AN ARCHAEOLOGICAL DESK-BASED ASSESSMENT: TRINCOMALEE WHARF, MARITIME AVENUE, HARTLEPOOL

An Archaeological Desk-Based Assessment: Trincomalee Wharf, Maritime Avenue, Hartlepool

Central National Grid Reference: NZ 5135 3290

Site Code: TWH 07

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CONTENTS

List of Figures and Plates

List of Figures and Plates

1. NON-TECHNICAL SUMMARY

1.1 An archaeological desk-based assessment has been commissioned as part of a planning application process to Hartlepool Borough Council, in respect of the proposed development of a site straddling Maritime Avenue, within the southern portion of the Hartlepool Marina area. The overall site, known as Trincomalee Wharf, covers an area of *c.* 4.5 hectares and is centred at National Grid Reference NZ 5135 3290.

1.2 The desk-based assessment was written and researched by Pre-Construct Archaeology in October-November 2007 and the commissioning Client was Cundall.

1.3 The site comprises two areas of land bisected from west to east by Maritime Avenue. The smaller northern area overlooks Jackson Dock and comprises a public piazza to the east, a launching slipway to the west, with the remainder open ground, variously surfaced. South of Maritime Avenue, the larger portion of the site is mostly scrubland, with the exception of a car park in the south-western corner, and two Grade II listed buildings, the 'Old Dock Offices and walls' and the 'Old Customs House', which occupy the north-eastern corner. The southern area is bounded to the south by a railway line, to the west by a leisure and retail complex, and to the east by Victoria Terrace,

1.4 The archaeological potential of the study site stems from two distinct eras. Firstly, it lies within the wider context of Hartlepool Bay, which has an important role in the understanding of coastal archaeology and palaeogeography at a national level, due to the presence of ancient wetland deposits, principally extensive peat beds. Artefactual and ecofactual material dating from the Mesolithic period onwards has previously been found in these deposits, this evidence being a significant archaeological and palaeoenvironmental resource.

1.5 Secondly, the site lies within the Hartlepool Marina area, which has been redeveloped from the industrial era West Hartlepool Docks. The western half of the southern area was occupied by Swainson Dock, opened in 1856, with much of the remainder of the site formerly occupied by associated structures including warehouses, railways and dockland housing.

1.6 In summary, the potential for the presence of prehistoric artefactual and ecofactual material within ancient peat beds within the area formerly occupied by the Swainson Dock is **very low** due to the extensive excavations undertaken to create this facility. The remainder of the study site has **moderate** to **high** potential for such deposits, their survival depending on the extent of both 19th century development and modern demolition. Geotechnical investigations at the site have demonstrated peat generally survives at depths of 4-5m below present ground level.

1.7 The potential for archaeological remains of the Roman, Anglo-Saxon, medieval and post-medieval (prior to mid 19th century industrialisation) periods at the study site is **low**.

1.8 The study site has **moderate** to **high** potential for industrial era archaeological remains derived from the mid 19th century development of West Hartlepool Docks. The presence or absence of such remains, representing, for example, dock walls, dockside warehouses, railways and terraced housing, will largely depend on the extent of subsequent demolition, specifically 'grubbing out' of below ground structures. Geotechnical investigations broadly indicate relatively good survival of industrial era structural remains below ground at the site.

2. INTRODUCTION

2.1 General

2.1.1 This archaeological desk-based assessment (DBA) has been commissioned by Cundall, as part of a planning application process to Hartlepool Borough Council (HBC), in respect of a proposed development of a site, known as Trincomalee Wharf, off Maritime Avenue, Hartlepool.

2.1.2 The site lies immediately adjacent to the Historic Quay within the Hartlepool Marina area, which is of intrinsic archaeological and historical importance, being central to the foundation and identity of the modern town. The archaeological DBA has been identified as a requirement in an Environmental Impact Assessment (EIA) scoping document prepared by Cundall.[1] The DBA was researched and written by Pre-Construct Archaeology Limited (PCA) October-November 2007.

2.1.3 The purpose of the DBA is to inform HBC, as the Local Planning Authority, of the archaeological and historical importance of the site. The report will assess the potential for remains of all archaeological eras at the site and appraise the possible impact on such remains by the proposed development. There may be a requirement for a further stage of archaeological work in light of the findings of the DBA.

2.1.4 The DBA was completed following a visit to the study site and an examination of documentary, photographic and cartographic sources, in order to ascertain the archaeological and historical background of the area, and to assess the potential for archaeological remains and their survival.

2.1.5 The **O**nline **A**cces**S** to the **I**ndex of Archaeological Investigation**S** (OASIS) reference number for the project is: preconst1-33340.

2.2 Site Location and Description

2.2.1 The study site is located on land immediately south of Jackson Dock in the southern portion of the Hartlepool Marina area and is centred at National Grid Reference NZ 5135 3290 (Figure 1). Immediately to the north-west is the award-winning Historic Quay, a recreation of an 18th century seaport portraying maritime experiences of the Napoleonic times. HMS Trincomalee is berthed there, this being a triple-masted frigate built in 1817 and the oldest British-built frigate afloat.

2.2.2 Maritime Avenue, a thoroughfare that runs through the study site from west to east, serves the Historic Quay from the south, continuing to the west to meet Marina Way. The site itself therefore comprises a smaller, wedge-shaped portion of *c.* 1.1 hectare to the north of the road and a larger, squarish portion of *c.* 3.2 hectares to the south of the road (Figure 2). The overall size of the study site, including the portion of Maritime Avenue running through it, is therefore *c.* 4.5 hectares.

[1] Cundall 2007.

Figure 1. Site location
Scale 1:25,000

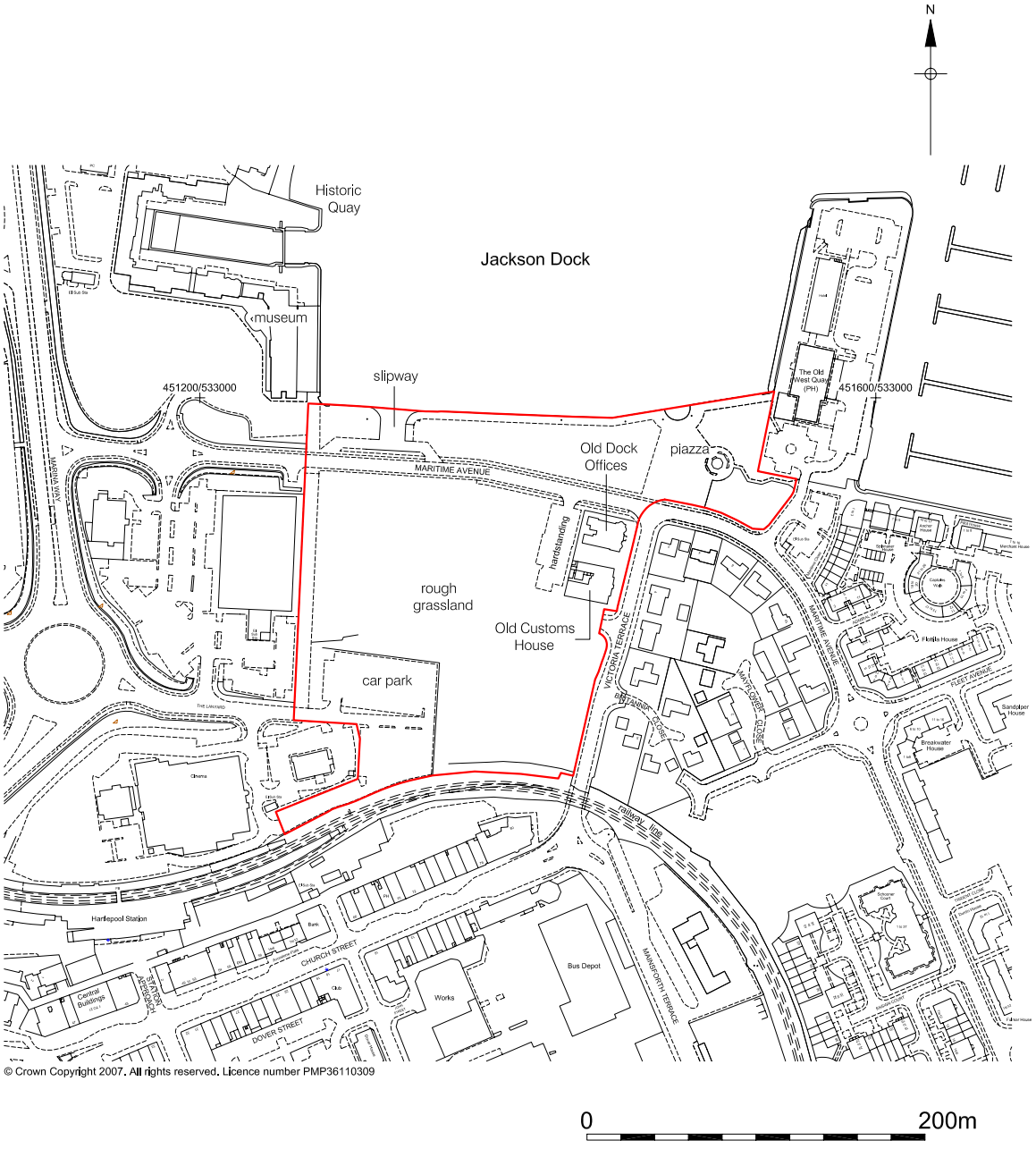

Figure 2. Area of proposed development
Scale 1:4,000

2.2.3 North of Maritime Avenue is the smaller portion of the site, overlooking Jackson Dock. To the west it fronts onto land occupied by Hartlepool Museum, while to the east lies the west quay of the former Coal Dock, now the site of The Old West Quay public house. Its easternmost part comprises a piazza with bandstand and stepped, semi-circular feature, built into the wall of Jackson Dock. Towards its western end is a launching slipway for sailing vessels, created where a former cut linked Jackson Dock to Swainson Dock, the facility known to have occupied the western portion of the study site between the 1850s and the 1960s. The remainder of the northern area is open ground, variously surfaced, but mostly dolomite hardcore and tarmac.

2.2.4 South of Maritime Avenue is the larger portion of the site, bounded to the south by the curvature of an existing railway line, to the west by The Lanyard leisure and retail complex, and to the east by Victoria Terrace. Two Grade II listed buildings, the 'Old Dock Offices and walls' and the 'Old Customs House', occupy its north-eastern corner, with an area of hardstanding to the west of those buildings. The majority of the southern area is open ground with a cover of coarse grass and scrub, the exception being the south-westernmost portion, which is a tarmac car park, with a low hedge delimiting its northern and eastern boundaries.

2.3 Planning Background

2.3.1 This assessment of the archaeological potential of the study site has been commissioned to form part of an EIA to accompany a submission regarding a development proposal. In 2006, HBC invited expressions of interest from the private sector for the future development of the site.

2.3.2 At a national level, the need for early consultation in the planning process in order to determine the impact of development schemes upon the archaeological resource is identified in '*Planning Policy Guidance Note 16: 'Archaeology and Planning'* (PPG16).[2] At a local level, the Development Plan framework is provided by the HBC Local Plan, adopted in April 2006.[3] The Local Plan contains the following policy:

> *HE14 - PROTECTION OF ARCHAEOLOGICAL SITES*
> *The Borough Council will seek to protect archaeological sites and, where appropriate, their setting.*
> *Where development proposals affect sites of known or possible archaeological interest the Borough Council may require that an archaeological assessment/evaluation is carried out prior to any planning application being determined. This is intended to indicate whether the development is likely:*
> - *To be subject to archaeological recording,*
> - *To be subject to a requirement to preserve remains in situ, or*
> - *To be refused.*
>
> *Where nationally important remains are found to exist then their preservation in situ will be required. Where this cannot be achieved by sensitive design then planning permission may ultimately be refused.*
> *When physical preservation is not required, and where appropriate, the council will, by means of conditions, require the applicant to make proper provision for the investigation of the site before and during development.*

[2] Department of the Environment, 1990.
[3] Available online at *www.planningportal.gov.uk.*

2.3.3 In discussing '*Areas of Archaeological Interest*', the HBC Local Plan contains the following:

> Paragraph 14.37*: 'The rich archaeological heritage of the Borough is not fully represented by its few sites with statutory designations'.*
>
> Paragraph 14.38*: 'The Borough Council and Tees Archaeology will offer advice to developers at the pre-application stage where archaeological remains are likely to be affected by development. These consultations and any subsequent assessments by qualified archaeologists commissioned by the developer may reveal that important archaeological remains exist'.*
>
> Paragraph 14.39*: 'On receipt of proposals for development likely to affect sites of archaeological interest an assessment will be made to determine possible impact on the site. The developer will be requested to arrange for an archaeological field evaluation to be carried out before any decision is taken on the planning application. This will allow the Borough Council to assess the weight which ought to be attached to the preservation of the remains in situ whether the site is scheduled or not. It will assist the Borough Council in determining whether the application will be refused, required to be preserved in situ or whether archaeological recording is required'.*
>
> Paragraph 14.40*: 'In rare situations it may not be feasible to preserve archaeological remains in-situ. Each case will be assessed on its merits and an acceptable alternative may be for an investigation by excavation and recording to be carried out. The Borough Council may secure this by imposing a condition to planning permission or through a legal agreement. Developers will be required to show, before development commences, that proper provision has been made for excavation and recording of the archaeological remains'.*

2.3.4 The curatorial arm of Tees Archaeology has responsibility for monitoring planning applications within the Borough of Hartlepool and identifying instances where development proposals may have an archaeological impact.

2.3.5 In this instance there are considered to be two potential impacts upon buried archaeological remains. The first concerns prehistoric peat deposits known to underlie the entire harbour/dock area; these facilities were created in the 19th century in the northern end of the extended Hartlepool Bay, to the west of the rocky peninsula (The Headland) that was the focus for earliest settlement in the town. Peat deposits typically lie at depths of *c.* 4-5m below the modern ground surface and can be an important source of significant archaeological and palaeoenvironmental information.

2.3.6 The second potential impact concerns the location of the site close to the Historic Quay, within the heart of the industrial era dock/harbour complex. The western part of the site was formerly occupied by the eastern part of Swainson Dock, created in the 1850s and reclaimed in the 1960s, while dockside structures, such as warehouses, railways and housing, occupied the eastern part of the site. Industrial era remains, particularly those derived from the important maritime heritage of the town, are considered to represent a vital archaeological resource.

2.3.7 Compilation of an archaeological DBA should facilitate an appraisal of the impact of a proposed development on the potential archaeological resource at any site. Measures to mitigate such impact are usually formulated through discussion between developers and the LPA following the submission of a DBA. In some cases, a DBA highlights the need for further archaeological work, usually some form of fieldwork, prior to or during development groundworks.

3. AIMS AND OBJECTIVES

3.1 The broad aims of the DBA are:

- to identify the impact of the proposed development upon the historic environment;
- to identify parts of the study site for which further archaeological work may be appropriate;
- to assist in the formulation of recommendations for any further archaeological work considered necessary to inform the planning decision.

3.2 The results of the DBA will be used to make an informed decision on the necessity, or otherwise, for an archaeological mitigation strategy in relation to the proposed development.

4. METHODS OF ASSESSMENT

4.1 Research and Data Collection

4.1.1 Several sources of data relating to the study site and surrounding area were consulted during the research phase of the DBA, including a map regression exercise and consultation of the Sites and Monuments Record (SMR) maintained by Tees Archaeology.

4.1.2 Listed below are the main sources consulted during the compilation of the DBA:

- Tees Archaeology SMR, Sir William Gray House, Clarence Road, Hartlepool, TS24 8BT - visited 9th October 2007.
- Hartlepool Central Library, Reference Department, 124 York Road, Hartlepool, TS24 9DE - visited 9th October 2007.

4.1.3 Full details of all the material examined for the DBA are set out in Section 10.

4.2 Site Visit

4.2.1 In addition to the research described above, a site visit was undertaken on the 9th October 2007, in order to carry out a visual inspection of the study site.

4.2.2 During the site visit, a brief photographic record of the study site was compiled with a digital camera and a representative selection of the photographs is included herein (Appendix A). Plates 7 to 12 show the main elements of the study site at ground level. Also of note is Plate 1, a recent aerial photograph of the study area, which shows the study site in its overall context.

