# NORTH PENNINES ARCHAEOLOGY LTD

# Client Reports No. CP/775/08



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# **EXECUTIVE SUMMARY**

In October 2008, North Pennines Archaeology were invited by Entec UK Limited, on behalf of their clients, Copeland Borough Council, to maintain an archaeological watching brief at Saltom Pit, near Whitehaven, Cumbria (NY 9634 1727, Figure 1), during consolidation and remediation works at the site. The works were conducted within an area of high archaeological potential related to Saltom Pit (Scheduled Ancient Monument No. 27801), England's first undersea coal mine. As such, it was requested by English Heritage that all ground reduction and topsoil removal be subject to a programme of archaeological observation and investigation.

The works involved the excavation and removal of large amounts of encroaching material left by decades of cliff erosion. A  $c.11 \text{m} \times c.7 \text{m}$  area was excavated to a depth of c.6 m - c.12 m which was carried out in advance of repairs to the north end of the surviving sea wall. Further work was conducted immediately east of the sea wall with the removal of c.0.3 m of turf and topsoil associated with ground level reduction, and with the excavation of eleven post-holes for fencing in the interest of visitor safety.

The watching brief revealed the presence of archaeological features and horizons in both areas associated with the 18<sup>th</sup>/19<sup>th</sup> century coal mine. This type of archaeological activity is not surprising given the relatively well-preserved nature of several mine buildings above ground.

As this archaeological watching brief was conducted as part of a recommendation to observe groundworks in advance of repairs to the north end of the sea wall and with the installation of fencing and ground reduction east of the sea wall, no further work is deemed necessary. However, given the high archaeological potential of the area and the site's status as a Scheduled Ancient Monument, it is recommended that any future work be subject to a programme of archaeological investigation.

# ACKNOWLEDGEMENTS

North Pennines Archaeology Ltd. would like to thank Ed Taylor of Entec UK Limited for commissioning the project. Thanks are also due to Andrew Barnes, construction manager for R H Irving and the rest of the Irving's staff who undertook the excavation work for their assistance during the watching brief.

David Jackson and Kevin Mounsey undertook the watching brief. The report was prepared by David Jackson and edited by Martin Railton; Project Manager for NPA Ltd. Martin Railton also managed the project.

# **1 INTRODUCTION**

### **1.1 CIRCUMSTANCES OF THE PROJECT**

- 1.1.1 In October 2008, North Pennines Archaeology were invited by Entec UK Limited, on behalf of their clients, Copeland Borough Council, to maintain an archaeological watching brief at Saltom Pit, near Whitehaven, Cumbria (NY 9634 1727, Figure 1), during consolidation and remediation works at the site. The proposed works are within the immediate vicinity of the Scheduled Ancient Monument of Saltom Pit (SAM 27801). As such, English Heritage requested that all ground reduction and vegetation removal be subject to a programme of archaeological observation and investigation. This is in line with government advice as set out in the DoE Planning Policy Guidance on Archaeology and Planning (PPG 16). Furthermore, as this site is a Scheduled Ancient Monument, the proposed works required the Consent of the Secretary of State for Culture, Media and Sport.
- 1.1.2 As the mine shaft has been largely engulfed by an unstable landmass known as Fairy Rock, and many of the mine buildings have been lost to cliff erosion, The National Trust wish to preserve the remains of Saltom Pit which have fallen into disrepair. The proposed scheme of works includes repairs to the sea wall and surviving buildings and securing of parts of the site in the interest of visitor safety. Part of these proposed works involved the reduction in ground level and removal of material associated with cliff erosion prior to the sea wall repairs, and with the removal of vegetation and topsoil associated with ground level reduction and fence installation. All of these groundworks had to be excavated under full archaeological supervision and all stages of the archaeological work were undertaken following approved statutory guidelines (IFA, 2002).
- 1.1.3 This report comprises the results of the archaeological watching brief and post fieldwork analysis associated with the monitored groundworks for the Saltom Pit consolidation scheme.

# **2 METHODOLOGY**

### **2.1 PROJECT DESIGN**

2.1.1 A project design was submitted by North Pennines Archaeology Ltd in response to a request by Entec UK Limited for an archaeological watching brief of the study area. Following acceptance of the project design, North Pennines Archaeology Ltd was commissioned by the client to undertake the work. The project design was adhered to in full, and the work was consistent with the relevant standards and procedures of the Institute of Field Archaeologists (IFA), and generally accepted best practice.

