wardell-armstrong.com

ENERGY AND CLIMATE CHANGE
ENVIRONMENT AND SUSTAINABILITY
INFRASTRUCTURE AND UTILITIES
LAND AND PROPERTY
MINING AND MINERAL PROCESSING
MINERAL ESTATES
WASTE RESOURCE MANAGEMENT

PERSIMMON HOMES (LANCASHIRE)

LAND AT THE FORMER CHEMICAL WORKS, WHITEHAVEN, CUMBRIA

HERITAGE IMPACT ASSESSMENT

October 2018

wardell armstrong

Wardell Armstrong
Marconi Road, Burgh Road Industrial Estate, Carlisle, Cumbria CA2 7NA, United Kingdom
Telephone: +44 (0)1228 550575 - www.wardell-armstrong.com

DATE ISSUED:	October 2018
JOB NUMBER:	CL12200
OASIS REFERENCE:	**wardella2-331184**
REPORT NUMBER:	RPT-001
GRID REFERENCE:	NX 96602 15829

PERSIMMON HOMES (LANCASHIRE)

LAND AT THE FORMER CHEMICAL WORKS, WHITEHAVEN, CUMBRIA

HERITAGE IMPACT ASSESSMENT

October 2018

PREPARED BY:	EDITED BY:	APPROVED BY:
Cat Peters	Fiona Wooler	Martin Railton
Researcher	Heritage Support	Associate Director

CONTENTS

LIST OF ILLUSTRATIONS

FIGURES

PLATES

SUMMARY

Wardell Armstrong LLP (WA) was commissioned by Persimmon Homes (Lancashire) to prepare a Heritage Impact Assessment of land at the former chemical works, Whitehaven (centred on NGR NX 96602 15829). This assessment is required to accompany a forthcoming planning application for a phased redevelopment of the site. This work comprised a consultation of sources relating to the area's development and a site visit and aims to show the impact on the heritage significance of upstanding heritage assets within the 1km study area, and the potential for encountering as-yet unknown heritage assets within the site boundary.

The proposed development site comprises an area of land between High Road to the east and agricultural land and the coast to the west; the south-eastern half formerly occupied by a vast chemical works, since demolished and the north-western half comprising agricultural land. Historically, it lies in a wider area of prehistoric and Romano-British potential, and a cropmark enclosure within the proposed development site may reflect activity of these periods (Asset 4).

The Preston Quarter township, in which the proposed development site lies, was an important area for early extractive processes, and quarrying and mining occurred from an early period. An early gypsum extraction area, to the west of the proposed development site, is scheduled, and extraction there was restarted in 1888 with associated infrastructure extending to within the proposed development site (Assets 36 and 44). Coal mining directly affected the site from 1774 with the sinking of Croft Pit (Asset 24) and various phases of waggonway provision (Assets 23, 40, 41, 42 and 43), culminating in a mass 20th century reorganisation as Ladysmith Colliery (Asset 45). Despite these industrial developments, agricultural activity occurred concurrently, represented by a farmstead, established within the proposed development site between 1823 and 1838 (Asset 28). A former rifle range was established at a similar period adjacent to the cliff edge (Asset 30). In 1943 a chemical works took over the former Ladysmith site, known as the Marchon works (Asset 25). This eventually spread across the entirety of the south-eastern half of the proposed development site. The significance of this chemical works, socially, economically and historically, was not fully considered, prior to their demolition. Features relating to the works have survived the demolition scheme.

The proposed development has the potential to directly impact on the surviving remains of these thirteen known heritage assets. As assets of local significance, this

substantial impact would result in a limited impact on overall heritage significance. There is also the potential for as-yet unknown archaeological features to survive within the site boundary, particularly considering the potential for prehistoric and Romano-British period remains in the vicinity. Further archaeological mitigative works may be required, dependent on advice from Cumbria County Council's Historic Environment Team.

ACKNOWLEDGEMENTS

Wardell Armstrong LLP (WA) thank Rachael Graham of Persimmon Homes (Lancashire) for commissioning the project and Rachel Lightfoot of PFK for assistance throughout the project. WA also thank Mark Brennand, Lead Officer for the Historic Environment and Commons at Cumbria County Council, for providing data from the Historic Environment Record and for all advice.

The site visit and the documentary research were undertaken by Cat Peters.

The report was written by Cat Peters and the figures were produced by Helen Phillips. Dave Jackson managed the project. Fiona Wooler edited the report and Martin Railton approved it.

1 INTRODUCTION

1.1 Circumstances of Project

1.1.1 Wardell Armstrong LLP (WA) was commissioned by Persimmon Homes (Lancashire) to prepare a Heritage Impact Assessment of land at the former chemical works, Whitehaven (centred on NGR NX 96602 15829; Figure 1). This assessment is required to accompany a forthcoming planning application for a phased redevelopment of the site. The site comprises an area of land between High Road to the east and agricultural land and the coast to the west (Figure 2). The south-eastern half of the proposed development site was formerly occupied by a vast chemical works, since demolished and the north-western half comprises agricultural land.

1.2 The Purpose of the Heritage Impact Assessment

1.2.1 This Heritage Impact Assessment is designed to show the impact on the heritage significance of heritage assets within a 1km radius of the proposed development site, an area hitherto referred to as the study area.

1.2.2 The Heritage Impact Assessment seeks to address in detail the issues of impacts on heritage significance and to do this it both seeks to understand the significance of the assets before evaluating the impact of the development proposals upon them.

1.3 Planning Policy and Legislative Framework

1.3.1 National planning policies on the conservation of the historic environment are set out in the National Planning Policy Framework (NPPF), which was published by the Ministry of Housing, Communities and Local Government (MHCLG) in July 2018. This is supported by National Planning Practice Guidance (NPPG) which was published in March 2014.

1.3.2 The policy and guidance documents emphasize that all heritage assets should be conserved *'in a manner appropriate to their significance*' (NPPF para 184). Sites of archaeological or cultural heritage significance that are valued components of the historic environment and merit consideration in planning decisions are grouped as '*heritage assets*'; '*heritage assets are an irreplaceable resource*' (NPPF para 184), the conservation of which can bring '*wider social, cultural, economic and environmental benefits...*' (NPPF para 185). The policy framework states that the '*significance of any heritage assets affected, including any contribution made by their setting*' should be understood in order to '*assess the potential impact*' (NPPF para 189). In addition to standing remains, heritage assets of archaeological interest can comprise sub-surface

remains and, therefore, assessments should be undertaken for a site that '*includes or has the potential to include heritage assets with archaeological interest*' (NPPF para 189).

1.3.3 The NPPF draws a distinction between designated heritage assets and other remains considered to be of lesser significance; '*great weight should be given to the asset's conservation. The more important the asset, the greater the weight should be; substantial harm to or loss of a grade II listed building, park or garden should be exceptional. Substantial harm to or loss of designated heritage assets of the highest significance, including scheduled monuments, protected wreck sites, battlefields, grade I and II* listed buildings and grade I and II* registered parks and gardens and World Heritage Sites, should be wholly exceptional*' (NPPF para 194). Therefore, preservation in-situ is the preferred course in relation to such sites unless exceptional circumstances exist.

1.3.4 It is normally accepted that non-designated assets will be preserved by record, in accordance with their significance and the magnitude of the harm to or loss of the site as a result of the proposals, to '*avoid or minimise conflict between the heritage asset's conservation and any aspect of the proposals*' (NPPF para 190). If non-designated heritage assets of archaeological interest are affected by a proposal, '*a balanced judgement will be required having regard to the scale of any harm or loss and the significance of the heritage asset*' (NPPF para 197).

1.4 Local Planning Policies

1.4.1 Copeland's Local Plan, 2013-2028 was adopted in December 2013 and includes Core Strategy and Development Management Policies that are currently used in planning policy (Copeland Borough Council 2013). These include Policy ENV- Heritage Assets. This states that '*the Council's policy is to maximise the value of the Borough's heritage assets by:*

A. Protecting listed buildings, conservation areas and other townscape and rural features considered to be of historic, archaeological or cultural value

B. Supporting proposals for heritage led regeneration, ensuring that any listed buildings or other heritage assets are put to an appropriate, viable and sustainable use

C. Strengthening the distinctive character of the Borough's settlements, through the application of high quality urban design and architecture that respects this

character and enhances the settings of listed buildings. Policy SM27 supports this policy setting out the Council's approach to development which affects built heritage and archaeology' (Copeland Borough Council 2013, 74). Policy DM27 – Built Heritage and Archaeology, includes paragraphs that are of significance to this project, including:

'A. Development proposals which protect, conserve and where possible enhance the historic, cultural and architectural character of the Borough's historic sites and their settings will be supported. This will be particularly relevant in the case of:

i) Scheduled Monuments

ii) Conservation Areas

iii) Listed Buildings and Structures

iv) non-listed buildings and structures or landscape features of local heritage and archaeological value

v) surface and below-ground archaeological deposits' (Copeland Borough Council 2013, 169)

and:

'*E. Any development proposal which is considered to affect an existing or potential site of archaeological importance will be required to be accompanied by an archaeological assessment. Where archaeological deposits are evident, below ground or on the surface, evidence should be recorded and where possible preserved in-situ. Proposals for development where archaeological interest has been established will not be approved until evidence has been provided that the risk of archaeological disturbance has been adequately investigated and has been minimised. Planning permission will not be granted if the impact on potential archaeology is unacceptable*' (Copeland Borough Council 2013, 169-170).

2 METHODOLOGY

2.1 Introduction

2.1.1 The preparation of this Heritage Impact Assessment has been undertaken in accordance with guidance recommended by Historic England and prepared by Bassetlaw District Council (2011). Note is also taken of Historic England guidance on understanding place (2017) and on the setting of heritage assets (2015).

2.1.2 The data underlying the Heritage Impact Assessment was gathered through desk-based study of documentary sources and via a site visit. The impact of the development on upstanding assets within the 1km search radius, was assessed using a series of standard tables (*confer* Appendix 1).

2.2 Documentary Sources

2.2.1 The primary and secondary sources were used to provide the background to the historical character of the study area. Much of the information in this Heritage Impact Assessment was derived from the results of previous archaeological investigations in the area, from data from the Historic Environment Record database, from internet sources and from sources available at the Cumbria Archive Centres at Whitehaven (CACW) and Carlisle (CACC).

2.2.2 Historic England's guidance on historic area assessments, conservation areas and heritage asset setting were used to establish the compliance of the development scheme proposals with best practice planning guidance (Historic England 2015, 2017 and *nd*).

2.3 Site Visit

2.3.1 The site and its environs were visited on Wednesday 10th October 2018.

2.3.2 The site visit aimed to:

- identify any as yet unknown features within the proposed development site
- identify whether any known features identified during the research are still present within the proposed development site boundaries
- consider the impact of the proposed residential development on the heritage significance of the heritage assets within a 1km radius.

2.4 Impact Assessment Tables

2.4.1 The assessment of the impact of development proposals is undertaken using a series of heritage impact tables (Appendix 1). These tables use standard assessment methods as used by Government agencies, as for example those used in the Highway Agency's *Design Manual for Roads and Bridges* (2007). These tables first establish the significance of the heritage asset against set criteria, secondly they estimate the magnitude of impact and, taking the results of these two together, allow a calculation of impact on overall heritage significance.

2.5 Heritage Impact Assessment

2.5.1 For the purposes of this report, the term '*proposed development site*' is used to refer to the area within the proposed development site boundary (Figure 2) and the term '*study area*' is used for the wider 1km radial contextual area surrounding the site (Figure 3).

2.5.2 Several sources of information were consulted, in accordance with professional guidelines (CIfA 2017) and local curatorial requirements. A further search of online resources was undertaken in order to identify any designated sites such as scheduled monuments, listed buildings and conservation areas, around the proposed development area. This was done in order to help assess the possible impact of the proposed development on archaeologically sensitive areas. The principal sources of information were historical maps and secondary sources.

2.5.3 ***Cumbria County Council Record (HER):*** the HER, maintained by Cumbria County Council, was consulted in October 2018 in order to obtain information regarding known non-designated heritage assets, i.e. sites of historic or archaeological interest which are not designated, from within the study area. Reports of previous archaeological investigations were also provided by the HER. Full details of all assets are included in Appendix 2 and their locations are represented by asset numbers in Figure 3.

2.5.4 ***Cumbria Archive Centres:*** the online catalogue of all country-wide archives, the National Archives, was checked prior to any archive visits being made. This listed various documents relating to the area at the archive centres in Whitehaven (CACW) and Carlisle (CACC) and both were visited in person.

2.5.5 ***The Beacon Museum, Whitehaven***: contact was made with the curators of the Beacon Museum in Whitehaven, regarding their collection. Nicola Lawson, Assistant Curator

responded with confirmation that they do hold various photographs covering the Marchon site, and that access could be arranged, but unfortunately this was not possible within the deadlines of this project. It is worth noting, however, that should further work be undertaken in the vicinity, it may be worth considering including the provision of accessing the collection at the Beacon Museum.

2.5.6 ***National Heritage List (NHL):*** the online database of all designated assets (scheduled monuments, listed buildings, registered parks and gardens, battlefields etc), maintained by Historic England, was searched for the 1km study area, and the results detailed in Appendix 2 and illustrated in Figure 3.

2.5.7 ***Wardell Armstrong LLP:*** various publications and unpublished reports on excavations and other work in the region are held within the Wardell Armstrong library and these were examined and are referenced as appropriate.

2.5.8 ***Websites:*** various websites were checked for information relevant to the site's assessment, including Google Earth™, the Archaeology Data Service (ADS 2018), Historic England's PastScape (PastScape 2018) and National Heritage List websites (NHL 2018) and the British Geological Survey (BGS 2018). The results are includes in the text and included, as appropriate, in the gazetteer and bibliography.

2.6 Reporting

2.6.1 A digital copy of the report will be deposited with the Cumbria County Council HER, where viewing will be made available on request.

2.6.2 Wardell Armstrong support the Online AccesS to the Index of archaeological investigationS (OASIS) project. This project aims to provide an online index and access to the extensive and expanding body of grey literature created as a result of developer-funded archaeological work. Details of the results of this study will be made available by Wardell Armstrong, as a part of this national scheme, under code: **wardella2-331184.**

2.7 Glossary

2.7.1 The following standard terms are used throughout the report:

- Designation – the process that acknowledges the significance of a heritage asset and thus advances its level of consideration/protection within the planning process. Designated assets can either be statutory, like listed buildings, or non-statutory such as registered parks and gardens or conservation areas.

- Heritage Asset – a building, monument, site, place, area or defined landscape positively identified as having a degree of heritage significance that merits consideration in planning decisions.
- Historic Environment Record – an information service, usually utilising a database that provides public access to up-to-date and dynamic resources relating to the historic environment of a defined geographic area.
- Mitigation – action taken to reduce potential adverse impacts on the heritage significance of a place.
- Setting – the surroundings in which a heritage asset is experienced. The extent is not fixed and will vary according to the historic character of the asset and the evolution of its surroundings.
- Significance – the value of a heritage asset to present and future generations attributable of its heritage interest. That interest may be archaeological, architectural, artistic or historic (including historical associations).

3 DESCRIPTION

3.1 Location and Geology

3.1.1 The proposed development site lies to the south of Kells and west of Woodhouse, *c*. 2.2km to the south-west of the centre of Whitehaven, in Cumbria (Figure 1). The proposed development site incorporates an area of *c*. 3.28 hectares of land to the west of High Road, the south-eastern half of which was, until recently, occupied by a chemical works known as the Marchon works (Figure 2). At the time of this study this part of the proposed development site comprised an enclosed area of wasteland, containing demolished footings of buildings and the remains of interlinking roads. The north-western half of the proposed development site was agricultural land.

3.1.2 The geology in the vicinity consists of dolomitic limestone, mudstone and anhydrite stone, a sedimentary bedrock formed approximately 252 to 272 million years ago in the Permian Period (BGS 2018). The superficial deposits are mapped as Diamacton Devensian Till, deposits formed up to 2 million years ago in the Quaternary Period (*ibid*).

3.2 Historic Landscape Character

3.2.1 The proposed development site lies within Cumbria's Historic Landscape Characterisation area 47: The West Cumberland Plain. This is '*a largely modern landscape with many 20th and 21st century industrial forms*… [with a] *weak legibility of landscape elements of medieval origin*' (Cumbria County Council 2009, 105).

3.3 Archaeological and Historical Background

3.3.1 This historical and archaeological background is compiled from primary and secondary sources consulted in October 2018. It is intended only as a summary of historical developments around the proposed development site. The locations of known heritage assets within the 1km study area are shown in Figure 3 and summarised in Appendix 2.

3.3.2 ***Prehistoric Period***: at least two, and perhaps three, axes of the Neolithic period have been recovered from the study area (Assets 2 and 7). In a wider area, St Bees Head has been subjected to extensive field-walking surveys which have revealed a '*major cluster of later Mesolithic flint scatters*' (Cranstone Consultants and Ironbridge Archaeology 2007, 13), evidence of activity that continued into the Neolithic period, and it is possible that such activity extends to within the study area.

3.3.3 ***Roman Period***: there is no definitive evidence for activity in the study area during the Roman period. The possible remains of an enclosure revealed by a geophysical survey to the east of the proposed development site (GBS 2014, 5) were proven to be of modern agricultural and geological origin during a subsequent archaeological evaluation (CFA 2014, 3). A rectilinear cropmark is known from within the proposed development site, which may represent the remains of a settlement of Roman or earlier origin (Asset 4). Further evidence may come from the field name '*Castlerigg*' for a field to the north (Asset 39), which has been suggested to represent the site of a Roman fort (Cranstone Consultants and Ironbridge Archaeology 2007, 14).