5. GEOLOGY, TOPOGRAPHY AND LAND-USE

5.1 Geology

5.1.1 The land to the west of the northern part of Hartlepool Bay is characterised by substantial outcrops of limestone, occupied by The Headland, the earliest settlement core in the town, and the 19th century settlement area of West Hartlepool. The modern area known as Hartlepool Marina occupies a depression between these outcrops and further outcrops occur at Long Scar and, further south, at Seaton Carew. Therefore, the solid geology in the vicinity of the study site comprises well-bedded, granular, often oolitic dolomite rocks of the Permian and Triassic eras, which form part of the Roker Dolomite Formation. This is part of a larger group of Late Permian carbonate rocks that form much of the historic County Durham coast. The marina area is also notable for Hartlepool Anhydrite, which is a crystalline rock from the Late Permian era, mainly restricted to land around this part of the Bay.[4]

5.1.2 Buried valleys caused by fluvial erosion of rivers during earlier glacial periods are a common feature towards the historic County Durham coastline. Such a buried channel is known to exist in the region of The Slake, the shallow bay extending inland on the west side of the rocky peninsula of The Headland, and the site of the earliest port facilities in the town. Such palaeochannels became infilled with Quaternary deposits, mainly tills and fluvio-glacial sediments deposited during episodic later Devensian glaciation and ice retreat. Glacial deposits also generally overlie outcropping solid geology around Hartlepool Bay, and often these deposits are associated with depressions, valleys and gullies, infilled with Late Glacial and Holocene sediments.[5]

5.1.3 The underlying topography of Hartlepool Bay is mostly masked by a cover of beach sand so that till and peat (representing former vegetated land surfaces) exposures are rarely visible, with more extensive areas of the sub-sand topography being exposed only after major storms. The current drainage channels into the Bay are largely concealed by industrial and residential development. The presence of buried peat deposits in the Bay has long been known, with antiquarian observations during 19th century development of the harbour/docks area establishing that such strata continued northwards beyond The Slake towards The Headland.[6]

5.1.4 Two programmes of geotechnical site investigation (SI) are known to have been undertaken at the study site and the findings are summarised here. The first SI, for which only a summary of the results could be located, was conducted in the northern part of the site, close to Jackson Dock.[7] The areas investigated generally encountered 'fill' materials – generally modern demolition rubble and ash deposits - extending up to *c.* 3.0m below existing ground level, before organic silty clays, at least *c.* 2.0m in thickness, were reached, these being of alluvial origin. A uniform band of peat was typically encountered at *c.* 5.0m depth and was, in some cases, *c.* 1.50m thick, generally overlying further alluvium, before stiff glacial till was reached at uniform depths of *c.* 6.50m below ground level. Tills continued to depths of at least 15.0m.

[4] Waughman 2005, 1.
[5] *ibid.*
[6] *ibid.*
[7] Work undertaken by Dunelm Drilling Company; summary of report appended to Hartlepool Borough Council 2006.

5.1.5 The results of the second programme of geotechnical SI, undertaken in two parts in 2005 and 2007, are summarised in tabulated form in Appendix C, with an accompanying plan showing the locations of relevant tests from those works. In general, across the northern part of the site the uppermost deposits were 'fill' materials, including demolition rubble, 1.20m-2.10m in thickness. In places, generally clayey deposits, up to 1.70m thick, were encountered, these of rather uncertain origin but probably of alluvial origin rather than of archaeological interest. Undisturbed alluvial deposits, mostly silty organic clays, were recorded at depths ranging from 1.20m to 3.80m, with developed peat encountered at depths between 1.60m and 3.70m and varying in thickness between 0.30m and 1.10m. Further alluvial material - typically organic clay - was generally the lowermost deposit recorded in the northern area. One borehole (BH X1), sited close to the wall of Jackson Dock, did continue as far as the underlying firm clay, this recorded at a depth of 4.90m and at least 3.0m thick.

5.1.6 In the southern part of the site, all but three of the test locations were sited on the former dockside area east of Swainson Dock. Of the three tests within the former water area of the dock, one borehole to the north (BH 1A) recorded rubble, slag and ash 'fill', up to 8.25m thick, overlying a thin surviving band of silty organic clay above stiff clay, this at a depth of 8.50m. On the former dockside, numerous test locations recorded a variety of strata. 'Overburden', mostly demolition rubble, varied in thickness from 0.35m to 1.80m. Potential archaeological deposits were recorded in most locations, these generally reached within the uppermost 1.0m of strata. Of note were structural remains such as a possible brick foundation (at 0.70m depth in TP S3), a sett and brick floor (at 0.50m depth in TP S5) and two cellar floors (at 1.70m in TP S6 and 1.80m in TP S7). Where alluvial deposits were reached, the material mostly comprised silty organic clay recorded at depths between 3.0m and 3.30m. Developed peat was encountered at three locations, between 3.90m and 4.90m depth, in one instance (BH 3) being 2.35m thick. The underlying firm to stiff clay was reached at depths between 4.80m and 6.40m in test locations on the former dockside in the southern part of the site.

5.2 Topography and Land-use

5.2.1 The study site occupies ground immediately south of Jackson Dock and comprises two areas, a smaller northern portion and a larger southern portion, either side of Maritime Avenue, which runs from east to west to join Marina Way (Appendix A, Plates 7-12). Existing ground level at the site can be described as generally flat, with slight fluctuations around 6.0m OD.

5.2.2 The northern part of the site is variously surfaced, with the eastern piazza generally paved, including a stepped area in the south wall of Jackson Dock, and a small landscaped garden, the reminder being dolomite hardcore and tarmac. The former location of the entrance to Swainson Dock is now represented by a slipway in the south wall of the dock, this providing convenient launching facilities for sailing activities in the water area of the marina.

5.2.3 The southern part of the site is largely open ground, with a compact gravel and hardcore surface, mostly overgrown by coarse grass and scrub. The south-western corner of this area contains a tarmac car park, with a low hedge delimiting its boundary to the north and east. The north-eastern corner of this area is occupied by standing buildings, the former Dock Offices and former Customs House, both Grade II listed, with an area of hardstanding skirting the western boundary of the properties. These buildings have been converted for residential use.

SMR Ref.	Grid Ref.	Description	Period	SMR Ref.	Grid Ref.	Description	Period
131	451440/532920	Listed building	Modern	3261	451300/532900	Docks	Early modern/industrial
133	451430/532890	Listed building	Early modern/industrial	4059	451610/533240	Mammoth tusk	Prehistoric
967	451060/532600	Church	Early modern/industrial	4545	451100/533130	Docks	Early modern/industrial
990	451550/532720	Defences	Early modern/industrial	4546	451150/533070	Docks	Early modern/industrial
1818	451660/533000	Harbour	Early modern/industrial	4547	451230/533130	Docks	Early modern/industrial
2858	451140/532710	Railway station	Early modern/industrial	4964	451060/532680	Subway	Early modern/industrial
2859	451420/533080	Docks	Early modern/industrial				

Figure 3. SMR entries
Scale 1:12,500

6. ARCHAEOLOGICAL AND HISTORICAL BACKGROUND

6.1 Introduction

6.1.1 In order to assess the archaeological potential of the study site, a programme of documentary and cartographic research was undertaken. The starting point for this research was the SMR maintained by Tees Archaeology and all entries within a 250m radius of the study site were examined and mapped (Figure 3). Full details of SMR entries thus identified are set out in Appendix B. SMR information has been supplemented by data gathered from a variety of other sources, archaeological, documentary and cartographic, in order to compile this section of the assessment.

6.1.2 The purpose of this study is not to set out a comprehensive history of land use in the area. The broad intention is only to predict and extrapolate likely archaeological conditions within the study site from finds and research in the vicinity. However, analysis of archaeological discoveries made nearby are important, as is an examination of existing historical and archaeological records relating to the site, since it is recognised that finds and sites entered onto the SMR are at best a small and unrepresentative sample of the total buried heritage.

6.1.3 Time scales used in this section:

Prehistoric	
Palaeolithic	450,000–12,000 BC
Mesolithic	12,000–4,000 BC
Neolithic	4,000–2,300 BC
Bronze Age	2,300–700 BC
Iron Age	700 BC–AD 43
Historic	
Roman	AD 43–410
Anglo-Saxon	AD 410–1066
Medieval	AD 1066–1485
Post-medieval	AD 1486–AD 1830
Industrial/Early Modern	AD 1830-AD 1939
Modern	AD 1940-present

6.2 Prehistoric

6.2.1 There is one SMR entry for all the prehistoric eras within a 250m radius of the study site (Figure 3). This entry (SMR 4059) relates to the discovery of a mammoth tusk during excavation of the West Hartlepool Docks. It was reported by local antiquarian W.Y. Veitch in 1899 and, therefore, is probably not a primary account of its discovery, given that the main phase of excavation for the docks took place between 1847 and 1856. However, the discovery of a mammoth tusk in the area is not entirely unexpected, given that ancient peat beds are known to extend throughout the harbour/docks area. It is for these deposits that the study site has particular potential.

6.2.2 The peat deposits lie beneath Hartlepool Bay, north of Long Scar rocks, and extend inland beneath the area developed in the 19th century for the harbour/docks, northwards beyond The Slake and under the sea to the north-west of The Headland.[8] Until recent years, archaeological and palaeoenvironmental evidence from the peat deposits had been restricted to casual finds and collections of artefactual and ecofactual material recovered as peat beds were exposed by tidal erosion. However, by the end of the 1980s it was apparent that extensive archaeological remains were present within the Bay, although, for a variety of reasons, no coherent picture existed of the nature and chronology of human exploitation in these areas.

6.2.3 Aside from the obvious archaeological value of the deposits underlying the Bay, their value to the study of sea level and palaeoenvironmental change has long been acknowledged. In recognition of this, *c*. 20 hectares of the beach in Hartlepool Bay were designated a Site of Special Scientific Interest (SSSI), 'Hartlepool Submerged Forest', in 1988. The northern extent of the SSSI lies north of the Newburn Bridge outfall pipe, *c*. 750km to the south-east of the study site. A proposal for a scheme of coastal protection was put forward to HBC in the late 1980s and renewal of sea defences necessitated the disturbance or destruction of foreshore deposits within the SSSI, thus providing an opportunity, through three fieldwork projects, for a detailed study of the submerged archaeological landscape.

6.2.4 The third of the three phases of investigation was undertaken in the vicinity of the Newburn Bridge outfall pipe in 2002-03, and was therefore the closest to the study site. This work confirmed the presence of a tidal inlet, predicted by earlier palaeoenvironmental work, by identifying a north-easterly flowing palaeochannel *c.* 60m to the north of the outfall pipe.[9] Only a small area of peat had survived tidal erosion in this area, but evidence for human activity, comprising charcoal and struck flint, dating to the Mesolithic period, was found in the peat, in the immediate vicinity of the palaeochannel. Some Neolithic exploitation of the area was also evidenced by charcoal, cut wood, and faunal remains.

6.2.5 The initial phase of work, in 1990, had been undertaken in the area to the south of where the third phase would be conducted. A weathered surface on the till was exposed between 0.60m and 0.80m OD, and this produced evidence of human activity dated to the late Mesolithic period, comprising struck flint and charcoal, overlain by an early Neolithic hillwash deposit associated with disturbance from woodland clearance. Organic silts from the Neolithic period overlay these deposits, these producing a few flints and scatters of charcoal. The largest quantity of artefactual and ecofactual material came from overlying peat deposits of Early Bronze Age date. Cattle, red deer and pig were identified amongst the animal bone assemblage, all this probably food debris, although a hollowed-out red deer antler tine, probably a handle, was also recovered. The overlying Late Bronze Age deposits contained evidence for structural remains in the form of three sharpened stake tips, probably representing a fenceline or hurdle. During this work, the peat sequence was recorded between heights of *c.* 1.10m and *c.* 1.50m OD.

[8] Waughman 2005, 3.
[9] Waughman 2005, 71.

6.2.6 The second phase of work, in 1995-6, was the southernmost of the three phases, conducted along Carr House Sands towards Seaton Carew, an area that had previously seen two notable Neolithic finds. The first was a contracted adult male burial, found in 1972 in peat deposits south of Newburn Bridge; the remains were radiocarbon dated to 3632-3342 cal BC. The second was a wattle panel, dated by radiocarbon to 3932-3665 cal BC, discovered in 1994 on the beach at Carr House Sands, lying at a height between –0.09m OD and –0.26m OD. Made from hazel and alder and resembling basketry rather than hurdling, the item was interpreted as part of a fish weir. The 1995-96 work recorded a palaeochannel in the southern part of the beach, with evidence for earlier Neolithic exploitation along its margins, possibly connected with fishing, with posts and stakes recorded. Evidence for woodland clearance towards the end of the Neolithic period was also recorded, along with evidence for similar activity in the Late Bronze Age, by which time the area is likely to have been a saltmarsh or littoral environment. A pit, possibly a Late Bronze Age fish tank, was also recorded.

6.2.7 In addition to these archaeological discoveries, Hartlepool Bay has produced significant data regarding the reconstruction of sea level history and palaeogeography from its sequence of inter-tidal organic wetland deposits. In sum, investigations have revealed that sea levels rose rapidly during the Mesolithic period, with subsequent fluctuations during the Neolithic period and Bronze Age, before the generally higher sea levels of the Iron Age. Pollen evidence records vegetation from before 7000 to 2000 BP and reveals episodes of land clearance, which become increasingly intense during the Neolithic, but in particularly from the Late Bronze Age onwards. This agricultural intensity is represented by the increasing presence of cereal types in the pollen record. As previously discussed, human exploitation of the wetland during the Mesolithic and Neolithic periods appears to have focused on the palaeochannels flowing through what is now Hartlepool Bay, and this activity can be seen as broadly correlating with fluctuations in the sea levels. At the end of the Iron Age, the coastline was established close to its present position.

6.2.8 A specific example of a palaeoenvironmental investigation in Hartlepool Bay contributing significant data about the past environment, through pollen analysis and radiocarbon dating, is the work undertaken in the vicinity of The Stell, a stream with an incised valley that enters the Bay north of Seaton Carew. Column samples from this site produced early Holocene pollen spectra, from deposits immediately beneath a peat layer exposed along the margins of a palaeochannel, which revealed a vegetation pattern comprising mixed woodland of pine, birch and hazel with ferns.[10] The pollen record from the lowermost peat, dated to 6550 ±40 BP to 5230 ±50 BP, revealed a sequence of sharp fluctuations between woodland and grassland dominance. This data indicated that the area was inundated by the sea *c*. 4900 BP, although peat subsequently began to form again and the upper peat in this area dates from between 4850 ±40 BP and 3930 ±40 BP. Pollen analysis shows similar fluctuations as the lower peat with reedswamp vegetation giving way to mixed alder woodland by 4180 ±50 BP. By 3930 ±40 BP, a dune slack habitat had developed and the site was overwhelmed by sand.

[10] Innes *et al.* 2005, 119.

6.2.9 In overview, lithic evidence from the area of Hartlepool Bay does not suggest sustained or repeated prehistoric occupation in any one place, but appears to represent a series of ill-defined exploitation sites distributed across the landscape.[11] Mesolithic and earlier Neolithic activity seems to have focused around watercourses, and in particular the palaeochannels flowing through the Bay. Good evidence for Mesolithic manipulation of the environment has been recorded, as evidenced by charcoal within ancient ground surfaces overlying the till and within earlier peat deposits. Pollen evidence also indicates forest disturbance and this fits in with widespread evidence for the systematic burning of vegetation during the Mesolithic, probably undertaken to increase the productivity of edible plants and provide a more suitable environment for animals. Faunal remains and hoofprints have demonstrated that large herbivores such as red deer were present. The later Neolithic and earlier Bronze Age periods saw fluctuating seal levels in Hartlepool Bay which periodically brought drier conditions and peat deposits from this period fluctuated between woodland and reedswamp environments. The wetlands appear to have been little utilised during the later Neolithic period, although during the Bronze Age, human impact on the vegetation at Hartlepool Bay becomes most intense and diverse. Settlements and agricultural land are likely to have been located on the higher ground surrounding the Bay area, with specialist activities taking place within the wetland environment of the Bay. The latest surviving peat deposits date from the later Bronze Age and a decrease in the archaeological evidence from these deposits may reflect the increasing wetness of the environment, which must have limited accessibility. Hoofprints found in the peat suggest that the coastal saltmarsh environment of the Bay may have provided lush seasonal pasture. From the Iron Age onwards, there is little archaeological evidence for the exploitation of the intertidal zone.

6.2.10 Previous geotechnical SIs (the results of which are discussed in detail in Section 5.1) have established the presence of peat within existing and former dockside areas at the site. Such material lies at depths varying between 1.60m and *c.* 5.0m below existing ground level (which stands at *c.* 6.0m OD) and varies in thickness from 0.20m to 2.35m. In summary, therefore, the potential for prehistoric wetland deposits at the study site is **high**.

6.3 Roman

6.3.1 There are no SMR entries for the Roman period within the 250m search area (Figure 3).

6.3.2 No evidence for Roman occupation or exploitation of the study area is known, although further afield there is evidence for possible Roman settlement on The Headland where coins of 2nd and 3rd century AD date have been found. A late Roman double burial was discovered at Lancaster Road, Hartlepool, *c.* 1km north-west of the site. A settlement at Catcote, *c.* 4km to the south-west, originated in the Iron Age and continued to be occupied throughout the Roman and into the post-Roman period. The presence of imported goods from the later Iron Age and Roman periods suggests that the settlement had a link with coastal trade.

