

Technical note:

South Tees Development Corporation Storage of Imported Soils for Land Remediation

1. Introduction

1.1 Background

South Tees Development Corporation (STDC) are proposing to import and temporarily store suitable soils for use in the remediation and restoration of former industrial land. The STDC area covers land to the south of the River Tees, in the Borough of Redcar and Cleveland, and includes the former TATA Steel (TATA) / Sahaviriya Steel Industries UK (SSI) Redcar Steelworks site as well as other industrial assets. The current extent of STDC land ownership is shown on their drawing STDC-SCW-XX-PLA-001 in Appendix A.

Parts of the land acquired by STDC is contaminated from former use and will require remediation to bring it back into beneficial use by rendering it suitable for use (mixed commercial and industrial). Such remediation will include placement of clean cover layers. Soils material is also required for localised regrading to establish development platforms and backfilling subsurface voids associated with former tanks, basements and utilities.

Sirius Minerals (Sirius) have commenced tunnelling operations on an adjacent site at Wilton, as identified on Wood drawing 41825-WOOD-XX-XX-DR-WM-0001 in Appendix A. The tunnelling operations will generate in the order of 800,000m³ of naturally occurring soil and rock material which is suitable for use in the future remediation works at the STDC site.

STDC are submitting a planning application to import soils from the Sirius site at Wilton and to temporarily store these for use in future remediation works. The planning application covers both the storage and reuse of the material. Six potential storage mound locations have been identified (see Drawing 41825-Shr001 in Appendix A) and are detailed in the planning application.

1.2 Purpose of this Technical Note

This technical note presents an outline of the proposed scheme and considers the regulatory implications and potential requirements associated with the importation and storage of the soil materials. In particular, this document presents a basis for regulatory discussion on the applicability of the Definition of Waste Code of Practice (DoWCoP) in the context of the transfer of clean natural material from tunnel excavation to storage mounds for future re-use in the future remediation works, the storage mounds being the designated end-use for the purposes of the DoWCoP.

2. Scheme Description

2.1 Source Site

The source site for the soils material is the Sirius proposed materials handling facility (MHF) at Wilton International as identified on drawing 41825-WOOD-XX-XX-DR-WM-0001. The soils material will be spoil derived from tunnelling operations being undertaken by Sirius and which will link the MHF site with their polyhalite mine at Woodsmith near Whitby, some 37km away. Some 800,000m³ (insitu volume) of soil and rock material derived from drives 1 and 2 of the tunnelling operation will potentially be available for import into the STDC site. Including a bulking factor this would require a storage mound volume in the order of 900,000m³.

The material arising from the tunnelling operation will be predominantly Redcar Mudstone with a small amount (approximately 2%) of glacial till. The tunnelling will be mainly within the calcareous and siliceous shale members of the mudstone.

A compaction trial has been undertaken on Redcar Mudstone excavated from the tunnel portal at Wilton. This trial was on crushed excavated spoil to replicate the likely grading to be produced by the tunnel boring machine which commenced operation in June 2019. The compaction trial identified the crushed Redcar mudstone material prior to compaction to comprise a silty sandy gravel with some cobbles of mudstone. The material pre-compaction can be classified as Class 1A, well graded granular material, in accordance with Table 6/2 of the Specification for Highways Works.

Samples taken for particle size analysis following compaction identifies that the material breaks down during compaction and would be classified as a mixture of Class 1A well graded granular material and Class 2C stony cohesive material. The fines fraction is of intermediate plasticity.

Chemical classification of the Redcar Mudstone has been undertaken. This confirms that the material can be classified as inert and suitable for use within development. There is the potential for some leaching of aluminium, manganese chloride and sodium from the mudstone and this should be considered within the environmental risk assessment.

2.2 Receiver Site

STDC have identified three main areas for stockpiling of imported soils material as identified on drawing 41825-WOOD-XX-XX-DR-WM-0001. These are summarised in Table 2.1.

Table 2.1 Proposed STDC Storage Mound Locations

Site Ref	Storage Mound Name	Provisional Area (Ha)	Provisional Capacity (m3)	Note
1A	Grangetown Prairie	1.3	39,000	
1B	Grangetown Prairie	1.1	39,000	
1C	Grangetown Prairie	4.5	259,000	
2	Metals Recovery	2.4	175,000	
3A	Warrenby	4.8	167,000	On top of existing permitted landfill
3B	Warrenby	5.3	446,000	

The total potential available storage mound capacity is 1,125,000m³ which is in excess of the estimated 900,000m³ of material (bulked volume) available from the Sirius site.