3.3.4 ***Medieval Period***: the parish of Sandwith was held by St Bees Priory until the dissolution, and the present layout of the village is indicative of a medieval settlement. The proposed development site lies beyond the reaches of the village and associated field system, and the Sandwith Tithe Award map of 1838 (CACW YDX 304/34) appears to show that the land to the north of Cabbage Hall (Asset 26) had been carved out of an earlier landholding and may have formed a separate small estate. Much of the proposed development site lay within Preston Quarter, however, a separate parish to the north-east, which was part of the former St Bees holding 'Priest's-ton', but owned by the Lowther family from 1630. In the mid 18th century, the head Lowther, then the Earl of Lonsdale, held the great tithes, as rector of St Bees, explaining why so little of the parish is depicted on the Preston Quarter Tithe Award map of 1846, including the proposed development site (CACC DRC/8/157). There are suggestions that there may be a lost hamlet of Preston, and the possibility that this lies somewhere in the vicinity of the proposed development site cannot be ruled out (Cranstone Consultants and Ironbridge Archaeology 2007, 20). Preston Quarter and Sandwith both formed poor law townships within the parish of St Bees (*ibid*, 18). Parish boundaries, one of which lies close to the proposed development site, are assumed to have remained consistent from the early Middle Ages.

3.3.5 There is extensive evidence for quarrying in the study area (Assets 11, 12, 14, 15 and 31), and it is possible that some of this began in the medieval period; Aikbank Quarry (Asset 11) is shown on the Sandwith Tithe Award map of 1838 (CACW YDX 304/34). The proposed development site, and much of the wider study area, has been subjected to extensive post medieval and modern extractive and agricultural processes which may have obscured earlier activity.

3.3.6 ***Post Medieval Period***: upon receipt of the St Bees/Whitehaven estate in 1630, Christopher Lowther actively sought the development of the harbour at Whitehaven to transport coal and salt. Mining, as well as salt making, is known to have occurred prior to the Lowthers, with references to it occurring in St Bees Parish in the 16th century (Cranstone Consultants and Ironbridge Archaeology 2007, 18). Christopher Lowther was exporting coal to Ireland in 1632, which suggests he must have exploited pre-existing mines. More extensive exploitation schemes were undertaken under Sir John Lowther from the 1660s. The earliest pit known from the present study area is Greenbank Pit, operated by 18 men in 1675, and placed within the study area on placename evidence (Asset 17). Other constituents of the 18th century Greenbank Colliery development were Moss Pit (Asset 16) and Fox Pit, sunk by 1709, and perhaps as early as 1693 (Asset 18), both also within the study area. Other, slightly later 18th century pits, sunk under the auspices of Carlisle Spedding in the vicinity, include Kells Pit, sunk in 1750 (Asset 8) and Wilson Pit (Assets 3 and 10), to the east of the proposed development area, which was sunk prior to 1779 (Cranstone Consultants and Ironbridge Archaeology 2007, 33).

3.3.7 Croft Pit, which was established within the proposed development site in 1774 (Asset 24), along with the other more westerly pits in the Whitehaven coalfield, including Kells (Asset 8) and Wilson (Asset 10), had greater longevity than the more easterly ones, continuing to be worked in the late 19th, and sometimes 20th centuries (Cranstone Consultants and Ironbridge Archaeology 2007, 32). By 1781, Croft Pit (Asset 24) had been connected to a wider waggonway system, known as the Saltom waggonway, this section becoming known as the Croft waggonway (Asset 41), possibly that shown on Greenwood's plan of 1823 leading to Wilson Pit (Figure 5). Croft Pit (Asset 24) and Kells Pit (Asset 8) (annotated 'Kills Pit') are also shown on Greenwood's map (Figure 5). An earlier waggonway seems to have run eastwards across the proposed development site to run across the Woodhouse Estate (Asset 40; Cranstone Consultants and Ironbridge Archaeology 2007, 44). The Croft waggonway was perhaps the scene of at least one early locomotive trial, in 1816, and also carried water pipes, though in 1828, it was replaced by the croft incline (Asset 42), which was served by an engine (Asset 23). Winding engines were introduced to Kells (Asset 8), Croft (Asset 24) and Wilson Pits (Asset 10) in the early 19th century, and Croft Pit was deepened in 1818 (Cranstone Consultants and Ironbridge Archaeology 2007, 35). The Whitehaven collieries gained a poor reputation in terms of safety and danger, and this did not exclude those mines within the study area. There were fatal explosions at Kells (in

1819 leaving five dead), and Croft (in 1828 leaving six dead, in 1831 resulting in 23 deaths and in 1847 killing four).

3.3.8 An additional waggonway was installed in the 1890s when a railway and incline was constructed linking Croft Pit to the Furness Railway at Corkickle (Asset 43). This is shown on the Second Edition Ordnance Survey map of 1899 (Figure 7) to the east of the earlier Croft Incline with engine house (Asset 23). Further similar developments in the vicinity occurred with the provision of a waggonway (Asset 44) to link the Barrowmouth Gypsum Mine (Asset 1) into the waggonway at the top of the Croft Incline, with links to an associated Cement Works/ Alabaster Factory (Asset 36; *confer* 3.3.10).

3.3.9 The Barrowmouth Gypsum Mine (Asset 1) was another important extractive process occurring within the study area. The earliest mention of the discovery of alabaster seems to be in 1682 in a '*quarry at Sandwith Baurgh*' with a letter of 1698 noting the discovery of marble and possible future exploitation (Cranstone Consultants and Ironbridge Archaeology 2007, 47). Sandwith Baurgh, also referred to as Caput Bay in the 17th century, is marked on the Sandwith Tithe Award Plan of 1838 and lies to the west of the proposed development site. The earliest known reference to quarrying is in 1739 (CACW YDS 60/2/6/1), and by 1811, leases indicate that it had extended below ground, with a requirement for pillars to support the roof (CACW YDS 60/2/6/9). The Hamilton family took on the lease in *c*. 1844, renaming the area 'Port Hamilton' and constructing '*paths, ponds, a mock harbour and a lake… pleasure grounds with alabaster statues, a model castle and a small managerie*' (Cranstone Consultants and Ironbridge Archaeology 2007, 49). Hodgson, who worked as a plasterer after 1850, stated that this '*castle*' served teas and that the area was accessed from Barrowmouth farm by a '*difficult*' cart road, and that the main house comprised a two-storey building with Mr Hamilton's holiday flat at first floor level, a workmen's lodging below, and with the castle and museum beneath that (*ibid*). This operation seems to have ceased at some time between 1863 and 1888 when John Thomlinson of the Joseph Robinson Company leased the mining sett.

3.3.10 The Joseph Robinson Company, as well as restarting gypsum and mining operations, erected a new processing factory (Asset 36) to the north-east of the mining works, within the proposed development site, with associated waggonways (Asset 44). Plans of the factory, presumably the original building plans, dated March 1888, indicate it to have comprised five bays with a chimney on the eastern side (CACW SRDED

3/1/178; Plates 1-3). It was cellared and included a crushing mill and engine house (Plates 1-3). Plans of the associated waggonways included in a batch of documents dating from between 1888 and 1894 show two levels, at different locations to those shown on the First Edition Ordnance Survey map of 1865 (Figure 6), indicating that these new adits were opened under the Joseph Robinson Company (Plate 4). These are both annotated '*old drift*' on the Second Edition Ordnance Survey map of 1899, to the west of the study area. Joseph Thomlinson was manager of the site, but was killed in an accident on the incline in 1900 (Cranstone Consultants and Ironbridge Archaeology 2007, 49). The mine eventually closed in 1908, though the building remained until at least the 1960s (Figures 7-11) and is shown towards the north-west of an aerial photograph of 1933 (Plate 6) and bottom right of an aerial photograph of 1950 (Plate 7).

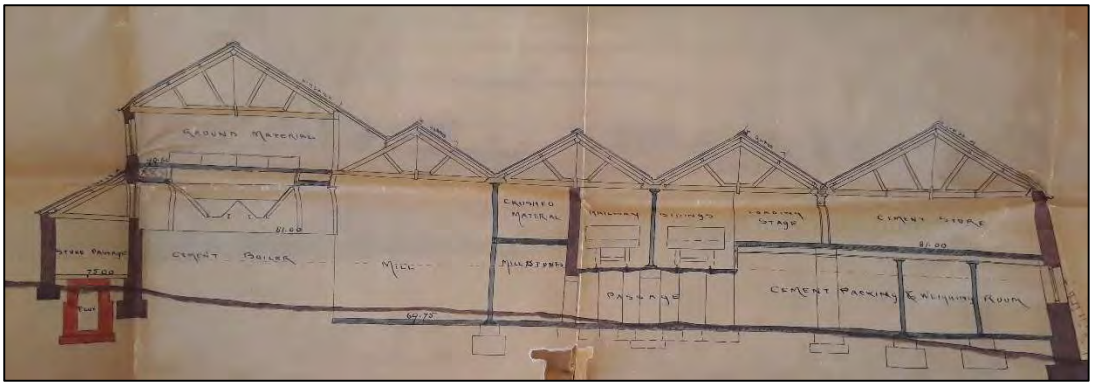


Plate 1: Cross section through alabaster factory, 1888 (Asset 36)

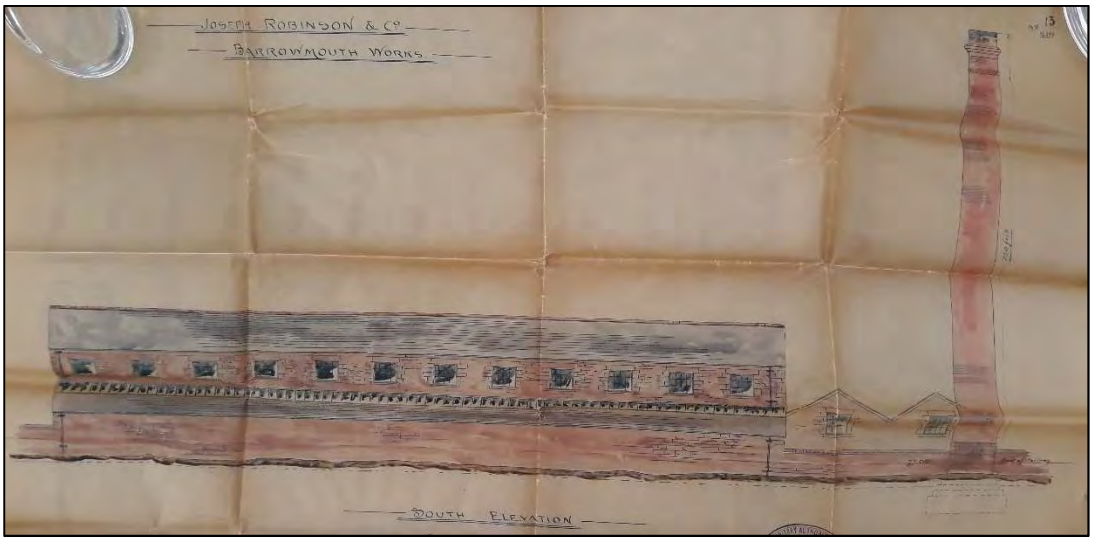


Plate 2: South elevation of alabaster factory, 1888 (Asset 36)

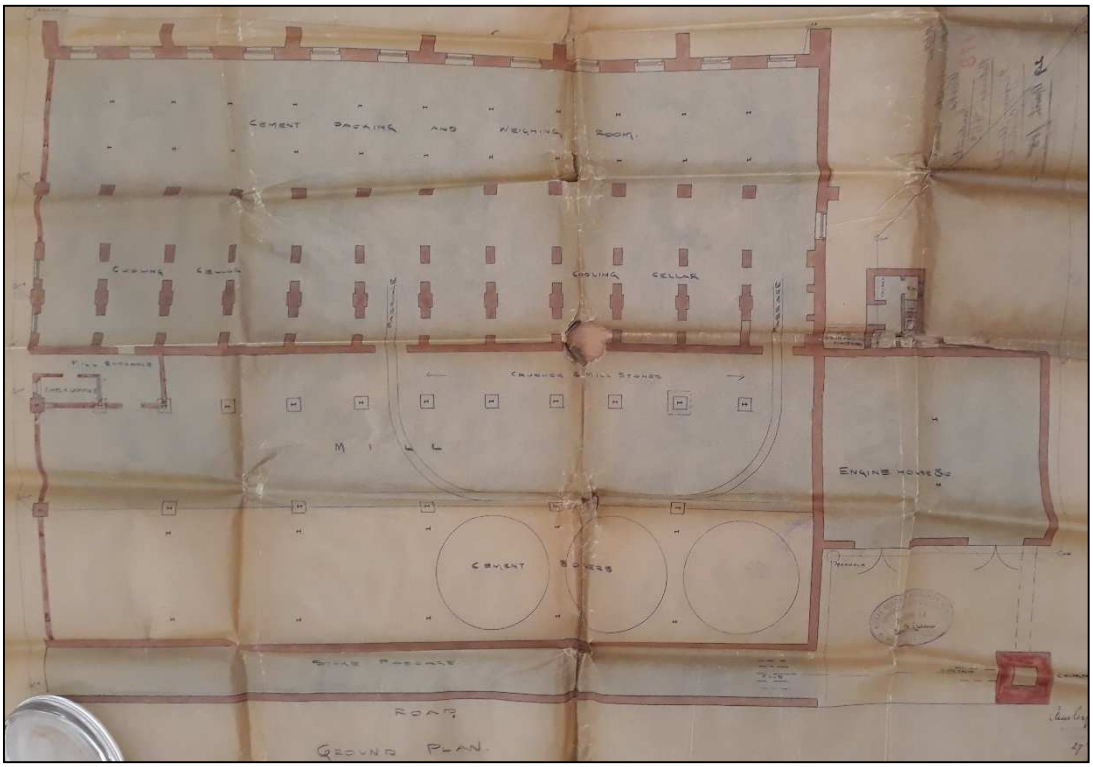


Plate 3: Ground plan of alabaster factory, 1888 (Asset 36)

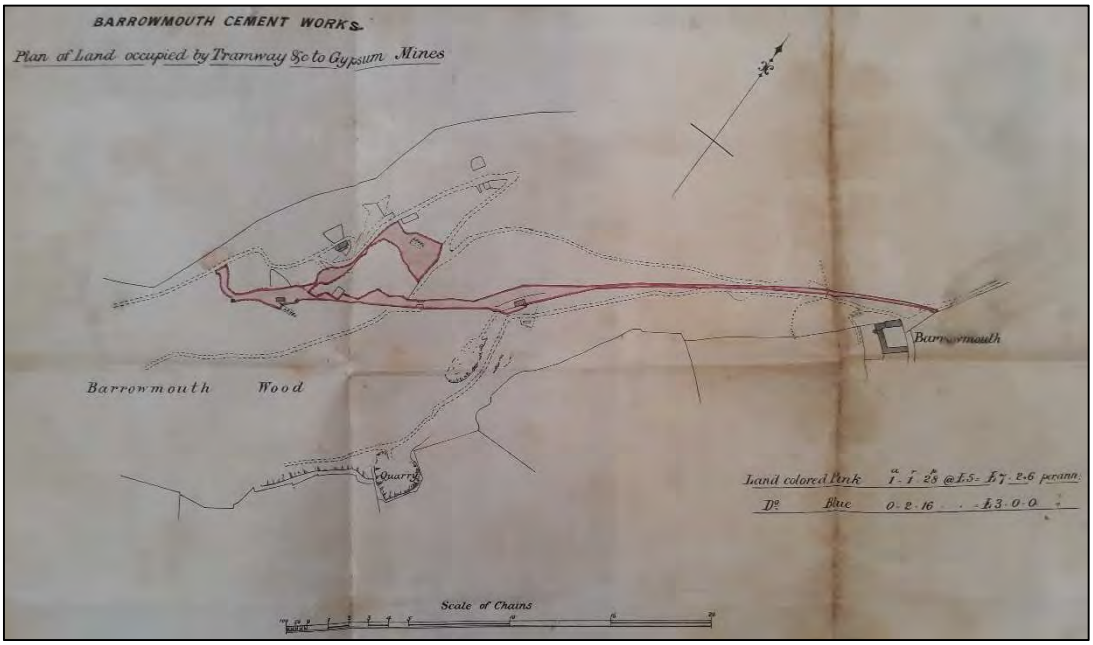


Plate 4: Plan of land occupied by tramway to gypsum works, 1888-1894 (Assets 1 and 36)

3.3.11 Other industrial developments in the wider study area include a smithy (Asset 5), a firebrick works (Asset 6), a tile works (Asset 9), reservoirs (Asset 19) a brickfield and trackway (Assets 21 and 22), together representing the general increase in activity and

occupation during the later post medieval period, futher represented by the establishment of a workhouse in the vicinity (Asset 13). The threat of war with France in the mid 19th century led to a countrywide increase in volunteer rifle corps, and the provision of rifle ranges to practice shooting skills (Out of Oblivion 2018). This may explain the existence of a rifle range (Asset 30) in the north-western part of the proposed development site, illustrated on the First Edition Ordnance Survey map of 1865 and shown on subsequent mapping until the 1950s (Figures 6-9).

3.3.12 Despite these post medieval industrial developments, agriculture remained dominant into the 20th century (Cranstone Consultants and Ironbridge Archaeology 2007, 50). The landscape in the vicinity of the proposed development site, until the 20th century, retained the medieval division between the Preston Quarter and Sandwith townships and field systems around the villages of Sandwith and Arrowthwaite. However, the landscape within Preston Quarter township was massively reorganised, perhaps as a result of the Croft Incline in 1828 (Asset 42), leading to a divergence in character between the area historically within Sandwith and that within Preston Quarter. For the proposed development site itself, this has little relevance, due to the massive changes brought about in the 20th century, but it does mean that the area to the south of the proposed development site, historically within Sandwith, has a higher potential to retain pre-1828 archaeological deposits.

