

NORTH PENNINES ARCHAEOLOGY LTD

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EXECUTIVE SUMMARY

During August 2008, North Pennines Archaeology Ltd were invited by Barbara Blenkinship, on behalf of the Northern Ceramics Society (NCS), to maintain an archaeological watching brief on the site of The Pothouse, within the former The St. George's Works complex on St George's Quay, Luneside East, Lancaster (SD 4689 6227). The work followed a detailed excavation of the main pottery complex including the central kiln by North Pennines Archaeology Ltd in the Autumn of 2007. The remains of the Pothouse, and associated pottery assemblage, are of regional, if not national, importance.

The work constituted the excavation of four trenches and five test pits both by machine and by hand, which were specifically targeted in order to gain the maximum amount of information within the restraints of the work timetable. The work also included a limited investigation of the kiln working area and the retrieval of *c.*290 litres of pottery from the shardruck deposits.

Most of the results obtained during the watching brief served to support the conclusions drawn from the excavation conducted by NPA in 2007. However, a further shardruck deposit, separate to those located during 2007 was identified and investigated. More importantly, this newly exposed pottery dump not only contained examples never before attributed to Lancaster, but also contained styles which may be unique to that factory.

The Lancaster Pottery has provided the rare opportunity to investigate a delftware site which has been largely undisturbed for over 200 years. However, there is still much to be learned from this important site. Therefore, it has been recommended that further investigation and research be strongly considered.

ACKNOWLEDGEMENTS

North Pennines Archaeology Ltd. would like to thank Barbara Blenkinship and the members of the Northern Ceramics Society for commissioning the project, and for their assistance and enthusiasm during the watching brief. Thanks are also due to Chris of J. D. Lawson Plant Hire Ltd for expertly undertaking the machining.

David Jackson undertook the watching brief. The report was prepared by David Jackson and edited by Frank Giecco, Project Manager for NPA Ltd, who also managed the project.

1. INTRODUCTION

1.1 CIRCUMSTANCES OF THE PROJECT

- 1.1.1 In August 2008, North Pennines Archaeology Ltd were invited by Barbara Blenkinship, on behalf of the Northern Ceramics Society (NCS), to maintain an archaeological watching brief on the site of The Pothouse, within the former The St. George's Works complex on St George's Quay, Luneside East, Lancaster (SD 4689 6227, Figure 1). The work followed a detailed excavation of the main pottery complex including the central kiln by North Pennines Archaeology Ltd in the Autumn of 2007.
- 1.1.2 The opportunity to thoroughly examine a delftware production site which has been largely undisturbed for over two hundred years is very rare indeed. Most 17th and 18th century delftware sites were near the centre of towns and, as most production of this type of ware ceased before 1800, were destroyed by the rapid expansion of those towns in the 19th century, making the remains of the Pothouse, and associated pottery assemblage, of regional, if not national, importance. Therefore, the Northern Ceramic Society committee felt that our understanding of the Lancaster Pottery would significantly benefit from further investigation.
- 1.1.3 The groundworks had to be excavated under full archaeological supervision and all stages of the archaeological work were undertaken following approved statutory guidelines (IFA 2002).
- 1.1.4 This report comprises the results of the archaeological watching brief and post-fieldwork analysis following the monitored groundworks, and a statement of further archaeological potential and recommendations for future work within the area of Lancaster Pottery.

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 the Northern Ceramics Society 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), and according to the recommendations in *Archaeological Archives: A Guide to Best Practice in Creation, Compilation, Transfer and Curation* (Brown 2007). The paper

and digital archive will be deposited in the Maritime Museum, Lancaster under the unique project identifier: **NPA 08 LUN-B**.

- 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: **northpen3-56567**.

3. BACKGROUND

3.1 LOCATION, TOPOGRAPHY AND GEOLOGY

- 3.1.1 The site of the former pothouse is situated on a flood-plain forming the south bank of the River Lune, west of the historic centre of Medieval Lancaster. The site is bound by the 19th century St. George's Works to the east, Scaleford House to the west, the former Glasson Dock railway to the south, and St. George's Quay and the River Lune to the north. The site occupies an area of waste ground which is relatively flat, with the highest point being at c.7 metres OD.
- 3.1.2 The solid geology of Lancaster consists predominantly of Silesian (Upper Carboniferous) grey-brown or reddened, medium to coarse grained sandstones of the Pendle Grit Formation, which is part of the Millstone Grit Group (British Geological Survey, 1992). These sandstones are thickly bedded with thin siltstone partings, but with mixed sandstone/siltstone units near the top. The drift geology for the site has been mapped as glacio-fluvial sheet deposits of clayey sands and gravels.