Sites 1A-1C are on a site previously associated with Cleveland Steel Works with the proposed storage mound locations mainly associated with railway sidings, the Middlesbrough to Saltburn railway remains adjacent to the north of the site and the British Steel site to the west. Site 2 is part of the former metals recovery area within the former South Bank works. Storage mound 3A would be formed on top of the existing Warrenby landfill which is a closed permitted landfill yet to be restored. Storage mound 3B is an area south of Warrenby landfill and adjacent to the Middlesbrough to Saltburn railway. It was previously identified as a proposed extension area for the landfill and is understood to have a base layer of slag. It contains some stockpiled scrap metal and railway sleepers.

STDC would be responsible for the management of the storage mounds prior to their future reuse in the development of the site.

2.3 Future Material Use

The stored material would be used in the remediation of selected areas of the STDC site within the red line boundary shown on Drawing 41825-WOOD-XX-XX-DR-WM-0001. This comprises some 286 ha. The proposed storage mound volume would equate to an average 0.32 m thickness across this entire area. In practice the capping thickness would be greater in some areas and may not be required in other areas. Material is also required for infilling subsurface voids and basements. The soils import from the Sirius site would also meet this need.

The justification for capping parts of the STDC site will be identified within a preliminary remediation strategy to be submitted to the Local Authority for approval. A design statement would confirm the suitability of future use of the material.

2.4 Provisional Programme

The provisional programme is as follows:

End June 2019	Planning application submitted for import and stockpiling of material
End September	Planning permission obtained
November 2019	Commence import

The import of material is anticipated to be over a period of 2 to 3 years. The proposed planning condition will require that the material is used for the capping/restoration works within a period not exceeding 10 years from the date of the granting of the permission.

The overarching remediation strategy will be submitted in support of the planning application. A summary design statement will also be produced confirming how the Sirius soils are suitable for use and compliant with the strategy regulatory regime.

3. Regulatory Regime

3.1 Planning Permission

As noted above planning permission is being sought for import of approximately 900,000m³ (compacted volume in storage mounds) from the Sirius site at Wilton International into temporary storage on the STDC site.

3.2 Definition of Waste

Surplus soil and rock material arising from the tunnelling operation on the Sirius site, not required for reuse or ultimate reinstatement of the Sirius site, is considered a waste. It is proposed that this material is reused for the purpose of land redevelopment on the STDC site in accordance with the CL:AIRE DoWCoP. The transfer would take place under the DoWCoP scenario 2, direct transfer of clean naturally occurring material.

The proposed transfer operation to storage mounds on the STDC site would be detailed in a materials management plan (MMP). The MMP and related documents will be reviewed by a qualified person (QP) and a declaration made to CL:AIRE who administer the DoWCoP scheme.

The related documents will include:

- Characterisation of material from the source site;
- Acceptance criteria and risk assessment for the receiver site;
- Design Statement including specification for reuse;
- Verification Plan; and
- Relevant correspondence with regulators.

It is considered that the material will cease to be waste once it is stored. Material could be stored for up to ten years (limited by planning condition) as redevelopment of the STDC site will take place in phases. As the material is suitable for reuse and is not considered a waste once it is in a storage then a waste storage permit/s is not considered necessary for the mounds. The transfer operation MMP would therefore be limited to the storage mounds.

Ultimate reuse of material in specific phases of land remediation and development on the STDC site could be managed under a separate DoWCoP scenario 1, materials reuse on the site of origin. The current planning application is both for the stockpiling and reuse of the material.

3.3 Warrenby Landfill

Proposed storage area 3A is on the plateau area of Warrenby Landfill with approximately 5m thickness of material proposed in temporary storage. This is a closed non-hazardous landfill regulated under environmental permit EPR/KP3790ZE/V002. An application is underway to vary the operator from TATA to STDC. A closure report for the site (also known as CLE31 Teesside) has been prepared by TATA. This identifies that the landfill can be restored with soil material and does not require a low permeability capping layer. The landfill is still to be restored and permit variation 2 schedule 3 requires a restoration plan. The variation contains a schedule (of inert) wastes which may be accepted for restoration.

