

South Tees Regeneration Master Plan

.....Building our Industrial Strategy

CONSULTATION DRAFT
OCTOBER 2017



South Tees Regeneration Master Plan

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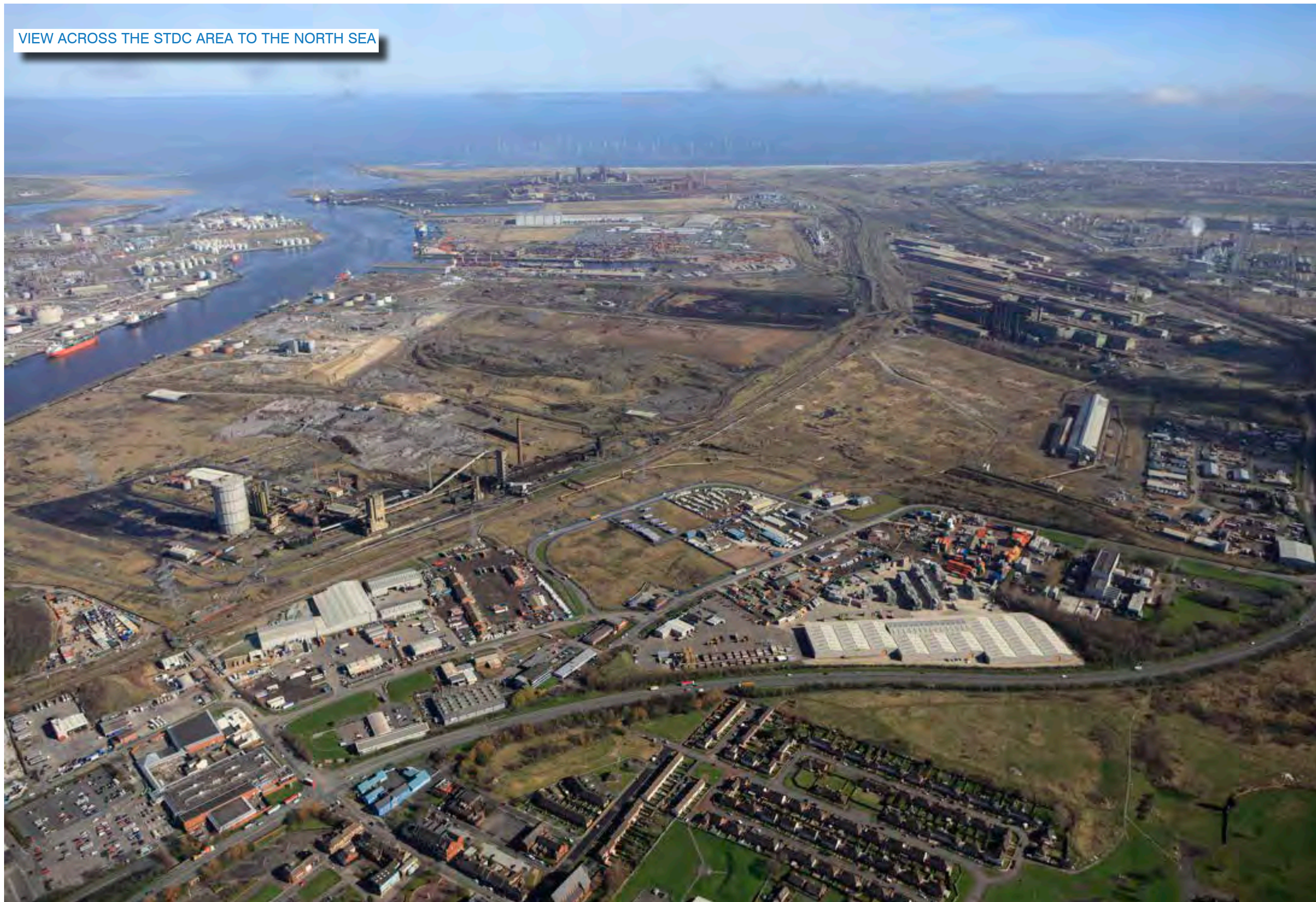
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VIEW ACROSS THE STDC AREA TO THE NORTH SEA



Foreword from the Mayor

The South Tees Development Corporation (STDC) is an exciting new enterprise that is crucial in promoting the economic development and business growth in our area. Covering a vast area, it is the first Mayoral Development Corporation to be set up outside of Greater London. Chaired by me and with a powerful board that exemplifies a strong private-sector and local community focus, it has been handed powers from Whitehall to invest in infrastructure, attract new business, and coordinate land ownership – including through land acquisition and compulsory purchase powers.

The South Tees site is the single greatest regeneration opportunity in the UK. It is well known as being the home of the former SSI Steelworks, but that is only a part of the story. It has excellent access to infrastructure, good transport connections, and a catchment area with an exceptional skilled workforce. It benefits from the inclusion of Teesport and Redcar Bulk Terminal, one of the UK’s largest deep water ports, and thereby creates new opportunities to access international markets. The site also provides a unique environment for industrial use, with land particularly suitable for new investment in the process and energy markets and a wide range of other global business sectors.

The opportunity to reunite the fragmented land ownerships created by the break-up of the former Tata Steelworks in 2010 presents a once in a generation chance to drive our economy forward in a world-class location and realise an industrial renaissance in the Tees Valley. Under the direction of the Corporation’s Board, STDC will grasp this opportunity and create a carefully chosen balance of major investors, cutting edge industry and supply-chain services that stretches out across the Tees Valley. The inclusion of important environmental and community assets at South Gare and Coatham Marshes also brings the potential for major enhancement of these areas of great natural beauty.

The world’s largest purpose-built biomass energy plant, MGT Teesside, is being constructed on the site and the area will provide access to export for the world’s largest Polyhalite Mine, accessed from a 23-mile tunnel to the Sirius Minerals mine in North Yorkshire. British Steel has made a strong commitment to the site, and there are real prospects for post-Brexit growth through international trade for many decades. These projects, and many more in our inward investment pipeline, demonstrate the level of ambition for our area.
















Whilst this is a huge development opportunity for the South Tees area, it is by no means limited to the boundaries of the development site, and we are working closely with our partners, and other local businesses, to champion neighbouring sites and the whole of Tees Valley as a place for future investment. This is a 25-year vision and one that will be pivotal in transforming the South Tees area, and wider Tees Valley, into a national asset and it is a key part of my mission to deliver 25,000 new jobs in Tees Valley over the next 10 years.



Ben Houchen
Tees Valley Mayor

The Board

The Corporation is led and chaired by the elected Mayor of Tees Valley. It has a board comprised of non-executive directors who bring together an outstanding blend of expertise and experience.

 <p>Ben Houchen Tees Valley Mayor</p>	 <p>Paul Booth OBE Chairman of Tees Valley Local Enterprise Partnership</p>	 <p>Steve Gibson OBE Chairman and Director of The Gibson O'Neill Group</p>	 <p>Professor Jane Turner OBE Pro-Vice Chancellor of Teesside University</p>
 <p>Sir Alan Cockshaw Former Chairman and Chief Executive of AMEC</p>	 <p>Bob Cuffe Regional Managing Director of Trinity Mirror NE</p>	 <p>Sue Jeffrey Leader of Redcar & Cleveland Borough Council</p>	 <p>John Baker Chairman of the Teesside Learning Trust</p>
 <p>Dave Budd Mayor of Middlesbrough</p>	 <p>Philip Leech MRICS Property Director of Urban & Civic PLC</p>	 <p>Graham Robb Senior Partner of Recognition Marketing & PR</p>	 <p>David Smith Chief Executive of Energy Networks Association</p>
 <p>Anand Srinivasan Founding Partner of Delphinus Advisory Limited</p>	 <p>Associate Member Andrew Lewis Managing Director of Tees Valley Combined Authority</p>	 <p>Associate Member Amanda Skelton Chief Executive of Redcar & Cleveland Borough Council</p>	 <p>Jonathan Bretherton Chief Executive Officer and advisor to the Board</p>

Master Plan Consultation

Under the enabling legislation that established the South Tees Development Corporation (STDC), a range of powers were granted to the Corporation. However, it was agreed between Tees Valley Combined Authority and Redcar & Cleveland Borough Council (RCBC) that the Council would retain planning powers and continue to act as the Local Planning Authority for the STDC area in respect of planning policy and development management, and in the processing of planning applications.

The aim is that the Master Plan for the STDC area will be adopted as a Supplementary Planning Document (SPD) under the Redcar & Cleveland Local Plan. As a necessary precursor to formal adoption, there is a requirement that RCBC and STDC consult on the proposals of the Master Plan to seek the views of the local community and other stakeholders and consider how their comments and suggestions can be utilised to refine and improve the proposals.

This Master Plan is delivered as a Consultation Draft. It is supported by an SPD Master Plan document, prepared by RCBC, also for consultation purposes, that will underpin future decision making on developments within the STDC area. An Executive Summary of the Master Plan has also been prepared for use at consultation events and as a quick reference guide on the key themes and proposals.

To help with the consultation process, STDC and RCBC have jointly drafted a series of pertinent questions covering matters where stakeholder feedback is particularly welcomed. These questions are set down below and they will feature in a questionnaire that will be made available to consultees for completion in either hard copy or electronic format.

1. The Master Plan vision is all about growing the local economy through the development of a world class industrial business park, creating significant new jobs. What do you think of this approach?
2. With the focus of the Master Plan being on industrial development, alternative uses such as large shops and office blocks would be located elsewhere, in nearby town centres. If you disagree with this strategy, how would you change it?
3. As well as utilising existing transport links, three road access points are proposed in the Master Plan, along with improved road access for Teesport. Do you think this strategy is right? What else could be done to improve access?
4. The Master Plan proposes improved road, rail, cycle and footpath linkages across the Development Corporation area and with nearby town centres. How important do you think these links will be?
5. How important do you think rail freight is to the Development Corporation area? What should be done to improve what is proposed?
6. Does the Master Plan do enough to support existing employers in the Development Corporation area? If not, what should be changed to improve on this?
7. What do you think about the proposals for respecting the industrial heritage of the area? Any buildings or other structures that remain will need money to pay for their upkeep. What could be done to make this affordable in the long term?
8. What benefits could there be in enhancing the accessibility and use of Coatham Marshes, South Gare and Coatham Sands as managed community assets? What would you like to see happen to improve and realise better use of these areas?
9. What other ideas do you have for the Master Plan to improve benefits for the local community?
10. Are there any further comments you would like to make? Here are some ideas to possibly consider:
 - Other potential uses that could be included in the Master Plan
 - How to make the area work best for major local businesses that are already here
 - How to make the most of the river
 - Ways in which the proposals could best benefit the wider Tees Valley
 - The design and appearance of new buildings
 - Ideas on how new landscaping along roadways should look
 - How the Master Plan could make the most of heritage and the natural environment



The Questionnaire is provided in Appendix A.

VIEW ACROSS THE REDCAR WORKS COMPLEX TO THE ESTUARY



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1.01 Introduction

This Master Plan presents the vision, strategy and ideas for the transformational regeneration of the South Tees Development Corporation area into a world class employment-generating zone and economic growth enabler for the Tees Valley. The total area of opportunity extends to almost 4,500 acres (1,800 hectares).

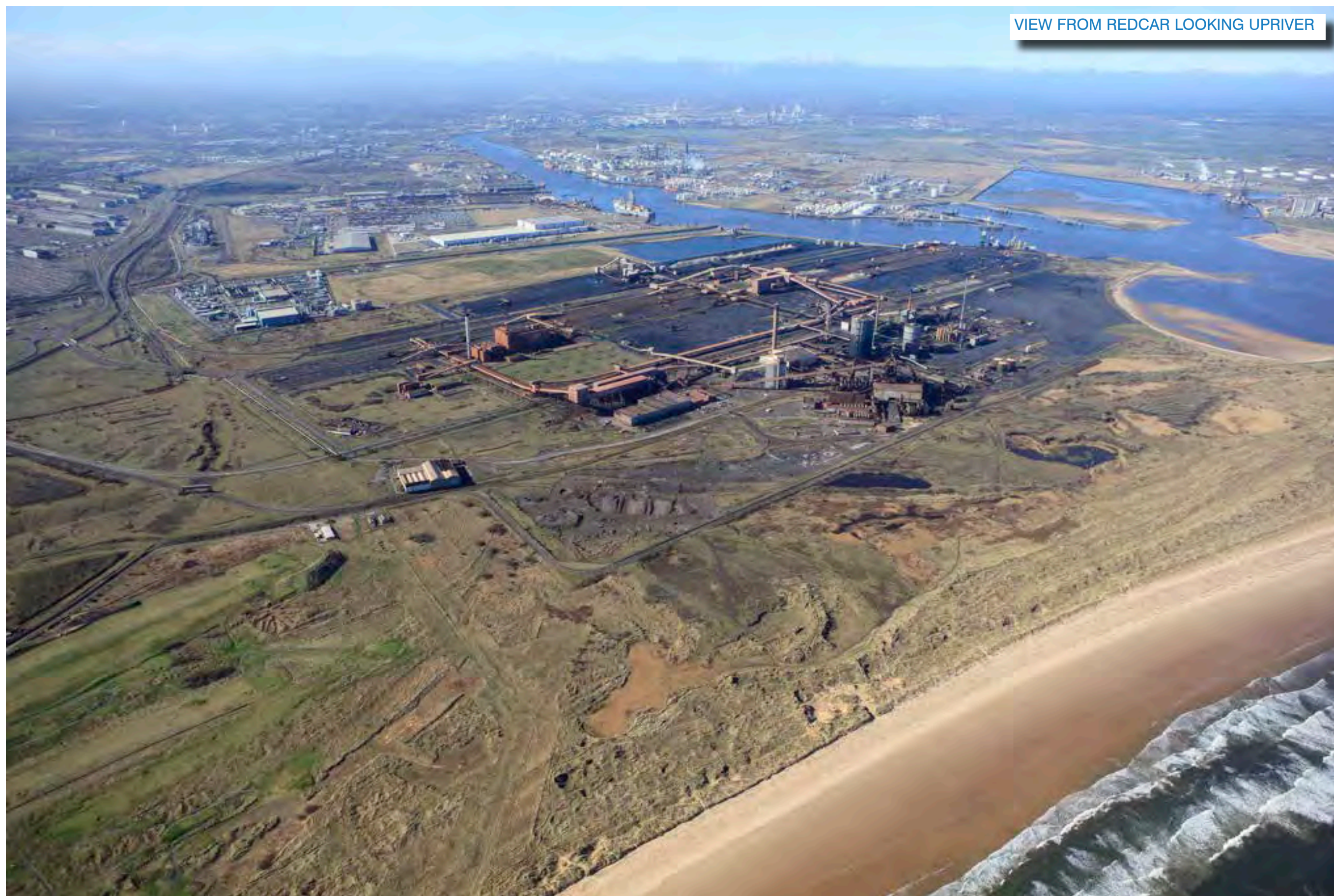
In terms of new development potential, the available land area principally comprises the large former SSI and Tata Steel land zones in Redcar, Lackenby, Grangetown and South Bank that were, until recently, at the heart of the steel making industry on Teesside. This land extends to some 2,200 acres (890 hectares). However, the regeneration initiative brings opportunity to, and indeed will rely on, existing major operators within the South Tees Area, such as PD Ports Teesport, British Steel and Redcar Bulk Terminal, and also outside, at neighbouring locations such as Wilton International.

The Master Plan is informed by extensive desk based research and preliminary physical investigations, together with key stakeholder consultations and early investor interest, which have collectively helped inform constraints and opportunities impacting the options for regeneration, and which have accordingly shaped initial thinking and early decision-making in the Plan.

The Master Plan endeavours to provide a flexible framework for realising successful socio-economic regeneration of the South Tees Area across a necessarily long timeframe, while at the same time augmenting economic growth across the wider Tees Valley area. It should be viewed in the context of it being a live document that may be subject to revision in response to: changing policy, economic and market conditions; reflect consultation feedback; and accommodate firm investor interest aligned to the strategy.

It should be noted that the work of South Tees Development Corporation, while being critical to the Tees Valley, is only part of the solution to the area achieving its overall strategic objectives.





VIEW FROM REDCAR LOOKING UPRIVER

1.02 Background and Context

On 02 October 2015, Sahaviriya Steel Industries (SSI) went into liquidation, marking the end of almost 170 years of iron and steel making on Teesside. The loss of SSI led to the closure of the Redcar iron and coke making complex and the Lackenby steel making plant, along with closure of the South Bank Coke Ovens. Up to that point, Teesside was one of the three main steel producer sites in the UK.

Closure represented a major setback for the Tees Valley economy and its people, after a number of years of successfully attracting new investment. Job losses from the closure of SSI were significant, with 2,000 direct employees, 1,000 contractors and a further 1,000 indirect jobs being lost, along with significant further job losses in the supply chain.

Redcar and the wider Tees Valley have a long and impressive history of world class steelmaking, and closure has had an enormous impact on both its people and economy.



1.02.1 SSI TASK FORCE

Immediately following steelworks closure, UK Government requested Redcar & Cleveland Borough Council to set up a Task Force with the aim of providing tailored support to affected workers, local businesses, communities and the wider economy. The Task Force was constituted with three broad objectives:

- Managing the social and economic impact of closure within the region
- Helping with training and job opportunities for former SSI and supply chain workforces
- Identifying, pursuing and encouraging future commercial use of the SSI sites.

Supported by £80M of central government funding, the Task Force has been focused on helping workers and families affected by the closure of SSI; leading initiatives to support new business start-ups, growing businesses, and providing help to impacted companies in the SSI supply chain. The Task Force has brought together key partners including SSI representatives, local agencies, businesses, trade unions, MPs, council leaders and other stakeholders.

On training and employment, the work of the Task Force has proven particularly successful, helping many of the former SSI employees and other impacted people to find new jobs.

Task Force intervention has clearly made a tangible, positive contribution in meeting the acute needs of the people and communities impacted by steelworks closure, for which members and the team as a whole are to be commended.

That said, there is clear acknowledgement by all concerned that this can only go so far in responding to the major social and economic impact arising from the loss of steelmaking on Teesside following many generations of employment in a world class industry, and that there is much more to be done to support impacted communities and rebuild the local economy.

The challenge of replacing lost industries with long term alternative major employment opportunities for generations to come, that build on the strengths of the South Tees and wider Tees Valley areas, is one that requires major intervention and significant, long-term investment, aligned with a robust and ambitious, deliverable vision and strategy.

REDCAR WORKS COMPLEX



LACKENBY STEELMAKING COMPLEX



1.03 South Tees Regeneration Governance

Critical to responding most effectively to the challenges connected with major area regeneration is the establishment of the right governance and operational structure and framework for delivering transformational change, combined with the right interventions, where the responsible organisation and key stakeholders are properly constituted, chartered and aligned towards common aims and objectives. For such a major regeneration undertaking as South Tees, past experience supports the view that the establishment of a special purpose, public sector delivery vehicle presents the best opportunity for achieving these outcomes.

Following steelworks closure, Lord Heseltine was tasked by UK Government with commissioning an independent report aimed at exploring and supporting opportunities for inward investment in the Tees Valley, while at the same time taking a specific, closer look at the SSI site. Published in June 2016, 'Tees Valley: Opportunity Unlimited – An independent report' makes recommendations to further develop the Tees Valley area, with the emphasis on creating the right conditions for a sustainable prosperous future. In response to the specific issue of SSI closure, one of the key recommendations of the Report was that a Mayoral Development Corporation (MDC) be established for the South Tees Area – the 'South Tees Development Corporation' – overseen by a new mayor for the Tees Valley Combined Authority (TVCA).



1.03.1 SOUTH TEES DEVELOPMENT CORPORATION

The establishment of an MDC for South Tees, the first outside London, as the special purpose vehicle for delivering regeneration of the South Tees Area, represents an important step forward in the journey towards economic recovery and sustained prosperity for the Tees Valley.

The MDC was established with the following core objectives:

- To further the economic development and regeneration of the South Tees area, so that it becomes a major contributor to the Tees Valley economy and the delivery of the Tees Valley's Strategic Economic Plan
- To attract private sector investment and secure new, additional, good quality jobs, accessible to the people of the Tees Valley
- To transform and improve the working environment of the MDC area, providing good quality, safe conditions for the workforce and wider community, while taking a comprehensive approach to redevelopment at a scale that enables the realisation of an international-level investment opportunity, and
- To contribute to the delivery of UK Government's Industrial Strategy, by supporting the growth of internationally competitive industries with access to global markets.

Given the need for early action and the fact the legislative process governing the establishment of an MDC would run to late summer 2017, as an interim measure, a shadow MDC was established early in 2016. The Shadow MDC operated through a Shadow Board, made up of senior officers and members of the Tees Valley local authorities and Combined Authority, senior local and national leaders from business and industry, along with senior figures from government departments and academia. These appointments combined public and private sector expertise, including a wealth of knowledge of regeneration and development, and investment, while at the same time ensuring strong local ownership and drive.

The establishment of the Shadow MDC was essential in building early momentum in the proposed regeneration programme, by providing the vehicle for shaping constitutional, operational and development strategies, in progressing complex, critical land assembly negotiations, and in securing appreciable early investor interest in the South Tees Area.

The Shadow Board developed a series of key aims and outcomes for the MDC, which are as follows:

1. Support the resurgence of the whole Teesside economy through redevelopment that compliments rather than competes with the rest of the region and, wherever possible, is locally owned or generates profit for the local community
2. Support the fulfilment of the strategic objectives in the TVCA Strategic Economic Plan (SEP) and Redcar & Cleveland Regeneration Master Plan.
3. Promote and support diverse, resilient redevelopment within the STDC Area to achieve 20,000 net new jobs when fully developed, with a salary level not less than the national average.
4. Ensure that, through redevelopment and inward investment, the STDC Area, once fully developed, contributes an additional £1 billion per annum GVA into the Tees Valley economy.
5. Promote and support existing businesses within the STDC Area in line with the adopted Masterplan and subject to State Aid rules
6. Build the reputation of STDC as a beacon of excellence in regeneration at a national and international level
7. Establish a secure income stream to ensure the fully funded long-term stewardship of any residual undeveloped land or un-adopted infrastructure within the STDC Area, and to provide a long-term estate management function.

STDC will work closely with the Combined Authority (TVCA), Redcar & Cleveland Borough Council and major operators across South Tees to ensure the full development potential of the South Tees Area is realised, and that its position as an engine for growth in the economy of the Tees Valley is fully capitalised on.

Following the appointment of a Mayor for the Combined Authority in May 2017, South Tees Development Corporation became operational on 01 August 2017.

1.03.2 SOUTH TEES SITE COMPANY LIMITED

Upon the 2015 closure, the SSI assets and landholdings (amounting to almost 1,000 acres or 400 hectares in area) were immediately placed in the hands of the Official Receiver. On 01 December 2016, South Tees Site Company Ltd (STSC) assumed responsibility for the safe management of the SSI sites, having been established by government department BEIS (Department for Business, Energy and Industrial Strategy). STSC is a wholly owned subsidiary of BEIS.

The Official Receiver retains overall control over the former SSI land and related assets pending their disposal, while STSC, working on behalf of the Official Receiver under the terms of a Management Agreement, is responsible for their safe, secure and cost-effective management on an ongoing basis; a critical function given the COMAH (Control of Major Accident Hazards) Upper Tier status allocated to the SSI sites. Working to a 'make it safe'/'keep it safe' strategy, STSC will play a pivotal role in enabling the safe redevelopment of the South Tees Area and in the shaping of priorities and work sequencing.

The STDC and STSC boards have seven board members in common and a joint Chief Executive, to ensure there is close collaboration between both entities and a shared vision for the future of the overall site.



1.03.3 LOCAL DEVOLUTION AND THE TVCA

The Tees Valley represents one of the most significant integrated industrial economies in the UK, with England’s third largest port, and producing some 30% of the UK’s process output. With a positive balance of trade and GVA worth £11.4 billion, the area is a key ingredient in rebalancing the UK economy and in enabling the future success of the Northern Powerhouse initiative.

In October 2015, the five Tees Valley local authorities (Darlington, Hartlepool, Middlesbrough Redcar & Cleveland and Stockton-on-Tees) and the Tees Valley Local Enterprise Partnership (LEP) signed a devolution deal with UK Government. The deal enabled the transfer of specific powers and responsibilities on economic growth from Whitehall to the Tees Valley, led by a new Mayor and a Tees Valley Combined Authority.

The Tees Valley devolution deal included additional funding to support ambitious local plans. A 30-year agreement worth over £450m plus a further £500m to invest in local projects over the next 5 years has been allocated by Government.

The Combined Authority was launched in April 2016 and this has now been augmented by the appointment of a directly elected Mayor for the Tees Valley in May 2017.

TVCA has ambitious plans for the Tees Valley. These ambitions are to contribute to the UK’s economic growth by creating 25,000 new jobs and over £1 billion of investment across a 10-year period and to become a high value, low carbon, diverse and inclusive economy. Many of the jobs created on South Tees will help TVCA in achieving it’s target. The focus is to accelerate growth by forging better links between economies across the North – by road, rail and freight – to boost competitiveness, attract foreign direct investment and open the labour markets. The regeneration of the South Tees Area will be a central plank in realising these ambitions, and the Combined Authority has a critical role to play in both supporting and advising STDC, and in promoting inward investment into the Area. Unlike previous development corporations that reported direct to Government, in line with the local devolution agenda, STDC has been locally formed and reports direct to the Mayor of Tees Valley.



1.03.4 REDCAR & CLEVELAND BOROUGH COUNCIL

The whole of the South Tees Area sits within the borough of Redcar & Cleveland, and the Council has a pivotal role to play in helping realise the regeneration ambitions of STDC.

Although STDC has an independent board and has been constituted with wide-ranging powers, it is not the Planning Authority. Planning powers will remain with Redcar & Cleveland Borough Council (RCBC), who will thereby be the designated Planning Authority for the South Tees Area regeneration programme.

STDC and RCBC will work closely in helping shape the best outcomes for the Borough, in synergy with the wider economic growth ambitions of TVCA and Redcar & Cleveland Regeneration Master Plan.



1.04 Consultation on the Establishment of STDC

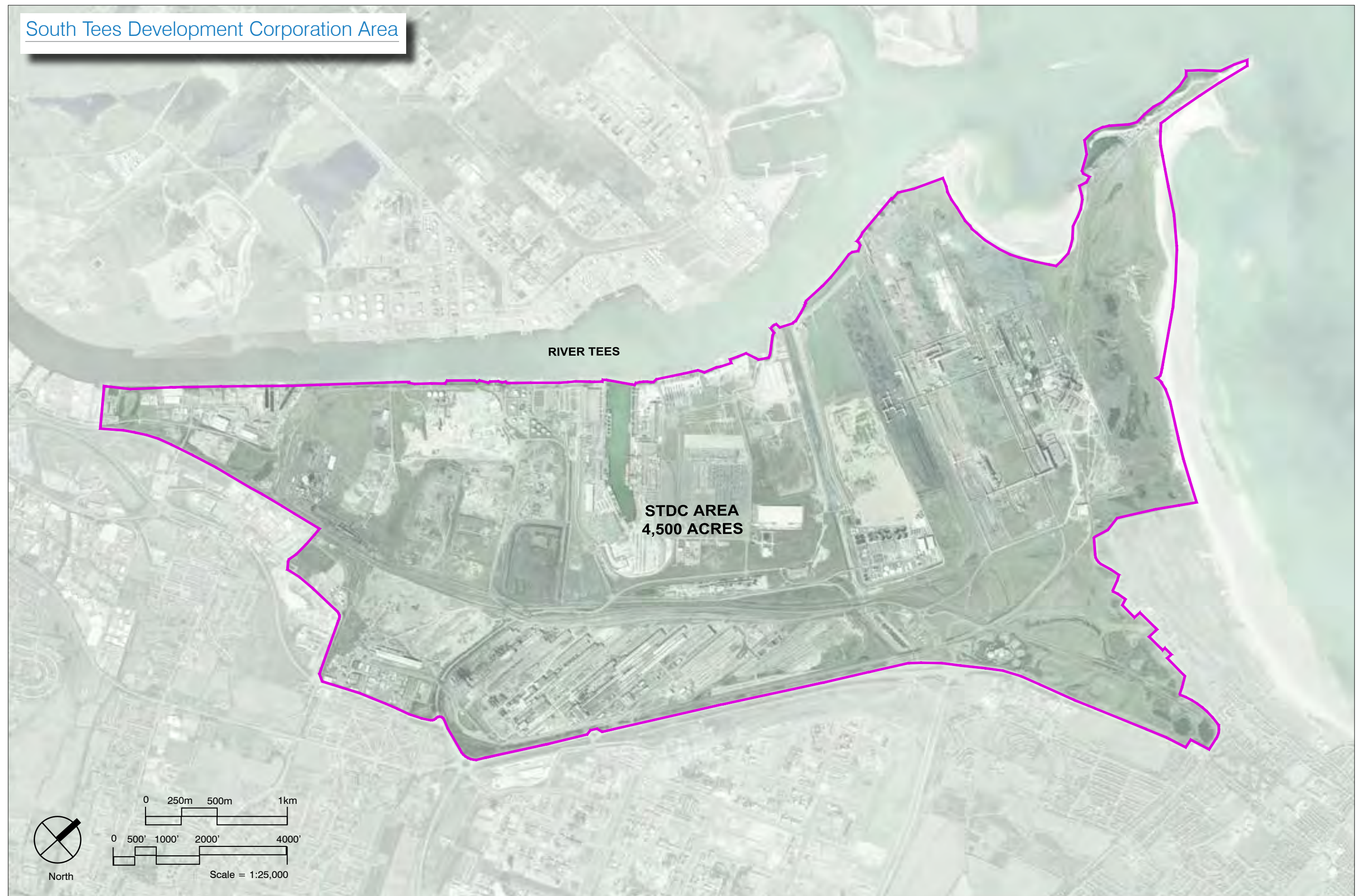
The Combined Authority opened a period of consultation on the proposal to create a Mayoral Development Corporation in the South Tees Area on 23 December 2016. The consultation closed on 10 March 2017. The purpose of the consultation was to review and consider the objectives, powers, structure and boundary of the proposed MDC. The minimum requirement of the legislation was to consult with designated statutory consultees, but the Combined Authority carried out a wider consultation with all organisations likely to be affected.

Responding principally to six questions focused on regeneration, economic transformation, powers, land allocation, and naming, key outputs from the 29 respondents to the consultation exercise were as follows:

1. There was strong agreement that the establishment of the MDC is the most effective way to deliver regeneration and support the economic transformation of the area.
2. There was wide support to the proposed name of the MDC being ‘South Tees Development Corporation’.
3. All respondents supported the proposals for inclusion of the area of land set out in the consultation document.
4. Tata Steel submitted a request to extend the MDC boundary to encompass all Tata Steel owned land, so including the Coatham Marshes, managed by Tees Valley Wildlife Trust, increasing the MDC area by around 60 hectares – a proposal that received the Trust’s full support.
5. There was a strong consensus that powers should be extensive to allow the MDC to properly fulfil its duties.
6. While the option exists to pass planning powers from Redcar & Cleveland Borough Council to the MDC, the Council concluded that this would not be necessary at this stage.



South Tees Development Corporation Area



1.05 The Vision and Strategy for Regeneration

The STDC area represents an international level opportunity to grow the economy of the Tees Valley and to significantly enhance its profile both as a UK region and a centre for industrial excellence. But realisation of this opportunity is in itself a major challenge, requiring a bold, ambitious vision aligned with a clear, well-considered strategy.

1.05.1 THE VISION

The Vision for the South Tees regeneration programme is to see the area transformed into a hotbed of new industry and enterprise for the Tees Valley that makes a substantial contribution to the sustained economic growth and prosperity of the region and the communities it serves.

The Vision sees the creation of up to 20,000 new jobs. The focus is on higher skilled sectors and occupations, centred on manufacturing innovation and advanced technologies and those industries best able to deliver sustained economic prosperity for the Tees Valley and its people, while realising a jobs spectrum that offers opportunities for all.

The Vision is underpinned by the aspiration for new development to deliver a high value, low carbon, diverse and inclusive circular economy for the Tees Valley. It extends to realising a telling, positive change in the external perceptions of the South Tees area and wider Tees Valley to potential inward investors, and to promoting and encouraging environmental improvement and bio-diversity.

In overall terms, the realised Vision for the STDC area will deliver an exemplar, world class industrial business park that is renowned as a destination for manufacturing excellence.



1.05.2 STRATEGY FOR REGENERATION

The strategy for regeneration of the South Tees Area has at its core a master plan that affords sufficient flexibility in uses, land allocations and phasing to cater for anticipated changing requirements across the proposed 25-year programme. The delivery strategy is captured across 20 broad principles of which 10 are at the core.

The Delivery Strategy – 10 core principles

1. Ensure strong alignment with UK Government's Industrial Strategy
Resulting in an Area Based STDC Industrial Strategy while shaping the regeneration proposals to ensure the Tees Valley can make a telling contribution to the realisation of UK Government's aspirations for the Northern Powerhouse Initiative
2. Form strategic alliances with major operators so that the Tees Valley presents a coordinated, world class offer to the international marketplace
Collaborating with major land owners, industries and operators within the area to capitalise on synergies and symbiotic opportunities, avoid conflicts of use, realise true alignment and deliver mutually beneficial outcomes
3. Prioritise uses connected with advanced manufacturing and advanced and new technologies
Future-proofing the development and the long-term economic sustainability of the Tees Valley, while building an international-level brand for South Tees that is built on innovation and manufacturing excellence
4. Promote and support development uses aligned with a low carbon, circular economy, while delivering redevelopment within a framework of reduced energy costs and waste minimisation
So supporting the Tees Valley in becoming an exemplar, demonstrator region through the establishment of integrated supply chains in energy-intensive, high-tech prime sectors
5. Focus on highly-skilled employment generating opportunities, while balancing this with the need to create a wide spectrum of job opportunities
Creating opportunities for upskilling and an increase in both the mean salary levels and Gross Value Added (GVA) for the Tees Valley economy
6. Evaluate redevelopment proposals not only from a direct jobs perspective, but as potential catalysts for job creation across the wider Tees Valley
Capitalising on and harnessing opportunities for supply chains and support industries and optimising beneficial outcomes for the local economy and our local communities
7. Deliver efficient connectivity across the South Tees area through enhanced on-site transport infrastructure to realise optimal functionality
Delivering a truly integrated industrial and manufacturing zone with excellent intra-connectivity, where the benefits of excellent port facilities and beneficial neighbouring industrial operators can be fully harnessed
8. Deliver redevelopment in a way that reduces pollution, contributes to habitat protection and long term sustainability, and that encourages bio-diversity
Creating a destination that is an exemplar of how major industry and vitally important environmental assets can co-exist in a mutually-beneficial way, realised through genuine collaboration between new businesses and national and local environmental bodies
9. Ensure the regeneration of the South Tees area makes a major contribution to the transformation in education and skills across the Tees Valley
Working with local authorities, the education sector, and local training and development initiatives to realise, through the redevelopment proposals, major opportunities for improving education attainment levels across the area and the skills base, to provide greater access to employment
10. Use the regeneration opportunity to strengthen transport connections with Redcar town centre and other urban centres, to realise improved economic and community benefits
Capitalising on the significant increases in local employment afforded by the redevelopment of the STDC area to boost visitor economy, help revitalise town centres and deliver improved benefits for local communities

The other 10 principles of the strategy are:

11. Collaborate with Higher Education and Research & Development establishments to ensure the South Tees redevelopment is renowned for its advancements in leading technologies and innovation, so helping to build the area's brand, reputation and competitive advantage
12. Work to resolve current land ownership complexities to realise an optimised land assembly that delivers major land areas for development, sufficiently sized to afford flexibility of uses and provide the capacity to accommodate clustering and large-scale single operators
13. Establish themed development zones and promote clustering of uses and spin-off industries
14. Attract inward investment through best practice, innovative marketing strategies and by creating the right conditions for world-class development
15. Make best use of the excellent external road, rail and sea connections the South Tees area benefits from, while supporting through the regeneration programme, enhancements to wider Tees Valley transport infrastructure
16. Take advantage of the significant premium that waterside land attracts, including bringing forward proposals for enhancement and expansion of existing water frontage and port-related facilities
17. Plan for a progressive, optimally-phased delivery of demolition, site preparation and infrastructure across the first 15 years of the 25-year programme, aligned to development priorities
18. Work with key stakeholders to explore the potential for creating enhanced economic conditions under which to deliver and operate new industrial development, attract inward investment and stimulate economic activity, e.g., Free Zones
19. Deliver economic regeneration in a manner that realises a strong, progressive revenue stream while ensuring long-term safe stewardship of any remaining land as the programme evolves
20. Ensure the development of a robust, yet flexible exit strategy and that the model is reviewed and revised as appropriate to achieve the best outcomes for continued operation and success of the South Tees Area as a major, international-level industrial zone

1.05.3 NORTHERN POWERHOUSE

The Northern Powerhouse is about everything from investing in science and technology, transport, digital and innovation, culture and tourism across the North, to devolving powers to local people through ground breaking Devolution Deals. The Tees Valley has significant strengths in key sectors associated with the Northern Powerhouse, such as advanced manufacturing, health innovation, digital and process industries. The South Tees Area presents a tremendous opportunity to not only boost the fortunes of the Tees Valley, but also those of the Northern Powerhouse initiative.



STDC in the North





02

South Tees Existing Conditions

- 01 Introduction
- 02 South Tees Existing Conditions
- 03 Master Planning Process and Guiding Principles
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- 05 North Industrial Development Zone
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2.01 Location and Area Context

2.01.1 LOCATION

The STDC area lies within the borough of Redcar & Cleveland, at the mouth of the River Tees, within the heart of Teesside's major industrial zone. The town of Redcar lies immediately to the east of the Area, with the towns of Middlesbrough and Stockton on Tees lying up river, some three miles and eight miles to the west, respectively. Continuing further west, the town of Darlington lies around 18 miles from the South Tees Area, at the western limit of the Tees Valley region.

Locally, to the east of the site, are the Cleveland Golf Club and golf course, Coatham Marsh Nature Reserve and an area of existing commercial activity at Warrenby. The nearest residential properties are at Coatham on the western edge of Redcar. To the immediate north, on the coastal fringe, and within the STDC boundary, is the area known as Coatham Sand and South Gare, which includes an area with SSSI designation.



Redcar High Street



Redcar sea front



2.01.2 SOUTH TEES AREA CONTEXT

Located along the south bank of the river and encompassing the major port facilities of PD Teesport and Redcar Bulk Terminal, the STDC area benefits from being situated within a major export region for the UK. It has been synonymous with world class steelmaking and port operations across its vast industrial history. Immediately to the south is the world-renowned, major industrial complex of Wilton International.

The STDC area and wider Teesside industrial zone has some of the lowest operating costs in the UK. The region also boasts a large, experienced and very skilled workforce. With its extensive river frontage, proximity to the North Sea, excellent port facilities and optimised transport connections, the STDC area is an ideal location for realising major, employment-led regeneration and sustained economic growth for the Tees Valley region.

2.01.3 WIDER TEES VALLEY CONTEXT

Covering over 3,300 square miles and located on the North East coast, the Tees Valley region comprises five local authority areas: Redcar & Cleveland, Middlesbrough, Stockton on Tees, Hartlepool and Darlington. The region has a total population of 660,000 and offers around 293,000 jobs, generating economic output of over £11.5bn per annum.

Tees Valley is recognised as a functional economic geography with a high level of containment. Some 87% of residents work within Tees Valley, with relatively few commuters crossing the boundary to access employment. The region is home to world class expertise in a number of key sectors which are vital to the northern and wider UK economies. The area has a particular concentration of employment in process, chemicals and the energy sector, as well as in advanced manufacturing sub-sectors, including metals and automotive engineering.

However, the region is not without its long term challenges, notably:

- **Productivity:** GVA per head is 73.5% of the UK average, while output per hour worked is much closer to the UK average at 89.8%, indicating that underlying productivity is less of an issue for the Tees Valley economy than the number of people in work, reflecting higher levels of unemployment and inactivity, and a smaller working age population.
- **Employment rate:** this sits at 68.5% compared to 73.6% nationally, necessitating an additional 21,000 residents in employment to match the national average.

The structure of the economy and productivity levels have an impact on the occupational profile and wage levels, both of which reflect the absence of higher skilled and higher paid jobs in the economy.

That said, Tees Valley has strengths in a number of high productivity sectors which are expected to make an important contribution to the future economic prosperity of the area; sectors for which the South Tees Area and neighbouring Wilton International offer major opportunities. These include: Advanced Manufacturing; and Process, Chemical and Energy industries.

The Tees Valley is a major UK hub for Advanced Manufacturing. The sector and supply chain is made up of a wide range of firms of all sizes. The area has a rich industrial heritage and is renowned for its steel, engineering, power and process industries. This legacy has nurtured the Advanced Manufacturing sector and attracted strategically important multi-national companies to the area. Combining these attributes with the scale and locational benefits of the STDC area makes for a very attractive proposition for inward investors.



Middlesbrough centre square



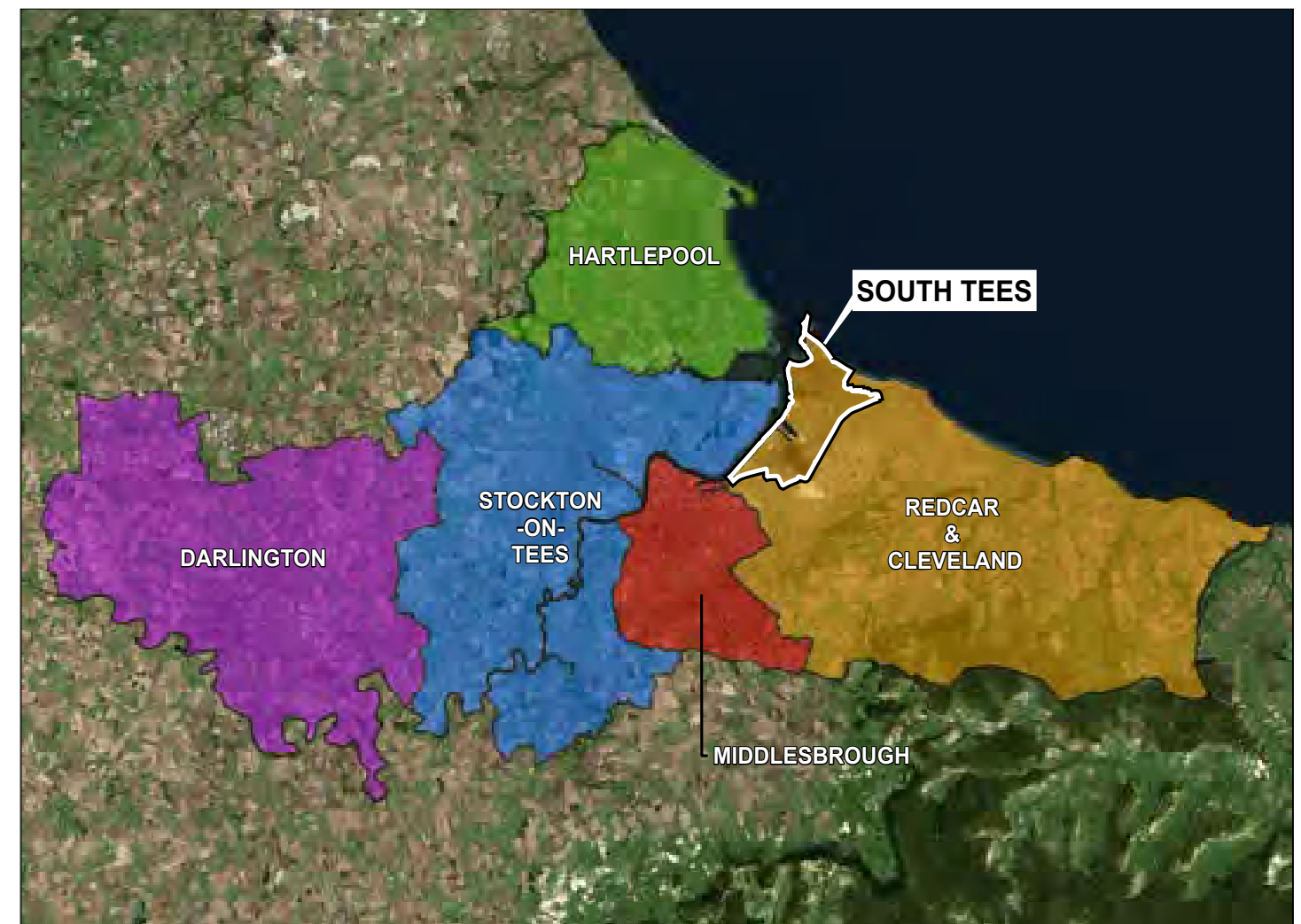
Darlington Town Centre



Stockton-on-Tees High Street



Hartlepool Marina



2.02.1 PLANNING POLICY

Given that the objective is that the Master Plan for the STDC area be adopted as a Supplementary Planning Document (SPD) under the Redcar & Cleveland Local Plan, it is supported by an SPD Master Plan document, prepared by the Local Planning Authority, Redcar & Cleveland Borough Council (RCBC). This sets down the details of the policy framework covering the STDC area and the development principles.

RCBC's SPD Master Plan forms part of the Master Plan consultation documentation and reference should be made to this and other web-hosted documents for details of the planning policy context for the STDC area.

2.02.2 CONSTRAINTS AND OPPORTUNITIES

The principal planning-related constraints and opportunities within the STDC area are:

Constraints:	Opportunities:
<ul style="list-style-type: none">• South Gare and Coatham Sands coastal area: Most of this area is within protected environmental zones and/or is adjacent to sensitive allocations. This includes areas designated SNIC, adjacent to offshore SSSI and a protected landscape tree area. These designations will usually prevent development from occurring in this location.• Employment Land Allocation: Most of the area is generally allocated as employment zones. Policy allocates most of the area as uses within the Steel, Chemical and Port Related Industries. Other uses outside of Use Class B would be difficult and compliance with policy would normally prevail.• HSE Consultation Zones: These relate primarily to the former SSI operations and comprise Inner, Middle and Outer Zones. The highest level of constraint is the Inner Zone and based on the current Decision Matrix published by the HSE, they would advise against Type 3 development (development for use by vulnerable people) and Type 4 development (very large and sensitive development). However, these constraints will dissolve with the planned decommissioning and demolition of the facilities (and related bi-products), and the revocation of any Hazardous Substance Consents.• Contamination: The types of use possible across the STDC area will be influenced by ground conditions and ground contamination, as full scale de-contamination is neither proposed nor financially viable. Residential dwellings would likely be unsuitable for the site.	<ul style="list-style-type: none">• South Gare and Coatham Sands coastal area: In line with the area designations, it is apparent that development in this location is restricted. It therefore presents an opportunity to create an area that is suitable for leisure and outdoor activities, with the potential to create tourist attractions, i.e., a nature reserve, community uses or designated trails. This area can potentially act as a buffer between employment zones and the SSSI.• Employment Land Allocation: presents opportunities to maximise and capitalise on the location as a port area to attract inwards investment and new industry related to those allocations. This may include rig decommissioning, industrial, renewable energy industry, new technology uses.• Scale and location: The scale and location of the STDC area afford very large development spaces and a setting that is conducive to the establishment of large-scale advanced manufacturing and other industrial uses that can deliver high levels of employment.

2.02.3 DEVOLUTION

The Devolution Deal from UK Government provides for the transfer of significant powers for employment and skills, transport, planning and investment from central government to TVCA. It paves the way for further devolution over time and for the reform of public services to be led by Combined Authority. Devolution will give Tees Valley access to the Local Growth Fund and the ability to create new Enterprise Zones.

The new, directly elected Mayor of Tees Valley will act as Chair to the Tees Valley Combined Authority and will exercise the following functions devolved to the Authority:

- Responsibility devolved from Government for a consolidated transport budget, with a multi-year settlement to be agreed at the Spending Review
- Creation of new Mayoral Development Corporations and leadership of a land commission to examine what publicly owned land and other key strategic sites should be vested in a development corporation.

The Tees Valley Combined Authority, working with the Mayor, will exercise the following devolved powers:

- To create a Tees Valley Investment Fund, bringing together funding for devolved powers and used to deliver a 30 year programme of transformational investment in the region
- Control of a new £15 million a year funding allocation over 30 years, to be included in the Tees Valley Investment Fund and invested to boost growth
- Leadership of the comprehensive review and redesign of the education, skills and employment support system in Tees Valley.

The Tees Valley Devolution Deal is an important part of the long-term strategy to improve economic conditions, putting the whole of the Tees Valley on a stronger economic footing for the future, and helping to bring jobs and investment to the area. The Devolution Deal has enabled the creation of STDC (as an MDC), controlled principally by the Mayor rather than from Whitehall, with wide ranging powers, including general powers to: do business; provide infrastructure; acquire and develop land; and make planning decisions.

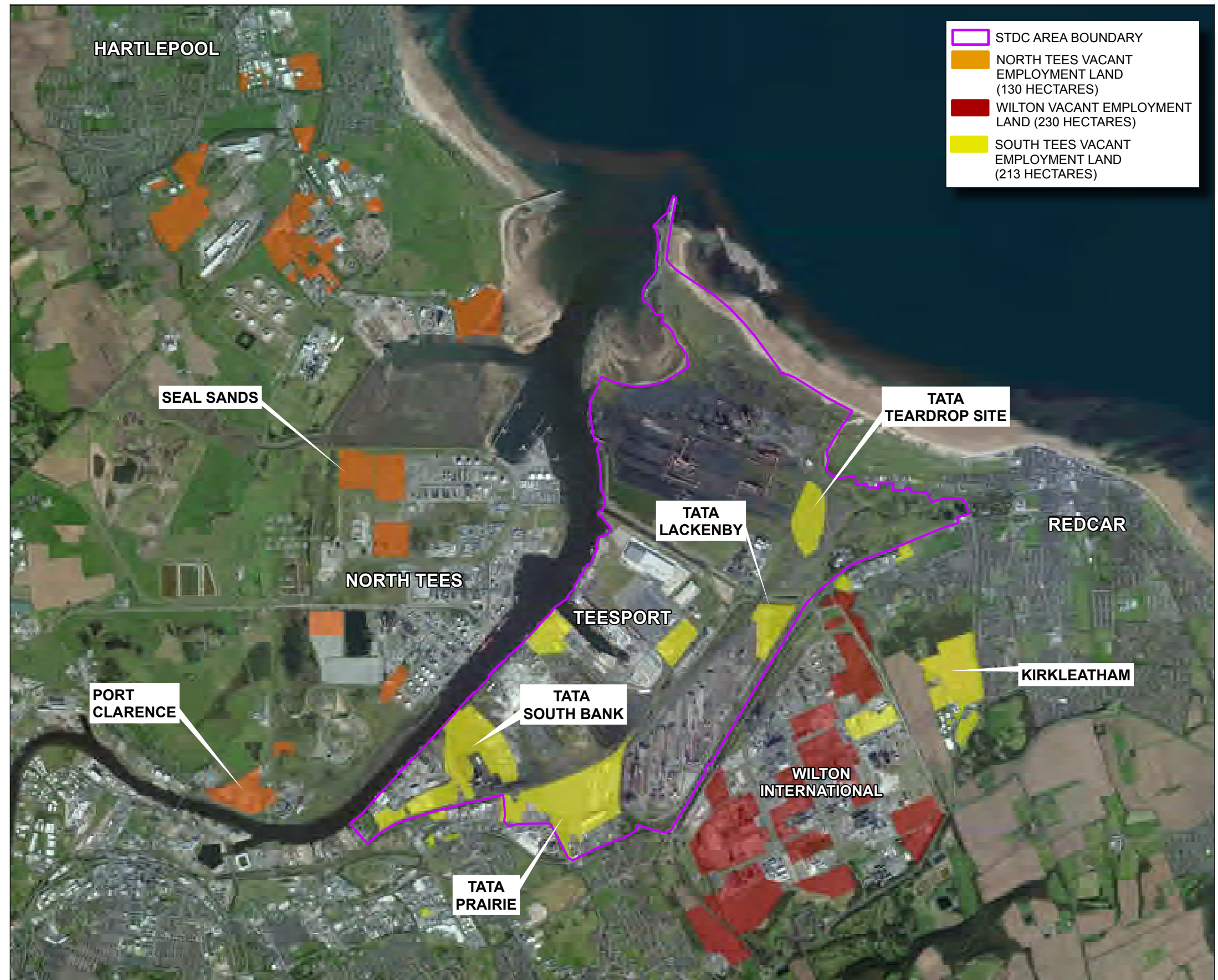
2.03 Employment Land Review

Results of a high-level employment land review undertaken as part of the supporting desk study work has revealed a potential over-supply of available land for industrial development on Teesside. Notably, there is close to 570 acres (230 hectares) of residual land at Wilton International, and on the north side of the river, within the industrial at Billingham, a further 310 acres (130 hectares).