6.3.3 In summary, the potential for Roman remains at the study site is considered **low**.

[11] Waughman 2005, 129.

6.4 Anglo-Saxon

6.4.1 No entries relating to the Anglo-Saxon period are recorded on the SMR within the 250m search area (Figure 3). Apart from one or two documentary references to possible settlement in Hartlepool prior to the Norman Conquest, there is no evidence that the town was ever the location of an Anglo-Saxon settlement.

6.4.2 In summary, the potential for remains from the Anglo-Saxon period at the study site is considered **low**.

6.5 Medieval

6.5.1 No SMR entries of medieval date are situated within the 250m search area (Figure 3).

6.5.2 The town of Hartlepool was in existence by the mid 12th century as part of continuing urbanisation following the Norman Conquest. The Brus family took the decision to develop the town close to their manor at Hart, with the core of the settlement located on the top of the rocky ridge now known as The Headland. In 1230, a new charter was granted which freed the burgesses from manorial control, this broadly coinciding with construction of the Franciscan Friary and cemetery. At this time the settlement was probably agricultural, although increasing industrial activity in the medieval period saw the deliberate construction of harbour structures.

6.5.3 By the 14th century, medieval Hartlepool was in its heyday, monopolising shipping in the Durham coastal area. Fuelled by expanding trade and international tensions, Hartlepool became economically and strategically important, evident in the continuing expansion of the harbour and the construction of town walls, elements of which, such as the Sandwell Gate, survive to this day. However, there is little or no evidence that the area later developed as West Hartlepool, and specifically the 19th century docks area, was ever the site of significant medieval occupation.

6.5.4 In summary, the potential for archaeological remains of medieval date at the study site is considered **low**.

6.6 Post-medieval-Modern (including map regression evidence)

6.6.1 There are ten SMR entries and two listed buildings of early modern/industrial era date within the 250m search area (Figure 3).

6.6.2 In the 16th and 17th centuries, Hartlepool continued to be recognised for its strategic importance. In 1569, it was captured by rebels in the 'Rising of the North', and almost a century later the town was held for parliament by the Scots in the Civil War. Both Saxton's map of Durham from 1607 and Bill's map of 1626 (neither reproduced herein) show the town of '*Hartlepoole*' or '*Hartlepole*' as a significant port.

6.6.3 By the 18th century, the importance of the town as a port had fallen into considerable decline, with the harbour evidently in a state of disrepair. By the early 19th century it was largely redundant as a port being more renowned as a seaside town. Evidence of this downturn in fortune comes from a proposed decision to enclose the harbour and grow corn on The Slake, a decision that was reversed by petition in 1813, thereby saving the harbour. This proved crucial for Hartlepool, with the town then poised to take advantage of the looming industrial era.

6.6.4 As early as the 1820s it was suggested that a railway be built in Hartlepool in order to connect the docks to the County Durham coalfields, with the intention of developing the town as a coal port. However, it was almost a decade before Hartlepool Dock and Railway Company (HD&RC) was established by Christopher Tennant, with the line opening in 1832. The town was inundated with transient workmen and navvies, to help with construction of the docks and railways. Hartlepool Harbour was opened in 1835, with the Victoria Dock, the first such facility in the town, opened in 1840, close to The Headland. In 1841, the Stockton and Hartlepool Railway Company (S&HRC) opened a new railway in the town, this extending into the dock.

6.6.5 Ralph Ward Jackson, a solicitor for the SHRC, was one of the prime movers in the industrial development of Hartlepool. His original intention had been to build a dock on The Slake, although the HRDC, the owners at the time, had prevented the development from proceeding. Undeterred, Jackson put a bill through Parliament to seek permission to build another dock in the coastal village of Stranton, which soon became absorbed into the dockland associated settlement area of West Hartlepool. Despite heavy opposition from the HRDC, the bill was passed in 1844, allowing Ward Jackson to form the West Harbour and Dock Company (WH&DC) thereby legitimising his mandate for further development.

6.6.6 The new dock, known both as the Coal Dock (SMR 1818) and the West Dock, had a water area of *c.* 3 hectares. It was the first dock associated directly with the West Hartlepool settlement area, and today remains part of Hartlepool Marina. The Stockton and Hartlepool Railway had to be rerouted by this development so that coal wagons could directly access the staithes of the Coal Dock. Jackson conceptualised a new town growing around these industrial ventures and envisaged a thriving community, serviced with rows of imposing buildings facing the sea. To the south, the Dock Offices and the Ship Hotel, later to become the Customs House, were part of this grandiose arrangement, which also included a row of shops on Victoria Terrace and the Royal Hotel on Albert Square.

6.6.7 The ‘Old Dock Offices and walls’ and ‘Old Customs House’ remain today as Grade II listed buildings within the study site. The two-storey Dock Offices were built of sandstone in 1846 to a Neo-Classical style, although other influences can be seen, such as the Roman Doric distyle porch. The building is notable because of its landmark clock tower, which was built in two stages and features a square pedestal, with recessed clock faces within circular openings, topped with an octagonal bellcote and what is now a missing dome. The building immediately south of the Dock Offices was built in 1844 and began life as the Ship Hotel, only to be converted into the Customs House in 1880. This three-storey building, built in cream Pease brick with painted stone dressings, features a series of large prominent pilasters.

6.6.8 Although the Coal Dock was opened in 1847 and West Hartlepool had been unofficially named only months previously, there was generally little associated development in the area before 1850. It was the building of additional docks, which in turn attracted an ever-increasing population, before West Hartlepool began to appear as a small town.

6.6.9 By 1850, there were 18 collieries shipping coal from Hartlepool. Between 1852 and 1854, the town developed significantly, with dozens of new streets constructed, many named after either the Royal Family or the landowners themselves. There were, however, no municipal buildings and insufficient amenities, such as cemeteries, sanitation, schools and magistrates. This remained the general state of affairs until 1853, when Ward Jackson made an application to Parliament for the status of the town to be recognised, in order to implement civic improvements; the '*West Hartlepool Improvement Act, 1854*' received Royal Assent that year.

6.6.10 In 1852, the SHRC amalgamated with the WH&DC to form the West Hartlepool Harbour and Railway Company (WHH&RC). By the following year this company had the interest of the Leeds North Railway Company (LNR), who intended to bring the bulk of trade from the West Riding of Yorkshire to the expanding port of West Hartlepool. Expansion required new railways, sidings, docks and warehouses. The new railway line crossed the centre of the existing symmetrical layout of the town, so that many businesses were forced to relocate.

6.6.11 Jackson Dock (SMR 2859) was opened in June 1852, thereby relieving pressure on the now overburdened Coal Dock. At the same time, the LNR opened a new line connecting Hartlepool with inland towns such as Bradford, Leeds and Manchester. Jackson Dock was constructed of blocks of squared, coursed stone, and had a water area of *c.* 5.7 hectares. The dock itself survives as part of the Hartlepool Marina complex, and the dock wall forms the northern limit of the study site.

6.6.12 Cutting of the new dock provided significant amounts of limestone, which was donated, along with land, for the construction of several buildings in the town, such as The Athenaeum, opened in 1852, and Christ Church (SMR 0967), opened in 1854. A documentary record mentions that alter rails of Christ Church were made from bog oak recovered from the submerged forest during the excavations for the dock.[12] The church was designed in the Early English style by architects E. Lamb of London and consecrated in April 1854. It is still in existence, located 250m south-west of the study site, and is now in use as an art gallery. Adjacent to Jackson Dock is the surviving Rail Transit Shed, one of two warehouses that served Jackson, and later Swainson, Dock. This building is now the site of the Hartlepool Museum.

6.6.13 By 1857 the value of merchandise shipped from West Hartlepool was more than that from Newcastle-upon-Tyne. By 1862, Hartlepool was ranked as the fourth largest port in England, after London, Liverpool and Hull.[13] Ward Jackson was eager to see the status of the town further elevated and his enterprising nature linked increased prosperity to commercial growth. Accordingly, he commissioned the building of graving docks, which could be sealed and drained, thereby creating dry docks facilities, essential for shipbuilding and maintenance.

[12] Wood 1967, 47.
[13] Rowe 2000, 10.

6.6.14 There are two such docks close to the study site, both located immediately west of Jackson Dock, and both now backfilled and built over. The first graving dock (SMR 4546) was originally sited off Swainson Dock and had a water area of *c.* 0.25 hectares, while the second (SMR 4547) was sited off Jackson Dock and had an area of *c.* 0.20 hectares. It was the presence of these facilities that persuaded John Pile, a local shipbuilder, to relocate to West Hartlepool and build 'The Mirage', a first class tea clipper, launched in 1854. A partnership between shipbuilder John Denton and William Gray procured the site that became known as 'Gray's Old Yard' for shipbuilding from 1868 onwards.[14] Such works were instrumental in enhancing the standing of the town and attracting businesses, such as the foundry of Samuel Bastow, who acquired land from Ward Jackson in 1858 and began to make locomotives, steam engines and cranes.[15]

6.6.15 The expansion in commerce and trade in West Hartlepool is evident in statistics comparing the years 1847 and 1861.[16] For example, the population of the town rose from <300 to 14,000 in this period, while the number of vessels docking in the town rose from 460 to 5,964 and the amount of shipped coal rose from 54,202 tonnes to 975,319 tonnes. Figures such as these caused envy in the region, with Sunderland labelling itself *'a dawdling concern'* by comparison.

6.6.16 The increase in trade and commerce was a direct result of rail network and harbour expansion, and this was to continue with the opening of Swainson Dock (SMR 3261) on the 3rd of June 1856. Named after the father-in-law of Ralph Ward Jackson, Swainson Dock opened with a lavish ceremony. The *Stockton and Hartlepool Mercury* and *Middlesbrough News* reported '*the rough outline of a handsome, modern town shaping itself around a dock'* with the Chairman of the NER adding '[the land was] *a barren shore and a heap of blown sand hills that had feasted cattle and sheep some four or five years earlier*'.

6.6.17 Swainson Dock (SMR 3261) was a polygonal dock with a water area of 4.5 hectares (Plate 2). It was accessed solely via a cut in the south-west wall of Jackson Dock. The site of this access, which was spanned by a swing bridge from its original construction, is now represented by a slipway towards the north-western corner of the study site. By 1860, extensive warehouses had been constructed on the north and east sides of Swainson Dock (Plate 2). When entering Swainson Dock to port was 'No. 4 Warehouse' (plate 4), later known as the 'Match Factory', which spectacularly took fire and burnt down in 1954 (Plates 5 and 6). Ahead was an extensive quay to the rear of what would become, by the late 19th century, the site of the railway station. To starboard was a dockyard with launch ways and a dry dock. A ninety-degree turn to starboard past the dry dock gave access to the 'Timber Dock' (SMR 4545), a long rectangular dock with a water area of *c.* 1.2 hectares.

[14] Waggott 1980, 9.
[15] Rowe 2000, 20.
[16] Waggott 1980, 187.

6.6.18 Timber importing was a thriving venture in the town from the mid 19th century, with numerous sawmills being built, not only to service the boom in housing and shipbuilding, but also to supply the Durham coalfields with pit props and railway sleepers. Local businessmen were quick to capitalise on this, with as mentioned above, specific facilities being created for docking timber (Plate 3). West of Swainson Dock and the connected Timber Dock was a substantial land parcel, the 'Timber Yard', served by rail sidings. Still in use in the 1980s, this yard has now been completely re-developed. The Timber Yard was the site of a massive fire in 1922, which, at its height, covered 80 acres of ground, destroying several nearby streets.

6.6.19 By 1880, further development of the docks had connected West Hartlepool to the Tide Harbour of The Headland for the first time. These works included enlargement of timber ponds in The Slake in 1864, followed by construction of Union Dock, Central Dock and the North Basin. A prime mover in development in this period was the North Eastern Railway Company (NER) which purchased the Stockton and Darlington Railway in 1863 and then, two years later, took over the WHH&RC, with Ward Jackson ousted in the process.[17]

6.6.20 There are three other entries in the SMR within the study area, all of which date to the second half of the 19th century. The present railway station at Hartlepool (SMR 2858) is actually the fourth to have been sited in the town. It originally operated two platforms covered by glass canopies linked by a footbridge. A subway (SMR 4964), built in red brick in English Garden Wall bond and capped with moulded stone copings, connected Church Square to Swainson Dock. This was more than 100m in length and passed under railway lines for almost half of its length. It was infilled in recent times to facilitate modern development. A large concrete bunker (SMR 990), believed to be a Railway Control Centre, is now demolished.

6.6.21 By 1891, West Hartlepool had a population of 64,000 and industry continued to thrive until the First World War. By 1913, there were 42 ship-owning companies in the town, which was one of the most successful coal exporters in the region. Its industrial significance is indicated by the German bombardment of the docks from the sea during the First World War. The reliance on heavy industry meant that the town suffered badly during the economic depression of the 1930s and, after the Second World War, its heavy industries were in terminal decline, with the last ship built in the town in 1960–61. Coal and coke exports also dwindled, with the last such leaving the port in 1971.

6.6.22 Structures surviving from the 19th century industrial boom are the Coal Dock, Jackson Dock, Union Dock and the North Basin. The Timber Dock and the two graving docks were systematically infilled during the 1960s, the staithes of the Coal Dock were cleared in 1967, Swainson Dock was infilled from 1968 and the Central Dock was infilled in November 1991.

6.6.23 Hartlepool and West Hartlepool were administered separately until 1967. More recently, the Port Authority invested heavily in the provision of deep-water berths and leisure-related developments, such as the Hartlepool Marina and Museum. The Marina currently has provision for 500 pontoon and quayside berths, as well as a functioning boatyard. The former Dock Offices are now residential apartments, as is the former Customs House.

[17] Rowe 2000, 10.

6.6.24 The earliest detailed mapping available for the area in which the study site lies is a ground plan of the harbour and docks dating to 1852 (Figure 4). At this time, the West Dock and Jackson's (*sic.*) Dock are in place, sited to the south of (the largely undeveloped) The Slake, but the site of Swainson Dock is represented only in outline, as an 'Intended Dock'. This is bounded by Victoria Terrace and an un-named road to the east and south, respectively, and crossed diagonally by an extension of the West Hartlepool and Leeds Railway, which terminates at warehousing adjacent to Jackson's Dock. Terraced housing fronting onto Victoria Terrace occupies the south-eastern portion of the site. The 'Dock Office' and the 'Ship Hotel' (although un-named) are in place, although the situation of the office indicates a degree of inaccuracy in the plan.

6.6.25 The Ordnance Survey 1st edition map of 1857 (Figure 5) shows the study site in detail. Swainson Dock is now in place, occupying the majority of western half of the southern portion of the site. This shows that portions of its northern, eastern and southern walls lay within the limits of the site. South of the dock is an elongated railway 'Transit Shed', served by sidings off the West Hartlepool Railway, these lines continuing into the 'Timber Yard' to the west. The eastern end of the shed lies within the site and the curving southernmost boundary of the site is clearly derived from the course of the railway line. The eastern half of the southern portion of the site contains two north-south aligned warehouses, divided by railway lines, these branching off the main lines at Albert Square. The row of terraced houses fronting Victoria Terrace is shown in detail. A large east-west aligned warehouse on the south side of Jackson Dock occupies the central part of the northern part of the site; this building is also served from the south and east by railway lines. A 'Coal Drop' is indicated in the south wall of Jackson Dock. Towards the western end of the northern area, the cut between Jackson Dock and Swainson Dock is spanned by a 'Swing Bridge', with the southernmost portions of adjacent, smaller warehouses extending into the north-western corner of the southern area. The 'Dock Office' and 'Ship Hotel' are shown in detail. South of the site, the map shows a network of streets of terraced housing typical of an early Victorian industrial town.

6.6.26 The Ordnance Survey 2nd edition map of 1896 (Figure 6) shows relatively little variation from the 1st edition. The transit shed is missing from the south quay of Swainson Dock and the coal drop is absent from the south quay of Jackson Dock. Other minor alterations are evident in the latter area, such as the addition of a quayside crane and a number of small railway outbuildings to the east of the main warehouse. Beyond the study site, the continued development of West Hartlepool is apparent. A new railway station is in place to the south-west of the study site, with the previous station at the north end of Mainsforth Terrace annotated as a 'Goods Station'. The area to the east of the study site and south of the Coal Dock is notable for the increased concentration of railway lines and sidings. House building has also continued, with the area to the south of Church Street now largely infilled with a grid of terraced houses typical of the 19th century. To the north, the southern portion of The Slake had seen development by this time, through construction of the Union Dock, and expansion of the extensive timber ponds.

6.6.27 The Ordnance Survey map of 1899 (Figure 7) shows no significant change within the study site, although this map is at a smaller scale than the previous two editions and thus lacking the same detail.