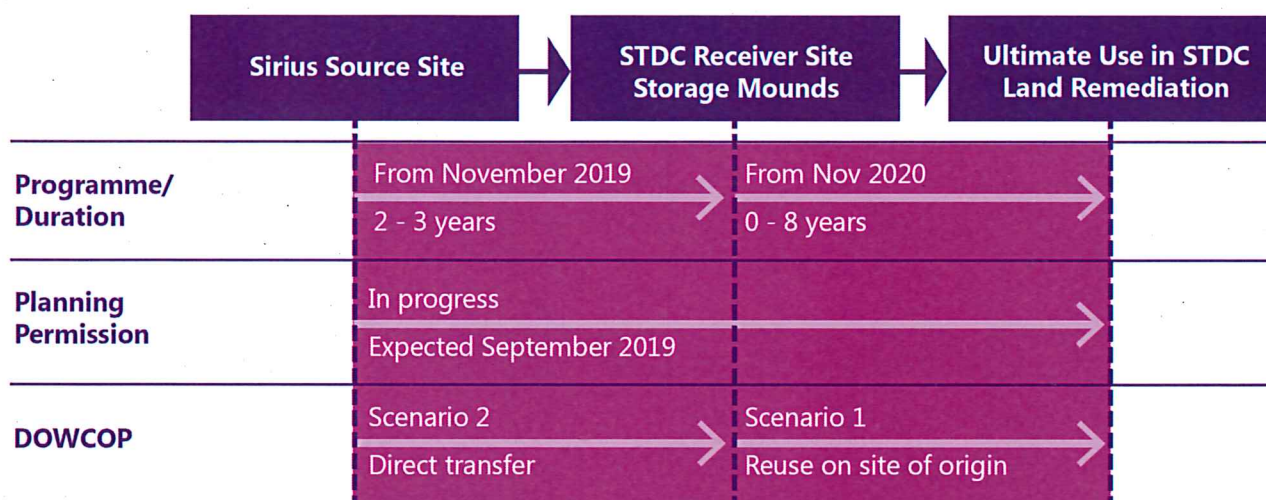
Consultation will be required with the Environment Agency regarding the proposed temporary storage of material on the Warrenby landfill site. If accepted in principle, then this is likely to require a permit variation linked to specific restoration proposals and a programme. There is the potential for some of the stored

material, to an agreed thickness, to be retained as part of the restoration of the landfill. This material is likely to require augmenting by some subsoil/topsoil in order for vegetation to be established.

Until the site is restored the permit cannot be surrendered and continued environmental monitoring will be required.

3.4 Regulatory Summary

The proposed regulatory position and programme is summarised below. This excludes consideration of Warrenby landfill which should be subject to separate assessment.