While opportunity areas often share common attributes, there are, equally, often key differentiators that set one opportunity area apart from others; this is certainly the case with the STDC area. The unique attributes of very large vacant land areas and the development flexibility this feature brings, proximity to the North Sea and international standard port facilities, and excellent, existing road and rail connections, serve to make the STDC Area significantly more attractive to inward investment. Of particular note here, is the elevated premium attached to waterside land. When considering areas such as that of STDC compared to general industrial land, this is akin to the differences in value between prime high street retail and tertiary “off-pitch” streets that can be close to impossible to let and yet are within just a few hundred metres of the high street.

So while Teesside and, for that matter, Tees Valley has a large supply of industrial land, the STDC area has many advantages that make the development proposition a compelling one, providing much reason to be optimistic over attracting major inward investment and realising significant employment growth in higher skilled, higher value sectors.

The adjacent plan shows the employment land allocations in the North and South Tees Industrial areas prior to the 2015 closure of SSL.



Sources: Hartlepool Borough Council Employment Land Review (December, 2014). Redcar & Cleveland Council Employment Land Review Update (June, 2016).

2.04 Major Operators

2.04.1 OVERVIEW

Despite the demise in Teesside's steelmaking, the STDC and wider South Tees areas are home to several, strategically important, thriving industrial businesses and industrial clusters, which can serve to bolster the South Tees regeneration effort. Most notable within the STDC area are: PD Ports, Redcar Bulk Terminal, British Steel, Northumbrian Water and BOC. Located outside but immediately adjacent to the STDC area, is the major industrial complex of Wilton International. On the opposite side of the River Tees lies the North Tees industrial complex which benefits from major industrial utilities connectivity with South Tees.

2.04.2 PD PORTS (TEESPORT)

Teesport is located less than a mile from the mouth of the River Tees within the heart of the STDC area. It is a major deep-water facility with a natural marine opening, providing lock-free access to the North Sea. The Port handles over 5,000 vessels each year and around 40 million tonnes of cargo. It is the UK's third largest port by tonnage.

The Teesport estate is sized at 779 acres (315 hectares) and it is integral to the functioning and viability of the wider Teesside industrial area. Steel, petrochemical, agribulks, manufacturing, engineering and high street commerce operations are all supported through Teesport. In addition, Teesport supports a growing renewable energy sector.

In this connection, construction has recently commenced within the Port on the £650million MGT Teesside renewable energy plant; a 299MW, wood-chip fuelled, low-carbon CHP biomass facility. Current plans are that the facility will be exporting power to the grid by mid-2019.

PD Ports is the statutory harbour authority at Teesport and is responsible for managing the river traffic for the ports of Tees and Hartlepool, ensuring safe navigation and maintaining the required channel depth.



Teesport is widely recognised as one of the best connected and fastest growing feeder ports in the UK, and the emergence of the Northern Ports Association should help strengthen the Port's position in the marketplace. PD Ports is acknowledged by STDC as a critical enabling operator in delivering on the ambitions for the South Tees regeneration programme, and key to attracting new industrial and manufacturing business.

RBT is located at the mouth of the river, and in addition to a 320m-long deep-water berth, comprises a very large land area of some 285 acres (115 hectares). It was established as a 50:50 JV between Tata Steel and SSI. More recently, the Tata Steel stake has transferred to Greybull Capital.



2.04.3 PD PORTS (TEESPORT COMMERCE PARK)

Located 3 miles upriver from Teesport, at the western end of the STDC area, is the 135-acre (55-hectare) Teesport Commerce Park, a nationally and internationally recognised operational area within the marine support industry. Multi-national companies operating out of the Park provide a wide range of specialist services that include: training; technology and research; ship repair and conversion; and heavy lift operations. There are also sub-sea pipe and cable laying operators resident in the Park.

Teesport Commerce Park benefits from significant river frontage including operational wharfage and deep water berthing facilities. Over 30 acres (12 hectares) of land is currently available for development within the Park for office, warehousing and light manufacturing uses.



2.04.4 REDCAR BULK TERMINAL (RBT)

RBT is HMRC approved for the storage of un-cleared goods, and it enjoys direct rail access to the National Rail Network, along with very good road connections. At the height of SSI's steelworks operations, RBT was handling 12 to 13 million tonnes of bulk products per annum, primarily feeding iron and steelmaking on South Tees.

The remoteness of the facility from neighbouring communities is seen as ideal for handling bulk cargoes, however, the berth is adaptable to accommodate other types of cargo. RBT is a very important asset for the river, and one of the best deep water facilities of its type in the UK. STDC readily acknowledges its criticality to the South Tees regeneration programme.



2.04.5 BRITISH STEEL

British Steel occupies close to 300 acres (120 hectares) on South Tees. It operates the world-renowned Teesside Beam Mill (TBM), with operations focused solely on the production of long sections and profiles (e.g., steel beams and columns for the construction industry). The company imports raw slab steel by rail from Scunthorpe for use in its Teesside facility. The majority of exports are by road. The current production level approaches 0.5 million tonnes per annum, with capacity for increasing this to 1.0 million tonnes. The facility is reliant on preservation of the existing, favourable rail and road connections at South Tees for its operational viability.

Around two thirds of the British Steel operational area is utilised for external storage of products. British Steel has advised STDC of the potential availability of around two thirds of this area for alternative development within the regeneration programme, subject to alternative storage facilities being realised. The world-class status of the TBM is recognised as a key asset for South Tees.



2.04.6 NORTHUMBRIAN WATER LTD. (BRAN SANDS)

Northumbrian Water Ltd (NWL) operates a state-of-the-art effluent treatment facility at Bran Sands, within the STDC area. The NWL facility was established to serve the major industrial complexes on South Tees, including iron and steel making. With the closure of the SSI operations, the facility now has significant residual operational capacity. NWL has no plans to expand beyond its current footprint at Bran Sands. However, the company is planning for business diversification through the proposed export of Biogas to the Grid.

The presence of an on-site major effluent treatment facility is a key attribute for the STDC area when considering its attractiveness to potential future industrial operators.



2.04.7 BOC

BOC occupies land at Teesport, as a tenant of PD Ports, and has been a leading provider of gases to industrial operators in the area for many years. BOC supplied the SSI steelmaking operations, prior to its demise, and presently supplies nitrogen to STSC in support of the ongoing 'keep safe' operations across the former SSI landholdings. BOC is recognised as an important asset for the STDC area.



2.04.8 WILTON INTERNATIONAL

The 1,900-acre (769-hectare) Wilton International complex is one of the UK's most important locations for process industry manufacturing, particularly businesses operating in energy intensive industrial sectors. Major internationally renowned companies operating at Wilton include: Sembcorp Utilities, Sabic UK, Ensus, Lotte Chemical, and Hunstman Polyurethanes. Sembcorp also fulfils the site management and business development functions at Wilton.

Wilton is of major importance to the local and regional economy, supporting hundreds of supply chain companies. It offers shared access to low cost power, steam and other utilities. Businesses benefit from integrated site infrastructure, high quality site services, and close proximity to Teesport, where road and rail access are afforded via private transport connections.

Recent years have seen significant investments made by firms involved in rapidly growing high value, low carbon operations, including green energy, biofuels and plastics recycling operations. Other sectors, including minerals processing, automotive, data centres and advanced manufacturing, are also now benefitting from the many attractions and attributes Wilton International has to offer.

Sembcorp operates strategically important industrial pipelines and pipeline corridors that traverse the STDC area and which cross the River Tees, via tunnels, to industrial facilities on North Tees.

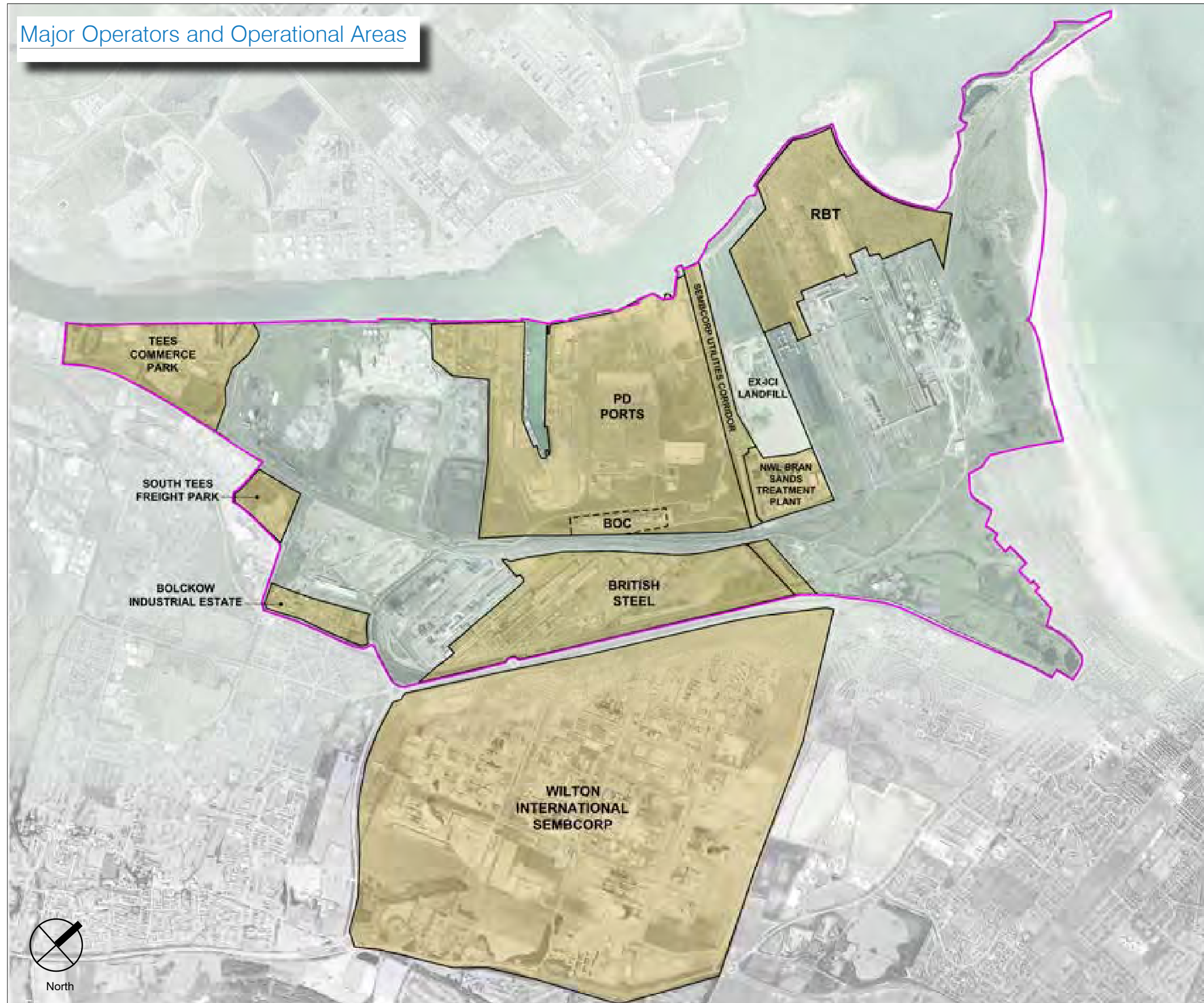


2.04.9 IMPORTANCE TO SOUTH TEES REGENERATION PROGRAMME

The STDC area benefits from the presence of strategically important businesses, facilities and operations that will augment the South Tees regeneration programme. STDC therefore acknowledges the importance of working collaboratively with existing major businesses on South Tees in order to fully exploit the opportunities afforded by having their operations located within or adjacent to the proposed regeneration area. It is recognised that these businesses offer unique selling points for the STDC area that elevate its standing above those of other areas.

Given the key objective of stimulating economic growth and job creation, on South Tees and across the wider Tees Valley region, it is entirely logical that the Master Plan proposals should be developed and realised in such a way as to support existing businesses wherever possible, exploring mutually beneficial opportunities, and enabling them to grow and prosper, providing these align with the wider themes and growth strategy the Master Plan embodies.

Major Operators and Operational Areas



2.05 Land Ownership

2.05.1 LAND OWNERSHIP

The entire STDC area amounts to almost 4,500 acres (over 1,800 hectares) of land. As referenced in section 2.4, the area encompasses several major businesses and operational areas, and there are also some smaller operational land allocations accommodated within the boundary. The full extent of these occupied areas is as follows:

- PD Ports – Teesport
- PD Ports – Teesport Commerce Park
- Redcar Bulk Terminal
- British Steel
- Northumbrian Water Ltd – Bran Sands Effluent Treatment Facility
- Sembcorp – industrial utilities corridor
- South Tees Freight Park
- Bolckow Industrial Estate
- Highfield Environmental – (former Impetus) landfill facilities
- Akzo Nobel – Bran Sands Lagoon

The remaining land within the STDC boundary can be categorised as vacant (or residual) and comprises:

- Former SSI landholdings
- Tata Steel land
- Akzo Nobel – Former ICI Landfill facility
- Redcar & Cleveland Borough Council – land fronting the Trunk Road/Tees Dock Road

Some of the Tata Steel land is leased to SSI, and some of this leased land is, in turn, leased to other operators.

In terms of the residual land at South Tees, this aggregates to an area close to 2,700 acres (almost 1,100 hectares). The various land areas making up this total are provided in the following tables.

	Approximate Land Area	
	Acres	Hectares
Former SSI Landholding		
Ironmaking complex, Redcar	554.0	224.0
Land at Steel House Redcar	27.0	11.0
Steelmaking complex, Lackenby	94.0	38.0
Leased areas at Lackenby	5.0	2.0
Torpedo Ladle Workshop area, Prairie Site, Grangetown	27.0	11.0
South Bank Coke Ovens	35.0	14.0
High Tip Landfill	62.0	25.0
SLEMS waste treatment facility	64.0	26.0
Leased areas at South Bank	119.0	48.0
Total	987.0	399.0

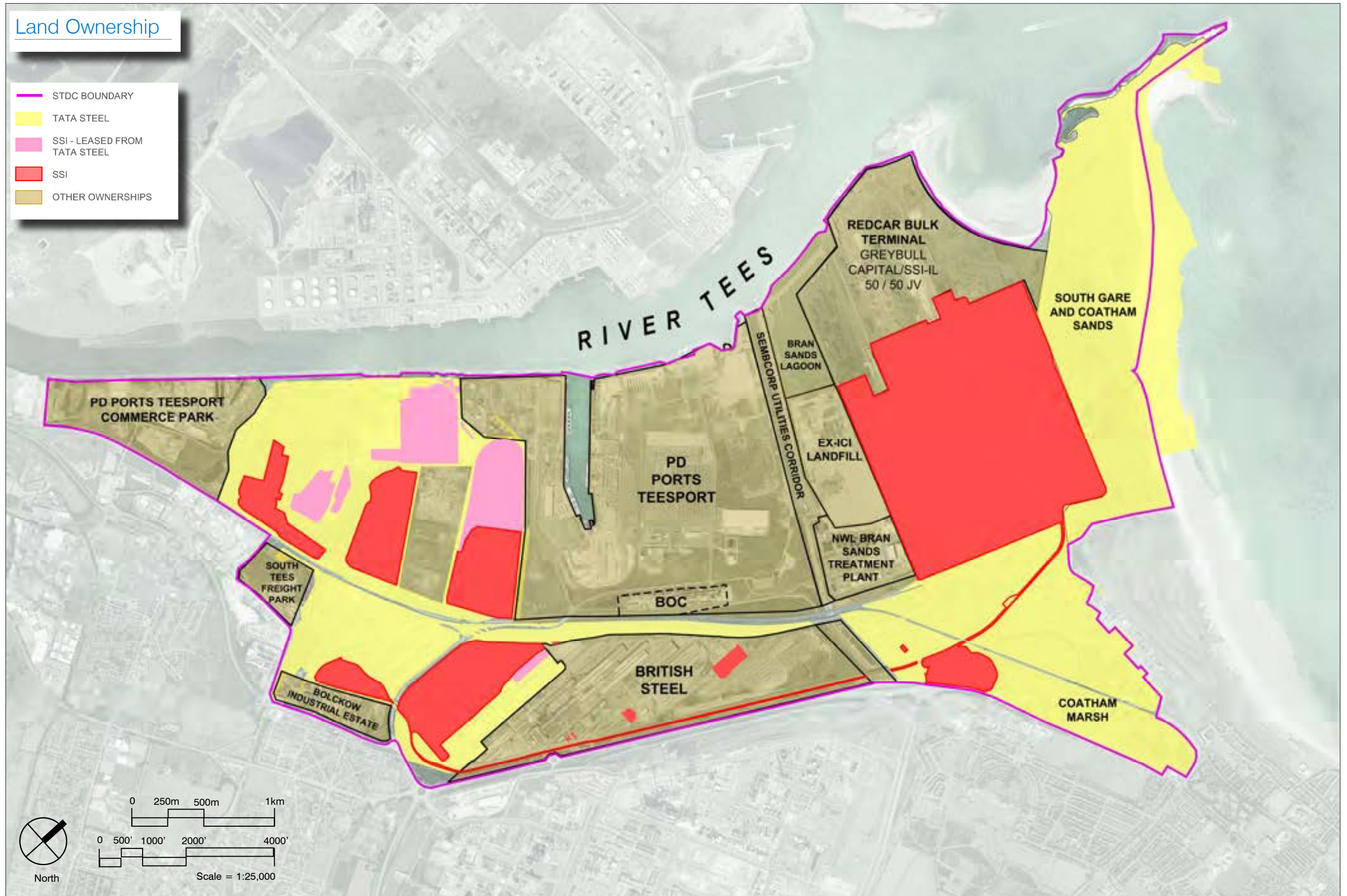
	Approximate Land Area	
	Acres	Hectares
Tata Steel Landholding		
Land at South Bank	222.0	90.0
Existing infrastructure corridor	161.0	65.0
Prairie Site, Grangetown	121.0	49.0
Land at Lackenby	59.0	24.0
Teardrop site, Redcar	86.0	35.0
Landfill CLE31 area	69.0	28.0
Land at Redcar Gate and near Steel House	59.0	24.0
Coatham Marsh (nature conservation interest)	148.0	60.0
South Gare and Coatham Sands (SSSI/nature conservation interest)	376.0	152.0
Total	1,301.0	527.0

	Approximate Land Area	
	Acres	Hectares
Other Land Areas		
Redcar Bulk Terminal	284.0	115.0
Former ICI Landfill facility	99.0	40.0
Redcar & Cleveland BC land fronting Trunk Rd/ Tees Dock Rd	8.0	3.4
Total	391.0	158.4

Overall Residual Land Area	2,679.0	1,084.0
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Land Ownership



2.05.2 LAND ZONE DESCRIPTIONS

2.05.2.1 SOUTH BANK

With the exception of SSI's South Bank Coke Ovens plant, this land parcel is within the ownership of Tata Steel, albeit discrete parcels of land are under lease to SSI, which are in turn leased to companies Tarmac and Hanson, who are engaged in recycling of iron and steel works bi-product materials for use in construction. The site benefits from the potential for re-use of just over 1km of river frontage, inclusive of the dilapidated South Bank Wharf, albeit significant investment will be required to realise this port-related opportunity. Close to the river is a dis-used oil tank farm that is to be decommissioned and demolished by Tata Steel. A large portion of the site has actual or pending Enterprise Zone status (approximately 227 acres/92 hectares).

The site's history includes iron and steel works uses, mainly in the southern sector, in and around SBCO, with the northern sector principally occupied in the past by materials storage and freight rail infrastructure uses. The 35-acre (14-hectare) SBCO area will likely be impacted by significant ground contamination given its former use.



2.05.2.2 LANDFILL AND WASTE MANAGEMENT

The waste management facilities area comprises a complex array of different uses, namely:

- SSI High Tip: a licensed facility (CLE 3 and CLE 8) utilised for disposal of bi-products from iron and steel making operations
- SSI SLEMS: a waste handling and treatment facility (CLE 9) for BOS oxide waste that is marketed for re-use in the cement industry
- Metals Recovery Area: an area leased by SSI from Tata Steel, that has previously been leased to Harsco who have been engaged in recycling materials from iron and steelmaking for recovery of metals (PP3338MT).
- Highfield Environmental Facilities: Highfield operates various licenced landfill facilities (CLE 119 and CLE 170) along the central zone of this area, for both hazardous and non-hazardous wastes, that were previously designated as ICI landfills.

There is no imposed height restriction on the various facilities, albeit attainable heights will be limited by the area's physical dimensions.

2.05.2.3 GRANGETOWN PRAIRIE

Barring the SSI Torpedo Shed, this regular-shaped land area falls under Tata Steel ownership and is well-defined by existing infrastructure corridors along its boundaries. The site is largely vacant, but it has a long history of iron and steel works uses, and was extensively occupied by buildings and freight rail infrastructure. Former uses included the Cleveland Iron and Steel Works, where the heavy end operations (coke ovens, iron making and steel making) were located along the western periphery of the site, with mills dominating the central and eastern zones. The Torpedo Ladle Workshop was previously home to open hearth furnaces.

The original site entrance still exists and, if re-opened, provides the site with direct vehicular access to the A66 at the existing Whitworth Road junction, through the Bolckow Industrial Estate. The majority land area (50+ hectares) has Enterprise Zone status.



2.05.2.4 LACKENBY

This area is shaped by existing highways and rail infrastructure and British Steel's Teesside Beam Mill works. Barring a small area under Redcar & Cleveland BC ownership close to the Trunk Road/Tees Dock Road roundabout, land ownership is split between SSI and Tata Steel. The land is extensively occupied by the SSI BOS and CONCAST steelmaking facilities and Tata Steel's vacant coil plate mill. There was no prior industrial activity on this site; the land was open fields up to the mid-1950s.



2.05.2.5 INFRASTRUCTURE CORRIDOR

This land area comprises a long linear corridor of some 6.5km (4 miles) stretching from Redcar to South Bank, and of a width as large as 120m in places. It is occupied by: an internal functional roadway system; extensive, only partially used freight rail infrastructure (including numerous sidings); industrial pipelines; and the Darlington-Saltburn Network Rail corridor. The corridor includes numerous bridges carrying road, rail or both, which are of varying condition.



2.05.2.6 STEEL HOUSE AND SURROUNDING AREA

Located around the existing Redcar works access and Steel House office complex, this land parcel is shaped by existing highway infrastructure (including the A1085 Trunk Road), the Wilton utilities corridor, and the Darlington-Saltburn railway. Land ownership is split between SSI (Steel House) and Tata Steel. In terms of site history, the area was only sparsely populated by former uses. A reasonably large lake features on the site, in close proximity to Steel House. Pedestrian access is afforded to the Redcar British Steel railway station.



2.05.2.7 REDCAR WORKS COMPLEX

The SSI Redcar land area is the largest single area within the land assembly. Prior to the construction of the British Steel Corporation's iron making complex in the 1970s, the site principally comprised reclaimed marshland. The exception is the eastern corner of the site that was previously occupied by historic iron and steel works up to the 1960s (the Warrenby works). The area is, in the main, sparsely populated with large scale plant and buildings, such as, the Raw Materials Handling facility, the Sinter Plant and extensive conveyor systems, with large open land areas that were previously utilised for raw materials storage and processing. In the northern zone, development is more densely laid out, with the Redcar Coke Ovens and Redcar Blast Furnace complexes dominating.



2.05.2.8 REDCAR BULK TERMINAL

RBT is a self-contained major land parcel that was operated under a joint venture between Tata Steel and SSI during iron and steel making operations. Greybull Capital/British Steel has recently acquired the Tata stake. The deep water river berth and apron are leased from PD Ports. The land area has principally been utilised for bulk storage of imported raw materials associated with the Redcar iron and steel making operations (iron ore, coal and limestone), along with coke produced at Redcar and South Bank for export by sea. Prior to these operations, the site was open marshland reclaimed from the river. The RBT area is contained by SSI Redcar, the Bran Sands Lagoon, and Crown land designated a Special Protection Area.



2.05.2.9 TEARDROP SITE AND LANDFILL CLE31

This area is owned by Tata Steel and is shaped by the passenger railway corridor, the physical constraint of a major utilities corridor containing the CATS and other industrial pipelines, and an area of nature conservation interest to the east. While being vacant, the site's history comprises partial occupancy by the Warrenby iron and steel works up to the 1960s; relic structures are visible at the ground surface. Much of the site is relatively low lying and heavily vegetated. The River Fleet crosses the area. In the eastern part of the area, on the other side of the existing torpedo hot metal railway, is the Tata landfill CLE31 that was principally utilised for the disposal of slag bi-products and similar wastes from iron and steel making. It is no longer operational.

2.05.2.11 SOUTH GARE AND COATHAM SANDS

South Gare is an area of reclaimed land and breakwater at the mouth of the River Tees, constructed extensively from slag fill. Before the building of South Gare, permanent dry land stopped at Tod Point, at the western end of Warrenby, and there was only Coatham Sands and the mudflats of Bran Sands. This extensive land area was partially occupied by the Warrenby iron and steel works up to the 1960s. The long peninsula-like area is crossed by South Gare Road, a private road of 4.5 miles in length, beginning at Warrenby and running out to the South Gare lighthouse at the tip. Tata Steel owns the majority of the area and the road, with PD Ports owning the last mile of road to the lighthouse and the lighthouse area itself. The area is home to fishermen's huts and fishing vessels, and although in private ownership, is routinely accessed by the general public for leisure purposes. The area is designated a Site of Special Scientific Interest (SSSI) and includes the large expanse of Coatham Sands.



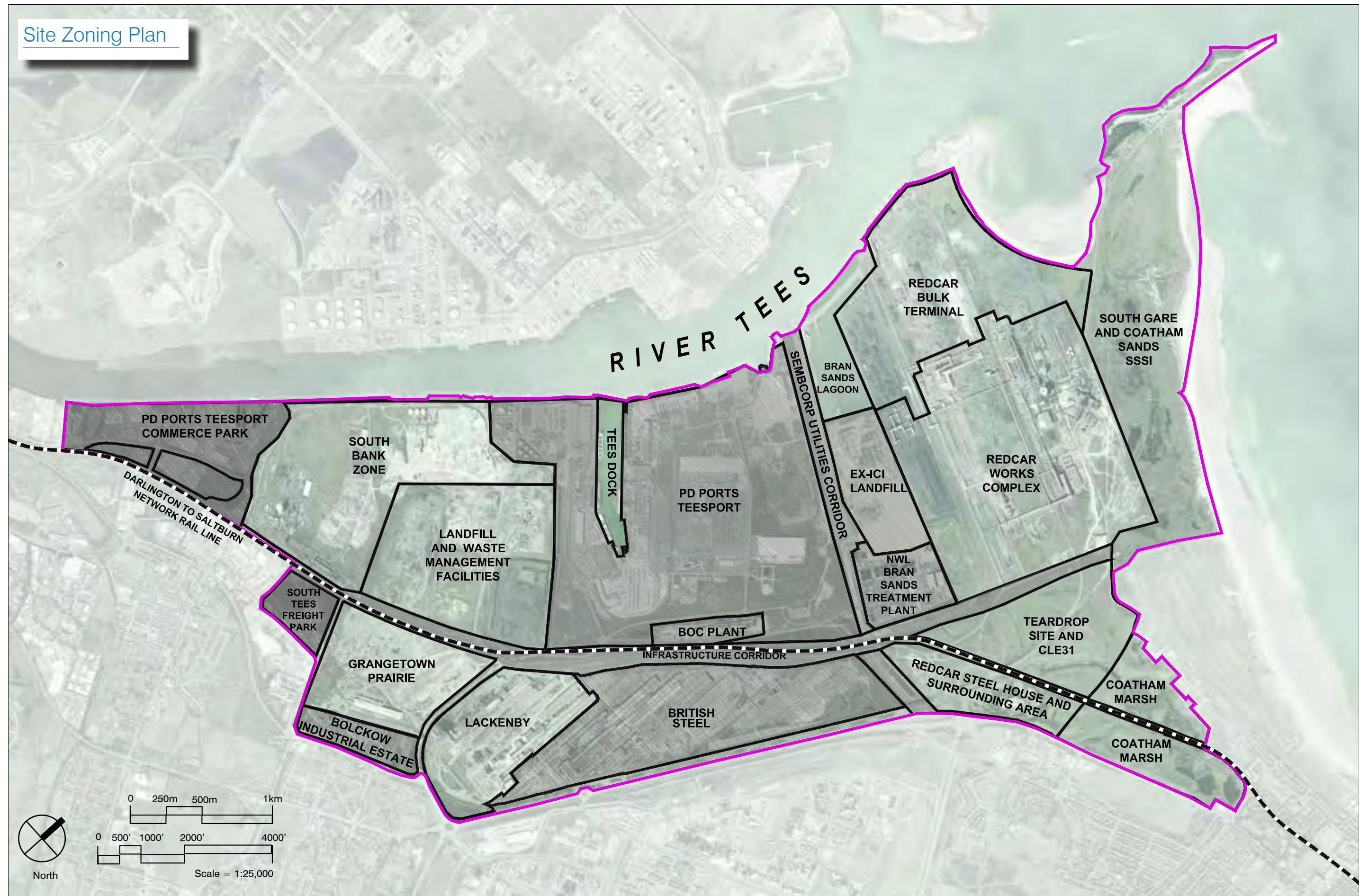
2.05.2.10 COATHAM MARSH

This land is in the ownership of Tata Steel and is split into two areas by the Darlington-Saltburn Network Rail corridor, although existing bridge crossings afford connectivity between the two areas on foot. The area includes two lakes and a series of pools. It has been leased and managed as a nature reserve by the Tees Valley Wildlife Trust since 1982.

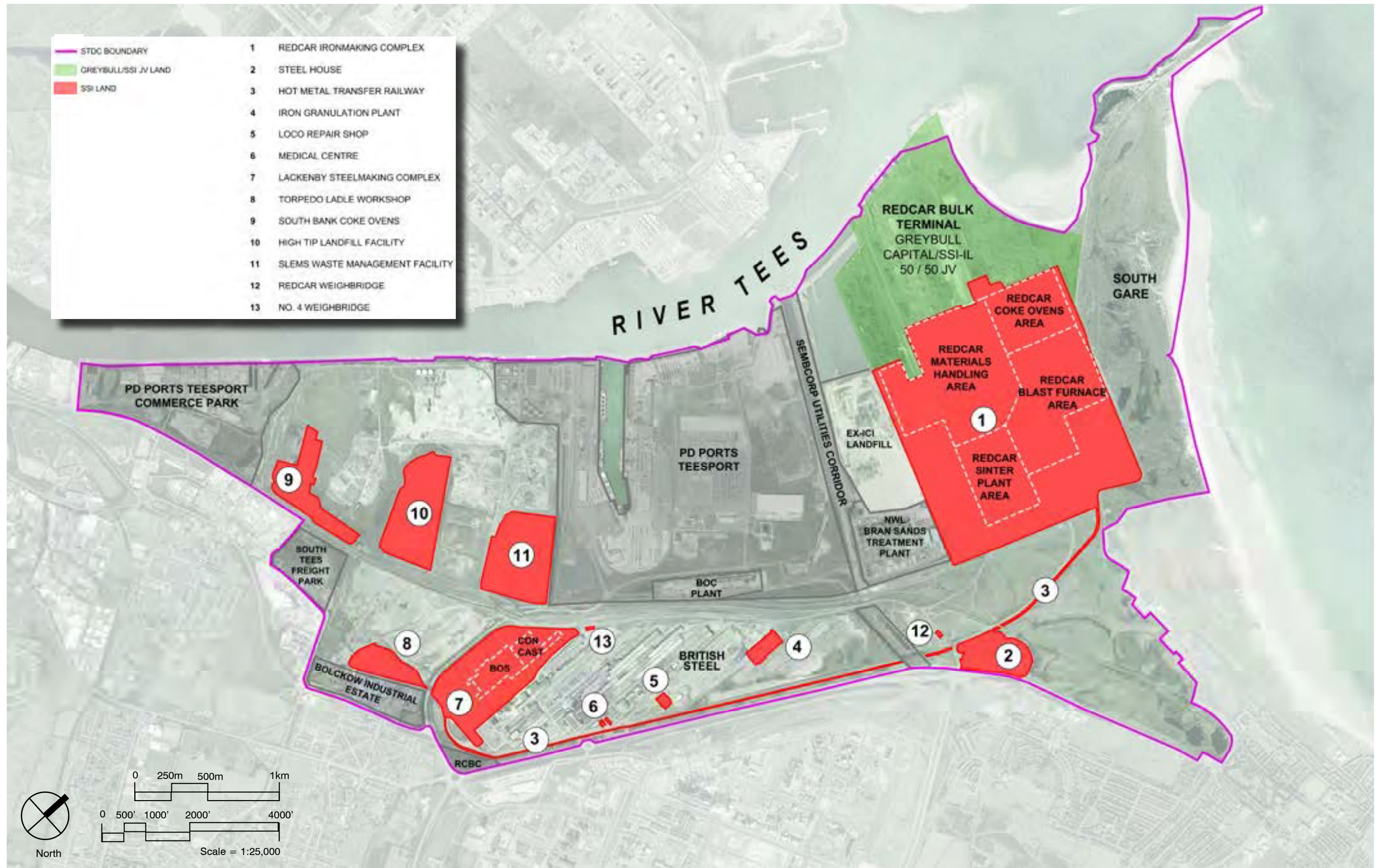




Site Zoning Plan



2.06 Former SSI Residual Assets





Redcar blast furnace



Redcar coke ovens



Redcar sinter plant



Steel house



Lackenby steelmaking complex



Torpedo ladle workshop



Pulverised coal injection plant



South Bank coke ovens



Redcar materials handling

2.07 Transport Connectivity and Accessibility

2.07.1 OVERVIEW

Tees Valley's transport routes link the advanced manufacturing clusters across Yorkshire, Humber, the North West, the North East, and the Tees Valley itself. Combined with the international gateways at Teesport and Durham Tees Valley Airport, they provide some of the fastest access for business and residents to markets and employment. Indeed, the fast commuting times are a key selling point to attract businesses and people to the area. This is particularly important given that 70% of major businesses in Tees Valley are foreign owned.

2.07.2 ROAD CONNECTIVITY

The Tees Valley's key road transport assets include the strategic growth corridor of the A19, the A1M, linking North and South, and the A66, providing Trans-Pennine East-West connectivity. Few areas of the UK are better served by road services.

The STDC area itself has excellent road transport connections. The A66 East-West route actually commences at the STDC boundary, and the nearby A174 Parkway provides direct access to the A19, only 9 miles away. Both the A66 and A19 provide direct connectivity to the A1 (M) North-South route, which in turn affords access to the M62 strategic Trans-Pennine road corridor.



2.07.3 RAIL CONNECTIVITY

The STDC area benefits from national rail connectivity for passengers and freight, with direct rail links to the East Coast Main Line and Trans-Pennine routes, to all parts of the UK. Within the Tees Valley, current rail connections to London and Scotland are provided through the vital gateway role played by Darlington, and also to Leeds and Manchester, which are significant contributors to the region's economy. The area also benefits from an extensive local rail network between Darlington and Saltburn, and Nunthorpe and Hartlepool.

The line between Darlington and Saltburn, provides direct local connectivity to Middlesbrough and Redcar, and, beneficially, the line passes through the STDC area, with a passenger stop within the site, at the Redcar British Steel station, and just outside the boundary, at South Bank station. Also along this line, within the STDC boundary, is the former Grangetown station, which could be re-opened if proven beneficial to the regeneration programme.

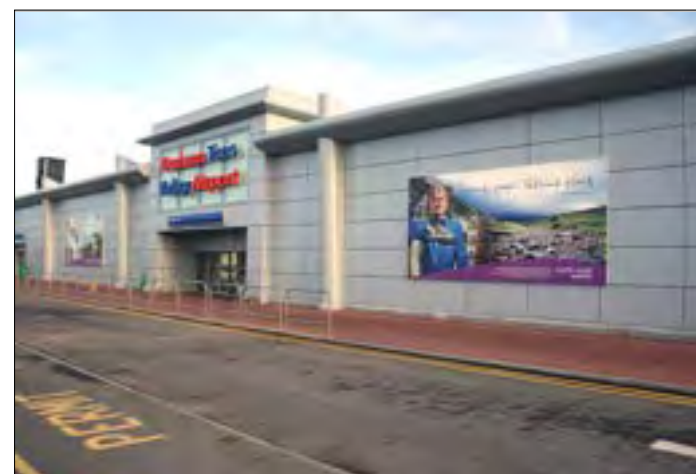
The presence of the national rail corridor running through the STDC area affords essential freight rail connectivity for businesses such as PD Ports Teesport, British Steel and Redcar Bulk Terminal. This is a key selling point for potential future investors and operators.

All that said, the Tees Valley's rail infrastructure is not without its constraints. The current gauge clearance on the rail line between Northallerton and Middlesbrough/Teesport requires freight traffic from Teesport to/from the south to make a reversing manoeuvre at Darlington, which is time consuming and places a limit on train path availability. This situation exacerbates a problem with passenger services at Darlington station, which is the principal rail gateway for the Tees Valley. The line between Darlington and Saltburn lacks the identity of an up-to-date urban rapid transit system, the infrastructure is outdated and relatively poorly used, with limited train stops.



2.07.4 AIR TRANSPORT

As a national and European gateway, Durham Tees Valley Airport (DTVA) has the potential to support the connectivity of the Tees Valley to global markets. However, as a result of national trends for airlines to consolidate at major airports, DTVA is currently loss-making with limited business connectivity – although the Amsterdam connection serves as a useful destination to a major European hub. The airport is relatively well linked to centres of population and major economic sites but needs to secure additional income to make the most of the existing facility. The airport is in very close proximity to the Tees Valley rail line, which connects all the main centres of population, including the STDC area.



2.07.5 SEA CONNECTIVITY

Located at the mouth of the River Tees, and encompassing the strategically important assets of Teesport (one of the best connected feeder ports in the UK) and Redcar Bulk Terminal, the STDC area could not be better located to capitalise on the unique selling point of excellent sea transport connectivity and the deepest port on the eastern coast of the UK, when considering the influence this will have on STDC's ability to attract major international businesses and realise an international-scale advanced manufacturing and industrial centre of excellence on South Tees.

The Port is a major hub for logistics and intermodal distribution and acts as a gateway for gas and oil brought in from the North Sea fields, making it one of the UK's busiest ports. It has the opportunity to grow significantly, contributing to both the local and northern economy, including in support of the South Tees regeneration programme.

2.07.6 SUMMARY

Naturally, with the onset of proposed major development at South Tees, and taking account of the ambitions of the Tees Valley Strategic Economic Plan, in time, there will be a need to realise improvements in the area's transport networks.

Notwithstanding the advantageous position afforded to the STDC area in having excellent transport connections, there are some wider connectivity barriers including significant pressure points on the A19 and on the road network accessing the A1M and A19, and the region would benefit from an improved, modernised rail system for passengers and freight.

From a road transport perspective, there is increasing demand for a new Tees crossing to relieve congestion on the A19. Additionally, another Tees crossing, further down river, to link the major industrial areas of North and South Tees, has the potential to fully realise the river's growth capacity for the Tees Valley economy.

Closer to the STDC area, redevelopment would offer, and indeed, should offer the opportunity for improved transport connections with Redcar town centre, to boost the local economy.

These matters are discussed in more detail in Chapter 10.0.

Local Transport Infrastructure

Legend:

- NETWORK RAIL CORRIDOR
- EXISTING EXTERNAL PUBLIC HIGHWAY NETWORK
- EXTERNAL PRIVATE ROADS
- BUS STOPS
- TRAIN STOPS
- OPERATIONAL RIVER BERTHS

Map Labels:

- RIVER TEES
- PD PORTS TEESPORT COMMERCE PARK
- SOUTH BANK ZONE
- LANDFILL AND WASTE MANAGEMENT FACILITIES
- PD PORTS TEESPORT
- EX-ICI LANDFILL
- NWL BRAN SANDS TREATMENT PLANT
- REDCAR BULK TERMINAL
- REDCAR WORKS COMPLEX
- SOUTH GARE
- SOUTH GARE ROAD
- TO DARLINGTON
- A66 TO MIDDLESBROUGH, A19, A1(M) AND DTV AIRPORT
- A66
- TO MIDDLESBROUGH
- DOCKSIDE RD
- WILKINSON'S DOCK RD
- SOUTH BANK GATE (CLOSED)
- SOUTH BANK STATION
- SOUTH TEES FREIGHT PARK
- BESSEMER GATE (CLOSED)
- GRANGETOWN STATION (CLOSED)
- TEES DOCK ROAD
- LACKENBY
- LACKENBY GATE
- BRITISH STEEL
- FREIGHT RAIL SIDINGS YARD
- PORT ACCESS
- REDCAR GATE
- REDCAR BRITISH STEEL STATION
- TOD POINT ROAD
- DARLINGTON TO SALT BURN RAILWAY
- A1085 TRUNK ROAD
- TO A174 & A179
- A1053
- WILTON INTERNATIONAL ACCESS
- A1085
- TO REDCAR
- TO SALT BURN
- TO REDCAR

Scale:

0 250m 500m 1km

0 500' 1000' 2000' 4000'

Scale = 1:25,000

North

2.08 Internal Transport Infrastructure

2.08.1 HIGHWAYS INFRASTRUCTURE

2.08.1.1 CURRENT LAYOUT AND CONDITION

The existing highways infrastructure network across the South Tees area is extensive but somewhat convoluted – and naturally it has been developed to address specific functional needs, many of which are no longer required. The network has evolved across several decades to serve the many locational and operational changes in iron and steel making across the area, and with this, maintenance has lapsed in many locations. Understandably, the maintenance focus has been on essential, well-trafficked routes, and many sections of the road network are in need of repair. Highway design is largely non-compliant with local authority highway adoption standards. Highway drainage is non-existent and several stretches of road are prone to significant flooding in times of high rainfall. Lighting is provided via area floodlighting from lighting towers, rather than conventional street lighting.

The highway network includes a significant number of bridges, predominantly under the ownership of Tata Steel, which are of varying condition. Geometrically, some the bridges are non-compliant with current highway standards, and some are shared by both road and rail. Along the primary infrastructure corridor through the area, running from Redcar, the road network splits into two, parallel routes, one of which runs to the South Bank site, the other which runs to the Lackenby and Grangetown Prairie sites. Along this corridor, the road network is interspersed with freight railway infrastructure, and it is crossed by rail, at grade, in several locations. On the Redcar complex, a more ordered street pattern exists that has the potential for improvement and re-use within the regeneration proposals.

Generally speaking, while the highways infrastructure network is extensive, intra-connectivity across the STDC area is presently fairly weak and ill-defined.

2.081.2 SOUTH TEES AREA HIGHWAYS ACCESS

Good site access is afforded at the north-eastern boundary of the STDC area, off the A1085 Trunk Road, at Redcar. However, the only access afforded in the south-west, at South Bank, is a security-controlled works access into the South Bank Coke Ovens complex that will not serve as a permanent arrangement as the site is redeveloped. However, Redcar & Cleveland BC has secured LGF funding to implement a new roundabout access to the site at South Bank, off Dockside Road; a scheme that is currently under development. The Grangetown Prairie site could be accessed through the Bolckow Industrial Estate, off the A66, via Whitworth Road, if the existing gated access were to be re-opened. There is no centrally-located access to the regeneration area, which is a weakness for such a long, relatively linear development area as South Tees.

Teesport is presently constrained by having only one formal means of access, the A1053 Tees Dock Road. While there are arrangements in place with SSI and Tata for use of alternative, informal access routes in times of emergency, this is a situation that should not be sustained in the longer term if the full development potential of the Port and the South Tees Area Regeneration Programme are to be realised.

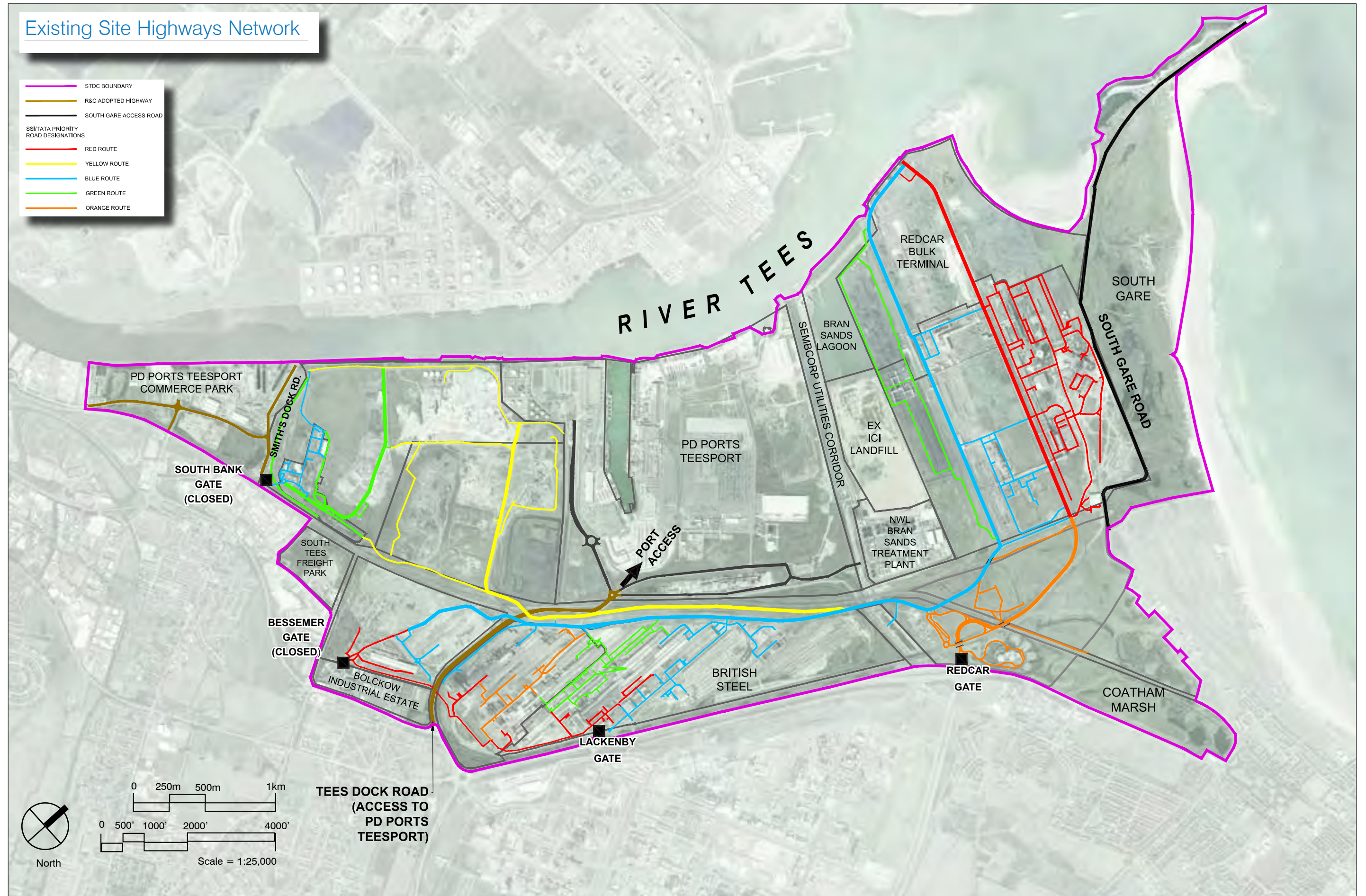
2.08.1.3 NEAR TERM OPPORTUNITIES

While the area regeneration programme will rely on significant highways infrastructure improvements in order to unlock the full potential of the South Tees area, the presence of such an extensive existing road network does afford the opportunity for near term development, without the need for major upfront infrastructure investment, subject to improvements being made in on-site traffic management and the implementation of localised repairs as traffic movements across the area increase. Some of the existing bridge stock will likely be re-usable within the long-term highway infrastructure solutions, while others will continue to serve short to medium term needs – which is a positive.



Existing Site Highways Network

- STDC BOUNDARY
- R&C ADOPTED HIGHWAY
- SOUTH GARE ACCESS ROAD
- SSI/TATA PRIORITY ROAD DESIGNATIONS**
- RED ROUTE
- YELLOW ROUTE
- BLUE ROUTE
- GREEN ROUTE
- ORANGE ROUTE



2.08.2 RAIL INFRASTRUCTURE

The STDC area accommodates a wide array of rail infrastructure, providing freight rail connectivity to the Network Rail corridor that traverses the site and intra-connectivity between different areas and operators. Teesport and RBT each have a direct rail connection to the Network Rail corridor on South Tees. British Steel benefits from a similar connection to this corridor, and also from rail links to Teesport and RBT. SSI's Lackenby steelmaking complex also shares access to Teesport and RBT. Although presently redundant following the closure of SSI, there are internal rail connections between the SSI assets at the Redcar, Lackenby and Grangetown Prairie sites, via the twin-track torpedo ladle hot metal railway. Additionally, the neighbouring Wilton International complex gains access to the Port and Network Rail across the South Tees area from private rail connections.

There is an extensive array of rail sidings on the site located in the infrastructure corridor between the British Steel and PD Ports land areas. These sidings are very widely dispersed and offer the opportunity for consolidation into a smaller, clearly-defined and regularised rail freight zone.

Generally speaking, while the existing rail freight infrastructure within the STDC area offers a good range of connectivity, it is heavily under-utilised, largely configured for reasons and by constraints that no longer apply, and of a poor condition. However, the existing rail connections to the Network Rail corridor are an important benefit that offer the opportunity for improved, expanded rail connections in the future, as part of the regeneration programme. The presence of the passenger rail service, and stations at South Bank and Redcar British Steel, offer the opportunity for improved access to employment opportunities via public transport.



2.08.3 PORT FACILITIES AND MARINE INFRASTRUCTURE

2.08.3.1 PD PORTS TEESPORT

As one of the UK's largest ports and the deepest water port on the east coast of the UK, Teesport is a critical asset for South Tees. Key attributes of Teesport include:

- Two container terminals (TCT1 and TCT2) each comprising two berths, taking Teesport's container terminal capacity to circa 650,000 TEU
- Three general cargo berths, handling a variety of commodities including steel, dry cargo and project cargoes. All berths have a depth alongside of between 10.9 metres - 14.5m LAT
- Three Ro-Ro berths, two within the main port area, in Tees Dock, and one river berth
- In excess of 2 million square feet of covered warehousing and substantial open storage areas
- Over 3 million sq ft of port-centric warehousing currently in operation
- Private rail sidings capable of handling a full range of cargoes
- Extensive open storage compounds, capable of handling vehicles ranging from cars and heavy goods vehicles, to plant and machinery



2.08.3.2 REDCAR BULK TERMINAL

RBT operates a 320 metre long quay which can accommodate vessels up to 17 metres draft – the deepest water on the River Tees. Lying at the mouth of the river, it is located only 4 miles from the North Sea Fairway Buoy (the limit of the harbour approach channel).

The terminal is fitted with two rail-mounted gantry cranes (1 x 63t and 1 x 42t) that can operate on grab or hook for bulk or conventional cargoes respectively. The unloaders have a travelling length of 300 metres, and in bulk (grab) mode working in unison, are capable of achieving offloading rates in excess of 40,000 tonnes per day.

The loading of rail wagons is carried out by overhead hoppers directly fed by conveyors, while the off-loading of rail wagons is achieved by bottom discharge into an underground hopper and conveyor system linked directly to nearby stockyards. The extensive terminal area immediately adjacent to the quay has the capability to provide storage space for a variety of bulk cargoes, as well as space for the assembly/disassembly of large conventional or project cargoes.