#### 2.2 ARCHAEOLOGICAL WATCHING BRIEF

- 2.2.1 The watching brief comprised a formal programme of observation and investigation conducted during groundworks at the site, followed by the systematic examination and accurate recording of all archaeological features, horizons and artefacts identified.
- 2.2.2 The aims and principal methodology of the watching brief can be summarised as follows:
  - to determine the presence/absence, nature, extent and state of preservation of archaeological remains;
  - to produce a photographic record of all contexts using colour digital, 35mm colour slide and monochrome formats as applicable, each photograph including a graduated metric scale;
  - to produce a site location plan, related to the national grid and plans and sections of historic structures at an appropriate scale;
  - to produce a table summarising the deposits, features, classes and numbers of artefacts encountered and any spot dating of significant finds;
  - to recover artefactual material, especially that useful for dating purposes;
  - to sample any environmental deposits encountered according to the NPA standard sampling procedure and in consultation with appropriate specialists;
  - to prepare a site archive in accordance with MAP2 (English Heritage, 1991) and MoRPHE standards (English Heritage, 2006);
  - to prepare a report for the client setting out the salient conclusions.

#### 2.3 ARCHIVE

- 2.3.1 A full professional archive has been compiled in accordance with the project design, and in accordance with current UKIC (1990) and English Heritage guidelines (1991). The paper and digital archive will be deposited in The Beacon Museum, Whitehaven.
- 2.3.2 North Pennines Archaeology Ltd supports 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 fieldwork. Details of the results of this project will be made available by North Pennines Archaeology as a part of this national project under the unique project identifier: **northpen3-52104**.

# **3 BACKGROUND**

#### **3.1** LOCATION, TOPOGRAPHY AND GEOLOGY

- 3.1.1 Saltom Pit is situated *c*.1km to the south of Whitehaven Harbour, on the west coast of Cumbria in what was formerly the old county of Cumberland. The site lies outside the Lake District National Park within the borough of Copeland, in an area of intensive Post-Medieval industrial activity between Whitehaven to the north and St. Bees to the south.
- 3.1.2 Topographically, the site of Saltom Pit is situated on a plateau cut into the cliffs, at *c*.6m above OD. The site overlooks Saltom Bay to the west, whilst to the east, coastal cliffs form the western edge of a flat plateau-like ridge which rises to a height of *c*.90m above OD, separating the Pow Beck valley in the east and the western coast.
- 3.1.3 The solid geology of the coastal area around Saltom Pit consists of Carboniferous Westphalian Coal Measures with some pockets of Namurian millstone grit. The outcrops of Westphalian rocks formed the west Cumbrian coalfield situated between the Whitehaven area and Maryport to the north. On the coast, a gentle dip lowers the beds seawards beneath the offshore outcrop of the Permian (Moseley, 1978). Large areas of the Coal Measures are overlain by outcrops of the Whitehaven Sandstone (particularly prominent within the ridge and coastal cliffs immediately to the east of Saltom Pit); the often-purple colour of which, results from oxidation when it lay close beneath the surface of the post-Carboniferous desert (Cranstone & Roper, 2007: 4). Much of the sandstone outcrop in the area has been subjected to intensive cliff erosion and land movement, largely engulfing parts of the site.

#### **3.2** HISTORICAL BACKGROUND

3.2.1 Saltom Pit was England's first undersea coal mine and operated as a colliery between 1729 and 1848. The shaft itself was sunk by Carlisle Spedding to a depth of c.480 feet (Cranstone & Roper, 2007: 30) and remained in use as a successful pumping station for the entire Howgill Colliery area, and intermittently for coal-winding until 1866-67. The Saltom shaft was used for access right through to the final closure of Haig Pit to the northeast in 1986 (*ibid*: 31, 37, 40). Saltom Pit is also notable for its impressive sea wall defences and its early use of the Newcomen engine. However, although the Newcomen engine was effective for pumping, it was not easily adapted to a rotary motion for winding. Therefore, winding at Saltom was performed by a large horse-gin (ibid: 31). One of the several atmospheric engines (i.e. Newcomen-style) was erected at Saltom in 1782 and remained in use until 1866, clearly proving to be a successful development (ibid: 34). A vertical-winder steam engine was later erected on the site after the shaft was deepened by John Peile in 1819, the house for which still forms the dominant feature of the site today. However, interpretations of the buildings function and its date of construction have often been varied and indeterminate (ibid: 35, 66).