Issued by



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Approved by



Ian Evans

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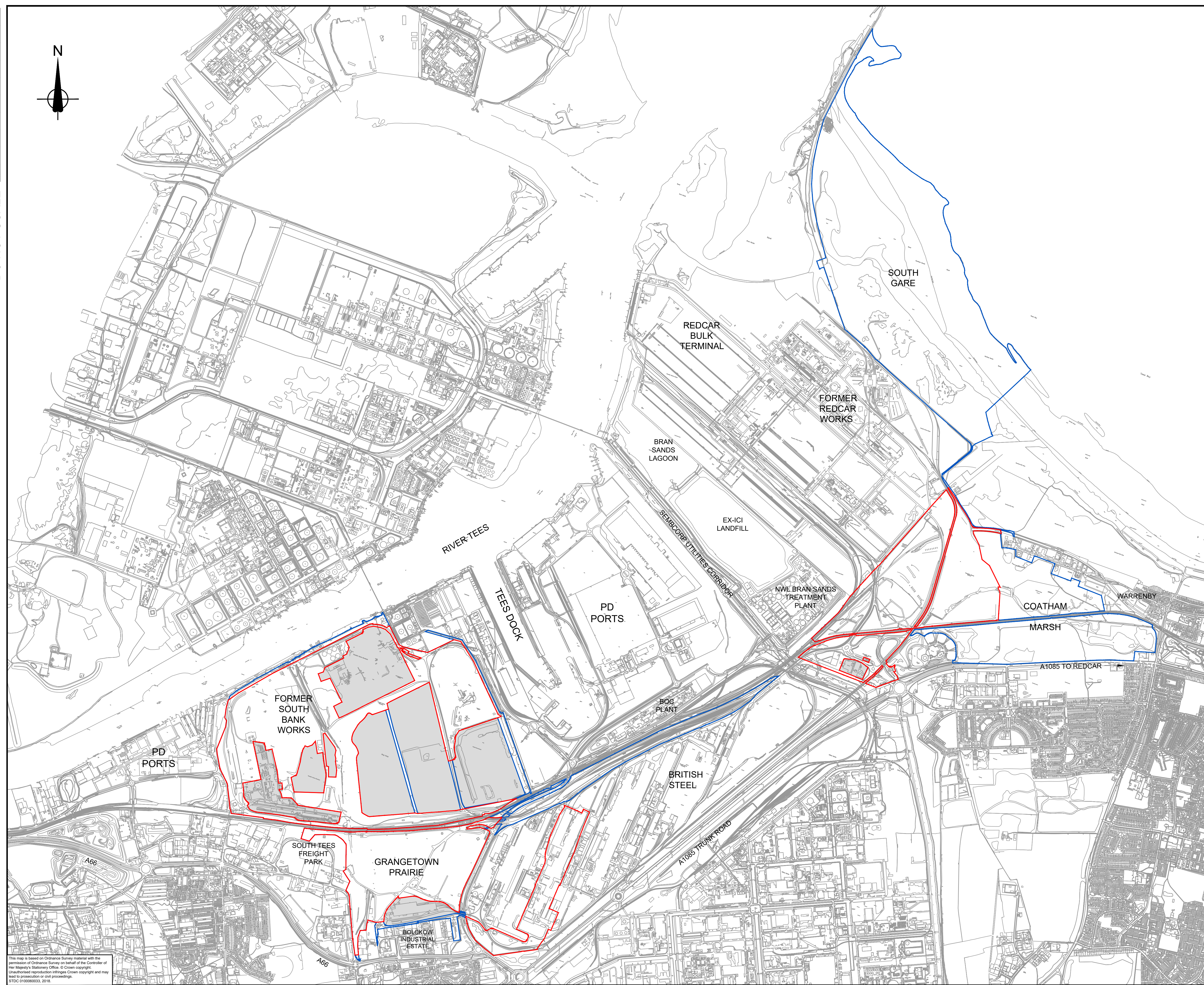
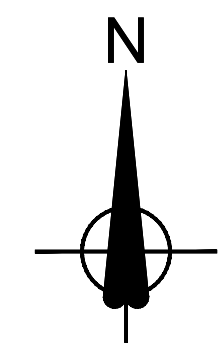
Appendix A

Drawings



DO NOT SCALE

0 10 100
Millimetres



- NOTES**
1. Do not scale from this drawing.
 2. This drawing is to be read in conjunction with the following planning application drawings:
 - STDC-NEZ-WA-PLA-0001-6
 - STDC-SIZ-GP-PLA-0001-7
 - STDC-SIZ-LA-PLA-0001
 - STDC-SIZ-MR-PLA-0001-4
 - STDC-SIZ-SB-PLA-0001

- KEY**
- STDC Land ownership boundaries
 - Proposed works red line boundaries
 - Areas not included within works

DRAFT
FOR PLANNING

Rev.	Date	Description	By	Chk'd	App'd

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Project Title: **STDC GROUND PREPARATION WORKS**