3.3.13 This agricultural landscape is depicted on Donald's map of Cumberland of 1774 (Figure 4), which details very few industrial developments. It shows the main St Bees to Whitehaven turnpike to the east of the site, the present High Road, so presumably the toll points and milestones known from the study area were in existence by 1774 (Assets 32, 33 and 35). The diversion from this road forming the village of Sandwith is also depicted to the south-west. Farmsteads are shown in the vicinity of the proposed development site by this date, including 'Preston How', though the annotation is closer to the farmstead latterly known as Far Prestonhows (Asset 20), a building marked at what is later known as Prestonhows (Asset 34) and Barrowmouth, both marked and annotated (Asset 29). Between 1774 and 1823 (Figures 4 and 5), as well as the industrial developments outlined above (*confer* 3.3.7), further buildings had been established, including Hodbank (Asset 27) and Cabbage Hall (Asset 26), with unusual forked road pattern to the north (*confer* 3.3.4). Lingdale Head (Asset 28) is not depicted on the 1823 map (Figure 5), indicating this likely dated to between 1823 and 1838 as it is depicted on the tithe award map of that date (CACW YDX 304/34).

3.3.14 ***Modern Period***: by the beginning of the 20th century, no new colliery had been sunk for 60 years, but this changed in 1900-02 with the sinking of the Ladysmith Shaft (Asset 45), adjacent to the Croft Pit (Asset 24), the whole site being renamed as Ladysmith Colliery soon afterwards. Ladysmith Colliery seems to have been upgraded into a modern 20th century colliery, though the buildings associated with the earlier Croft Pit were retained, new ones being added to the north and north east (compare Figures 7 and 8). A coal holding plan, not dated but must be of early 20th century origin as it shows both pits, indicates that the actual shaft for Croft Pit lay to the north-east, with the tunnel running westwards, and that the shaft for Ladysmith Pit was located to the south-west, with the tunnel running south-westwards (Plate 5).

3.3.15 Ladysmith Colliery eventually closed in 1931, resulting in the closure too of the Croft Incline and the Corkickle waggonway (Assets 42 and 43; Figure 10). It was a large complex, as shown on the Third Edition Ordnance Survey map of 1925 (Figure 8) and an aerial photograph of 1933 (Plate 6; Britain from Above 2018). In the photograph, the buildings towards the front and centre of the image are the surviving remains of the earlier Croft Pit (Asset 24), with the 20th century extensions to form the Ladysmith Colliery (Asset 45) to the top right of the image (Plate 6). Ladysmith Colliery was partially reopened, at surface level, to treat coal raised at the Haig Pit, meaning that the National Coal Board continued to use the Croft Waggonway (Asset 42; Cranstone Consultants and Ironbridge Archaeology 2007, 38). It is still visible adjacent to the Marchon works in 1950 (Plate 7). After 1947 the line was also used by the Marchon chemical works, until the Corkickle line was reinstated (Asset 43), the latter finally closing in 1986 when the chemical works switched exclusively to road transport.

Plate 5: St Bees and Sandwith Coal Holding Register Plan, nd

Plate 6: Aerial photograph showing Ladysmith Colliery facing north-west, 1933 (Britain from Above 2018)

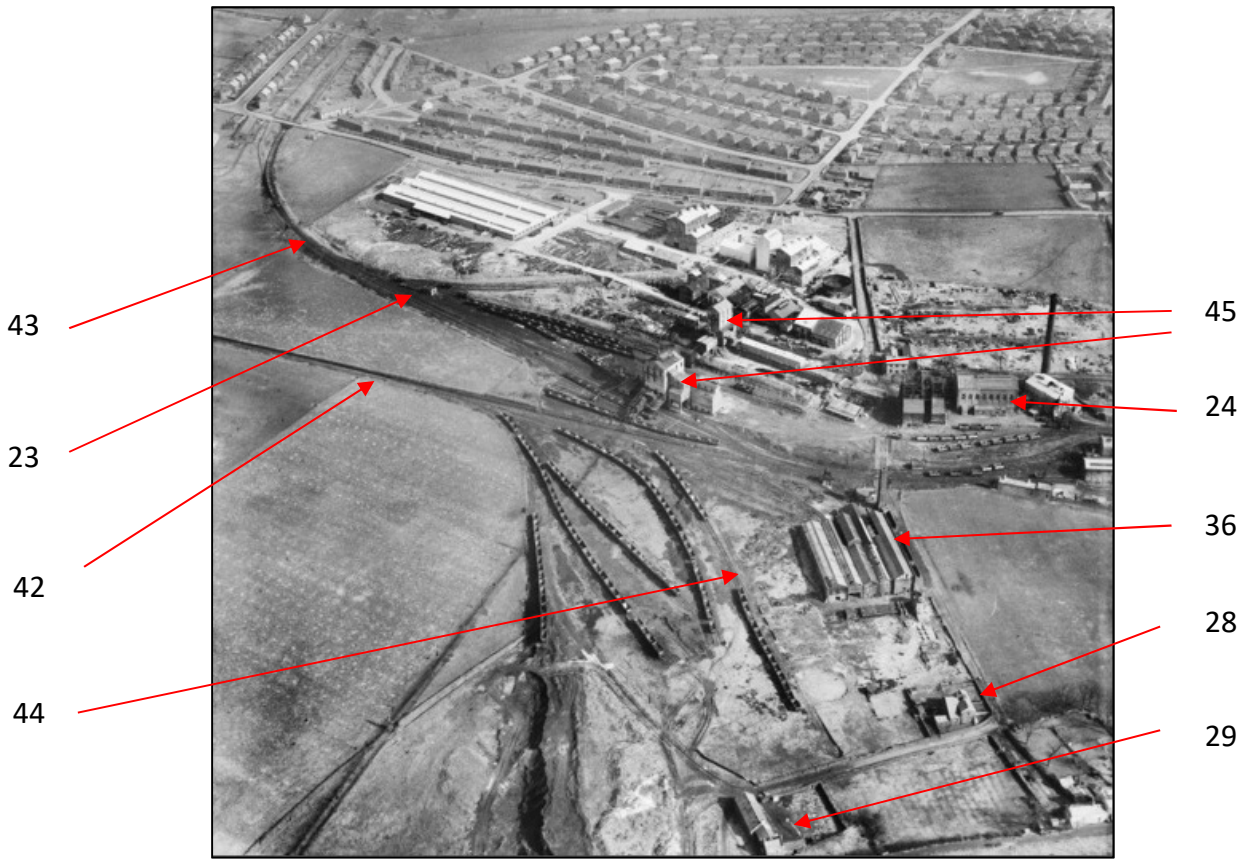


Plate 7: Aerial photograph, 1950, with the Marchon Works at the centre top (Asset 25), and other assets identified by arrows and numbers (Britain from Above 2018)

3.3.16 The introduction of the chemical industry to the area was initialised by a London-based company's desire to escape the Blitz, relocating to the 7 acre Ladysmith Colliery site (Asset 24) in 1943. The impact of the Second World War did not spare the study area, however, as demonstrated by the presence of an air raid shelter (Asset 38). The chemical company, Marchon, retained some of the former colliery buildings, converting them to industrial use, and added new buildings when needed (Asset 25). Aerial photographs of 1948 show this venture in its early days with a large white-roofed unit at the northern extent of the site, smaller east-west aligned buildings further south, the former colliery buildings to the west and south-west and the retention of the waggonways/railway (Plate 8). By 1950 there seems to have been the intention to extend the works southwards (Plate 9).

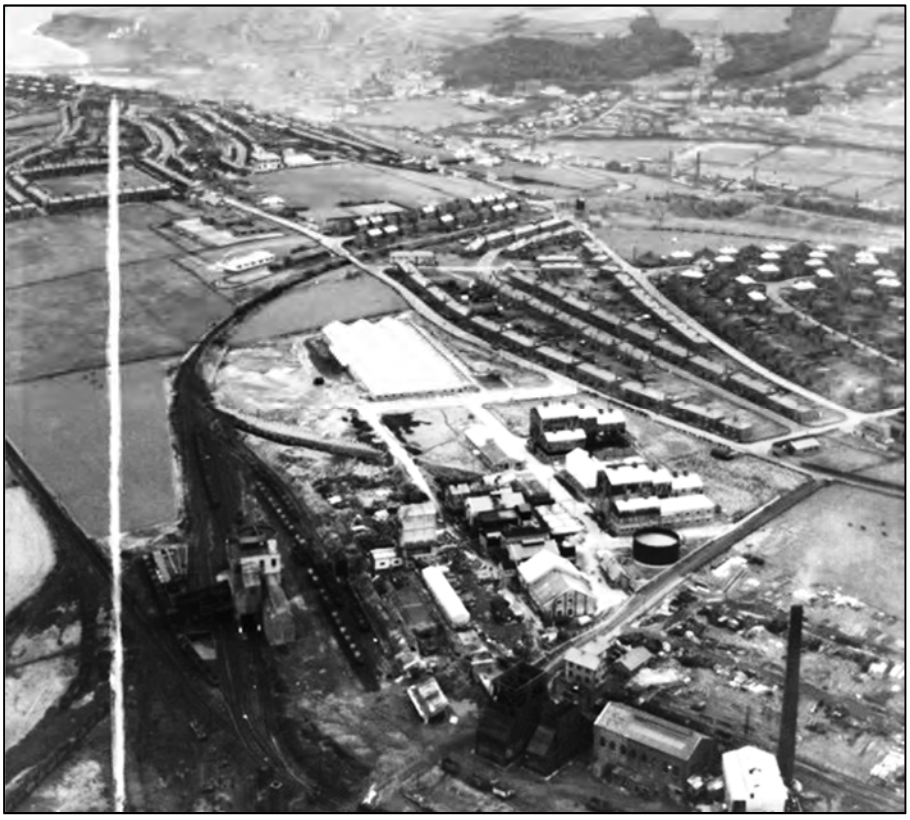


Plate 8: Aerial photograph showing the Marchon Works, 1948, facing north-east (Britain from Above 2018)

Plate 9: Aerial photograph showing the Marchon Works, 1950, (Britain from Above 2018)

3.3.17 With the end of the Second World War, more engineers and chemists became available, and this, combined with rising prices in importing the raw materials to be processed, led to the establishment of an adjacent anhydrite mine by Marchon's sister company, Solway Chemicals Ltd (Asset 37). Anhydrite occurs in layered deposits where large volumes of sea water have been evaporated and is typically interbedded with halite, gypsum and limestones in accumulations that can be up to hundreds of feet thick (geology.com 2018). The works initially comprised the mine, two kilns and acid plants, largely funded by the Treasury, Harold Wilson being President of the Board of Trade at the time, and the Duke of Edinburgh opened the mine in 1955 (Hay 1988, 134). One worker was killed and another seriously injured following an explosion in April 1958 (Durham Mining Museum 2018). Photographs indicate that it was accessed through portals in the south-west corner of the Marchon site (Plates 10 and 11), in the vicinity of Cabbage Hall and plans (CACW YDGO/FIRMS/PLANS; CACW YDB 59/13/10; CACW THSE/151) show that the mine extended south-westwards beneath land west of Sandwith (Plate 12). A crushing plant was provided within the south-western part of the Marchon site (Plate 13). Further buildings were procured from the Ordnance factory at Sellafield and re-erected (Hay 1988, 132).

Plate 10: Portal into Anhydrite Mine (Asset 37) (Durham Mining Museum 2018)

Plate 11: Transportation into Anhydrite Mine (Asset 37) (Durham Mining Museum 2018)

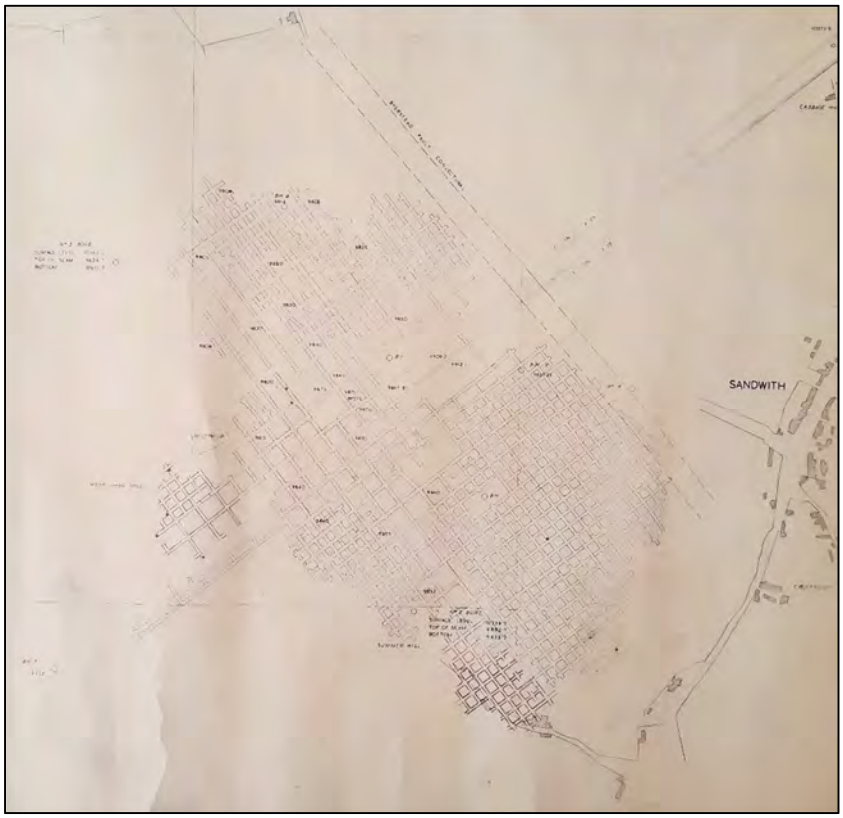


Plate 12: Plan of Sandwith Anhydrite Plan (CACW YDGO/FIRM/PLANS)

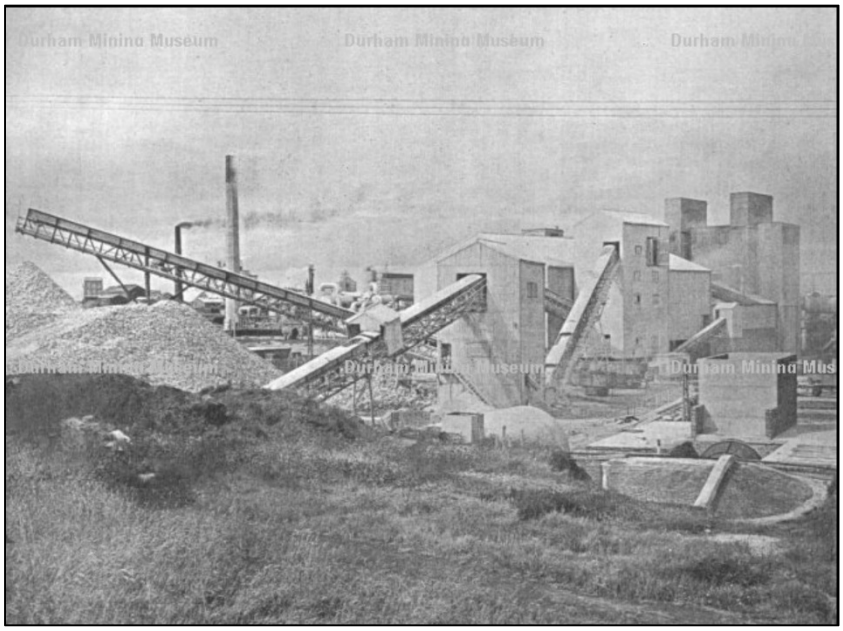


Plate 13: Crushing Plant (Durham Mining Museum 2018)

3.3.18 The history of the Marchon chemical works (Asset 25) has been addressed elsewhere (e.g. Hay 1988; Routledge 2002), but suffice to say that after Albright and Wilson acquired Marchon Products Ltd in late 1955, a new programme of expansion was

initiated at the Sandwith site. This extended southwards, and can be seen by comparing aerial photographs of the site from 1948 and 1950 (Plates 8 and 9) with Ordnance Survey maps of the 1960s (Figures 10 and 11). Overseas developments up until 1968 played a major role in this expansion and by 1975, there were six sectors within the Marchon and Industrial Chemicals Division of what had by now become a massive international company (Hay 1988, 139). In 1976 a new sodium tripolyphosphate plant was commissioned, making the site the largest producer of this material in the work, and in 1977, '*the largest investment in Albright and Wilson's history was announced*', a £19.5 million expansion for the construction of a further two new plants (Hay 1988, 139). In this year the site employed 2,250 people. No maps have been encountered of the area post-1968, though an aerial photograph of the site in 1995 (Plate 14) and Google Earth imagery of 2003 (Plate 15), show the site in its later years, after the move from railway to road transport. These show the establishment of the octagonal building in the north-west corner of the site, as well as other additions. It is clear from these images that at some point after 1968 and before 1995 any upstanding remains of earlier heritage assets within the area were demolished (e.g. the Croft Incline Engine House (Asset 23), Croft Pit/Ladysmith Colliery (Asset 24), Lingdale Head (Asset 28), Barrowmouth (Asset 29), Barrowmouth Cement Works Factory (Asset 36), the Croft Waggonway (Asset 41), the Croft Incline (Asset 42), the Corkickle Waggonway (Asset 43) and the Barrowmouth Waggonway (Asset 44)).

Plate 14: Marchon Site (Asset 25) in 1995, facing south-west (Flickr 2018)

Plate 15: Marchon Site (Asset 25) in 2003 (Google Earth Imagery)

3.3.19 From 1990, the works went into decline, receiving bad press from the amount of discharge flowing directly into the sea, which included radioactive waste. Following a complex series of deals, Rhodia finally purchased A & W Ltd in 2000 and '*immediately began to move production to their French sites, steadily closing down much of the Whitehaven site*' (Routledge 2002, 124). By August 2000, the workforce had been reduced to 300, by 2003 only 150 remained and eventually the remaining 82 people in December 2004 were given six months' notice (*ibid*). In June 2005, the site finally closed, and was demolished and cleared over the following years (Plates 16 and 17).

Plate 16: Marchon Site (Asset 25) in 2008 (Google Earth Imagery)

Plate 17: Marchon Site (Asset 25) in 2018 (Google Earth Imagery)

4 SITE VISIT

4.1.1 The site was visited on Wednesday 10th October 2018, and, despite the recent demolition and clearance of the Marchon Works (Asset 25) some extant remains survived in the form of terraces (Plate 18), building platforms (Plates 19 and 20), access roads (Plate 21), floor surfaces (Plate 22) and rubble mounds.