The terminal can accommodate vessels up to a maximum size of: 304m Length x 48m Beam x 17m Draft.



2.08.3.3 SOUTH BANK WHARF

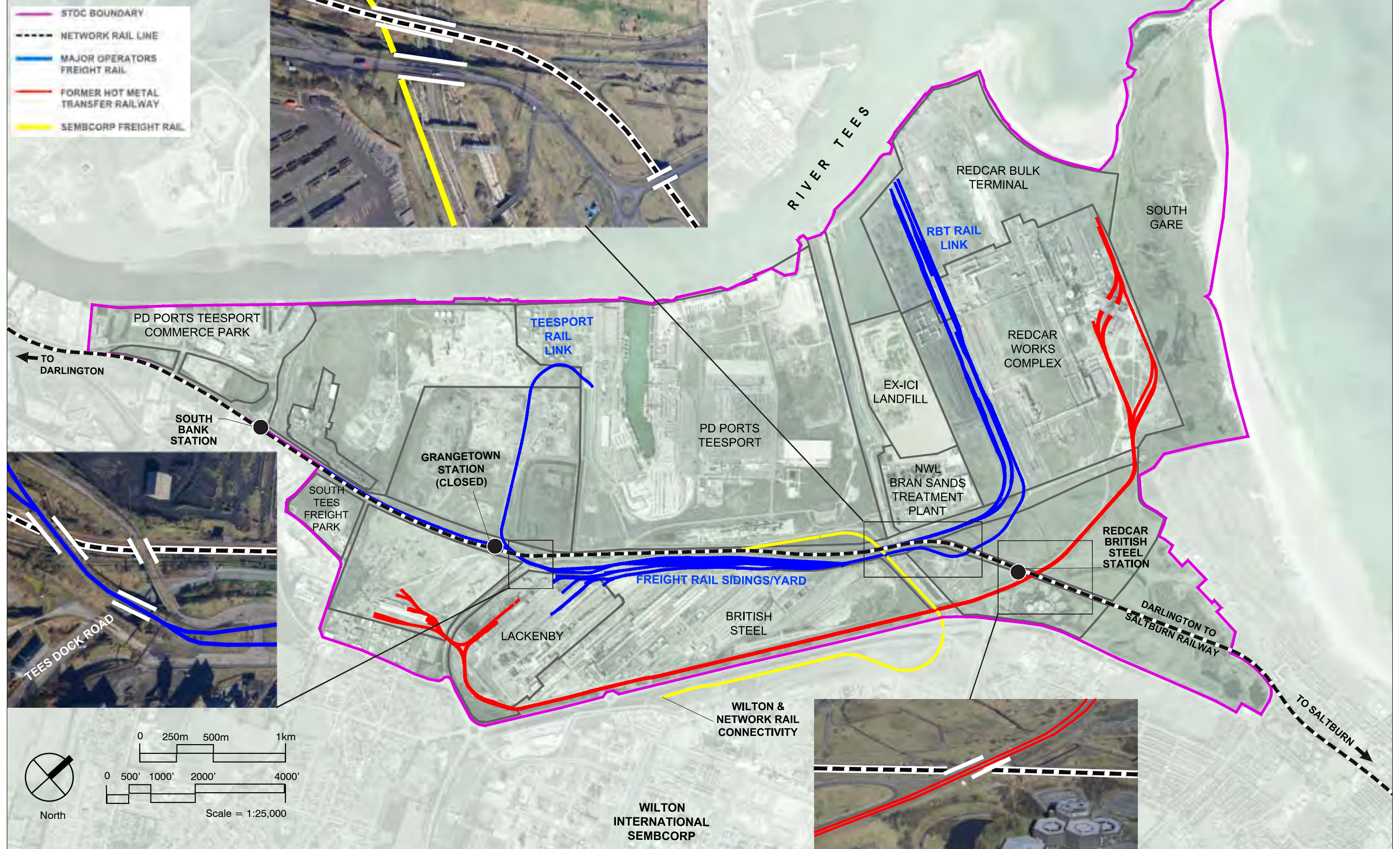
In addition to PD Ports and RBT, there is over 1km of additional river frontage at South Bank, which offers firm potential for increasing berthing capacity as part of the South Tees regeneration programme. The majority of this frontage is comprised of the redundant and dilapidated South Bank Wharf that is leased by Tata Steel from the Crown Estate.

2.08.3.4 RIVER TEES CHANNEL

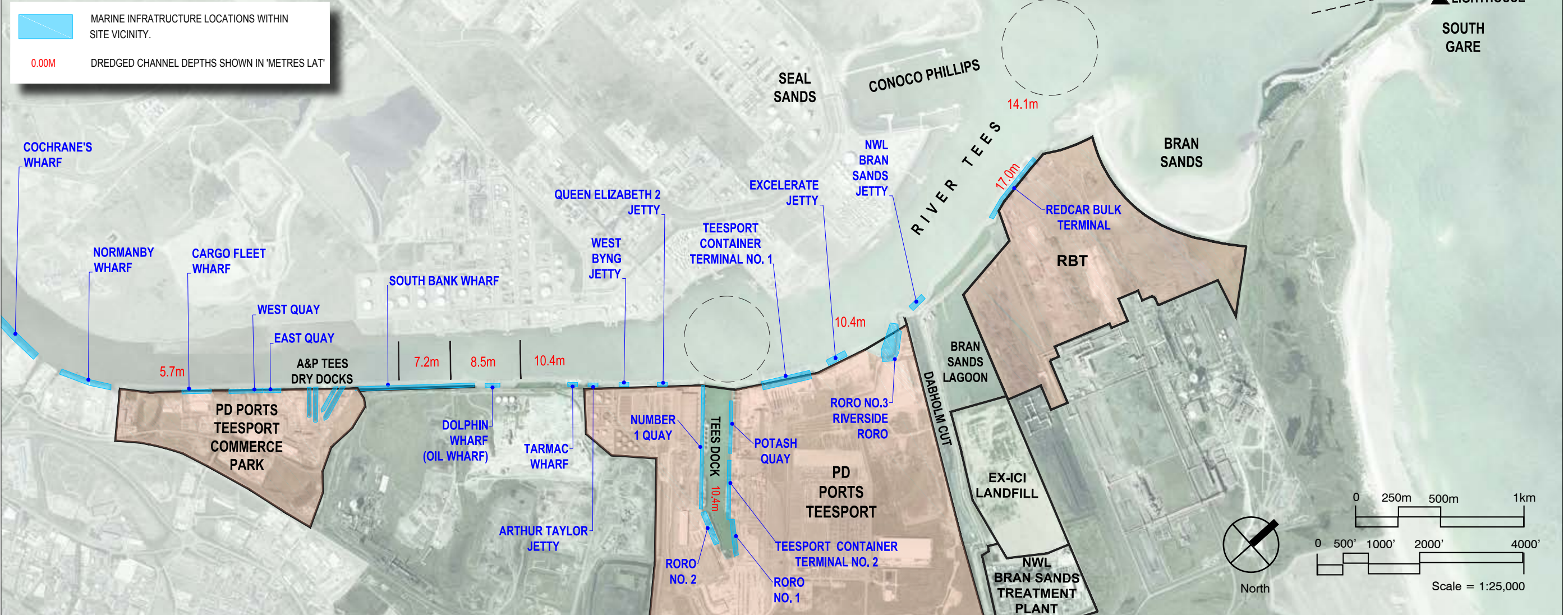
In terms of the river frontage adjoining the South Tees area, the River Tees channel is maintained to depths ranging from 7.2m LAT at the upriver limit of the site, at South Bank, to 14.1m LAT at the downstream limit of RBT, extending to 15.4m LAT at the mouth of the river. In front of PD Ports Teesport, the maintained channel depth is 10.4m LAT. Regarding the river frontage at South Bank, discussed in 2.8.3.3, the maintained channel depth runs from 7.4m to 8.5m LAT in front of South Bank Wharf, extending to 10.4m LAT over the remaining downriver length of frontage.



Existing Rail Network



Existing Marine Infrastructure



PD Ports - Teesport Commerce Park



PD Ports - Teesport



Redcar Bulk Terminal

2.09 Utilities Infrastructure

2.09.1 ELECTRICITY

There are two points of connection for electricity from the National Grid to the STDC area, namely Grangetown Sub-station in the south, and Corridor Sub-station (Tod Point) to the north. The power is connected from the overhead 275Kv system at Redcar, and from the underground 275kv at Grangetown, with transformers at each location to step it down to 66Kv. Both sub-stations have 66Kv and 11Kv subs. The site HV cabling is generally underground except for bridge crossings. Records indicate that there are numerous interdependencies and the routeing can often be convoluted.

The National Grid overhead power cabling is carried east by pylons to Tod Point. The pylons are largely accommodated within the main infrastructure corridor and along the SW boundary of the South Bank site where they cross the river. Overhead cables from Wilton cross Tees Dock Road and the TATA steel Grangetown Prairie site on pylons connecting to the main route at Dock Road Sub-Station. The pylons and cables have development exclusion zones around them which need to be determined with National Grid on a site by site basis as development proceeds. The on-site power distribution system is operated by SSI. Operators supplied by the system include British Steel, Tata and RBT.

The overall site is currently operating at around 5MW. The two grid point connections, at Grangetown and Tod Point, are important, beneficial assets for the STDC area.

2.09.2 INDUSTRIAL PIPELINES

The STDC area, having been home to a significant steelworks industry, and situated between the major industry of Wilton International to the south and North Tees and Seal Sands to the north, and adjacent to the coast, contains a large network of critical industrial utility infrastructure, including major gas import lines from the North Sea.

The principal industrial pipelines crossing the site influencing the Master Plan are:

- SSI – Coke Oven Gas Main (COGM)
- SSI - Heavy Fuel Oil Line
- BOC – Oxygen Mains
- BP - CATS Terminal 36" Transmission Line (High Pressure Gas Pipeline)
- RWE Breagh (High Pressure Gas Pipeline)
- SEMBCORP – TPEP, Sembcorp Corridor, and Sembcorp Link Lines

The now redundant COGM (20km long) and heavy fuel oil line (8km long) run from SBCO to RCO, both underground and above ground, sharing the same route along the main infrastructure corridor. The COGM branches off to various areas and still contains hazardous material, currently controlled under a nitrogen blanket to prevent ignition. The heavy fuel oil line has trace heating electricity to maintain flow. BOC pipelines serving SSI are now redundant, however BOC still serves other industry in the area, via the Sembcorp corridor.

The CATS pipeline transports natural gas over 400km from the CATS Riser Platform, located in the Central Graben Development of the North Sea, to processing facilities at the CATS Terminal Teesside. The pipeline crosses the Redcar Complex before heading north along the Sembcorp Corridor. The Redcar and Cleveland Council, Tata Steel and SSI Steelworks wayleave/easement is 15m wide (7.5m either side of the pipeline).

RWE Breagh transports gas from the North Sea to Seal Sands, and cuts across Coatham Marshes and around Steel House, before entering the Sembcorp corridor.

The Sembcorp corridor carries all the main utilities from Wilton to Seal Sands and the wider area. At Redcar it crosses beneath the Trunk Road and heads NW along Dabholme Gut before crossing the River Tees via Tunnel No.2, a 1.1km 3m steel segmental tunnel owned by Sembcorp Utilities Ltd. The tunnel incorporates various pipelines used to transport various chemicals such as feed stocks, gas, and fuel oils between chemical plants located on either side of the River Tees. The Sembcorp corridor also branches SW and NW (Link Lines), before crossing the River Tees near South Bank Wharf, via Tunnel No.1.

2.09.3 WATER, DRAINAGE AND WASTE WATER TREATMENT WORKS

The STDC area has numerous elements of water infrastructure present including potable and industrial water supply, estuary water supply, foul and surface water drainage, and industrial water culverts.

WATER (POTABLE AND ESTUARY)

The Redcar Complex is supplied with both potable and raw industrial water via 3no operational pipelines. There is a consented estuary cooling water network at Redcar comprising 3no. 60" (1500mm) diameter mains. The water abstraction point is at RBT. Various redundant mains exist across the site.

SURFACE WATER AND FOUL DRAINAGE

The vast majority of roads across the site do not have positive drainage systems in place and simply rely upon gradients to discharge surface water on to verges to soak away. Most roads flood in periods of high rainfall. Foul drainage at the Redcar Complex is directed to package effluent treatment plants on the site, with the treated water being discharged to sea via a culverted outfall.

Future development of roads, hard standings and buildings will consider Sustainable Drainage techniques that could result in the need to attenuate storm water on site.



Sembcorp Corridor - West - to No.1 Tunnel



Redcar - COGM and heavy fuel oil line crossing



Sembcorp link lines



RBT - estuary water mains - valve chamber

The existing NWL Bran Sands Waste Water Treatment Works (WWTW) is an excellent asset for the site. The WWTW has been in operation for over 20 years, and currently has significant capacity following the loss of industry on the Wilton site and the closure of SSI. There are three municipal sewage transfer mains serving the immediate and wider area coming into the WWTW: Cargo Fleet; Eston; and Portrack.

The WWTW also accommodates industrial pipelines from Wilton, Dupont, Huntsman and Conoco Phillips. Treated water from the WWTW discharges to Dabholme Gut (tidal).

2.09.4 TELECOMS

Fibre Network is available in the area. SSI utility infrastructure provides data/telecom services to a number of third parties on and off the site.

2.09.5 SUMMARY

The STDC area, due to its long history of industrial activity, is traversed by an extensive network of live and redundant utilities, presenting both opportunities and benefits for new development, and also constraints.

The area is located on one of the main energy spines in the UK and power sources availability is seen as one of its key attributes. The proximity of Wilton International and the primary focus of Sembcorp Utilities on power and steam offer major benefits to the STDC area. The Sembcorp utilities corridor provides good connectivity between the major industrial zones on North and South Tees.

The presence of the NWL WWTW at Bran Sands offers future industrial operators a readily accessible, convenient facility for effluent treatment.

Addressing the decommissioning of the Coke Ovens Gas Main and Heavy Fuel Oil main will likely be early stage priorities for STDC. This work would address the primary legacy utilities issues on the site. The National Grid OH power lines and CATS pipelines represent key utility corridors with regulatory constraints that will need to be factored in to future development.



Sembcorp corridor and Dabholme GUT south of WWTW



WWTW sewage transfer mains



Sembcorp corridor east - to No.2 tunnel



Eston pumping station sewage transfer mains



NWL effluent transfer mains



NWL Brand Sands WWTW



66KV substation

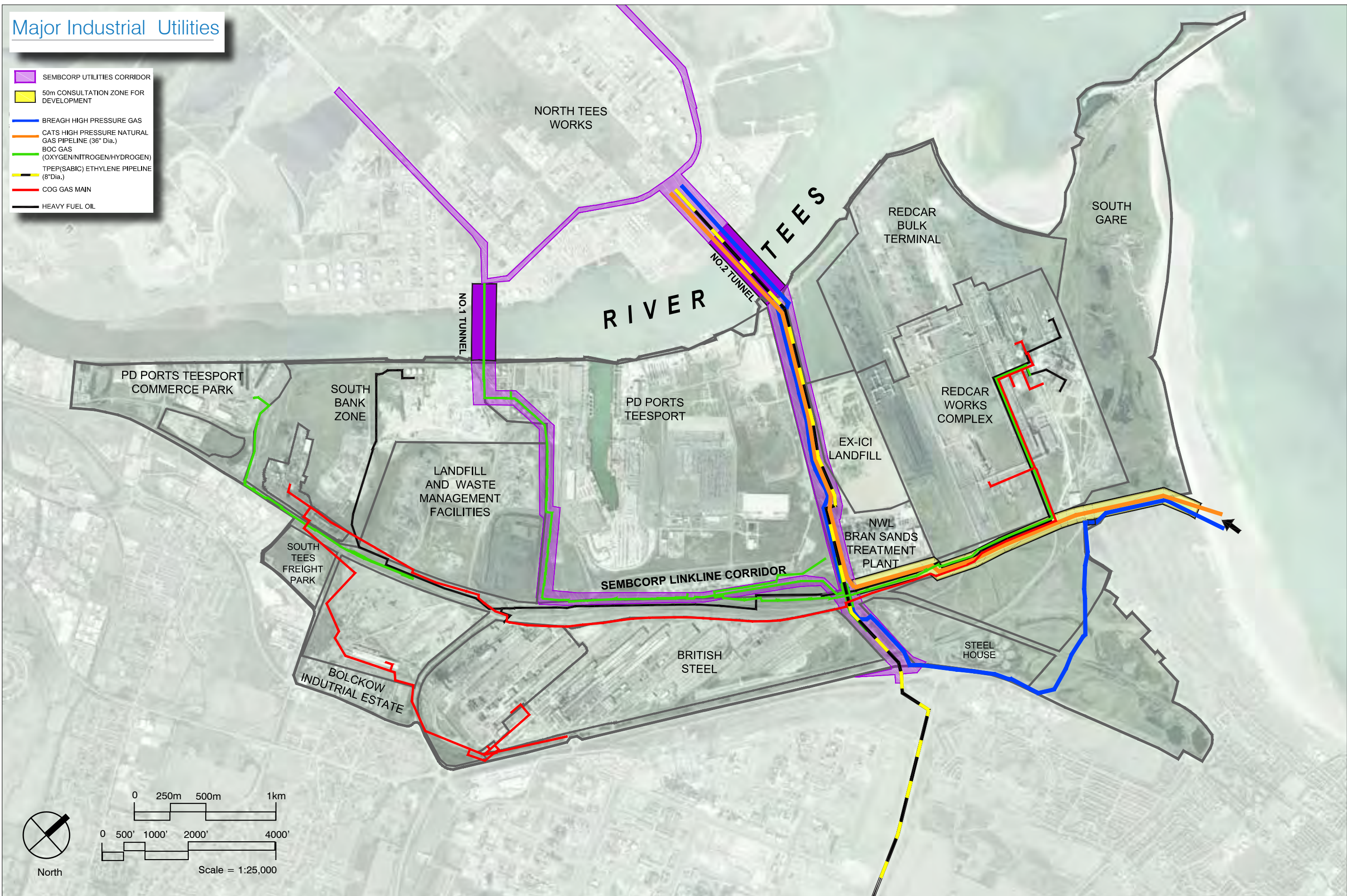
Power Infrastructure

- MAIN POWER TRANSMISSION LINES - HV CABLE ROUTES
- NATIONAL GRID OVERHEAD ELECTRICITY LINES AND PYLONS
- SUPERGRID SUBSTATIONS
- PRIMARY LIVE SUBSTATIONS



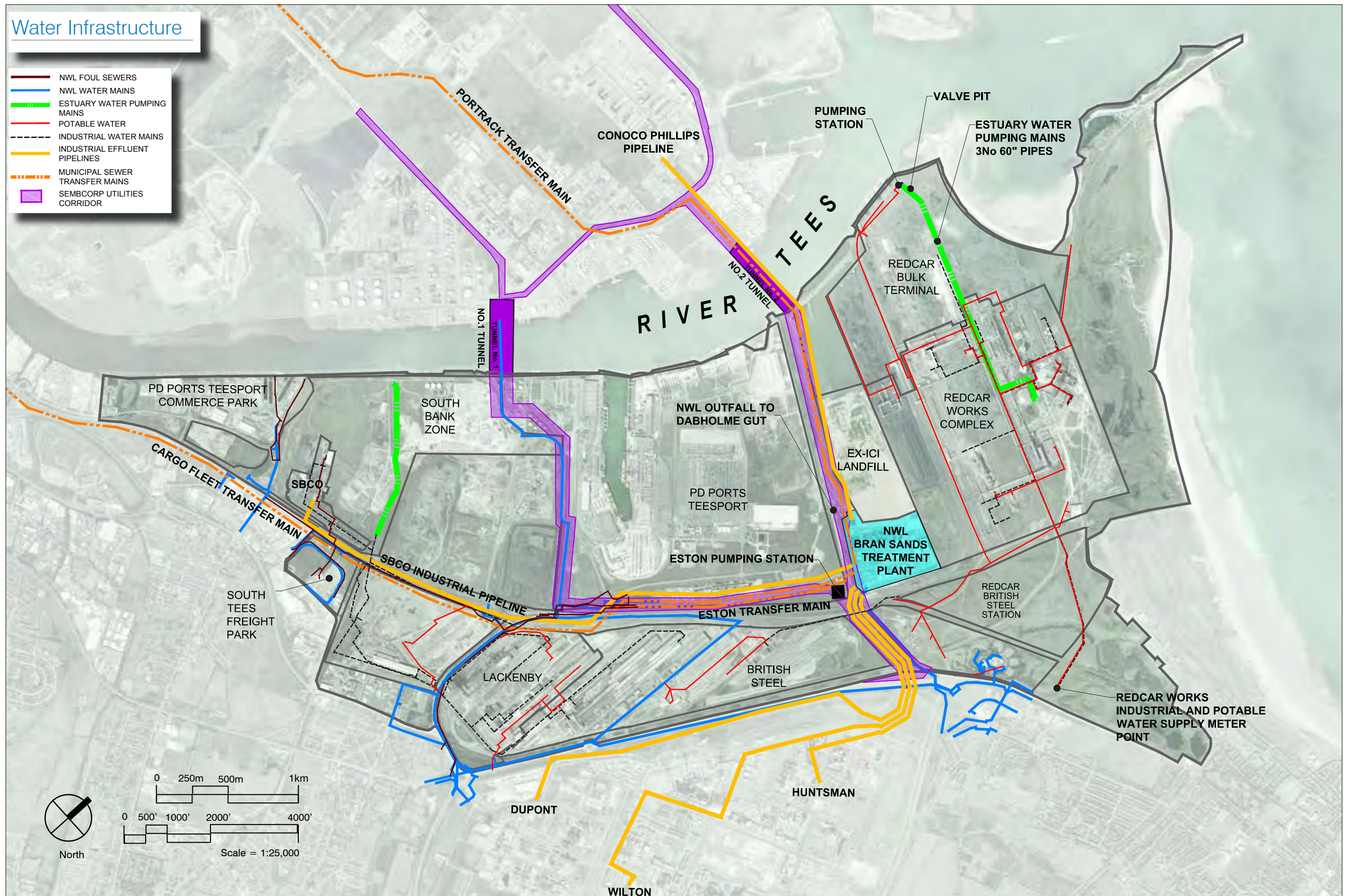
Major Industrial Utilities

- SEMBICORP UTILITIES CORRIDOR
- 50m CONSULTATION ZONE FOR DEVELOPMENT
- BREAGH HIGH PRESSURE GAS
- CATS HIGH PRESSURE NATURAL GAS PIPELINE (36" Dia.)
- BOC GAS (OXYGEN/NITROGEN/HYDROGEN)
- TPEP(SABIC) ETHYLENE PIPELINE (8" Dia.)
- COG GAS MAIN
- HEAVY FUEL OIL



Water Infrastructure

- NWL FOUL SEWERS
- NWL WATER MAINS
- ESTUARY WATER PUMPING MAINS
- POTABLE WATER
- INDUSTRIAL WATER MAINS
- INDUSTRIAL EFFLUENT PIPELINES
- MUNICIPAL SEWER TRANSFER MAINS
- SEMBCORP UTILITIES CORRIDOR



2.10 Watercourses and Flood Mapping

2.10.1 WATERCOURSES

The River Tees forms the north western boundary of the STDC area. The river is nearly 100 miles long, and drains the eastern slopes of Cross Fell in the Pennines before flowing eastward to the North Sea. The STDC area is located at the river estuary. The river is classified as a ‘main river’ by the Environment Agency. The lower catchment is close to sea level and predominantly tidal. The Tees Barrage is located 10 miles upriver and this forms a barrier between the estuary and the upstream catchment. The barrage eliminates tidal effects upstream of the structure.

There are several small watercourses crossing the STDC area, from the south and east, flowing northwards towards the River Tees, all of which have been culverted at various times and to differing degrees to allow development of the various industries. The watercourses that outfall into the River Tees directly are Lackenby Channel at the west end, and Dabholm Gut. Other watercourses on site are as follows:

Flowing into the Lackenby Channel:

- Holme Beck Culverts
- Knitting Wife Culvert
- Boundary Beck
- Kinkerdale Culvert
- Cleveland Channel

Flowing into Dabholm Gut (tidal):

- Dabholm Beck
- Mill Race
- The Fleet

Future development will need to take cognisance of culverted sections of watercourse, however, there will be opportunities to either divert or possibly open the culverted sections further to enhance the water and landscape environment, and manage the watercourses to assist in reducing flood risk.



The Fleet - culvert No.2



Lackenby channel drainage cut



The Fleet



Steel House Lake



Cleveland channel



The Fleet



Cleveland channel

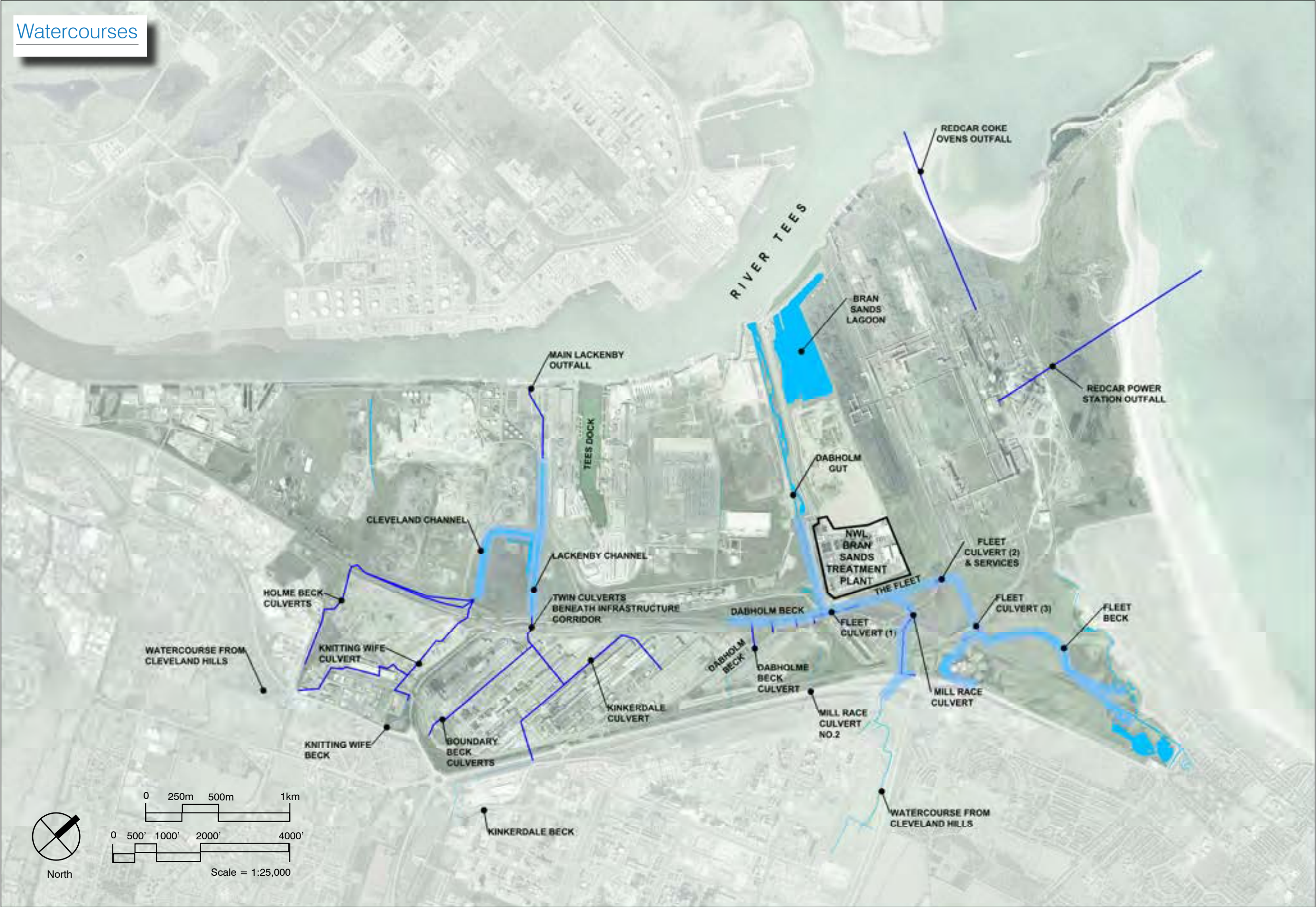


Lackenby channel



Mill Race

Watercourses



2.10.2 FLOOD MAPPING AND FLOOD RISK

An initial high level flood risk assessment of the STDC area has considered tidal flooding along with fluvial and surface water flooding from available sources. Water levels were then evaluated on projections for climate change and undefended scenarios.

Historically tidal Flooding from the River Tees has been recorded as far back as 1836 in Stockton-on-Tees and 1903 in Middlesbrough. At Port Clarence, immediately upstream of the site, flooding was recorded in 1953, 1999 and 2000. In 2013 a significant flood event effected areas of Port Clarence and the A66 at Teesside Park, Stockton-on-Tees.

REDCAR BULK TERMINAL (RBT)

At RBT the main source of flood risk originates from the River Tees, from possible breaches in the dunes at Coatham Sands and from Bran Sands lagoon. The main flooding mechanism at this location is through tidal/coastal flooding. Ground levels in the area are considered to be sufficient to protect against all but the most extreme events. Surface water flooding is isolated and not widespread but mechanisms for conveying surface water should be reviewed dependent on the final land usage designation.

REDCAR WORKS COMPLEX

In this area the main source of flood risk originates from The Fleet, Dabholm Gut, Bran Sands Lagoon and the sea at Coatham Sands. The main mechanism for flooding is through the tidal process although fluvial drivers do effect the south west corner of the site, close to The Fleet channel. Tidal flood risk is very low with only small pockets at risk towards the western extent of the site with the Ex-ICI Landfill site and the NWL Bran Sands WWTW, and along the railway in the south west corner. Surface water flooding is isolated and not widespread but mechanisms for conveying surface water should be reviewed dependent on the final land usage designation. Increasing defences/ground levels should be considered at the western extent of the zone and in the south-eastern extent where significant flooding can occur at Coatham Sands.

TEARDROP AND CLE31

The Teardrop area is fairly low lying, with the highway infrastructure set above. The former landfill area to the south is elevated. Both are traversed or crossed by The Fleet. The main source of flood risk is from The Fleet and associated network of drains, channels and culverts and from the sea at Coatham Sands. There is a higher risk of flooding in this area around the river channel. The Fleet discharges into the Tees Estuary through four pipes with tidal flaps downstream and therefore during high tide there is a need to have flood storage capacity upstream. Increasing levels and associated freeboard around the River Fleet channel would reduce risk, as would improving channel conveyance and storage. Any improvements made in progressing the development of the site will need to consider upstream effects.

STEEL HOUSE

In this area the main source of flood risk is from fluvial and tidal sources originating at Dabholm Gut and the associated river network which discharges into it, and from surface water flooding on the A1085 and at Steel House. There is a localised high flood risk from tidal sources. There is localised high risk of surface water flooding in the area and also beyond at the A1085 and towards Dormanstown. As with the Teardrop site The Fleet discharge pipes provide a potential flood risk with upstream storage required when the tidal valves are closed. Going forward river/drain network improvements will be considered to provide greater storage capacity within the area, along with potential flow diversions and improving mechanisms for conveying surface water.



Dabholm Gut at high tide

GRANGETOWN PRAIRIE

The risk in this area from surface water flooding is low. In the far north-east corner there is localised flood risk due to tidal flooding. In the adjacent Tees Dock Road there is significant but localised flood risk for the 1 in 200 return period 100-year water level event and significant flood risk from the 1 in 100 surface water flood outline. In taking forward areas for development within the STDC area there is an opportunity to improve the flood resilience of the highway infrastructure in Tees Dock Road, by considering increasing levels and improving surface water conveyance.

SOUTH BANK

Generally the area has a low flood risk, with a high risk at some isolated points. Minor improvements to the area should include increasing levels in the low-lying areas and ensuring the defences to River Tees are maintained, in tandem with any improvements to the River Tees frontage such as South Bank Wharf. Although surface water flooding is isolated, and not widespread, the mechanisms for conveying surface water should be reviewed dependent on the final land usage designation.

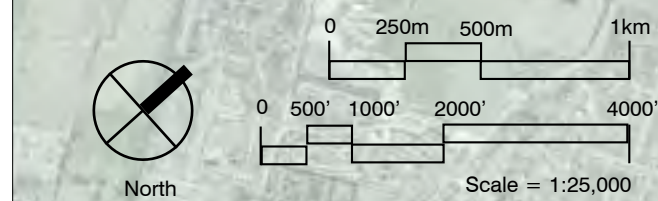
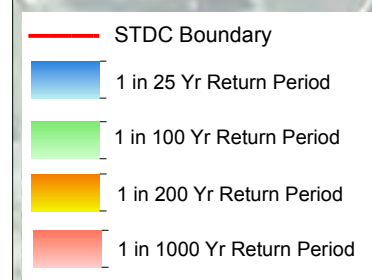


North zone

2.10.3 SUMMARY

The River Tees ‘main river’ forms the north-western boundary of the STDC area, and there are two watercourses that outfall directly into it from the site, the Lackenby Channel and Dabholm Gut. There is a network of other water courses, channels and culverts across the area which will provide an opportunity to rationalise, manage, and enhance the water environment, collectively reducing flood risk for the development. The large majority of the STDC area is at low risk of flooding from tidal and surface water influences, but opportunity will be taken to intervene in areas where there is localised high risk of flooding, as part of development.

Undefended Extreme Tidal Flood Extents - 2017



2.11 Ground Conditions

2.11.1 INTRODUCTION

The STDC area covers land that historically was home to significant steel making and heavy industrial uses, with associated land raising and reclamation from the River Tees and the sea undertaken to progressively realise the current industrial area. In order to assess the development risks for each parcel of land, including consideration of remediation and construction implications, detailed desk studies have been undertaken, underpinned by reviews of the extensive SSI archive and site walkover surveys.

2.11.2 AREA ASSESSMENTS

SOUTH BANK

Following reclamation from the river during the late 1890's, the site was occupied by Cleveland Saltworks, Iron and Steel Works, Galvanising Works, Concrete Works, a fuel oil storage depot and more recently South Bank Coke Ovens (SBCO) and Bi-Products facilities. Ground contamination associated with these activities is likely to be locally significant and particularly concentrated at SBCO and Bi-Products facilities. Residual coal-tar is stockpiled to the west of the Bi-Products works. The slag used to reclaim the site is up to 10m thick, and is underlain by compressible soft and weak Tidal flat deposits from the former estuary, and beneath that is the Tees Laminated clay. The bedrock in this area is the Mercia Mudstone at 18-25m depth below ground, and the Boulby Halite formation from which brine was historically extracted.

LANDFILL ZONE

The landfill zone is located east of South Bank and the Lackenby channel forms the eastern boundary where monitoring of water quality is ongoing prior to discharge to the River Tees. The waste management facilities area comprises three landfill areas and a metals recovery area, namely:

- SSI High Tip - Iron and steel bi-products landfill
- SSI SLEMS - Iron and Steel Making waste recycling, BOS slurry and blast furnace slurry
- Highfield Environmental Facilities - Hazardous and non-hazardous waste landfill
- Metals Recovery Area: recycling materials from Iron and Steel making waste.

Licenses are in place for the various facilities.

GRANGETOWN PRAIRIE

This area was previously occupied by Cleveland Steel Works (1800's) and included blast furnaces, coke ovens, a Bessemer furnace, steel mills and associated plant. The existing Torpedo Ladle Workshop was formerly home to a series of open hearth furnaces. Former activities have left a legacy of contamination, and buried structures, utilities and chambers across the site. The former coke ovens location, to the western side of the site, is likely to be the most heavily impacted area. The ground conditions beneath the site initially comprise up to 4m of slag. Rock is at a depth of 6-15m.

LACKENBY STEEL MAKING AREA

Previously occupied by Lackenby Iron Works this area contained large, open reservoirs which were demolished and infilled during the 1950's, and then redeveloped with the Basic Oxygen Steelmaking (BOS) Plant, CONCAST, and a Water Treatment Works which were utilised up to steelworks closure in 2015. Made Ground, likely to be slag, exists up to 5m thick. The current plant has large underground structures, extending to some 10m below ground.

STEEL HOUSE AND ADJACENT LAND

Steel House is in a previously landscaped area, where slag is the main component of the upper layer of ground. Generally, the extent of contamination is likely to be limited. The Made Ground, mainly slag, will be of variable thickness but is expected to be over 6m deep in places.

TEARDROP AND WARRANBY LANDFILL CLE31

The Teardrop site was reclaimed in the 19th century from the river, and was then partly occupied by Warranby Iron Works and its associated slag works; which were demolished in the 1970's. Residual contamination is to be expected. Localised areas of higher risk are the former coke works and blast furnaces, some remnants of which are still visible. The former landfill, which is now closed, comprises primarily steel making slag waste. Beneath the Teardrop site and the landfill, made ground comprising slag exists up to 7m thick. Rock exists at 12-15m depth.

COATHAM MARSH

Historically marshland and sand dunes, this area has been raised in parts using material from the adjacent Iron foundry in the late 1800's. The Made Ground in this area is predominately slag up to 7m thick. Its proximity to the

Redcar Iron Works means that it may have been impacted in part by the former processes, and treatment and re-use of bi-products such as tar, although this is expected to be limited. The site is not earmarked for new development.

REDCAR BULK TERMINAL (RBT)

RBT is built wholly on reclaimed land. Most of the area is used to stockpile raw materials including coal. Numerous conveyors and cranes are located throughout, and localised contamination may be present. A small, licensed waste management site (CLE124) borders RBT to the north for the disposal of industrial waste, although this may not have ever been used. The Made Ground used in the reclamation comprises slag approximately 10m thick, although it may be thicker closer to the River Tees. The bedrock beneath is the Mercia Mudstone Formation at 25-35m below ground level.

REDCAR WORKS COMPLEX (SSI)

SSI Redcar was reclaimed from the estuary in the 1950's and is principally occupied by Redcar blast Furnace, Redcar Coke Ovens and the Redcar Sinter Plant. These areas are the most likely to be affected by contamination. The Coke Ovens Bi-Products Plant is a likely source of contamination as it involved the removal of coal tar, ammonia, phenol, naphthalene, light oil and sulphur from the coke oven gas. Other ancillary operations such as power generation and the Sinter and Pellet plants may also give rise to contamination. The former Redcar Iron Works occupied the south-eastern part of the Redcar site and included a tar plant. Made ground consists of slag up to 10m thick. Rock lies at 15-25m below ground.

SOUTH GARE

This former spit at the mouth of the river was reinforced with a breakwater made from slag during the 1880's. The rest of the area was hydraulically infilled, similar to the Redcar site. The thickness of the Made Ground is likely to be up to 10m thick. Localised contamination cannot be ruled out.

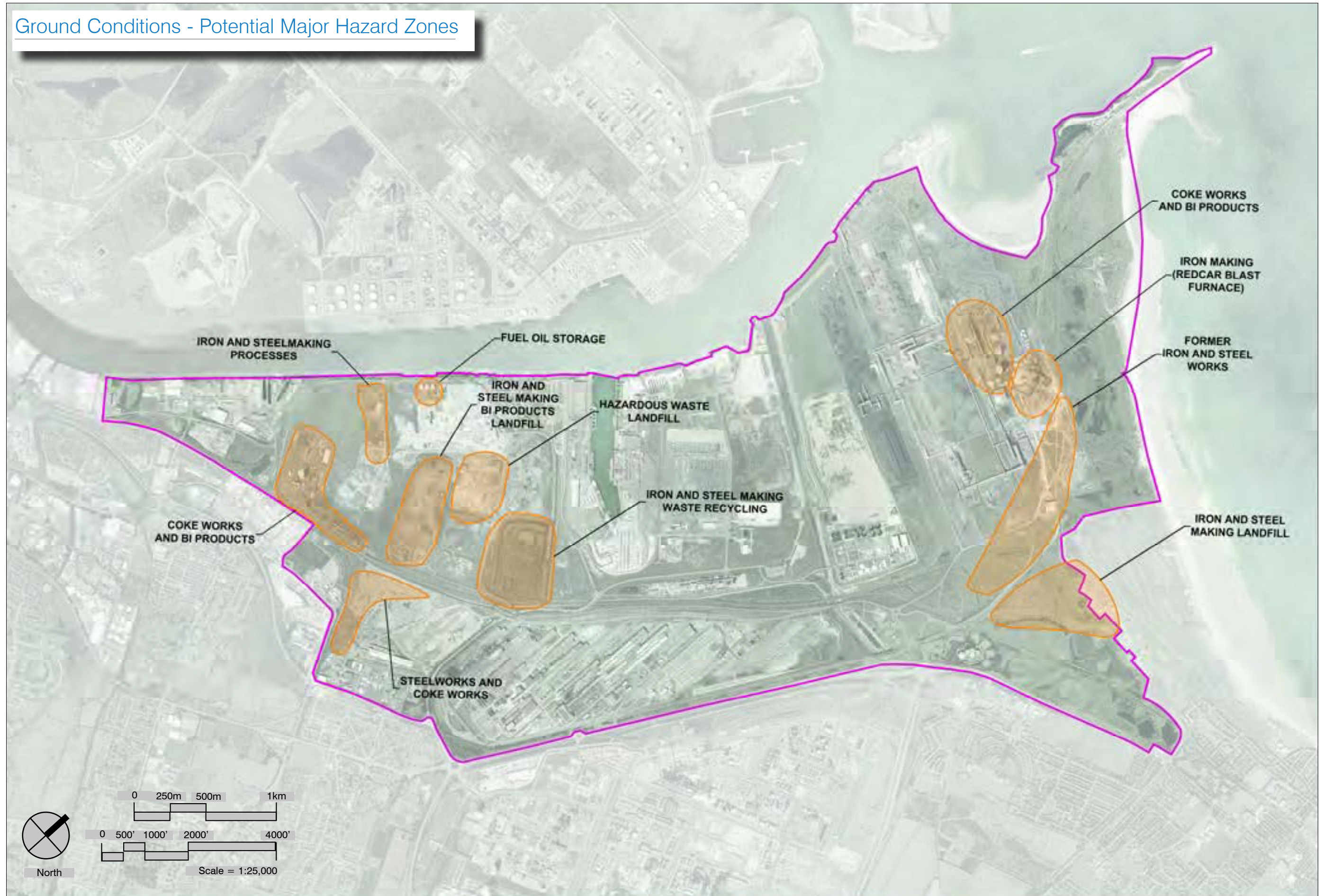
INFRASTRUCTURE CORRIDOR

The COGM and Heavy Fuel Oil Line run in parallel along the Infrastructure Corridor, and are a potential source of localised contamination from historical leaks. The Infrastructure Corridor primarily contains utilities, roads and freight railway lines that bisect the site. Localised contamination associated with the railway lines is likely.

2.11.3 SUMMARY

For industrial future uses remediation may not need to be as significant as perhaps perceived, and there are a variety of proven, established technologies available to deal with contaminants to reduce their impacts to acceptable levels, as well as encapsulation and capping strategies. The type of remediation will depend on the type, concentration and extent of contamination, but it is clear from certain former uses that there will be areas where major remediation is required, including the removal of hazardous (COMAH) materials. However, careful planning of development layouts and phasing will be utilised to mitigate clean-up requirements and ensure viable development opportunities are not compromised.

Ground Conditions - Potential Major Hazard Zones



2.12 Environment and Ecology

The STDC area is important for biodiversity, supporting a number of priority habitats and species and overlapping with internationally important designations.

2.12.1 DESIGNATED SITES

The Teesmouth and Cleveland Coast Special Protection Area (SPA) and Ramsar site is on the northern edge of the site boundary. The SPA designation reflects the international importance of the site for birds and the site also qualifies as a Ramsar site (a wetland of international importance). There is an extension proposed to the SPA, which includes Bran Sands Lagoon, Dabholm Gut, Tees Dock and Coatham Marsh, all of which are within the STDC area. The SPA is also designated as South Gare and Coatham Sands SSSI which covers additional ground inland of the SPA/Ramsar.

There are two Local Wildlife Sites (LWS) within the site boundary. Eston Pumping Station is within PD Ports Teesport land, which is not subject to any future development proposals. Coatham Marsh LWS is within the site boundary, to the east of Steel House and the Teardrop site, and although it is within the land ownership of Tata Steel it has been managed as a nature reserve by Tees Valley Wildlife Trust since 1982.

2.12.2 HABITATS

There are four habitats within the site boundary that are UK habitats of principal importance (NERC Act Section 41 list). These are: semi-natural broadleaved woodland; brownfield sites characterised by open mosaic habitats on previously developed land; ponds; and coastal sand dunes.

There is one area of semi-natural broadleaved woodland, located within land surrounding Steel House, and two small areas of dune grassland within RBT, which are continuous with the more extensive habitat within the adjacent SSSI/SPA. The main watercourse of interest is The Fleet, which flows from Coatham Marsh across the Teardrop site. There are various waterbodies of varying quality.

The main habitat of interest is open mosaic grassland. This habitat includes neutral and calcareous grasslands. Of note are the calcareous “slag grasslands”, which were created from reclaiming the area for iron and steel works uses using lime-based blast furnace waste. These grasslands support the food-plants of grayling and dingy skipper butterflies, both of which are UK species of principal importance. The most diverse calcareous grassland is the Teardrop site. The grassland in Grangetown Prairie is also of interest, along with the habitats in RBT, which are immediately adjacent to the designated sites.

2.12.3 BIRDS

Given the proximity of the SPA to the site, there are numerous records of SPA bird species in the vicinity of the site boundary. Given the structure, size and the number of flat roofed buildings present within the survey areas there is the potential for red data species such as peregrine and herring gull to use these areas for roosting and/or breeding. All habitats on site have the potential to support Red List species such as lapwing, curlew and skylark. Habitats of particular interest to birds include the small waterbodies and areas of woodland/scrub, while the open grassland habitats could accommodate typical farmland birds as well as ground nesting species such as lapwing.

2.12.4 WATER VOLE (ARVICOLA AMPHIBIUS)

Water vole are protected by the Wildlife and Countryside Act 1981 and are a species of principal importance in England. There are no records from within the site boundary. Historically, water vole have been recorded on The Fleet within Coatham Marsh LWS, but surveys in 2007 and 2014 did not record any finds. The nearest record of water vole is at the Kettle Beck (NZ562203), 1km south of the site boundary. The Fleet has potential to support water vole, but the other watercourses within the site have negligible to low potential to support this species.

2.12.5 OTTER (LUTRA LUTRA)

Otter are a European Protected Species (EPS) and are a species of principal importance in England. There are no records of otter within the STDC area, but there are on the River Tees. There is the potential for otter using the watercourses within the STDC area for commuting and foraging. However, these watercourses are not considered suitable for otter breeding habitat. The nearest known otter population is at Billingham Beck, approximately 6.5km upstream from the STDC area.

2.12.6 BATS

It is considered that there is low potential for bats to be present within the STDC area. Data searches identified records of bats in the wider area and roosts in houses in surrounding villages, but there are no records from within the STDC area boundary.

2.12.7 AMPHIBIANS

Common toad and smooth newt have been observed on the STDC area. However, no great crested newt (which is a European Protected Species) have been recorded within the boundary. There are ponds within 500m of the boundary which may have potential to support this species.

2.12.8 REPTILES

There are records of common lizard from within the STDC area boundary. Given the widespread coverage of open grasslands and bare/colonising ground throughout the site, there is considerable habitat present that could support reptiles.

2.12.9 INVERTEBRATES

The grassland habitats on site, particularly (but not restricted to) the calcareous grassland in the Redcar Complex and the Teardrop site are known to support large numbers of Grayling butterfly. There are also records of Wall, Large Heath and Small Heath butterfly within the site boundary. Grayling and Small Heath are species of principal importance in England.

2.12.10 OTHER FAUNA

There are records of brown hare (Coenonympha pamphilus) within the site and it is likely there is a locally important population. Brown hare are a species of principal importance in England, through their inclusion on the Section 41 list.

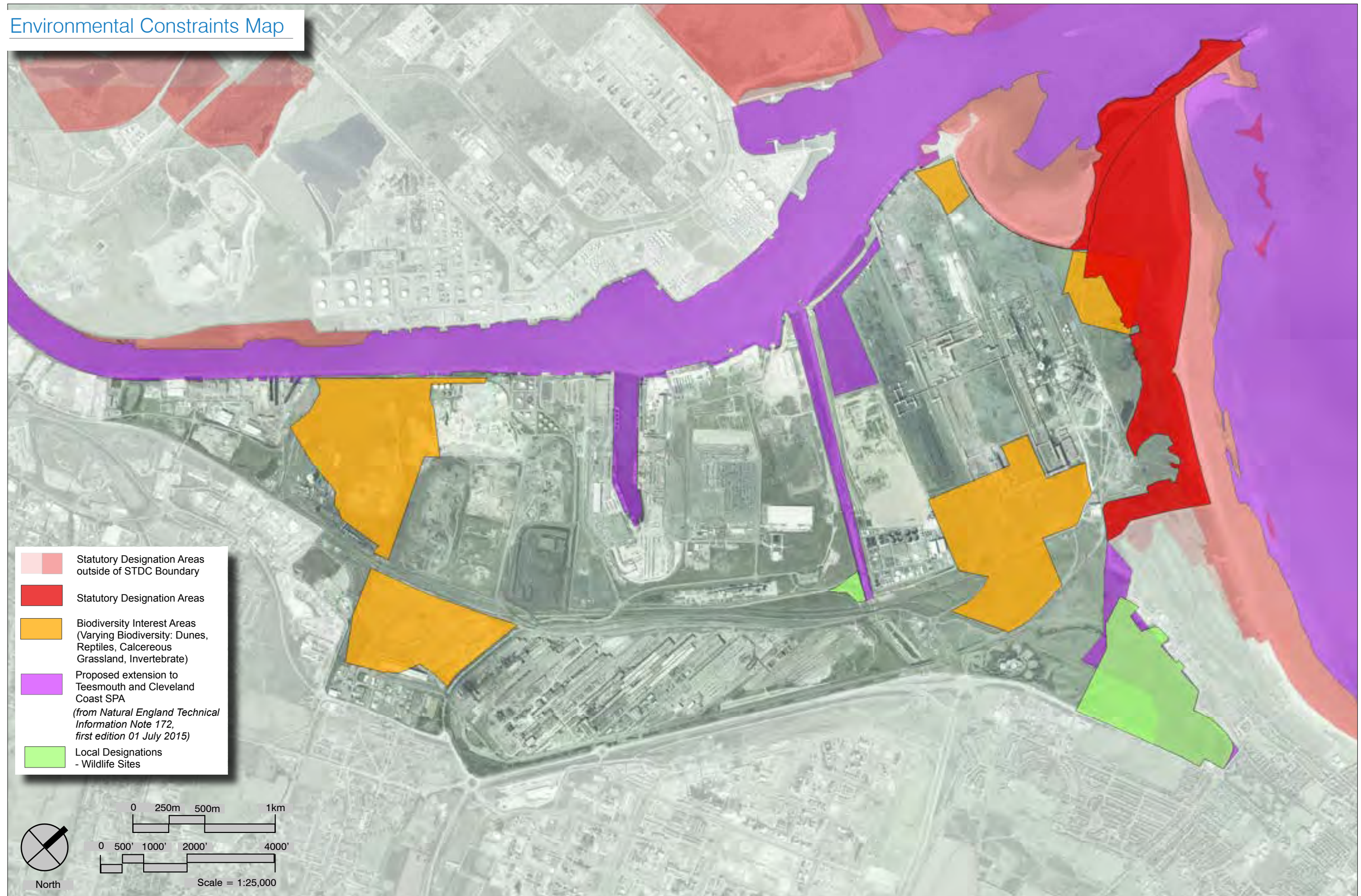
2.12.11 CONCLUSIONS AND RECOMMENDATIONS

The key constraints within the STDC area are the international and local designations. Furthermore, the undesignated grassland habitats are of botanical interest and support populations of reptiles and butterflies. The Area is also likely to be of interest for breeding and wintering birds and could support other species such as water vole and otter. Additional surveys are required to inform any applications for development consents.