- 3.2.2 Although Saltom Pit proved to be a very successful pumping station, the transportation of its coal production proved more problematic as the only land access to the pithead was via a steep zigzag track down the cliff. It appears that the transportation of coal was initially intended to be exported directly form a small harbour at the pit via a short waggonway. However, after its construction in 1731-32, the harbour was repeatedly damaged by storms and barely used after 1734. Instead, the coal was transported into an adit at the rear of the pithead, to the base of a shaft from Ravenhill Pit on the clifftop above, which was solely constructed to wind the coal from Saltom via a large horse-gin. The coal was further transported to Whitehaven Harbour by waggonway (Cranstone & Roper, 2007: 31).
- 3.2.3 In 1734-35, Carlisle Spedding also built two saltpans at Saltom Pit. The seawater for salt production was pumped by one of the colliery Newcomen engines, and the saltpans achieved considerable local success for a while. However, whilst the saltpans were still working in 1760, they closed by the 1780's when one of the panhouses was converted into an iron foundry, supplying cast-iron goods to the collieries. The iron for these goods was melted in a cupola furnace blown by bellows, possibly operated by the 1782 Newcomen engine. This is significant as it was a very early usage of the cupola remelting furnace and possibly, the unique use of an atmospheric engine to operate bellows (Cranstone & Roper, 2007: 27-28, 34).
- 3.2.4 Many features associated with Saltom Pit have survived to some degree including; the shaft, the 1821 vertical-winder engine house with traces of its boiler house, the adit to Ravenhill Shaft, the seawall, the horse-gin circle, a chimney, and workmen's housing. Below ground, remains of three successive Newcomen-style engine houses, the 18<sup>th</sup> century saltworks and the important iron foundry may also survive. In addition, much of the revetted access trackway survives on the slope to the east, and rock-cut features interpreted as post-sockets for the pier, and a collecting tank for the saltworks survive on the foreshore to the northwest (Cranstone & Roper, 2007: 41, 53).
- Whilst the 18th/19th century industrial history of Saltom Pit is relatively well 3.2.5 documented both archaeologically and historically, there is very little evidence relating to earlier activity on or near the site. However, 13<sup>th</sup> century references to saltworks in Arrowthwaite may well be referring to the site of Saltom, based on geological evidence; the place-name of Saltom itself would also appear significant. If Saltom was a 13<sup>th</sup> century saltworks, then no visible evidence has thus far been located (unless the rock-cut collecting tank is associated with these works rather than the 18<sup>th</sup> century saltworks). It is possible that the 13<sup>th</sup> century site was destroyed by erosion or during the construction of Saltom Pit. However, it is also possible that the site may survive beneath the Saltom Pit works or along the adjacent coast (Cranstone & Roper, 2007: 21-22). The only other possible early association comes from the place-name 'Castle Rigg' which was documented from 1694 to 1808 as an enclosure 'close to Saltom Engine' (*ibid*: 14). It has been suggested that Castle Rigg may refer to an Iron Age embanked settlement or hillfort, or to a Roman fort. However, this evidence alone is largely insubstantial.

### **3.3 PREVIOUS WORK**

- 3.3.1 At present, it is believed that no programme of formal excavation or exploratory ground reduction has taken place at Saltom Pit, most of the previous work being largely concerned with current conservation issues. Previous work includes:
  - A detailed buildings survey of the Saltom Pit structures conducted by Lancaster University Archaeology Unit in 2000.
  - A detailed condition survey on the structures carried out by Parkman in 2003, which concluded that many of the features at the site, including the winding house and chimney were deteriorating, and that several features were being over-run by cliff movements.
  - A structural engineer's inspection of the remaining structures carried out by Civil and Structural Consultants (CSC) in 2007 concluded that several features, including the sea wall, were in a generally good condition and that there were no immediate concerns for the site.
  - A detailed historical and field survey was conducted by Cranstone and Roper (2007) of the Whitehaven Coast, including the Saltom Pit site. The report included a detailed history, the preservation of the surviving features and the possibility of further archaeological potential.
  - Further work has also been conducted by Bullen Consultants in 1996, Ed Dennison Archaeological Services in 2004 and by Entec UK Limited in 2007.