6.6.28 The Ordnance Survey map of 1919 (Figure 8) shows some change within the study site. Directly south of Swainson Dock, in the south-western corner of the site, a new railway transit shed, 'No. 5 Shed', is in place in the same location as the structure shown on the 1st edition. In the north-eastern corner, some of the aforementioned smaller buildings are now absent, but a curvilinear railway transit shed, 'No. 9 Shed', has been added. All the warehouses in the study site are named on this edition: 'No. 4 Warehouse' occupies the east quay of Swainson Dock; 'No. 3 Warehouse' is a smaller facility to the east, to the rear of the terraced housing on Victoria Terrace; 'No. 2 Warehouse' occupies the south quay of Jackson Dock. Significant alteration to the overall structure of the docks north of the study site is evident with the removal of the South Basin, thereby effectively de-segregating Jackson, Union and Coal Docks. This arrangement remains fossilised in the existing layout of Hartlepool Marina.

6.6.29 The Ordnance Survey map of 1939 (Figure 9) shows that, within the site, the large building on the east quay of Swainson Dock has been extended to the north and the main range has been sub-divided, with the northernmost two thirds a 'Match Manufactory Works' and the southern portion retained as 'No. 4 Warehouse'. Elsewhere on the site, and in the immediate vicinity, there is little or no significant change.

6.6.30 The Ordnance Survey map of 1954 (Figure 10) again shows little or no change within the study site. No. 3 Warehouse is annotated as a 'Bonded Warehouse'. The 'Match Factory' on the east quay of Swainson Dock is known to have suffered a serious fire in the same year as this edition (Plates 5 and 6). Photographic evidence suggests that the structure was retained as a two-storey facility following this incident (Plate 6). In the wider area there are some, generally minor, variations since the previous edition.

6.6.31 The Ordnance Survey map of 1966 (Figure 11) little or no significant change within the study site or in the immediate vicinity.

6.6.32 The 1968/69 Ordnance Survey map (Figure 12) shows the site while Swainson Dock was in the process of being decommissioned, which is documented as having begun in 1968. A curved line across the water area presumably represents the extent of infilling (from the west) when the map was surveyed, with the associated timber dock and dry dock to the north-west already seemingly infilled. The former match factory/warehouse building is gone, evidently replaced by several smaller buildings, the largest of which is annotated as a 'Sawmill', and extensive timber yards remain in place to the west and north of the dock. In the south-eastern portion of the site, the bonded warehouse remains in place, now with an electricity sub-station at its south end, but the former terraced housing fronting Victoria Terrace has been cleared. The former Dock Office is annotated 'Victoria Chambers' on this edition. In the northern portion of the study site, the warehouse on the south quay of Jackson Dock is gone. The site as a whole is clear of railway sidings and the dense concentration of such features immediately to the east on the previous edition is much reduced, further confirmation of the declining industrial viability of West Hartlepool Docks.

6.6.33 The 1980 Ordnance Survey map (Figure 13) shows the former water area of Swainson Dock completely infilled and the swing bridge absent from the former cut between Jackson Dock and Swainson Dock. The only surviving upstanding structure on the south quay of Jackson Dock is the curvilinear former railway shed towards the north-eastern corner of the study site. Towards the south-western corner, a new rectangular building has been built immediately to the north of the former railway transit shed which remains in place, straddling the south-western boundary of the study site. Usage of both of these buildings may have been associated with the extensive timber yards. The former bonded warehouse is now gone, although the sub-station at its south end has been developed since the previous edition. Another new building, this almost square in plan, has been built to the south of the former Customs House and fronting onto Victoria Terrace. A small structure annotated 'Tank' is situated at the extreme south-western corner of the site.

6.6.34 No significant changes are evident at the study site on the Ordnance Survey map of 1984 (Figure 13), although there are several minor variations, mostly probably surface treatment. Timber yards are still in evidence in the south-western corner of the study site, and extending to the west. Beyond the study site, the second dry dock directly west of Jackson Dock has also been backfilled by this date.

6.6.35 In summary, the potential for post-medieval remains, prior to the industrialisation of Hartlepool, is considered **low**. In contrast, the potential for industrial era remains at the site is considered **moderate** to **high**. Of particular significance would be remains of the former Swainson Dock, particularly its walls. The geotechnical SI in 2005 located the east wall of the dock (using information in the report on the geotechnical work, its location is shown on the plan which accompanies Appendix C). The structure was noted as being in the same stone and in a similar tapered construction to the existing wall of Jackson Dock. The structure was exposed, both internally and externally, to a height of *c.* 1.5m, below which further exposure became difficult due to water ingress. The geotechnical work demonstrated that that the former water area of the dock is filled infilled with demolition rubble and other material to a depth of more than 8.0m, so that the archaeological potential of that area, up to the line of the former dock walls, is considered **low**. Elsewhere at the site, the potential for remains of former dockside structures and associated features, such as warehouses, railway sidings and terraced housing fronting onto Victoria Terrace, is considered **moderate** to **high**, since the geotechnical work broadly suggested some survival of structural remains representing these important industrial era structures