Due to the presence of the SPA, it is anticipated that a Habitat Regulations Assessment (HRA) will be required. Where impacts cannot be avoided, robust mitigation needs to be put in place as part of the Ecological Impact Assessment (EcIA).



Environmental Constraints Map



2.13 Landfills and Waste Management

Located at South Bank, between the South Bank Coke Ovens and PD Ports Teesport, the principal area of landfills and waste management facilities within the STDC area is defined in 2.5.2.2. The facilities have been in operation for many decades, stretching back to eras when operational standards and regulations were far less onerous than those in force today, so ground contamination beneath the facilities can be expected to be significant.

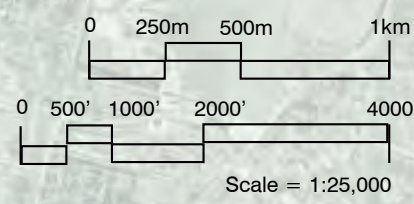
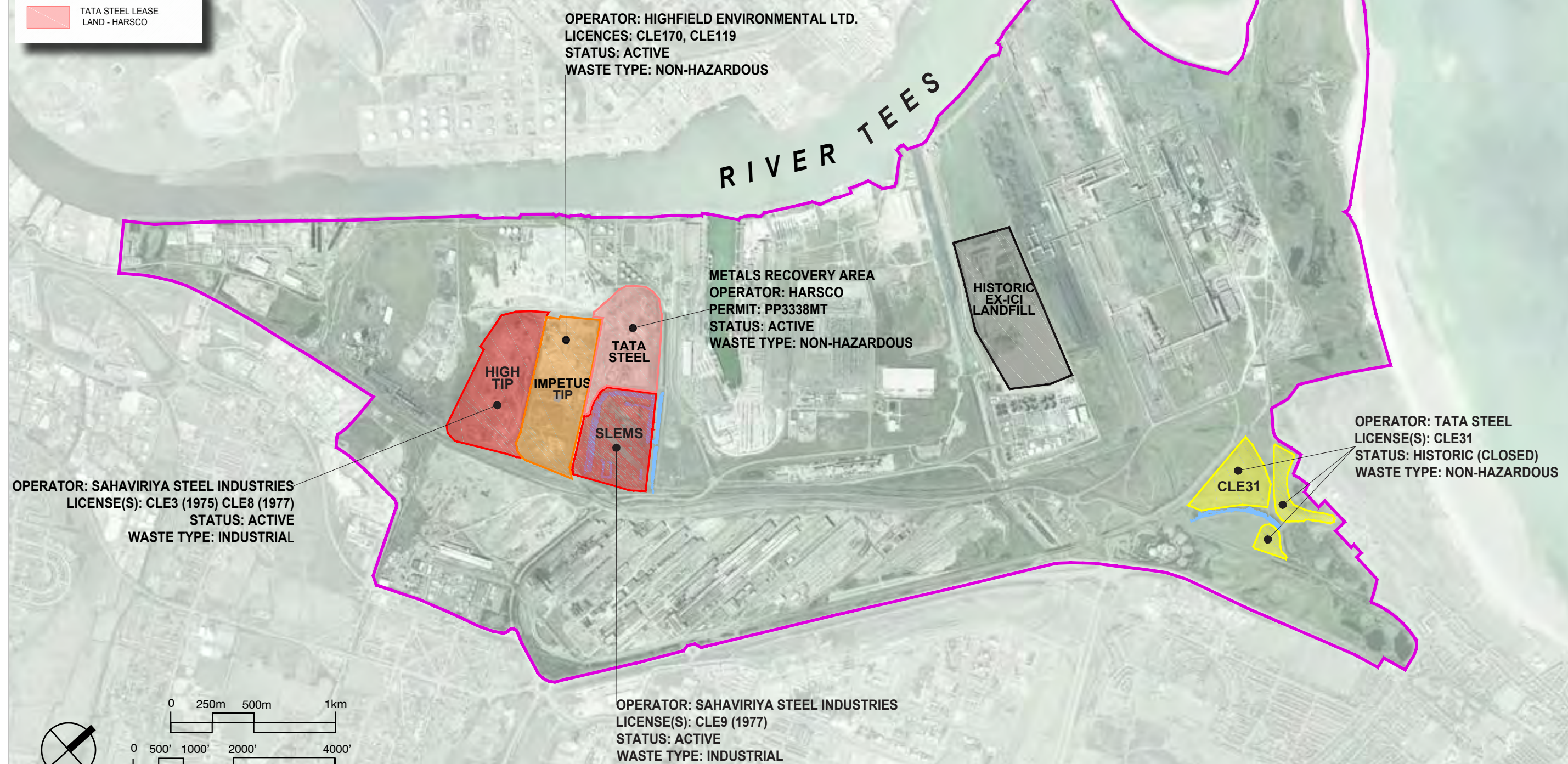
That said, the various landfills offer the opportunity to mitigate the cost of remediation to other site areas within the STDC regeneration programme, including bi-products of decommissioning and demolition. Utilising this area as a repository for residual, unsuitable materials from site preparation will save significant cost over off-site disposal. With the abundance of land elsewhere across the STDC area, and further afield at Wilton (230+ hectares), there is, therefore, a strong case for retaining the majority of this zone as waste management facilities. However, with the leased metals recovery area now vacated and the SLEMS material having a market value, there is scope to free up around one third of this zone for alternative development – typically, uses requiring little ground remediation or ground improvement. There will be ample capacity in the remaining areas (SSI High Tip and the Highfield Environmental facilities) to accommodate the needs of the regeneration programme.

The other licensed landfill facility within the STDC area (CLE31, at Warrenby) has potential as a prime development site, extending the Tata Steel Teardrop site from 86 acres (35 hectares) to 156 acres (63 hectares). As touched on in 2.5.2.8, the material in the landfill apparently has market value in the construction industry, which would make for a firm business case for reducing the height of the area to the surrounding common ground level. Alternatively, this may be supported by a proposal to use the material elsewhere across the South Tees area, within site preparation works and land raising, dependent on suitability.



Waste Management Facilities

- TATA STEEL
- HIGHFIELD ENVIRONMENTAL
- SSI
- TATA STEEL LEASE LAND - HARSCO



2.14 Safety and Security

2.14.1 SAFETY

The SSI sites are managed by STSC. Access restrictions are in force across these sites. STSC work integrally with Tata Steel, British steel, and RBT to effectively widen safety management across the STDC area.

COMAH

The SSI land and assets are classed as an Upper Tier establishment due the quantities of hazardous substances on site as defined by the COMAH (Control of Major Accident Hazards) Regulations. In 2015, the site operators confirmed to the Competent Authority (HSE and EA) that no viable COMAH scenarios exist on the site following work to reduce the COMAH substances Inventory. However, the residual hazardous substances remaining are coke oven gas (contained within the COGM under a nitrogen blanket), and coal tar stockpiles above ground at South Bank.

The COMAH associated HSE consultation zones are shown on plans which are agreed with the Cleveland Emergency Planning Unit, with the site impacted by the Inner, Middle and Outer Zones. While the Inner Zone relates to the SSI site itself, including Redcar Blast Furnace and the COGM, this will fall away with the revocation of any Hazardous Substance Consent relating to the site. Removal of the residual COMAH inventory will be prioritised to remove the Upper Tier status and allow development to proceed unhindered across the site.

The wider STDC area is impacted to a lesser degree by consultation zones from neighbouring facilities, including those to the north of the River Tees, which will need to be considered for future development.

MAINTENANCE

There is ongoing activity across the SSI sites and land controlled by STSC as part of the 'keep it safe' strategy, with key maintenance on safety critical plant and equipment, including the by-products areas at both SBCO and RCO, and regular inspections on the former vent and flare stacks, and gas holders. Natural weathering and associated deterioration continues. Early identification of assets that can be demolished and removed early in the programme will serve to reduce maintenance and liabilities. .

OTHER HAZARDS

There are a number of major utilities crossing the site requiring consideration when planning redevelopment.

These are:

- SSI – Coke Oven Gas Main (COGM)
- BP - CATS Terminal 36" Transmission Line (High Pressure Gas Pipeline)
- SSI - Heavy Fuel Oil Line
- RWE Breagh (High Pressure Gas Pipeline)
- SEMBCORP – TPEP
- BOC – Oxygen Mains
- National Grid – 275Kv/400Kv Overhead cables, and associated pylons and Sub Stations
- SSI – High voltage underground cables

Although the site is under surveillance there is open water present across the site, with ponds and watercourses unfenced. Tip areas are also present.

The Infrastructure Corridor contains several access roads and freight rail lines, criss-crossing each other at several locations. Level crossings are also in operation. The ongoing safe operation and/or modification of these assets will need to be built-in to future plans.

There are numerous sub-stations across the site, all monitored and under strict security control. There will be opportunity to rationalise the power distribution as development proceeds.



2.14.2 SECURITY

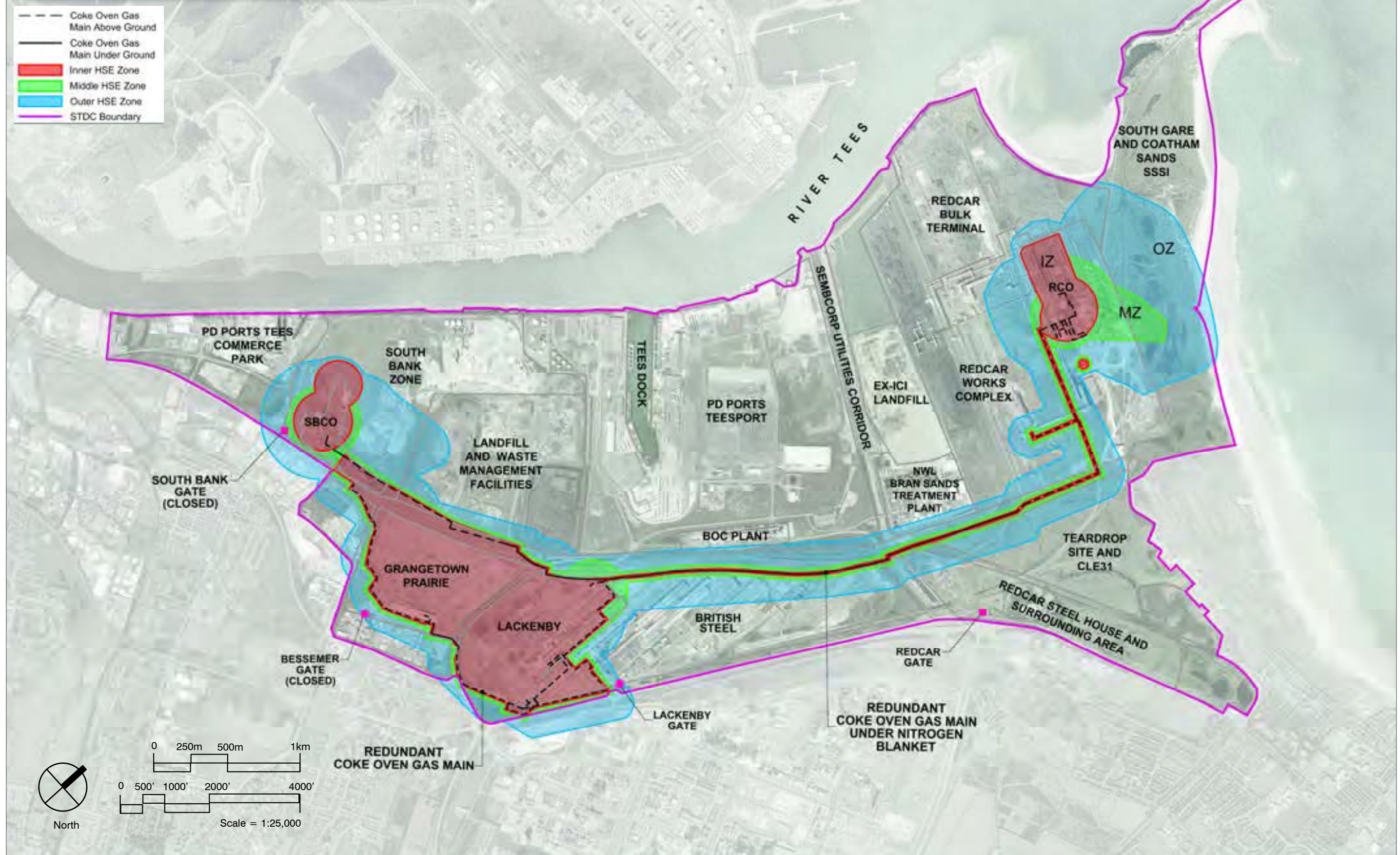
Access to the site is controlled via security and barriers at Redcar Gate and Lackenby (British Steel) Gate, with a 24-hour security presence in place. Former gates, South Bank and Bessemer, are now closed. The Darlington to Saltburn Network Rail line crosses the site from west to east, and while the rail corridor is fenced off, access is possible to the site from the existing, now disused, British Steel Station at the Redcar end of the site.

The Redcar Complex is partially fenced off, with steel palisade fencing present along the boundary adjacent to the South Gare access road, however it stops short of Bran sands, where the public can access RBT from the beach. Access is also possible to Steel House and the surrounding area from the public footpaths on the Trunk Road. The NWL WWTW has its own boundary fencing and security in place. The Teesdale Way crosses the site south to north, although this is largely fenced off.

As a precursor to development, there will be the opportunity to remove major site hazards. As land is acquired, through consultation with STSC maintenance liabilities can be reduced and site security enhanced as areas are brought forward for development.



COMAH HSE CONSULTATION ZONES



2.15 Summary of Existing Conditions

The STDC area represents an international level opportunity to grow the Tees Valley economy owing to the nationally unique combination of:

- Extensive and high quality deep water port and wharf facilities
- Excellent road and rail connections
- The scale of potentially available land for development
- The availability and proximity of major power resources
- Beneficial site topography
- A limited number of land owners
- Clear synergies with neighbouring major industrial operators, and
- Aligned planning policies.

When considered in the context of the lack of sensitive nearby uses that may otherwise restrict large scale employment development, and the availability of local expertise in both the supply chain and workforce, this makes a compelling and obvious case for a major centre of manufacturing, processing, distribution and other employment uses on a scale largely unprecedented in the UK.

That said, the STDC area is not without its constraints and challenges, and it is acknowledged that cost-effective solutions will need to be developed in preparing sites for redevelopment further to decades of heavy industrial usage, and that this will be a critical factor in the more detailed land use planning that will need to be undertaken as ground investigation works are completed – which will be in 2018 (latest) for most development areas. However, early indications suggest that while there are discrete parts of the STDC area where the level of ground contamination may be significant, there are extensive land areas where former uses will likely be conducive to realising new industrial development without the need for a disproportionately high level of investment in ground conditions improvement.

Investment in transport and utilities infrastructure across the STDC area will also be needed to fully capitalise on the development potential. However, the site benefits from existing road and rail infrastructure networks that can be utilised in the early years of development, with some relatively minor improvements, avoiding the need for major upfront expenditure and permitting a phased approach to infrastructure spending across a more beneficial timeframe.

The STDC area encompasses, and indeed benefits from some large-scale, important environmental assets. However, while future development will need to take due cognisance of and mitigate potential environmental impacts, these assets are not seen as a major constraint. In fact, through the application of good management and a programme of appropriate, viable enhancements, they offer a clear opportunity for improving the character, image and profile of the STDC area.

In summary, the future redevelopment of the STDC area for industrial use will need to consider and address the following:

- Timescales involved in acquiring land for redevelopment
- Ground conditions
- Transport infrastructure requirements
- Utilities infrastructure needs
- Environmental impacts
- Safety-related operational constraints
- The operational requirements of existing businesses
- Flooding risk and flood protection
- Planning policy and regulatory constraints
- Emerging investor interest in redeveloping the area.

When considering these factors in the context of the scale of the STDC area, the Master Plan and the governing planning policies will need to afford sufficient flexibility to accommodate change and permit early progress in the delivery of the redevelopment proposition.





03 Master Planning Process and Guiding Principles

- 01 Introduction
- 02 South Tees Existing Conditions
- 03 Master Planning Process and Guiding Principles
- 04 South Tees Regeneration Master Plan Overview
- 05 North Industrial Development Zone
- 06 Northeast Industrial Zone
- 07 South Industrial Zone
- 08 Central Industrial Zone
- 09 Coastal Community Zone
- 10 Transportation Networks
- 11 Utilities and Infrastructure Networks
- 12 Landscape and Open Space Strategy
- 13 Next Steps
- Appendix A

3.01 Master Planning Process

In June 2017, further to the appointment of the Tees Valley Mayor, the Combined Authority (TVCA) agreed the constitution for STDC. Under this constitution, as the Mayoral Development Corporation for South Tees, STDC has the powers available through the Localism Act to acquire and manage land, implement infrastructure, and support businesses to locate to the Area. But critical to STDC's ability to realise regeneration of the South Tees area, is the availability of a comprehensive, well-informed and approved Master Plan to guide and regulate redevelopment. Importantly, the Master Plan is an essential document in supporting STDC in its efforts to acquire land for the purposes of delivering the regeneration programme.

As a precursor to commencing the Master Plan, a comprehensive array of technical and other studies was undertaken to inform baseline conditions at South Tees and establish constraints and opportunities influencing Plan development. Studies included: ground conditions; environment and ecology; land ownership; transport infrastructure; utilities; marine infrastructure; existing buildings and plant; and initial market analysis. The Master Plan has also been informed by the outcomes of the Tees Valley Strategic Economic Plan and the Lord Heseltine report, 'Tees Valley: Opportunity Unlimited'.

It is proposed that the Master Plan be subject to a consultation process, commencing in October 2017. The consultation process will be run jointly by STDC and Redcar & Cleveland BC, in its capacity as the Planning Authority for the area.

Following completion of the consultation process and the review and actioning of key feedback, the Master Plan will be presented to Redcar & Cleveland BC for adoption as a Supplementary Planning Document within the Redcar & Cleveland Local Plan, so becoming the primary planning guidance governing redevelopment across the STDC area.



Creating a World-Class Industrial Park

The aspiration is for the STDC area to become a benchmark, world-class example of a modern, large-scale industrial park. This aspiration extends to making a bold statement of how industry and environmental and community assets can co-exist at the highest level possible. Realisation of an integrated industrial park characterised by distinct themes and zones is key. Uses should be located to encourage integration rather than separation. Both open and public space zones should be used as connectors not barriers, to reinforce integration and help create the sense of a single destination. Strategic access points will be developed as gateway features to the Area, to strengthen the identity of the industrial park. The Area will be characterised by consistency in the selection of colour schemes and infrastructure typologies, such as street furniture and signage, and in the quality standards attained by new buildings.

Selection of Development Uses

STDC will not seek to compete with other local sites and will, instead, adopt a collaborative approach to redevelopment, working with neighbouring landowners and operators so that end users' needs and preferences and wider Tees Valley economic objectives are the prime drivers in determining the best location for a potential developer. The South Tees regeneration programme will therefore deliver a development proposition built from uses that are not in conflict with neighbouring industrial centres' traditional market sectors. The focus will therefore be on those development uses that are clearly better suited to the STDC area, taking cognisance of its setting and attributes; uses that can benefit most optimally for the site's USPs, such as proximity to water and excellent port facilities.

Harnessing Scale and Optimising Development Density

One of the key strengths of the STDC area is its scale. It represents an international level opportunity to grow the economy of the Tees Valley and to significantly enhance its profile both as a UK region and a centre for industrial excellence. The opportunity to redevelop large, well-serviced areas is rare and must be capitalised upon. While there are sites that lend themselves to smaller scale development, the regeneration proposition will identify and focus on major opportunity sites to accommodate appropriate major space users and/or clusters of similarly themed uses, ensuring the USP of being able to accommodate Tier 2 support industries close-by to a Tier 1 primary use is not lost. Optimal spatial planning shall be pursued, creating a well-ordered, high-density development proposition, while affording flexibility in parcel size and parcel configuration.

Site Zoning and Parcel Selection

To ensure optimum use of land space, deliver the best return on investment and mitigate further development opportunities being compromised down the line, a rigorous, risk-based evaluation process will be adopted in both site zoning and the allocation (or disposal) of land parcels for development. Cognisance will be taken of a development's typology and spatial needs, the implications for remediation and site preparation, and the amount of infrastructure that would need to be provided in making such an allocation; ensuring the level of upfront investment required of the public sector is managed to an acceptable level. Compatible uses will be clustered to minimise potential conflicts. Prime waterside land parcels will be protected for uses that absolutely rely on proximity to the river, taking advantage of the significant premium that waterside land attracts, including bringing forward proposals for enhancement and expansion of existing water frontage and port-related facilities.



Superb Functionality and Connectivity

The Master Plan will enable the creation on South Tees of a truly integrated industrial and manufacturing zone, benefitting from optimally-designed transport and utilities networks, and careful consideration over land-use allocations and site selection. Access and circulation within and out of the site will be clear, simple and intuitive, realising superb intra-connectivity between new and existing development zones and operators, and, equally, excellent inter-connectivity with neighbouring land areas, such as Wilton International. The Master Plan will enable new and improved, efficient access to port facilities to be delivered and provide capacity for expanded rail freight facilities. Public transport will be easily accessible and conveniently located to provide access to employment opportunities on South Tees from across the Tees Valley.

Energy Innovation

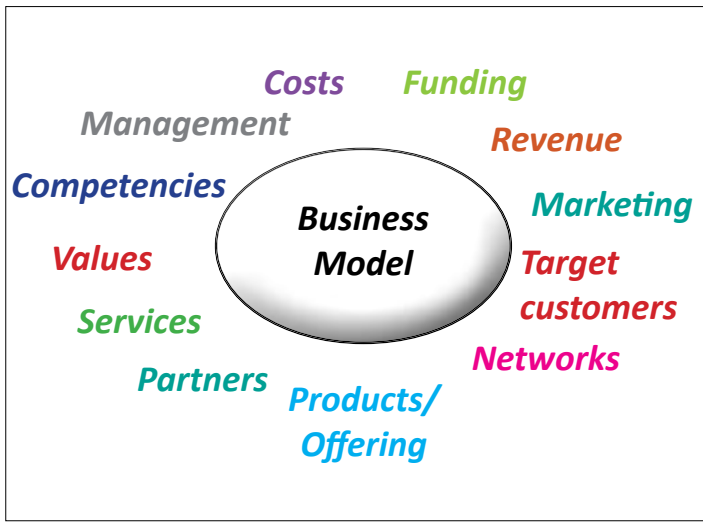
The proposed regeneration of South Tees offers the opportunity for the STDC area to become a benchmark exemplar for energy innovation on an international scale. The development will embody smart energy principles and solutions, providing opportunities for a broad array of energy generation and energy storage typologies, embracing latest and emerging technologies. Land zoning and parcelisation shall make provision for major on-site energy generation to a scale in keeping with the assessed energy demands of the densely developed, modern industrial park the STDC area aspires to become. A fully-integrated energy network, serving all development zones, shall be attained, to serve the needs of developers and afford the opportunity potential for cheaper energy through private wire infrastructure; self-sufficiency in energy provision that is “off the grid”.

Environmental Enhancement

The South Tees regeneration programme encompasses extensive areas of former industrial land, offering tremendous opportunities for major, employment-generating redevelopment, sitting alongside significant land and water-based environmental assets. The redevelopment proposition will ensure there is opportunity afforded for developed land and environmental habitats to co-exist in a beneficial, more integrated way than has, to date, been the case, while ensuring enhancement and protection of existing habitats, and, where viable, the creation of new habitats. Pollution reduction, long term environmental sustainability and bio-diversity will be key attainments in the realisation of the Master Plan ambitions. Environmental habitat management will be given appropriate consideration in the long-term management strategy of the STDC area.

Viable Business Model

The redevelopment proposition must be geared to realising a viable business model where the return on investment is optimised, both from quantum and timescale perspectives. A balance will therefore be struck between the best land uses and densities, for the best financial return, which is primarily achieved by activating a mix of uses that cater to different market segments, avoiding over-dependency on one or two, and that are aligned with an intelligent, flexible phasing strategy. Smart, rather than expensive solutions should be envisioned. The target should be high impact/low cost, innovative solutions to site preparation and infrastructure needs, particularly in the early phases of development. Land uses that are chasing the market should be avoided, targeting instead, developments that understand the USPs of the STDC area and its competitive advantages.



3.03 Stakeholders and Interest Groups

The sheer scale of the South Tees regeneration programme, its setting, and the transformational change proposed for the Area, collectively require a consultation exercise that, in addition to the public, encompasses a wide array of key stakeholders and interest groups, which are listed below:

- Tees Valley Combined Authority
- Redcar & Cleveland Borough Council
- Middlesbrough Council
- Stockton on Tees Borough Council
- Hartlepool Borough Council
- Darlington Borough Council
- Environment Agency
- Highways England
- Network Rail
- National Grid
- Health & Safety Executive
- Natural England
- South Tees Site Company
- Thai Banks Consortium (who have a charge over the SSI land and assets)
- Official Receiver
- SSI Task Force
- Tata Steel
- Greybull Capital
- PD Ports
- British Steel
- Redcar Bulk Terminal
- Northumbrian Water Ltd
- BOC
- MGT Power Teesside
- Sembcorp Utilities (UK) Ltd
- Operators at Wilton International
- Sirius Minerals
- Industry Nature Conservation Association (INCA)
- Tees Estuary Partnership
- Teesside Valley Wildlife Trust
- Major utilities providers
- Wood Group (CATS Pipeline)
- Local public transport service providers

In addition to the above, it is acknowledged that there will be a range of other potential stakeholders and interest groups that may need to be consulted.

3.04 Consultations Undertaken Ahead of Master Plan Production

The STDC Shadow Board was involved in dialogue for some time with major businesses operating within the STDC area, and with other major landowners, such as Tata Steel. Regarding SSI, STDC has maintained a continuing, progressive dialogue with the Official Receiver, and with the consortium of Thai banks that has a charge over the SSI land and assets. Initial consultations have extended to Sembcorp Utilities (UK) Ltd, such is the recognised importance of the neighbouring Wilton International complex and the need for STDC to work collaboratively with Sembcorp in a wider area context. Additionally, STDC has held preliminary discussions with the Environment Agency and Natural England.

As part of the initial consultations, a two-day key stakeholders workshop was held across 14/15 February 2017 targeting major operators in the area. Hosted by STDC and members of Redcar & Cleveland BC, invitees to the workshop were: PD Ports; British Steel; Redcar Bulk Terminal; BOC; Northumbrian Water Ltd (Bran Sands); MGT Teesside; Sembcorp Utilities (UK) Ltd; Sirius Minerals; and the Official Receiver.

STDC's early engagement with major operators and landowners has proven very beneficial in helping to establish and grow long-term relationships built on trust and collaboration. Early consultations have also served to develop a better understanding of their current operations, constraints, logistics needs and business plans, so that the Master Plan can be developed and the proposals delivered in a manner that enables these key stakeholders to operate better and be more successful, so helping to realise and sustain significant growth in the Tees Valley economy. Given STDC's key objective of stimulating economic growth and job creation, it is entirely logical that the Master Plan be developed in such a way as to support the business plans of these operators, where possible, providing these are aligned and not at odds with the wider regeneration strategy the Master Plan embodies.

STDC will continue to work with existing major businesses and landowners (and their tenants where appropriate to do so) to maintain their support.



Formal launch of the STDC by the UK Prime Minister, the Right Honourable Theresa May MP

3.05 Early Investor Interest

Investor interest in the South Tees Area in the first year or so since establishment of the shadow MDC has been strong and is growing. The types of uses and operations being proposed by potential investors align very well with the vision and strategy for the regeneration programme. Uses are very much in step with the aspiration of realising developments linked to advance manufacturing, new and emerging technologies, energy innovation, and the realisation of a low carbon circular economy. They provide a good level of early confidence that the market potential exists for realising major employment-generating development on South Tees in a financially viable manner. The principal areas of interest to date include:

- Steelmaking
- Metals recycling
- Bulk materials processing/manufacture
- Offshore energy manufacturing
- Energy storage
- Major power generation
- Submarine cable manufacture
- Rail related industries
- Waste management

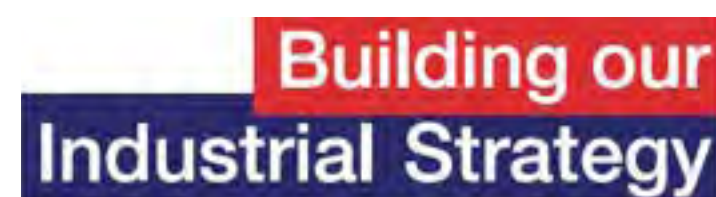
STDC will maintain a progressive dialogue with new and emerging potential investors. The Corporation will work collaboratively with such parties to accommodate developer interests where possible and practical, while ensuring the tenets and principles of the Vision and the Strategy, and the wider Master Plan needs, are not compromised. Critical to this will be making the right decisions on land parcel allocations for development in response to investors' operational requirements.



3.06 UK Government Industrial Strategy

As part of its planning for a post-BREXIT Britain, UK Government published for consultation, in January 2017, its Green Paper 'Building Our Industrial Strategy'. The document sets out requirements for Britain's future prosperity under a Modern Industrial Strategy. Its objective is to improve living standards and economic growth by increasing productivity and driving growth across the whole country. It acknowledges that British excellence in key technologies, professions, research disciplines and institutions provides the UK with crucial competitive advantages. But it cautions that global competition for new investment is fierce and sustained. The paper references the conditions that have allowed UK investment destinations to succeed, including: the availability of supportive research programmes; relevant skills in local labour markets; and capable supply chains. However, it highlights that, for continuing success, these foundations must be maintained and strengthened.

It is now well-recognised that a fatal flaw of previous industrial strategies in the UK was the dominant focus on existing, traditional industries and the companies within them, that became strategies of incumbency. In contrast, moving forward to the present day, many of the most important companies in the world did not exist 25 years ago, and unlike strategies of the past, the Modern Industrial Strategy will be about creating the right conditions for new and growing enterprise to thrive. Government wants a Modern Industrial Strategy that can make the UK a fertile ground for new businesses and new industries which will challenge and, in some cases, displace the companies and industries of today.



The Modern Industrial Strategy is underpinned by 10 pillars UK Government believes are important to drive forward the strategy across the entire economy. It draws on lessons from other countries and identifies some of the key approaches that have enabled stronger productivity and more balanced growth in other economies. The 10 pillars are formulated from evidence that confirms that places with higher rates of investment in research and development, more highly skilled people, better infrastructure, more affordable energy, and higher rates of capital investment grow faster and have higher levels of productivity.

At the cornerstone of the strategy for delivering transformational change on South Tees is the realisation of strong alignment with UK Government's Modern Industrial Strategy and the 10 Pillars of that strategy, resulting in the establishment of an Area Based STDC Industrial Strategy. The principles of the Modern Industrial Strategy are embedded in the themes, proposals and ambitions for the Master Plan, set out across the following chapters, and STDC will utilise the 10 pillars as part of its benchmarking toolkit when assessing development proposals. In order to realise the vision of becoming a world class international business park, it is imperative that STDC's regeneration strategy embraces the tenets of UK Government's Modern Industrial Strategy.



3.07 Potential Economic Enablers

3.07.1 FREE ZONES

Generally, the term ‘Free Zone’ is used interchangeably with ‘Free Trade Zone’ and ‘Special Economic Zone’.

Special Economic Zone (SEZ)

The purpose of SEZs is to stimulate economic activity, attracting investment, boosting employment and increasing trade. The main tools used to generate these outcomes are, typically, reduced taxation levels, regulation and customs duties. SEZs are also managed by a single authority and are based around a competitive advantage or location. High profile examples of generic SEZs include: Iskandar, Malaysia; and Shenzhen, China.

Free Trade Zone (FTZ)

An FTZ is a specific class of SEZ. The World Bank defines FTZs as ‘small, fenced-in, duty-free areas, offering warehousing, storage, and distribution facilities for trade, trans-shipment, and re-export operations’. It is a geographic area where goods may be landed, stored, handled, manufactured or reconfigured, and re-exported under specific customs regulation and, generally, not subject to customs duty. Duties are only payable once goods move to domestic consumers, meaning there is clear demarcation between the FTZ and surrounding areas. Key examples include: Colon Free Trade Zone, Panama; Copenhagen, Denmark; and Gdansk, Poland.

Within the overarching framework of an SEZ, different types of zones have emerged with subtle variations on the general model. These are:

- Customs-bonded Warehouse: Many examples are found in the USA and China.
- Export Processing Zones: Found in Thailand, the Philippines, Sri Lanka, Egypt and Honduras).
- Enterprise Zones: Examples include the UK’s EZ programme and similar in the USA, France and Italy.
- Freeports: Examples include Korea’s ‘International City’ at Cheju, and similar zones typically found in India and the Philippines.
- Specialised Zones: Typical examples are Dubai’s ‘Internet City’ and Malaysia’s Labuan Offshore Financial Centre.
- Single Factories: They are widely used in Africa, Mauritius and Mexico.

Free Zones

Free Zones have had limited application as an economic development policy tool in the UK. Recently, up to five

locations have been designated as Free Zones in the UK: Liverpool, Prestwick, Sheerness, Southampton and Tilbury. However, HM Revenues and Customs identifies the Isle of Man as the only Free Zone in operation in the UK as of 2016. In contrast, in USA there are 100+ such zones, many with car manufacturers within them. They are key for imports and provide flexibility on how taxes/duty is paid.

The absence of conventional Free Zones in the UK is attributed to membership of the EU Single Market and Customs Union. This means that the UK is unable to set tariff/customs duties domestically, with responsibility falling to the central EU Customs Union instead. This has made it difficult for the UK to offer the tax incentives normally associated with Free Zones, while maintaining compliance with EU regulations. Within this context, current UK Government policy is geared towards Enterprise Zones rather than Free Zones.

However, in a post-Brexit Britain, there is opportunity to embrace the Free Zone concept, and, indeed, Free Zones have been recognised as delivering against the three key strands of UK Government’s Modern Industrial Strategy:

- Boosting manufacturing
- Boosting trade
- Regional rebalancing

There is cross party support in UK Government for the issue but a key challenge seems to be the practicalities of implementation. It was suggested there is potential for 85,000 jobs across the UK through the creation of Special Economic Zones (Freeports/Free Zones).

A key objective of STDC is to work in collaboration with major stakeholders, TVCA and UK Government to explore and develop opportunities for Free Zones on South Tees through the regeneration programme.

3.07.2 ENTERPRISE ZONES

Enterprise Zones (EZs) in the UK have been focused on urban economic development and regeneration. Regulatory and tax incentives are used to reverse the experienced decline in existing industrial areas. EZs offer a wider range of incentives for investors relative to other SEZs, including affordable housing, public safety, and training opportunities, as well as tax and regulatory incentives.

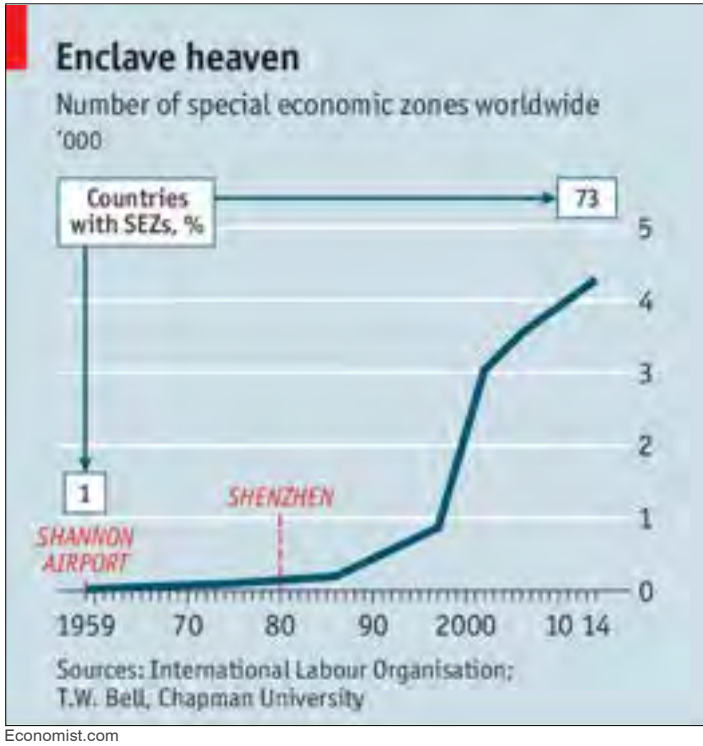
Tees Valley Enterprise Zone

The Tees Valley Enterprise Zone (TVEZ) has been established to help attract real investment and growth to

the area, and deliver significant job opportunities from 2015 and beyond. It includes 12 individual sites across the five Tees Valley Boroughs, and offers financial incentives to qualifying businesses by way of business rate discount or enhanced capital allowances. The EZ is being delivered by the Tees Valley Local Authorities in partnership with TVCA and the Local Enterprise Partnership.

Within the STDC area there are two locations (or sites) with designated EZ status – the first comprising a significant portion of the South Bank/South Bank Wharf site; the second comprising almost the entirety of the Prairie site at Grangetown. Wilton International has also been included within the TVEZ. These sites may offer the potential to attract development more swiftly than other areas within the site – e.g., Wilton (for energy production) and South Bank Wharf (for renewable/advanced engineering) can offer large-scale occupiers enhanced capital allowances against the cost of their plant and machinery.

The EZ status of two key sites within the STDC area and the neighbouring site of Wilton International provides an additional, important attribute for South Tees and STDC, when endeavouring to attract inward investment and drive economic growth for the Tees Valley.



3.08 Benefits for the Local Community

The STDC Master Plan establishes the potential for creating several thousand jobs across a range of professions and trades. It is important that through STDC the redevelopment brings tangible and lasting benefits to the local community by making sure that:

- Local people have the right skills to access the many jobs that will be created during the site preparation, development and operating phases of the programme
- Existing local businesses benefit from the potential investment both in the supply chain and the wider service sector.

The STDC redevelopment programme will make a major contribution to the developing entrepreneurial culture which has been experienced in the local area, by encouraging business start-ups and indigenous growth as well as new, additional inward investment

3.08.1 ADULT SKILLS AND EMPLOYMENT

The closure of SSI has severely affected wage levels and employment prospects in the area. Prior to October 2015, Redcar and Cleveland enjoyed the highest income levels in the North East and now has the lowest. The majority of former SSI workers and supply chain employees have taken a substantial reduction in wages by accepting any job available to support their families.

What is evident from the work of the SSI Task Force is the enthusiasm for work and the willingness to undertake training to improve skills and employment prospects. The delivery of the Master Plan aspirations will play an active part in this agenda by:

- Working with the SSI Task Force to target former workers, utilising their skills in the site preparation and redevelopment of the area
- Working with inward investors and local training providers to plan and deliver an appropriately skilled local workforce
- Developing clear targets for job creation, improving skills and recruiting local labour
- Setting clear social value targets to demonstrate how investment is being recycled for maximum local benefit.

Recent developments in the STDC area have highlighted the advantages to the local community of effective working between partners. Such investments and arrangements are delivering real positive local outcomes. A clear, recent example of this is the MGT Power Local Employment Initiative.

3.08.1.1 Case Study – MGT Power Local Employment Initiative

In January 2017 MGT Teesside commenced the development of a 299MW Renewable Energy Plant at Teesport. The £650M project will employ over a 1,000 people during construction and over 120 people when fully commissioned.

As part of the Section 106 agreement between MGT and Redcar & Cleveland Borough Council, and subsequent work with a local community group, Job Centre Plus and the Engineering, Procurement and Construction contractor on the Tees REP project, a local opportunities, skills and jobs hub at a Neighbourhood Centre in Grangetown was established.

This partnership has delivered numerous training courses for local people wanting to secure work on the project or other similar projects in the area. Partners at the centre offered a range of industry training courses. Within six months of the project commencing, the impact upon the local community was immense.

In the first eight months, over 1,500 people have registered at the centre. A clear reason for this large number of registered clients is the fact that the hub is based in the local community (close to the project). Across this period over 200 jobs were secured (not all linked to MGT) of which 34 were local Grangetown residents. Over 300 had undertaken a range of construction-related training. The centre has been used as the main point of contact for the current and future contractors for the construction of the MGT project.

3.08.2 OPPORTUNITIES FOR CHILDREN AND YOUNG PEOPLE

It is essential that local children and young people can look forward to a bright future in the local area with the realistic prospect of accessing a well-paid job and a fulfilling career. The Council has established a partnership between local schools, colleges and employers to ensure that this ambition becomes reality.

Initiatives across the Tees Valley and, in particular, the Redcar and Cleveland Foundation for Jobs Partnership aims to improve the employment prospects of every child. STDC will be an active partner in the initiative, working with business to create new opportunities for young people, including apprenticeships and higher level skills training.

It is essential that collectively, we inspire the next generation of skilled workers, develop and retain local talent, and help those furthest from the jobs market to bring about lasting social and economic change.

The STDC and the realisation of the ambitions of the Master Plan are vital to attaining these outcomes.



MGT POWER

04 South Tees Regeneration Master Plan Overview

- 01 Introduction
- 02 South Tees Existing Conditions
- 03 Master Planning Process and Guiding Principles
- 04 South Tees Regeneration Master Plan Overview
- 05 North Industrial Development Zone
- 06 Northeast Industrial Zone
- 07 South Industrial Zone
- 08 Central Industrial Zone
- 09 Coastal Community Zone
- 10 Transportation Networks
- 11 Utilities and Infrastructure Networks
- 12 Landscape and Open Space Strategy
- 13 Next Steps
- Appendix A

4.01 Master Plan Land Available for Redevelopment

4.01.1 OPTIMISING THE RESIDUAL LAND OPPORTUNITY

The proposal to establish STDC was as a consequence of the closure of the SSI steelworks, and the initial focus of the site assessment work was restricted to the former SSI landholdings. However, aside from the principal SSI land area at Redcar, the array of various SSI land parcels makes for a disparate, disconnected land assembly. Taken in isolation, these afford only discrete, stand-alone, likely compromised development opportunities. As a consequence, there is a risk of dilution in the full market potential of the STDC area as a whole. Therefore, the Master Plan concept is based on the creation of a series of large development zones that integrate the SSI landholdings into wider vacant or under-utilised land areas. This strategy enables the range of development opportunities to be optimised, delivering large areas that are sized sufficiently to provide significant flexibility in the types and size of future operations – e.g., large-scale strategic site uses, clusters of linked industries/processes, etc.

Consequently, there is a critical requirement to realise a land assembly not just comprising the former SSI landholdings, but one that integrates the vast array of Tata Steel sites and the RBT land into the overall area to be considered for redevelopment. There is also benefit in securing use of the Former ICI Landfill facility and the small parcel of land owned by Redcar & Cleveland Borough Council at the Wilton West Gate Roundabout (Trunk Road/Greystones Road/Teess Dock Road).

Within this aggregated landholding there are significant areas of community assets under Tata Steel ownership, i.e., South Gare/Coatham Sands and Coatham Marsh, that collectively amount to over 530 acres (215 hectares) in area. These will be excluded from the areas designated for employment-led redevelopment.

4.01.2 OPTIONS ANALYSIS

As part of the masterplanning process, an initial development options screening and evaluation exercise was undertaken, across a diverse range of uses, including ‘Do Nothing’ and ‘Do Minimum’; as required by HM Treasury’s Green Book/ Economic appraisal protocol for project evaluation. Options were scored against a range of criteria and the preferred option was for our industrial end use. The results of the analysis are contained in Appendix A.

4.01.3 LAND AVAILABLE FOR EMPLOYMENT GENERATING DEVELOPMENT

Taking cognisance of existing operator areas, initial consultations with these operators, and areas designated for nature conservation interest, initial evaluation work indicates a likely available land area for redevelopment totalling close to 2,200 acres (890 hectares) within the STDC boundary, net of open space and infrastructure corridors. In view of typical employment densities and development timescales for such uses, and sites elsewhere, this suggests a total potential for 20,000 net new (direct and indirect) jobs over the period 2017 to 2042. Research into the availability of employment land elsewhere in the Tees Valley has identified a large quantum of available industrial land on, or in relatively close proximity to, South Tees. However, the unique attributes of the STDC area make it significantly more attractive to inward investment and critical to realising significant economic growth across the Tees Valley. Of particular note in attracting inward investment is the significant premium attached to waterside land and land in close proximity to ports – the crucial unique selling point for STDC and the wider South Tees area.

The land potentially available for redevelopment is almost entirely in three ownerships – SSI-IL, Tata Steel and Greybull Capital – and positive discussions are already underway with relevant parties regarding the Master Plan proposals.

It should not be forgotten and, indeed, it is a key ambition of the programme, that the planned regeneration on South Tees will deliver growth and prosperity for the businesses both within and bordering the STDC area, through the realisation of high-density, employment-generating manufacturing industries on such a large scale as this. Similarly, there is great potential for supply chain growth in the wider Tees Valley.

4.02 Critical Attributes and Benefits

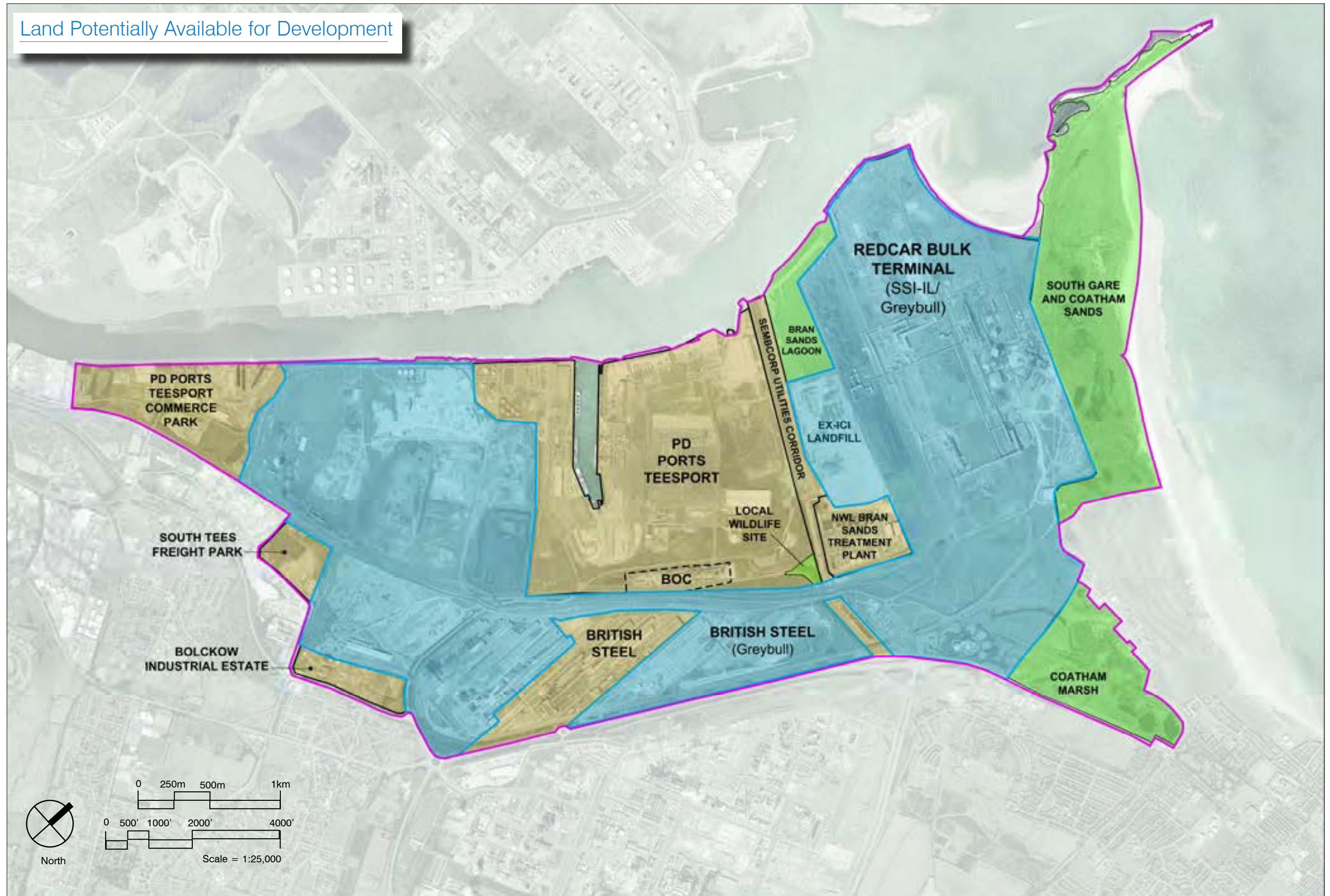
The STDC area represents an international level opportunity to grow the Tees Valley economy owing to a nationally unique combination of critical attributes, such as:

- Extensive and high quality deep water port and wharf facilities
- Excellent rail and road connectivity
- The scale of potentially available land
- The limited number of land ownerships
- The abundance of power resources
- The Area’s topography
- Large industrial buildings with potential for re-use
- Availability of a local, highly-skilled workforce
- The Tees Valley’s strength in leading edge industrial research and development
- Neighbouring major operators whose presence can augment and bolster the redevelopment potential.

When considered in the context of the lack of sensitive nearby uses that may otherwise restrict large scale, employment-generating development, and the prevailing permissible planning framework, these attributes make a compelling and obvious case for creating a major industrial centre of advanced manufacturing, processing, distribution and related employment uses; a development proposition that embraces and harnesses new and emerging technologies, and that is augmented by the development of close ties with academia and other research and development institutions.



Land Potentially Available for Development



4.03 Themes and Concepts

The Vision set down in Chapter 1.0 is essentially captured in a single overarching objective, which is to see the STDC area transformed into an international scale, world class industrial business park. The Strategy, formed from 20 key principles or tenets, provides the plan of action for realisation of the Vision, and the Master Plan Guiding Principles, laid out in Chapter 3.0, provide the overarching framework governing how the development of the STDC area will be established.

Having identified the land potentially available for employment-generating development, it is vital that this be zoned in a manner that enables identified USPs and opportunities to be fully harnessed, and that ensures key constraints are accommodated, so mitigating the risk of incurring disproportionate abnormal site preparation costs, in turn impacting individual project viability.

These matters have been given very careful consideration in the development of the Master Plan, resulting in the establishment of five principal areas (or zones), shaped by location, scale, typology of uses, development themes, interdependencies and physical constraints (or barriers). These are:

- North Industrial Zone
- North East Ecological Industrial Zone
- Central Industrial Zone
- South Industrial Zone
- Coastal Community Zone

Important in the zoning assessment, has been the integration of the uses that have so far come to light through early investor interest in the STDC area, and how these can be best accommodated within the overall development framework, while leaving sufficient flexibility for change and adaptation over the envisaged, understandable long timescale for full build-out of the site.

It is important to establish here that the land use potential and development densities demonstrated within the four zones in Chapters 5.0 to 8.0 are based on actual, firm investor enquiries and related proposals, and are sized appropriately from similar examples around the world. This can be considered quite unique for a Master Plan and helps build a high level of confidence that dense industrial development on this scale is possible under current market conditions.

NORTH INDUSTRIAL ZONE

The North Industrial Zone is formed principally from the Redcar Works complex and Redcar Bulk Terminal. This provides a huge development area approaching 930 acres (376 hectares). Integrating these two major land

areas is essential to realising the full potential of this zone and the deep-water port facility it encompasses. Segregation would compromise the flexibility, range of uses and development layouts possible in this area. Establishing a zone of this magnitude provides the STDC area with an opportunity to accommodate advance manufacturing uses with a very high land take and high job numbers, while leaving sufficient land available for support industries. Alternatively, it lends itself to clustering of linked manufacturing uses in themed sub-zones.

This zone is characterised by advanced manufacturing uses that can benefit most optimally from the availability of large land areas and close proximity to excellent port facilities. Uses include bulk materials handling, which has been a mainstay of the RBT facility over past decades.