# **4 WATCHING BRIEF RESULTS**

### 4.1 INTRODUCTION

4.1.1 The watching brief results are summarised below. The watching brief took place in two phases (Figure 2). Phase I took place on the 14<sup>th</sup> and 15<sup>th</sup> October 2008 and comprised the observation and investigation of all excavation work associated with repairs at the north end of the sea wall (Figure 3). Phase II took place on the 11<sup>th</sup>, 12<sup>th</sup> and 20<sup>th</sup> November 2008 which comprised the reduction in ground level and excavation of post-holes for fencing east of the sea wall for safety reasons. Both phases revealed several deposits, structures and finds of archaeological interest.

### 4.2 **RESULTS – PHASE I**

4.2.1 The first phase of groundworks took place at the north end of the surviving sea wall with the removal of hill wash material resulting from cliff erosion, with a CX 330 excavator (Plate 1). As this hill wash material had caused the partial destruction of the north end of the sea wall and subsequently buried any possible remains, the machine operator was informed to proceed with extreme caution within the area. The hill wash material (**102**) was made up of red/pink sandy clay mixed with frequent large red sandstone boulders, which had eroded out from the sandstone outcrop known as Fairy Rock above. This deposit formed a c.9 metre-high mound immediately to the north-northeast of the surviving sea wall and was covered by c.0.2 metres of turf and topsoil (**100**).



Plate 1: Excavation of eroded material north of sea wall

4.2.2 It became apparent as the excavation continued east into the mound that this deposit (102) was partially overlaying a deposit of dark brown silty clay mixed with industrial waste. This silty clay/industrial waste deposit (103) gradually increased at a gradient of  $c.45^{\circ}$  reaching a height of c.2.5 metres until it levelled out south of the mound (102) (Plate 2). As this deposit (103) comprised the upper c.2.5 metres of ground east of the sea wall, it is likely that it was used as backfill to raise the ground level when the site was in use and prior to the cliff erosion which led to the deposition of the mound (102). During this phase of the excavation, several gabions had to be removed from the top of the north end of the sea wall in order to provide safer conditions for people working below.



Plate 2: West facing section of deposits (102) and (103)

As the excavation continued further east of the surviving sea wall, the northwest 4.2.3 elevation of a structure was exposed in the section of the excavated area c.1 metre below topsoil (100) and backfill (103) (Plate 3) (Figure 4). The structure (104) survived to a height of c.1.45 metres and a width of c.5.3 metres. However, severe damage had occurred to the north-eastern end of the structure, possibly as a result of land movement, the structure also continued further southwest past the limit of the excavation for an unknown distance. The structure (104) was constructed from variable sized square-cut sandstone blocks and displayed three square-rectangular openings within the northwest face. The three openings were relatively irregular in comparison, varying in size from c.0.7m x 0.6m (north-east), c.0.64m x 0.5m (central), c.1.07m x 0.5m (south-west). However, all three chamfered inwards, decreasing in width as they continued further into the super-structure. It was also clear that all three had suffered severe damage through collapse. Two separate deposits filled the three openings. The upper deposit (105) measured c.0.25 metres in thickness and was probably deposited within the openings when the area was backfilled by deposit (103), as both deposits were very similar in both colour and texture. The lower deposit (106) was a compact black coal waste material that measured c.0.2 metres in thickness and had adhered to the base of the openings to a certain degree. The coal waste material (106) was probably deposited whilst the mine was still in use and could be a strong indicator to the possible function of the structure (104), suggesting that the openings may have served as vents for waste material. As no truncation was apparent, it is probable that the exposed section revealed the north-western limit of the structure (104), which appeared to continue in a south-easterly direction towards the surviving engine winding house.

- 4.2.4 Although the structure (**104**) and the engine winding house were initially believed to be directly associated, a drawing produced by Marshall and Davies-Shiel (1977: 113) of the Saltom Pit site in 1864 clearly shows a range of different buildings immediately north and northwest of the winding house including two additional engine houses, boiler sheds and a coal depot. These buildings have long since disappeared but they can be seen in a relatively detailed plan of 1852 (David Cranstone *pers. comm.*).
- 4.2.5 Interestingly, the 1852 plan displays a narrow curvilinear feature heading in a westerly direction from the southwest corner of one of the buildings (noted as being the coal depot by Marshall and Davies-Shiel), and abutting the eastern face of the sea wall. Furthermore, this feature is labelled on the 1852 plan as being a 'covered passage for conveying the ashes', strongly suggesting that it served as a type of flue for waste material. Whilst the structure (104) certainly has the overall appearance of a possible flue for venting waste material, especially when the coal waste (106) and openings are considered, its general alignment and location appear to be different. However, if the structure (104) is not the aforementioned feature on the 1852 plan, then it appears likely that it served a similar function further to the north. The top of a 19<sup>th</sup> century ceramic bottle was recovered from the upper fill (105) within the south-western most vent of structure (104), whilst the north-eastern most vent still had the remains of an *in-situ* wooden support beam (Plate 4).