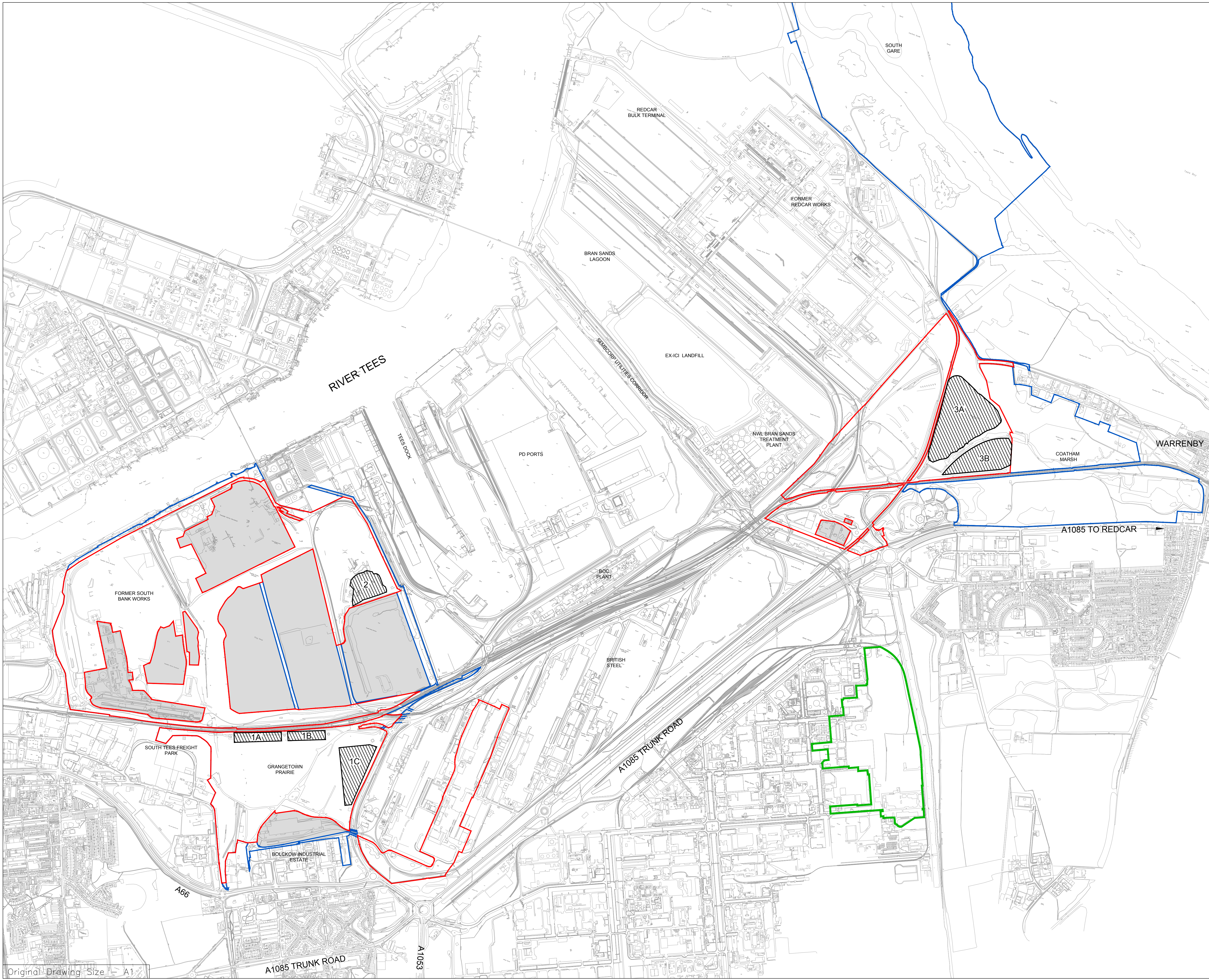
Drawing Name: **SITE LOCATION PLAN**

Drawn by: LCD Date: MAY 19
Checked by: DE Date: MAY 19
Approved by: JMC Date: MAY 19

Drawing Number: **STDC-SCW-XX-PLA-0001** Revision: -

Drawing Scale: 1:12,500 Page Size: A1

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DESCRIPTION					
REV	DATE	DESCRIPTION	DWN	CHK	APP
A	17/06/2019	FIRST ISSUE	AB	JB	JB

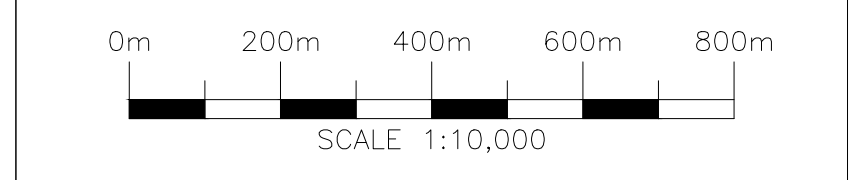
REVISIONS					
REV	DATE	DESCRIPTION	DWN	CHK	APP
P02	24/06/2019	Amendment to planning boundaries	AB	JB	JB
P03	27/06/2019	Amendment to key text and drawing title	AB	JB	JB

NOTES:

- All units are in metres unless otherwise noted.
- This drawing has been produced using information taken from South Tees Development Corporation drawings STDC-SCW-XX-PLA-0001 dated May 2019 and STDC-SCW-XX-GEN-0003 dated April 2019.

KEY:

	STDC Land ownership boundaries
	Proposed STDC works red line planning boundaries
	Sirius Wilton site boundary
	Areas not included within works
	Proposed storage mounds & reference numbers



SCALES: 1:10,000 @ A1

PROJECT TITLE:
Former Steel Works
South Tees

DRAWING TITLE:
Proposed Soil Storage Mounds

CLIENT:
South Tees Development Corporation

REF: _____

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