3.2 HISTORICAL BACKGROUND

- 3.2.1 Whilst Lancaster has a rich history stretching back into the prehistoric periods (cf. LUAU, 2000), the site of the former pothouse appears to have been largely peripheral to the settlement, and marshland until the 18th century. In 1749, the River Lune was subject to a programme of improvement and the quayside was upgraded between 1750 and 1770. The improvement works gave a boost to trade with the West Indies, and Lancaster entered a period of prosperity with the creation of a number of fine buildings (*ibid*). It was during this prosperous period that the pottery was established in c.1754, which by 1755 had showed considerable growth (Adams, 1972b).
- 3.2.2 The pottery was only in use for c.30 years, ceasing production sometime around 1786-87 (LUAU, 2000). However, no record exists of the type of pottery being produced on the site until it is described in Binn's survey and map of 1821 as the "*Pot House formerly a Delft ware manufactory*". Delftware is the common name given to earthenware glazed with lead and tin oxide and painted with cobalt giving a blue decoration. The pieces were fired at a low temperature to allow the glaze and the decoration to fuse (Price, 1973a). Delftware was a development of the later medieval decorated pottery traditions of the Netherlands, and was a combination of imitations of Chinese designs fashionable during this period and this tradition (Crossley, 1990).
- 3.2.3 To date, no particular style of delftware has ever been given a Lancaster provenance with the most probable examples being attributed to either Liverpool or Bristol which, together with London, made up the three main centres of delftware production. This is likely due in part to the use of trained craftsmen from Liverpool producing similarly stylized pottery at Lancaster, with pieces wrongly assigned to the Liverpool kilns (LUAU, 2000).
- 3.2.4 After the Lancaster Pothouse went out of use, it was likely sold off as a parcel with other land which is shown on a plan dated to 1785 (LUAU, 2000), before the site was possibly used as a shipyard for building large vessels (Town, 2007). In 1826, the

Lancaster Gas Light company established a gasworks on the site which continued to expand throughout the 19th century (LUAU, 2000). By the late 19th century, the Pottery was within the gasworks (Adams, 1972a), with some of its outbuildings being destroyed during the construction of the gasometers (Town, 2007).

- 3.2.5 The Pothouse buildings were finally earmarked for demolition in the late 1930's as part of the Ministry of Health's '*clearance of unsanitary property*' (LUAU, 2000), by which time, the buildings were largely in use as tenements (Town, 2007). After the Pothouse was demolished, which is recorded as occurring in 1946 but is more likely to have taken place prior to 1938 (*ibid*), the site is recorded as having been used as a coal dump (Mr. L. Grubb, cited in Price 1973a). After the gasworks closed in 1958 (LUAU, 2000), the site was partially occupied by the Grubbs Builders Depot which was demolished prior to proposed redevelopment.

3.3 PREVIOUS WORK

- 3.3.1 Prior to 1972, the location of the pottery was well known, and sherds of delftware were being collected from the site (Adams 1972a), particularly during the construction of the Grubbs building in the 1950's (LUAU 2000). James Price (1973b) carried out limited excavations to the north and west of the Grubbs building in 1972, but the construction of the workshop had disturbed much of the stratigraphy. Price recovered over 170 pieces of undecorated delftware (biscuitware) including jugs, teapots and pressed ware, as well as kiln furniture. However, only a few sherds of decorated ware were recovered, and as the tip of broken pottery and fired clay (shardrock deposit) was not located, very little information could be attained about the wares being produced.
- 3.3.2 On the 19th October 2000, Lancaster University Archaeological Unit carried out an archaeological assessment on the site of the former pottery (LUAU, 2000). During the assessment, a four metre length of wall associated with the Pothouse was identified immediately to the west of the Grubbs building, together with the bases of biscuitware which were identified within the rubble along the edge of the site (*ibid*).
- 3.3.3 During October/November 2007, North Pennines Archaeology Ltd. carried out an archaeological evaluation and excavation on the site in advance of proposed redevelopment (Town, 2007). An area measuring c.28m x 20m was excavated which succeeded in locating walls, surfaces and other deposits relating to the 18th century pottery including the kiln, the foundation footprint of two separate buildings both east and west of the kiln, and the shardrock deposits (waste tip). The kiln was found to be of a '*continental style*', typical of the production of delftware, few of which have ever been recorded outside of London (Crossley, 1990). The extensive waste deposits were found to the east and south of the pottery and had clearly been formed by the episodic dumping of waste material, which comprised the broken and misfired pottery and furniture from the kiln (Town, 2007). Approximately 30 tonnes of the shardrock deposits were removed from the site as a bulk sample, although at the time of writing, no post-excavation results are available as the sample is yet to be processed. The NPA excavation also identified later activity on site, accurately locating a number of changes made to the pothouse throughout the 19th and early 20th century and charting the buildings evolution from pottery through to tenements and finally demolition.