Plate 3: Northwest elevation of structure (104) (engine winding house in background)



Plate 4: North-eastern vent of structure (104)

- 4.2.6 As the excavation continued deeper, it was revealed that the structure (104) had been constructed directly on top of a deposit of red/pink sandy clay and large sandstone boulders (107). As this deposit was so similar to deposit (102), it probably represents an earlier sequence of cliff erosion. The deposit (107) continued for c.2 metres and was directly above a deposit of natural grey clay (108) (Plate 3). The reduction of this deposit (108) continued for c.1 metre until the natural bedrock (101) was reached. As one of the primary aims of the work was to reach bedrock, the excavation was not required to go any deeper at this point, which at its maximum depth, reached c.6m c.12m below topsoil (100). At this point, the excavation had exposed an area of bedrock measuring c.11m north south x c.7m east west.
- 4.2.7 The bedrock only continued at its present level as far west as the line of the sea wall at which point, the bedrock 'dropped off' and it was revealed that the sea wall continued further north than was previously realised, abutting the western edge of the bedrock. However, it is unclear whether the bedrock falls away naturally at this point or whether it has been 'artificially' cut away to facilitate the construction of the sea wall. Once the newly exposed section of the sea wall had been cleared of all debris, it was revealed that at least five lower courses of the wall survived to a height of c.1.8 metres (Plate 5), which almost certainly survived as a result of its proximity to the natural bedrock. This section of the wall was constructed from square cut sandstone blocks (average size c.0.75 m x 0.35 m), two courses wide at a width of c.1.8 metres and continued north for c.8 metres past the limit of the excavated area for an unknown distance.



Plate 5: *Excavated area showing continuation north of sea wall (west face)* 

### 4.3 **RESULTS – PHASE II**

- 4.3.1 The second phase of groundworks took place immediately east of the sea wall with the removal of turf and topsoil (100) down to industrial waste/soil backfill deposit (103) with a TB 125 excavator. The excavated area was reduced to an average depth of c.0.3m and measured c.35.5m in length (north south) and was extended east from the sea wall to a width of c.1.6m. During the excavation, two separate features were revealed directly below c.0.25m of topsoil (100) (Figure 5).
- 4.3.2 The first feature (109) was a floor surface located c.3.5m north of the south corner of the sea wall, measuring c.8.6m in length and spanning the entire width of the excavated area (1.6m) (Plates 6 and 7). This feature (109) was comprised of large red sandstone flags ( $c.0.6m \ge 0.6m = 0.6m$ ), interlaced with areas of red brick ( $c.0.23m \ge 0.6m$ ) 0.1m x 0.08m) which retained several small areas of mortar suggesting that parts of the surface may have once had a mortar covering. The surface also retained a north – south aligned, c.0.28m wide drainage channel which led into a ceramic pipe with a cast iron grate covering, and out through the west face of the sea wall (Plate 8). Surface (109) was largely damaged in places with many flags and bricked areas either smashed or completely missing. Several large depressions had also formed creating an uneven surface, although it is likely that the central section of the feature was always intended to form a low point for drainage purposes. It is probable that this feature (109) once formed the floor surface of a larger structure, as both the Second and Third Edition Ordnance Survey maps (1899 and 1925 respectively) clearly show several buildings within the same general location. The potential for further survival of feature (109) east of the exposed area is significantly high.



Plate 6: View north across floor surface (109)



Plate 7: View south across floor surface (109)



Plate 8: View north of drainage channel within floor surface (109)

4.3.3 The second feature (110) identified was located c.7.4m north of the floor surface (109) and measured c.0.38m in width and 1.6m in length on an east – west alignment between the eastern face of the sea wall and continuing east past the edge of the excavated area. This feature (110) comprised a single course of red brick (0.22m x  $0.1m \ge 0.07m$ ) in three rows, two of which were aligned east – west with the northern most row aligned north – south (Plate 9). Two *in-situ* sandstone flags were also noted c.0.4m south of feature (110) (Plate 9). This feature (110) probably formed part of a larger structure, as the Third Edition Ordnance Survey map of 1925 shows several small buildings within the same area. However, these buildings are not present on the Second Edition Ordnance Survey map of 1899 suggesting that feature (110) was constructed after feature (109).