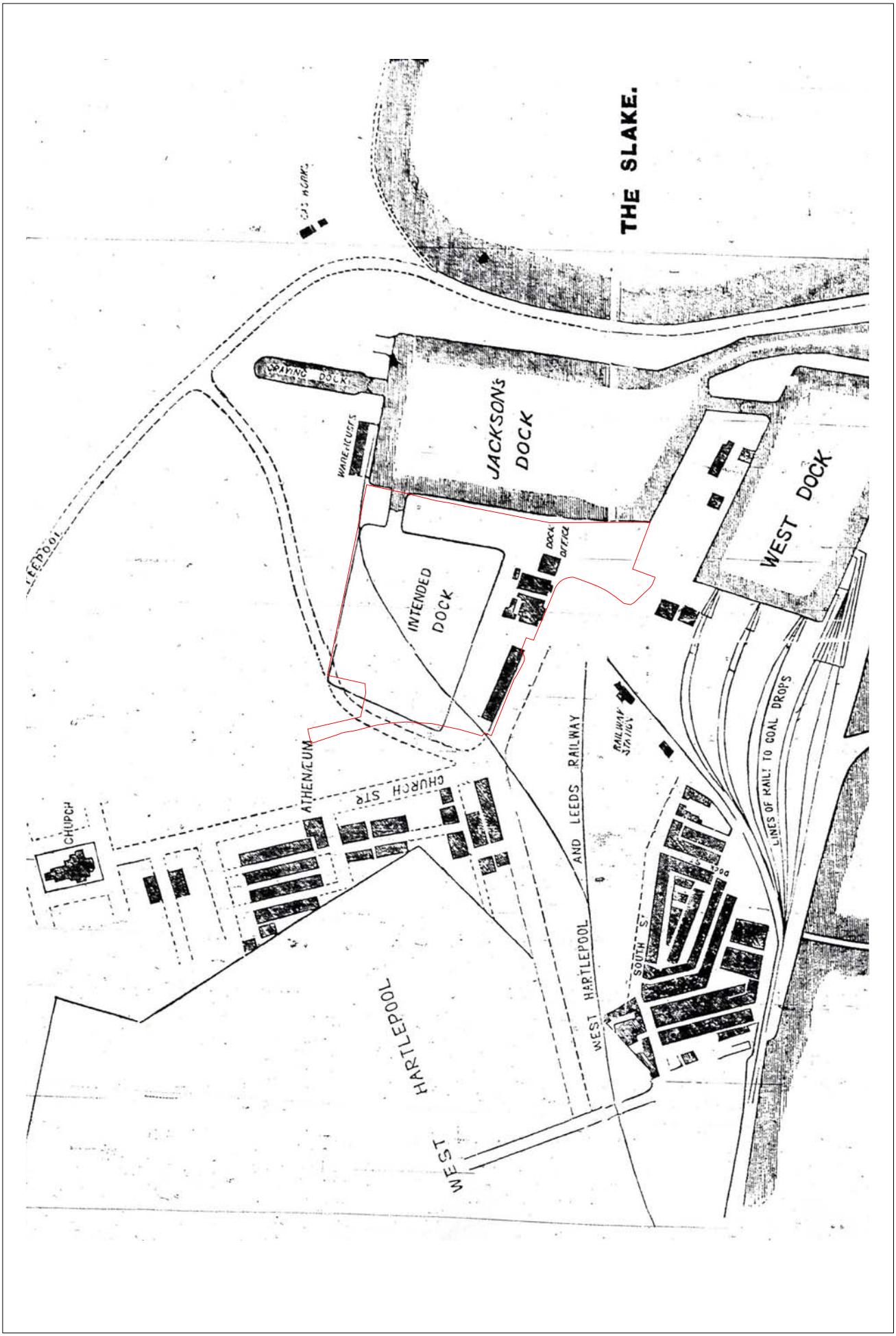

Figure 4. Ground plan of harbour and docks, 1852
Scale 1:5,000

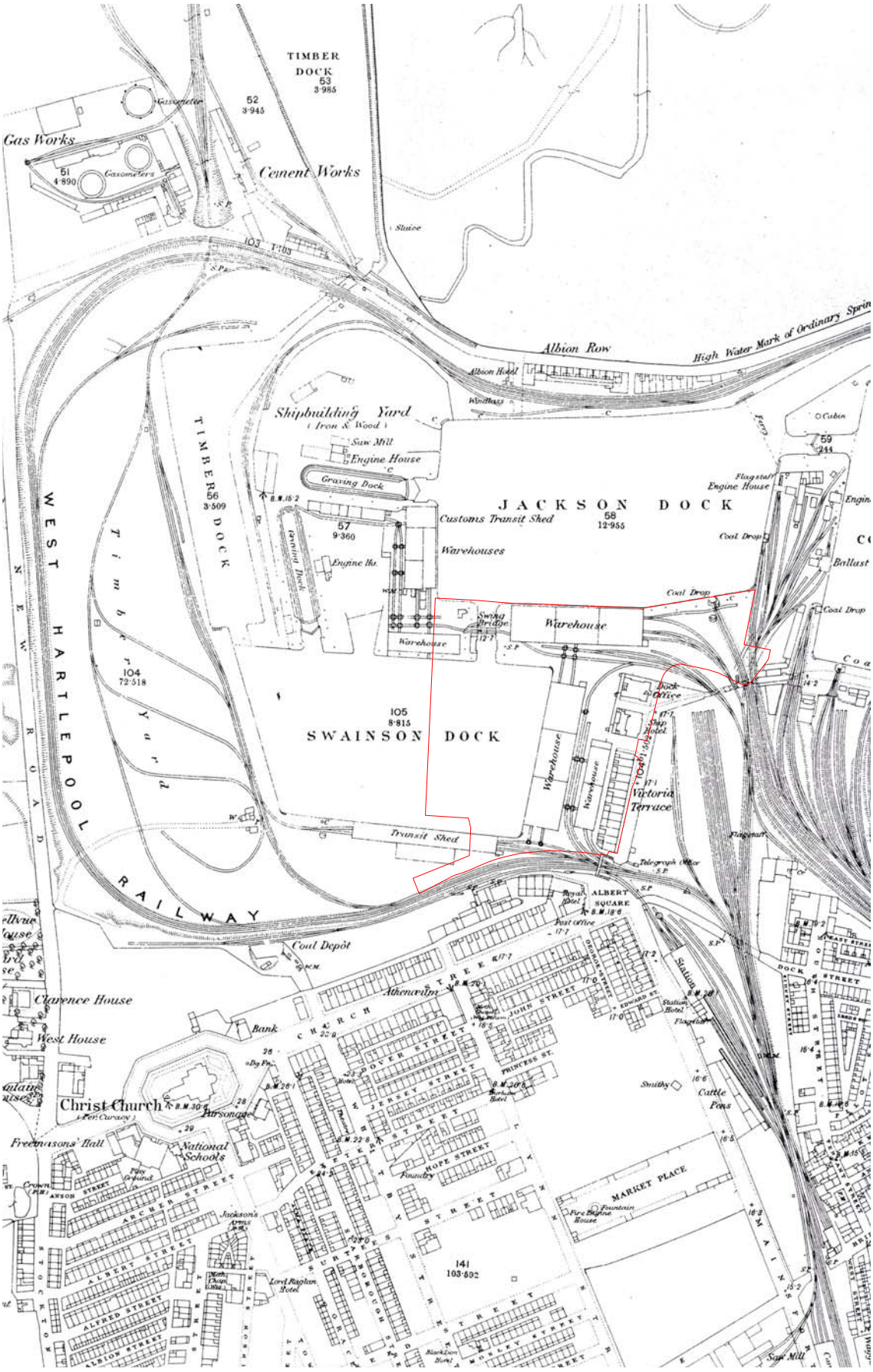

Figure 5. Ordnance Survey 1st edition, 1857
Scale 1:5,000

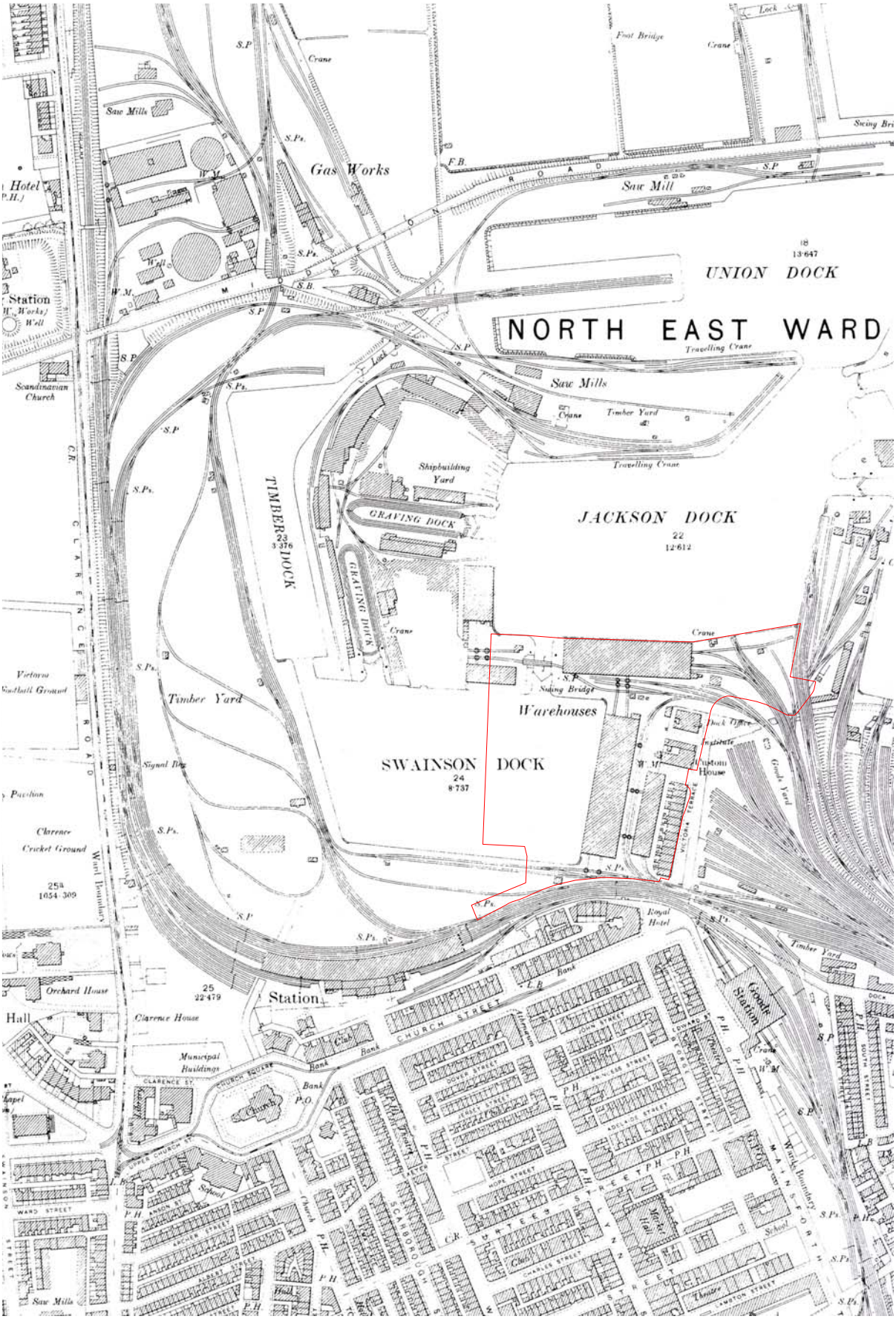

Figure 6. Ordnance Survey 2nd edition, 1896
Scale 1:5,000

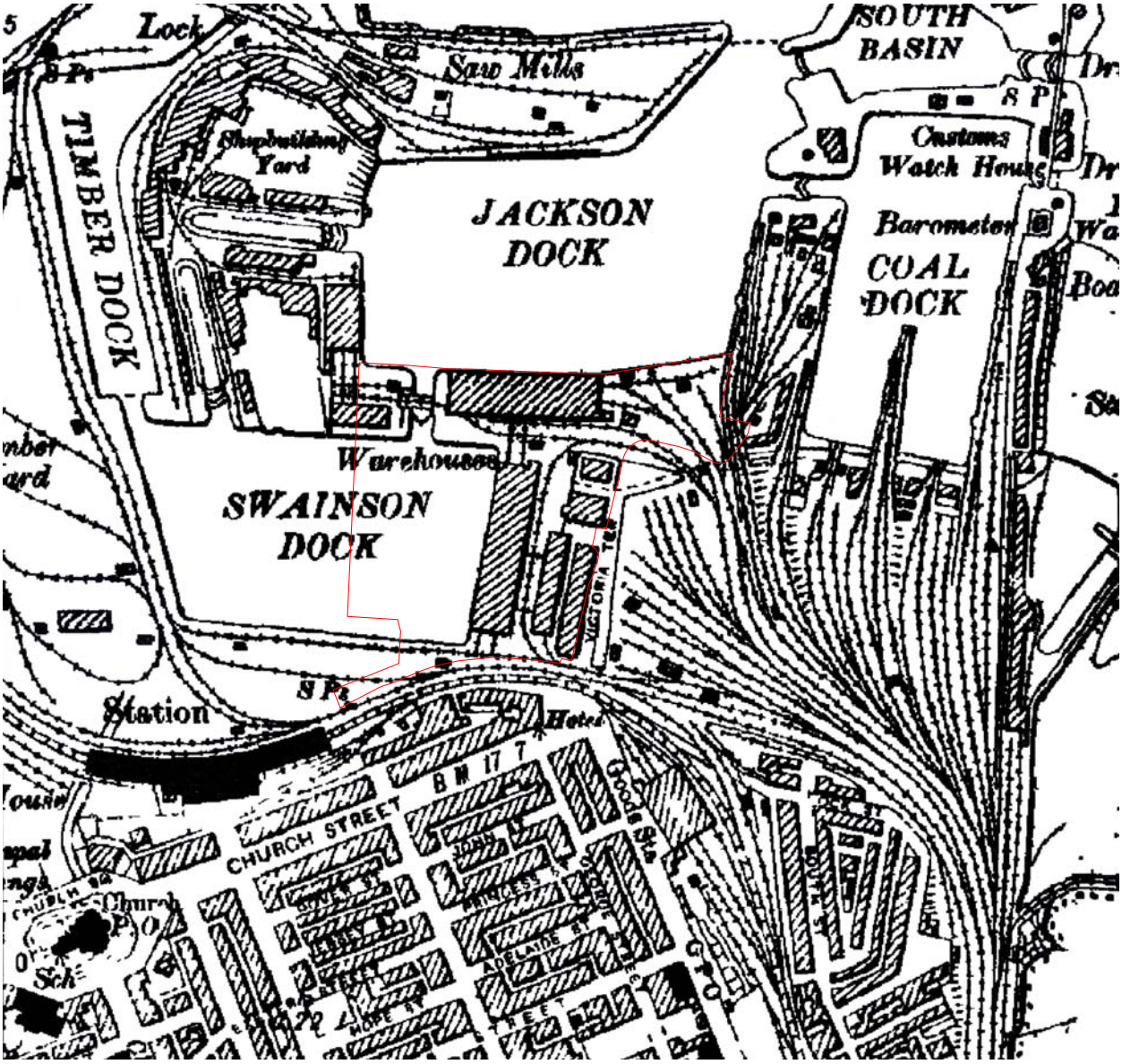

Figure 7. Ordnance Survey, 1899
Scale 1:5,000

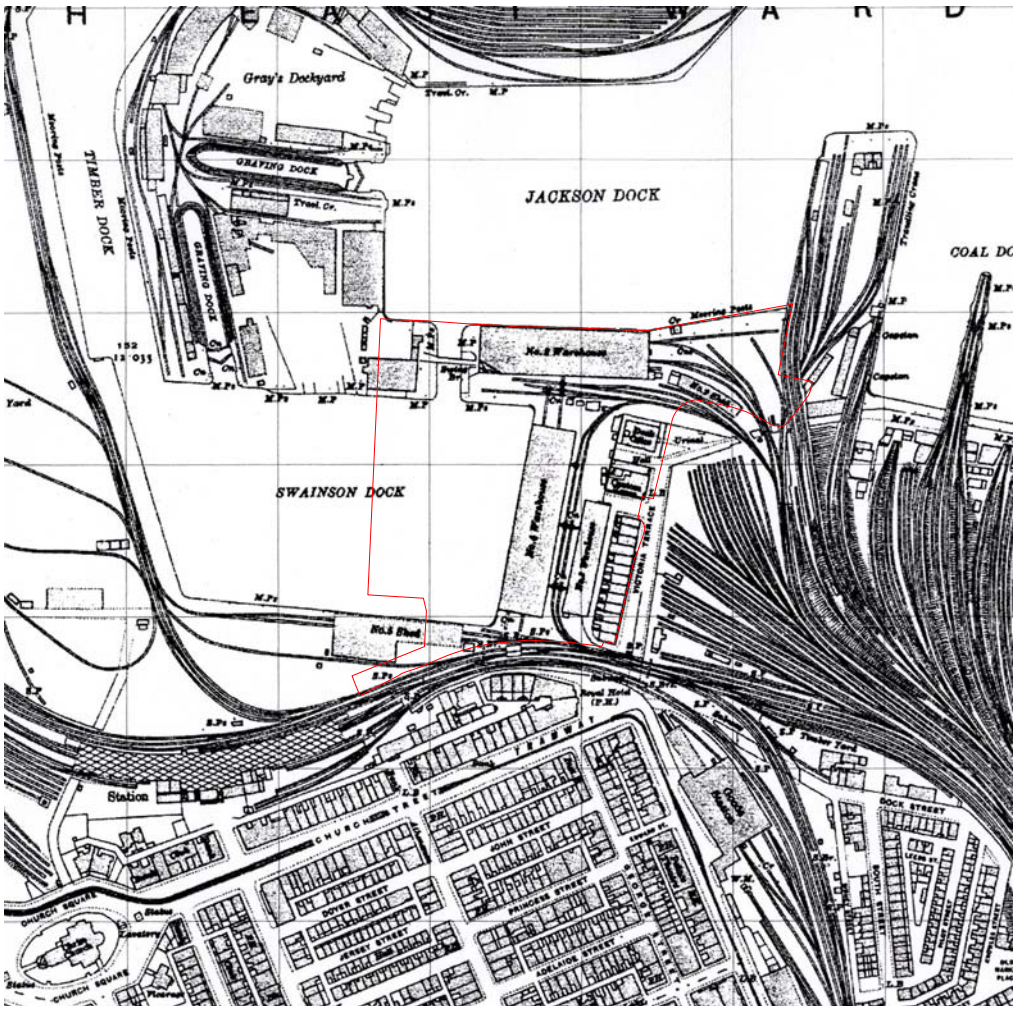

Figure 8. Ordnance Survey, 1919
Scale 1:5,000

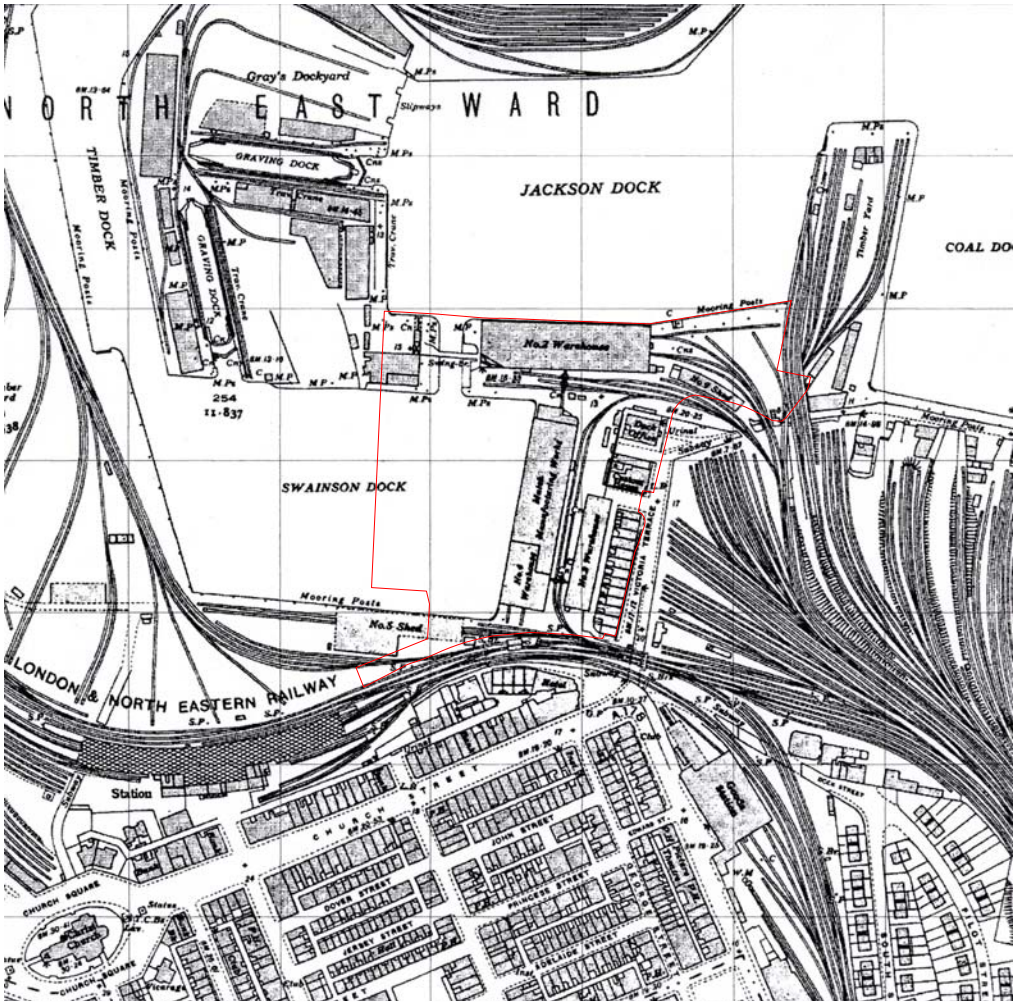

Figure 9. Ordnance Survey, 1939
Scale 1:5,000

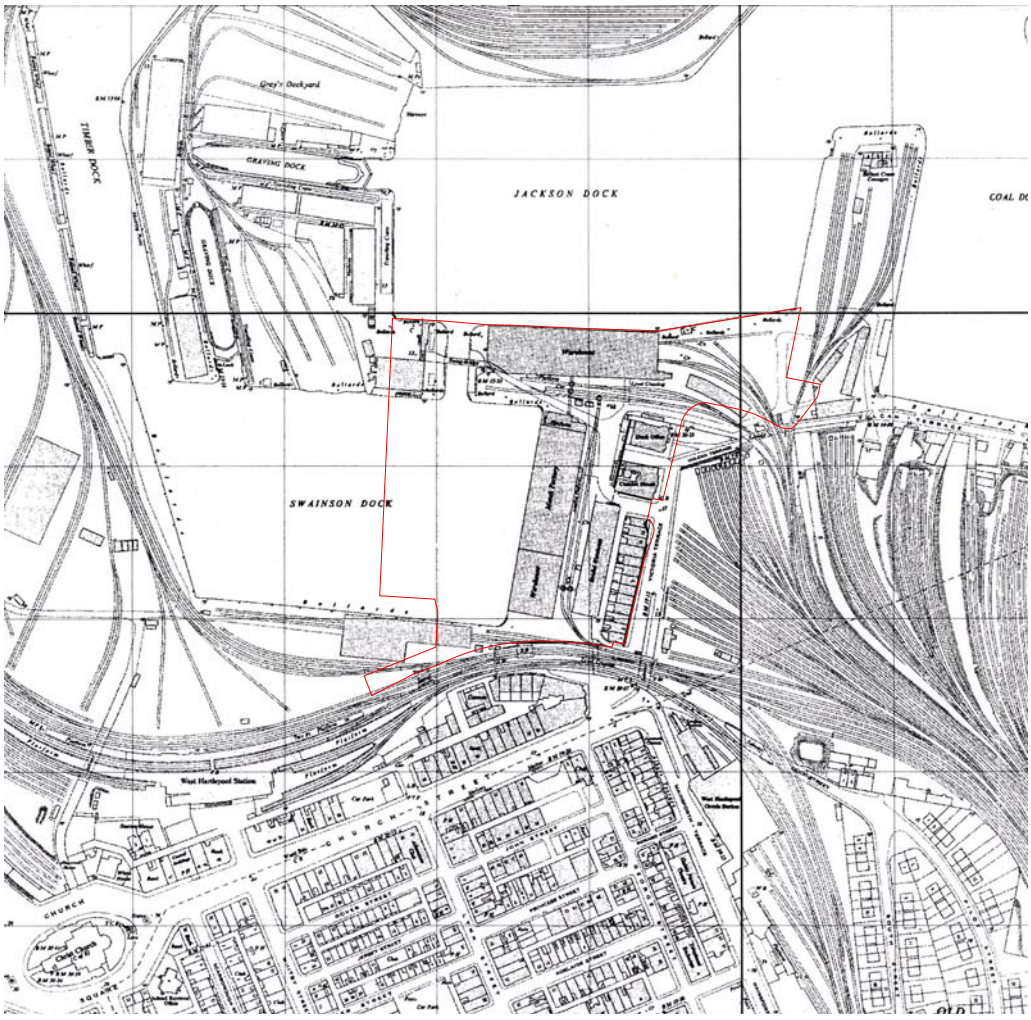

Figure 10. Ordnance Survey, 1954
Scale 1:5,000

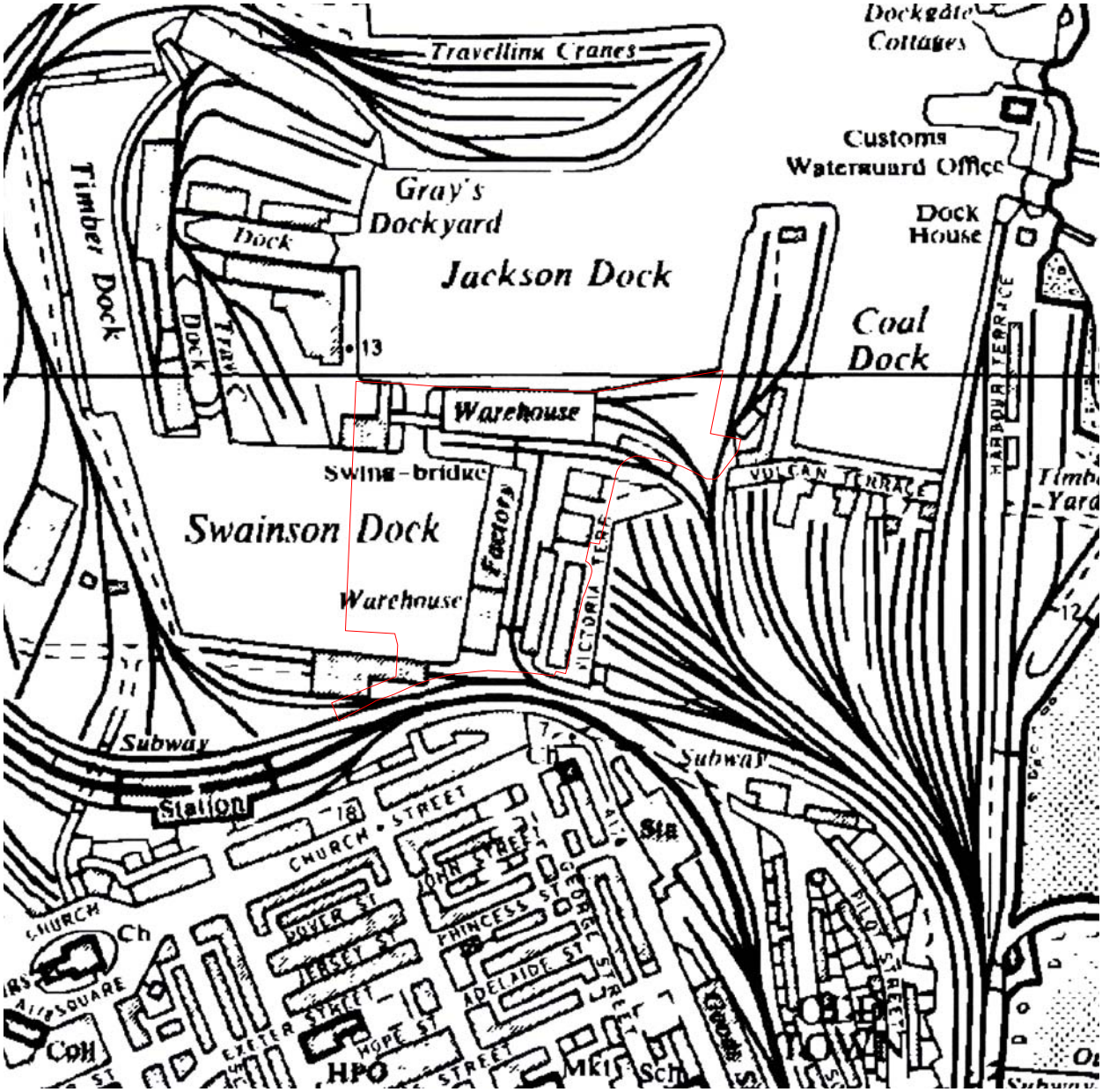

Figure 11. Ordnance Survey, 1966
Scale 1:5,000

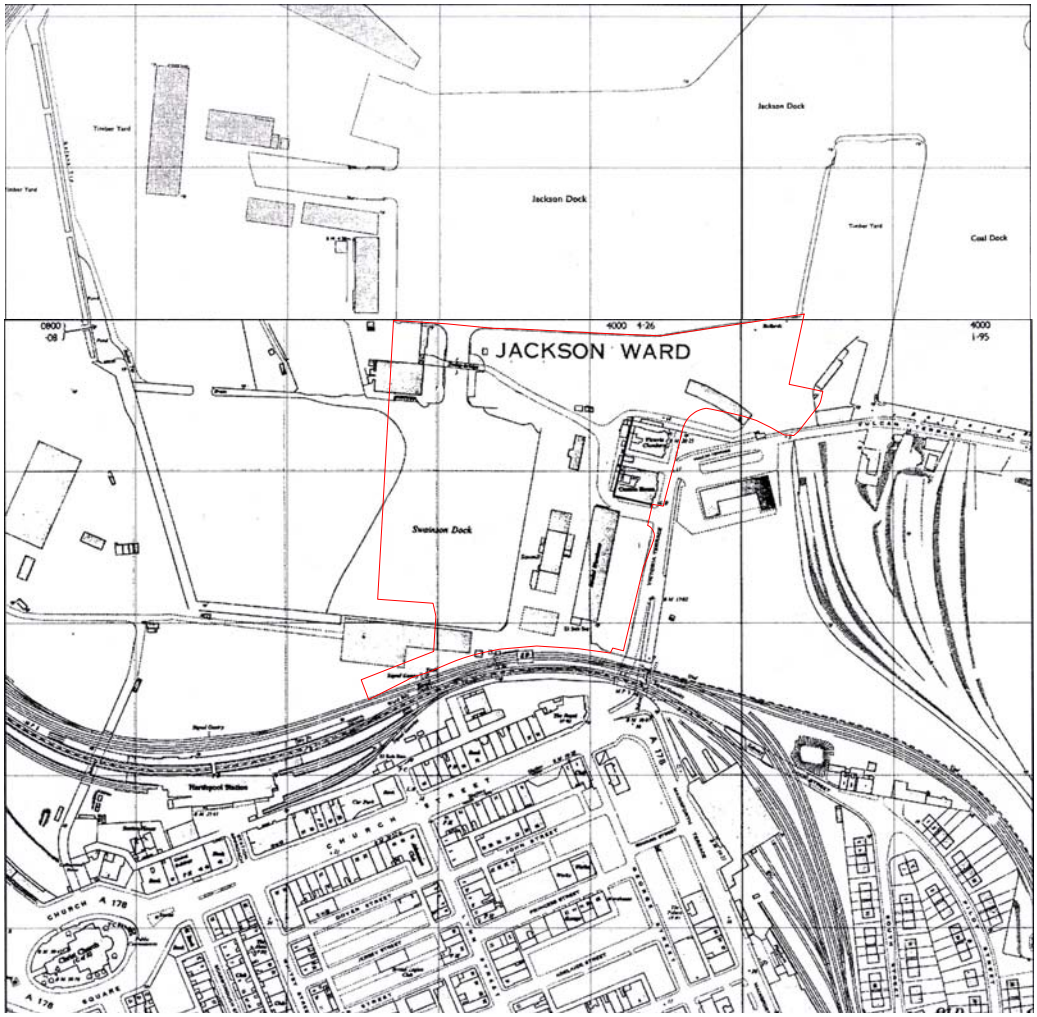

Figure 12. Ordnance Survey, 1968/69
Scale 1:5,000

mapping not available

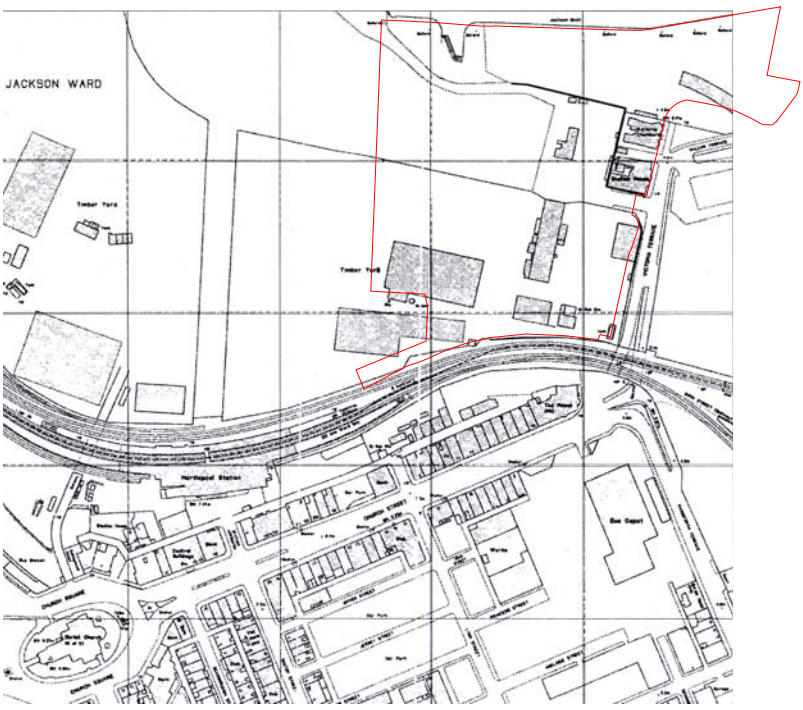

Figure 13. Ordnance Survey, 1980
Scale 1:5,000

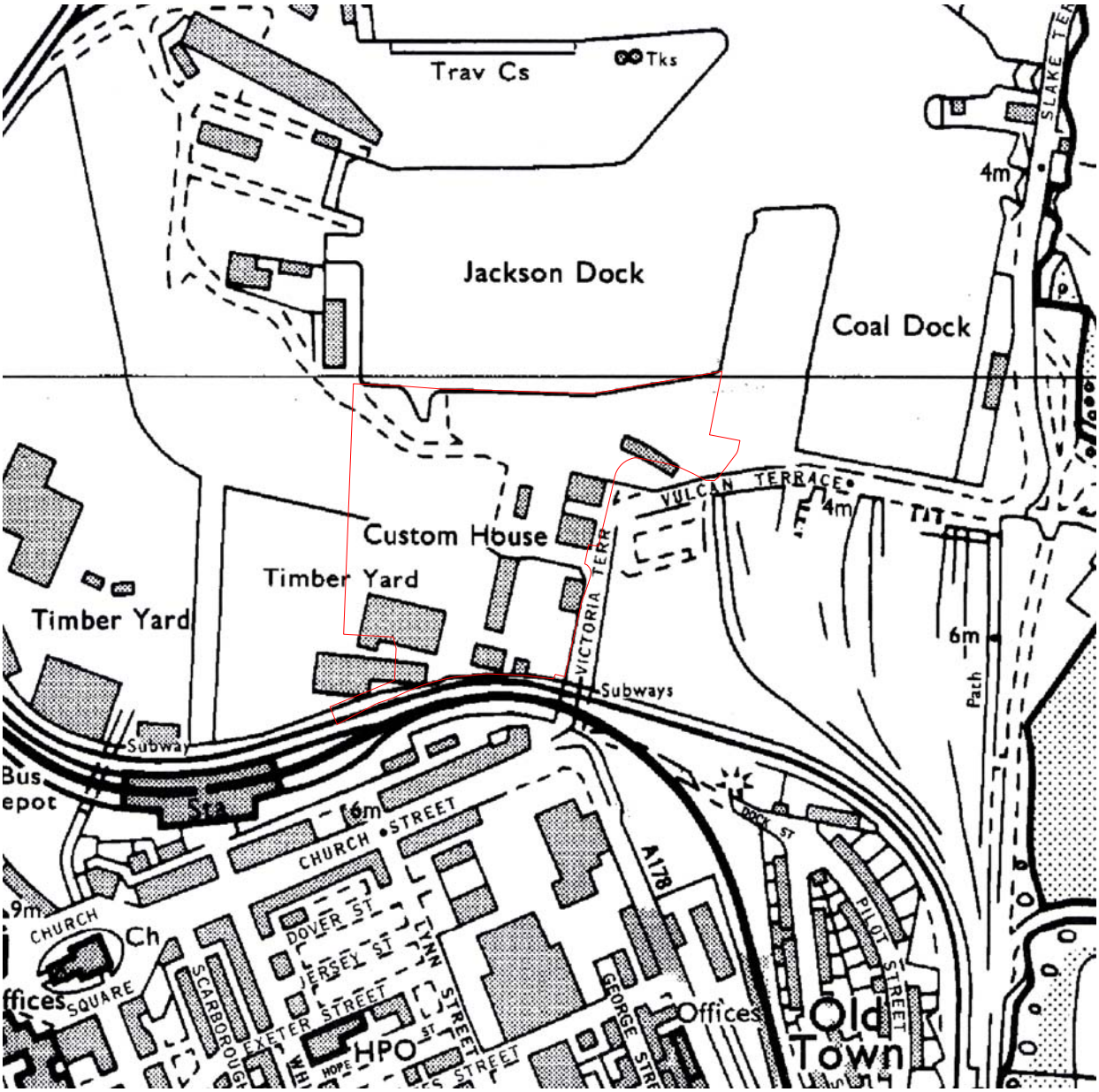

Figure 14. Ordnance Survey, 1984
Scale 1:5,000

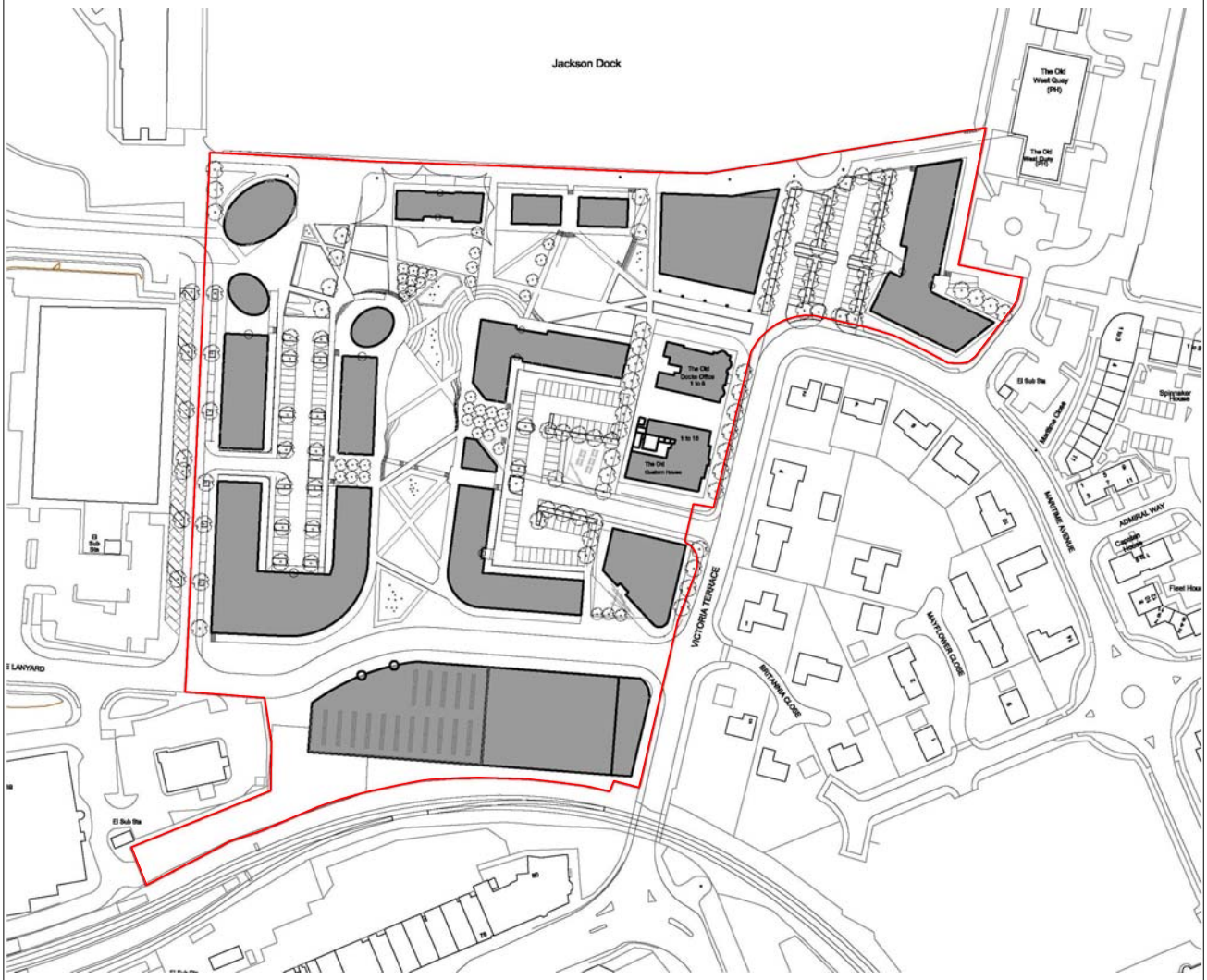

Figure 15. Proposed development
Scale 1:2,500

7. POTENTIAL IMPACTS

The following potential impacts upon the palaeoenvironmental and archaeological resource are considered:

- Loss of, or damage to, palaeoenvironmental and archaeological remains.
- Settings and views of and from upstanding remains, listed buildings, scheduled ancient monuments and other archaeological sites affected.
- Changes to ground conditions as a result of changes to the drainage regime, which could affect palaeoenvironmental and archaeological remains.
- Loss of landscape features, structures and areas with historic and cultural associations.
- Other possible impacts, such as noise, vibration, compressions and other changed ground conditions.

7.1 Loss of, or damage to, palaeoenvironmental and archaeological remains

7.1.1 The ground plan of the proposed development at the study site is included herein (Figure 14). Initial groundworks for such extensive development schemes, such as the removal of existing foundations and hard surfaces and the setting out and consolidation of access roads for plant and machinery, usually impact to a greater or lesser degree upon buried archaeological remains, depending upon the nature and extent of these works. More extensive groundworks are typically involved in the creation of general 'formation levels' and particularly during bulk