site and therefore no monitoring of this structure will be possible as part of this development.

5.0 Aims and Objectives

5.1 The purpose of the monitoring exercise is to provide a rapid record of the remains of the South Bank Iron and Steel Works boiler house and associated Antonien Works where they survive.

5.2 The following specific research themes and recommendations contained in the North-East Regional Research Framework (Petts & Gerrard 2006) will be considered in the excavation and analysis of the site:

- MOi - Industry
- ID9 - Recovery of metalworking material & full analysis

6.0 General Instructions

Health and Safety

6.1 The archaeologists on site will operate with due regard for Health and Safety regulations. Where archaeological work is carried out at the same time as the work of other contractors, regard should also be taken of any reasonable additional constraints that these contractors may impose. This work will require the preparation of a Risk Assessment in accordance with the Health and Safety at Work Regulations. The archaeological contractors will comply with any and all health and safety procedures in place for the overall site and complete inductions, training and tool-box talks as necessary.

7.0 Method

7.1 Fieldwork will be undertaken by a team from Pre-Construct Archaeology (PCA). Groundworks will be supervised by an appropriately experienced archaeologist and all recording work required will be carried out by one or more archaeologists as required by the archaeology present.

7.2 There will be no watching brief maintained where excavation is entirely within recent made ground (slag).

7.3 Where excavation is expected to extend beyond the depth of modern made ground, an archaeologist will be present during excavation to monitor for the presence of archaeological deposits. The archaeologist should view the area as it is being dug and any trench sections after excavation has been completed. Where archaeology is judged to be present, the excavated area should be rapidly cleaned and the need for further work assessed. Should areas of archaeological interest be identified, the consultant should be informed in the first instance to allow discussions with NEAR to take place and a strategy for mitigation be rapidly developed.

7.4 All features/deposits of archaeological interest should be accurately located on a site plan and recorded by photographs, scale drawings and written descriptions sufficient to permit the preparation of a report. Section drawings (at a minimum scale of 1:20) must include heights O.D. Plans (at a minimum scale of 1:50) must include O.D. spot heights for all principal strata and any features. Where initial assessment is that remains of archaeological interest are present, a sufficient sample of archaeological features and deposits will be hand excavated in an archaeologically controlled manner in order to establish their extent, nature, function, condition, date and relationship to other features where possible.

7.5 The actual areas of monitored ground disturbance (even if no archaeological remains are present) should be recorded on a suitable base map/development plan and the stratigraphic sequence and the depth of the excavations will be briefly recorded. If archaeological remains are identified, their location is to be accurately tied into the National Grid and located on an up-to-date 1:1250 O.S. map base.

7.6 All features will be recorded using a Total Station instrument (GPS).

7.7 Excavated soil should be searched as practicable for finds. Retention of finds will depend on their nature and size. Large industrial deposits that cannot be easily collected and transported by hand / vehicle should be recorded in situ and then removed and inspected / recorded as appropriate. Decisions regarding recording of larger finds should be based on their ability to answer research questions. The advice of an archaeometallurgist may be useful in making decisions regarding such finds.

Unexpected Discoveries

7.8 If significant archaeological features or deposits are uncovered, which could not reasonably have been expected, the scope of the WSI will be reviewed to determine the most appropriate recording and sampling strategy for those remains. Should this be required, the locations and extent of additional archaeological investigation will be agreed by all parties on site.

Recording

7.9 Archaeological recording will be carried out by means of unique numeric based context records and will be written, drawn and photographic (and any other appropriate means). All archaeological exposures (layers, cuts, fills, structures) will be recorded using pro-forma recording sheets. Harris Matrix stratification diagrams will be used to record stratigraphic relationships and these records will be compiled and fully checked during the course of the recording work.

7.10 The areas of investigation will be located by appropriate means to ensure its accurate location relative to the Ordnance Survey National Grid.

7.11 A drawn record will be maintained, comprising a site plan showing the locations of the areas of monitoring within the Site, feature plans, elevations and section drawings as appropriate. These will be produced at appropriate scales, normally 1:100, 1:50, 1:20 and/or 1:10, as the complexity of the drawing requires. Detailed plans will be made of key features and section or elevation drawings provided of cut features and upstanding structures as appropriate. All drawings will be referenced to the overall site plan. OD spot heights for all principal strata should be included on plans.