Plate 9: View north of feature (110) with sandstone flags in foreground

4.3.4 Further work immediately east of the sea wall included the excavation of eleven postholes in advance of the installation of fence posts. Six of the post-holes were located at the southern end of the sea wall, immediately south of the floor surface (109) and spaced approximately 2m apart adjacent to the sea wall's eastern and north-eastern face (Plate 10). The remaining five post-holes were located further north, immediately south of the area of gabions and were more randomly spaced on a northeast – southwest alignment between the east face of the sea wall and the wire fence north of the engine winding house. All of the post-holes measured  $c.0.9m \times c.0.6m$  and were excavated to a depth of c.0.5m exposing industrial waste/soil backfill (103) below the topsoil (100). No archaeological features or finds were noted during the excavation of the post-holes.



Plate 10: View south across southern series of post-holes

### **5 FINDS**

#### 5.1 FINDS ASSESSMENT

- 5.1.1 All finds were cleaned and packaged according to standard guidelines, and recorded under the supervision of F.Giecco (NPA Ltd Technical Director). A total of 45 finds from three different contexts were recovered during the watching brief.
- 5.1.2 **Pottery:** a total of 36 sherds of post-medieval pottery were recovered during the archaeological watching brief, including 34 sherds from the interface between deposits (100) and (103) in the immediate vicinity of a floor surface (109). Most of the pottery assemblage from (100)/(103) is made up of porcelain, several sherds of which display a transfer print. Also included are three sherds of lead glazed red earthenware, one of which displays a white slip, a black/brown glazed earthenware base stamped 'fire proof', and two sherds of black/brown glazed earthenware, one of which can be refitted to the aforementioned base. A single sherd of red earthenware with a white slip was also recovered from deposit (103) north of the surviving sea wall, and the neck and shoulder of a cream glazed bottle or ink well was recovered from the upper fill (105) of a structure (104).
- 5.1.3 *Glass:* a total of eight fragments of post-medieval glass were recovered from the interface between deposits (100) and (103). The glass assemblage included four fragments of green bottle glass, three fragments of thick clear bottle glass, one of which has the lettering '....LL & Co.', and a thin fragment of clear glass, possibly from a drinking vessel or jar.
- 5.1.4 *Clay Pipe:* a single fragment of clay pipe stem was recovered from the interface between topsoil (100) and industrial waste/soil backfill (103).
- 5.1.5 **Dating:** whilst the pottery assemblage can be dated to the 19<sup>th</sup> century with a relative degree of certainty, it is much more difficult to assign a date to the glass assemblage without specialist advice. Similarly, clay pipe fragments are notoriously difficult to date without any distinguishing features. However, given the context that both the clay pipe stem and glass fragments were recovered from, it would not be unreasonable to also assign them a 19<sup>th</sup> century provenance.
- 5.1.6 No further work is recommended on the finds assemblage.

				Weight	
Context	Phase	Material	Quantity	(kg)	Period
103/100	2	Pottery	34	0.464	Post Medieval
103/100	2	Glass-bottle	8	0.18	Post Medieval
103/100	2	Clay pipe stem	1	0.001	Post Medieval
103	1	Pottery	1	0.025	Post Medieval
105	1	Pottery	1	0.066	Post Medieval