Plate 18: Surviving evidence of terracing at former Marchon Works (Asset 25)

Plate 19: Former building platform at Marchon Works (Asset 25)

Plate 20: Former octagonal building platform at Marchon Works (Asset 25)

Plate 21: Example of surviving access roads at Marchon Works (Asset 25)

Plate 22: Example of surviving former floor surface at Marchon Works (Asset 25)

4.1.2 No archaeological remains of the known pre 1943 heritage assets which once existed within the site boundary (Assets 4, 23, 24, 28, 30, 36, 40, 41, 42, 43, 44) were visible during the site visit (Figure 13). Much of the landscape within the south-eastern half of the proposed development site has been impacted by developments associated with the Marchon Works (Asset 25) from 1943 onwards (Figures 10 and 11; Plates 7-9 and 14-16), apparent during the site visit, though the north-western half of the site has been less affected by modern developments (Plates 23 and 24).

Plate 23: General view of proposed development site facing north

Plate 24: General view of proposed development site facing east-north-east

4.1.3 LiDAR imagery (Houseprices 2018) confirms that much of the south-eastern part of the proposed development site, that within the Marchon site boundary (Asset 25), has been the part most affected by modern developments, post 1943 (Figure 12). These may have had a detrimental impact on earlier archaeological remains (Figure 13).

Despite this, there remains the potential for any sub-surface remains of features to the south-west of Marchon's octagonal building at the western extent of the proposed development site, to survive, as this seems to be the least affected area within the Marchon boundary. This could retain surviving evidence for earlier archaeological features, such as any associated with the Croft Incline (Asset 42), constructed in 1828, Barrowmouth Cement Works factory (Asset 36), constructed in 1888 and associated with a scheduled monument and the interlinking Barrowmouth Waggonway (Asset 44), established by 1896, as well as any earlier as yet-unknown features. In addition, even the areas that appear to be heavily affected by the Marchon Works on LiDAR imagery (Figure 12) may retain evidence of earlier activity. This is particularly likely for Croft Pit (Asset 24) and Ladysmith Pit (Asset 45), the shafts of which may have been extensive (Plate 5) and could survive beneath the later activity.

4.1.4 The north-western part of the proposed development site, beyond the boundary of the 20th century Marchon Works (Asset 25) has a greater potential to retain well-preserved features of archaeological interest. Throughout the 19th century, and probably from at least 1828 when the agricultural landscape of Preston Quarter seems to have been reorganised, this area comprised one field, the present east-west division only shown on mapping from 1938 onwards (Figure 9). This means that the possible prehistoric/Romano-British enclosure (Asset 4) within this area, the western boundary of which is perhaps partly visible on LiDAR imagery (Figure 12), though this extends north of where the HER has its extent, is likely to survive well sub-surface. Furthermore, features associated with the former 19th century rifle range (Asset 30) may also survive. Additional as-yet unknown features pre-dating Ordnance Survey mapping also have a greater potential to be better preserved in this part of the proposed development site. This is significant, as important artefact assemblages of the Mesolithic and Neolithic period have been found at St Bees Head (e.g. Cherry and Cherry 1983), and there is the potential that a Roman fort once stood in the vicinity.

5 DISCUSSION

5.1 Summary of Heritage Asset Significance

5.1.1 One scheduled monument lies within the 1km study area (Asset 1), and is of national significance (Appendix 1, Table 1). Although developments within the site boundary will result in no negative impact, known historical assets with historical and geographical associations to the scheduled monument are known to have existed within the proposed development site. These include an alabaster factory (Asset 36), and a waggonway (Asset 44), which linked the factory to the alabaster mine (Asset 1). These are late 19th century developments, however, and not associated with the earliest phases of mining represented by the scheduled monument, so it may be that no further appraisal of impact on designated assets is required.

5.1.2 The proposed development site includes an area of land unaffected by post medieval and modern industrial development, the north-western half of the site, in a wider area that has high prehistoric and Roman potential. This has the potential to retain well-preserved archaeological remains, and this is of particular relevance as it contains a known heritage asset, revealed by cropmark evidence, thought to represent the remains of a rectilinear enclosure, which may have early origins (Asset 4).

5.1.3 Industrial developments affected the proposed development site from the early 18th century with the first waggonways, one of which is thought to have run in the vicinity of the proposed development site by 1752 (Asset 40). This was soon replaced when the Croft Pit was sunk in 1774 (Asset 24) and the Salton waggonway was extended to link this pit to the wider colliery landscape (Asset 41). The whole landscape, including the agricultural field pattern and perhaps farmstead layout (Asset 28), was redefined as a result of the establishment of the Croft Incline in 1828 (Asset 42) with associated engine house (Asset 23) to improve the transportation of goods from the coalface to the harbour at Whitehaven. Late 19th century industrial developments also had an impact on the proposed development site, with the provision of the Corkickle Waggonway (Asset 43) to link Croft pit to the main railway line. An early alabaster works was also revived in 1888, with the establishment of new adits and an associated factory (Asset 36) within the site boundary along with associated waggonway (Asset 44).

5.1.4 Additional, more extensive industrial developments affected the proposed development site in the 20th century, with the sinking of a new shaft, Ladysmith in 1900-02 and associated extension and conversion of the earlier Croft Pit into a larger

colliery becoming known as Ladysmith Colliery (Asset 45). A chemical works adopted the former Ladysmith site in 1943, known as the Marchon works (Asset 25). This eventually spread across the entirety of the south-eastern half of the proposed development site. The significance of this chemical works, socially, economically and historically, was not fully considered, and it could be argued that it played an important part in the region's pioneering technological and industrial role (Brennand *et al* 2006, 194). '*Archaeological research into 20th century industries, especially those with large plants, remains weak nationally*' (Brennand *et al* 2007, 153). The Marchon Works were demolished without formal archaeological study or recording.

5.1.5 All thirteen non-designated heritage assets (Assets 4, 23, 24, 25, 28, 30, 36, 40, 41, 42, 43, 44 and 45), which are known to have existed within the site boundary, are considered to be of local significance (Appendix 1, Table 1), unless those later associated with the scheduled alabaster works are considered of higher importance through associative value (Assets 36 and 44).

5.1.6 A further 31 heritage assets of local or negligible significance lie outside the proposed development site boundary, and therefore will remain unaffected by any developments within it (Assets 2-3, 5-22, 26-27, 29, 31-35 and 37-39).

5.2 The Character of the Development

5.2.1 Detailed plans of the proposed development within the site boundary have not yet been devised, however, outline plans suggest an area of development within the north-western part of the site, with a proposed corridor of green open area surrounding it, and an additional area of development at the centre of the south-eastern area, with a further margin of green open area surrounding it. Any development within these areas are likely to have a detrimental impact on known heritage assets, including the remains of the former Marchon works (Asset 25), as well as any surviving remains of earlier known assets within the site boundary (Assets 4, 23, 24, 28, 30, 36, 40, 41, 42, 43 and 44). There remains also the possibility of additional as-yet unknown heritage assets to survive archaeologically within the proposed development site.

5.3 Magnitude of Impact on Heritage Assets

5.3.1 For all heritage assets outside the proposed development site boundaries, the magnitude of impact resulting from the development would be no change (Assets 2-3, 5-22, 26-27, 29, 31-35 and 37-39), except for a scheduled monument (Asset 1). As

heritage assets associated with it may be adversely affected, it could be argued that the scheduled monument itself may be indirectly affected. However, as even the associated assets survive only as potential sub-surface deposits, the impact resulting from the development would still likely result in no change (Asset 1).

5.3.2 For the thirteen known assets of local significance (Assets 4, 23, 24, 25, 28, 30, 36, 40, 41, 42, 43, 44 and 45), once occupying parts of the proposed development site, the magnitude of impact would be substantial, as the development would affect '*key archaeological materials*' (Appendix 1, Table 2). This may be particularly true for Assets 36 and 44, which have historical and geographical associative links with a scheduled monument. As there are no specific plans yet available for the development, it must be considered that all thirteen are at risk of permanent detrimental impact.

5.4 Heritage Statement

5.4.1 For all heritage assets outside the proposed development site boundaries, a magnitude of impact of no change (Assets 1-26) would result in '*no appreciable impact*' on heritage significance, and would therefore not require further archaeological mitigation (Appendix 1, Table 3). This is likely to be the case too, for the scheduled monument (Asset 1).

5.4.2 For the thirteen known assets of local significance (Assets 4, 23, 24, 25, 28, 30, 36, 40, 41, 42, 43, 44 and 45), a substantial magnitude of impact would result in a limited impact on heritage significance, and therefore further mitigation may be required. This is dependent upon advice from the Cumbria County Council Historic Environment Team. Such mitigative work may involve a photographic survey of the study site to record surviving features relating to the Marchon Works (Asset 25) and to inform a potential information panel which could be set up to raise awareness of the legacy of the area's industrial past. Demolition occurred when there was little awareness or understanding of the significance of the resource or the finite and disappearing nature of 20th century industrial archaeological remains. Additional further work may include a programme of geophysical survey and/or field evaluation to assess the archaeological potential of the north-western half of the site, and evaluate the potential cropmark enclosure (Asset 4). In addition, a programme of archaeological monitoring during groundworks may be required to record any sub-surface features surviving within the south-eastern half of the site prior to permanent removal by the

proposed development. Such remains may already have been impacted on by the Marchon Work developments (Asset 25).

6 BIBLIOGRAPHY

6.1 Primary Sources

Plan of Harrathwaite showing Castlerigg, Kells and Muncra, 1700 (CACW YDX 304/28/5)

Counterpart of lease of alabaster and free stone in the shore and sea banks at Sandwith, 1739 (CACW YDS 60/2/6/1)

Donald's Map of Cumberland, 1774

Counterpart of lease of alabaster and free stone in the shore and sea banks at Sandwith, 1811 (CACW YDS 60/2/6/9)

Greenwood's Map of Cumberland, 1823

Sandwith Tithe Award Map, 1838 (CACW YDX 304/34)

Sandwith Tithe Award, 1838 (CACW YDX 304/7)

Preston Quarter Tithe Map and Award, 1844-6 (CACC DRC/8/157)

St Bees and Sandwith Coal Holding Register Plan, nd (CACW DBH/16/28/1)

First Edition Ordnance Survey Map, 1865 (25 inches to 1 mile scale)

Barrowmouth Cement Works, Sandwith, 29 Mar 1888 (CACW SRDED/3/1/178)

Papers relating to waggonways for conveyance of alabaster and stone at Barrowmouth (CACW YDS 60/2/6/19)

Second Edition Ordnance Survey Map, 1899 (25 inches to 1 mile scale)

Third Edition Ordnance Survey Map, 1925 (25 inches to 1 mile scale)

Fourth Edition Ordnance Survey Map, 1938 (25 inches to 1 mile scale)

Sale of land near Ladysmith Pit, Whitehaven, 1955 (CACW YDGO/FIRM/PLANS)

Developments at Sandwith Anhydrite Mine, 1961 (CACW YDB 59/9/31)

Ordnance Survey Map, 1962 (25 inches to 1 mile scale)

Ordnance Survey Map, 1968 (1:1250 scale)

Plan of Sandwith Anhydrite Mine, May 1974 (CACW YDB 59/13/10)

Sandwith Anhydrite Mine Abandonment Plan, Oct 1984 (CACW THSE/151)

6.2 Secondary Sources

Bassetlaw District Council 2011, *A Guide to Heritage Impact Assessments*

Brennand, M, *et al,* 2006, *The Archaeology of North West England: an archaeological research framework for the North West region, Volume 1, Resource Assessment*, CBA: Manchester

Brennand, M, *et al* ,2007, *Research and Archaeology in North West England: an archaeological research framework for North West England, Volume 2, Research Agenda and Strategy*, CBA: Manchester

CFA 2014, *Wilson Pit Road, Whitehaven, Cumbria, Phase 1: archaeological evaluation*, unpublished grey literature report by CFA Archaeology Ltd

Cherry, J. and Cherry, P. J, 1983, 'Prehistoric habitation sites in West Cumbria: Part 1: The St Bees Area and North to the Solway', in *Transactions of the Cumberland and Westmorland Antiquarian Society, 2:83, pp. 163-172*

CIfA 2017, *Standard and guidance for historic environment desk-based assessment*, CIfA: Reading

Copeland Borough Council 2013, *Copeland Local Plan, 2013-2018*, Copeland Borough Council

Cranstone Consultants and Ironbridge Archaeology 2007, *Whitehaven Coast Archaeological Survey Vol I*, unpublished grey literature report

Cumbria County Council 2009, *A guide to using the Cumbria Historic Landscape Characterisation Database for Cumbria's Planning Authorities*, Cumbria County Council

DCLG 2014, *Technical Guidance to the National Planning Policy Framework*, Department of Communities and Local Government: London

GSB 2014, *Wilson Pit Road, Whitehaven: geophysical survey*, unpublished grey literature report by GSB Prospection Ltd

Hay, D, 1988, *Whitehaven: an illustrated history*, Smith Settle: Otley

Historic England 2015, *The Setting of Heritage Assets*, English Heritage: London

Historic England 2017, *Understanding Place: Historic Area Assessments in a Planning and Development Context*, English Heritage: Swindon

Historic England *nd*, *Valuing Places: Good Practice in Conservation Areas*, English Heritage: Swindon

Highway Agency 2007, *Design Manual for Roads and Bridges*

MHCLG, 2018. *National Planning Policy Framework*. Ministry of Housing, Communities and Local Government: London

Routledge, A.W, 2002, *Marchon: The Whitehaven Chemical Works*, Tempus Publishing Ltd: Stroud

6.3 Internet Sources

ADS 2018, http://archaeologydataservice.ac.uk/archives/view/greylit/, accessed 12th October 2018

BGS 2018, http://mapapps.bgs.ac.uk/geologyofbritain/home.html, accessed 12th October 2018

Britain from Above 2018, https://britainfromabove.org.uk/, accessed 12th October 2018

Durham Mining Museum 2018, http://www.dmm.org.uk/news19/9580410.htm, accessed 12th October 2018

Houseprices 2018, online LiDAR 1m DSM dataset, https://houseprices.io/lab/lidar/map, accessed 15th October 2018

Flickr 2018, https://www.flickr.com/photos/horrgakx/523788169/in/album-72157600294748067/, accessed 15th October 2018

Geology.com 2018, https://geology.com/minerals/anhydrite.shtml, accessed 12th October 2018

National Heritage List (NHL) 2018, https://historicengland.org.uk/listing/the-list/, accessed 11th October 2018

Out of Oblivion 2018, http://www.outofoblivion.org.uk/record.asp?id=108, accessed 16th October 2018

PastScape 2018, https://www.pastscape.org.uk/, accessed 12th October 2018

APPENDIX 1: HERITAGE IMPACT ASSESSMENT TABLES

Table 1 Measuring Significance

Significance	Designation	Asset types and justification	Preferred response to negative impact
International	Non-statutorily designated heritage assets	World Heritage Site	Avoid negative impact where asset contributes to the WHS's defined outstanding universal values
National	Statutorily designated heritage assets	Scheduled monuments, grade I and II* listed buildings. Grade A Listed Buildings in Scotland	Avoid negative impact
National	Non-statutorily designated heritage assets	Registered battlefields, grade I and II* Registered Parks and Gardens	Avoid negative impact
National	Non-designated heritage assets of demonstrable equivalence to a scheduled monument	Assets where assessment for designation is pending, assets that have been assessed as being capable of designation but have not been designated at the SoS discretion, assets worthy of designation but which are outside the scope of the 1979 Act	Avoid negative impact
District or County (Higher)	Statutorily designated heritage assets	Grade II listed buildings. Grade B Listed Buildings in Scotland	Limit negative impact (avoid substantial harm) and mitigate
District or County (Higher)	Non-statutorily designated heritage assets	Conservation area, grade II registered park and garden	Limit negative impact (avoid substantial harm) and mitigate
District or County (Lesser)	Non-designated heritage assets within a national park or AONB	Any extant heritage assets	Limit negative impact and mitigate
District or County (Lesser)	Non-designated heritage assets	Heritage assets placed on a local planning authority list (NPPG). Grade C Listed Buildings in Scotland	Limit negative impact and mitigate
District or County (Lesser)	Non-designated heritage assets	Any area of potential listed in a local plan (NPPG)	Limit negative impact and mitigate
District or County (Lesser)	Non-designated heritage assets	Historic Hedgerow as defined under the Hedgerow Regulations 1997	Limit negative impact and mitigate
Local	Non-designated heritage assets	Any extant heritage assets outside of a national park or AONB.	Mitigate
Negligible	Non-designated heritage assets	Heritage assets recorded in the HER that are no longer extant, individual findspots or structures of no heritage value	No action

Table 2: Establishing the Magnitude of Impact

Magnitude of Impact	Heritage Asset		
	Archaeological Remains (Archaeological Interest)	**Historic Buildings (Architectural/Artistic Interest and/or Historic Interest)**	**Historic Landscapes (Historic Interest)**
Loss	• Change to most or all key archaeological materials, such that the resource is totally altered • Comprehensive changes to setting	• Change to key historic building elements, such that the resource is totally altered • Comprehensive changes to setting	Major change to historic landscape character resulting from: • Changes to most key historic landscape elements, parcels or components • Extreme visual effects • Major change to noise or change to sound quality • Major changes to use or access
Substantial	• Changes to many key archaeological materials, such that the resource is clearly modified • Considerable changes to setting that affect the character of the asset	• Changes to many key historic building elements, such that the resource is significantly modified • Changes to setting of an historic building such that it is significantly modified	Moderate change to historic landscape character resulting from: • Changes to many key historic landscape elements, parcels or components • Visual change to many key aspects of the historic landscape • Noticeable differences in noise or sound quality • Considerable changes to use or access
Less than substantial	• Changes to key archaeological materials, such that the asset is slightly altered • Slight changes to setting	• Change to key historic building elements, such that the asset is slightly different • Changes to setting of an historic building such that it is noticeably changed	Limited change to historic landscape character resulting from: • Changes to few key historic landscape elements, parcels or components • Slight visual changes to few key aspects of the historic landscape • Limited changes to noise levels or sound quality • Slight changes to use or access
Minor	• Very minor changes to archaeological materials	• Slight changes to historic buildings elements or setting that hardly affect it	Very small change to historic landscape character resulting from: • Very minor changes to key historic landscape elements, parcels or components • Virtually unchanged visual effects • Very slight changes to noise levels or sound quality • Very slight changes to use or access
No change	No change		