7.12 A photographic record of the project and of each feature / structure / deposit will be made and photographs illustrating the relationships between groups of features and general progress will also be taken. Archival record shots will be colour digital shots; procedures will follow the guidance offered in The Historic England (2015) 'Digital Image Capture and File Storage: Guidelines for Best Practice' document (https://historicengland.org.uk/images-books/publications/digital-imagecapture-and-file-storage/). All photographs will be in sharp focus with an appropriate depth of field. All photographs will be adequately exposed in good natural light or, where necessary, will be sufficiently well lit by artificial means. All photographs will be taken with DSLR camera of no less than 10 megapixels resolution. For maximum quality the preferred option is that the RAW (camera specific) setting is used. RAW images will be converted to TIFF before they are deposited with Kirkleatham Museum,

7.13 All context, drawing and photographic registers will be cross-referenced.

7.14 Finds will be bagged and labelled according to their context of origin. All finds will be treated in accordance with the recommendations contained in First Aid for Finds (Watkinson & Neale 1998).

Soil Sampling

7.15 The recording work is targeting early 20th century industrial structures. Therefore, environmental soil sampling is unlikely to be required. Soil samples will only be taken from deposits that can be securely dated and/or placed in the Site's stratigraphic sequence. Samples will be collected in accordance with a strategy which recognises the aims and objectives of the project and provision will be made for on-site advice from a relevant specialist. The strategy will take note of the industrial nature of the site and as part of the strategy, sampling will be undertaken of industrial residues for examination, in accordance with the advice and the guidance offered in Historic England guidance documents: English Heritage 2011, Historic England 2015 and Historic England 2018a. Samples for environmental purposes will be no less than 40 litres (where possible). If samples are required from discrete features that are not proposed for 100% excavation, they will be taken from the unexcavated 50%. Sampling of stake-holes or small features will require the excavation of 100% of the feature.

Human Remains

7.16 Should human remains be encountered they must initially be left in situ, covered and protected. The consultant, curator and coroner should be informed immediately. Removal of human remains will only take place in accordance with a Ministry of Justice licence (which may be required under the 1857 Burials Act) and in accordance with the guidance referenced in Historic England 2017 and the guidance issued by the Advisory Panel on the Archaeology of Burials in England (https://apabe.archaeologyuk.org/).

Treasure

7.17 The possibility of encountering items of treasure, as defined in the Treasure Act (1996) as amended, is noted and provision will be made for informing the necessary authorities, and providing appropriate security measures, should the need arise.

8.0 Monitoring

8.1 NEAR will be informed of the proposed start date and will be kept informed of progress throughout the field and post-excavation work. A member of Prospect Archaeology staff will monitor the excavation and post-excavation work on behalf of the client. Site monitoring visits will be coordinated by Prospect Archaeology.

9.0 Post-excavation processing

9.1 Finds and records will be returned to the contracted unit for processing. Records will be checked and entered into a computerised database. All finds will be treated in accordance with current HE best practice, including 'Investigative Conservation'. Finds will be cleaned (where appropriate) and marked and boxed for transfer to the relevant specialists according to accepted principles and in

line with appropriate period/ material guidelines. Environmental samples will be washed and assessed by an environmental archaeologist.

9.2 Where material suitable for scientific dating is recovered, sufficient dating will be undertaken to meet the aims of the project.

9.3 For all categories of material recovered, including finds, palaeo-environmental, industrial and other specialist samples, an assessment by an appropriately experienced specialist will be undertaken.

9.4 Environmental samples will be processed and sorted, and any artefacts recovered provided to the appropriate specialist(s) to be considered alongside the hand-recovered material. Basic stratigraphic information will be supplied to the project specialists.

9.5 Where assessment has identified the need for further analysis and no further mitigation work has been secured within 12 months of the completion of the evaluation reporting (or as agreed with the local planning authority as advised by NEAR), this will be completed drawing upon the contingency allowed, representing 10% of post-excavation costs.

9.6 All retained ferrous objects and a selection of non-ferrous objects (including all coins), will be x-radiographed in accordance with the guidance offered in Historic England 2006.

Reporting

9.7 A report will be produced within 4 weeks of the completion of the initial recording fieldwork and provided digitally (pdf format) to Prospect Archaeology for distribution. The report will be prepared in accordance with the Chartered Institute for Archaeologists' guidelines.