4. WATCHING BRIEF RESULTS

4.1 INTRODUCTION

- 4.1.1 The watching brief results are summarised below. The work took place over five days, from the 18th August to the 22nd August 2008 and comprised the observation and investigation of all excavated areas and the monitored collection of artefactual material. The work constituted the excavation of four trenches and five test pits (Figure 2) both by machine (JCB 3CX) and by hand, which were specifically targeted in order to gain the maximum amount of information within the restraints of the work timetable. The work also included a limited investigation of the kiln working area and the retrieval of c.290 litres of pottery from the shardruck deposits.

4.2 RESULTS

- 4.2.1 **Trench 1:** Trench 1 was located at the southeast corner of the Pothouse, immediately south of the eastern shardruck deposits which were located during the NPA excavation in October/November 2007 (Figure 2). The trench, which measured c.8m x 7m and excavated by machine to a maximum depth of 2m, was opened up in order to locate the southern limit of the shardruck deposits east of the Pothouse. The excavated trench exposed a c.0.8m thick deposit of waste pottery directly above the natural grey/blue clay marsh ground (101) (Plate 1) (Figure 5). The pottery dump (106) was largely comprised of broken saggars (kiln furniture) with a small quantity of decorated pottery and biscuitware, mixed with silty clay and heavily stained with iron oxide.
- 4.2.2 The deposit (106) probably represents a separate episode of dumping to any of the shardruck deposits excavated previously, based on the upward gradient at the northern extremity of the dump. It is unclear as to whether the southern limit of the eastern shardruck deposits were reached as excavation further south had to be halted for health and safety reasons as this area was largely contaminated by diesel. However, the deposit (106) appeared to rapidly slope away towards the south end of Trench 1, and was not present at all in the southwest corner, strongly suggesting that the shardruck deposits only continued further south for a short distance. A total of twelve 10 litre sample tubs of pottery were taken for analysis from the deposit (106) (see Section 5. below).
- 4.2.3 A NNW-SSE aligned wall was also noted in the southwest facing section of Trench 1 which measured over c.6m in length (Plate 1, Figure 5). The wall (107) was in a poor state of preservation and was made up of 3-4 courses of dressed sandstone stone, surviving to an average height of c.0.3m. It seems probable that the wall (107) was constructed after the pottery ceased production, possibly relating to later industrial activity or when the buildings were used as tenements, as it had been built directly on top of a c.0.2m thick deposit of grey clay (105), which was directly above the shardruck deposit (106). This deposit had probably been laid down to form a level surface above the pottery dump (106) for later building activity. A possible ditch or pit of unknown function had also cut through the northern end of the pottery dump (106) prior to the deposition of the deposit (105) (Plate 1, Figure 5). The roughly V-shaped feature [141] had been backfilled with a compact grey sandy clay (140), which

contained a moderate quantity of pottery from the deposit (106). The upper deposits within Trench 1 comprised a c.0.66m deposit of mixed industrial waste and soil (104) below a c.0.08m layer of coal waste (103). This was in turn, sealed below a c.0.14m deposit of hardcore (102) and c.0.07m of tarmac surface (100) respectively (Figure 5).



Plate 1: Southwest facing section of Trench 1 showing shardruck deposit (106), later wall (107) and other deposits

- 4.2.4 **Trench 2:** A second trench was excavated immediately north of Trench 1 for the sole purpose of retrieving a large quantity of pottery in order to collate a representative sample from the site. As such, it was deemed appropriate to re-excavate both the northern and central shardruck deposits located during the excavation in 2007 (numbered by NPA/07 as (142) and (219) respectively), situated to the east of the eastern building (Figure 2). It was hoped that this strategy would provide the best opportunity to locate and identify stylised delftware, unique to the Lancaster pottery.
- 4.2.5 Trench 2 measured c.11.5m x 5.6m and was excavated by machine to a depth of c.1.7m. The northern and central shardruck deposits were given the new context numbers (111) and (112) respectively and were excavated further west than during the NPA 07 excavation, where they were found to be abutting the eastern wall of the eastern most building. Both of the deposits (111) and (112) reached a maximum depth of c.0.65m and were directly above a firm light brown clay deposit (137). It is probable that the clay (137) was used as a firm packing deposit to level the site during the construction of the Pothouse in c.1754, as it was seen in several areas during the watching brief.
- 4.2.6 The northern shardruck deposit (111) was situated below a c.0.25m deposit of mid-brown silty clay (110) and a further c.0.45m deposit of dark silty clay (109), both of which were below a c.0.27m deposit of mixed soil and rubble (108) (Plate 2), whilst the central shardruck deposit (112) was only noted to be below the deposits (110) and (109) respectively (Plate 3). It is possible that these deposits are related to the 19th