Table 3 Impact on Heritage Significance

Assessment Matrix to define the degree of impact on heritage asset significance		Magnitude of impact				
		No change	Minor alteration with no reduction in significance	Less than substantial	Substantial	Loss
Significance of Heritage Asset	National					
	District/County (Higher)					
	District/County (Lesser)					
	Local					
	Negligible					

Blue (no appreciable impact) = no mitigation necessary
Yellow (very limited impact) = low level mitigation eg photographic record/watching brief etc
Light green (limited impact) = may need evaluation to establish appropriate mitigation which may include site survey/excavation etc
Dark green (major impact) = may not be agreed and then only with significant justification, may require evaluation and will require significant mitigation such as excavation, detailed building survey, visual restoration, some in-situ preservation and on-site interpretation
Red (very major impact) = unlikely to be agreed except in exceptional circumstances and only with a high level of mitigation

APPENDIX 2: LIST OF HERITAGE ASSETS

The table below summarises known heritage assets within the 1km search radius (study area), including assets from Cumbria County Council's Historic Environment Record (HER), Historic England's PastScape (PS) and National Heritage List (NHL) web resources and any additional assets noted during this work. The locations of all heritage assets are represented by dots in Figure 3, to help locate the central points of these assets:

Asset No.	***Reference***	***Site Name***	***Description***	***Grid Reference***	***Period***
1	NHL 1021106; CCC HER 11984; CACW YDX 304/34; First Ed OS; PS 1405240	Barrowmouth Gypsum and Alabaster Mine	One of only seven scheduled gypsum sites. It is not clear exactly when it was first extracted, but alabaster quarrying on the shore and sea banks at Sandwith occurred from at least 1739 (CAC(W) YDS 60/2/6/1) and gypsum is referenced here in Hutchinson's 1794 publication. No details are shown on the Sandwith Tithe Award Plan of 1838 (CACW YDX 304/34), though tracks are shown; the area is annotated 'Sandwith Baurgh'. The First Edition OS map shows three alabaster levels in Barrowmouth Woods, though this enterprise closed in the early 1880s. in 1888 mining operations were restarted by Joseph Robinson & Co Ltd with a new processing factory erected to the north-east (Asset 36) and associated waggonways to the woods and shore.	295924,515813 (centred on)	Post Medieval
2	CCC HER 1190; PS 8480	Axe Find/s?	A stone axe of smooth grey stone found at Barrowmouth. Some confusion between PastScape 8480 and PastScape 8475 – may be the same find	296000,516000	Neolithic
3	CCC HER 2751	Shaft Top	Site of Wilson Pit shaft top, shown on Second Edition OS map	297300,515200	Post Medieval
4	CCC HER 4669	Cropmark	Rectilinear cropmark	296400,516250	Unknown
5	CCC HER 11923	Lanehead Smithy	Site of an old smithy marked on Second Edition OS map. Documentary evidence for ownership in 1829, 1847, 1883 and 1901	296870,514910	Post Medieval
6	CCC HER 11954	Fire Brick Works	Site of Fire Brick works west of Low Road marked on OS mapping from First Edition until 1960s but no longer shown. Included a mineral railway	297380,516960	Post Medieval
7	CCC HER 11954	Flint Axe Find	Unpolished flint axe found in 1948 by J. Steel 'in the clay pit' at the brick works	297389,516770	Neolithic

Asset No.	*Reference*	*Site Name*	*Description*	*Grid Reference*	*Period*
8	CCC HER 11966	Kells Pit Colliery	Site of Kells Pit Coal Mine, also known as Celts, sunk in 1750 and working after 1877. Marked as 'old coal pit' on First Edition OS map. Shaft head no longer shown on Third Edition OS map.	296550,516800	Post Medieval
9	CCC HER 11979	Tile Works	Site of a tile works shown on First Edition OS map, but marked as 'Old Clay Pit' by Second Edition OS map	297504,515430	Post Medieval
10	CCC HER 11980	Wilson Pit	Site of coal pit, marked as 'old' on First Edition OS map. It was sunk by 1779 as an explosion then killed seven miners, and it had a winding engine by 1815 (Cranstone Consultants and Ironbridge Archaeology 2007, 33). It was closed for coal-drawing in 1847 (*ibid*, 37). A site visit in 2007 noted surface remains in the form of a boundary wall, large ramp and landside wharf, an unusual survival (*ibid*, 41)	297000,515300	Post Medieval
11	CCC HER 11981; PS 1494688	Aikbank Quarry	Quarry, marked on First Edition OS map, and as Aikbank Quarry on Second Edition OS map, but as 'disused' on Third Edition OS map. Annotated as a stone quarry on the Sandwith Tithe Award Plan of 1838 (CACW YDX 304/34)	295950,515600	Post Medieval
12	CCC HER 11987; HER 11983; PS 1494673	Quarry and limekiln	Site of quarries and a limekiln at Barrowmouth, shown on First Edition OS map but marked as 'old' with limekiln no longer shown on Second Edition OS map	296260, 516080	Post Medieval
13	CCC HER 11988	Workhouse	Site of Whitehaven Union Workhouse, built in 1855-56 and eventually closed in 1964 and demolished. An infirmary was added to the north in 1905. Traces of the walls were encountered during an archaeological evaluation in 2002	297500,516300	Post Medieval
14	CCC HER 11989	Quarry	Site of quarry, apparently marked on First Edition OS map at 297200,516500 but not found during this research. There is a quarry to the north-west marked as old on Second Edition OS at 296995,516580 but it is not on First Edition OS map, or post 1920s mapping	296995,516580	Post Medieval

Asset No.	*Reference*	*Site Name*	*Description*	*Grid Reference*	*Period*
15	CCC HER 12441; PS 1494679	Quarry	Site of 20th century quarrying activity, related to neighbouring Marchon Works	296400,515650	20th century
16	CCC HER 12927	Moss Pit	Site of coal pit, poorly documented but part of the 18th century development of the Greenbank Colliery (Cranstone Consultants and Ironbridge Archaeology 2007, 39). It is marked on the First Edition OS Map as 'old coalpit' and the air shaft is still marked on modern mapping. Geophysical survey in 2013 revealed a group of strong anomalies, suggesting archaeological survival	297365,515240	Post Medieval
17	CCC HER 41765	Greenbank Pit	Site of possible Greenbank Pit based on placename evidence, a former pit owned by the Lowther family. An account book for Greenbank Pit showed it was operated by 18 men in April 1675. In 1698 the pit was all but worked out	297500,515500	Post Medieval
18	CCC HER 44608	Fox Pit	Site of pit, in production by 1709 (Cranstone Consultants and Ironbridge Archaeology 2007, 38) and still operated in 1757, not operating but still listed in 1781 (*ibid*, 39). Apparently remained in use as ventilation shaft until at least 1844	296884,515715	Post Medieval
19	CCC HER 13952	Gameriggs Reservoir	Site of former reservoirs, annotated on Second Edition OS map and marked on First Edition OS map, and still outlined on maps into the 1960s. Boundary still marked on modern mapping	297040,515790	Post Medieval
20	CCC HER 43953	Far Prestonhows	Site of a farmstead, shown on First Edition OS map and subsequent mapping but demolished by 1979	296960,515560	Post Medieval
21	CCC HER 43954	Gameriggs Trackway	Trackway shown on First Edition OS map and subsequent mapping and partially surviving at time of site visit in 2011	296900,515760	Post Medieval
22	CCC HER 43956	Gameriggs Brickfield	A building, annotated 'Gameriggs Brickfield' shown on First Edition OS map and not subsequent mapping. Geophysical anomalies may indicate sub-surface survival	297200,515800	Post Medieval

Asset No.	*Reference*	*Site Name*	*Description*	*Grid Reference*	*Period*
23	CCC HER 44607	Croft Incline Engine House	Site of engine house for the Croft Waggonway incline, established in 1828, (Cranstone Consultants and Ironbridge Archaeology 2007, 46), north of the Croft Pit (Asset 24). Said to have been '*immediately south of octagonal Marchon building*'. The Marchon works (Asset 25) have since been demolished, but LiDAR imagery places this at 296495, 516116 (Figure 12). As the engine house must have been on the incline, and there is a building north of the Croft Pit at 296497,516080, it may have been this	296497,516080	Post Medieval
24	CCC HER 12835; CACW YDX 304/34; PS 1494638	Croft Pit	Site of Croft Pit, sunk in 1774 (Cranstone Consultants and Ironbridge Archaeology 2007, 33) connected to the waggonway system (the Croft Waggonway) by 1781, had a winding machine by 1815, was deepened in 1818, killed 6 in 1828, 23 in 1831 and 4 in 1847 (*ibid*, 36) and after 1848, with Wellington Pit, became one of only two working pits in the Howgill Colliery (*ibid*, 37). Included stables (CACW T NCB/Plan/35-28) and still in use in 1859 (CACW T NCB/Plan/48-4). Marked as 'Croft Pit Coal Yard' on Sandwith Tithe Award Map of 1838 (CACW YDX 304/34). In 1900-1902 the Ladysmith Shaft was sunk and the whole site re-structured (Asset 45)	296550,515900	Post Medieval; 20th century
25	CCC HER 41457	Marchon Works/ Rhodia Chemical Works	Site of a former chemical works, initialised by a London-based company's move to escape the Blitz, occupying the 7 acre disused tar plant at Ladysmith Pit (Asset 24) near Kells in 1943 (Routledge 2002, 11). Later included an associated anhydrite mine (Asset 37). Massively expanded throughout the 1960s and 1970s but eventually closed in 2005. The site has since been cleared	296620,515937	20th century

Asset No.	*Reference*	*Site Name*	*Description*	*Grid Reference*	*Period*
26	CACW YDX 304/34; Greenwood 1823	Cabbage Hall	Cabbage Hall is shown on the Sandwith Tithe Award Plan of 1838 (CACW YDX 304/34) and a building at the same location is shown on Greenwood's plan of 1823. An interesting road pattern in the vicinity suggests early origins, perhaps a small estate comprising the parcel of land to the north. Building still at this location	296473,515288	Post Medieval
27	CACW YDX 304/34; Greenwood 1823	Hodbank, later Hutbanks	Site of Hodbank, a rectangular roughly north-south building shown on the Sandwith Tithe Award Plan of 1838 (CACW YDX 304/34) and on Greenwood's plan of 1823, and by the First Edition OS map it had been subdivided into three or four dwellings annotated Hutbank. Demolished after 1938 and subsumed into the Marchon Works (Asset 25)	296461,515510	Post Medieval
28	CACW YDX 304/34; Greenwood 1823	Lingdale Head	Site of Lingyback, a building shown on the Sandwith Tithe Award Plan of 1838 (CACW YDX 304/34), but not on Greenwood's plan of 1823. By the First Edition OS map it comprised a number of buildings annotated Lingydale. Demolished after 1962 and subsumed into the Marchon Works (Asset 25)	296327,515892	Post Medieval
29	CACW YDX 304/34; Donald 1774; Greenwood 1823	Barrowmouth	Site of Barrowmouth, a probable u-shaped farmstead shown on Donald's map of 1774, Greenwood's plan of 1823 with associated track, and on the Sandwith Tithe Award Plan of 1838 (CACW YDX 304/34). It is similarly shown as u-shaped on mapping up until 1938, after which only the northern part survives, as an L-shaped structure. Demolished after 1962 and subsumed into the Marchon Works (Asset 25)	296285,515992	Post Medieval
30	First Ed OS	Rifle Range	Site of 'Rifle Range' shown on First Edition OS map and subsequent maps but gone by 1957	296241,516367	Post Medieval

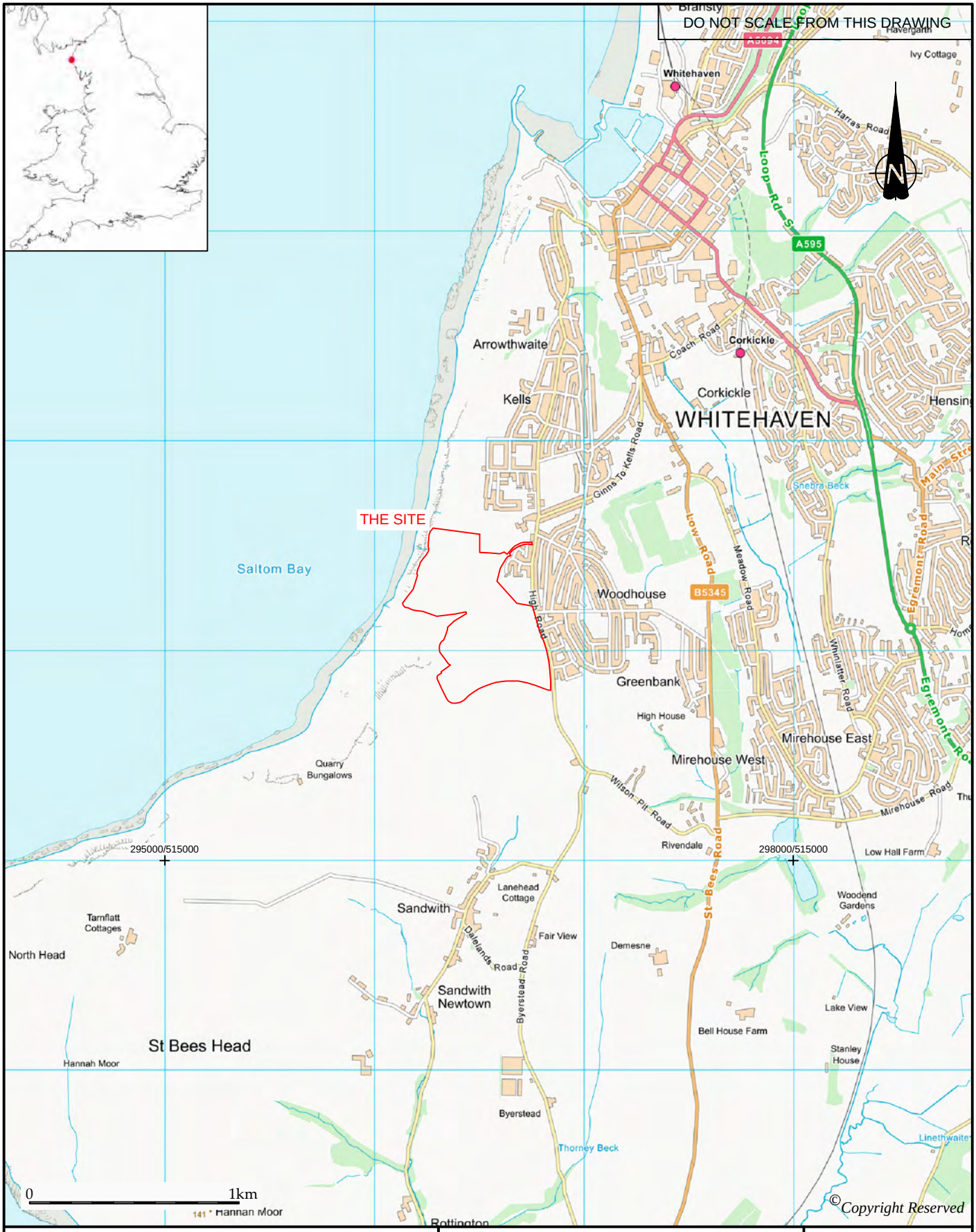
Asset No.	*Reference*	*Site Name*	*Description*	*Grid Reference*	*Period*
31	First Ed OS	Quarry	Site of quarry marked on First Edition OS map to south-west of Far Prestonhows (Asset 20), extended but marked as 'old' on Second Edition OS map and not shown on Fourth Edition OS map. Area later subsumed into the Marchon Works (Asset 25)	296954,515473	Post Medieval
32	First Ed OS; Donald 1774	Possible Toll Cottage	Site of small building annotated 'Wilson Pit T.P.' on First Edition OS map with a benchmark on it, so a possible toll point for the turnpike road (turnpike road shown on Donald's map of 1774). Marked as 'Toll Bar' on 1962 map. Building no longer survives	297020,515424	Post Medieval
33	First Ed OS; Donald 1774	Milestone	Site of a milestone on the St Bees, Whitehaven turnpike road (turnpike road shown on Donald's map of 1774), now High Road, marked St Bees 2½ Whitehaven 2. Gone between 1938 and 1962	296929,515573	Post Medieval
34	First Ed OS; Donald 1774	Prestonhows	Site of a farmstead marked on Donald's map of 1774, First Ed OS map and on subsequent mapping but gone by 1979. There is a reference to a Robert Wilkinson of Prestonhows in 1672 (CACW D/H 36/3/7/4). Area since subsumed by housing	296871,516004	Post Medieval
35	First Ed OS; Donald 1774	Possible Toll Point	Site of small building in road, annotated 'Check T.P.' on First Edition OS map with a benchmark on it, so a possible toll point for the turnpike road (turnpike road shown on Donald's map of 1774). Still marked on Second Edition OS map but gone by Third Edition OS map	296763,516228	Post Medieval