9.8 Prospect Archaeology will distribute copies of the report to appropriate organisations and individuals. The whole document should be provided as a complete text and image file in pdf format. Prospect Archaeology shall ensure that a full digital copy of the report (on CD or otherwise) is supplied to the Redcar & Cleveland HER within three months of being completed.

9.9 The report will contain the following sections:

- A non-technical summary of the findings
- Description of the methodology employed and explanation of any agreed variations to the brief and justification for any analyses not undertaken
- Aims and objectives, including specific research objectives
- A stratigraphic descriptive account of the results from each area / structure investigated
- Discussion of the results and their significance in relation to local, regional and national sites, as appropriate
- Conclusions

- A catalogue and brief post-excavation analysis of each category of artefacts recovered during excavation, including the potential for further analysis
- An index to the project archive, including details of its location
- Illustrations and plates as appropriate. Illustrations to be included are: a detailed location map, a detailed site plan showing all trenches, all trench plans and sections and detailed plans and sections of features, select artefact images; an overall site plan showing all (phased) archaeological features will also be included.
- References and bibliography of all sources used; and
- An appendix containing a list and summary descriptions of all contexts recorded.

9.10 Prospect Archaeology will require regular updating on the results of the watching brief, with no less than weekly progress reports to be submitted. This is to allow rapid decisions on the need for further / extended recording work in different parts of the Site.

Publication

9.11 Formal publication will be included in a single volume covering all archaeological recording for the wider site, incorporating all parts of the former Teesside Steel Works currently owned by South Tees Development Corporation (STDC). The scope of this publication will be determined in discussion with NEAR and will be completed within a reasonable time following the completion of the final piece of fieldwork.

10.0 Health and Safety

10.1 All Site work will be carried out in accordance with the relevant current Health and Safety legislation (including relevant provision for Covid-19 specific measures) and, more specifically, the H&S procedures of the groundworks contractor undertaking the remediation works. A copy of the Health and Safety Document is available on request and a Risk Assessment will be prepared prior to commencement of work on Site. The health and safety of the workforce should be considered over and above archaeological requirements.

11.0 Insurance

11.1 PA and its sub-contractors are fully covered by Employers and Public Liability and Professional Indemnity insurances, copies of which are available for inspection on request.

12.0 Archiving

12.1 The Site archive will be prepared in accordance with the UKIC's document Guidelines for the Preparation of Excavation Archives for Long Term Storage and the CIfA's Standard and Guidance for the creation, compilation, transfer and deposition of archaeological archives 2014.

12.2 Ultimately the ordered and checked archive, along with artefacts, ecofacts and relevant documents will be combined with the final site archive and deposited with the Kirkleatham Museum. The museum will be contacted prior to the commencement of fieldwork. Thereafter the museum will be involved in discussions with regard to selection and retention of archive material

prior to archive deposition, through completion and submission of appropriate forms. This excludes finds that are subject to the Treasure Act 1996 (and later amendments), the deposition of which will be determined separately. A budget to cover the museum's deposition charge will be allowed for in the project costs to the client. The Museum will be contacted for an accession number by the contractor at the appropriate time. On completion, confirmation of deposition will be supplied to NEAR.

12.3 An electronic copy of the archive will be deposited with ADS

13.0 Programme & Staffing

13.1 Fieldwork will be undertaken by a team from Pre-Construct Archaeology. A full list of specialists to be used will be provided prior to fieldwork commencing, for discussion and agreement with Prospect Archaeology and the local planning authority as advised by NEAR. Other specialists found to be necessary during the life of the project will be discussed and agreed on a case-by-case basis.

13.2 The name of the responsible archaeologist on site and his / her CV / biography (indicating where relevant experience of working on sites of a similar nature) shall be communicated to NEAR at least five days before any works to which this WSI relates are first commenced on site.

13.3 The archaeologist(s) appointed to carry out the work specified will by commencing work be deemed to be working according to the requirements of this WSI, unless the archaeologist(s) in question first agree a variation of this WSI with the local planning authority as advised by NEAR.

14.0 References

Chartered Institute for Archaeologists (2014a). *Standard and guidance for an archaeological watching brief*.

Chartered Institute for Archaeologists (2014b). *Standard and guidance for the collection, documentation, conservation and research of archaeological materials*.

Chartered Institute for Archaeologists (2014c). *Standard and guidance for the creation, compilation, transfer and deposition of archaeological archives*.

Chartered Institute for Archaeologists (2014d). *Code of Conduct*.

