

## Case Study Details – Dorman Point South

### Site Summary

The Dorman Point land zone is one of seven strategic major development sites on Teesworks, sized at 135 acres (55 hectares). Dorman Point South accounts for 37 acres (15 hectares) of the total site area. In the northern sector of Dorman Point, 70 acres of land have already been subject to remediation, comprising Phase 1 and Phase 2 of the overall remediation programme for the site.



The site was formerly low-lying land adjacent to the Tees Estuary. In the late 1800s, ironworks were first constructed within the site, subsequently expanding as the 'Cleveland Ironworks' and 'Cleveland Iron and Steelworks' over the next century to occupy the entire footprint of Dorman Point. Development was made possible by reclaiming the low-lying land utilising by-products of the iron and steelmaking processes as fill material.

Site occupancy was dominated by coke works, blast furnaces (steelmaking), open-hearth furnaces (ironmaking), power stations, and steel mills. The works closed in the mid- to late-1980s, with the majority of the various plant, buildings and other facilities being demolished in the period running to 2000. The last standing structures, within Dorman Point South (shown on the above photograph), were demolished in 2021, as part of STDC's ongoing demolition programme across Teesworks.

The former site uses pose a significant risk of ground contamination being encountered during the remediation works to the site. Ground investigations undertaken by STDC have identified that ground conditions are characterised by the presence of significant contamination including tars, hydrocarbons, and other hazardous, carcinogenic compounds, including asbestos, which has been found in significant quantities elsewhere on Dorman Point..



## Development Proposals

Construction of a new highway access to the Dorman Point site, from the west – a roundabout junction – is nearing completion and this will be fully operational by September 2022. The Teesworks Skills Academy facility has recently been completed on the site, adjacent to the new entrance, and this is now under occupancy and operational.

End user development interest in Dorman Point has already been strong and is growing. Development uses linked to green energy and clean growth have dominated, and the emerging layout for the site, based on such uses, suggests five or six individual development plots to be the likely configuration. But having flexibility on layout to meet end user requirements is crucial.

Negotiations are well advanced in connection with a potential energy recovery facility that would occupy 22 acres of land, an ash recycling facility on 10 acres, and a green LNG manufacturing installation that would require 12 acres. With the demand for land increasing, there is a requirement to progress with further phases of remediation, including on Dorman Point South, where we need to establish a land platform contiguous with the wider Dorman Point site to afford maximum flexibility on plot configuration, the development opportunities that could be realised, and the economic and socio-economic benefits these would bring, at the same time securing long term environmental protection.

The required remediation measures for the site will need to address significant development constraints and challenges (discussed below) which severely impact the site and its marketability, and which result in it currently having a very low land value.

Dorman Point South in particular presents some key challenges in that this area was the location of some of the more contaminative uses within the Cleveland Iron and Steel Works (e.g., coke works and open-hearth furnaces). As other land parcels are remediated, the current condition of Dorman

Point South detracts from the appeal of the wider site and has the potential to adversely impact the attractiveness and marketability, and hence land value, of the neighbouring, remediated areas.

## Remediation Requirements

To make the Dorman Point South development-ready requires significant ground remediation interventions and related earthworks to address essential environmental hazards and risks, and to deliver a land platform contiguous with the adjacent plots on the wider Dorman Point site that does not overly constrain or restrict the development uses it can accommodate. These works are required to address various key constraints and challenges, which are:

1. Extensive, large, relic subsurface obstructions from the former ironworks (basements, pits, foundations, tanks, etc), which extend across at least 75% of the site. The presence of these obstructions is considered a significant development constraint, impacting certainty on ground engineering performance, and precluding the construction of any significant new foundations and/or structures relying on piled foundations.
2. The decommissioning and diversion of the existing watercourse within the site (the Knitting Wife Beck), which will result in the need to manage significant geotechnically unsuitable materials.
3. Land reprofiling to address the removal of a large man-made, historic embankment structure (up to 8m above the surrounding ground levels) connected with the site's former uses.
4. Soils at the site requiring significant intervention both from an environmental and geotechnical perspective in order to deliver a remediation solution that is suitable for a commercial / industrial end use. Soils have been comprehensively assessed and are heavily contaminated with hazardous and carcinogenic materials, including tars, asbestos, and chemical wastes. Putting aside contamination, the geotechnical properties of significant volumes of materials deposits across the site make them unsuitable for use in their current condition.
5. Intervention measures to remove considerable quantities of buried, historic site drainage infrastructure, linked to the former site uses, which present preferential pathways for contaminant migration to surface water. The drainage is expected to contain significant quantities of hazardous waste materials, including sludges.
- 6.