The energy-intensive uses planned for the STDC area will place a huge demand on power, and the ability to establish and offer energy self-sufficiency for the industrial park – security of supplies and cheaper energy - will be a very important USP for the regeneration programme. Major on-site power generation will therefore be a critical enabler for successful redevelopment of the STDC area. The North Industrial Zone is the ideal location for this, especially given the availability of an existing consent and the related infrastructure for essential water abstraction from the river, and the availability of an existing cooling water outfall to the sea, that once served the SSI Redcar Power Station.

The energy theme is further reinforced in this zone by the inclusion of uses connected with energy innovation. The ability to significantly expand river berth capacity upstream of RBT presents a major opportunity for the STDC area and it is important that the typology and scale of uses in the North Industrial Zone support the case for doing this.

NORTH EAST INDUSTRIAL ZONE

This zone is formed largely from land within the ownership of Tata Steel. The total land area amounts to 230 acres (93 hectares) and it is bisected by the existing Network Rail corridor, which is considered a fixed constraint in the Master Plan. The two parcels are linked by both highway and rail. The main area is made up of the Teardrop site and neighbouring former landfill (CLE 31). Full realisation of the development potential will require the removal of the CLE 31 landform. There has been some initial market interest shown in the landfill facility, given the extensive slag content, and its removal is therefore assumed within the Master Plan proposals.

The area to the north of the rail corridor is crossed by the Fleet watercourse. Development potential will be maximised if consideration is given to the diversion of this watercourse. The Teardrop site in this area has been

non-utilised for decades and incorporates potentially important environmental habitats. The Master Plan therefore provides for localised habitat establishment/improvement projects to be delivered as part of the overall development proposals, including improving the habitat of the Fleet under any proposed diversion project. STDC will seek to work with relevant bodies to ensure an appropriate balance can be struck between the realisation of a dense development layout and the establishment of localised environmental habitats.

The area to the south of the railway corridor, and close to the Redcar entrance, has a focus on the existing Steel House former office complex. The future intentions for Steel House will be largely market driven. The site offers in the region of 265,000 sq. ft. of gross internal floor area and a total land area of some 38 acres (15 hectares). Located at one of three primary, gateway entrances for the development, the site offers high potential.

This zone is characterised by uses connected with advanced technology and innovation, and, as an example, it lends itself to the establishment of an incubator industrial and advanced technology park or campus (in the Steel House area). As the innovation nerve centre for South Tees, such a use would facilitate the forging of strong links with academia and research and development institutions, and it would help supports an employment shift towards skilled technology based manufacturing. The remainder of zone is ideally located for the siting of a dense array of manufacturing support industries for the larger-scale uses in the North Industrial Zone.

CENTRAL INDUSTRIAL ZONE

The Central zone is formed from potentially residual British Steel land, sized at 197 acres (80 hectares). The land is presently utilised for open storage and realisation of this opportunity would necessitate alternative, consolidated storage arrangements.

There has been investor interest in establishing rail industry related operations at South Tees. The Central zone sits adjacent to an extensive array of largely non-utilised existing rail freight infrastructure, offering connectivity to multiple rail spurs. It therefore toffers potential location for accommodating such uses. Given the adjacency of the site to the existing British Steel operations, the Central zone also offers potential for the siting of further metals and heavy equipment manufacturing industries.

SOUTH INDUSTRIAL ZONE

The South zone is comprised of three areas – South Bank, Grangetown Prairie and the Lackenby Steelmaking complex – the latter including an area of land fronting Tees

Dock Road and the Trunk Road offering an opportunity for a gateway commercial and/or mixed use development.

The total development area on offer amounts to 880 acres (356 hectares), in balance with the North Industrial Zone from a size perspective, albeit the South Bank site does include an area presently given over to waste management facilities that is planned for inclusion in the long term proposals.

The zone includes river frontage extending to over 1km in length, mainly comprised of South Bank Wharf. Virtually the entire length of this frontage is dilapidated and non-usable, yet it makes up almost 30% of the entire river frontage of the STDC area. The establishment of new port facilities along this stretch of river represents a major infrastructure opportunity for the regeneration programme and is seen as essential to realising the full development potential of the South Industrial Zone.

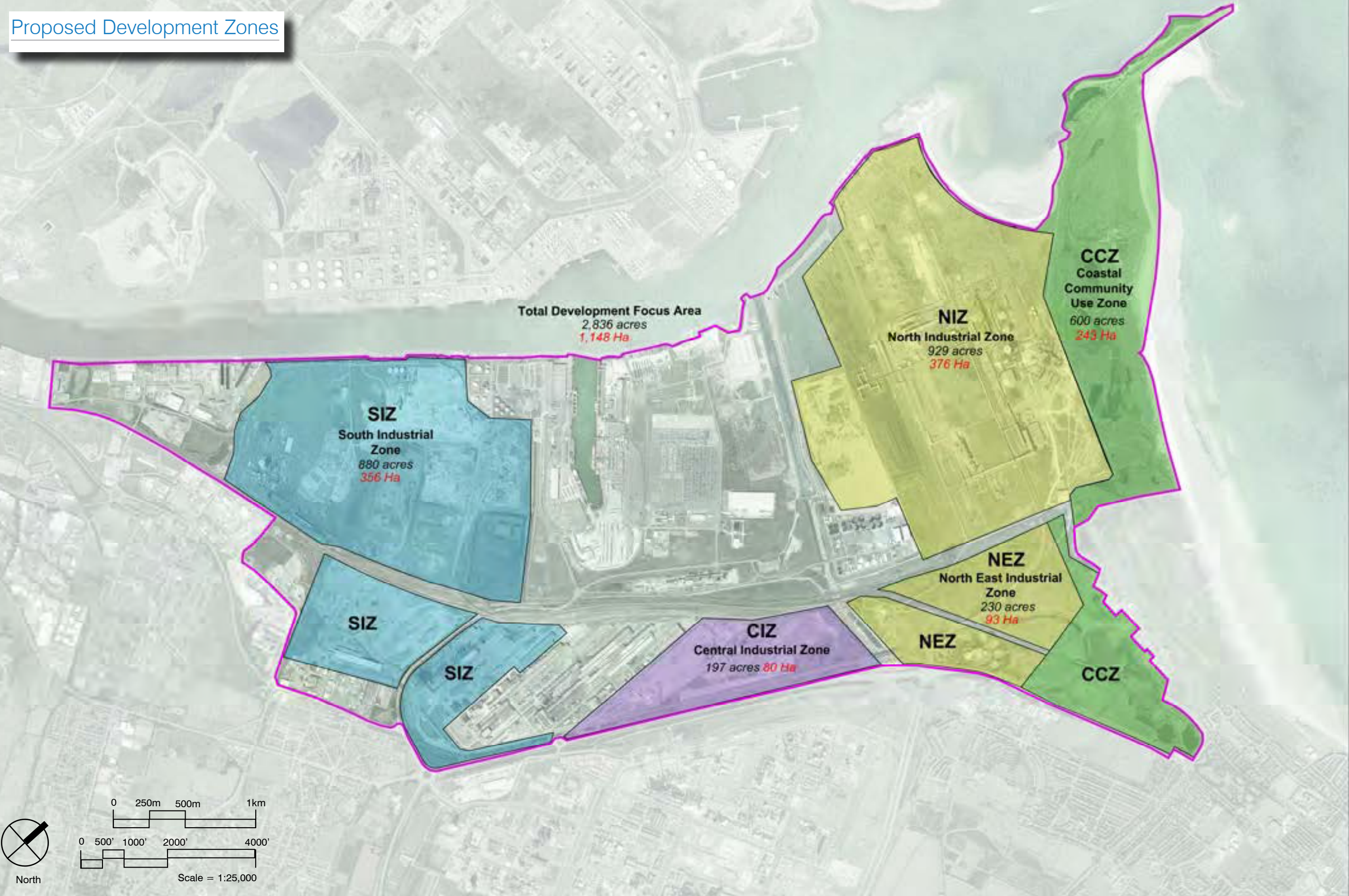
The Zone is characterised by recycling and manufacturing uses, largely reliant on good access to multi-purpose port facilities and the availability of existing rail connections. The retention of the steelmaking facilities at Lackenby offers opportunity for future metals manufacturing. Consideration is therefore given to raw materials storage and processing within the South zone. With new port facilities, the zone lends itself to offshore energy industries manufacturing, a use supported by early investor interest in the STDC area.

COASTAL COMMUNITY ZONE

In addition to the four zones identified for employment-generating development, there is, at the northern end of the STDC area, the environmentally-important assets of South Gare/Coatham Sands and Coatham Marsh, collectively amounting to a land area in the region 530 acres (215 hectares). The Master Plan proposes the establishment of a link between the two areas to create a defined Coastal Community Zone, offering opportunity for environmental enhancement and habitat improvement, improved, controlled accessibility to the public and the introduction of discrete leisure uses. Importantly, the Master Plan envisions greater utilisation of these assets by nature and the public in controlled and regulated manner. The plan is that these assets be transferred into a suitable environmental management body for long-term stewardship.

The geology in this area and beneath the sea bed provides optimal conditions for the implementation of energy storage produced from residual electricity generation in periods of low demand, that can be released and converted back into electricity in times of high demand, augmenting the self-sufficient energy strategy for the STDC area.

Proposed Development Zones



4.04 Respecting our Industrial Heritage

Steelworks closure marked the end of almost 170 years of iron and steel making across South Tees and the wider Teesside area, leaving an industrial legacy underpinned by a reputation for world class steelmaking. Teesside steel has contributed to some of the most iconic and transformational projects ever undertaken around the globe. Across the generations, the various iron and steel works on Teesside and their workforces have sustained a position of being best in class for quality and delivery, that was the envy of other steel producing nations. There is therefore, a tremendous amount for the area and its people to be proud of.

The majority of the iron and steelmaking industries have now gone. However, given the very large land areas available for redevelopment, there is a potential opportunity to preserve some of the area's industrial heritage through the SSI works, subject to the identification of discrete, financially viable projects that don't overly compromise redevelopment, job creation and economic growth. In this regard, it is acknowledged that asset retention may well mitigate the burden and cost associated with demolition and remediation – so this will need to be factored in to any assessment. Critical to viability will be the identification of long-term management models for retention and alternative use of selected industrial assets.

There are numerous examples around the world of where retention of heritage assets from iron and steelmaking industries have contributed to the overall success of regeneration programmes, helping to create national and global identity and recognition. The Master Plan therefore supports the retention of iconic structures and major artefacts within the overall cultural, community and open space strategy for the STDC area – both static and moveable assets. This is discussed further in Chapter 13.0.



4.05 Enhancement of Environmentally Important Habitats

The STDC area benefits from close to 590 acres (240 hectares) of open space land under various environmental designations and ongoing environmental management regimes. These are: South Gare and Coatham Sands; Coatham Marsh; and Bran Sands Lagoon. These assets provide an opportunity for both environmental enhancement and reinforcement of long term management arrangements within the framework of the overall STDC regeneration programme.

Naturally, STDC will maintain a primary focus on the objective of realising, through the programme, transformational, major employment-generating industrial development on an international scale. However, the Development Corporation will encourage and be supportive of long term, sustained habitat improvements on South Tees within the above designated areas. Further, STDC is keen to see enhancement of these areas as beneficial community assets.

Working with relevant stakeholders, STDC is proposing the establishment of a credits system by which investment in environmental enhancement is measured and quantified for beneficial recognition when assessing and in mitigation of the potential environmental impacts of any given development or infrastructure project under the programme.

The Master Plan proposals therefore respect the ongoing uses of these environmentally important areas, with further information being included in Chapter 9.0.



4.06 Transport Connectivity and Transport Infrastructure

The STDC Area is served by both passenger and freight rail infrastructure, and it benefits from good external road connectivity. However, the unique selling point and critical to realising successful regeneration outcomes, is the adjacency of the area to the river – Teesport, Redcar Bulk Terminal and South Bank Wharf. The best outcomes for the programme will come from harnessing the vital attribute of excellent port facilities in the most optimal way. This requires improved intra-connectivity across the STDC Area, including a second access to Teesport to bolster the redevelopment potential of the area.

The development proposals include the establishment of a well-defined internal primary infrastructure network, delivered in a phased manner, that: facilitates easy connectivity between the different land zones; ensures advantages from neighbouring business and operational interdependencies are fully realised; provides a greater range of options on site selection for end users; and affords good access to the river and related port facilities; at the same time enabling existing businesses to grow and prosper.

At the core of the primary infrastructure network is the inclusion of an infrastructure spine traversing the site. This, together with other new and improved infrastructure, represents a major investment proposition that requires and

could only be financially supported by delivery in phases.

Initial capital investment will be focused on those infrastructure projects with the strongest potential for securing early occupier interest and where the timescales to new facilities becoming operational can be best expedited. The evaluation of infrastructure projects will not be restricted to those projects perceived as necessary, but those with the greatest potential to add value and drive up the quality and significance of the developments that can be attracted to South Tees in the early years of the programme, e.g., investment in improved marine infrastructure at South Bank.

Transport proposals include for improving and future-proofing rail freight infrastructure and on-site rail intra-connectivity, along with reinforcing the attribute of existing passenger rail transit.

The transport strategy acknowledges the importance of establishing improved connectivity with Redcar town centre as an aid to increasing footfall and boosting the town's economy, at the same time affording easier access to employment opportunities for local people by non-car transport modes. Establishing improved connectivity with other urban centres is also very important.



Improving transport connections with local town centres

4.07 Public Open Space Strategy

As referenced in the Guiding Principles in Chapter 3.0, one of the key aspirations of STDC is to realise an integrated industrial park characterised by distinct themes and zones, with the structure and layout geared to encouraging integration over separation or segregation. An important facet of this will be the way in which open and public space zones are created. The Master Plan strategy is to use these features as connectors not barriers, to reinforce integration and help create the sense of a single, high quality destination.

Given the scale and linear configuration of the STDC area, the plan is to develop the Teesdale Way/Black Path corridor as a spine through the site, linking new public open space nodes and integrating industrial development zones with community zones. The proposals also see the integration of heritage and nature within the public open space strategy, creating attractions and areas of interest focused on these two important themes.

As part of the infrastructure strategy, it is planned that strategic access points to the STDC area will be developed as gateway features, to define and strengthen the identity of the destination as a world class industrial business park.

The area designated for waste management facilities operation will ultimately be included in the fabric of the public open space, with plans to see the zone transformed, certainly in part, into an area of public parkland.

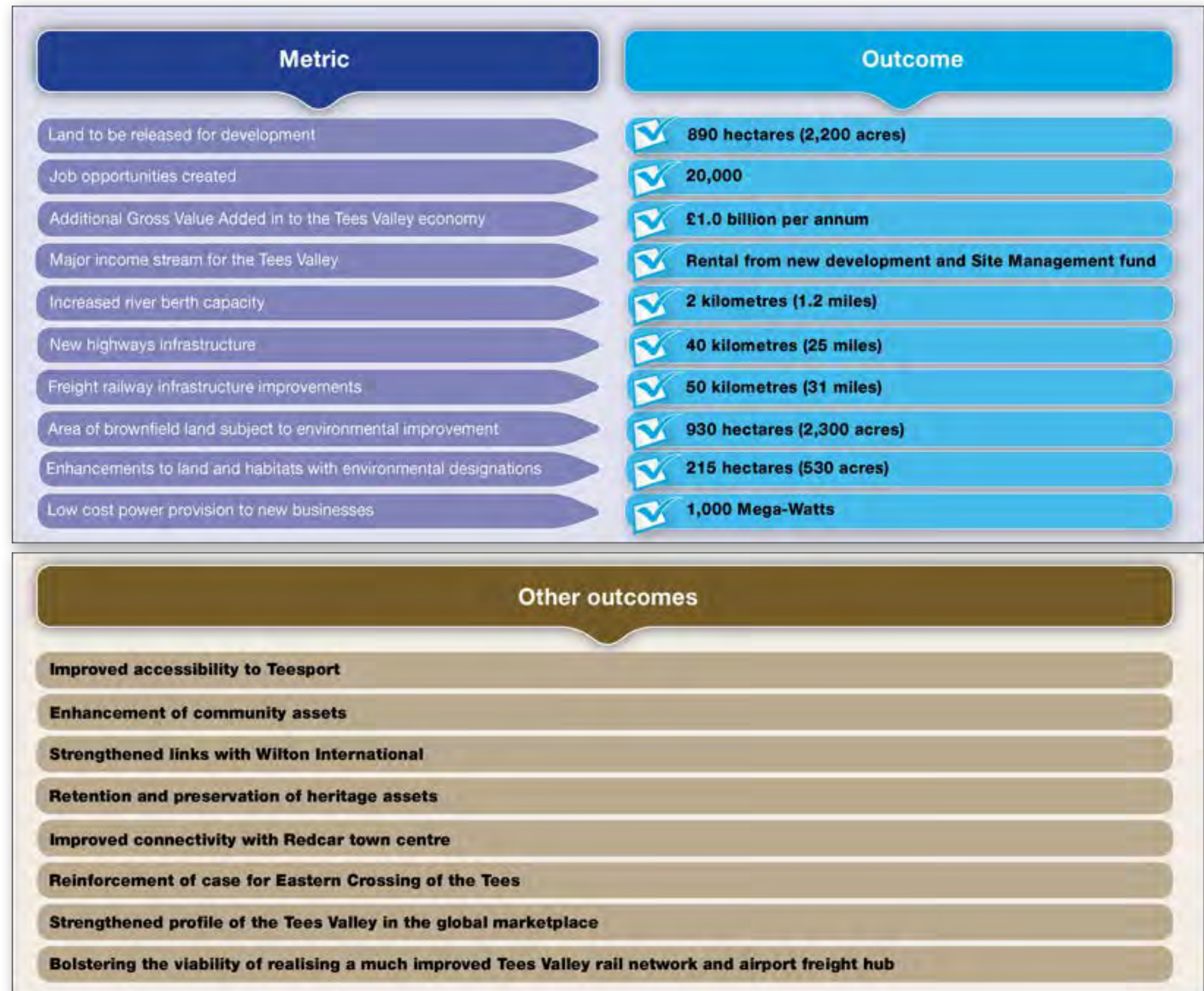
The site wide open space strategy will include footpath and cycleway networks enabling ease of movement across the industrial park by non-automated transport modes.

Areas of public open space will be developed to a high quality, consistent theme and standard, as part of a site-wide strategy, not as discrete, disparate projects that would potentially compromise the creation of a clear identity.



4.08 Dashboard

The delivery of a world-class industrial business park will be realised within the 25-year timescale of the area redevelopment strategy. In doing so, the impact upon the economy of the Tees Valley will be transformational. The beneficial outcomes for the Tees Valley will be many. Some of the principal outcomes are presented in the adjacent dashboard.



South Tees Regeneration - Major Attributes



4.09 Site Remediation Strategy

The proposed redevelopment of available land at South Tees is for industrial end uses. This mitigates the level of ground remediation required across the STDC area, minimises conflicts with the many safety restrictions (e.g., various safety hazard zones) and avoids introducing users that would otherwise conflict with the existing industrial and commercial activities within the area.

The remediation strategy will be based on a do minimum/ do necessary approach, to an end-user specification, and be one where there is flexibility in the redevelopment strategy to arrange end user site allocations to minimise conflict with localised, more heavily contaminated areas wherever possible. The remediation strategy is, therefore, not to create a blank canvass for development, where any future development scenario is permissible, but to take a balanced approach to remediation, applying innovative techniques and solutions to mitigate cost, optimise development configuration and, ultimately, realise a higher level of project viability. Importantly, the strategy will be geared to achieving earliest possible response times on the release of land in line with firm developer interest, so that revenue can be realised as soon as practically possible, working to an overall, co-ordinated vision.

Such is the abundance of potential development land across the South Tees area, there is less pressure to see every acre fully developed and it is accepted within the remediation strategy that some of the most contaminated locations may be remediated only to the minimum extent necessary for long-term safe-keeping as open space. There will, of course, be some exceptions to this rule, where localised areas of otherwise valuable real estate may be prejudiced by localised heavy contamination. In such instances, e.g., the Coke Ovens Bi-products Plant at South Bank, these areas will need to be remediated, releasing a wider area for redevelopment. This will be done in instances where the return on investment is fully justified, taking into consideration the wider land development portfolio.

Despite the long history of industrial activity on the sites making up the STDC Area, previous investigation work and site assessment, and ongoing investigations, suggest there to be large areas of land previously occupied by operations of a lower contaminative nature, where ground remediation and site preparation requirements will be consequently reduced. Examples are areas previously given over to steel mills with large ground slabs, used for manufacturing steel products, and those areas used principally for materials storage, in contrast with the front/heavy end process industries within iron and steel making, which are more likely to leave a legacy of localised ground contamination. We have identified the

localised, likely more onerous areas of contamination within the STDC boundary, so that these can, in the main, be allocated to later phases of the programme.

The area designated as the 'Landfill Zone' is presently occupied by waste management facilities, one of which is an SSI asset and one which is under the ownership of an external operator. There is no imposed height restriction on these facilities, albeit attainable heights will be limited by the area's physical dimensions. A large part of this zone is licensed to receive wastes from iron and steel making processes. The facilities have been in operation for a long time and the area will contain significant volumes of contaminated materials. Over a large part of its history, the landfill zone will have operated to standards and regulations far less onerous than in force today, so ground contamination beneath the facilities will likely be significant.

That said, the landfills offer the opportunity to mitigate the cost of remediation in other STDC areas. By utilising this area as a repository for residual, unsuitable materials from ground remediation and site preparation activities; a far more cost-effective alternative is therefore available to off-site disposal. With the abundance of land elsewhere across the STDC area, the strategy is to retain the landfill zone as waste management facilities, with an end solution involving reshaping, capping, installation of leachate and gas management measures, and completion via implementation of a structured landscaping scheme. The proposal is to then utilise the area primarily for alternative energy generation – e.g., energy from landfill gas, solar farm, wind farm, etc – offering lower cost energy provision to site users as a development incentive. Opportunities to selectively re-work material from the existing tips will also be examined.

Ultimately, even adopting this balanced, cost-effective approach to remediation, the programme still realises approximately 2,200 acres (around 890 hectares) of land for redevelopment.

4.10 Redevelopment Strategy and Phasing Plan

4.10.1 PRIORITISATION

Given the vast scale of the STDC Area, project prioritisation and sequencing will be given very careful attention, so that the proposed development phasing delivers an acceptable balance between investment and revenue in the earlier years of the regeneration programme. A balance will be struck between the need to incentivise development through early investment in strategic infrastructure improvements and site preparation works and the disposal of land for development. Initial priorities will be considered in the context of their capacity to enable early successes in the programme. While demolition is proceeding across the first four or five years of the programme, development priorities can be focused on other areas. Determination of priorities will be influenced by the following:

- Areas requiring little ground remediation and site preparation
- Areas that can best accommodate end user needs
- Areas where transport access/egress is presently afforded, even if this is a short-term solution
- Developments that can manage, in the early years, with existing on-site infrastructure, to minimise initial investment in new infrastructure
- Areas that don't require major demolition.

4.10.2 LAND PARCEL ALLOCATION

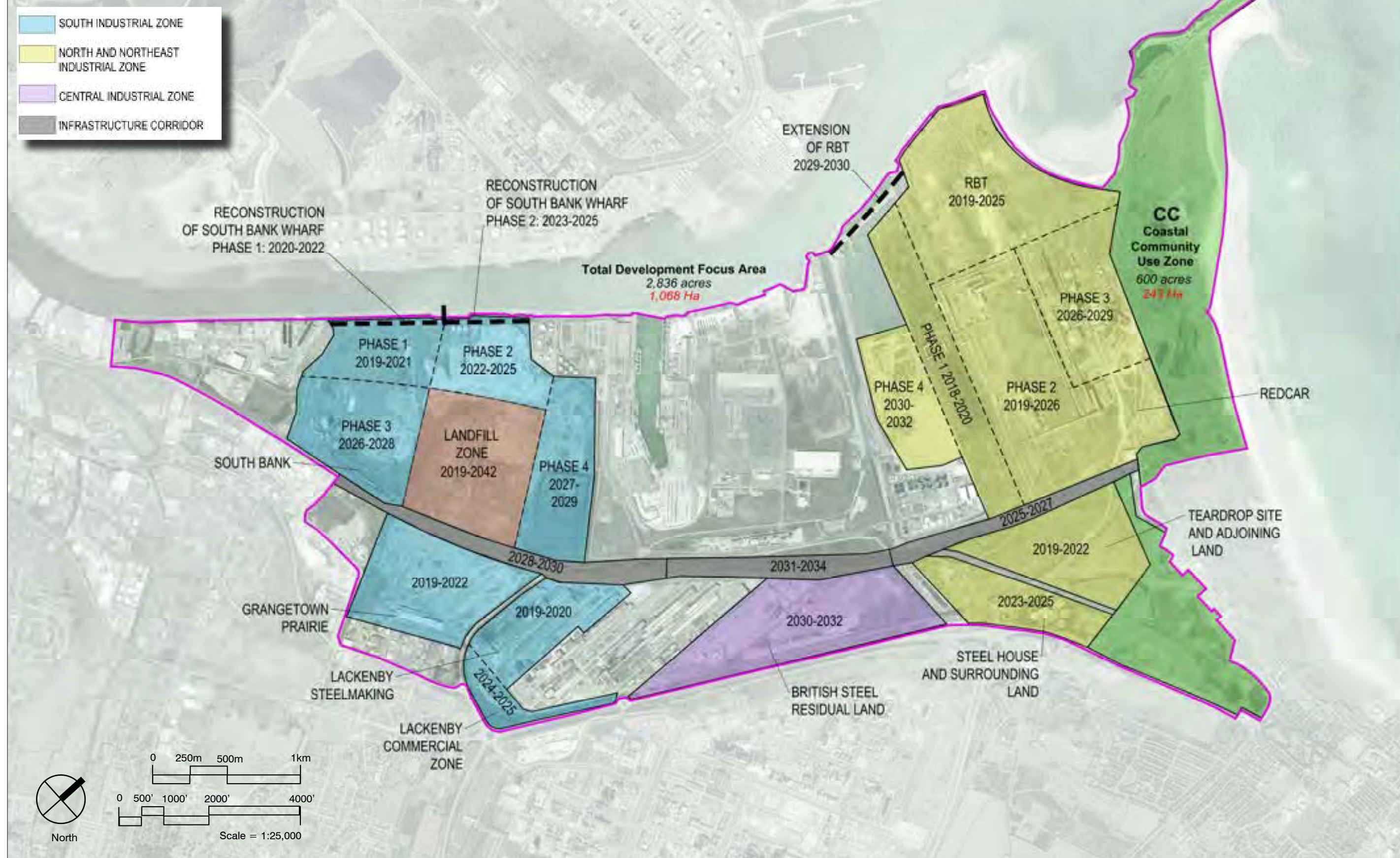
Regarding the allocation of land parcels, STDC will ensure a rigorous, risk-based evaluation process is adopted on site selection, geared to the development's typology, spatial and operational needs, the implications for remediation and site preparation, and the level of infrastructure that would need to be provided – ensuring the level of upfront investment by the public sector is managed to an acceptable level. Prime waterside land parcels will be protected for uses that absolutely need to be close to the river and associated port facilities. STDC will also cluster compatible end uses to minimise potential conflicts.

4.10.3 PHASING

Initial consideration has been given to project and development phasing. The current view is that principal site preparation and infrastructure works will be delivered to the following broad timelines and sequencing.

Activity	Summary Redevelopment Programme																									
	Year 2017 - 2042																									
	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42
Ground investigations and site assessments																										
Land assembly																										
Demolition																										
Site preparation/Infrastructure - North Zone																										
Site preparation/Infrastructure - North East Zone																										
Site preparation/Infrastructure - South Zone																										
Site preparation/Infrastructure - Central Zone																										
Infrastructure Corridor																										
Redevelopment North Zone																										
Redevelopment North East Zone																										
Redevelopment South Zone																										
Redevelopment Central Zone																										
Completion of Landfill Zone																										

Potential Phasing Release Plan



Potential Development Illustrative Plan



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North Industrial Zone

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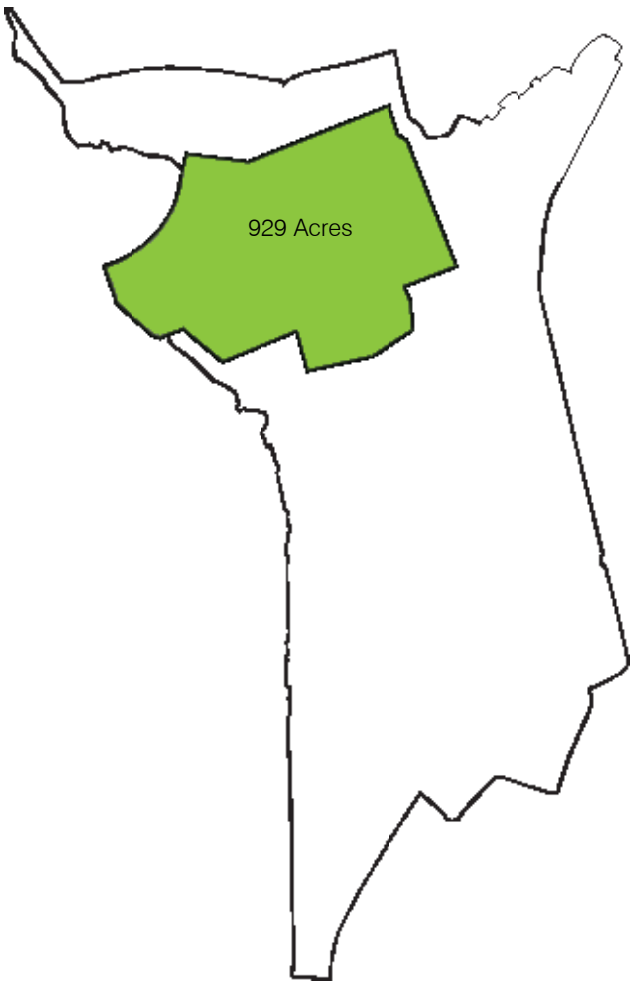
5.01 North Industrial Zone Development Overview

TARGET INDUSTRIES

- Major space users/ large scale manufacturing
- Energy Innovation
- Peak energy storage
- Bulk materials
- Mineral processing

ASSETS & OPPORTUNITIES

- Approximately 929 acres of gross available land
- Close proximity to existing main entrance
- Adjacent to existing wastewater treatment plant
- Close proximity to existing substation
- Large, relatively flat areas of contiguous land
- Existing sea water intake pipes
- Operational Redcar Bulk Terminal
- Redcar Blast Furnace as potential heritage site
- Existing road infrastructure
- Rail connectivity



5.02 North Industrial Zone Development Strategy

The North Industrial Development Zone, approximately 929-acres, provides a large, relatively flat area of contiguous land that is uniquely suitable to accommodate tenants with substantial plot size requirements. There is also an existing road network within this zone, currently connecting the bulk terminal to the regional highway network. The proposed plan preserves and improves some of these vehicular corridors as part of the framework for potential industrial subdivision, generally planned as a grid with a flexible infrastructure that allows for easy parcel assemblage and utility configurations.

Users for this zone will likely be OEMs and supporting tier 1 component manufacturers. The focus will lean towards manufacturing and energy innovation, and bulk materials.

Proximity to the existing Redcar Bulk Terminal (RBT) will provide incentive for tenants requiring regular supply of bulk materials to support operations. There is a planned 2 berth expansion at the terminal, which has been notionally indicated in land use and illustrative plans for this zone. RBT may also be attractive to users seeking to export large quantities of bulk material, like mineral processing facilities. To accommodate this potential demand, a 136 acre parcel with direct bulk terminal adjacency has been provided in the plan. RBT also offers strong potential for construction materials import for new developments.

ENERGY & INNOVATION ZONE

A secondary industrial land use zone has been identified as targeting energy innovation. This will include all innovative energy production and transmission technology manufacturing as well as energy efficiency products, such as high performance building materials. Potential tenants for this zone include photovoltaic module manufacturing, lithium ion battery production and recycling, and prefabricated housing - all of which can benefit from a built-in labour force from the surrounding community, access to reduced cost steel components, and superior logistics opportunities and multi modal port connectivity.

HERITAGE

In order to retain some of the site's industrial past, a 20-acre heritage parcel that contains the Redcar Blast Furnace may be preserved and transformed into a common use area for the North Industrial Development Zone. This area will be largely an open space recreation site, but may include shared facilities such as convenience retail and other services for on-site workers and local residents. The main furnace, stacks, and conveyors may be dramatically lit at night and positioned as a sculptural reminder of how South Tees Development Corporation has bridged the generations to form the next logical future for the site.

SEZ OPPORTUNITY

With additional study, the North Industrial Development Zone could potentially be planned as a Special Economic Zone (SEZ) to encourage foreign direct investment. SEZs include business and trade laws that are different from the rest of the country and aim to increase trade, and investment, job creation and effective administration. The benefits a company gains by being in a special economic zone may mean it can produce and trade goods at a lower price, to enhance global competitiveness.

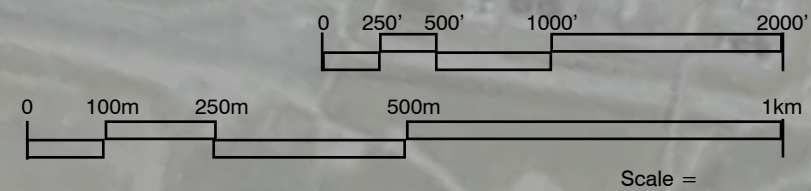
POWER PRODUCTION

Strong market interest exists from several potential occupiers for both generation and storage of power. Several options for power generation have been identified for the North Industrial Zone, one for turbine-based generation, the other for alternative energy generation (e.g. photovoltaics). There may also be additional opportunity for tidal based generation adjacent to the North Industrial Zone.





- Industrial (Manufacturing)
- Industrial (Manufacturing and Energy)
- Industrial (Bulks and other Processing)
- Bulk Terminal
- Open Space & Heritage Sites
- Port-related Industry



5.04 Conceptual Massing Views (for illustrative purposes)



5.05 North Industrial Zone Illustrative Plan (Conceptual)

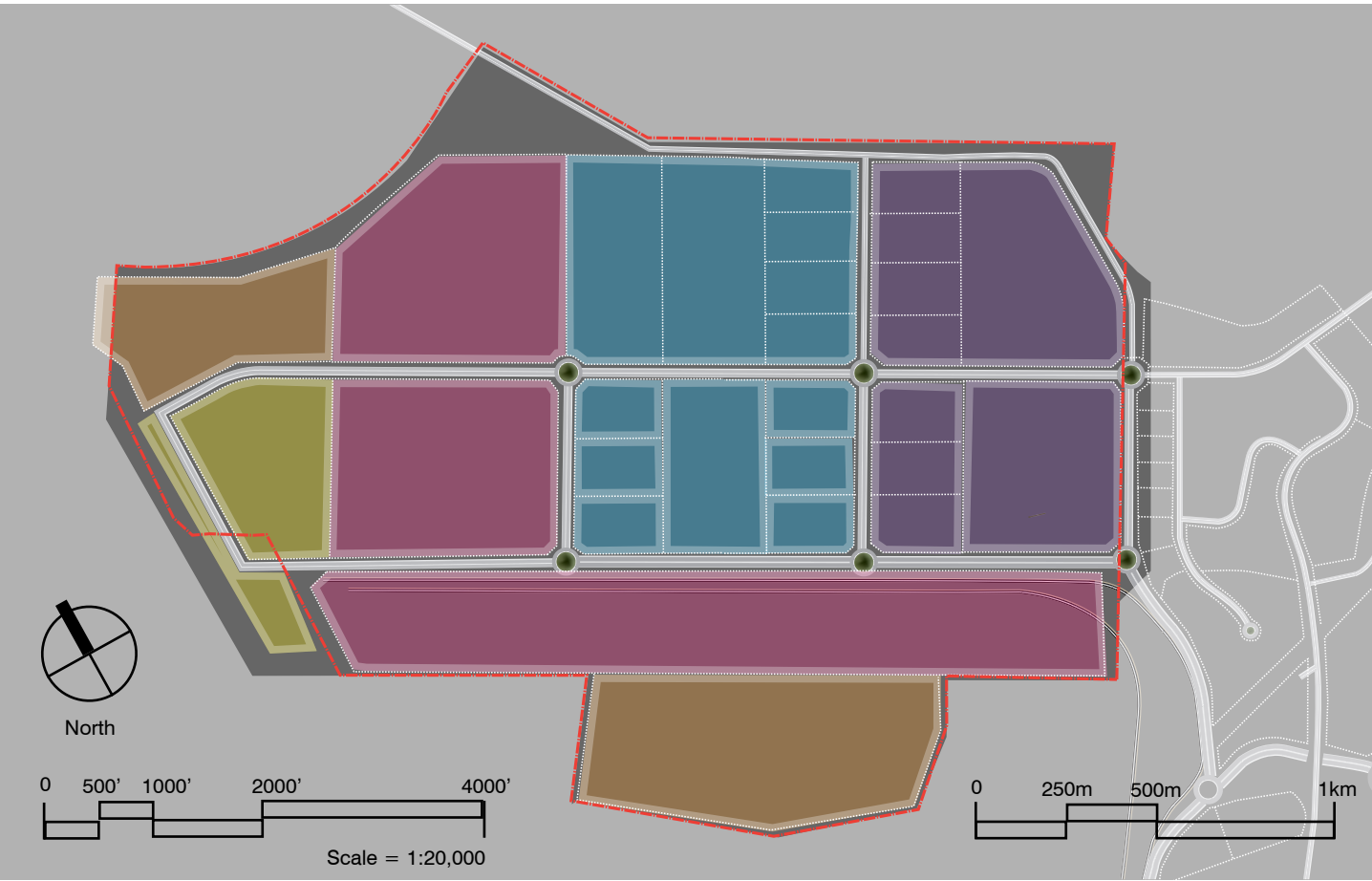
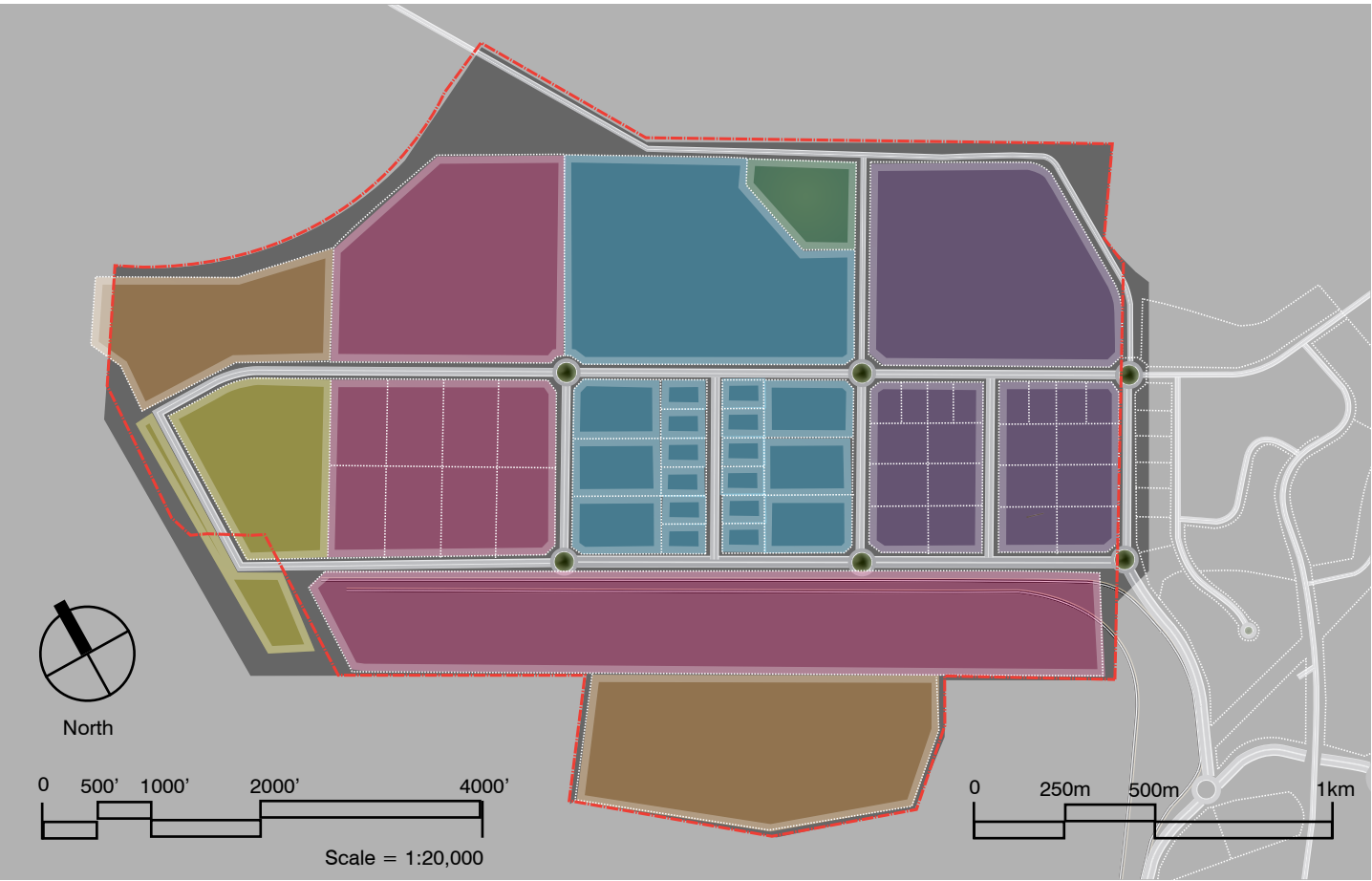
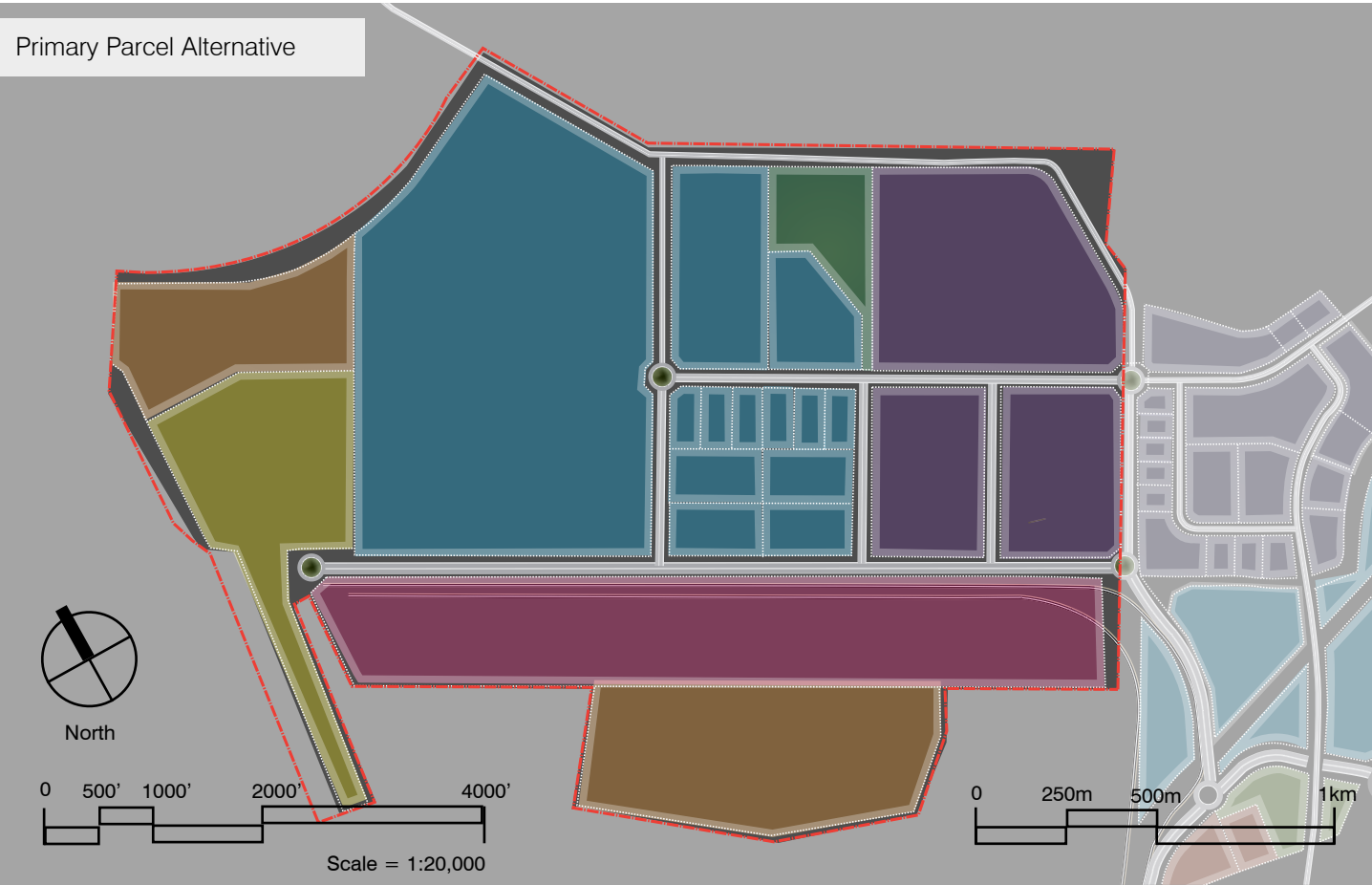


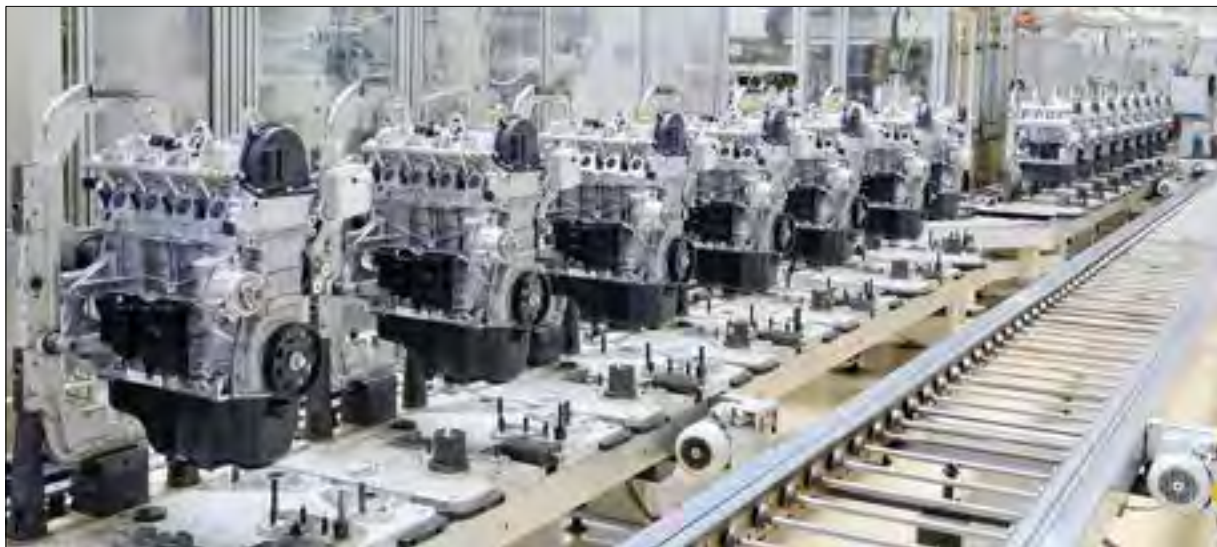
5.06 Parcel Flexibility

Plots sited in the NI Zone have been conceptually sized based off of real-world facilities. While plot sizes represented have been estimated based on reasonable precedent, several factors may lead to variation in ultimate plot size demand. The influence of unforeseen market demand, technology changes, product evolution and automation will all have impacts on the ultimate requirements for land subdivision. In general, primary roads will be considered fixed on the plan, with flexible secondary roads and parcel divisions. As the grain of the development becomes more predictable, parcel subdivision may modify to allow differing land demands. By removing secondary roads from the plan and reducing parcel divisions, larger plots may be created. Inversely, if plot demand shifts to a smaller grain, secondary roads and additional parcel divisions may be added to accommodate this shifting trend.

NORTH INDUSTRIAL ZONE ALTERNATIVES

The primary parcel alternative outlined in this report for the North Industrial Zone shows a 220 acre major space user adjacent to RBT. The spatial requirements of this user require a parcel size that disrupts the continuity of the northern distributor road in this zone. Alternate land use and parcel division strategies are shown on this page, showing the northern distributor road connecting through to the bulk terminal. These options also illustrate how simple subdivision changes can provide variation in parcel sizes.





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Northeast Industrial Zone

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6.01 Northeast Industrial Zone Development Overview

TARGET INDUSTRIES

- Advanced Manufacturing
- Research & Development
- Testing & Laboratory Services
- Industrial & Technology Training

ASSETS & OPPORTUNITIES

- Approximately 230 acres of gross available land
- Existing bridge links across pipeline and entry road for potential connection to Central Industrial Zone
- Existing bridge link over passenger rail for potential link between NE parcels.
- Existing ecological diversity
- Existing former British Steel headquarters building (Steel House) 265,000 sq. ft.
- Close proximity to powergrid connections
- Existing passenger rail station





6.03 Northeast Industrial Zone Development Strategy

The Northeast Industrial Development Zone balances the importance of new manufacturing and job creation, and potential redevelopment of existing buildings with the beauty and integrity of the North Sea coastal environment. The goal is to activate underutilised land within the STDC area where new, imaginative uses can incubate and become scalable. This Zone is divided into two primary areas – first, manufacturing and product testing and second, educational research and innovation, including vocational training and apprenticeships.

The Northeast Industrial Development Zone leverages off the existing Steel House building and repurposes this facility as a research and innovation centre, serving multiple industries potentially with shared technology facilities and function spaces.

An adjacent site will also house a new technology in industry educational centre, potentially with links to national and international colleges and universities around the world.

The Northeast Industrial Development Zone creates environs that remain primarily open space while trying to capture the value of this underutilised land. As an organising element, The Fleet watercourse becomes an enhanced, central open space for water retention, wildlife and passive and active leisure uses. Diversion of this watercourse may feature in the emerging proposals.

Smaller, emerging businesses and manufacturers can front the Fleet's open space with parcel sizes ranging from 1-5 acres. Creators of high tech products, GPS equipment, ecological and nature related supplies capitalise on the surroundings in order to encourage creativity and help polish their brand identity.

Larger parcels (7-18 acres) will also play a part in helping shape the new economy for the Northeast Industrial Development Zone.

Test tracks and proving grounds for autonomous vehicles are also included along with other open space that remains programmed to remain flexible to the needs of potential users as the Northeast Industrial Development Zone begins to populate.

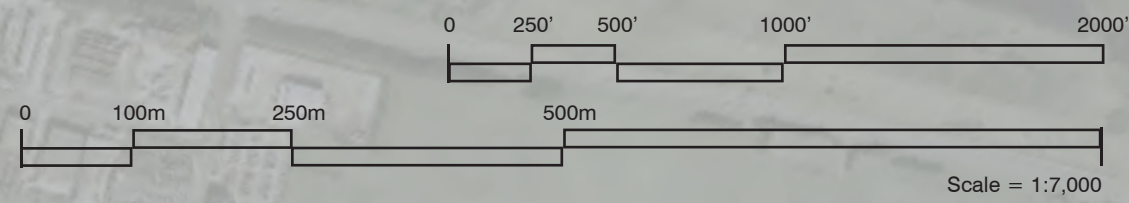
Along the southwest edge of this Zone, the existing electrical substation will be supplemented with a 6-acre co-located peak energy battery storage facility to enhance power efficiency for the STDC area.