Table 1: Finds Index

### **6 CONCLUSIONS AND RECOMMENDATIONS**

#### 6.1 **CONCLUSIONS**

- 6.1.1 The archaeological watching brief encountered several archaeological features and horizons during consolidation and remediation works on the site. Based upon the archaeological features observed and the assemblage of associated datable finds, the archaeology is best understood in the context of the 18<sup>th</sup>/19<sup>th</sup> century industrial activity at Saltom Pit.
- 6.1.2 The first phase of works took place immediately north of the surviving sea wall and revealed the presence of a sandstone structure with three vents which probably served as an outlet for industrial waste material based upon the features attributes and the compact coal waste deposit adhered to the base of the structure. Although the structure was initially believed to be directly associated with the surviving engine winding house, the 1852 plan of the Saltom Pit works clearly shows a range of different buildings immediately north and northwest of the winding house including two additional engine houses, boiler sheds and a coal depot. It is highly likely that the structure is related to one of these buildings, although they have long since disappeared, probably demolished sometime prior to c.1899 as they are not present on the Second Edition Ordnance Survey map. Furthermore, the 1852 plan also displays a narrow curvilinear feature to the south of the structure which is labelled as being a *covered passage for conveying the ashes*', strongly suggesting that it served as a type of flue for waste material. Whilst the structure certainly has the overall appearance of a possible flue for venting waste material, its general alignment and location appear to be different. However, if it is not the aforementioned feature on the 1852 plan, then it appears likely that it served a similar function further to the north. The first phase of works also revealed an additional c.8m length of the sea wall, surviving to a height of c.1.8 metres.
- 6.1.3 The second phase of works took place immediately east of the sea wall and revealed the presence of a large flagged surface interlaced with areas of red brick with a smaller brick structure and sandstone flags further north. Unfortunately, it is not known exactly what these two features related to, although the Third Edition Survey map of 1925 shows several separate structures aligned along the eastern edge of the sea wall in the same general area as both floor surfaces making it highly likely that the two features relate to one or more of these buildings. Furthermore, whilst several structures are displayed on the Third Edition OS map which may relate to both features, only structures in the general area of the southern floor surface are present on the Second Edition OS map of 1899 suggesting that this feature was not only constructed pre-1899, but was also earlier than the northern feature which was probably constructed at some point between 1899 and 1925. It is unclear when these buildings were demolished although they are still present on the Provisional Edition of the 6" Ordnance Survey map of 1938. Further cartographic or documentary research could provide more information regarding the nature and date of these structures.
- 6.1.4 As both Phase 1 and Phase 2 of the proposed works revealed the presence of archaeological features, the potential for further survival of both archaeological structures and horizons related to the Saltom Pit works remains significantly high.

However, attempting to fully understand and relate both the recently discovered archaeological features and the possible quantity and type of further associated remains is beyond the scope of the current archaeological works.

6.1.5 During the operation of the Saltom Pit coal works several innovative systems were put in place, driving the mining industry inexorably forward. These innovations included the early use of the Newcomen style engine and the possibly unique use of an atmospheric engine to operate the foundry bellows. Furthermore, the site of Saltom was possibly in use for salt working as early as the 13<sup>th</sup> century, making Saltom Pit a site of national importance, a site which should be strongly considered for further research and investigation.

#### 6.2 **RECOMMENDATIONS**

6.2.1 As this watching brief was conducted as a condition of consolidation and remediation works within the immediate vicinity of the Saltom Pit Scheduled Ancient Monument (No. 27801), no further archaeological work is deemed necessary. However, given the level of preservation of features associated with the 18<sup>th</sup>/19<sup>th</sup> century Saltom works both above and below ground, and with the potential survival of a 13<sup>th</sup> century saltworks and unique 18<sup>th</sup> century iron foundry significantly high, it is strongly recommended that any such works conducted in the future be subject to a programme of archaeological investigation. This is particularly pertinent at the Saltom Pit works given the fact that the unstable landmass known as Fairy Rock is encroaching upon the site at an alarming rate and will eventually engulf the entire area. Furthermore, as the decision has been taken to leave both floor surfaces *in situ*, it has been recommended that both features be covered by terram and pea-gravel in order to minimise further deterioration.

## 7 BIBLIOGRAPHY

### 7.1 CARTOGRAPHIC SOURCES

1852 Plan of the Saltom Pit Works

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

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#### 7.2 SECONDARY SOURCES

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# **APPENDIX I: FIGURES**

# **APPENDIX II: CONTEXT INDEX**

Context Number	Category	Above	Below	Interpretation
100	Deposit	102/103	/	Topsoil
101	Deposit	/	108	Natural Bedrock
102	Deposit	103	100	Hill Wash
103	Deposit	104/107	100/102	Industrial Waste/Soil Backfill
104	Structure	107	103	Outlet for Waste Material
105	Deposit	106	100/102	Upper Backfill of (104)
106	Deposit	104	105	Lower Coal Waste Deposit of (104)
107	Deposit	108	103/104	Earlier Hill Wash Deposit
108	Deposit	101	107	Natural Grey Clay
109	Structure	/	100/103	Flag/Brick Floor Surface
110	Structure	/	100/103	Linear Brick Structure

Table 2: Context Index