## Landfill Tax Trap

### Criteria 1 - Demonstrating the use of Landfill is Reasonably Necessary to Realise Opportunities

Extensive environmentally unsuitable material classified as hazardous waste is expected to be excavated as part of the remediation, particularly in the vicinity of the former coke works and the open heath furnaces located in the former South Steel Plant that occupied much of Dorman Point South. This will require disposal to landfill. In addition, the sediment and sludge resulting from drainage removal is considered unsuitable for remediation due to its geotechnical properties and elevated contamination levels. Similarly, it is to be expected that various buried structures connected with the site's former uses will contain significant waste products, including asbestos. In both of these instances, disposal to landfill will also be required, where the material will, on the basis of available site data, be classified as hazardous waste.

Removal of subsurface obstructions to depths of 5m to 8m below ground level is expected across large areas of the site, which will generate significant quantities of geotechnically unsuitable materials. The excavation of the natural deposits underlying the surface made ground will also be required to facilitate construction plant access to break out the extensive reinforced structures and redundant drainage network.

It is estimated that around 25% of the Dorman Point South land area (as a minimum) will be impacted by hazardous waste materials.

Any potential for alternative treatment strategies, wherever such exist, have been estimated for some materials to significantly extend development timescales, which would impact the ability to bring the site forward for development contiguous with the adjacent plots or even in its own right, resulting in a significant number of development opportunities potentially being lost.

The potential treatment technologies that may be possible for certain of the materials, but not all, would also likely deliver a development platform with embedded constraints, impacting land values and the range of development uses that are viable for the site (e.g., load bearing capacity restrictions, more onerous foundation solutions for developments, etc).

Remediation involving significant landfill is therefore the only feasible option to realise opportunities for redevelopment. As such, in respect of the first criteria of the LfT Trap, use of landfill is reasonably necessary to dispose of some or all of the contamination or material present at the site to realise opportunities for remediation and economic development, and to secure long term environmental protection of surrounding land.

### **Criteria 2 - Landfill Tax Obligations Exceed Land Value Uplift**

It has been demonstrated that to conduct the remediation of Dorman Point South requires major interventions.

Significant ground investigations have been undertaken on the site and these have revealed extensive contaminated soils of a hazardous nature in the region of 250,000 to 350,000 tonnes. The Landfill Tax burden associated with this level of essential material disposal would be of the order of £25M to £35M. This equates to £0.68M to £0.95M per acre, which exceeds the range of potential land value uplifts that could be realised on Dorman Point South.

Thus, the site meets the second criteria of the LfT Trap, in that LfT obligations arising from the necessary disposal of material from remediation to landfill would result in the total costs of site remediation exceeding the land value uplift from bringing the land affected by contamination back into beneficial use.

### **Criteria 3 – Other Remediation Costs do not Exceed Land Value Uplift**

Remediation costs on Dorman Point South, absent of the LfT obligation, have been estimated at £8M to £10M. This estimate allows for excavation and haulage of waste materials to STDC's own licenced landfill on Teesworks (High Tip), which apply regardless of LfT status. This estimate includes for all other aspects of the required remediation works, such as, the breaking out and reprocessing of buried concrete foundations and structures, diversion of the Knitting Wife Beck, and decontamination and removal of redundant drainage infrastructure.

Backfilling of the Dorman Point South site with suitable engineering fill materials is required to replace much of the material volume disposed to landfill, raise the site to the desired site level post-remediation, and create a development platform suitable for a wide range of commercial / industrial uses.

While excavated materials from the remediation works will be suitable for processing and reuse, there will be a deficit to be made up by virtue of the disposal of large quantities of material to landfill. STDC has sufficient fill material available across Teesworks to address this fill volume deficit, without the need to rely on costly imported fill materials. The processing costs associated with this material (i.e., screening and crushing to produce material of suitable sizes and gradings) is included in the

cost estimate, and this has been the method successfully deployed to date on other remediation projects.

It is anticipated that attaining a land value uplift above the 'Other Remediation Costs' estimate should be readily achievable. Therefore, the site is expected to satisfy the third criteria of the Landfill Tax Trap, in that all other costs of remediation, absent the LfT obligation, will be less than the land value uplift.

## Summary

Based on current assessments, informed by significant ground investigation works and related analysis, there are large volumes of waste and other materials contained within the Dorman Point South site that are not suitable for in situ treatment, particularly when considering related delivery timescales, which accordingly require removal to landfill.

The Dorman Point site is strategically important to STDC's development objectives for Teesworks, and as the demand for land increases on Dorman Point, remediation of this site becomes ever more crucial. End user development interest in Dorman Point has already been strong and is growing, and negotiations are well advanced with prospective tenants in a number of instances, with several other early-stage enquiries also being advanced.

Failure to implement an expedient remediation solution will lead to lost development opportunities on Dorman Point South, which may likely be to the detriment of securing end users for the neighbouring land plots on the wider Dorman Point site.

The LfT obligations arising from the necessary disposal of material to landfill amount to a cost burden in the region of £25M to £35M, which alone far exceeds the achievable land value uplift, even before other remediation costs are taken into consideration. On the matter of other remediation costs, absent the LfT obligation, these are at a level that is anticipated to be exceeded by the resulting land value uplift.

Accordingly, all three criteria of the Landfill Tax Trap are expected to be met by this site and the related remediation project.