excavation of material ahead of laying foundation slabs in new build, so that such works often have severe widespread impact on archaeological remains. In addition, the insertion of deep piles and/or the excavation of foundation trench networks, as well as the cutting of service trenches, can cause severe, but generally more localised, impact upon buried archaeological remains.

7.1.2 The assessment has established that there are two specific archaeological concerns at the study site, namely the prehistoric and industrial eras, for both of which the potential is considered high. For all other archaeological eras, the potential is considered low.

7.1.3 Any prehistoric evidence at the study site is likely to be contained within organic deposits derived from the ancient submerged wetland known to exist beneath Hartlepool Bay. Peat horizons in the Bay have previously yielded significant archaeological evidence of exploitation of ancient wetlands from the Mesolithic period onwards, as well as important palaeoenvironmental data informing on variations in sea level and other aspects of past environment. Such deposits are known, through geotechnical investigations, to lie at varying depths within former, and existing, dockside areas of the study site. Such work has identified alluvial clays, often with significant organic content, underlying modern overburden, with peat horizons recorded at depths ranging from 1.60m to *c.* 5.0m below ground level and varying in thickness from 0.20m to 2.35m.

7.1.4 These findings indicate that, in general, there was evidently relatively minimal disturbance of earlier strata, specifically organic alluvium and peat deposits, firstly during industrial era dockside construction and secondly during modern demolition. Where such deposits do survive, the actual impact of the development upon them will largely depend upon the extent and nature of groundworks during the initial stages of the construction programme. In summary, the proposed development has considerable potential to impact upon buried archaeological and palaeoenvironmental remains derived from prehistoric eras. The greatest threat will arise where development groundworks (including piling), conducted beyond the limits of the former Swainson Dock, penetrate, in general, to depths greater than *c.* 1.50m below existing ground level and particularly to the depth of any peat horizon, shown to vary from 1.60m to *c.* 5.0m below ground level.