English Heritage, 2011 (second edition) *Environmental Archaeology: A guide to the theory and practice of methods, from sampling and recovery to post-excavation*. Centre for Archaeology Guidelines

Historic England, 2015 *Archaeometallurgy: Guidelines for Best Practice*.

Historic England (2015b) *The Management of Research Projects in the Historic Environment* (MoRPHE).

Historic England 2017 *Guidance for Best Practice for the Treatment of Human Remains Excavated from Christian Burial Grounds in England second edition*

Rosenberg, N 2020 *South Bank, Redcar Desk-Based Heritage Assessment*. Unpublished report LIC01-01

Watkinson, D, & Neale, V, 1998 *First Aid for Finds: Practical Guide for Archaeologists*, 3rd edition

https://historicengland.org.uk/images-books/publications/digital-imagecapture-and-file-storage/

https://apabe.archaeologyuk.org/

15.0 Figures

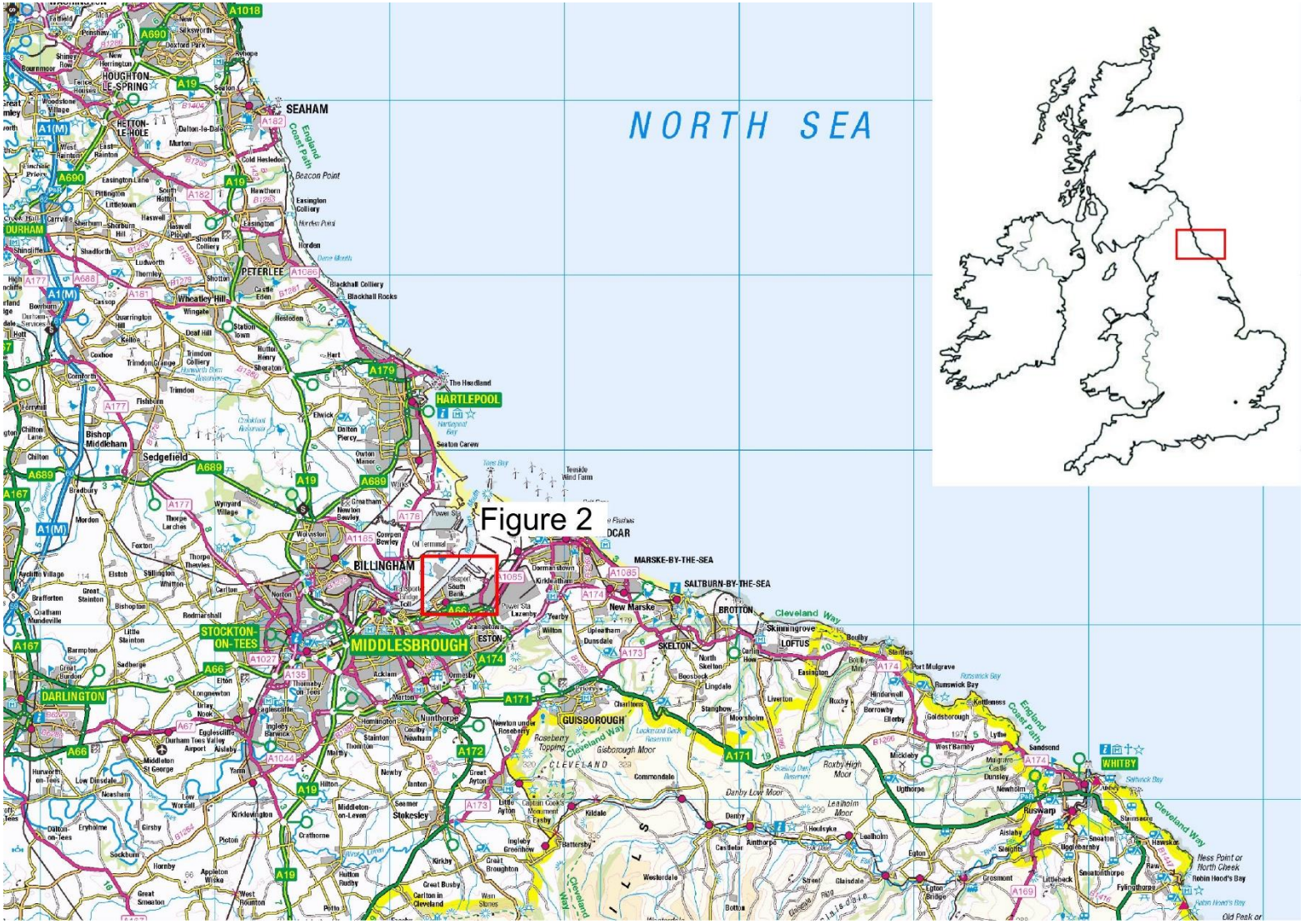


Figure 1: Site Location

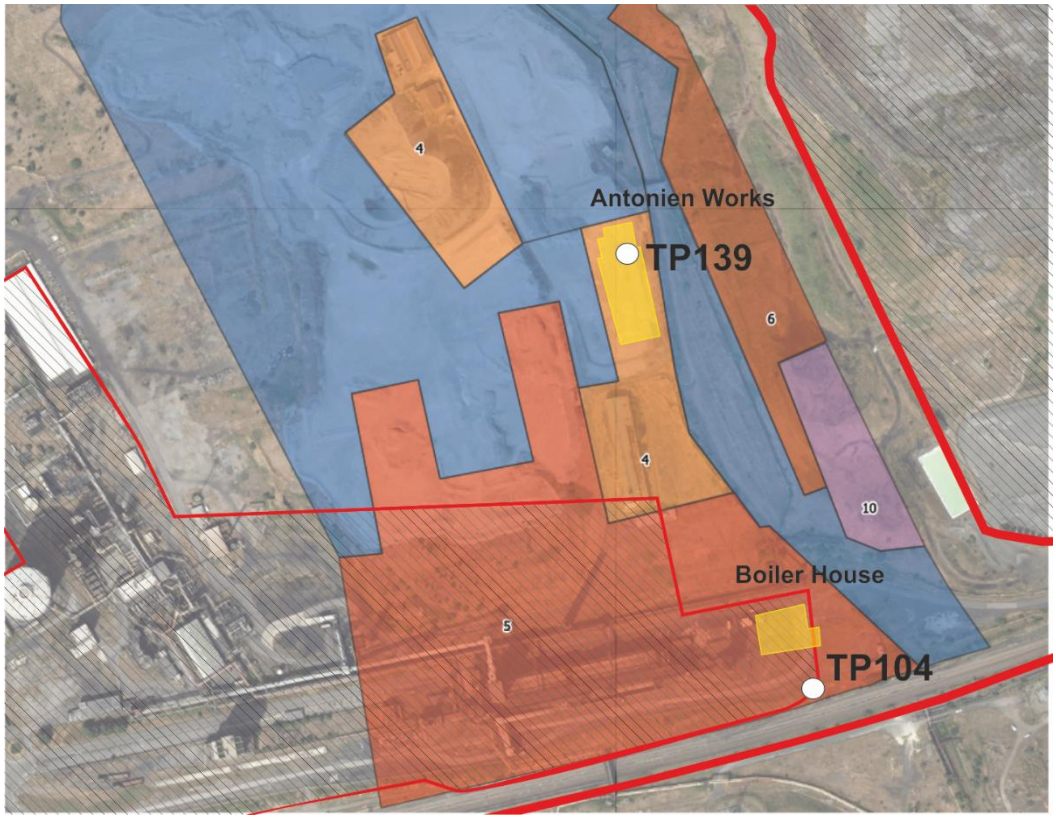