Asset No.	*Reference*	*Site Name*	*Description*	*Grid Reference*	*Period*
36	CACW SREDE 3/1/178; Second Ed OS; PS 1405240	Barrowmouth Cement Works	In 1888, gypsum and alabaster mining operations (Asset 1) were restarted by Joseph Robinson & Co Ltd with a new processing factory erected to the north-east of the earlier works with associated waggonways. Original building plans, dated March 1888, show it to have been cellared and included a crushing mill and engine house with a chimney at the eastern side (CACW SREDE 3/1/178). Plans of the waggonways and associated paperwork indicate that the manager of Joseph Robinson & Co Ltd was based at Victoria Viaduct in Carlisle, the company was established in 1828, and they had works at Knothill, Kirkbythore and Whitehaven (CACW YDS 60/2/6/19). Robinsons Cement was registered as a trademark in 1885. The factory is marked as disused on Third Edition OS map and was eventually subsumed into the Marchon Works (Asset 25) and subsequently demolished. PastScape note that this latest mining development ceased in 1908 (PS 1405240)	296442,516029	Post Medieval
37	Routledge 2002	Anhydrite Mine	The anhydrite mine was the first part of Solway Chemicals Ltd's, a sister company of Marchon, plans for expansion and was opened in January 1955 (Routledge 2002, 31). The anhydrite seam could reach up to 25ft thick, thus the mine eventually had many miles of roadways several yards wide and up to 20ft high allowing vehicular extraction, people accessing the mine by trains up to 450ft below the ground. One worker was killed, and another injured, in an accident in the mine in April 1958 (Durham Mining Museum 2018). Plans of the mine show it to have been located to the south-west of the main Marchon site, west of Sandwith, with an access route from the vicinity of Cabbage Hall (Asset 26) (CACW YDGO/FIRM/PLANS; CACW YDB 59/13/10; CACW THSE/151). An abandonment plan of 1984 indicates its final closure date	296080,514774	Modern

Asset No.	*Reference*	*Site Name*	*Description*	*Grid Reference*	*Period*
38	PS 1494615	Air Raid Shelter	Site of Second World War air raid shelter visible as structures and earthworks on aerial photographs but not visible in 1992	296693,516681	Modern
39	CACW YDX 304/28/5	Castleriggs Field Name	Field name, Castleriggs, on a plan of 1700 (CACW YDX 304/28/5), proposed as the possible site of a former Roman fort (Cranstone Consultants and Ironbridge Archaeology 2007, 14)	296657,517111	Roman?
40	Cranstone Consultants and Ironbridge Archaeology 2007, 32	Early Waggonway	Site of an early waggonway, seen on a 1752 Spedding plan (CACW TNCB 24/4), not viewed during this research. Apparently '*the 1752 plan shows it swinging abruptly east (across the currently derelict Marchon carparks), leaving the NT holding to run across the modern Woodhouse Estate*' (Cranstone Consultants and Ironbridge Archaeology 2007, 32)	296736,516355	Post Medieval
41	Cranstone Consultants and Ironbridge Archaeology 2007, 45; Greenwood 1823	Croft Waggonway	Pre 1781 but post 1752 waggonway, known as the Croft Waggonway, ostensibly an extension to the Saltom Waggonway. It likely saw at least one early locomotive trial, in 1816, and it carried water pipes from Gamerigg to the northern part of the Howgill Colliery, which remained in use after the waggonway was replaced by the Croft Incline (Asset 47). Possibly shown on Greenwood's 1823 map	296506,516042	Post Medieval
42	Cranstone Consultants and Ironbridge Archaeology 2007, 46; First Ed OS map	Croft Incline	Constructed in 1828 from beside Ravenhill Pit to Croft Pit, serving Kells Pit halfway along its route. It was a gravity incline on a long and gentle ascent, and was provided with a small engine house to assist in hauling back the empty waggons (Asset 23)	296503,516311	Post Medieval

Asset No.	*Reference*	*Site Name*	*Description*	*Grid Reference*	*Period*
43	Cranstone Consultants and Ironbridge Archaeology 2007, 44; Second Edition OS map	Corkickle Waggonway	Site of an 1890s waggonway, seen on the Second Edition OS map, constructed from Croft Pit to the Furness Railway at Corkickle, comprising a railway and incline known as the Corkickle Incline. This fell into disuse after the closure of the Ladysmith Pit in 1931, though it was later refurbished to serve the Marchon Works. This Corkickle line was permanently closed in 1986 when Marchon switched to road transport	296585,516375	Post Medieval
44	Cranstone Consultants and Ironbridge Archaeology 2007; Second Edition OS map	Barrowmouth waggonway	By 1896 a wagonway had been constructed to connect the Alabaster Mine (Asset 1) to the Croft Incline (Asset 47), with links to the Alabaster/Cement Factory (Asset 36)	296445,516176	Post Medieval
45	CCC HER 12835; PastScape 1494638	Ladysmith Works	Site of Ladysmith Colliery. In 1900-1902 the Ladysmith Shaft (perhaps named after the Boer War battle) was sunk adjacent to Croft Pit (Asset 24), and the whole colliery, including the earlier Croft Pit (which seems to have remained in use), was soon renamed and seems to have been totally restructured as a modern early 20th century colliery (Cranstone Consultants and Ironbridge Archaeology 2007, 33). Ladysmith closed in 1931, though the surface works treated coal raised at Haig pit, and after 1933 the cokeworks at Ladysmith were overhauled and new workshops were provided. It was finally abandoned in the late 1970s (*ibid*, 38) and subsumed into the Marchon Works (Asset 25)	296569,516077	Modern

APPENDIX 3: FIGURES



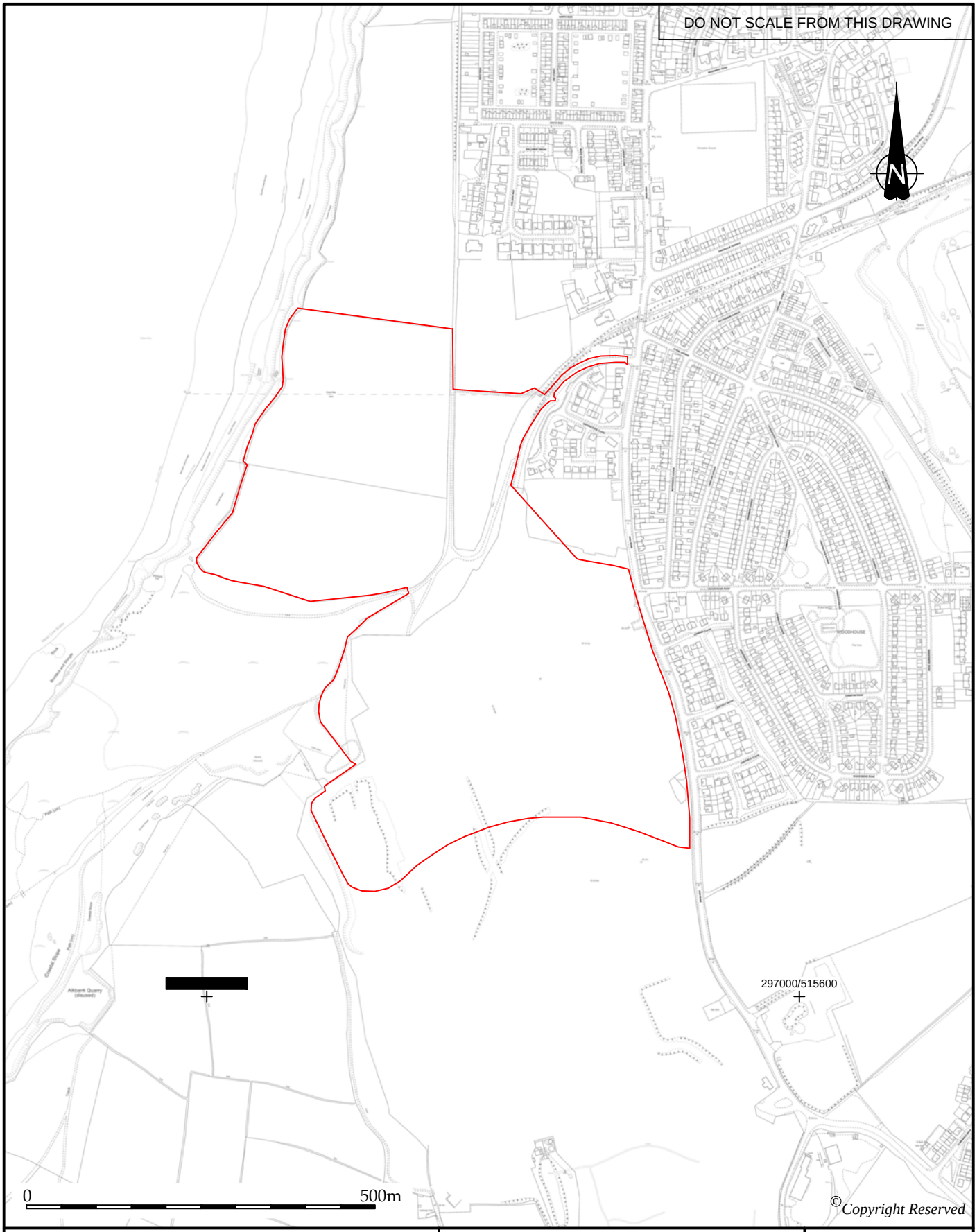
CLIENT: Persimmon Homes (Lancashire)	DRG No.: CL12200-001		REV: A
	SIZE: A4	SCALE: 1:25,000	DATE: Oct 2018
PROJECT: Land at the Former Chemical Works, Whitehaven, Cumbria	DRAWN BY: HP	CHECKED BY: AB	APPROVED BY: MDR
DRAWING TITLE: Figure 1: Site location			

wardell armstrong

CARLISLE | TEL 01228 550 575
WWW.WARDELL-ARMSTRONG.COM

BIRMINGHAM, BOLTON, CARDIFF, EDINBURGH, GLASGOW, LONDON, MANCHESTER, NEWCASTLE UPON TYNE, SHEFFIELD, STOKE ON TRENT

N:\CP\CL12200 - WHITEHAVEN DBA\03 - DESIGN\AUTOCAD\HIA FIGURES\CL12200-001-A.DWG



CLIENT: Persimmon Homes (Lancashire)	DRG No.: CL12200-002		REV: A
	SIZE: A4	SCALE: 1:7,500	DATE: Oct 2018
PROJECT: Land at the Former Chemical Works, Whitehaven, Cumbria	DRAWN BY: HP	CHECKED BY: AB	APPROVED BY: MDR
DRAWING TITLE: Figure 2: Detailed site location			

wardell armstrong

CARLISLE | TEL 01228 550 575
WWW.WARDELL-ARMSTRONG.COM

BIRMINGHAM, BOLTON, CARDIFF, EDINBURGH, GLASGOW, LONDON, MANCHESTER, NEWCASTLE UPON TYNE, SHEFFIELD, STOKE ON TRENT

N:\CP\CL12200 - WHITEHAVEN DBA\03 - DESIGN\AUTOCAD\HIA FIGURES\CL12200-002-A.DWG

DO NOT SCALE FROM THIS DRAWING

KEY:

Site boundary

1km radius

Heritage assets

REVISION	DETAILS	DATE	DR'N	CHK'D	APP'D

CLIENT

Persimmon Homes (Lancashire)

PROJECT

Land at the Former Chemical Works, Whitehaven, Cumbria

DRAWING TITLE

Figure 3:
Location of heritage assets within a 1km study area

DRG No.	REV
CL12200-003	A

DRG SIZE	SCALE	DATE
A3	1:12,500	Oct 2018

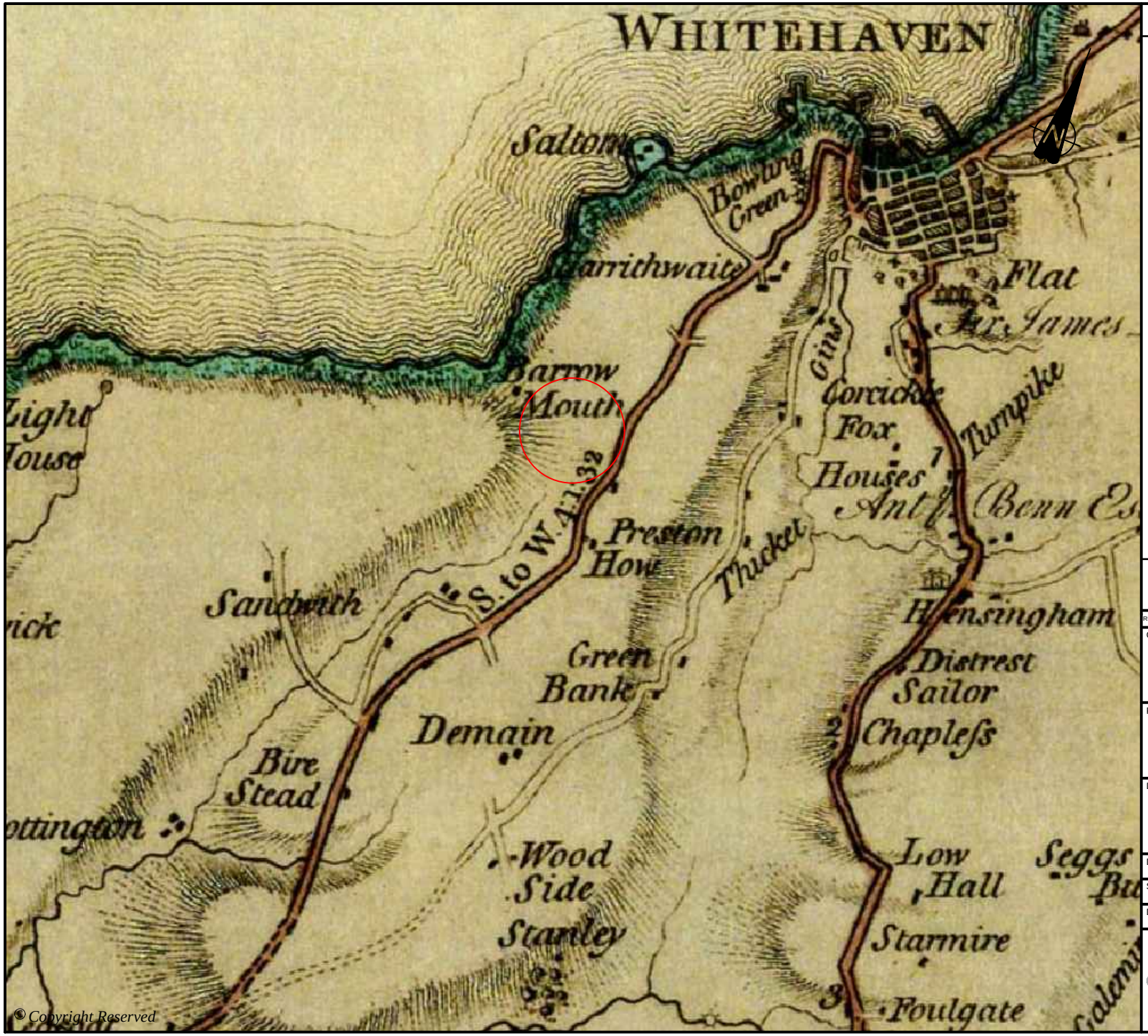
DRAWN BY	CHECKED BY	APPROVED BY
HP	AB	MDR

wardell armstrong

CARLISLE | TEL 01228 550 575
WWW.WARDELL-ARMSTRONG.COM

BIRMINGHAM, BOLTON, CARDIFF, EDINBURGH, GLASGOW, LONDON, MANCHESTER, N-U-T, SHEFFIELD, STOKE ON TRENT

N:\CP\CL12200 - WHITEHAVEN DBA\03 - DESIGN\AUTOCAD\HIA FIGURES\CL12200-003-A.DWG



DO NOT SCALE FROM THIS DRAWING

KEY:

Site location

REVISION	DETAILS	DATE	DRAWN	CHK'D	APP'D

CLIENT

Persimmon Homes (Lancashire)

PROJECT

Land at the Former Chemical Works, Whitehaven, Cumbria

DRAWING TITLE

Figure 4:
Donald's Map of Cumberland, 1774

DRG No	REV
CL12200-004	A

SIZE	SCALE	DATE
A4	Not to scale	Oct 2018

DRAWN BY	CHECKED BY	APPROVED BY
HP	AB	MDR

wardell armstrong
CARLISLE | TEL 01228 550 575
WWW.WARDELL-ARMSTRONG.COM
BIRMINGHAM, BOLTON, CARDIFF, EDINBURGH, GLASGOW, LONDON, MANCHESTER, N-U-T, SHEFFIELD, STOKE ON TRENT

N:\CP\CL12200 - WHITEHAVEN DBA\03 - DESIGN\AUTOCAD\HIA FIGURES\CL12200-004-A.DWG

DO NOT SCALE FROM THIS DRAWING

KEY:

Site location

REVISION	DETAILS	DATE	DRAWN	CHK'D	APP'D

CLIENT

Persimmon Homes (Lancashire)