7.1.5 It is highly unlikely that any ancient wetland deposits survive in the part of the study site formerly occupied by the water area of Swainson Dock. Documentary evidence indicates that substantial amounts of bedrock were removed during excavations for the dock in the 1850s, with much of this being used for municipal buildings in the town. It is also recorded how organic deposits, including preserved oak, were disturbed, with some timber evidently being later used for church furnishings. Geotechnical investigations indicate a depth of more than 8.0m of modern overburden in the former water area of Swainson Dock.

7.1.6 Any industrial era sub-surface archaeological remains at the study site will be derived from the mid 19th century expansion of West Hartlepool Docks. The presence or absence of such remains will largely depend on the extent of modern demolition (Swainson Dock was infilled from 1968), specifically 'grubbing out' of foundation and other below ground structures. Geotechnical investigations have shown the former water area of the dock contains more than 8.0m of rubble 'fill', with very low potential for industrial era archaeological remains in that area. The dock walls themselves, however, were evidently retained *in situ*, rather than the masonry being reclaimed prior to infilling, and such structural remains are of high archaeological significance. Archaeological recording of the dock walls is likely to be a requirement where these are exposed during development groundworks and certainly if they were to be impacted upon to any degree by groundworks.

7.1.7 Survival of industrial era remains in other parts of the site (specifically the northern area and the eastern half of the southern area) will again be largely dependent on the severity of demolition in modern times. Unless there was significant overall ground reduction, and particularly 'grubbing out' of foundations, cellars and other below ground structures, it is probable that significant elements of dockside structures, such as warehouse basements and/or foundations, will survive. Geotechnical investigations generally indicate that the level of below ground disturbance may have been relatively minimal. Where structural remains do survive, the potential impact upon them will again largely depend upon the extent and nature of groundworks for the proposed development. In summary, the proposed development has potential to impact upon buried industrial era archaeological remains, where associated groundworks conducted beyond the limits of the former water area of Swainson Dock penetrate below the depth of modern overburden.

7.1.8 Modern surface treatment, in the form of the slipway in the south quay wall of Jackson Dock, represents the remains of the former cut between Jackson Dock and Swainson Dock. Given its location, it is assumed that this feature would be preserved within the proposed development.

7.2 Settings and views of and from upstanding historic remains, listed buildings, scheduled monuments and other archaeological sites affected

7.2.1 The southern part of the study site encompasses ground containing the 'Old Dock Offices and walls' and the 'Old Customs House', both listed at Grade II. While the development will significantly affect the overall setting and views to and from these historic structures, they are to be retained within the overall scheme without alteration. In summary, the proposed development will not result in the loss of any scheduled monuments or listed buildings.

7.3 Changes to ground conditions as a result of changes to the drainage regime, which could affect palaeoenvironmental and archaeological remains

7.3.1 Precise details of foundation designs within the proposed development are unknown at this stage. However, various construction groundwork techniques, particularly the insertion of deep piles, are known to cause localised, but severe, impact upon buried archaeological and particularly palaeoenvironmental remains through changes to the drainage regime.

7.3.2 It is considered that construction groundworks at the study site could significantly alter ground conditions due to changes in the drainage regime. Organic deposits of probable high palaeoenvironmental significance underlie the northern part of the study site and the eastern half of the southern part, as demonstrated by geotechnical investigations. Dewatering through penetrative construction techniques such as deep piling can lead to degradation and ultimate destruction of such deposits.

7.3.3 In summary, organic deposits containing potentially important palaeoenvironmental data, as well as archaeological evidence, could be significantly affected by the development proposal in this respect.

7.4 Loss of landscape features, structures and areas with historic and cultural associations

7.4.1 The larger, southern portion of the study site does not contain any landscape features, structures or areas of historic and cultural associations. The smaller, northern area is delimited to the north by the wall of Jackson Dock, which may be considered a structure with significant historic and cultural associations, with a launching slipway in the western portion of this area representing the former location of the cut between Jackson Dock and Swainson Dock.

7.4.2 In summary, it is considered that the development has the potential to impact on a structure that has historic and cultural associations with the industrial dockland heritage of Hartlepool. It appears, however, that the south wall of Jackson Dock will be retained as part of the development proposal (Figure 14).

7.5 Other possible impacts, such as noise, vibration, compressions and other changed ground conditions

7.5.1 Any construction programme - particularly preliminary groundworks - has a short-term impact, in terms of noise and vibration, on the immediate environment of any site.

8. CONCLUSIONS AND RECOMMENDATIONS

8.1 Conclusions

8.1.1 It is concluded that the study site has **low** potential for archaeological remains from the Roman, Anglo-Saxon, medieval and post-medieval (prior to industrialisation) periods.

8.1.2 It is concluded that the wider area in which the study site lies has **high** potential for archaeological and particularly palaeoenvironmental remains from prehistory. Such remains would most likely be contained within organic deposits associated with the peat beds of the ancient wetland, part of which has SSSI status, known to underlie Hartlepool Bay. However, for the study site specifically, the area formerly occupied by Swainson Dock has **low** (probably negligible) potential for such remains due to the extensive excavations undertaken to create the dock facility in the 19th century. The remainder of the study site has **moderate** to **high** potential for such remains and, furthermore, previous geotechnical SIs suggest that both 19th century development and modern demolition of industrial structures have had relatively minimal impact on alluvial and organic strata containing these potentially important remains.

8.1.3 It is concluded that the study site has **moderate** to **high** potential for industrial era archaeological remains derived from the mid 19th century development of West Hartlepool Docks. The presence or absence of such remains, representing, for example, dock walls, dockside warehouses, railways and former terraced housing, will largely depend on the extent of modern demolition, specifically 'grubbing out' of foundation and other below ground structures. Again, however, previous geotechnical SIs broadly indicate some survival of these potentially important remains. Of note is the fact that the masonry walls of the former Swainson Dock were exposed to a height of at least 1.50m during geotechnical SIs; these remains are of **high** significance in terms of industrial era archaeology.

8.1.4 Development of the study site will affect the overall setting of the listed buildings of the former Dock Offices and Customs House, but will not affect any scheduled monument.

8.2 Recommendations

8.2.1 Where archaeological remains of note, as identified by a DBA, are likely to be encountered at a development site, strategies should be formulated to deal with them. PPG16 states that, where preliminary research suggests survival of archaeological remains:

> *"…it is reasonable for the planning authority to request the prospective developer to arrange for an archaeological field evaluation to be carried out before any decision on the planning application is taken. Evaluations of this kind help to define the character and extent of the archaeological remains that exist in the area of a proposed development, and thus indicate the weight, which ought to be attached to their preservation. They also provide information useful for identifying potential options for minimising or avoiding damage. On this basis, an informed and reasonable planning decision can be taken."* [18]

8.2.2 Field evaluations should aim to provide information of sufficient quality and detail that reasoned and informed decisions may be made with regard to the preservation, or not, of buried archaeological material.

8.2.3 Some form of archaeological evaluation may be considered necessary at the site in the light of the conclusions outlined above. Such work may comprise one or more of the following procedures:

- Geophysical survey.
- Trial trenching or test-pitting.
- Surface artefact collection ('fieldwalking').

8.2.4 Geophysical survey would not be a suitable method for determining whether or not archaeological remains are present at the study site, due to former land use.

8.2.5 Surface artefact collection is not practicable due to former and current land use. 'Fieldwalking' is only of use across recently ploughed, harrowed or drilled fields.

8.2.6 In this instance, archaeological evaluation by trial trenching or test-pitting could be used to ascertain the presence or absence of archaeological remains of significance at the study site. This could be achieved by investigation of a number of machine-excavated trial trenches and/or test-pits, opened under archaeological supervision, comprising a sufficient area to fulfil the aims of such a project. Due to the likely depth of deposits potentially containing prehistoric archaeological remains and palaeoenvironmental data of significance, Health and Safety considerations would have to be at the forefront of any project design for such an investigation. It may be that additional investigative techniques, such as augering, could be employed in order to record and sample ancient wetland deposits. Remains of industrial era development would, in the event of their survival, be located within the uppermost layers of any archaeological stratigraphy at the site and would, therefore, be more easily examined and recorded. All surviving elements of the walls of the Swainson Dock would certainly require archaeological recording if threatened in any way by the development proposals.

8.2.7 Subject to the results of an archaeological evaluation, there may be an additional requirement for further archaeological excavation and recording of remains of significance in advance of the development and/or archaeological monitoring of development groundworks, in order to identify and record archaeological remains exposed by such works. Further work, of whatever form, along with associated reporting, would form the final element of the archaeological mitigation strategy for the site.

[18] Department of the Environment 1990, paragraph 21.

9. ACKNOWLEDGEMENTS AND CREDITS

Acknowledgements

Pre-Construct Archaeology Limited would like to thank Cundall for commissioning the archaeological assessment. The liaison roles of Gregory Lutton and Steven Garcia are gratefully acknowledged.

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PCA Credits

Research: Phil Moore

Report: Phil Moore and Robin Taylor-Wilson

Graphics: Adrian Bailey

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Maps, Documents and Other Sources

The Sites and Monuments Record (SMR), maintained by Tees Archaeology, Sir William Gray House, Clarence Road, Hartlepool

The SMR takes the form of digital and paper mapping cross-referenced with indexed files and a computer database. Ordnance Survey mapping is also held digitally and copies of all editions held from the 1st edition to the 1984 edition were printed out for inclusion herein.

Hartlepool Local Studies Library, Central Library, York Road, Hartlepool

Books relating to the history of West Hartlepool, specifically the development of the dock area, were consulted at the Local Studies Library.

Websites Consulted

Port Cities, Hartlepool (website of the Hartlepool Maritime Resource): *www.portcities.hartelpool.gov.uk.*

The Planning Portal (the online planning and building regulations resource of the UK government): *www.planningportal.gov.uk.*

Destination Hartlepool (website of Hartlepool Borough Council, which includes an archive section of historic prints and photographs): *www.destinationhartlepool.com*.

APPENDIX A
PLATES 1-12

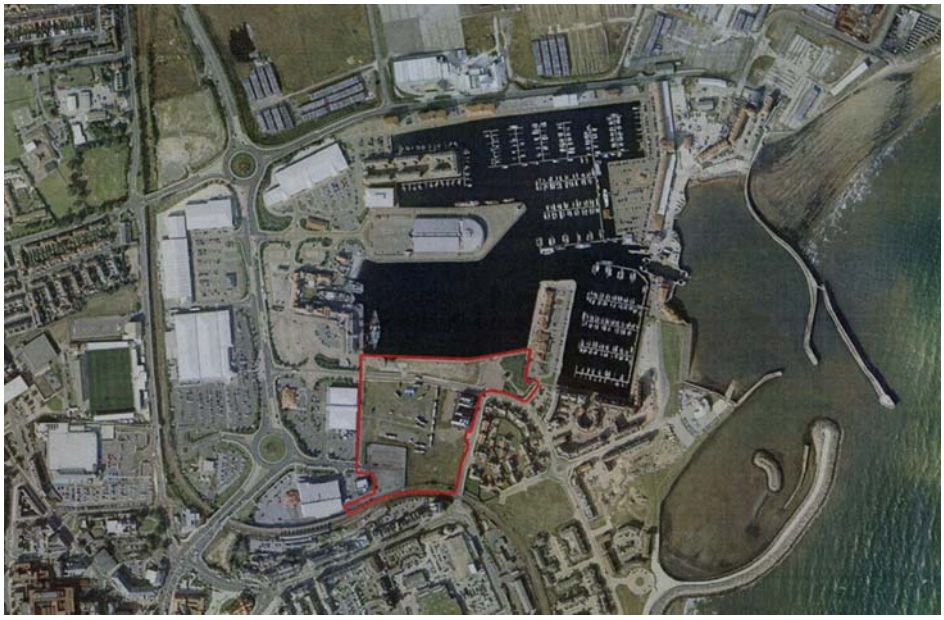


Plate 1. Aerial photograph of study site.

Plate 2. Aerial photograph of Hartlepool Docks, *c*. mid 20th century.

Plate 3. Photograph of timber ponds and dock *c.* early 20th century.

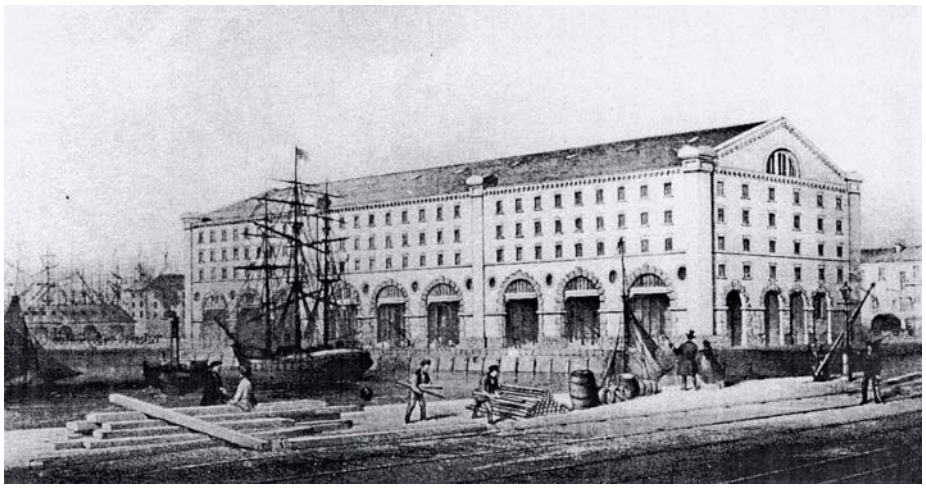


Plate 4. Architect's drawing of Swainson Dock (eastern) warehouse, *c.* 1860.

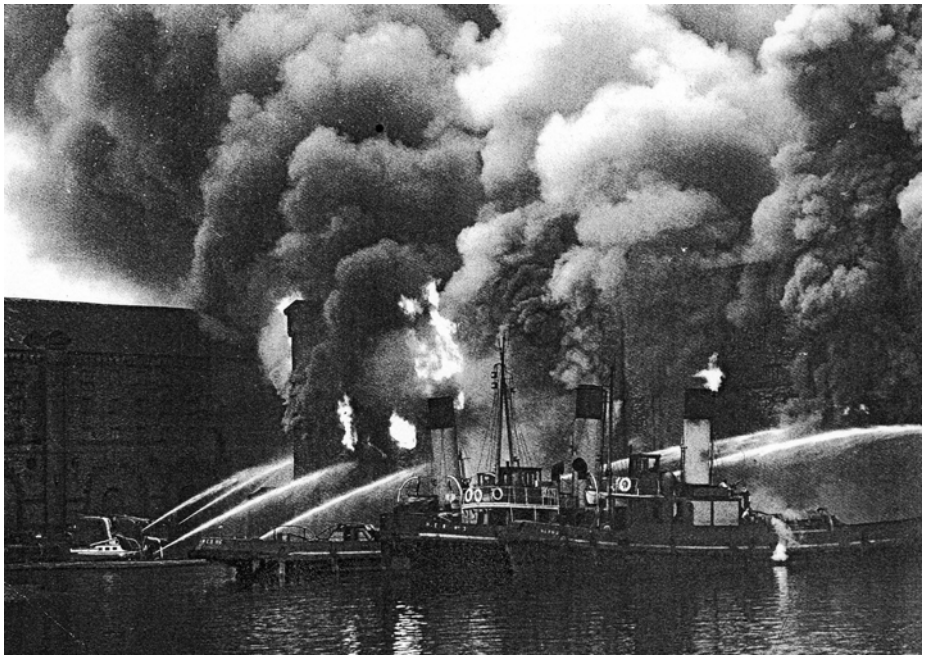


Plate 5. Photograph of fire in Match Factory/No. 4 Warehouse, 1954.