Figure 2: Remediation plan with 19th century structures (yellow) and relevant test pit locations

Figure 3: 1960s plan showing 19th century structures (yellow) and areas excluded from development (hatched)

Appendix 1: Relevant Test Pit Logs

ALLIED EXPLORATION & GEOTECHNICS LIMITED

Head Office: Unit 25 Stella Gill Industrial Estate, Pelton Fell, Chester-le-Street, Co. Durham, DH2 2RG **Tel:** 0191 387 4700 **Fax:** 0191 387 4710
Regional Office: Unit 20 Business Development Centre, Eanam Wharf, Blackburn, BB1 5BL **Tel:** 01772 735 300 **Fax:** 01772 735 999

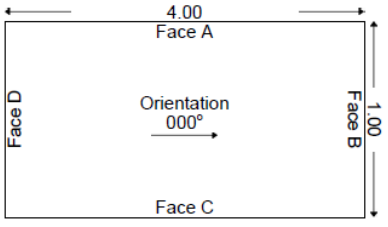
TRIAL PIT RECORD

Status:- PRELIM3

Project: Ground Investigation South Bank Area C			**Exploratory Hole No.**
Client: Tees Valley Combined Authority	**Location:** Former Redcar Steelworks, Redcar E:454109.976 N:521507.936		SBC_AUK_TP104A
Method (Equipment): Machine Excavated (36T Komatsu)	**Ground Level (m):** 8.216	**Start Date:** 25/05/2021	**Sheet:** 1 of 3