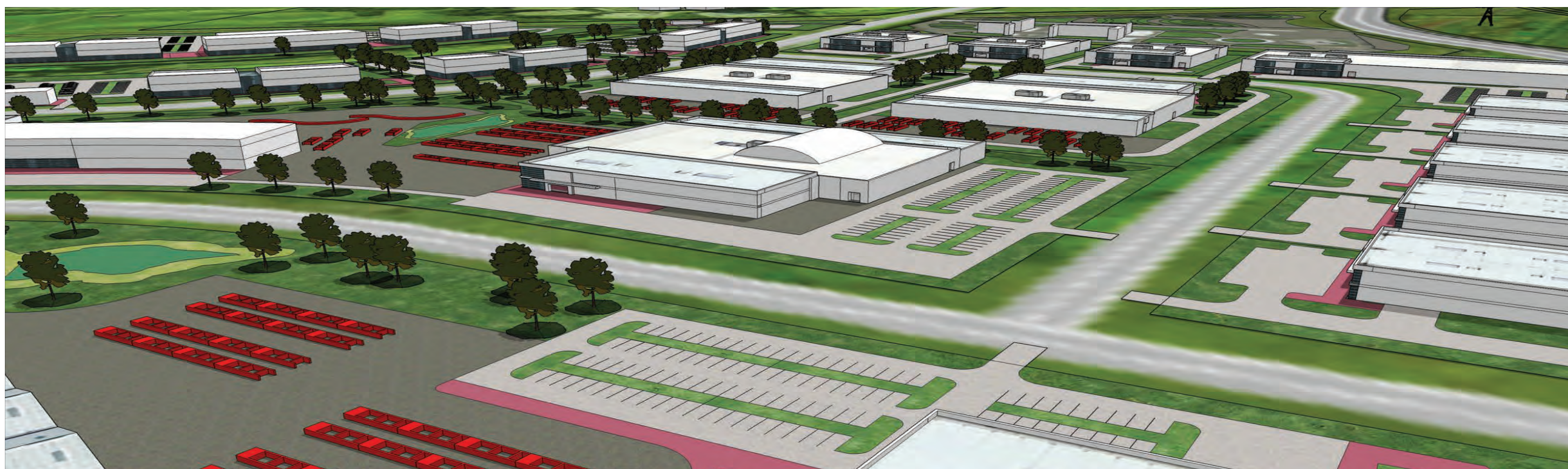
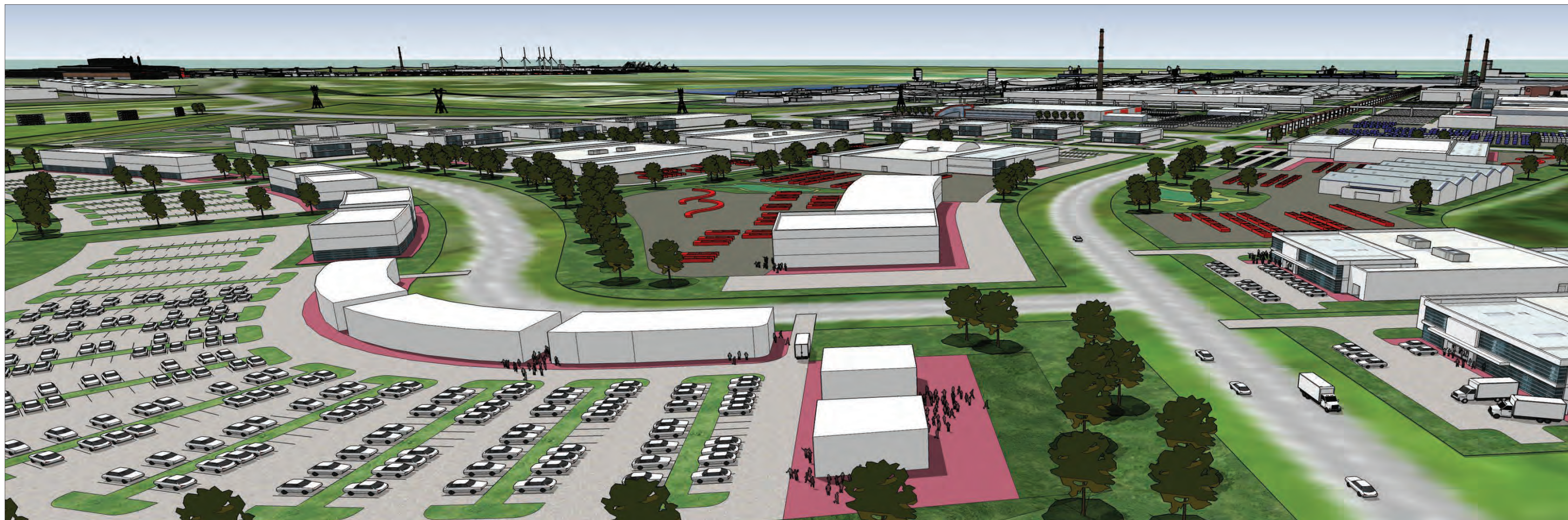
6.04 Northeast Industrial Zone Land Use - Potential Plot Layout



- Advanced Manufacturing
- Industrial Training, Testing & Research
- Open Space & Heritage Sites
- Power







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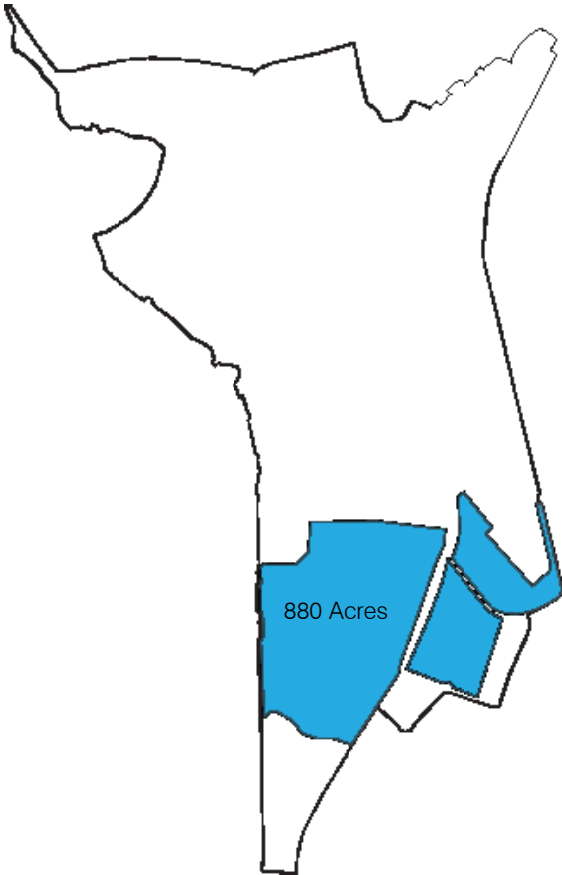
7.01 South Industrial Zone Development Overview

TARGET INDUSTRIES

- Port-related uses, including port-based fabrication
- Offshore energy industries, including manufacturing
- Materials processing and manufacturing
- Contract fabrication
- Potential for rig and large equipment decommissioning
- Energy generation

ASSETS & OPPORTUNITIES

- Close to 880 acres of land available for development
- 1.3km of river frontage with deep water potential
- Existing rail connectivity to the various land areas
- Over 2 million sq. ft. of existing large-scale industrial shed buildings with OH craneage and rail connections
- Legacy industrial facilities offering heritage preservation potential
- Very large licenced landfill facilities with significant residual capacity for both hazardous and non-hazardous waste
- Commercial development opportunities
- Close proximity to A66 with existing highway connections



7.02 South Industrial Zone Development Strategy

The South Industrial Zone (SIZ) is similarly sized to the North Industrial Zone and is a key strategic land zone for the South Tees area. The SIZ benefits from a river boundary of some 1.3km in length, offering the opportunity for a significant increase in port-capacity on the river, at the same time enhancing the potential for attracting major industries that rely on imports and exports by sea, and that serve offshore industries. The major USP for South Tees is the proximity to the river and existing world-class port facilities. The opportunity to further develop the river's port capability is therefore one that merits serious consideration, enabling, as it would, the Tees Valley to build on the growth of Teesport and also capitalise on the post-Brexit opportunities for growth in shipping trade into existing and new markets.

EXPANDED PORT FACILITIES

The concept for the SIZ sees the full utilisation of the river frontage at South Bank, involving the potential reconstruction of South Bank Wharf and adjacent river berth facilities to create significant additional port capacity. The proposals include the creation of an inset quay (or basin) at the downstream end to provide additional capacity and create the potential for accommodating as wide a range of uses as possible. The river in this locale affords a navigable channel maintained to depths ranging from 7.0m to 10.5m, and reconstruction of existing wharfage could be designed to deliver greater draught at the quay interface, via pocket dredging.

PORT-RELATED FABRICATION AND OFFSHORE ENERGY INDUSTRIES

The Master Plan provides a variety of medium sized land parcels in close proximity to the waterfront, offering the opportunity for a wide range of port-related uses, maximising berthing potential and enabling as much revenue as possible to be generated from the river. From this zone, various land uses have direct access to the water and thereby the North Sea, which is a major attraction. Relevant examples of operations that could benefit greatly from the proximity to the river afforded by the SIZ and from



being sited adjacent to new, modern berthing facilities include: undersea transmission cable manufacturing; wind turbine towers and foundations fabrication; other offshore structures fabrication; and barge manufacturing.

MATERIALS PROCESSING AND MANUFACTURING

To reflect the growth in metals recycling both in the UK and globally, along with an ever-improving sophistication in the metals recycling process, the Master Plan for the SIZ accommodates a sizeable materials processing zone that can capitalise on the proposed new port facilities to cater for imports of recyclable materials by ship. This could extend to handling metals from rig decommissioning operations carried out elsewhere on the river. The large industrial shed spaces in the SIZ offer the potential for re-use, and one such use could be metals manufacturing (such as steel or aluminium) using recycled metals, subject to market conditions and project viability being conducive. However, before making any decisions in this regard, the various shed facilities will need to be carefully evaluated to determine the viability of them being re-used. The proposed materials processing zone could extend to handling and recycling composites - another growing market - along with other recyclable materials. A key aspect of the vision for South Tees is the creation of a truly circular economy, and it is therefore appropriate that the plans make provision for uses aligned with recycling and re-use of materials on a large-scale basis.

CONTRACT FABRICATION

Given the potential for metals recycling and manufacture, two 14-acre sites have been allocated in the SIZ for component contract fabrication, such as small to medium size precision metal parts. These businesses could provide sub-components to tier 1 suppliers and OEMs elsewhere on South Tees, creating a cluster of high-end precision engineering businesses, providing lower-cost components enabled by lower cost raw materials and minimised transport costs.

In addition to component fabricators, a 34-acre site has also been conceptually allocated for large contract fabrication,



creating heavy industrial components - e.g., automotive, marine, energy, agricultural and transport equipment.

SUPPORT INDUSTRIES

Over 20 smaller plots spread out across the potential land parcel configuration for the SIZ, ranging from one to three acres in size, are suitable to accommodate supporting/supply chain businesses serving both contract fabrication shops and port-related operations and facilities. Typical businesses may include: equipment repair and calibration; onsite welding; industrial CAD design and engineering; quality control services; materials testing; and logistics management.

ENERGY GENERATION

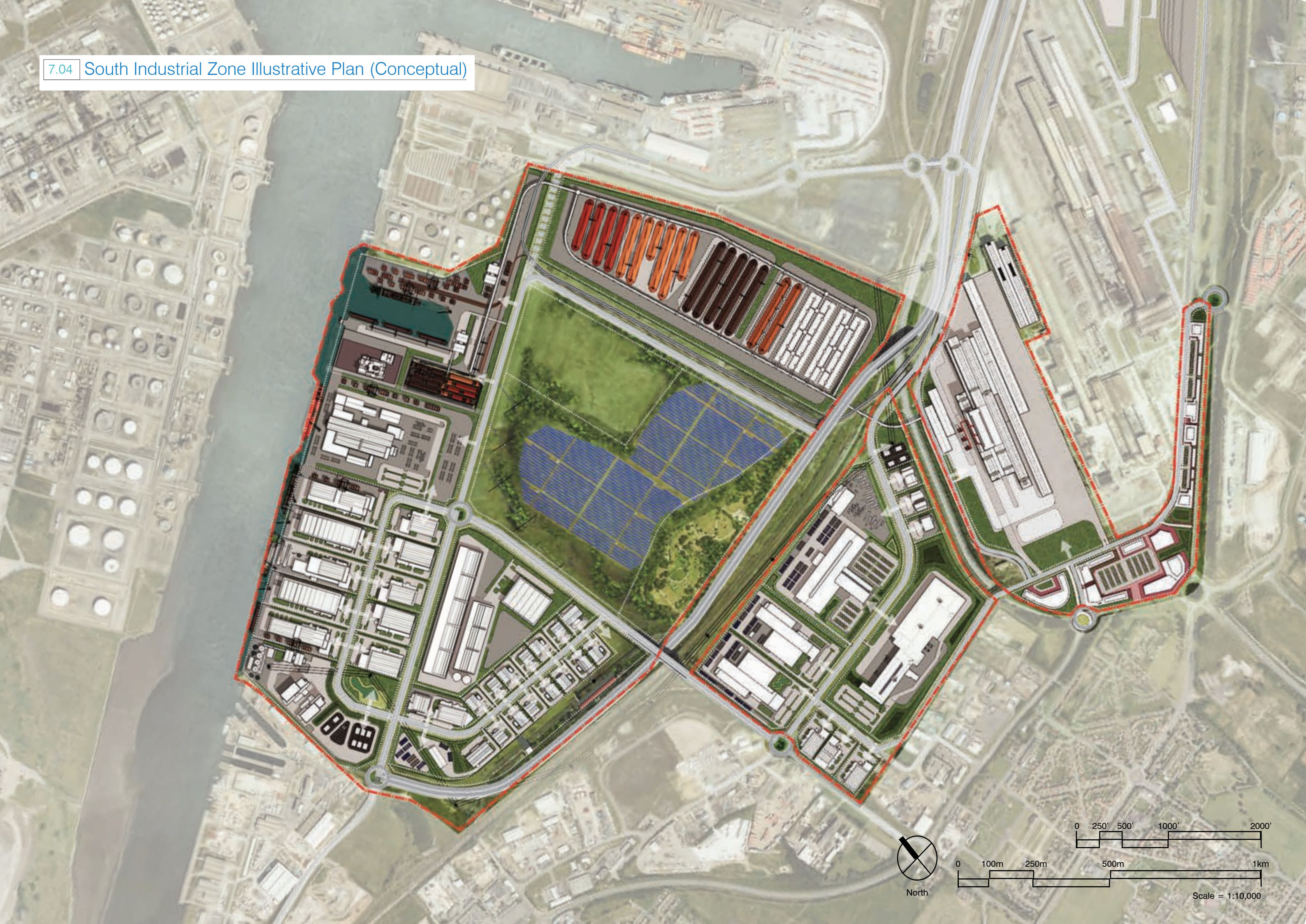
The SIZ proposals make provision for large-scale, competitively-priced energy generation to serve the development area and its future businesses via private wire networks; a key attribute for attracting new industrial uses, especially those with large power demands. This is consistent with the overall energy strategy for South Tees.

LANDFILL FACILITIES AND OPEN SPACE

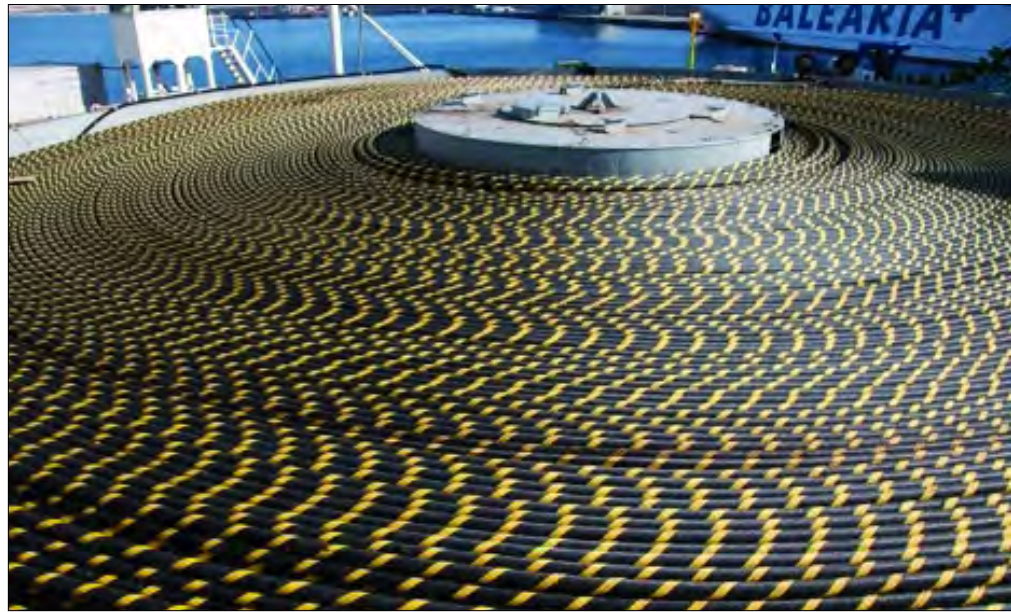
A significant proportion of the SIZ is presently given over to landfill operations and waste treatment facilities. Recent assessments suggest a potential existing landfill capacity of up to 10 million cubic metres. This offers ample space to accommodate, at much lower cost than off-site disposal, residual materials arising from site remediation operations across the South Tees area, whilst permitting existing privately-operated waste management businesses to continue. The Master Plan envisages around a third of the existing area being released for alternative uses requiring only low levels of remediation. The remaining two thirds are retained for ongoing landfill operations into the future. In time, the various areas of the landfill facilities will be completed and capped as part of the wider open space strategy. The area offers the potential for creating a significant new renewable energy reserve of around 100 acres, which could accommodate photovoltaic arrays, wind turbines and an energy from landfill gas system. A 34-acre landfill reserve is maintained for much longer-term landfill needs, as most of the residual capacity is progressively taken up.

Nearby, an open space reserve is created, incorporating some of the site's most iconic industrial structures, including the Dorman Long Tower and South Bank Coke Ovens battery. The plan is that this area will be developed into a public park along the north edge of the primary infrastructure corridor. This area will be linked to the Black Path/Teesdale Way and serve as a major focal point of the wider public realm network for South Tees.

7.04 South Industrial Zone Illustrative Plan (Conceptual)







Expanded Port Facilities



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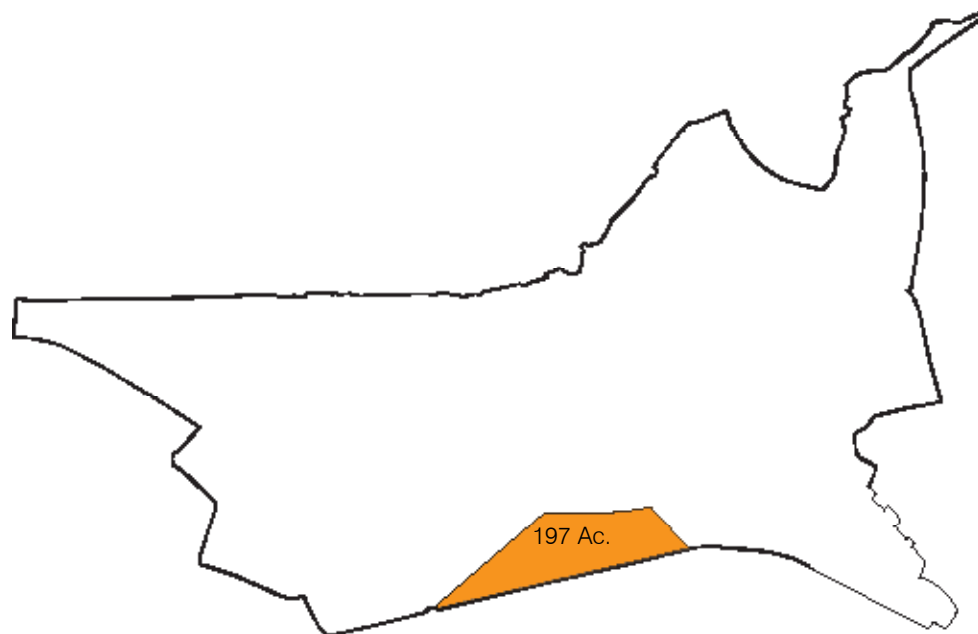
8.01 Central Industrial Zone Development Overview

ASSETS AND OPPORTUNITIES

- Approximately 197 acres of gross area.
- Bounded on two sides by existing rail spur lines
- Adjacent to operational British Steel facilities
- Access to infrastructure corridor
- No topographical constraints or challenges
- Opportunity for more optimal use of existing land

TARGET INDUSTRIES

- Industries with rail adjacency requirement
- Rail car and locomotive refurbishment
- Large equipment manufacturing and repair
- Metals related industries
- Fabrication and assembly





North



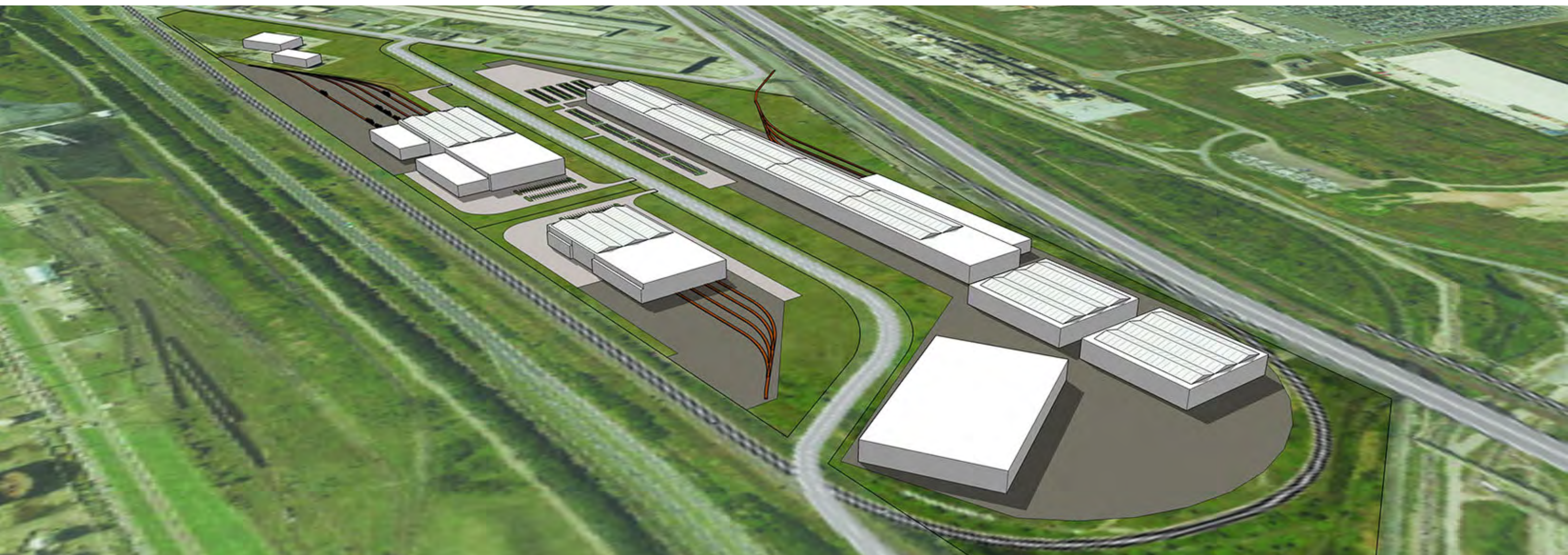
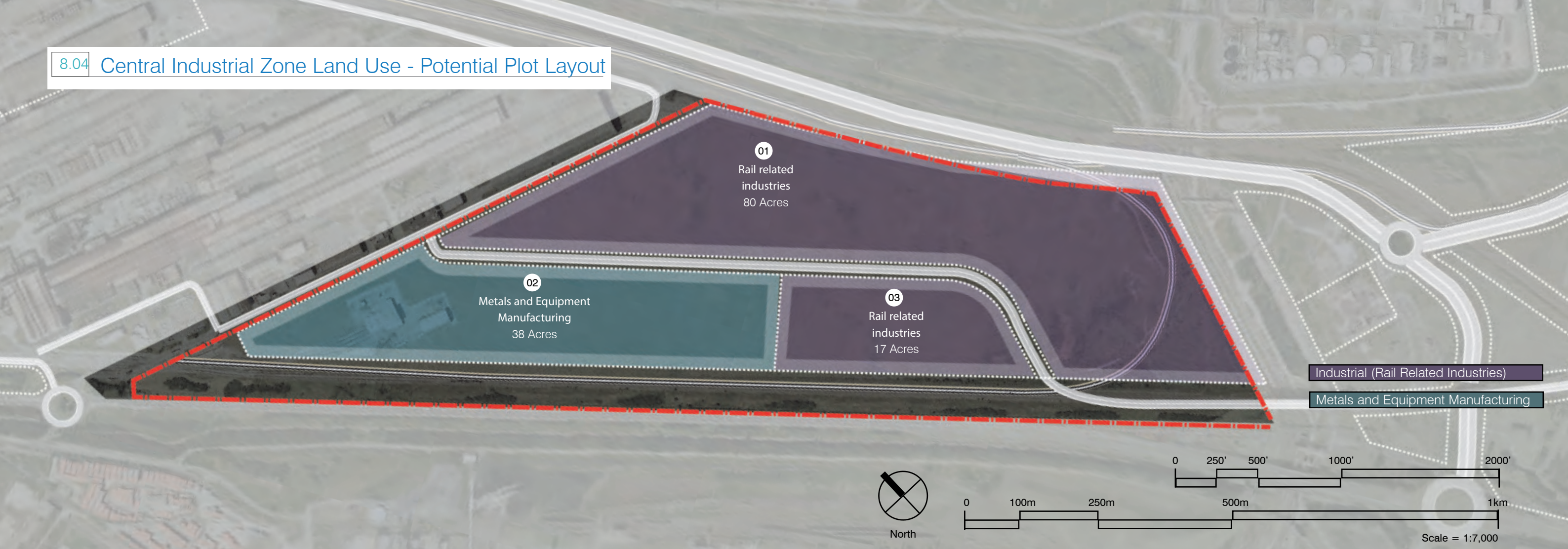
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08.03 Central Industrial Zone Development Strategy

The Central Industrial Development Zone is part of the existing British Steel facilities and operations and is strategically located along the main transportation corridor with good rail and vehicular connectivity from both the north and south. Long rail sidings along the lengths of the zone are advantageous to any potential industrial users that have large-scale, heavy manufacturing requirements and need direct access to the locomotive and rail infrastructure for moving their products. In fact, locomotive and railcar manufacturing, repair and refurbishment is a suitable and encouraged land use for this zone. Comprised of more than 190-acres, the Central Industrial Development Zone has been configured by the consolidation of British Steel current operations and with the intention of creating better efficiencies in their lay-down and storage areas of large steel products, i.e. structural beams that measure upwards of 24-36 meters (80-120 feet) or more in length.



8.04 Central Industrial Zone Land Use - Potential Plot Layout



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9.01 Coastal Community Zone Overview

The area designated as the Coastal Community Zone (CCZ) encompasses the important environmental assets of South Gare/Coatham Sands and Coatham Marsh, which collectively provide a land area opportunity in the region 530 acres (215 hectares). South Gare also provides access to PD Ports land at the end of the Gare, which must be preserved. The zone benefits from 2 miles of spectacular sea frontage and vantage points offering stunning vistas of both natural and man-made landscapes, including Redcar, Huntcliff (Saltburn), and across the estuary to Seal Sands.

The plan is that the CCZ preserves for continued use and enhancement the protected existing environmental habitats, given the current environmental designations that are in place. The regeneration programme will see the CCZ further improved by the introduction of discrete leisure-oriented projects that offer the potential for improved community use and visitor experience, so that the assets are of greater value to Redcar and provide a revenue stream to help support future management and operation of the CCZ. Measures will be put in place to ensure that future use of the CCZ by the public is realised in a controlled, regulated manner, to ensure long term protection of environmental habitats.



Scale = 1:10,000

9.02 Policy Context

Policy CS22 (Protecting and Enhancing the Borough's Landscape) of the Redcar & Cleveland Core Strategy seeks to ensure that new development does not adversely impact on the Borough's landscape and, where appropriate, improves landscape quality and biodiversity in line with policy CS24 (Biodiversity and Geological Conservation).

The CCZ contains environmentally sensitive areas to the north and east of the STDC area and these are identified in the Local Development Framework and the Landscape Character SPD March 2010.

The coastal area (South Gare and Coatham Sands) which abuts the site is identified as both sensitive landscape and restoration landscape in the SPD. These landscape typologies are defined as follows:

- Sensitive landscapes: in which much landscape structure is presented to give high 'strength of character' which is sensitive to change. Here the emphasis will be on retaining the elements that make up the landscape, in many cases with little intervention or change to its character, other than taking the opportunity to screen or integrate any development which does take place into its setting. Care in the location and design of any development is of crucial importance. In these areas, development should not only leave existing planting in place, thus also respecting areas of wildlife value and potential, but should also include 'new' planting to support development. The design and detailing of the planting shall consider the character and detail of the landscape (including distinctive species) in which it takes place, and be related to the scale and siting of the development.
- Restoration landscapes: where the land has lost a greater or lesser degree of landscape structure and would benefit from measures to restore the

structure and character. To the south east is a lower value area of restoration landscape and the SPD states that landscape work may take place outside the immediate development site by agreement with the developer and the landowner in question and be targeted towards repair or reinstatement of the landscape structure.

Other designations influencing development of the CCZ include:

- Areas of biodiversity and geological conservation (Site of Special Scientific Interest SSSI) (policy CS24)
- Areas of biodiversity and geological conservation (Special Protection Area (SPA)/RAMSAR Site)
- Green Infrastructure (Green Wedges) Policy CS23(b)
- Areas of biodiversity and geological conservation (Site of Nature Conservation interest – SNCI) (Policy CS24).

Development and landscape improvements in the CCZ shall take due cognisance of the above policy framework and its provisions.

9.03 Target Uses for the Coastal Community Zone

Consideration has been given to how improved community involvement in the CCZ can be realised while ensuring protection of environmentally important habits. A balance will be struck between optimised, beneficial use of the area and the need to avoid adverse impact on environmental assets.

A carefully designed strategy will be followed, targeting the following uses (or a selection of these):

- A nature reserve and visitor centre on South Gare/Coatham Sands
- Increased and diversified community engagement (including educational uses)
- Extension of the proposed heritage trail through the STDC area to a terminus on South Gare
- Improved public access to the Coatham Sands beach area
- New footpaths
- Beach huts and small-scale outlets (e.g., a café)
- Habitat preservation and enhancement measures at Coatham Marshes
- Improvements to South Gare Road and car parking facilities
- Preservation of the existing fishing community
- Improved connectivity and integration with the wider developed STDC estate.

The existing topography and native landscape will serve as the foundational palette for how this area will be arranged and interpreted for greater public use. Central to the CCZ will be the creation of several adequate parking areas to access the beach through a structured natural system of paved and unpaved trails to wander

the native grasslands. The area will be augmented by the inclusion of picnic areas, simple low-key food vending, restrooms, shade structures, bird watching opportunities, and platforms for siting environmental artworks. Appropriate and sympathetic segregation measures will be utilised to prevent unauthorised access and protect important species and habitats.

Consideration may be given to the creation of a small natural amphitheatre for the hosting of suitable, low environmental impact events.

In all cases, proposals will be worked up in full collaboration and consultation with relevant environmental bodies and interest groups.

It is envisaged that the proposed uses will have no detrimental impact on the principal neighbouring land area of the Cleveland Golf Club and Golf Course, and this will be considered when bringing forward proposals.

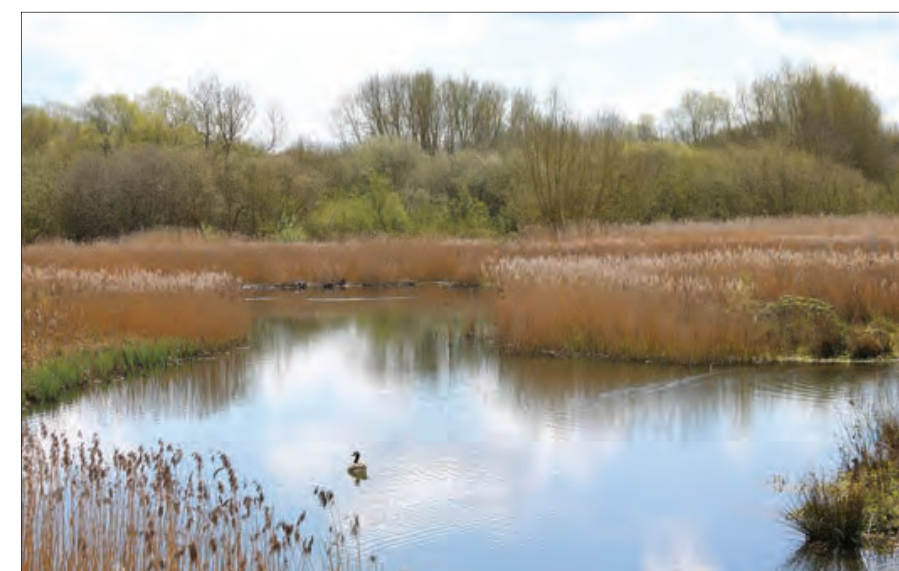
9.04 South Gare Road

Key to realising improved use of the South Gare and Coatham Sands areas of the CCZ will be the implementation of a scheme to improve and better maintain South Gare Road. The road stretches to some 2.8 miles in length, with the final mile, that runs out to the tip of the Gare, being under the ownership of PD Ports.

The plan is to maintain the road's status as private, but to integrate it into the wider highway network of the North Industrial Zone, providing improved accessibility and stitching the CCZ into the broader STDC fabric. The improvement scheme will seek to address road alignment and road width constraints, introduce more passing places, provide areas for breaks in journey, and facilitate easy vehicle turnaround manoeuvres at intervals along the road.

South Gare and Coatham Sands Community Zone Illustrative Plan





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10.01

Overview and Context

Creating significant employment opportunities is the primary aim of STDC, while at the same time contributing significantly to the economic growth of the Tees Valley; ease of access to these employment opportunities by all travel modes will be an essential component of a successful regeneration. Ensuring that the STDC estate is equipped with adequate, modern infrastructure for efficiently handling freight imports and exports will also be critical, as will efficient transport intra-connectivity across the area by all travel modes.

Hitherto, the Tees Valley’s relatively fast commuting times have been a key selling point to attract businesses and people to the area. However, development of the STDC and wider South Tees areas will generate significant employment growth, and with that, increased transport volumes. It will also introduce greater complexity in travel patterns, putting pressure on existing transport networks and meaning that effective, enhanced connectivity (by road, rail and bus) will be vitally important if STDC is to realise the transformational change it aspires towards.

10.02

Highways Infrastructure

In order that development opportunities are not compromised or constrained, the Master Plan is reinforced by a well-defined internal highways infrastructure network that:

- Facilitates easy connectivity between the different development zones and sub-zones
- Ensures advantages from neighbouring businesses and operational interdependencies can be fully realised, and
- Affords good access to the river and related port facilities.

Integral to this is the reinforcement of the existing highway corridor that runs through the STDC area as a primary infrastructure spine, accommodating road, rail, pedestrian and utilities corridors, to provide essential linkages between all zones within the STDC area.

10.02.1

SITE ACCESS

Important to the infrastructure corridor concept and the proper functioning of the highways network as a whole, is the introduction of three strategic access points to the development, at Redcar, South Bank and, centrally, at Teesport; the latter providing the Port with a beneficial second means of vehicular access.

SOUTH BANK ACCESS

A new access to the South Industrial Zone will be provided at South Bank, in the form of a four-arm roundabout, providing swift connection to and from the A66, via Dockside Road. One arm of the roundabout will provide direct connectivity to the linear infrastructure corridor running through the spine of the STDC area. This scheme has already secured its funding via a successful LGF application by Redcar & Cleveland Borough Council.

REDCAR ACCESS

This access will utilise the existing roundabout on the A1085 Trunk Road at Redcar Gate. Once inside the site, the complexity of existing site highways infrastructure is rationalised to provide direct connectivity to the North Industrial Zone and North East Ecological Industrial Zone, utilising existing bridge connectivity across the Saltburn-Darlington rail corridor, and connectivity to the infrastructure corridor (or spine) for vehicular traffic travelling south through the site. The latter will facilitate ease of access to the Central Industrial Development Zone.

CENTRAL ACCESS

The central access will utilise the existing Tees Dock Road that presently provides the only formal means of access to Teesport. This route is an important gateway to the STDC area and it will connect to the wider STDC estate via a new bridge crossing from the roundabout in Teesport, down to the infrastructure corridor, where it connects via a second roundabout, so providing the Port with a second access/egress point. Equally of value, is the efficient direct vehicular access to the Port this proposal provides to the various development zones that are clustered around the Port estate, avoiding the requirement to re-enter the existing public highway network, as is presently the case.

10.02.2

OTHER ACCESS POINTS

The highway proposals see the extension of Eston Road off the A66 providing a direct access to the Prairie Site in the South Industrial Zone, via a new four-arm roundabout junction, with this link being extended, in a later phase of the development, to provide a second access to the South Bank site via a new bridge crossing of the Network Rail corridor. The existing Bessemer Gate to the Prairie Site is re-opened, helping integrate the Bolckow Industrial Estate (within the STDC area) into the wider STDC development, and delivering a direct link to the A66 off Whitworth Road.

Centrally, a new highway access is proposed off the A66/ Tees Dock Road roundabout (via introduction of a fourth arm), into the Lackenby area of the South Industrial Zone, which is located at the interface with the existing highway corridor and so can be achieved relatively cost-effectively.

At Redcar, the new internal highway network will connect to Tod Point Road at Warrenby, where consideration will be given to off-site highway improvements, to enable improved connectivity with Redcar Town Centre.

10.02.3

CONNECTIVITY WITH WILTON INTERNATIONAL

As part of the highway proposals, the private highway link between Wilton International and Teesport will be upgraded, which will, via the newly-established second access to the Port, improve connectivity between Wilton and wider STDC area, so strengthening linkages between the two estates and enabling the full opportunity potential of each to be realised.

10.02.4

GENERAL HIGHWAY PROVISIONS

The internal highway network proposals will be delivered to adoptable highway standards. Existing bridges will be utilised wherever possible and economically viable, taking cognisance of long term maintenance and asset management liabilities, and remaining design life. This will include widening and strengthening of bridge infrastructure as may be necessary.

Within each development zone and sub-zone, roads will be laid out to a regularised grid pattern, in keeping with the efficient functionality demanded of modern industrial parks and the creation of a dense development template, where use of valuable land assets is optimised.

A well-designed footpath network will be implemented across the estate, along with cycleway routes that afford ease of travel from north to south and within each development zone. Existing bridge crossings that are no longer capable of supporting road and rail infrastructure will be considered for integration into the footway and cycleway networks, rather than being rendered redundant.

The roads, footways and cycleways infrastructure designs will be delivered integral with, and to enable, the realisation of the landscape and public open spaces strategy for the development. As part of this, careful consideration will be given to signing strategies, including gateways to and naming of development zones and sub-zones.

10.02.5

EARLY PRIORITIES

Based on an initial assessment, and while remaining cognisant of the need for flexibility in how infrastructure improvements will be triggered and realised, the early priorities in the plan are: the establishment of the new access at South Bank off Dockside Road; the opening-up of the Bessemer Gate access off the A66 into the Prairie Site; and the introduction of improved traffic management and highway maintenance measures within the existing internal highways network. Other highways infrastructure proposals will be delivered in line with emerging development priorities and funding availability.

10.03 Infrastructure Corridor

The concept of the infrastructure corridor is to establish a more regular, well-defined infrastructure spine for accommodating (improved) road, rail and utilities connections through a very large, relatively linear, estate. In enabling site-wide intra-connectivity, it will ensure that the unique selling points and attributes of the area can be fully galvanised into a strong value proposition for potential investors.

The new infrastructure corridor will be formed from the existing corridor running through the site, and will comprise five principal components:

- Either a two-lane single or four-lane dual carriageway (or a mix of both – traffic projections will dictate)
- A consolidated, future-proofed rail freight zone (or rail yard)
- The existing Network Rail corridor
- A dedicated, wherever possible, segregated major utilities corridor
- Strategic linear landscaping, including, where relevant, Public Rights of Way.

The corridor is almost 4 miles in length (6.5km) and up to 100m to 120m wide in the central area, where the consolidated rail yard will be established. Major utilities such as the CATS pipeline are already accommodated within the existing corridor, and the retention of the infrastructure corridor concept ensures the 15m CATS pipeline development exclusion zone is readily protected.

Crossings of the freight railway infrastructure by the road corridor will likely be needed at one or two locations. Bridges or underpasses are an obvious consideration, however, at grade crossings are not ruled out at this stage; this will ultimately depend on the operational requirements of the estate.

The fact that a corridor exists already, enables some early development to proceed without the need for disproportionate early infrastructure investment to upgrade the corridor, meaning that this can be implemented in planned phases. The corridor is also wide enough to enable continued operation during phase construction works. So in the early phase of development, the existing corridor will be utilised as a temporary solution for vehicular purposes, subject to some improved traffic management measures being implemented. Current rail needs can be met via the existing rail infrastructure assets, enabling the establishment of new and upgraded rail facilities to be phased-in to cater for development growth and future demand.





10.04 Rail Infrastructure

10.04.1 FREIGHT RAIL

The existing freight rail infrastructure within the STDC area is under-utilised and poorly configured when considering the aspiration for a high development density across the estate. But beneficially, there are existing rail links in place with the port facilities of Teesport and Redcar Bulk Terminal, and connections to the Network Rail corridor that traverses the site – so the foundations are in place from which to build into the proposals significant freight rail infrastructure improvements as the development progresses. Indeed, under-utilisation of the existing rail infrastructure helps facilitate ease of implementation of new proposals, without detrimental impact to ongoing functionality.

The freight rail infrastructure concept will see:

- A new, multi-user modern rail yard within the infrastructure corridor, along the boundary with the Central Industrial Zone
- Improved, strengthened rail links with Teesport and Redcar Bulk Terminal
- The establishment of new rail connectivity at South Bank Wharf
- Rail connections created in the South Industrial Zone dependent on development typologies and needs, e.g., the Prairie Site
- Improved connections with Wilton International, utilising the existing private rail link that presently connects Wilton to the Network Rail corridor in the STDC estate – enabling easier connectivity to port facilities
- The introduction of controlled crossings on the STDC estate, in lieu of grade separated interchanges, if proven operationally viable
- Better connectivity to the Network Rail corridor in general.

10.04.02 PASSENGER RAIL

The presence of the existing passenger railway running through the STDC area is a major attribute for development and a key opportunity for improving access to significant employment opportunities by public transport. The existing Redcar British Steel and South Bank railway stations are optimally located to serve the North/North East Industrial Zones and the South Industrial Zone respectively.

The Master Plan proposes enhancements to the Redcar British Steel and South Bank stations, to meet the anticipated future travel demands of the development, including improved accessibility and the introduction of passenger timetable revisions to elevate the status of Redcar British Steel as a regular stop on the Darlington/Saltburn route.

10.05 Public Rights of Way

Given the 6.5km length of the STDC area, re-opening of the intermediate railway station at Grangetown will be considered, should passenger numbers from increased development levels support this.

Public Rights of Way, such as the Teesdale Way and the Black Path, are covered under Chapter 13.0.



10.06 Port Infrastructure

The development proposals support the retention and enhancement of these assets for increased use by the public, including better integration into the overall transport network of the development.

The river boundary to the STDC area is essentially made up of three components: operational and non-operational river frontage at Redcar Bulk Terminal; the operational port infrastructure of Teesport; and, immediately upstream from the Teesport estate, around 1km of largely dilapidated, non-usable river berth assets, including South Bank Wharf.

Proposals are already in the public domain that will see increased river berth capacity fronting RBT, immediately upstream of the existing deep-water terminal, providing in the region of 700 liner metres of new, deep-water river berth. The Teesport estate is operated and managed by PD Ports, and improvements to port facilities here will be led by PD Ports in line with their own business plans and future market demand. That said, it is anticipated that the development proposals coming forward under the South Tees regeneration programme will be a primary influence on Teesport's future plans.

In the South Industrial Zone, at South Bank, development proposals will see the phased construction of new port infrastructure along the entire length of the existing river frontage to the boundary interface with the Teesport estate, introducing around 1km of new, multi-purpose river berth to meet a wide array of market demand. The proposals include for a new inlet at the downstream end of the new port infrastructure, to maximise capacity and flexibility of use. However, the proposals will be designed and developed to complement rather than compete with the existing, vitally important assets of Teesport and RBT. While there is further work to be undertaken in exploring the business case and feasibility of implementing such a proposal, it is seen, at this stage, as a very beneficial measure and essential to the realisation of the full development potential of the South Tees Industrial Zone and economic growth across the wider South Tees area.



10.07 External Transport Networks

10.07.1 HIGHWAYS CONNECTIVITY

External to the STDC estate the area benefits from a very good local highway network that gives access to the important arterial routes of the A19, A1(M) and A66 Trans-Pennine corridor. Consideration will be given to the impact on the local highway network of the planned major increases in development traffic that will ensue as the proposals for the regeneration programme begin to be realised, so that junction capacities are not adversely impacted and that the current favourable position the South Tees area benefits from is not compromised. The requirements for Transport Appraisals to assess transport impacts, particularly highways, will be given due attention as the development proposals begin to be fleshed-out.

NEW TEES CROSSINGS

Further afield, known connectivity barriers such as the significant pressure points on the A19 at Middlesbrough are already receiving due attention from TVCA and the Tees Valley Mayor, to ensure the plans for future, major economic growth and economic competitiveness across the Tees Valley are not impacted. Congestion at the current A19 Tees Crossing impacts on the operation of the A66 where the two intersect. The A66 is particularly critical for road access to South Tees and Durham Tees Valley Airport, providing international connectivity and opening-up logistics, freight, container market and aviation-related opportunities for businesses in the Tees Valley and to attract global investment.



A new strategic road crossing of the River Tees is planned that will provide additional capacity for up to 72,000 vehicles per day, addressing the current issue with journey times and network resilience, as well as allowing the local road network to be reconfigured to help deliver strategic employment opportunities and housing sites. The project will be subject to feasibility study and business case work in the near term, led by TVCA. Its implementation will be a major boost to the STDC regeneration programme.

The case for a further crossing of the Tees downriver - the 'Eastern Crossing' - is gathering momentum. If realised this would link the major industrial zones of South Tees and North Tees, massively shortening journey time and distances between the two locations and enabling a more joined up approach to be adopted in the promotion and marketing of the areas as a single, world class destination for industry. STDC is supportive of this initiative.



10.07.2 RAIL CONNECTIVITY

While the STDC area has good rail connectivity, the network is reliant upon poor, outdated rolling stock. As growth in development opportunities begins to be realised (on South Tees and across the Tees Valley), the lack of a fast, practical and modern rail system, both connecting Tees Valley to the rest of the North (for passengers and for freight) and within the Tees Valley area itself, will need to be investigated. However, for the STDC programme itself, this is not considered an obstacle to realisation of the development proposals across the initial 10-15 years.

A Trans-Pennine electrification scheme is already committed and in the pipeline, and the Department for Transport is being encouraged to seriously investigate the inclusion of the Northallerton to Teesport route in the electrification plans, driven by the benefits of simultaneously delivering W12 gauge clearance, to ensure the economic benefits of further, planned port investment in 2018/19 can be maximised.



10.07.3 AIRPORT CONNECTIVITY

As a national and European gateway, Durham Tees Valley Airport (DTVA) has the potential to support the connectivity of the Tees Valley and South Tees to global markets.

Emerging concepts lean towards the potential expansion of the airport as an air freight-oriented facility, capitalising on the abundance of the airport estate and its close proximity to the Tees Valley rail line, which connects all the main centres of population and also the major regeneration areas, including South Tees. This initiative would further drive the need for an up-to-date urban rapid transit system, and it would also serve to fuel expansion in passenger travel at the airport.



The industrial-focused, jobs-led growth strategy for the STDC area, and the scale of the redevelopment opportunity, offer firm potential to support a positive, developmental change at DTVA and the realisation of TVCA's and the Tees Valley Mayor's broader ambitions for the airport. STDC is supportive of the proposals to see DTVA re-establish its position as a major transport hub for the Tees Valley.

10.08 Proposed Roadway Network



11

Utilities and Infrastructure Networks

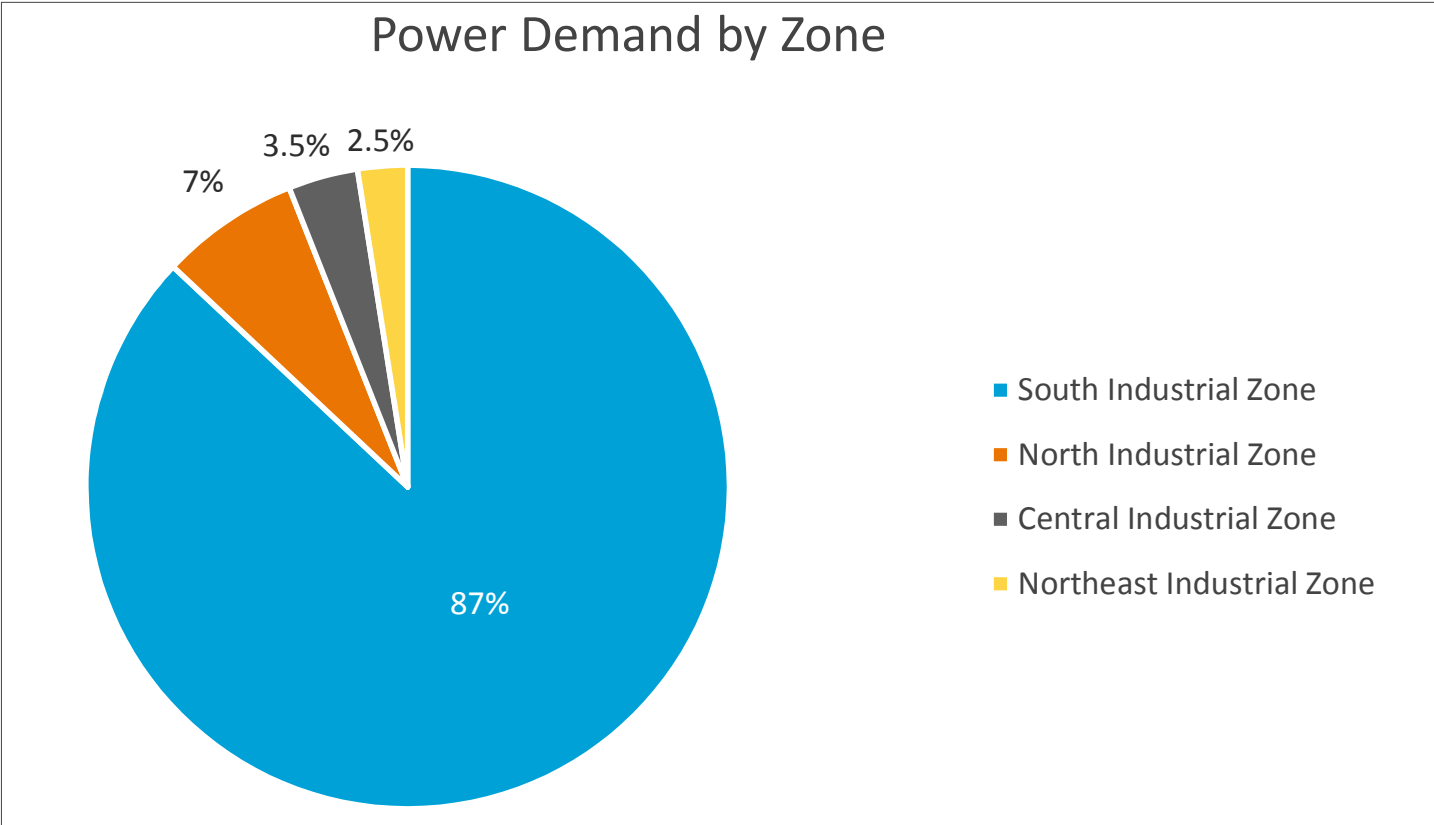
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11.01 Power Demand Projections

In order to establish the baseline criteria for a cost effective private wire networks with on-site power generation facilities, industrial power demands resulting from the planned development have been estimated.

To achieve an initial, high-level estimate for potential electrical needs, demands have been estimated based on per square metre of plot area and available industry data for the anticipated range of industries within each zone.