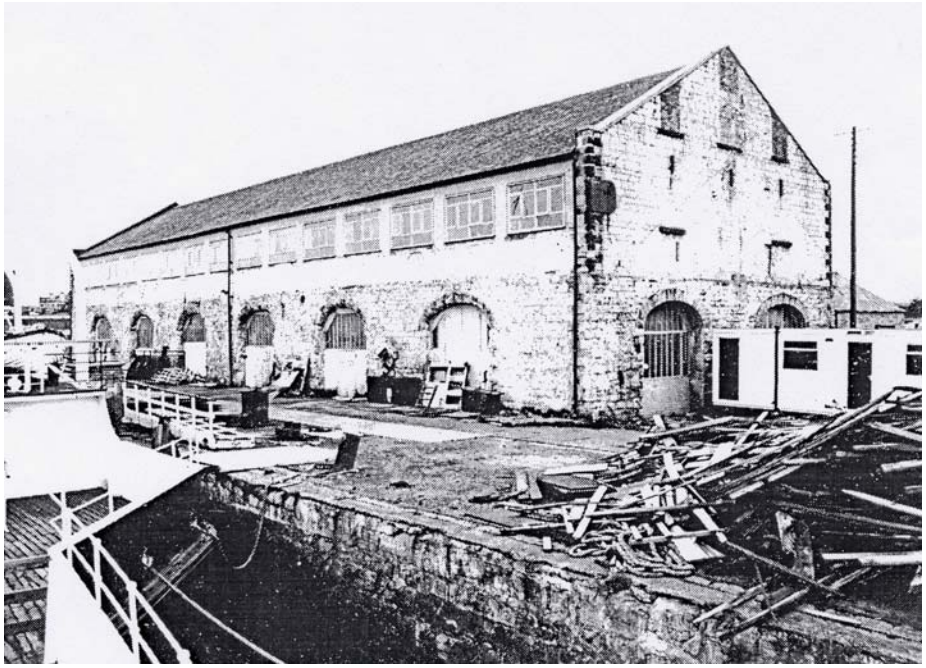
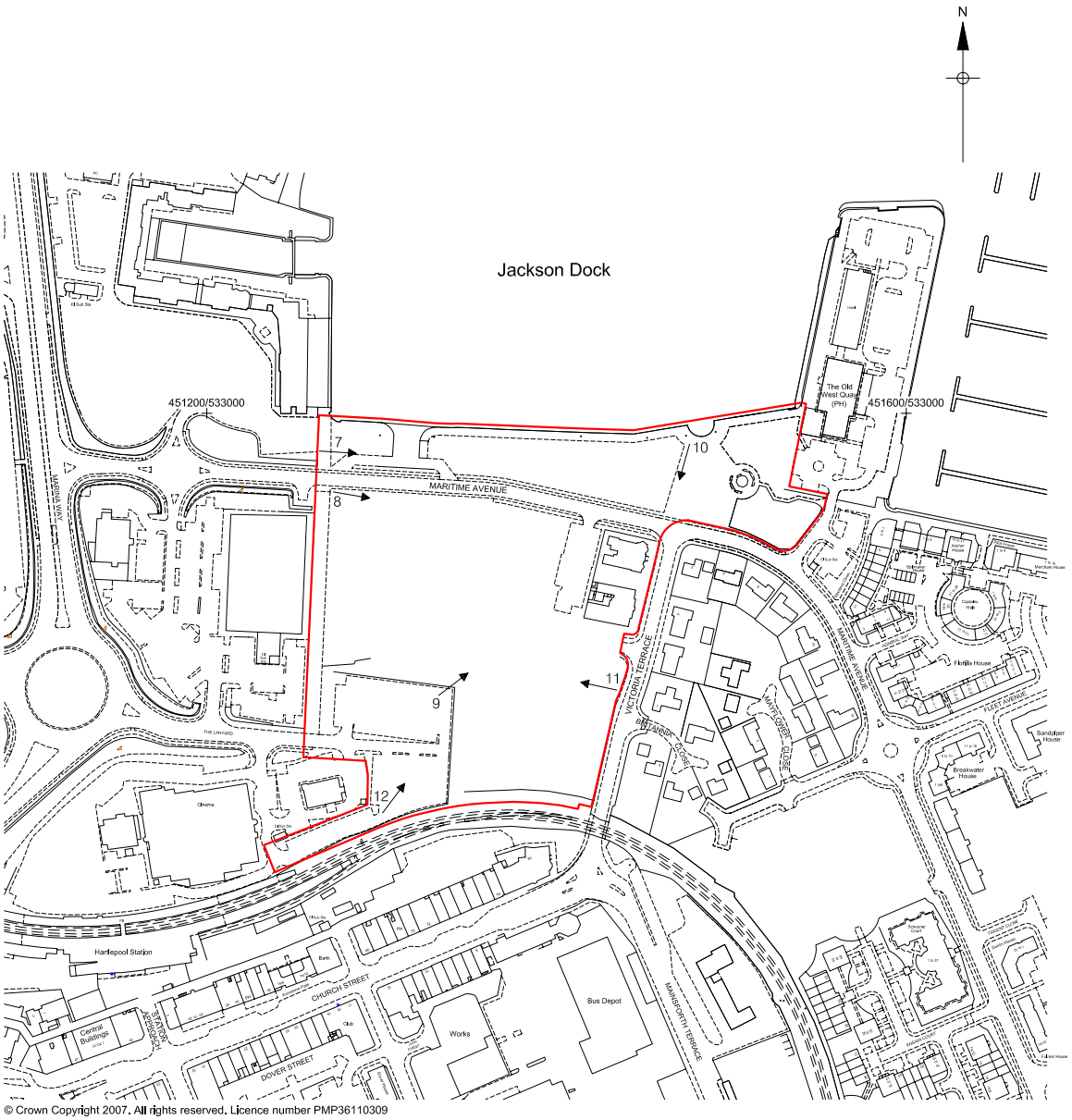


Plate 6. Photograph of Match Factory/No. 4 Warehouse, post 1954.



Location and direction of plates 7 - 12
Scale 1:4,000

Plate 7. Northern area, looking east.

Plate 8. Southern area, north end, looking south-east.

Plate 9. Former Dock Offices and Customs House, looking north-east.

Plate 10. Former Dock Offices, looking south-west.

Plate 11. Southern area, central part, looking west.

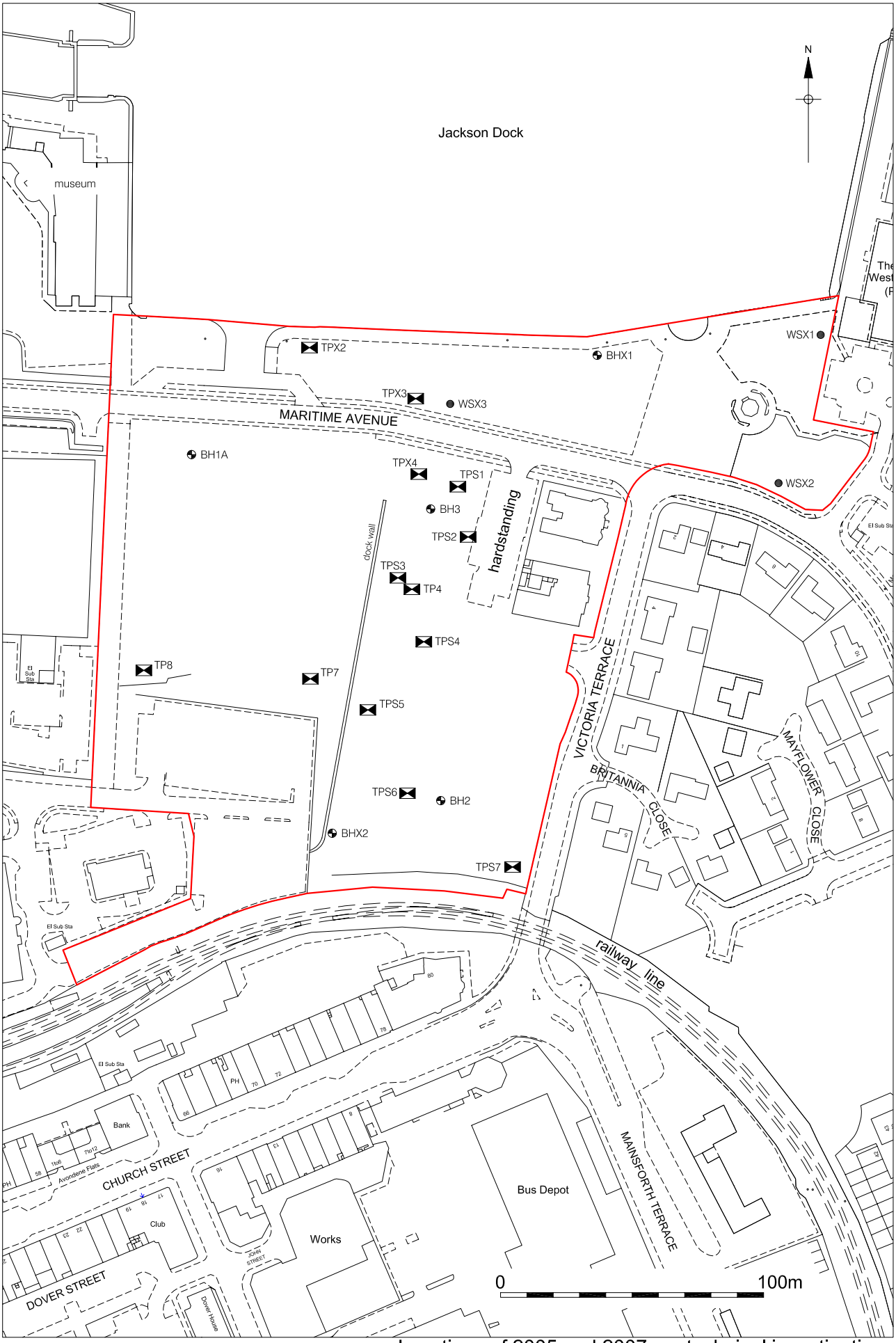
Plate 12. Southern area, car park, looking north-east.

APPENDIX B
SMR ENTRIES

APPENDIX B: SMR ENTRIES

SMR NO.	*LOCATION*	*DESCRIPTION*	*PERIOD*	*NGR*	*NOTES*
967	Stranton	Church	Early modern/industrial	NZ 5106 3260	Christ Church. Built 1853, in limestone, in 'Early English' style. Currently used as an art gallery.
990	Stranton	Structure	Early modern/industrial	NZ 5155 3272	Former concrete railway control bunker. Now demolished and covered in earth.
1818	Stranton	Dock	Early modern/industrial	NZ 5166 3300	Coal Dock. Opened in 1847, approximate dimensions 250m x 120m. Now part of Hartlepool Marina development.
2858	Stranton	Railway Station	Early modern/industrial	NZ 5114 3271	Railway station, with two glass-canopied platforms and footbridge. Remains in use.
2859	Stranton	Dock	Early modern/industrial	NZ 5142 3308	Jackson Dock. Opened 1st June 1852, with water area of 5.7 hectares. Now part of Hartlepool Marina development.
3261	Stranton	Dock	Early modern/industrial	NZ 5130 3290	Swainson Dock. Opened 3rd June 1856. Approximate dimensions 300m x 150m. Entered via cut in Jackson Dock. Infilled 1968.
4059	Stranton	Animal Bone	Prehistoric	NZ 5161 3324	Mammoth tusk. Found during 19th century excavation of West Hartlepool Docks, precise location unknown.
4545	Stranton	Dock	Early modern/industrial	NZ 5110 3313	Timber Dock. Water area 230 x 50m. Infilled 1960s.
4546	Stranton	Graving Dock	Early modern/industrial	NZ 5115 3307	Graving Dock. Sited off Swainson Dock, with an approximate water area of 110m x 20m. Infilled and redeveloped.
4547	Stranton	Graving Dock	Early modern/industrial	NZ 5123 3313	Graving Dock. Sited off Swainson Dock, with an approximate water area of 100m x 20m. Infilled and redeveloped.
4964	Stranton	Subway	Early modern/industrial	NZ 5106 3268	Subway from Church Square to Swainson Dock. Built in red brick. Now partially backfilled.
11/131	Stranton	Listed Building	Early modern/industrial	NZ 5143 3290	Old Dock Offices. Built *c.* 1846. Two-storey buiding in sandstone ashlar, with Roman Doric porch and clock tower. Now a residential building.
11/133	Stranton	Listed Building	Early modern/industrial	NZ 5143 3289	Former Ship Hotel. Built *c.* 1844, converted to Customs House in 1880. Three-storeys of cream Pease brick, with clasping pillasters. Now a residential building.

APPENDIX C
SUMMARY OF 2005 & 2007 GEOTECHNICAL INVESTIGATIONS



Locations of 2005 and 2007 geotechnical investigations
Scale 1:2,000

APPENDIX C: SUMMARY OF 2005/2007 GEOTECHNICAL RESULTS

Part of Study Site	***SI***	***Identifier***	***Overburden/Infill***		***Potential Archaeology/Structural Remains***		***Alluvium/Organics***		***Underlying Clay***		***Ground Water***
Historical Location/Area			*Composition*	*Thickness*	*Composition*	*Depth bgl/Thickness*	*Composition*	*Depth bgl/Thickness*	*Composition*	*Depth bgl*	*Depth bgl*
Southern Area											
Swainson Dock/North	2005	BH 1A	Slag, with ash & rubble	8.25m	None	N/A	Silty organic clay	8.25m/0.25m	Stiff clay, with cobbles	8.50m	1.80m
Swainson Dock/South	2005	TP 7	Slag	>2.50m	None	N/A	Not reached	N/A	Not reached	N/A	1.70m
Swainson Dock/South	2005	TP 8	Slag, with ash & rubble	>2.0m	None	N/A	Not reached	N/A	Not reached	N/A	1.80m
Dockside/South	2005	BH 2	Soily sand, with rubble & slag	0.75m	Sand, with gravel & shell	0.75m/1.15m	Silty organic clay	3.0m/1.90m	Firm to stiff clay	6.40m	1.90m
					Silty organic clay, with ash	1.90m/1.10m	Peat	4.90m/1.50m			
Dockside/North	2005	BH 3	Slag, with sand & rubble	0.75m	Sand, with gravel & shell	0.75m/2.35m	Organic clayey sand	3.10m/0.80m	Firm to stiff clay	6.25m	1.90m
							Peat	3.90m/2.35m			
Dockside/North	2005	TP 4	None	N/A	Cobbles & concrete slab	0.0m/>0.40m	Not reached	N/A	Not reached	N/A	Not reached
Dockside/North	2005	TP S1	Rubble	0.50m	Concrete slab	0.50m/?	Not reached	N/A	Not reached	N/A	Not reached
Dockside/North	2005	TP S2	Topsoil	0.40m	Sand	0.80m/>0.70m	Not reached	N/A	Not reached	N/A	Not reached
			Ash & rubble	0.40m							
Dockside/North	2005	TP S3	Rubble & slag	0.60m	Sand, with gravel & shell	0.60m/>0.90m	Not reached	N/A	Not reached	N/A	Not reached
					Concrete & brick ?foundation	0.70m/?					
Dockside/Central	2005	TP S4	Slag, ash & rubble	0.80m	Concrete slab	0.80m/?	Not reached	N/A	Not reached	N/A	Not reached
					Clayey sand & chalky clay	0.80m/>0.70m					
Dockside/South Central	2005	TP S5	Soily rubble	0.50m	Sett & brick floor	0.50m/?	Not reached	N/A	Not reached	N/A	Not reached
					Silty sand	0.50m/0.25m					
Dockside/South	2005	TP S6	Soily rubble	0.35m	Cellar floor, with ash	1.70m/?	Not reached	N/A	Not reached	N/A	Not reached
			Brick rubble & slag	1.35m							
Dockside/South	2005	TP S7	Brick rubble, with timbers	1.80m	Cellar floor	1.80m/?	Not reached	N/A	Not reached	N/A	Not reached
Dockside/South	2007	BH X2	Sandy clay, with rubble	1.0m	None	N/A	Silty organic clay	3.30m/1.30m	Firm to stiff clay	4.80m	Not reached
			Sandy clay (contaminated)	2.30m			Peat, organic clay	4.60m/0.20m			
Northern Area											
Dockside/North	2007	BH X1	Dolomite	0.50m	Silty clay (disturbed ground?)	2.10m/1.70m	Organic clay	3.80m/1.10m	Firm clay	4.90m	3.0m
			Sandy clay, with gravel & rubble	1.60m							
Dockside/North-East	2007	WS X1	Topsoil	0.60m	Silty clay (alluvium?)	1.25m/1.50m	Silty clay with organics	2.75m/0.95m	Not reached	N/A	Not reached
			(Re-deposited) clay	0.65m			Peat	3.70m/0.30m			
Dockside/North-East	2007	WS X2	Topsoil, with clay & rubble	0.75m	Silty sandy clay (alluvium?)	1.70m/1.25m	Organic clay	2.95m/0.55m	Not reached	N/A	3.0m
			Sand	0.35m							
			(Re-deposited) clay	0.60m							
Dockside/North	2007	WS X3	Dolomite	0.50m	None	N/A	Silty organic clay	1.25m/0.35m	Not reached	N/A	2.50m
			Sandy clay, with rubble	0.75m			Peat	1.60m/0.80m			
							Organic clay	2.40m/1.60m			
Dockside/North	2007	TP X2	Dolomite	0.65m	None	N/A	Not reached	N/A	Not reached	N/A	1.80m
			Sand, with gravel & rubble	0.75m							
			(Re-deposited) clay	0.60m							
Dockside/North	2007	TP X3	Dolomite	0.60m	None	N/A	Organic clay	1.20m/0.90m	Not reached	N/A	Not reached
			Sand, with gravel & rubble	0.60m			Peat	2.10m/1.10m			
							Organic clay	3.20m/0.80m			