SAMPLES & TESTS			Water	STRATA			
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thickness)	Description
0.20-0.20	ES1						MADE GROUND (Soft to firm brown sandy gravelly clay with dark grey sand bands. Sand is fine to coarse. Gravel is fine to coarse subangular to subrounded and include sandstone and mudstone).
0.50	ES1					(1.50)	
0.90	B2						at c.0.90m BGL ... silty sandy gravel. Silt fines are of low plasticity.
0.90	J3						
1.00	PID	<0.1ppm		6.72		1.50	at c.1.50m BGL ... concrete.
							Terminated at 1.50m BGL - due to concrete obstruction.

PLAN



GROUNDWATER
No groundwater inflow observed.

STABILITY
Pit sides and base moderately stable throughout excavation.

ADDITIONAL INFORMATION		
Sketch Diagram:	No Sketch Taken	
Photographs:	Yes	See additional sheets.

GENERAL REMARKS

All dimensions in metres Scale 1:50.00	For explanation of symbols and abbreviations see Key Sheets	Checked by:	Logged by: I. Rhodes	Contract No. **4338**

ALLIED EXPLORATION & GEOTECHNICS LIMITED

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Regional Office: Unit 20 Business Development Centre, Eanam Wharf, Blackburn, BB1 5BL **Tel:** 01772 735 300 **Fax:** 01772 735 999

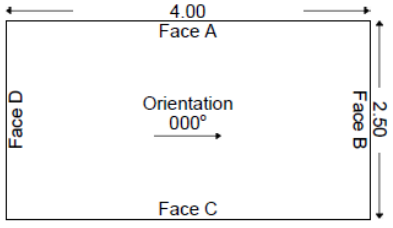
TRIAL PIT RECORD

Status:- PRELIM3

Project: Ground Investigation South Bank Area C			**Exploratory Hole No.** SBC_AUK_TP139
Client: Tees Valley Combined Authority	**Location:** Former Redcar Steelworks, Redcar E:453913.849 N:521835.298		
Method (Equipment): Machine Excavated (Hyundi 30t)	**Ground Level (m):** 9.751	**Start Date:** 27/04/2021	**Sheet:** 1 of 3

SAMPLES & TESTS			Water	STRATA			
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thickness)	Description
				9.55		0.20	MADE GROUND (Light grey silty fine to coarse sand).
1.00 1.00 1.00	B1 J2 PID	<0.1ppm		8.15		(1.40) 1.60	MADE GROUND (Brown to greyish brown sitly very sandy gravel with fragments of metal and medium cobble and boulder content. Sand is fine to coarse. Gravel is fine to coarse angular and includes brick and slag. Slag content is 25-75%. Cobbles and boulders are angular and include slag. Slag content is 75-100%).
2.00 2.00 2.00	B3 J4 PID	<0.1ppm		7.05		(1.10) 2.70	MADE GROUND (Brown to greyish brown slightly silty sandy gravel with with fragements of metal and medium to high cobble and boulder content. Sand is fine to coarse. Gravel is fine to coarse angular and includes brick and slag. Cobbles and boulders are angular and include slag. Slag content is 75-100%).
3.00 3.50 3.50 3.50	ES5 B6 J7 PID	<0.1ppm		5.55		(1.50) 4.20	MADE GROUND (Brown to reddish brown silty very sandy gravel with low cobble content. Gravel is fine to coarse angular and includes brick, concrete and slag. Slag content is 0-50%. Cobbles are angular and include slag. Slag content is 75-100%).
							Terminated at 4.20m BGL - due to instability.

PLAN



GROUNDWATER
No groundwater inflow observed.

STABILITY
Pit sides and base unstable below 1.60m BGL.

ADDITIONAL INFORMATION		
Sketch Diagram:	No Sketch Taken	
Photographs:	Yes	See additional sheets.

GENERAL REMARKS

All dimensions in metres Scale 1:50.00	For explanation of symbols and abbreviations see Key Sheets	Checked by:	Logged by: C. Ritchie	Contract No. **4338**