Land zone	Total demand (kW)
North Industrial Zone	61,500
North East Industrial Zone	21,300
South Industrial Zone	733,000
Central Industrial Zone	28,700
Other site-wide ancillary requirements	25,000
Totals	869,500



Power Demand Projection Map



11.02 Energy Strategy

In order to provide adequate, low-cost electrical power for future tenants, private wire networks with dedicated power production facilities are proposed. Power generation from both conventional and renewable sources will be encouraged, and related facilities will be sited within designated energy zones within the STDC area.

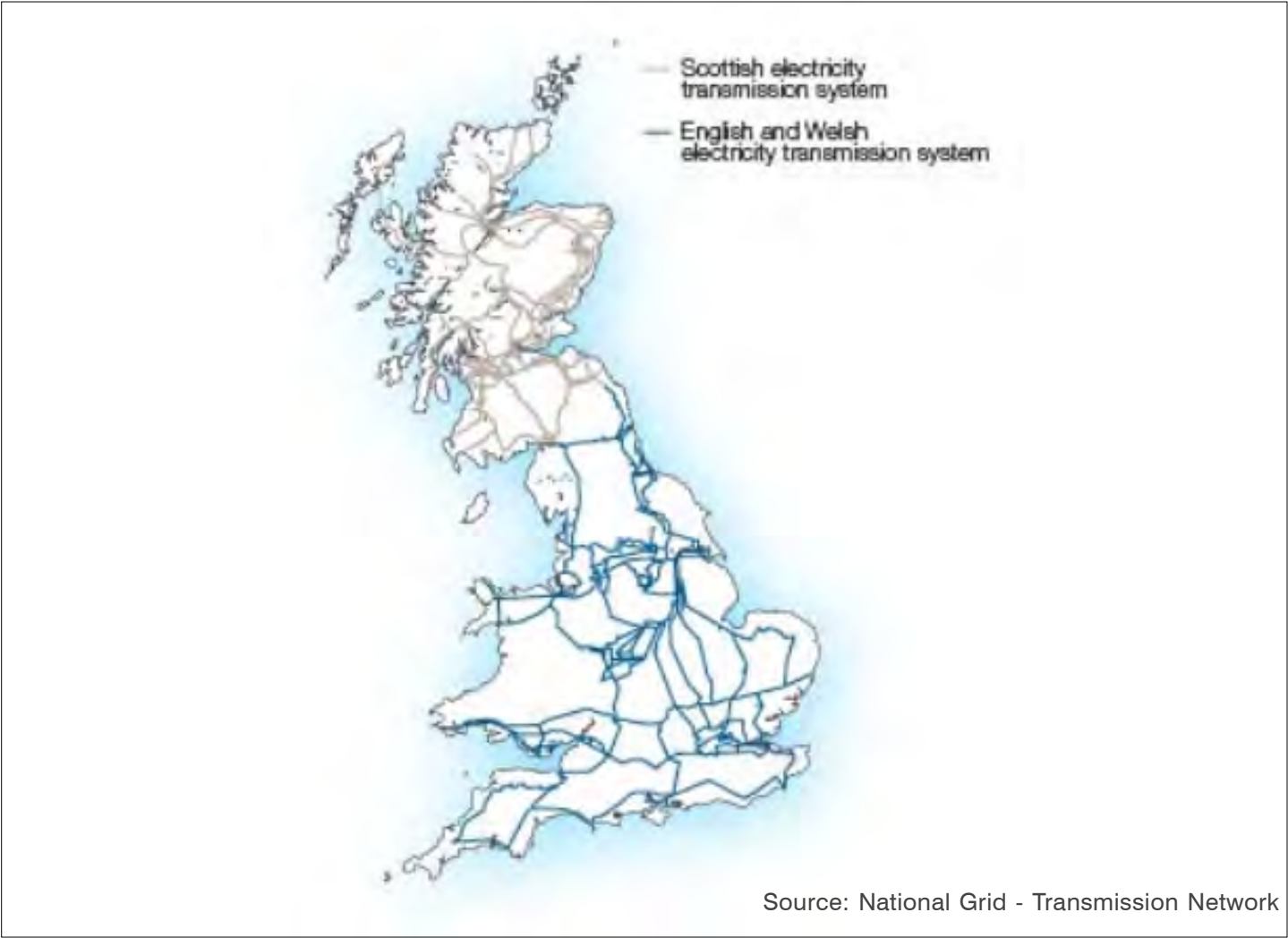
Ideally, new power plants would not only provide adequate power for build-out of the South Tees programme, but would have excess capacity for serving the increasing demands of other users outside of the STDC area by connecting into the existing power grid. The primary power generation is currently anticipated to be natural gas powered Closed Cycle Gas Turbine (CCGT) Plants. Renewable technology such as wind, tidal, hydro and solar are included in the Master Plan with energy storage facilities included in the strategy to support the private wire networks as well as the Grid.

11.03 Electricity Transmission

The new power transmission for the redevelopment programme will likely be divided into two private wire networks, one for the North, North East and Central Industrial Zones, and one for the South Industrial Zone.

Assuming two separate networks, each network will have substations sized adequately for the anticipated power demand within their service areas. Approximately 3 to 5 large substations are anticipated for the new development. Consideration may be given to using a larger number of smaller substations as this could provide a small improvement in reliability and may make for a more favourable capital cost outlay profile as development is delivered in phases over a long timeframe. Models for delivering construction, ownership and operation of the generation and distribution systems will require future consideration.

The existing grid would continue to provide power to the STDC area during the initial phases of development. Upon completion of new power plants, transmission networks, substations and medium voltage distribution, the power supply for developments would transition to the new on-site system. Connections for new power plants to the Grid will allow the sale of excess capacity to other users on the Grid and would also allow the existing Grid power to remain available for redundancy and partial backup power supply.



Power Generation and Distribution



11.04 Energy Technology Options

There are many existing and emerging energy technology options that could be incorporated into the energy generation strategy for the STDC area. The best approach will be to consider an array of energy technologies and then refine proposals based on the site power demand requirements (power scale and demand curve), carbon emission targets (% renewable energy), local energy resources (biomass feedstock sources, solar and wind resources, etc), and the available land area to support the power generation infrastructure. A master technology list is shown here along with the refined list of top technologies that are suitable for consideration on South Tees. The following technologies are utilised in the energy strategies described in the following section:

RESOURCE		TECHNOLOGY
RENEWABLE ENERGY SYSTEMS	Solar	Photovoltaics (PV) Flat Mount
		Photovoltaics (PV) Fixed Tilt
		Photovoltaics (PV) Tracking
		Concentrated Solar Power (CSP)
		Canopy/ Shade Integrated Photovoltaics (PV)
		Building Integrated PV (BIPV)
		Solar Hot Water (Flat Plate)
		Solar Hot Water (Evacuated Tube)
		Concentrated Solar Cooling
		Solar Paint
	Wind	Offshore Wind Turbines
		Large Wind Turbines
		Small Wind Turbines
		Vortex Tower
		Piezoelectric Sculptures
	Bioenergy	Biomass Power Plant w/ CHP
		ORC Waste Heat Plant
		Reciprocating Engines
	Geothermal	Steam Power Plant
		Binary Power Plant
		Geopressured Geothermal Energy
		Enhanced Geothermal Systems
		Direct Use Geothermal Energy
		Geothermal Heat Pumps (Air and Ground Source)
		Earth Tubes Cooling
		Run of River Turbines
	Hydropower	Ocean Current Power
	Ocean Energy	Wave Power
		Ocean Thermal Energy Generation
		Tidal Power
		Ocean Cooling
		Other
		Human Power Pressure Plate (PaveGen)

Master Energy Technology Table - Renewables, Energy Storage, and Conventional

RESOURCE		TECHNOLOGY
ENERGY STORAGE SYSTEMS	Batteries	Lithium Ion
		Lithium Fe
		Zinc - Air
		Flow Batteries
	Compressed Air	Pressure vessel
		Below Ground
	Thermal	Chilled water
		Hot water
		Ice storage
	Hydrogen	Electrolysis
		Steam Reformation
	Hydropower	Pumped Hydropower
	Gravitational	Large evelated mass system
RESOURCE		TECHNOLOGY
CONVENTIONAL POWER SYSTEMS	Natural Gas	CoGen (CHP)
		TriGen (CCHP)
		Fuel Cells
		Reciprocating Engines
		Gas Turbine Peaking
		Combined Cycle Power Plant

		SYSTEM					LAND REQUIREMENTS					ENERGY GENERATION		
RESOURCE TYPE		TECHNOLOGY	TYPICAL SCALE		RATED SYSTEM SIZE		Ground Coverage Ratio (GCR)	TOTAL AREA NEEDED				ANNUAL CAPACITY FACTOR	Energy Generated	
ENERGY SYSTEMS	Solar	Photovoltaics (PV) Flat Mount	0.001 to 200	MW	20	MW	0.9	131,687	m ²	32.5	Acre	0.09	15,418	MWh/yr
		Photovoltaics (PV) Fixed Tilt @ 30degrees	0.001 to 200	MW	20	MW	0.65	182,336	m ²	45.1	Acre	0.10	17,520	MWh/yr
		Photovoltaics (PV) Tracking	0.001 to 200	MW	20	MW	0.35	338,624	m ²	83.7	Acre	0.11	19,272	MWh/yr
	Wind	Offshore Wind Turbines	10 to 100	MW	100	MW	0.1	2,700,000	m ²	667.2	Acre	0.35	306,600	MWh/yr
		Land Based Wind Turbines	10-100	MW	100	MW	0.1	2,700,000	m ²	667.2	Acre	0.35	306,600	MWh/yr
	Bioenergy CHP Plant (and/or Natural Gas)	Biomass Power Plant w/ CHP	200 -1000	MW	200	MW	1	162,000	m ²	40.0	Acre	0.95	1664400	MWh/yr
		ORC Waste Heat Plant	1 -10	MW	10	MW	1	3,200	m ²	0.8	Acre	0.5	43800	MWh/yr
		Reciprocating Engines	1-200	MW		MW			m ²					
	Hydropower	Run of River Turbine	1 -10	MW									0.05	
	Ocean Energy	Ocean Current Power	1 -2	MW										
		Wave Power	1 -2	MW										
		Ocean Thermal Energy Generation	1 -2	MW										
		Tidal Power	1-350	MW	50		1	1,796,850	m ²	444.0	Acre	0.19	83220	MWh/yr
ENERGY STORAGE SYSTEMS	Batteries	Lithium Ion	1-50	MWh	100	MWh	1	2,250	m ²	0.6	Acre			
		Lithium Fe		MWh										
		Zinc - Air		MWh										
		Flow Batteries		MWh										
	Compressed Air	Pressure vessel		MWh										
		Below Ground		MWh										
	Hydrogen	Electrolysis												
		Steam Reformation												
	Thermal	Chilled water		MWth										
		Hot water		MWth										
		Ice storage		MWth										
	Gravitational	Large evelated mass system		MW										

Top Energy Technologies for Teesside



Wind Energy Technologies | On-shore, Off-shore and Small Wind Systems:

Wind energy is the predominant renewable energy in the UK, with estimates showing that UK wind energy generated more electricity in 2016 than UK coal power plants. Power is generated from wind by using the energy in wind to turn large turbines, which mechanically power electricity-producing generators. Wind farms are generally placed in coastal areas, at the tops of hills, in valleys or on open plateaus, to take advantage of locations with the highest wind speeds. In the UK, offshore wind generation with turbines placed in waters off the coast, is a significant part of the country's total electricity produced from wind power. Offshore installations typically use sites close to land, in shallower water. However, deep-water wind farms have great potential and are a focus of today's wind energy research and development.

Advantages:

- Wind power is a renewable energy, as the generation process does not consume any exhaustible resources
- Wind power generation does not emit carbon dioxide or other air pollutants
- Land used for wind farms can be multi-purpose
- System capacities can be designed to meet a range of power demands
- Operating costs are relatively low and predictable

Disadvantages:

- Wind energy availability varies seasonally and daily and may not coincide with power demands
- Wind farms have a high capital cost – construction costs for offshore wind farms are significant
- Wind farms can be received negatively by local communities – visual appeal of wind turbines is subjective, and turbines can create noise pollution if placed close to residential areas
- Bird collisions are a common concern with wind turbines and can negatively affect local bird populations



Solar Energy Technologies | Ground-Mounted Photovoltaics:

Advantages:

- Proven technology that has been around for many years
- Ease of installation.
- Pricing is on a decreasing trend
- Good use of land precluded from cost-effective development

Disadvantages:

- Requires unoccupied space
- If placed far from a facility, there will be transmission losses and system efficiency will reduce
- Dust issues may yield lower performance efficiency and have associated maintenance/cleaning costs

Solar Energy Technologies | Rooftop-Mounted Photovoltaics:

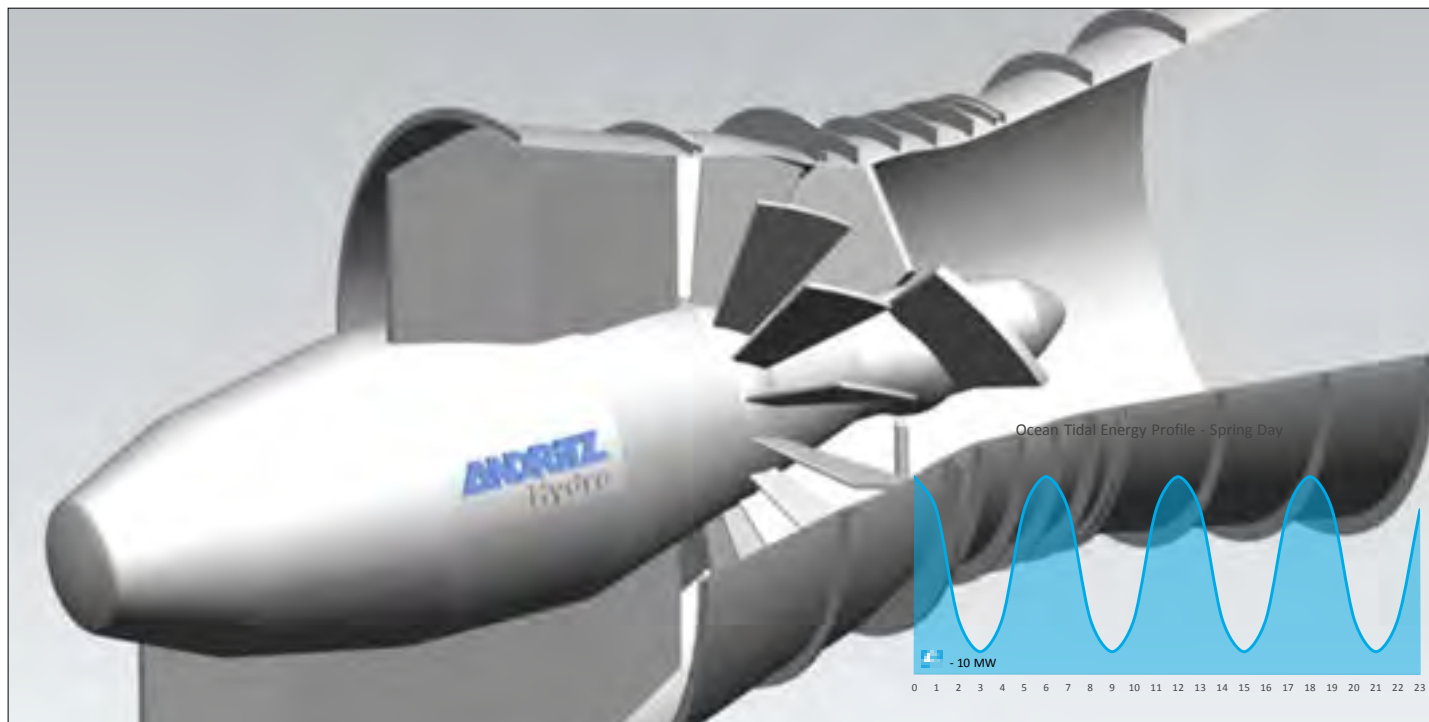
Roof mounted PV systems are restricted by the shape and size of the buildings on which they installed, other roof mounted equipment that may act as an obstacle or a shading device, and any roof mounted daylighting technologies that might be shaded by the PV. However, all these things considered, roof mounted PV systems can be very effective. The energy yield is a function of the ability to realise the ideal tilt.

Advantages:

- Proven technology that has been around for many years
- Does not necessarily require large land use and has little to no transmission losses
- Pricing is on a decreasing trend

Disadvantages:

- System size is limited by available roof space and area occupied with PV takes away space available for solar thermal systems
- Dust issues may yield lower performance efficiency and have associated maintenance/cleaning costs



Source: Tidal Lagoon/GE/Andritz Hydro

Tidal Power Technologies | Tidal Lagoon:

The UK has the second highest tidal range in the world and presents great potential for efficient tidal power generation. Tidal energy may be harnessed by enclosing a large area of coastline, creating a large water head between the lagoon and the sea water levels. Bi-directional turbines generate electricity, as water is allowed into or out of the enclosure, coinciding with the high or low tide.

Advantages:

- Tidal schedules are well understood, so the amount and incidence of electricity generation is predictable, and supply outages are not an issue
- Using tidal energy technologies greatly reduces emission of greenhouse gases or other air pollutants associated with traditional power plants
- The process of generating electricity from tidal power is sustainable and does not consume any exhaustible resources

Disadvantages:

- The capital costs associated with tidal power plants are relatively high compared to other renewable technologies
- The schedule of electricity generation is defined by the tidal schedule, so power supply may not coincide with demand – nearby energy storage facilities are therefore beneficial
- Tidal lagoons require large areas, as the amount of electricity generated is directly proportional to the enclosed water area
- Tidal power technologies are relatively new – long-term effects on the environment are not fully understood, and technologies are still under development



Hydropower | Run-of-River:

Run-of-river hydropower facilities take advantage of the flow of a river to generate electricity, without placing equipment in the main river stream. Run-of-river facilities divert some or all of a river's flow from the main stream to a tunnel or pipeline to power turbines. The diverted water is then returned to the river downstream of the facility. Facilities may utilise small dams to store water for responding to fluctuating power demands, or they may have no pondage.

Advantages:

- Hydroelectric power is a renewable energy, as the generation process does not consume any exhaustible resources
- Hydropower facilities generally have very low operating costs – power generation costs over the lifetime of the facility are typically lower than that of a facility using fossil fuels
- When pondage is utilised, hydroelectric power production is flexible, and supply can be adjusted to reflect changes in demand
- Hydropower generation does not emit carbon dioxide or other air pollutants
- Run-of-river facilities typically have smaller footprints than traditional impoundment facilities using large dams and reservoirs
- Run-of-river facilities do not require construction in the main river bed, decreasing the environmental impact associated with construction

Disadvantages:

- Downstream river flows change significantly as water is diverted, stored or released – this can have negative impacts on upstream and downstream environments and communities
- Power supply is dependent on river flows, when pondage is not used, and the supply can fluctuate seasonally or severely decrease in drought conditions
- All hydroelectric facilities can have negative impacts on fish and wildlife habitats



Source: ??

Biomass Power Technologies | Biomass Gasification Combined Cycle:

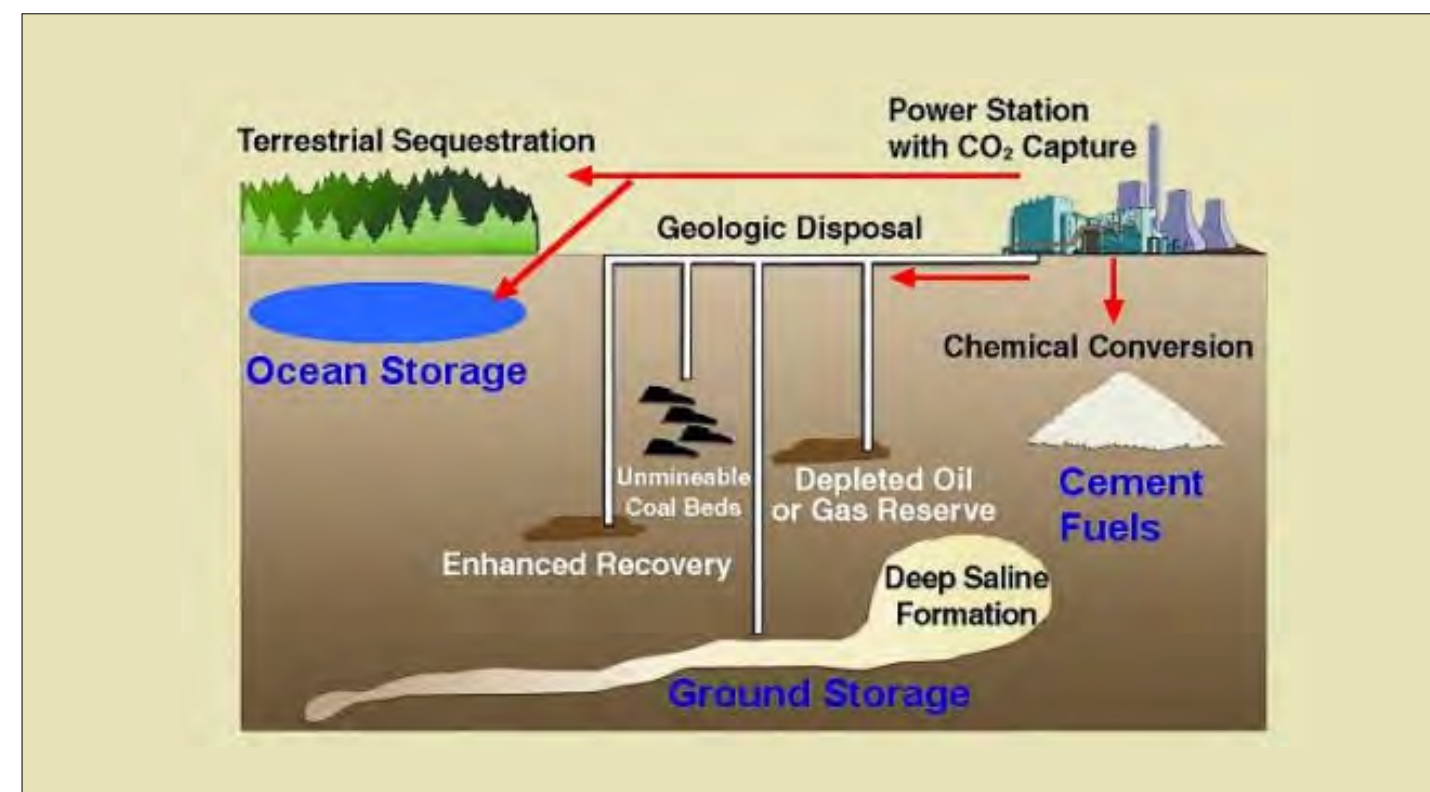
Traditional energy-generation technologies may be used more sustainably by replacing or supplementing traditional fossil fuels with a biomass feedstock, such as agricultural waste, crops, livestock waste, landfill gas and urban wastes. In an integrated biomass gasification combined cycle system, the biomass feedstock is converted into a gaseous fuel, which powers a gas turbine to create electricity. Exhaust heat from the gas turbine is recovered to produce steam for a traditional steam turbine to generate additional electricity.

Advantages:

- Biomass is a renewable and readily-available resource – the use of agricultural or urban wastes diverts large volumes of waste from landfills
- Fossil fuels may be co-fired with biomass, increasing the electricity efficiency while maintaining a more sustainable process
- Combustion of biomass is considered carbon neutral, as the carbon released is already a part of the ecosystem and is later absorbed by the regenerated biomass source
- Cost of bio feedstock may be less than the cost of fossil fuels, depending on the type and availability of the feedstock

Disadvantages:

- Combustion of biomass can produce a variety of air pollutants, depending on the bio feedstock used
- Bio feedstock may not be readily-available – if cultivation of a biomass is needed, it may require additional resources and land area, and biomass may need to be transported to the plant location, requiring additional cost and energy
- Electricity generation from biomass is generally less efficient when compared to combustion of fossil fuels
- Operating costs of energy generation from biomass are relatively high when compared to the use of fossil fuels



Source: Inhabitat.com

Carbon Capture and Sequestration:

Carbon capture and sequestration (CCS) is the method of removing carbon dioxide from the fuel or exhaust of a combustion process and compressing it for storage in oil or gas reservoirs, coal beds or saline formations, or using it for biomass production or conversion to a commercial product. Available carbon sequestration technologies include liquid solvent-based absorption, solid sorbent-based adsorption, membrane-based filtration, and cryogenic separation.

Advantages:

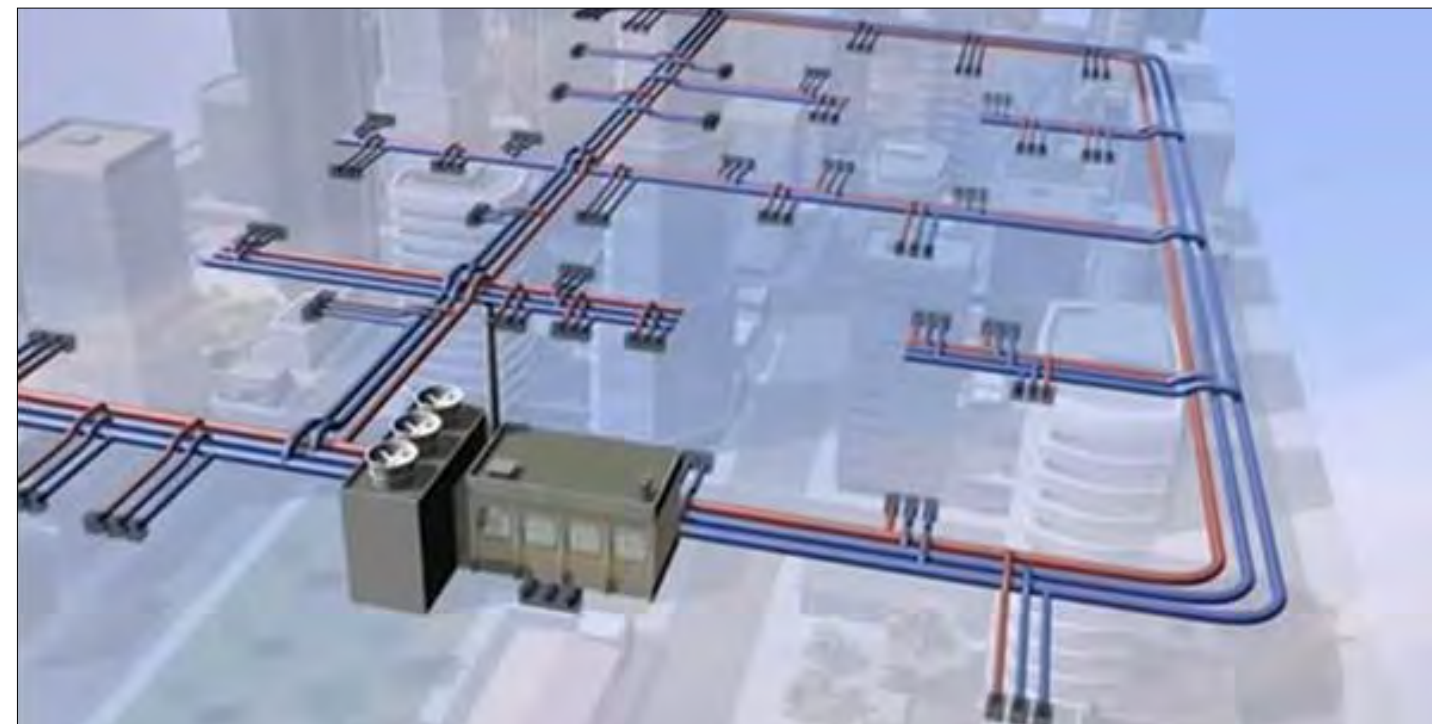
- This method may cut carbon emissions from the combustion of fossil fuels by almost 100%, which has positive environmental and economic impacts
- Many sites with large amounts of existing storage potential have already been identified
- Carbon capture technologies may be retrofitted to existing power plants
- Sequestered carbon may be sold for financial profit, converted to a commercial product, and/or reused to benefit other industrial processes

Disadvantages:

- CCS projects are very large and capital intensive
- Introducing carbon capture increases the energy usage and operational costs of a power plant
- CCS does not address the need to reduce the unsustainable use of non-renewable resources like fossil fuels
- Carbon storage may require additional infrastructure for transportation and injection into the storage site
- The long-term effects and reliability of geological storage of compressed carbon dioxide are not fully understood
- Many capture and storage technologies are in the early phases of development



Source: Tesla Energy



Source: District Energy.org

Energy Storage:

Energy storage is a key component of the proposed energy strategy for the STDC area and some form of scalable storage would likely be implemented in both the North and South Industrial Zones. Energy storage is of value to the private wire networks as well as the broader Grid. In both instances, the purpose of the energy storage system would be to control the feed-in of variable renewable energy sources to better match power demands (load smoothing), and improve power quality by providing frequency regulation. Energy storage facilities could be dedicated to support the private wire networks, the Grid, or both. The value of energy storage will grow as the percent of power derived from cyclical renewables is increased. Additionally, energy storage controls would be integrated with demand response controls, such as the scheduling of large loads, for maximum value.

Historically, energy storage technology has been dominated by pumped hydropower in the utility power sector (99% of energy storage in use). Recent advances in battery chemistries and manufacturing have enabled utility scale battery storage systems that would be suitable for deployment on the South Tees redevelopment programme. The battery technology recommended is lithium-ion or redox flow (vanadium or zinc bromide) batteries for short term storage (<4 hours), and compressed air or hydrogen storage for medium to long term storage (days to months).

Waste Heat Utilization:

The utilisation of waste heat from a power plant is most often referred to as combined heat and power (CHP), combined cooling heat and power (CCHP), cogeneration, or trigeneration. When CHP is used, it greatly improves the thermal efficiency of the power plant by using more of the fuel's available energy. The thermal efficiency of today's state of the art combined cycle power plants is limited to approximately 55-60%, and most legacy power plants operate at a much lower range. This means that, on average, at least half of the energy in the incoming fuel going to a typical centralised power plant is wasted in the form of heat. However, if power generation is located close to end users (decentralised or distributed), the waste heat can be captured and distributed via a district energy system, resulting in power plant efficiencies greater than 90%. Uses typically include process heating, space heating and cooling, and, in some cases, the heat can be converted to additional electricity, albeit at low efficiencies.

Advantages:

- Lower energy costs due to greater utilisation of fuel source
- Reduced carbon footprint, also due to greater utilisation of fuel source
- Improved power resiliency when backed up by the regional Grid
- Captive power users

Disadvantages:

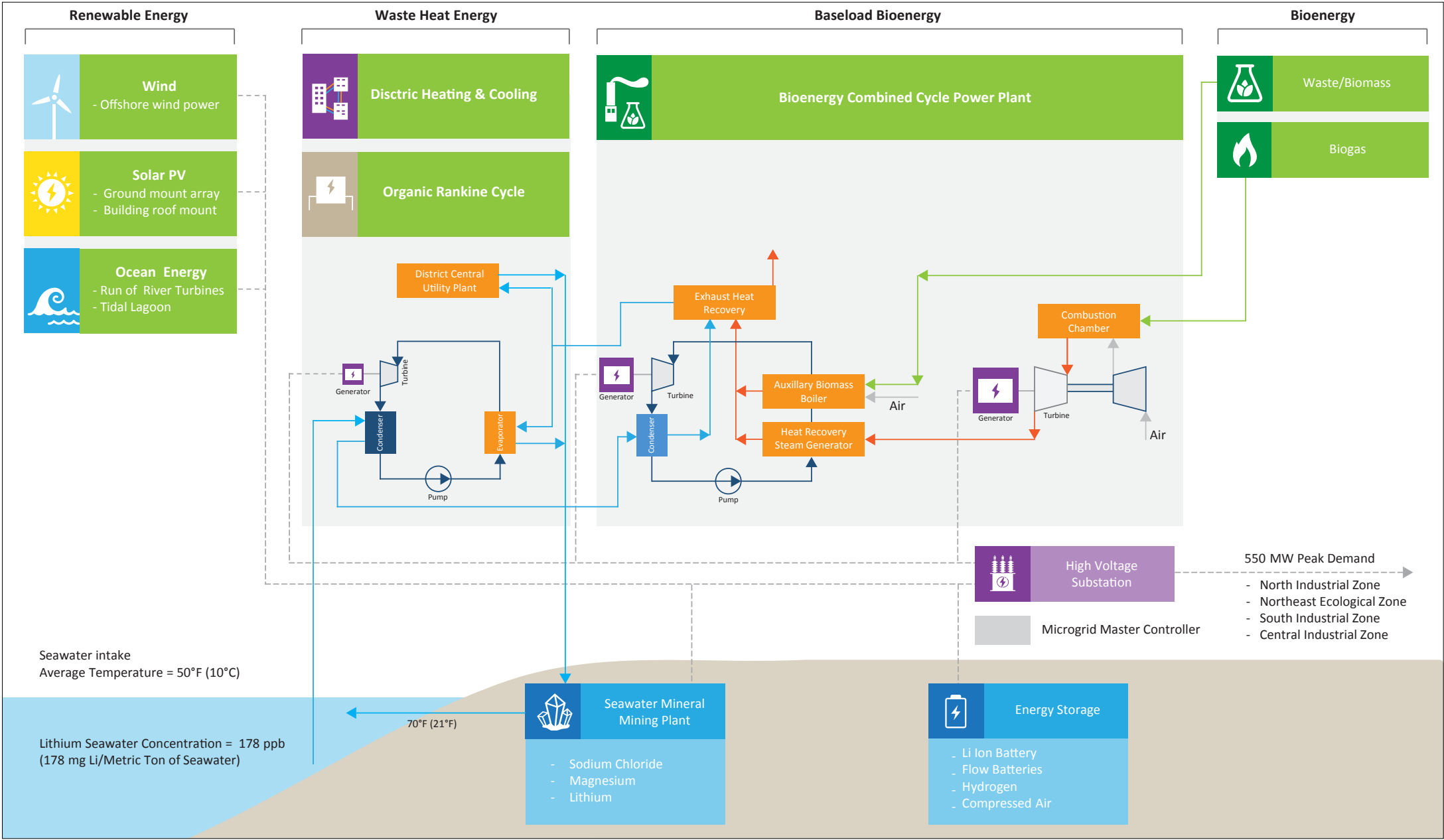
- May result in stranded power capacity do to local utility regulations
- May have to purchase excess capacity for reliability and maintenance if not backed up by the regional Grid
- Requires a district plant and utility corridors making it more difficult to implement in existing developments
- Heat and cooling loads may not coincide with peak power loads
- Captive power users

11.05 Conceptual Energy Plans

Two conceptual energy plans have been created to support the development. Both are based on proven technology, utilisation of local resources, maximisation of power plant efficiency and thereby minimisation of energy costs, and creation of local jobs. The first could be considered the ideal plan and represents a plan to achieve a 100% renewable energy development based on a mix of biomass, wind, solar, tidal, and waste heat utilisation. The second plan replaces the baseload biomass power generation with natural gas power generation with carbon capture and sequestration. These two plans may be considered “book-ends” and it is conceivable that the development could very well have both biomass and natural gas power generation technologies, and ultimately phase out natural gas over time to align with, or lead, UK carbon emission targets, or science based targets that may be mandated as part a broader development plan.

11.05.1 100% Renewable Energy Concept

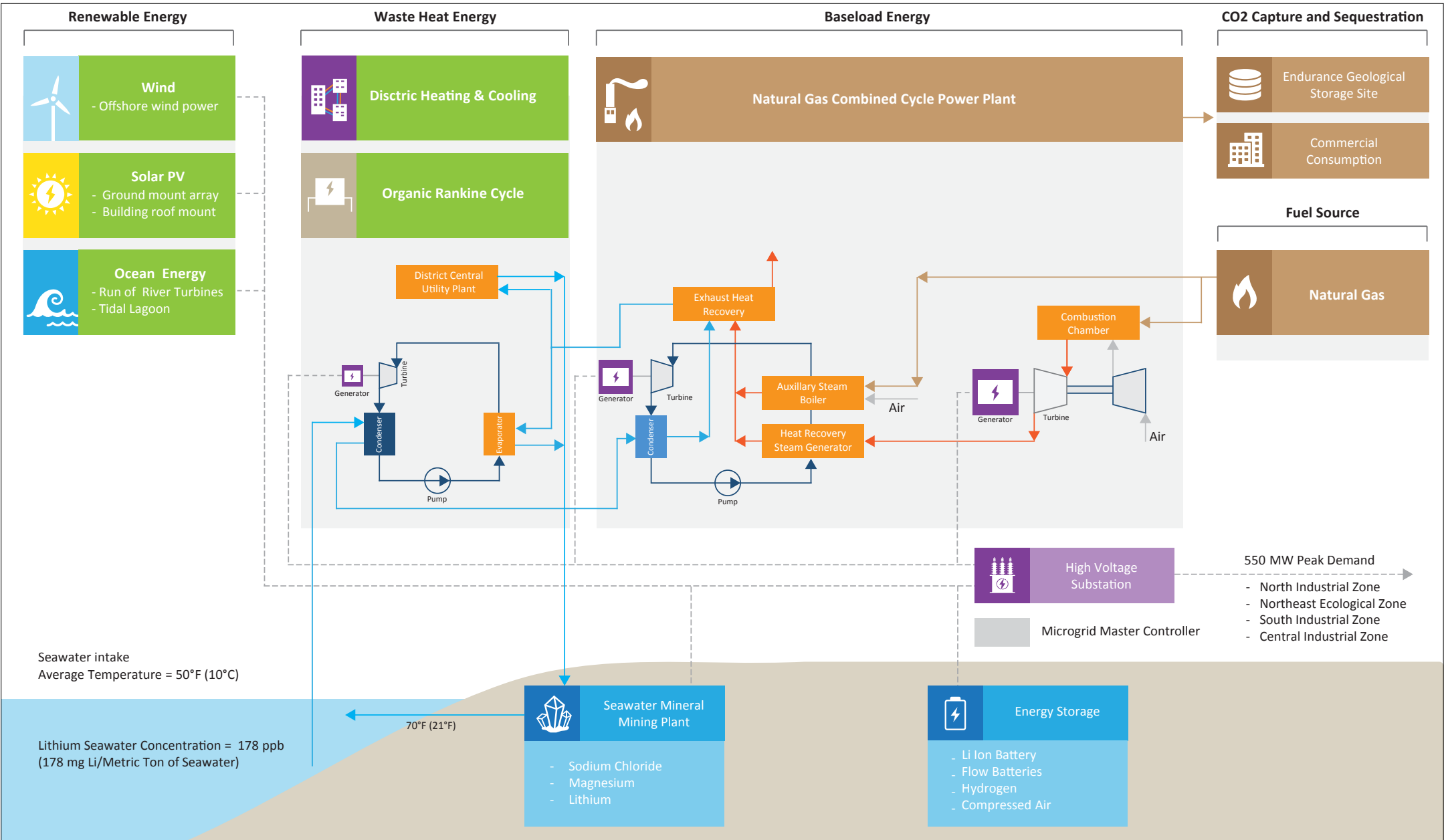
The 100% Renewable Energy concept far exceeds the current UK target of 15% energy derived from low carbon sources by 2020, and EU target of 20% by 2020. The plan is primarily based on baseload biomass power generation that is becoming increasingly common within northern Europe. (i.e., Ironbridge, UK - 740MW; Biomass, Polaniec, Poland – 205MW; Biomass, Vaasa, Finland, 140MW Bio-gasification). The baseload biomass power is an Integrated Biomass Gasification Combined Cycle (IBGCC) power plant. In an IBGCC, a gasifier and advanced gas turbine are used in place of the traditional combustor. Similar to a traditional Combined Cycle Power Plant (CCGP), the exhaust heat from the gas turbine is used to produce steam for a conventional steam turbine, and the two turbines work together to create the combined cycle. The system efficiency is further enhanced by deploying waste heat recovery. By far the recommended heat recovery strategy is direct use of the IBGCC exhaust heat for district heating and cooling. General building heating, process heating, preheating of seawater prior to mineral extraction, and absorption cooling, are all realistic demands that may occur on South Tees. If these heating and cooling loads do not completely consume the remaining waste heat, then an Organic Rankine Cycle (ORC) may be added to the IBGCC to create additional energy. An ORC cycle is not as efficient as direct use and therefore only recommended if excess heat remains after district heating and cooling. By creating the proposed thermal energy cascade, the total thermal efficiency of the proposed IBGCC plant could exceed 80%, well above the 55-59% efficiencies of state of the art traditional CCGPs.



The energy plan is completed through the addition of cyclical renewable energy sources based on local resources. The renewable energy technologies chosen are wind, tidal, hydro and solar, all of which are typically deployed in the UK. Tidal and solar may be developed within the confines of the site and perhaps small scale hydro, however, wind energy at a meaningful scale would have to be sourced from an offsite development. Depending on the demand load curve that materializes, energy storage could be become of value. In theory, the biomass plant has a great deal of inertia due to rotating mass and, theoretically, can absorb the rapid changes in the power generated by solar and wind (up to a point). However, as many grid operators will attest when the percent of cyclical renewables becomes high (>20%), energy storage can greatly improve the system resiliency and power quality by balancing grid frequency. Therefore, the energy plan includes potential for energy storage technologies to be integrated on site, and may be used not only to bolster the site power quality but also the broader regional Grid.

11.05.2 Natural Gas CCPP with Carbon Capture and Storage

This concept is very similar to the 100% Renewable Energy concept; it simply replaces the baseload Integrated Biomass Gasification Combined Cycle (IBGCC) power plant with a traditional Combined Cycle Power Plant (CCGP) outfitted with Carbon Capture and Storage (CCS). Natural gas supplies would have to be secured in lieu of the bio feedstock supplies, and a CO2 pipeline would need to be constructed and connected to an approved underground storage reservoir, likely offshore. The thermal efficiency of the plant would be theoretically higher (+5% to 10%) than the IBGCC due to water content in the biomass feedstocks (biomass plants run at lower thermal efficiencies due to water in the fuel sources, but have less expensive fuel costs, and are cleaner emissions due to lower combustion temperatures). The cyclical renewable energy types (wind, tidal, hydro, solar) and power scales remain unchanged, as well and the energy storage infrastructure and energy storage value proposition.

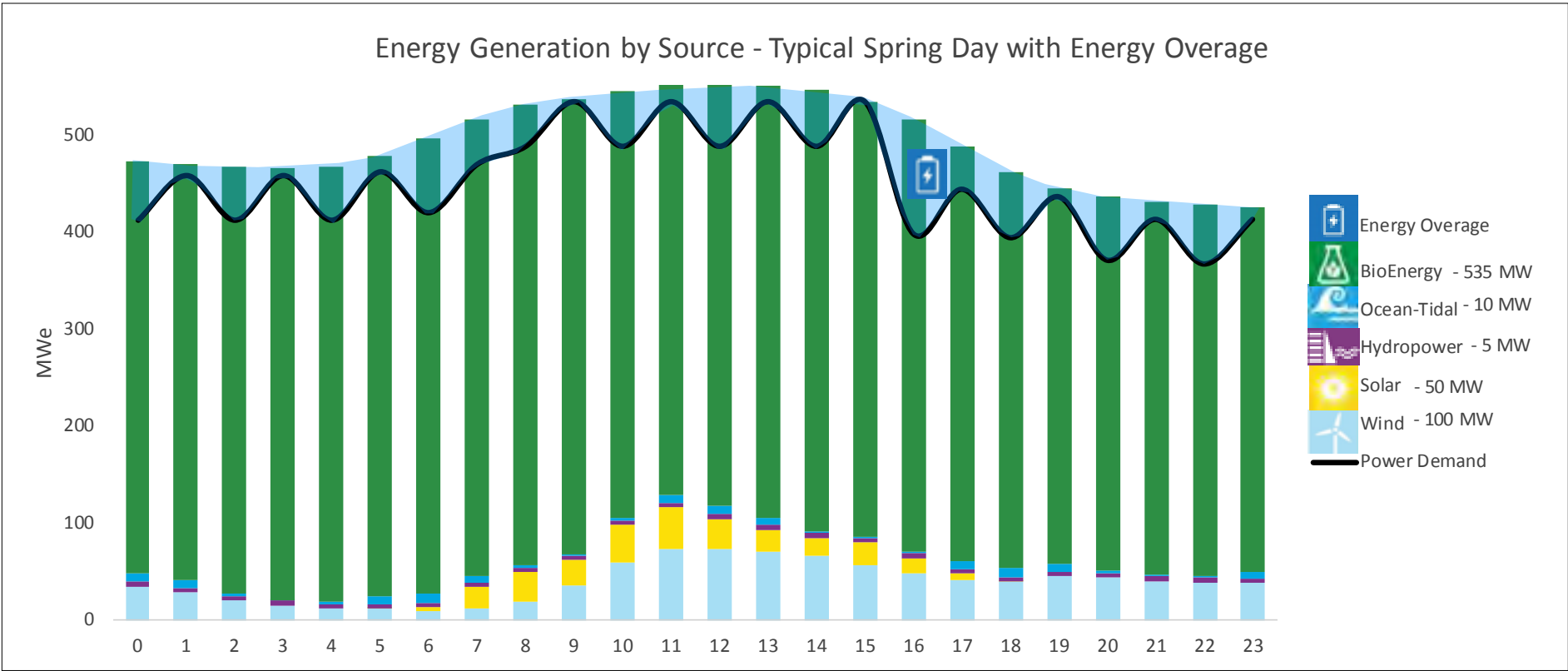
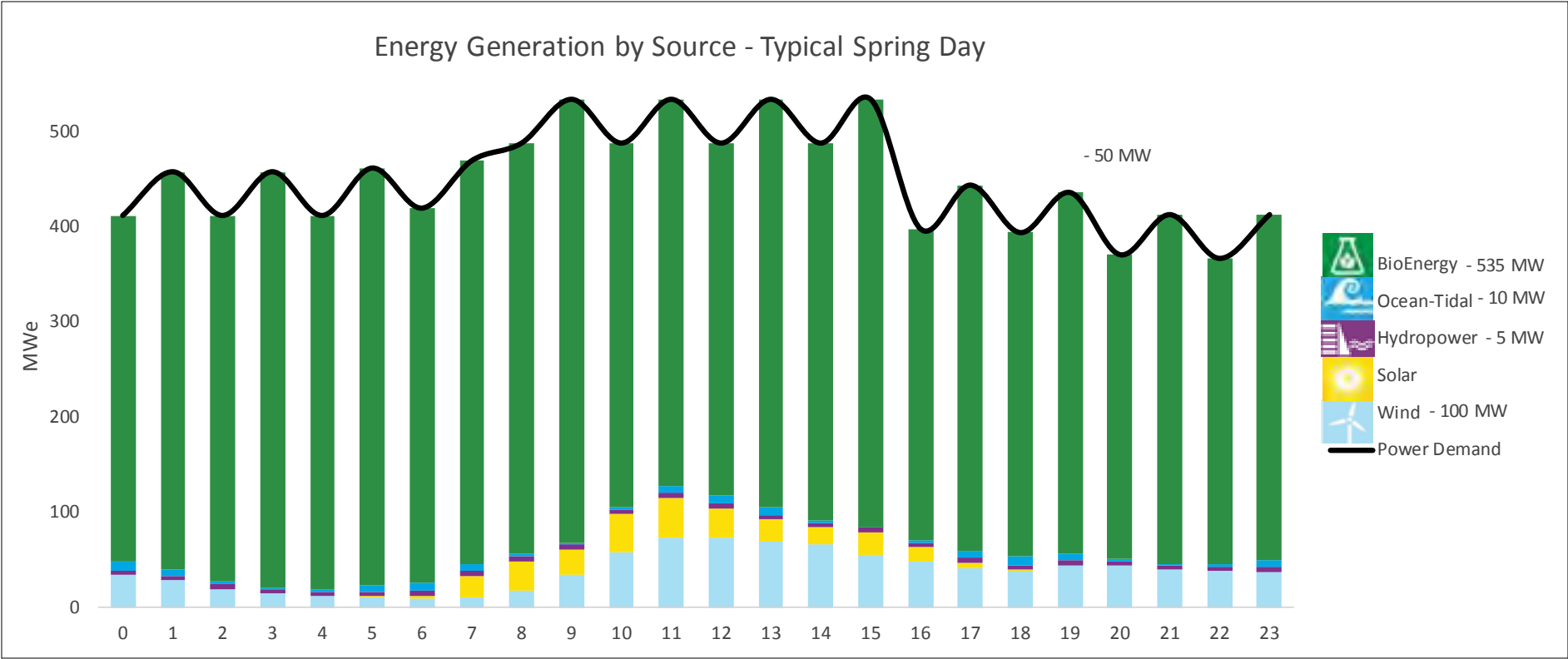


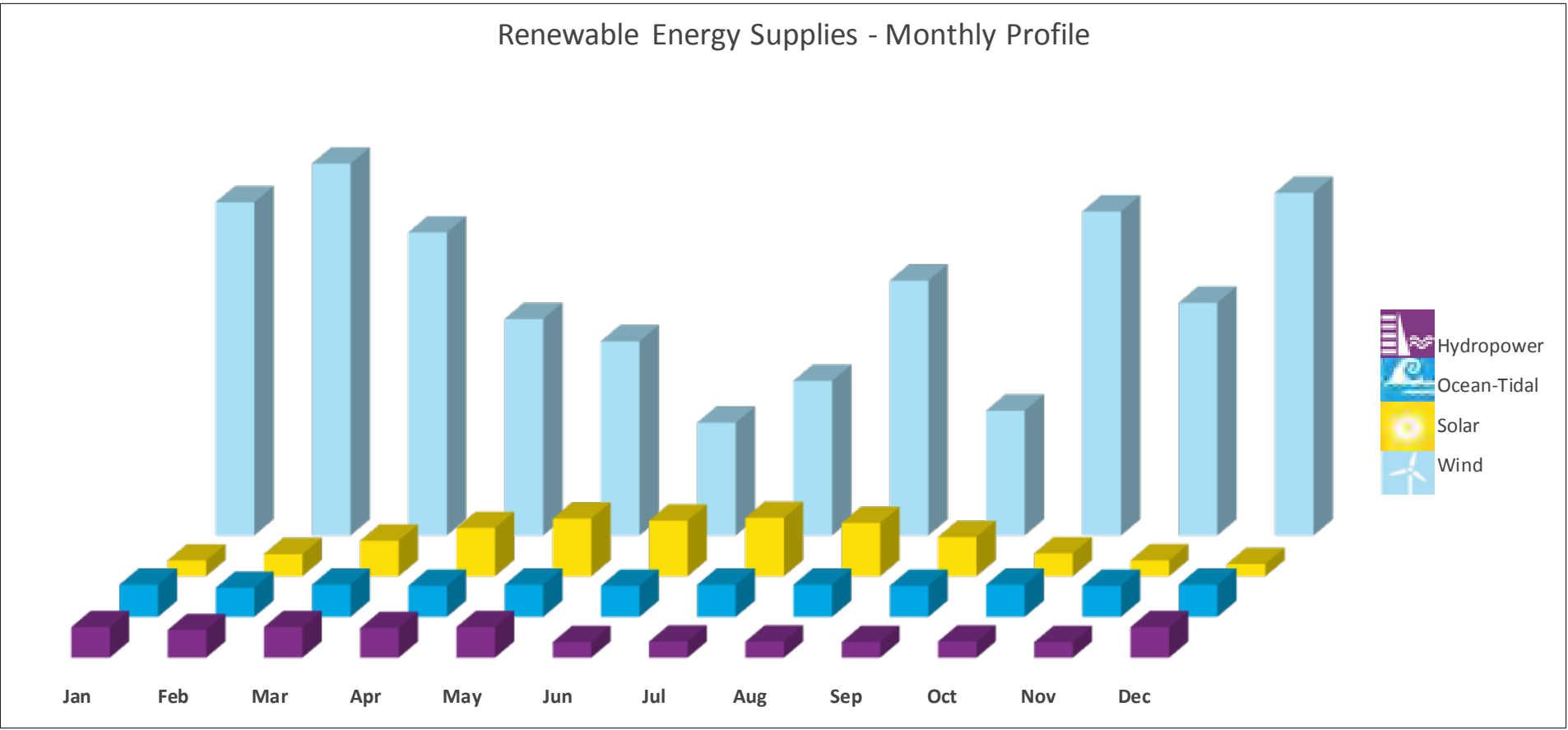
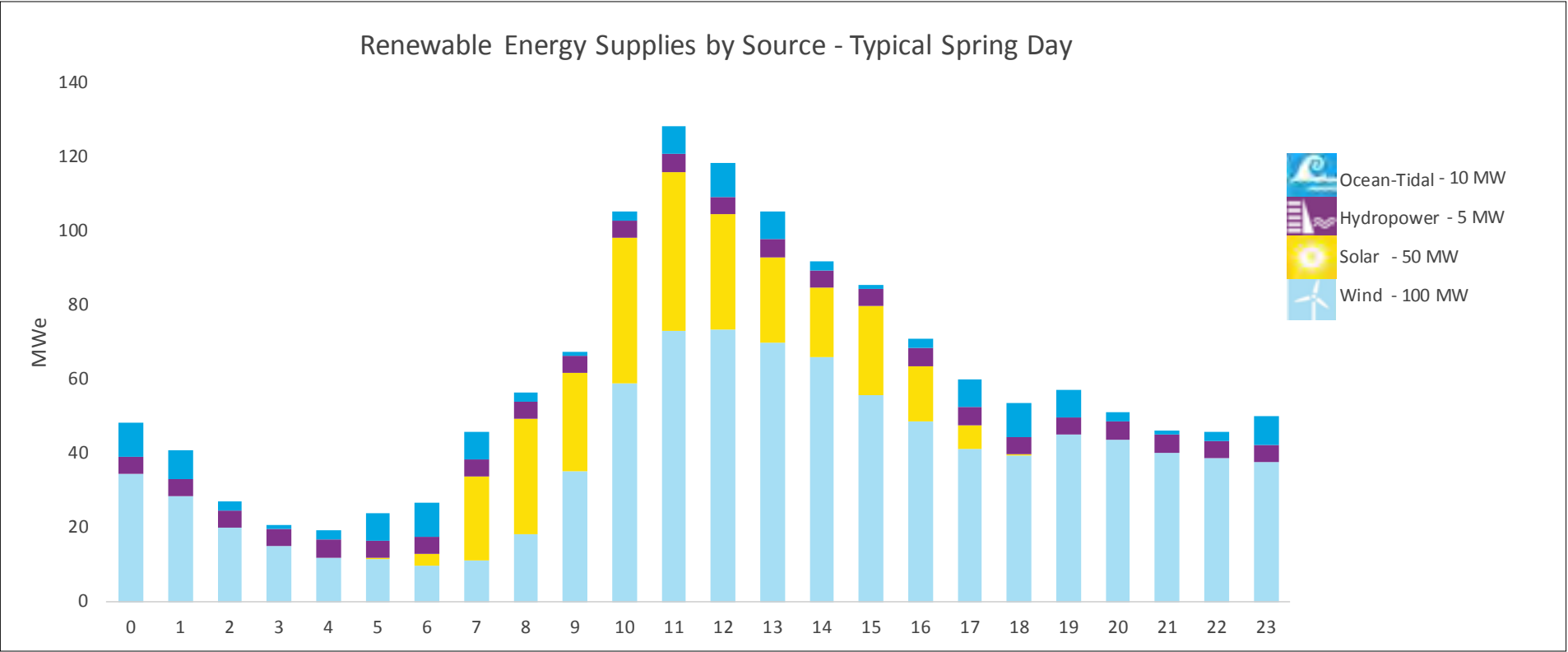
Natural Gas CCPP with Carbon Capture and Storage

11.06 Energy Balance

The energy plan balances energy supply with energy demand. Cyclical renewable energy sources operate at full capacity depending on the solar, wind and tidal resource available, and the combustion power plant (biogas or natural gas) is operated to maintain grid frequency and voltage. In other words, the combustion plant makes up the difference between site power demand and renewable energy supply. The resultant waste heat is based on the power generated and may or may not be enough to serve the loads. Therefore, auxiliary heating sources would have to be present either at the district utility plant or at the individual facilities. The graphic “Energy Generation by Source – Typical Spring Day” shows both the power demand (black line) and the mix of energy generation types used to satisfy demand hour by hour (stacked bars colored by energy type) for a typical spring day. The graphic is based on actual wind, tidal and solar resources present on site, and the demand curve is based on the hypothetical power demands listed in the Power Demands section with assumed hourly profiles.