PROJECT

Land at the Former Chemical Works, Whitehaven, Cumbria

DRAWING TITLE

Figure 5:
Greenwood's Map of Cumberland, 1823

DRG No	REV
CL12200-005	A

SIZE	SCALE	DATE
A4	Not to scale	Oct 2018

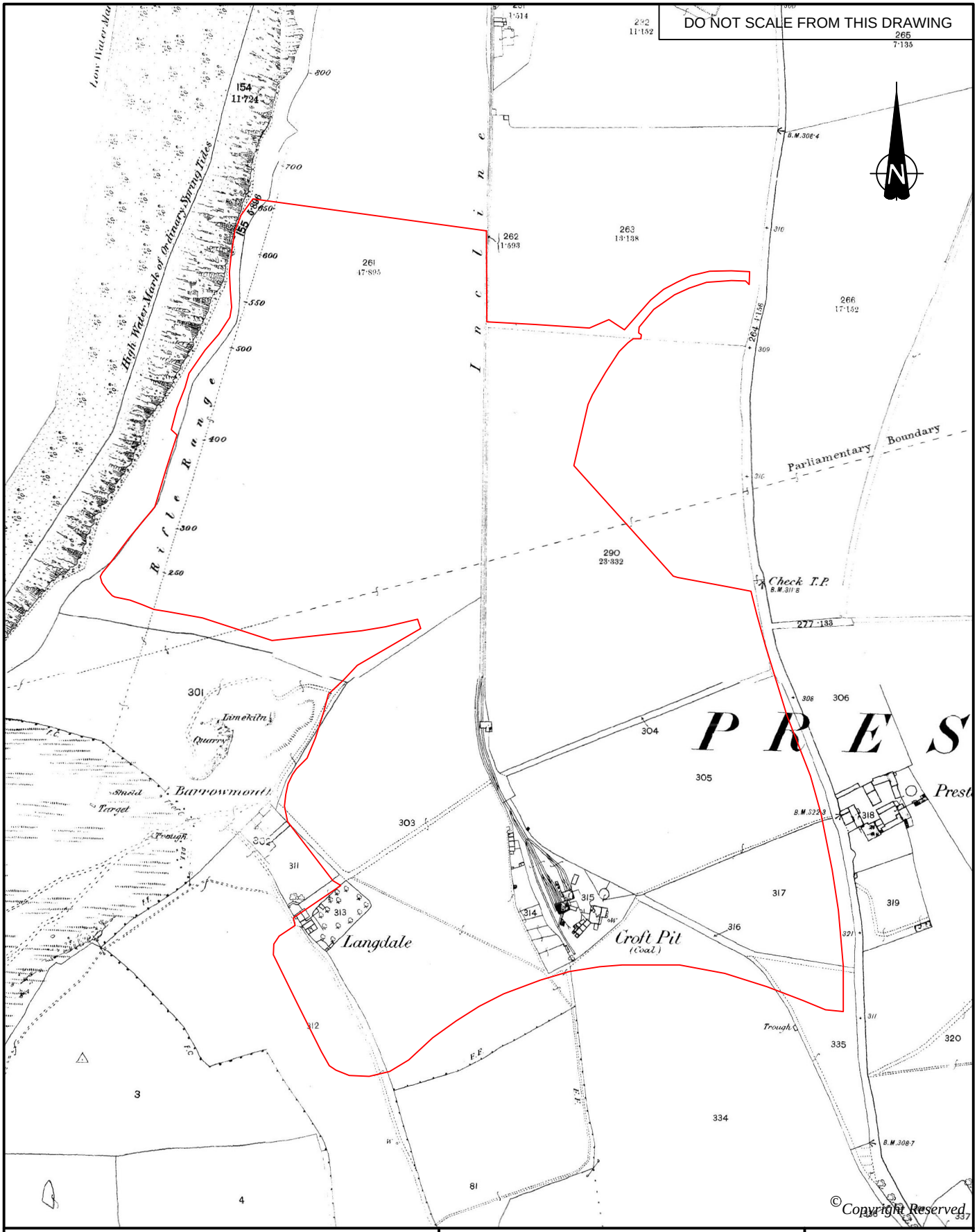
DRAWN BY	CHECKED BY	APPROVED BY
HP	AB	MDR

wardell armstrong

CARLISLE | TEL 01228 550 575
WWW.WARDELL-ARMSTRONG.COM

BIRMINGHAM, BOLTON, CARDIFF, EDINBURGH, GLASGOW, LONDON, MANCHESTER, N-U-T, SHEFFIELD, STOKE ON TRENT

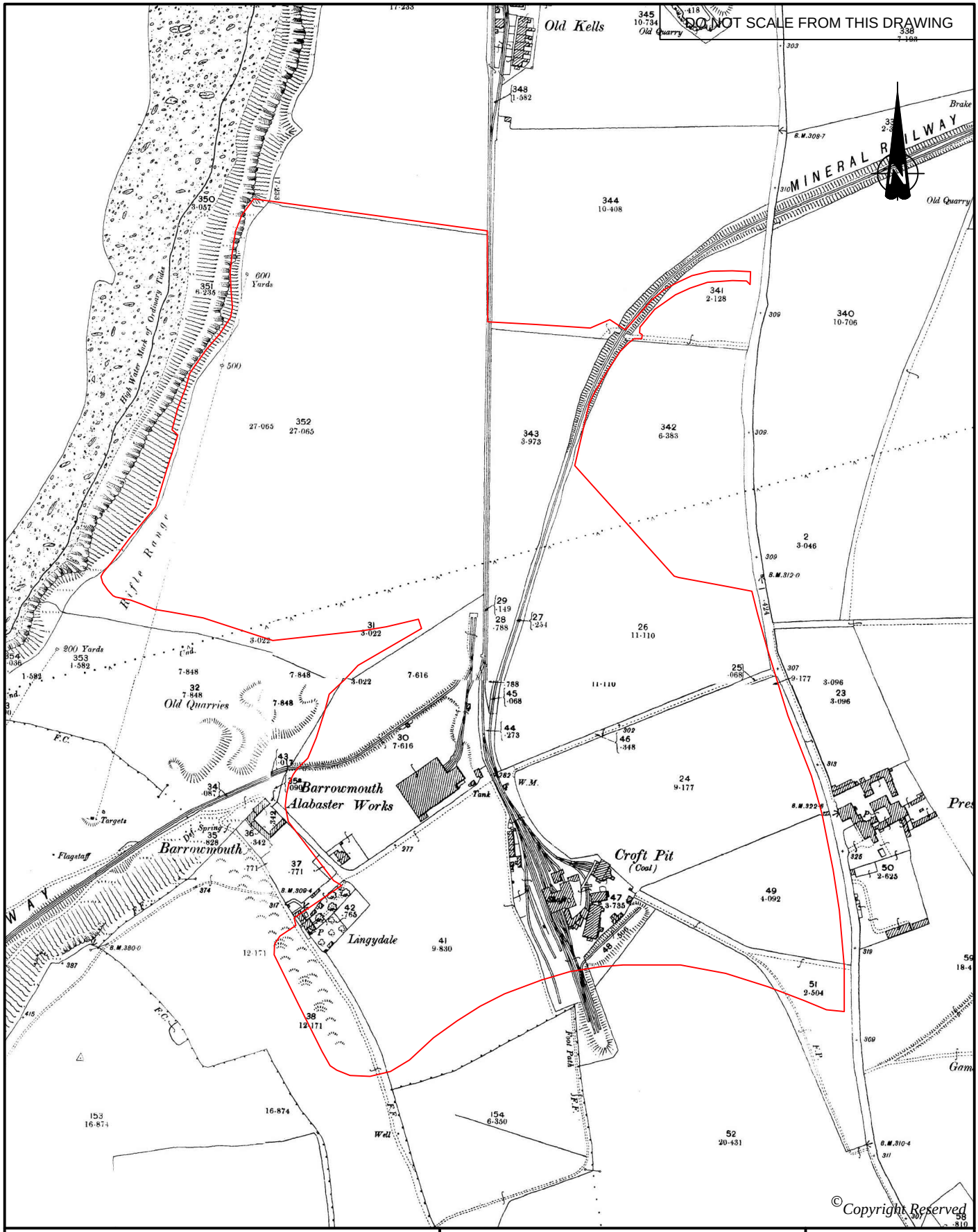
N:\CP\CL12200 - WHITEHAVEN DBA\03 - DESIGN\AUTOCAD\HIA FIGURES\CL12200-005-A.DWG



CLIENT: Persimmon Homes (Lancashire)	DRG No.: CL12200-006		REV: A
	SIZE: A4	SCALE: 1:5,000	DATE: Oct 2018
PROJECT: Land at the Former Chemical Works, Whitehaven, Cumbria	DRAWN BY: HP	CHECKED BY: AB	APPROVED BY: MDR
DRAWING TITLE: Figure 6: First Edition Ordnance Survey Map, 1865 *(25 inches to 1 mile scale)*	wardell armstrong		

CARLISLE | TEL 01228 550 575
WWW.WARDELL-ARMSTRONG.COM
BIRMINGHAM · BOLTON · CARDIFF · EDINBURGH · GLASGOW · LONDON · MANCHESTER · NEWCASTLE UPON TYNE · SHEFFIELD · STOKE ON TRENT

N:\CP\CL12200 - WHITEHAVEN DBA\03 - DESIGN\AUTOCAD\HIA FIGURES\CL12200-006-A.DWG



CLIENT: Persimmon Homes (Lancashire)	DRG No.: CL12200-007		REV: A
	SIZE: A4	SCALE: 1:5,000	DATE: Oct 2018
PROJECT: Land at the Former Chemical Works, Whitehaven, Cumbria	DRAWN BY: HP	CHECKED BY: AB	APPROVED BY: MDR

DRAWING TITLE

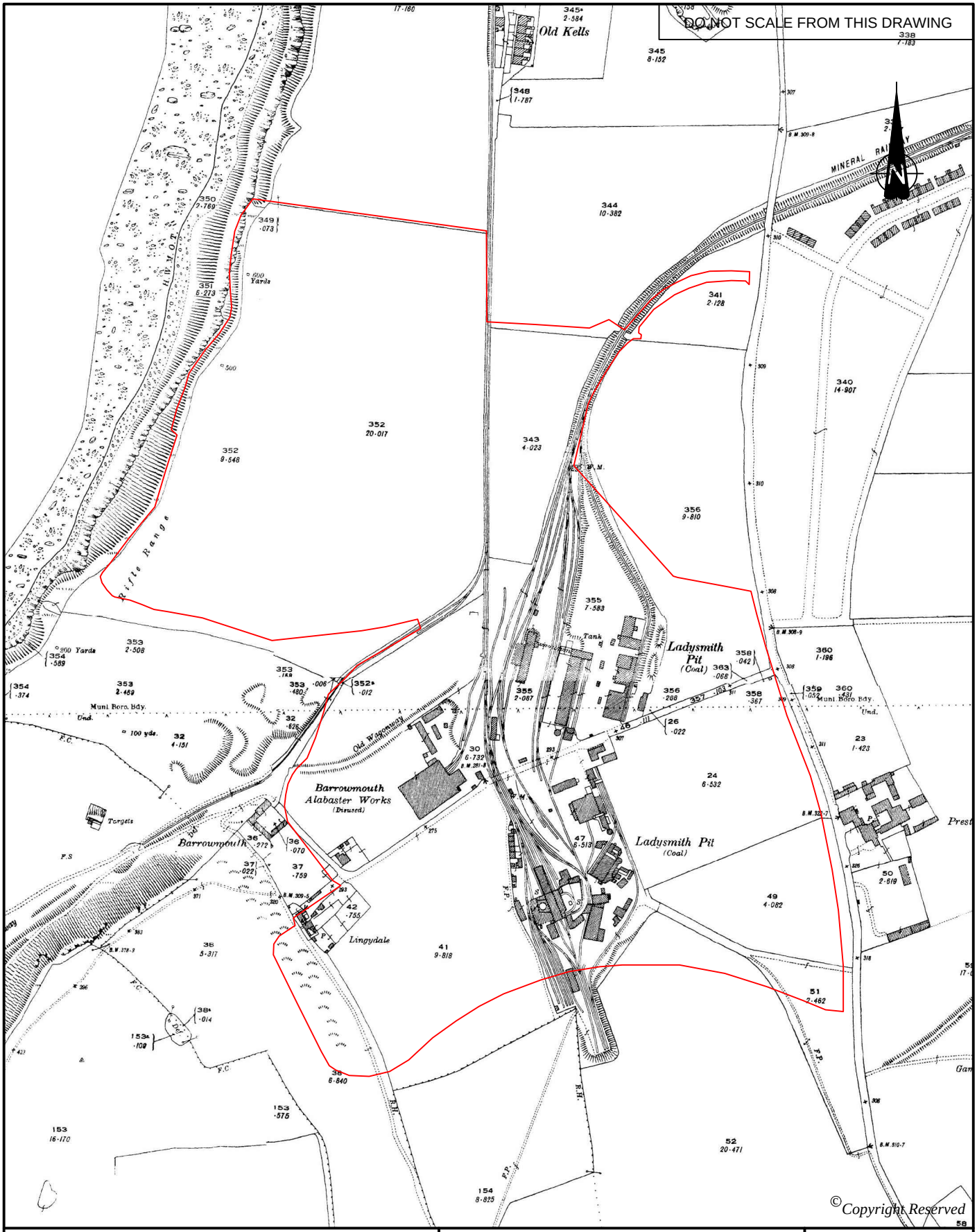
Figure 7:
Second Edition Ordnance Survey Map, 1899
(25 inches to 1 mile scale)

wardell armstrong

CARLISLE | TEL 01228 550 575
WWW.WARDELL-ARMSTRONG.COM
BIRMINGHAM · BOLTON · CARDIFF · EDINBURGH · GLASGOW · LONDON · MANCHESTER · NEWCASTLE UPON TYNE · SHEFFIELD · STOKE ON TRENT

N:\CP\CL12200 - WHITEHAVEN DBA\03 - DESIGN\AUTOCAD\HIA FIGURES\CL12200-007-A.DWG

DO NOT SCALE FROM THIS DRAWING



CLIENT: Persimmon Homes (Lancashire)	DRG No.: CL12200-008		REV: A
	SIZE: A4	SCALE: 1:5,000	DATE: Oct 2018
PROJECT: Land at the Former Chemical Works, Whitehaven, Cumbria	DRAWN BY: HP	CHECKED BY: AB	APPROVED BY: MDR

DRAWING TITLE

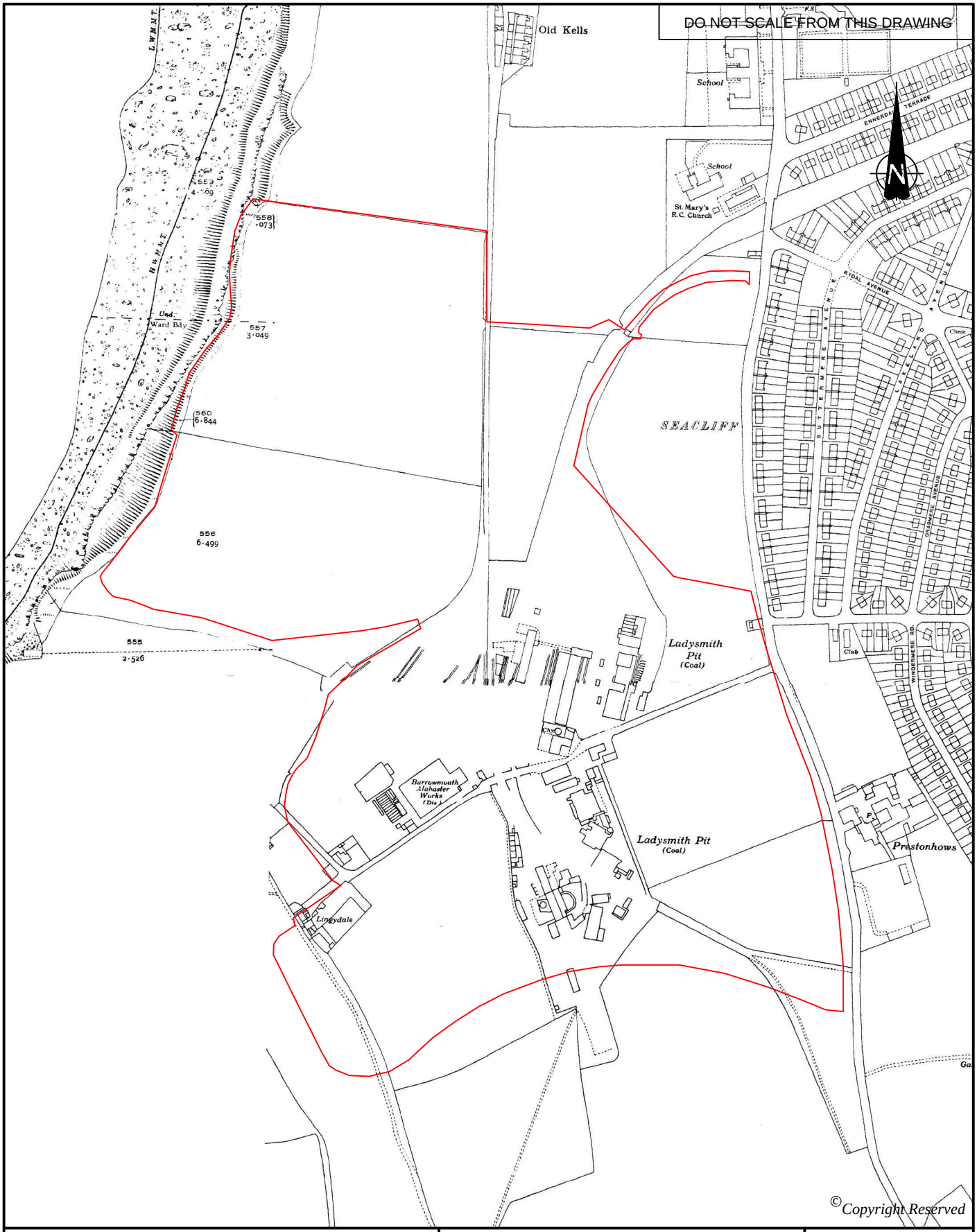
Figure 8:
Third Edition Ordnance Survey Map, 1925
(25 inches to 1 mile scale)

wardell armstrong

CARLISLE | TEL 01228 550 575
WWW.WARDELL-ARMSTRONG.COM

BIRMINGHAM, BOLTON, CARDIFF, EDINBURGH, GLASGOW, LONDON, MANCHESTER, NEWCASTLE UPON TYNE, SHEFFIELD, STOKE ON TRENT

N:\CP\CL12200 - WHITEHAVEN DBA\03 - DESIGN\AUTOCAD\HIA FIGURES\CL12200-008-A.DWG



CLIENT: Persimmon Homes (Lancashire)	DRG No.: CL12200-009		REV: A
	SIZE: A4	SCALE: 1:5,000	DATE: Oct 2018
PROJECT: Land at the Former Chemical Works, Whitehaven, Cumbria	DRAWN BY: HP	CHECKED BY: AB	APPROVED BY: MDR
DRAWING TITLE: Figure 9: Fourth Edition Ordnance Survey Map, 1938 *(25 inches to 1 mile scale)*			

wardell armstrong
CARLISLE | TEL 01228 550 575
WWW.WARDELL-ARMSTRONG.COM
BIRMINGHAM, BOLTON, CARDIFF, EDINBURGH, GLASGOW, LONDON, MANCHESTER, NEWCASTLE UPON TYNE, SHEFFIELD, STOKE ON TRENT