The scale of the energy storage facility is highly dependent on the STDC area and regional Grid demand profile. The modular nature of energy storage systems (Li-ion batteries, flow batteries, hydrogen generation and storage) allows for the gradual expansion of the energy storage facility as the need arises. One potential option is to always charge an onsite energy storage facility, and use the stored energy for demand response and frequency regulation to the regional grid. In doing so, the combustion plant can be operated at a consistent high load factor to minimise unused capacity, thereby lowering the cost of power to the development’s energy consumers, while the owner-operator of the energy storage facility can make profit via the demand response programme. The graphic “Energy Generation by Source – Typical Spring Day with Energy Overage” shows the excess energy created that would be sent to the energy storage facility to be distributed into the regional Grid.



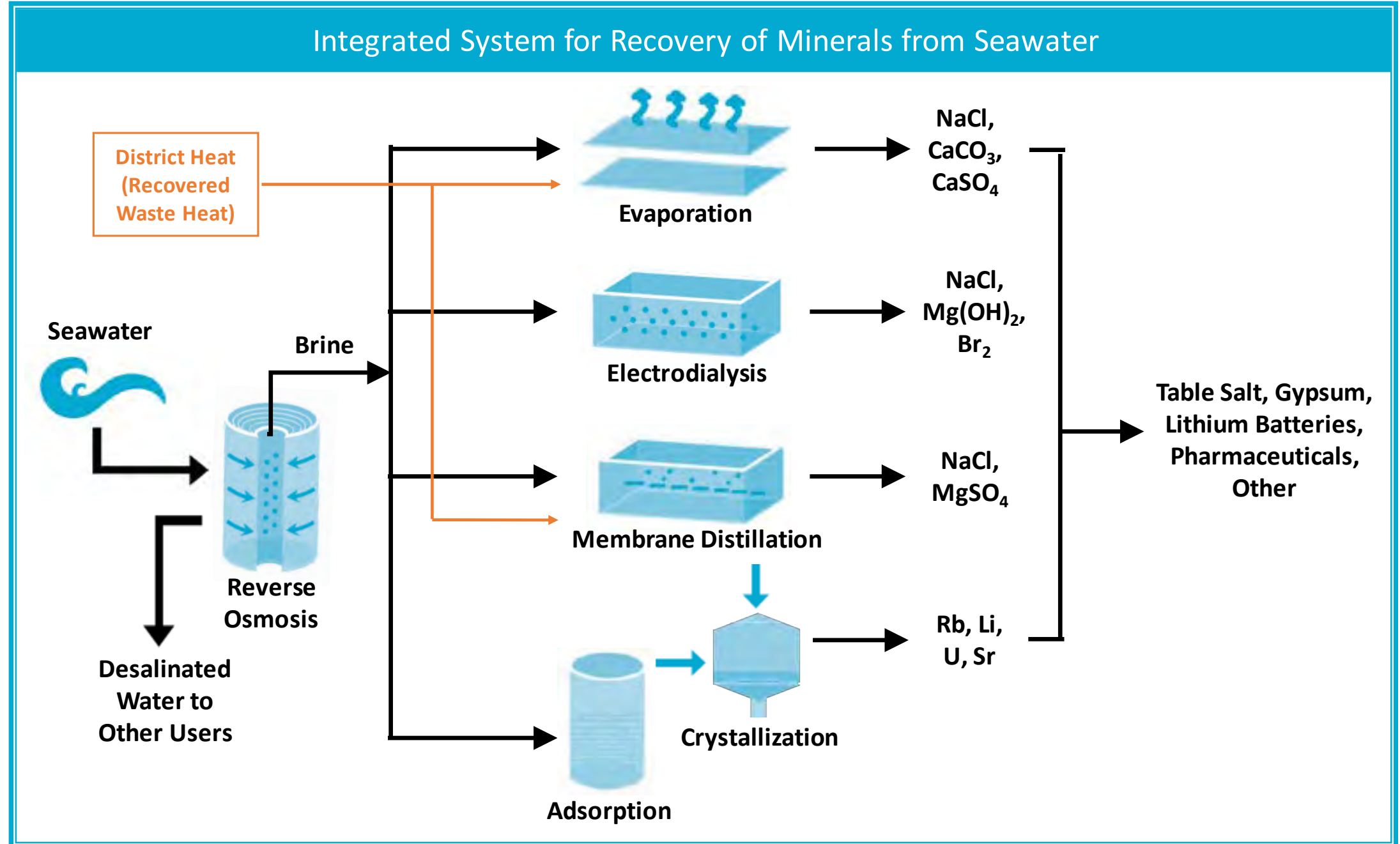


11.07 Integrated Seawater Mining

A complete and thorough energy strategy analyses the potential to create beneficial bi-products from critical energy-using processes. The energy strategy for the STDC area identifies the potential to use the warm water discharge from the sea's thermal energy conversion process to produce a commercial product. The process of recovering minerals from seawater has been used for many years, most notably for the extraction of sodium chloride to produce salt. The most economically-viable minerals for seawater extraction are sodium, calcium, magnesium, potassium, lithium, strontium, bromine, boron and uranium, which could be used in agriculture, industry, environmental remediation and medicine. The four most concentrated seawater metals - sodium, magnesium, calcium and potassium - are regularly being commercially extracted today, and recent technological advancements have made the extraction of lithium a more viable option too. Extraction of lithium from seawater may have significant cost benefits, as lithium is increasingly in demand and has a limited terrestrial supply.

The four main methods of seawater mining are solar or vacuum evaporation, electro-dialysis, membrane distillation crystallisation, and adsorption/desorption. Evaporation is the most land intensive of the alternatives, while electro dialysis is the most energy intensive. Adsorption/desorption is the most robust alternative, in that it can recover a wider range of minerals. Development of other technologies, such as mineral-specific permeable membranes, is ongoing and promises to increase the potential of seawater mining. One such technology is a process that uses both evaporation and adsorption/desorption to recover lithium at purities up to 99.9%, as well as produce high-purity calcium and magnesium. Another upcoming technology uses dialysis and a mineral-specific membrane to extract lithium and claims good energy efficiency as a benefit of the process.

The economic feasibility of commercial mining of seawater depends on the mineral extracted, method used, available mineral concentrations, and current market conditions, among other factors. The WaterReuse Research Foundation in the USA estimated the total cost of lithium extraction in 2014 to be between \$16 and \$22 per kg of lithium carbonate recovered (£12 and £16.50), and the current market price of lithium carbonate equivalent is \$9.10/kg (£6.85/kg). The same study estimates the net present value of sodium and sodium hydroxide recovery to be \$118M (£88.7M) at 25 years with an 11-year payback period, and the net present value of magnesium oxide to be \$19M (£14.2M) at 25 years with an 8-year payback period. The seawater in the North Sea is known to be rich in lithium and other minerals. Detailed analysis, including financial, would need to be performed in determining the economic viability of mineral extraction from seawater as part of the South Tees regeneration programme and this matter will be explored further.



11.08 Carbon Capture

Sustainability and emissions mitigation is a key focus of the South Tees energy strategy, and technologies for reducing greenhouse gas emissions are becoming increasingly more available and viable. Carbon dioxide constitutes a large majority of the air emissions produced during combustion processes, such as that of power plants, and carbon dioxide emissions reduction is mandated. Carbon capture and storage (CCS), or carbon capture and sequestration, is the method of removing carbon dioxide from the fuel or exhaust of a combustion process and compressing it for storage. Capture of the carbon dioxide may be performed by separating it from the fuel source pre-combustion, or by removing it from the post-combustion exhaust gas. Pre-combustion capture typically has higher capital costs and is more energy intensive, but it provides more complete removal and produces a usable hydrogen bi-product. Pre-combustion capture requires gasification or reforming of the fuel into a mixture of hydrogen and carbon dioxide. The mixture must then go through a water-gas-shift reaction, prior to the carbon capture process. Available carbon sequestration technologies may be used in both pre- and post-combustion, and they include liquid solvent-based absorption, solid sorbent-based adsorption, membrane-based filtration, and cryogenic separation. The cost of a CCS plant is highly dependent on the type of fuel combusted and the CCS method used. Including CCS increases the capital cost of a typical power plant by 83 to 120% for post-combustion CCS and by 150 to 180% for pre-combustion CCS. In the USA, the US Department of Energy estimates the current unit cost of CCS implementation to be reduced by up to 80% by the year 2025, due to technological advancements in methods and materials. Once operational, costs may be recovered by the avoidance of purchasing carbon offsets, avoidance of emissions penalties, and through sale of the captured carbon dioxide. The area required for a CCS plant is similar for all technologies. Studies suggest that including pre-combustion CCS doubles the footprint of a power plant, and post-combustion CCS increases the footprint by one third. Capture and compression add to the plant energy load, increasing it by 400 to 500 kWh per metric ton of CO₂ capture.

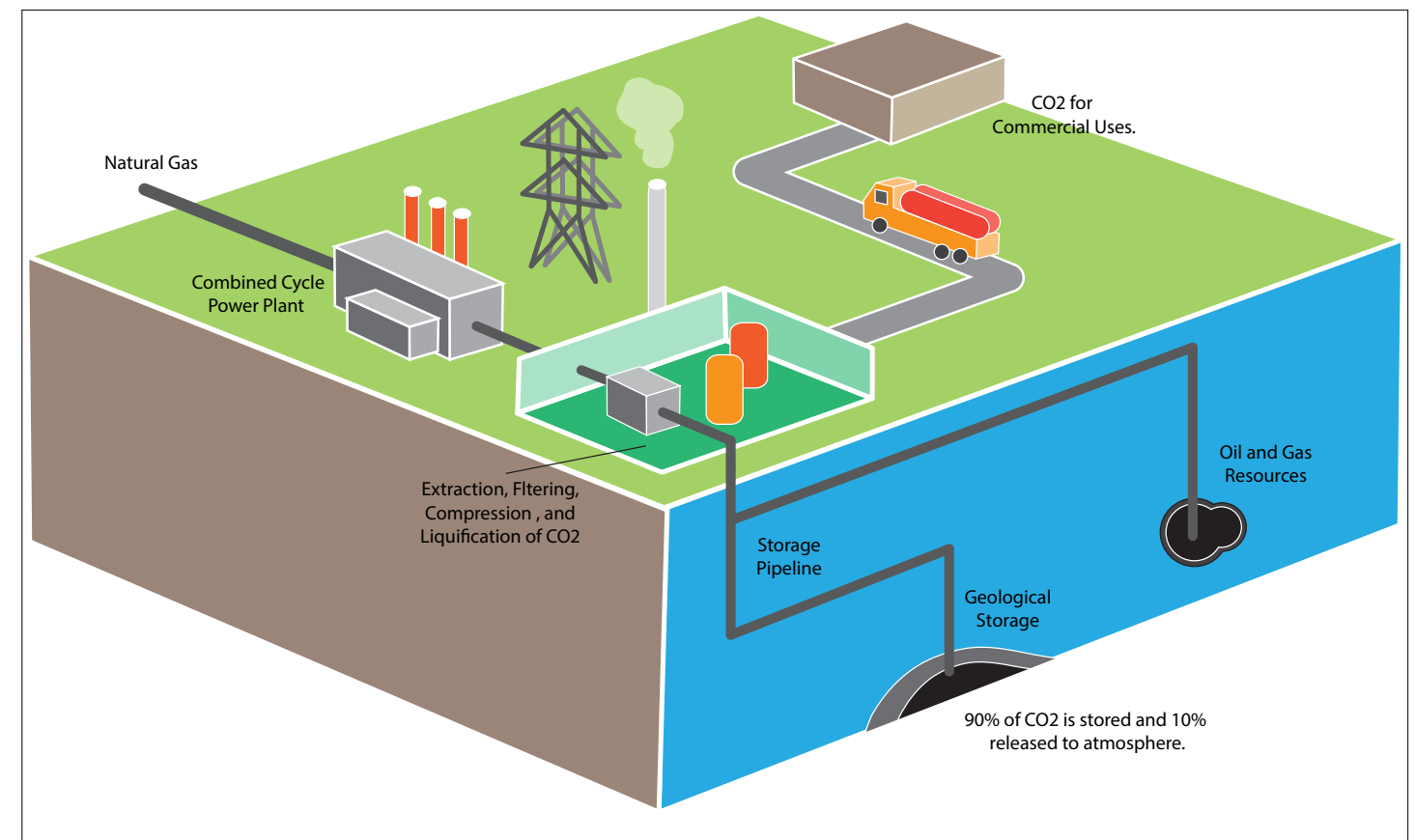
Once captured, the carbon dioxide gas is then compressed and transported to the storage site. Sequestered carbon dioxide can be transported through pipelines or by rail, road or ship. Potential storage options include:

- Oil and gas reservoirs: Carbon dioxide is pumped into the reservoir to push out the product, enhancing oil recovery. Depleted oil and gas fields may also be used for carbon dioxide storage, without benefit to the recovery process.

- Coal bed methane: Carbon dioxide is injected into coal beds to displace and recover methane.
- Saline formations: Carbon dioxide is injected into deep saltwater reservoirs, capped by impermeable rock. At these depths, the carbon dioxide behaves more like a liquid, and higher quantities can be stored. Reservoirs may be on or offshore, and most point sources are near an easily-accessible reservoir.
- Biomass: Captured carbon dioxide is sequestered by taking advantage of plants' need for carbon dioxide. The carbon dioxide is recycled in various ways, including to produce fertiliser, biomass for energy, and commercial organic materials. Land requirements for biomass sequestration can be immense. For example, some studies suggest that using carbon dioxide and solar energy to grow microalgae for biomass fuel production could require up to 60,000 acres of pond area, for a 250 MW plant using no other method of sequestration.

Alternative storage methods or uses include sea storage and chemical conversion to produce a commercial product. For example, cement may be produced from captured carbon and seawater.

Carbon capture is identified as a key technology for further reduction of emissions in Europe. An April 2016 study identified a total of almost 1,000 million metric tonnes of geological carbon dioxide storage capacity under the waters of the United Kingdom, analysing five specific storage sites for near-term industrial use.



Carbon Capture and Storage

11.09 Stormwater Drainage

The proposed stormwater management system will include collection and conveyance, detention and retention, and disposal. The collection and conveyance will quickly move stormwater runoff from development areas into various retention/detention systems to prevent flooding and nuisance ponding. The retention and detention systems will safely store and attenuate run-off from large storm events and provide water quality treatment prior to disposal. Disposal will include attenuated discharge to existing primary drainage networks in the area and overflow discharge into the River Tees. The stormwater management system will provide a flood protection level of service that meets regulatory standards for flood protection of roads, parking areas, buildings, etc.

The stormwater collection and conveyance system will, wherever possible and practical, follow the new highway infrastructure. It will be comprised primarily of an underground piped network with drainage control structures for regulating flow volumes and flood elevations. Swales and open channels may be considered where viable. The conveyance system will be by gravity flow wherever feasible, to eliminate the need for pumping. A completely gravity operated system will be significantly more reliable than if pumps are required and would have a lower capital and operational cost.

Development of the project will greatly increase the impervious coverage of the Site, resulting in increased runoff during storm conditions. In order to limit discharge into the river and surrounding primary drainage networks to the pre-developed conditions, the increased run-off will, in the main be directed to retention and detention facilities. Retention and detention capability will be need to be built-in at two levels – within new developments and as part of the site-wide primary drainage system. Open lagoons for drainage attenuation may be considered where feasible. These would be focused in locations where they could be woven into the overall landscaping and public realm strategy for the STDC area and/or areas sterilised for new development (e.g., major easement corridors, building exclusion zones, etc).

Consideration will be given to utilising existing on-site watercourses as points of discharge (e.g., The Fleet), at the same time introducing enhancements to the watercourse, including environmental habitat improvement.

An area-wide stormwater drainage strategy will be developed for the STDC area that considers the needs of full build-out of the area in line with the Master Plan proposals. This will ensure that more localised drainage solutions can be delivered in a phased manner, on a zonal basis, aligned with and thereby not compromising the overarching strategy, ensuring that the most optimal, cost-effective solution can be realised across the new industrial business park.

11.10 Water Supply and Transmissions

There is an existing potable water distribution network within the site that provides potable and fire protection water to all of the existing operational facilities. Work will need to be undertaken in determining how much of this system can be retained and utilised as part of the new water supply and transmission network for the development.

Given the scale of new development and that only a relatively small percentage of the overall water requirement will need to be potable, it will be appropriate to consider water capture and recycling as part of the water supply strategy – for instance, recycling of grey water. The potential for use of the existing Northumbrian Water effluent treatment facility at Bran Sands should be considered in the development of such a strategy.

In order to properly plan the new water supply system, a comprehensive water balance assessment will be undertaken, based on the Master Plan proposals. This will consider the demands for: potable water; process water; potable quality process water; any irrigation quality process water requirements; other quality process water; cooling water; irrigation water; fire protection requirements; and any other water needs. It will also consider effluent production volumes and rates from new and existing industrial operations.

The water supply system plan will include determination of water source and facility ownership for each water quality classification that will feature in the operation of the overall development. It will identify the need for separate distribution networks for each water quality classification. The plan will develop area-wide distribution network solutions and plan, including phasing plans. Fundamentally, the water supply system plan will deliver a fully-integrated strategy for addressing the wide spectrum of water needs on a major industrial development in a sustainable way, that is operationally cost-effective and future-proofed.



11.11 Wastewater and Industrial Effluent

The presence of the Northumbrian Water Bran Sands effluent treatment facility with the STDC area is a major plus for the redevelopment programme on South Tees. Established in 1995, this facility was developed to serve the needs of major industry within the STDC area and outside. Given the demise in steelmaking and certain other industrial operations in the area, the plant capacity is anticipated to be more than adequate to serve the needs of the STDC area when fully redeveloped.

The development of a wastewater and industrial effluent strategy for the redevelopment of the STDC area will be undertaken in due course. This should involve consultation and collaboration with Northumbrian Water (NW) and major industrial operators such as Sembcorp Utilities at Wilton International.

New industrial establishments will be required to comply with the minimum wastewater quality standards prior to allowing any discharge into the development's new wastewater collection system. Compliance will include monitoring and periodic reporting, as well as pre-treatment within each facility, as required. Treating contaminants at their source will be much more efficient than treating the entire waste stream of the development for every type of contaminant that may be generated. This concept of minimum wastewater quality compliance will help assure reliable and more efficient operation of the NW facility, resulting in higher effluent water quality and reduced impact on the local environment.

The wastewater and industrial effluent strategy should be integrated with the water supply and transmission plan for the development to optimise the recycling and re-use of water, particularly for industrial needs.



11.12 Telecommunications

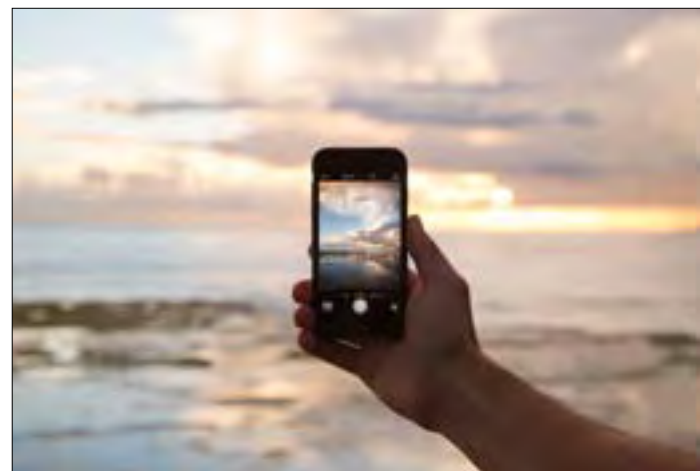
Telecommunications are expected to be sourced to one or more of the local communications service and wireless providers for telephone, cellular, and internet services. The telecommunications systems are expected to be delivered through a combination of underground fibre optic network and wireless services throughout the development. There are two primary options available regarding ownership of the system assets:

- STDC could provide space and easements, such as empty conduit and reserved land, for use by the telecom providers
- STDC could own some of the infrastructure, such as fiber optic cable and towers, and lease use to the telecom providers

A telecommunications plan will be designed for the STDC area. This will establish the entities to construct, own and operate the system. It will determine the initial and anticipated future service needs and the size and general layout of underground ducting. It will also determine the needs for any tower, hub and central office locations within the STDC area and the preferred locations.

The telecommunications network design should be closely coordinated with telecommunications service providers to establish basic quantities of fibre-optic cable, cellular towers and local communications distribution hubs for fibre-to-the-subscriber (FTTx) distribution of services. Telecommunication service providers may also require a local point of presence to house primary service distribution backbone equipment. The fibre-optic cable system will be deployed as an underground telecommunications infrastructure for FTTx distribution and will be the primary telecommunications delivery medium. Local fibre optic distribution hubs will be placed throughout the STDC area as required.

For the wireless communications system, Global System for Mobile Communications (GSM) is the standard used by the European Telecommunications Standards Institute (ETSI) and will likely be the network technology used for the STDC area. The wireless communication system will comprise cellular tower base stations for subscribers and wireless backhaul systems as required by telecommunications service providers. Antenna tower heights and locations, and the service building requirements, will need close coordination with the telecommunications service providers. A single tower should provide adequate cellular service coverage for the STDC area. Since the South Tees redevelopment will be developed in phases, and by virtue of its scale, the telecommunication system planning will need to take into account both the total requirements of the development at full build-out and also the intermediate and zonal requirements.



11.13 Solid Waste Management

A thorough investigation and assessment of the volume and types of solid waste from the various industry types proposed in the Master Plan will need to be conducted. The results of the assessment will then be used to develop a comprehensive waste management plan for the STDC area. The waste management plan will estimate solid waste generation from the redevelopment of the area and will be development in compliance with regulatory requirements and current best practice technologies.

The expectations of the waste management strategy for the STDC area are that it:

- Meets the principles of sustainable development and good environmental management
- Is compliant with environmental regulations and standards
- Is consistent with international best practice for waste management
- Achieves efficient and cost-effective waste and resources management, ideally self-funding or with a direct return on investment
- Is designed to satisfy the site-specific activities of each industrial development and is fit for purpose
- Is capable of expansion and development to meet future requirements (capacity and technology)
- Encourages recycling and waste minimisation measures.

Making sure that material resources are managed sustainably and used efficiently throughout their lifecycle is vital to economic growth, environmental quality and sustainable development. Material management also reduces the negative environmental impacts associated with the production, consumption and “end-of-life” management of material resources. A shift from end-of-life thinking toward a more integrated lifecycle approach is therefore encouraged and fits with the aspiration for the redevelopment of the STDC area to fully embrace circular economy principles.

The waste management plan will provide the following recommendations on waste management:

- Institutional and administrative arrangements
- Implementation of a waste recycling and minimisation program
- Storage, collection and disposal of wastes
- Collection of wastes on industrial sites
- Storage and collection of wastes from public spaces
- Collection of construction, demolition and excavation wastes

11.14 Recycling and Zero Waste Strategy

A site wide recycling and zero waste strategy is the aspiration for South Tees. STDC will work with future developers and operators to ensure facilities, operations and procedures are designed to realise this aspiration and that new developments operate in full alignment with the developed strategy.

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Landscape and Open Space Strategy

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12.01 Open Space Strategy Overview

The creation of carefully designed areas of landscape and public open space will be an important aspect of realising a high quality, world class industrial business park, and key to delivering an impressive visitor experience. Such areas will be used to reinforce the character and identity of the area as an exemplar, modern location for leading edge advanced manufacturing, high technology and innovation, while preserving sufficient aspects of the existing fabric to ensure the area's industrial heritage is not lost. Critical to the strategy is the creation of a single, consistent identity for the development.

Areas of landscape and public open space will be designed in such a way as to deliver integrated land zones (or areas) across the business park, characterised by consistent themes. Careful thought will be given to the overall connectivity strategy and how landscape and public open spaces can be utilised to reinforce ease of movement and integration around the business park, as connectors not barriers.

Areas of public open space will be developed to a high quality, consistent standard, as part of the site-wide strategy, avoiding a discrete, piecemeal approach, that would potentially compromise the creation of a clear identity for the development.

As the Master Plan implementation gains momentum and additional public input is gathered, specific design guidelines will be explored and further developed to help generate ideas and policies for features of the landscape design and open space strategy.



12.02 Public Rights of Way – Teesdale Way/ Black Path

The Teesdale Way/Black Path Public Right of Way traverses the entire STDC area, providing a linear walkway route running from South Bank in the south all the way to South Gare in the extreme north. While this represents a key opportunity for the STDC area, the route is difficult to navigate in places and there is work to be done in improving the footpath as part of the open space strategy, in the interests of improving amenity.

With the closure of the steel works there is an opportunity to remove some of the footpath segregation measures that were necessary when the works were in full operation. There may also be opportunities to introduce some beneficial realignment (and possible widening) of the footpath, to make it more usable. Importantly, the footpath will need to be improved from a safety and security perspective to encourage regular, unfettered use by the public. Ultimately, the aim is to integrate this public right of way into the main development.

The plan is that this public footpath be utilised as a means of creating an industrial heritage trail through the site utilising redundant steelmaking assets (e.g., ladles) as iconic features along the trail, sited at key nodes on the footpath. Consideration will be given to creating a themed route that tells the story of iron and steel making, subject to this being financially viable in terms of both CapEx and OpEx. This will likely be handled as a discrete project placed under the direct control of Redcar & Cleveland Borough Council working with local heritage groups.



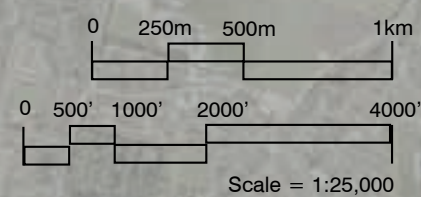
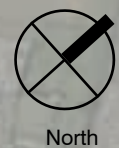
South Tees Key Public Realm Nodes - Illustrative Plan

- Heritage Features
- Gateway Accesses
- Community Leisure Interests

Dorman Long Tower and South Bank Coke Ovens Battery

Redcar Blast Furnace

Teesdale Way/ Black Path



12.03 Site Entrances and Infrastructure

The Master Plan sees the establishment of three primary vehicular entrances to the industrial business park – at Redcar in the north, South Bank in the south and, centrally, via Tees Dock Road. The scale of the STDC area is warranting of this approach.

To reinforce the identity and profile of the newly formed business park, entrances will be established as major gateways to the development. The plan is to develop areas of open space at the entrances that will accommodate well-designed, high quality soft and hard landscaping, major gateway signage and iconic architectural features, in the form of sculptured structures that resonate with the iron and steel making heritage of the area, and that can be integrated, as necessary, into the proposed heritage trail.

Upon arrival to the business park, workers and visitors will be welcomed with new landscape entries featuring large canopy trees, contextual artworks set within a colourful seasonal ground plane that changes throughout year. Interactive informational signage and colourful banners will help orient the visit. Any necessary security features will be designed to be responsive to the design theme. They will accommodate visitors looking for specific businesses and provide the necessary protocol to navigate the estate.

Within the development, primary infrastructure corridors will be augmented with strategic soft landscaping. Reserves for major utilities will be established and delineated using grassed berms as landscape features, bringing structure to infrastructure corridors. Primary highway designs will consider the use of trees to create main boulevards through the development. Lighting schemes for highways will lean towards the innovative and the architecturally alternative, using modern designs to create highway corridors that are not only functional but that actually add to the development's character and profile.



12.04 Strategic Landforms

The area presently utilised as waste management facilities at South Bank will continue to be operated in this capacity to accommodate non-recyclable waste materials arising from demolition and site remediation operations elsewhere in the STDC area. Current volume estimates suggest major residual capacity in the landforms, that include significant areas under private operation. The facilities will therefore take a number of years to fill (10-15 years minimum). But the intention is that this area will not simply become a regularised, rectangular landform upon completion. The strategy will be to manage the facilities on a zonal basis that enables phased completion of discrete areas, releasing them for alternative uses earlier in the programme.

Fundamentally, the waste management facilities will be managed cognisant of the aspiration for this area to be designed and ultimately transformed into a major landscaped feature of the STDC area that will be utilised both as an area of alternative energy generation (e.g., wind, solar, ground gas) and for public amenity – parkland, activity areas (e.g., bike trails, trail walks), etc. Overall landform design will be given careful consideration to ensure there is sufficient topographical variation, creating areas that are visually striking, that transform the location into a place people want to visit and spend time at.



12.05 Industrial Heritage

Preserving some of the area's industrial heritage is an important part of the overall regeneration proposition for the STDC area, and a cornerstone of the landscape and open spaces strategy.

Subject to determining appropriate, viable business models, there are some key opportunities through which a strong heritage theme can be established within the overall fabric of the developed business park. Notable examples include:

DORMAN LONG TOWER AT SOUTH BANK

This is a local landmark structure that could be retained and adapted for uses such as a viewing platform, climbing/abseiling wall, etc, integrated into the heritage trail given its location near to the Teesdale way/Black Path. The plan would be that the tower be illuminated at night to provide a striking symbol of the area's iron and steel making heritage at the southern end of the newly established business park.

SOUTH BANK COKE OVENS BATTERY

This structure lies along a boundary line of the South Industrial Zone, close to the Teesdale Way/Black Path and it could be retained without impinging on prime development land. The Battery is an impressive example of industrial architecture. There are several examples around the world of coke ovens structures being preserved and made safe as large-scale industrial heritage and visitor attractions, that can be explored by the introduction of stairways and walkways. The plan would be that the Coke Ovens Battery would be illuminated to make for a spectacular feature of the development.



REDCAR BLAST FURNACE

In many respects the most notable feature of any integrated iron and steel works, whether operational or non-operational, a blast furnace is an impressive example of industrial architecture at its best. Located at the northern end of the development, at the boundary between the North Industrial Zone and Coastal Community Zone Redcar Blast Furnace is ideally situated for preservation as a major landmark and visitor attraction. The proposals would see the removal of ancillary shed structures, and when combined with the wider demolition programme for development purposes, would reveal the sheer scale and complexity of the Blast Furnace. The Coastal Community Zone of South Gare and Coatham Sands would offer some stunning vistas of the Blast Furnace, which would be augmented by the introduction of night-time illumination – as has been successfully achieved on similar projects around the world. The Blast Furnace would be integrated as a visitor attraction into the Teesdale Way, and, subject to financial viability, the plans could be developed to transform this structure into an accessible feature with viewing galleries at different levels and a visitor centre.

As mentioned above, there are numerous examples around the world of where heritage preservation projects have been successfully delivered as part of the redevelopment of iron and steel making works, that have enabled both a national and global identity to be created for the new development. The Master Plan therefore supports the retention of heritage structures as part of the Landscape and Open Spaces strategy. This will be the subject of detailed work to establish the business case for each structure, in collaboration with local community groups and Redcar & Cleveland Borough Council.





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13.01 Next Steps

The realisation of the South Tees Area Regeneration Programme will involve a sustained period of intense activity across a period estimated to be 15 to 19+ years from programme commencement, as various sites are brought forward for development through the implementation of any essential demolition, site preparation and infrastructure works. To provide the platform for delivering the physical works and realising new developments in a financially viable manner, there are various key building blocks that need to be put in place in the early stages of the programme, including consideration of the optimal exit strategy for STDC and the best solution to long term estate management.

13.02 Adoption of the Master Plan

The period for consultation on the Master Plan and related document refinements will be concluded in November 2017. It is anticipated that the Master Plan will then be formerly adopted as a Supplementary Planning Document by Redcar & Cleveland Borough Council, marking achievement of a cornerstone objective of the regeneration programme and providing STDC with the policy framework by which to stimulate and regulate redevelopment of the Area to ensure the vision and objectives of the Development Corporation and the regeneration programme area realised.

13.03 Land Assembly

The land potentially available for redevelopment within the STDC area is almost entirely under the ownership of four entities – SSI-IL (SSI in liquidation), Tata Steel, Redcar Bulk Terminal and British Steel. A critical priority for STDC is the assembling of the land needed for realisation of the regeneration programme as early as practically possible, whether through direct ownership or partnering arrangements. One of the key constraints to the plan is that although the number of owners is few, the land ownership pattern is fragmented, notably between SSI-IL and Tata Steel. It is also of fundamental importance to secure access to deep water for these areas.

It is essential to the regeneration programme that large, continuous land areas that benefit from direct access to excellent port and other facilities can be established. Exclusion of RBT from the land available for redevelopment would serve to compromise the development potential of the STDC area. Consequently, STDC is actively exploring the opportunity for a collaborative approach to inclusion of all the land identified for redevelopment in a comprehensive manner.

One of the key powers granted to STDC is that of Compulsory Purchase Order (CPO). This is an essential tool to support other STDC powers to own, develop and dispose of land. Where necessary, these powers will be utilised to bring sites forward in a timely and comprehensive manner, though a collaborative approach is the Corporation's preference.

13.04 Understanding Ground Conditions

Most the work undertaken to date in establishing site conditions has, out of necessity, been desk based. However, a programme of advanced physical ground investigation works was executed during the first half of 2017 across a major part of the SSI Redcar Works complex. Further ground investigations are now underway on SSI land areas, and plans are being put in place for other land areas, including Tata Steel land, to maintain continuity of the investigative works and provide a more robust knowledge base from which to:

- Assess ground contamination liabilities and remediation requirements
- Optimise land use planning and parcel configuration, to mitigate cost
- Inform land valuation assessments, and
- Determine essential cost data for the Financial Model and future public sector funding requirements.

Investigation of certain areas will, out of necessity, be deferred, pending completion of demolition works (e.g., South Bank Coke Ovens, Redcar Coke Ovens). However, it is expected that the majority of the physical ground investigations will be concluded by the middle of 2018.

13.05 Understanding Asset Potential

The Master Plan offers the potential for retaining certain industrial buildings and structures as heritage assets, subject to such proposals being economically viable both from a capital and operational cost perspective. The Plan is flexible and it also leaves the way open for retention of certain other buildings and facilities that may have potential for re-use, in the event there is firm market interest in doing so. Any other buildings, plant and facilities would be planned for demolition.

However, before any decisions are made regarding retention and redevelopment of buildings or, alternatively, their demolition, a thorough market testing exercise will be undertaken. The position on the current insolvency has, to

date, restricted the opportunity to fully test the market and thereby explore the potential range of options available. It is therefore proposed that such market analysis will follow on from the resolution to the current position concerning ownership of the SSI land and building assets.

13.06 Financial Model and Business Case

The Department for Communities and Local Government (DCLG) is the government department ultimately responsible for STDC and will be the conduit for future funding from HM Treasury to facilitate STDC's delivery of the regeneration programme. Such funding will flow through TVCA into STDC.

Limited funding is in place from DCLG for initial STDC start-up activities and resourcing and for prioritised work packages (e.g., physical ground investigations). A robust funding business case will be submitted to UK Government, and work is underway in planning for and preparing this important document. STDC is working closely with officers of DCLG and BEIS on this submission.

STDC now has its financial model in place and this has been populated with cost and revenue data based on initial, high level assessments. More in depth analysis will be undertaken in refinement of the model as better data becomes available.

13.07 Land Disposal

Where possible, STDC will lease rather than sell plots. The rationale behind this is twofold:

1. Retaining the freehold enables STDC to control the pace of development, prevent speculative land-banking and regulate the character of site uses and how sites are managed. Deals will be negotiated based on agreements for lease, conditional upon satisfactory practical completion of the agreed works.
2. The creation of an income stream means that a long-term estate management function can be funded, ensuring that keep-safe activities can be maintained in respect of residual risks. It also presents an opportunity for the management company to behave commercially in the future, in the best interests of the local community.

Service charges will be levied on the developed estate to cover management of shared assets, such as site infrastructure.

13.08 Exploring Opportunities for Enhanced Economic Trading Conditions

The scale of the South Tees redevelopment opportunity, its excellent port facilities and its capacity for port operations expansion, provide the right conditions for exploring a range of models for realising more attractive economic conditions under which to deliver and operate new industrial development and stimulate economic activity; boosting employment and increasing trade. Various models exist within the global marketplace such as Special Economic Zones, Free Trade Zones and Free Zones. The main tools used to generate more favourable economic conditions are, typically, reduced taxation levels, lessened regulation and lower customs duties.

There is strong support for Free Zones at UK Government level and this is something STDC is keen to explore on South Tees. However, they have had limited application as an economic development policy tool in the UK. Their absence is attributed to membership of the EU Single Market and Customs Union, as the UK is unable to set tariff/customs duties domestically, with responsibility falling to the central EU Customs Union instead. This has made it difficult for the UK to offer the tax incentives normally associated with Free Zones, while maintaining compliance with EU regulations.

Within this context, UK Government policy has been geared towards Enterprise Zones (EZs) rather than Free Zones. The South Tees area is home to a collection of EZs – a significant portion of the South Bank/South Bank Wharf site; a large area of the Grangetown Prairie site; and an area within Teesport. These zones will be important in helping to attract inward investment.

However, in a post-Brexit Britain, there is opportunity to embrace the Free Zone concept, and, indeed, Free Zones have been recognised as delivering against the three key strands of UK Government's Modern Industrial Strategy – Boosting Manufacturing, Boosting Trade, Regional Rebalancing. A key objective of STDC will be to work in collaboration with major stakeholders (e.g., PD Ports, Wilton International, etc), TVCA, R&C BC and UK Government to explore and develop opportunities for Free Zones on South Tees as part of the regeneration programme.

13.09 Exit Strategy and Management Vehicle

On any major regeneration programme, it is essential to consider the exit strategy as a key component of the delivery model. The Master Plan foresees significant common land zones within the STDC area, such as transport and utilities infrastructure corridors and areas of open space. Additionally, across the long timeframe of the programme, there will be various tracts of land awaiting development and, potentially, void between leases. Similarly, there will be a long-term role for a landlord of the leased sites. As such, there is much to consider regarding ownership and site management in the long term, including the identified, designated community assets of South Gare/Coatham Sands and Coatham Marshes.

As noted in section 14.06 above, it is proposed that sites should be leased rather than sold freehold wherever possible. This will establish a substantial income stream when the STDC area is fully developed, sufficient to manage the estate, including any residual contamination risks. STDC will be delivery-oriented, task and finish in nature, and will ultimately have a finite life linked to the timescale for delivering the programme to completion. Therefore, it is essential that a permanent arrangement is established to fulfil site management responsibilities which will include the following:

- General estate management and maintenance of common areas including non-adopted infrastructure and void sites/premises
- Directing development/redevelopment in the longer term, and negotiating development agreements with third parties from time to time
- Rent collection, rent reviews and terminating/granting tenancies
- Management of keep-safe functions relating to areas of residual contamination
- General company administrative matters, including maintaining an estate management fund and declaration of dividends as appropriate.

At this stage, it appears logical to conclude that STSC would be the appropriate body, subject to necessary changes to shareholding and company structure.

This matter will be given further, more detailed consideration in the development of the Strategic Business Plan for STDC.

13.10 Links with Higher Education and Research & Development Establishments

STDC recognises the importance of working collaboratively with Higher Education and R&D establishments in its efforts to deliver a world class industrial business park on South Tees that is recognised as an exemplar destination for modern manufacturing methods and key technologies, and one that is renowned for innovation. Such collaboration is key to STDC building its own industrial strategy in response to that of UK Government. It also augments the Development Corporation's marketing strategy.

The scale of the opportunity presented in the Master Plan, and the ambitions for redevelopment, create the perfect conditions for harnessing HE and R&D intellect to identify and develop the key technologies that will build brand and reputation and increase the STDC area's competitive advantage; delivering further unique selling points for the development.

STDC has already begun a dialogue with University of Teesside to jointly develop a strategy for the identification and delivery of beneficial R&D projects for South Tees. This will be further developed and monitored through STDC's Business & Innovation Committee.

Regarding other R&D establishments, STDC has been working with the Materials Processing Institute (MPI) on South Tees on a range of emerging development projects where MPI's materials expertise has been of great benefit. Further opportunities for collaboration between the two organisations are in the pipeline.

STDC is also in the process of developing formalised collaborative working arrangements with both Sembcorp and PD Ports, one of the benefits of which will be the opportunity to jointly deliver key research on a range of matters that would be of mutual benefit to all parties (e.g., energy innovation and smart utilities strategies, free zones, private wire networks, etc).

STDC is only just at the beginning of a 25-year programme of redevelopment on South Tees, so it is opportune to be engaging now with HE and R&D establishments, from the outset.

13.11 Collaboration with Major Industrial Operators

STDC has been collaborating with Sembcorp for some months in the development of joint working proposals for the STDC area and Wilton International to ensure optimisation of the land available for redevelopment and the best outcomes for the Tees Valley, directing future development projects to the best sites available, exploring utilities integration between the two sites and the viability of delivering improved transport connections. As an example, Sembcorp is planning to develop a new 1,700 mega-watt closed cycle gas turbine power plant on Wilton that would potentially afford opportunities for supplying power to the STDC area via private wire networks; a key benefit to major power users. Working groups will be established as the forums for knowledge sharing and the development of joint initiatives, and the formalising of the arrangement is close to completion.

Similar arrangements are being developed with PD Ports – a critical on-site operator for South Tees – and there are clear benefits to be realised from all three parties working together on joint initiatives.

As the programme progresses, STDC will look to set up other collaborative working arrangements on a case by case basis, where there are clear synergies and benefits to be realised.

13.12 Investments

Historically, the Tees Valley has been home to many revolutionary industrial processes, notably in the steel and chemical industries. These pioneering developments have exported best in class products around the world whilst the processes have been replicated in many overseas markets.

As with so many other examples of products and processes developed in the UK, globalisation has also seen the offshoring of jobs and investment, particularly in industrial markets. There are many reasons to be appreciative of the foreign investment that has flowed back into the area and this will continue to be sought in the future.

However, the investment and development potential highlighted in this masterplan should also, at least in part, be locally owned by the Tees Valley community itself. For this reason, as a part of the devolution of control to the Tees Valley Mayor, it is proposed to establish the South Tees Investment Fund, focused upon the STDC Area.

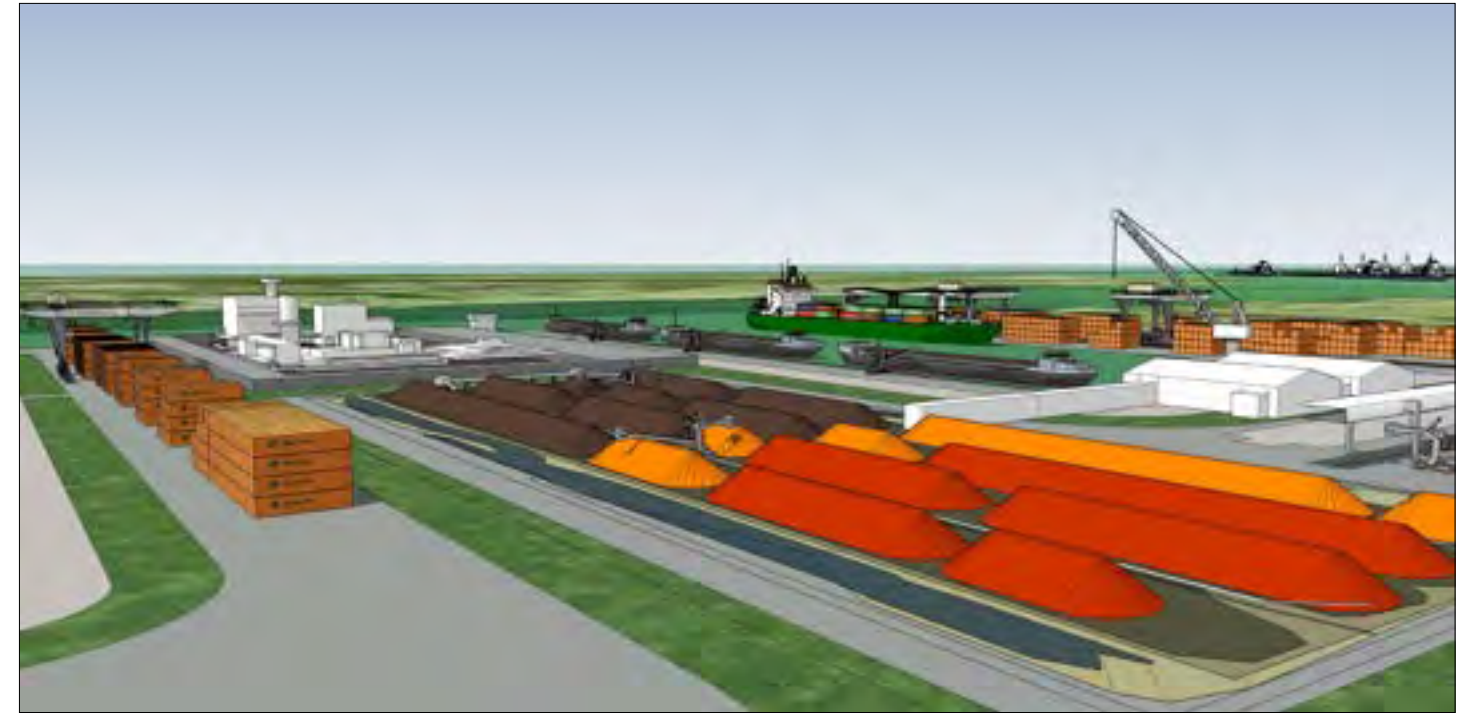
The purpose of the fund is to create a flexible investment vehicle that can fund infrastructure, take partial equity positions in developments and in other opportunities with the objective of creating a long-term income stream for the community. The STDC investment proposals and related strategy will be developed in due course.



TEES VALLEY
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Master Plan Questionnaire

To help with the Master Plan consultation process, STDC and RCBC have jointly drafted a series of pertinent questions covering matters where stakeholder feedback is particularly welcomed. These questions are set down below. We would be very grateful to receive your feedback.

<div>1. The Master Plan vision is all about growing the local economy through the development of a world class industrial business park, creating significant new jobs. What do you think of this approach?</div> <div></div>	<div>7. What do you think about the proposals for respecting the industrial heritage of the area? Any buildings or other structures that remain will need money to pay for their upkeep. What could be done to make this affordable in the long term?</div> <div></div>
<div>2. With the focus of the Master Plan being on industrial development, alternative uses such as large shops and office blocks would be located elsewhere, in nearby town centres. If you disagree with this strategy, how would you change it?</div> <div></div>	<div>8. What benefits could there be in enhancing the accessibility and use of Coatham Marshes, South Gare and Coatham Sands as managed community assets? What would you like to see happen to improve and realise better use of these areas?</div> <div></div>
<div>3. As well as utilising existing transport links, three road access points are proposed in the Master Plan, along with improved road access for Teesport. Do you think this strategy is right? What else could be done to improve access?</div> <div></div>	<div>9. What other ideas do you have for the Master Plan to improve benefits for the local community?</div> <div></div>
<div>4. The Master Plan proposes improved road, rail, cycle and footpath linkages across the Development Corporation area and with nearby town centres. How important do you think these links will be?</div> <div></div>	<div>10. Are there any further comments you would like to make? Here are some ideas to possibly consider:<ul style="list-style-type: none">• Other potential uses that could be included in the Master Plan• How to make the area work best for major local businesses that are already here• How to make the most of the river• Ways in which the proposals could best benefit the wider Tees Valley• The design and appearance of new buildings• Ideas on how new landscaping along roadways should look• How the Master Plan could make the most of heritage and the natural environment</div> <div></div>
<div>5. How important do you think rail freight is to the Development Corporation area? What should be done to improve what is proposed?</div> <div></div>	
<div>6. Does the Master Plan do enough to support existing employers in the Development Corporation area? If not, what should be changed to improve on this?</div> <div></div>	

Thank you for your comments. We're looking forward to reading what you've said to help make sure we get the Master Plan right. When we publish the final version, we'll explain what we've changed and how the comments we've received have been used to make it better.

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**TEES VALLEY MAYOR
BEN HOUCHEN**



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