N:\CP\CL12200 - WHITEHAVEN DBA\03 - DESIGN\AUTOCAD\HIA FIGURES\CL12200-009-A.DWG

CLIENT: Persimmon Homes (Lancashire)	DRG No.: CL12200-010		REV: A
	SIZE: A4	SCALE: 1:5,000	DATE: Oct 2018
PROJECT: Land at the Former Chemical Works, Whitehaven, Cumbria	DRAWN BY: HP	CHECKED BY: AB	APPROVED BY: MDR

DRAWING TITLE

Figure 10:
Ordnance Survey Map, 1962
(25 inches to 1 mile scale)

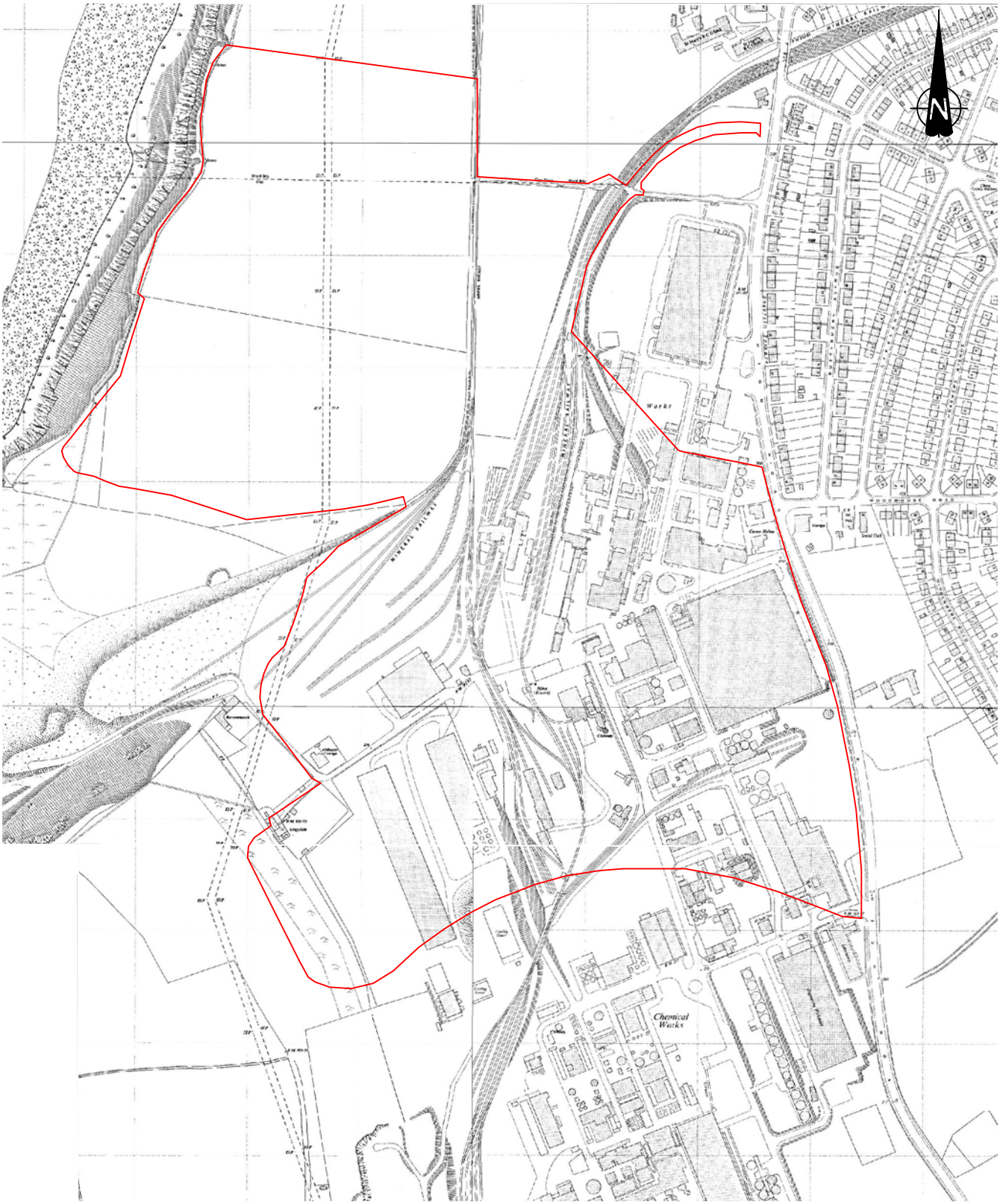
wardell armstrong

■ CARLISLE | TEL 01228 550 575
WWW.WARDELL-ARMSTRONG.COM

☐ BIRMINGHAM ☐ LONDON
☐ BOLTON ☐ MANCHESTER
☐ CARDIFF ☐ NEWCASTLE UPON TYNE
☐ EDINBURGH ☐ SHEFFIELD
☐ GLASGOW ☐ STOKE ON TRENT

N:\CP\CL12200 - WHITEHAVEN DBA\03 - DESIGN\AUTOCAD\HIA FIGURES\CL12200-010-A.DWG

DO NOT SCALE FROM THIS DRAWING



CLIENT: Persimmon Homes (Lancashire)	DRG No.: CL12200-011		REV: A
	SIZE: A4	SCALE: 1:5,000	DATE: Oct 2018
PROJECT: Land at the Former Chemical Works, Whitehaven, Cumbria	DRAWN BY: HP	CHECKED BY: AB	APPROVED BY: MDR

DRAWING TITLE

Figure 11:
Ordnance Survey Map, 1968 (south west map tile: 1961)
(1:1,250 scale)

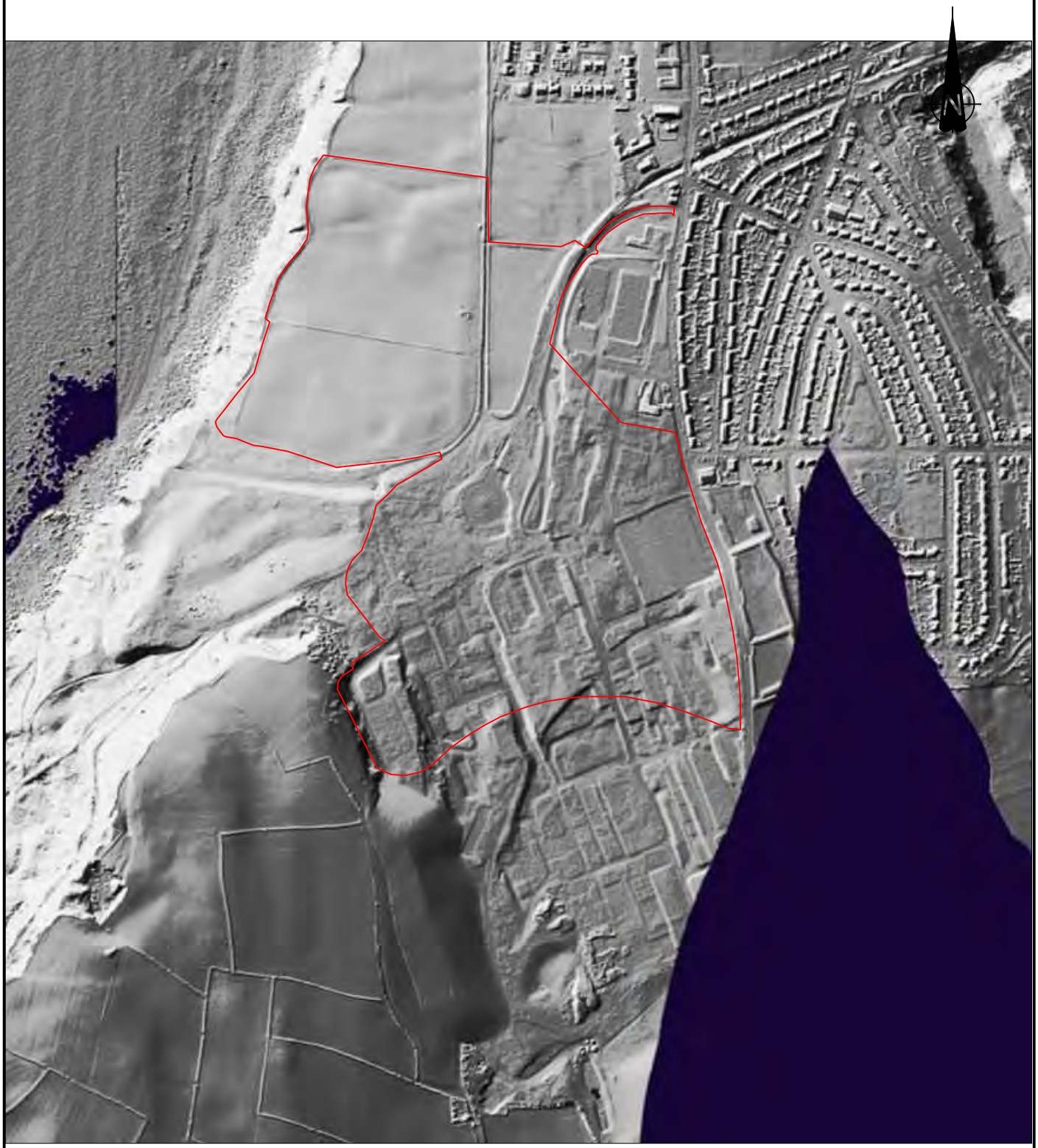
wardell armstrong

■ CARLISLE | TEL 01228 550 575
WWW.WARDELL-ARMSTRONG.COM

☐ BIRMINGHAM ☐ LONDON
☐ BOLTON ☐ MANCHESTER
☐ CARDIFF ☐ NEWCASTLE UPON TYNE
☐ EDINBURGH ☐ SHEFFIELD
☐ GLASGOW ☐ STOKE ON TRENT

N:\CP\CL12200 - WHITEHAVEN DBA\03 - DESIGN\AUTOCAD\HIA FIGURES\CL12200-011-A.DWG

DO NOT SCALE FROM THIS DRAWING



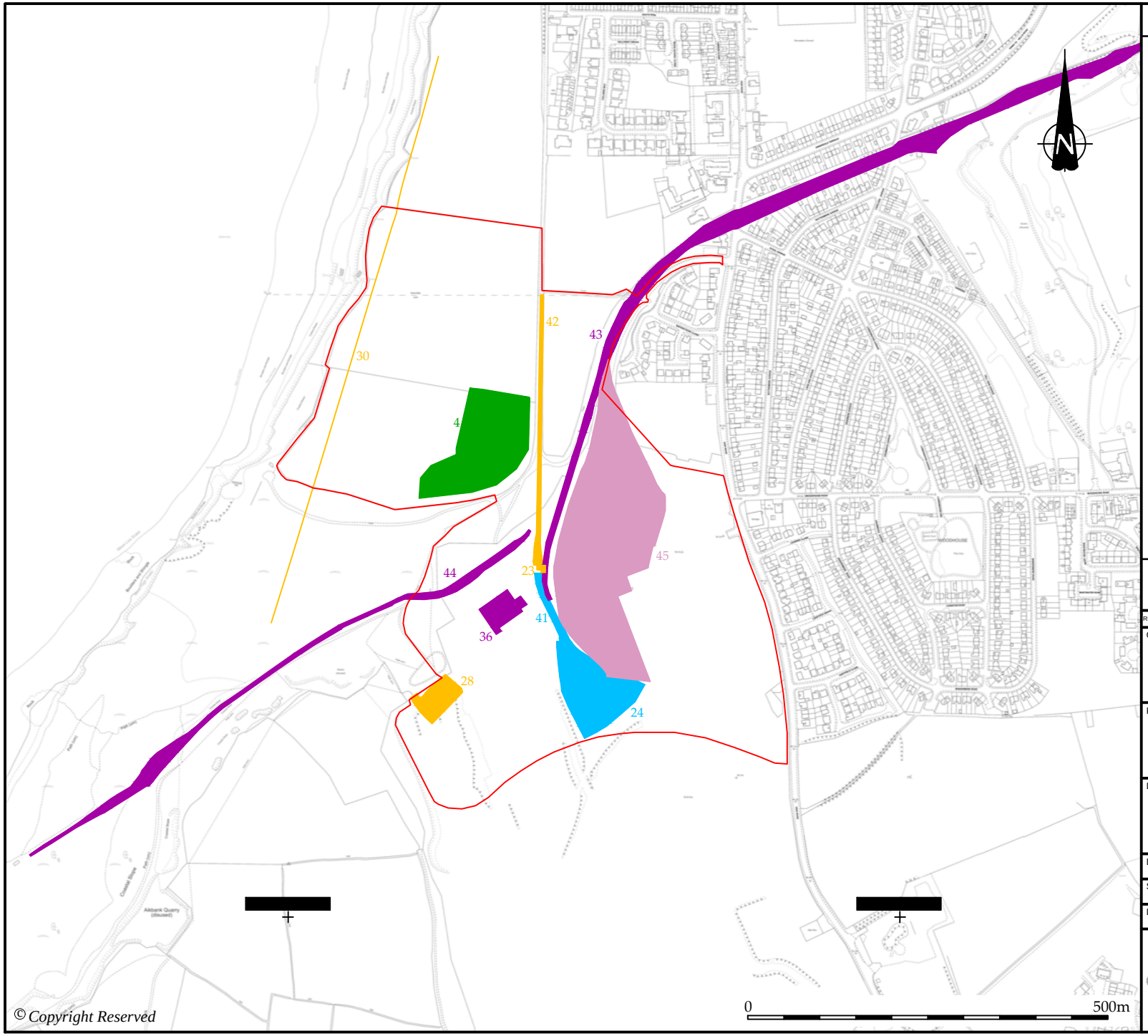
CLIENT: Persimmon Homes (Lancashire)	DRG No.: CL12200-012		REV: A
	SIZE: A4	SCALE: 1:7,500	DATE: Oct 2018
PROJECT: Land at the Former Chemical Works, Whitehaven, Cumbria	DRAWN BY: HP	CHECKED BY: AB	APPROVED BY: MDR
DRAWING TITLE: Figure 12: LiDAR *(1m digital surface model data)*			

wardell armstrong

■ CARLISLE | TEL 01228 550 575
WWW.WARDELL-ARMSTRONG.COM

☐ BIRMINGHAM ☐ LONDON
☐ BOLTON ☐ MANCHESTER
☐ CARDIFF ☐ NEWCASTLE UPON TYNE
☐ EDINBURGH ☐ SHEFFIELD
☐ GLASGOW ☐ STOKE ON TRENT

N:\CP\CL12200 - WHITEHAVEN DBA\03 - DESIGN\AUTOCAD\HIA FIGURES\CL12200-012-A.DWG



DO NOT SCALE FROM THIS DRAWING

KEY:

- Site boundary
- Prehistoric/ Romano-British
- 18th century colliery development
- Early 19th century
- Late 19th century industrial development
- 20th century colliery extension
- 4 — Asset numbers as referred to in text

REVISION	DETAILS	DATE	DRAWN	CHK'D	APP'D

CLIENT

Persimmon Homes (Lancashire)

PROJECT

Land at the Former Chemical Works, Whitehaven, Cumbria

DRAWING TITLE

Figure 13:
Phasing of heritage assets within site boundary pre 1943

DRG No	REV	
CL12200	CL12200-013	
SIZE: A4	SCALE: 1:7,500	DATE: Oct 2018
DRAWN BY: HP	CHECKED BY: AB	APPROVED BY: MDR

wardell armstrong
CARLISLE | TEL 01228 550 575
WWW.WARDELL-ARMSTRONG.COM
BIRMINGHAM, BOLTON, CARDIFF, EDINBURGH, GLASGOW, LONDON, MANCHESTER, N-U-T, SHEFFIELD, STOKE ON TRENT

N:\CP\CL12200 - WHITEHAVEN DBA\03 - DESIGN\AUTOCAD\HIA FIGURES\CL12200-013-A.DWG

wardell-armstrong.com

STOKE-ON-TRENT
Sir Henry Doulton House
Forge Lane
Etruria
Stoke-on-Trent
ST1 5BD
Tel: +44 (0)178 227 6700

BIRMINGHAM
Two Devon Way
Longbridge Technology Park
Longbridge
Birmingham
B31 2TS
Tel: +44 (0)121 580 0909

CARDIFF
Tudor House
16 Cathedral Road
Cardiff
CF11 9LJ
Tel: +44 (0)292 072 9191

CARLISLE
Marconi Road
Burgh Road Industrial Estate
Carlisle
Cumbria
CA2 7NA
Tel: +44 (0)122 855 0575

EDINBURGH
Great Michael House
14 Links Place
Edinburgh
EH6 7EZ
Tel: +44 (0)131 555 3311

GLASGOW
2 West Regent Street
Glasgow
G2 1RW
Tel: +44 (0)141 433 7210

LONDON
46 Chancery Lane
London
WC2A 1JE
Tel: +44 (0)207 242 3243

MANCHESTER (City Centre)
76 King Street
Manchester
M2 4NH
Tel: +44 (0)161 817 5038

MANCHESTER (Greater)
41-50 Futura Park
Aspinall Way
Middlebrook
Bolton
BL6 6SU
Tel: +44 (0)120 422 7227

NEWCASTLE UPON TYNE
City Quadrant
11 Waterloo Square
Newcastle Upon Tyne
NE1 4DP
Tel: +44 (0)191 232 0943

SHEFFIELD
Unit 5
Newton Business Centre
Newton Chambers Road
Thorncliffe Park
Chapeltown
Sheffield
S35 2PH
Tel: +44 (0)114 245 6244

TRURO
Baldhu House
Wheal Jane Earth Science Park
Baldhu
Truro
TR3 6EH
Tel: +44 (0)187 256 0738

International offices:
ALMATY
29/6 Satpaev Avenue
Regency Hotel Office Tower
Almaty
Kazakhstan
050040
Tel: +7(727) 334 1310

MOSCOW
21/5 Kuznetskiy Most St.
Moscow
Russia
Tel: +7(495) 626 07 67

wardell armstrong