century ‘garden soil’ deposits identified by North Pennines Archaeology in 2007. However, as this area was excavated and later backfilled during the NPA 07 excavation, much of the stratigraphical sequence was largely disturbed. A total of seventeen 10 litre sample tubs of pottery were taken for analysis from the pottery dumps (111) and (112) (see Section 5. below).

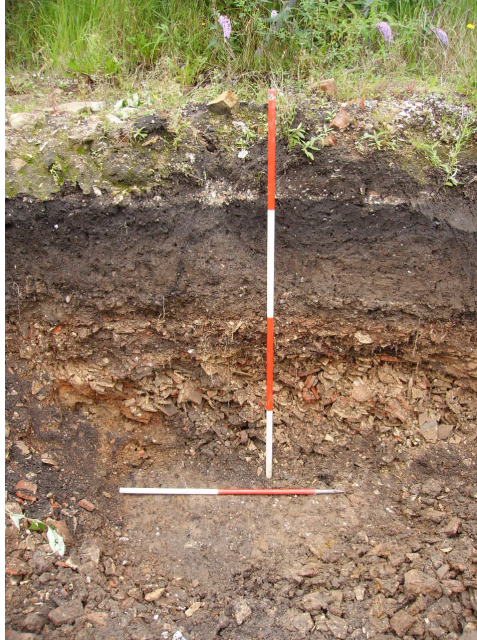


Plate 2: South-southwest facing section of Trench 2 showing northern shardruck deposit (111) below deposits (110), (109), and (108) respectively



Plate 3: View west-southwest of central shardruck deposit (112) during excavation

- 4.2.7 **Trench 3:** Trench 3 was excavated by machine immediately south of the kiln area (Figure 2) in order to confirm or refute the possibility of there being a lower level beneath the kiln's firing chamber. The trench was initially excavated back from the south wall of the kiln (**113**), southwards for *c.*5m at an average width of *c.*1.2m and a maximum depth of *c.*2m at the northern end, grading upwards to a depth of *c.*0.5m at the southern end. Although no evidence of a lower level was observed, the trench did succeed in exposing the very robust foundations of the wall (**113**). The foundation wall (**114**), which was located *c.*0.9m below the maximum surviving height of the wall (**113**), was aligned east-northeast - west-southwest and measured *c.*1m in height and stepped out from the wall (**113**) by *c.*0.62m (Plate 4, Figures 3 & 4).



Plate 4: *South-southeast elevation of south wall of kiln (113) and foundation wall (114) (Trench 3)*

- 4.2.8 A U-shaped construction trench [**125**] for the foundation wall (**114**) was also noted, which measured *c.*0.25m in depth and had been cut through the natural marsh deposit (**101**) (Figure 3). The construction trench [**125**] had been backfilled by a light brown sandy clay deposit (**142**). This deposit (**142**) was directly below a further *c.*1m light brown sandy clay deposit (**119**), which encased the foundation wall (**114**). However, it is possible that the deposit (**119**) represents a continuation of the fill (**142**) as both were very similar in both composition and colour. Both the deposit (**119**) and the fill (**142**) were very similar to the firm packing deposit (**137**) which was noted below the northern and central shardruck deposits east of the pottery buildings.
- 4.2.9 At the northern end of Trench 3, the deposit (**119**) was largely covered by a thin layer of demolished red brick (**118**) (Plate 5). This demolition layer separated the deposit (**119**) from a *c.*0.7m deposit of light brown clayey sand (**117**), which at its maximum height was level with the top of the south wall of the kiln (**113**). At this level a partially truncated layer of cobbles (**116**) was set within the deposit (**117**), forming a well laid cobbled area immediately south of the wall (**113**) (Plate 5, Figure 3). Both the cobbled area (**116**) and the deposit (**117**) were identified during the NPA 07 excavation.



Plate 5: View east-northeast along
Foundation wall (114) (Trench 3)



Plate 6: View west-southwest along
Foundation wall (114) (Trench 3)

- 4.2.10 A further wall (115) was noted in Trench 3, situated *c.*1.8m south of, and running parallel with the wall (113). The wall (115) measured in excess of *c.*3m in length and *c.*0.6m in width, and was heavily degraded with only 5-6 courses surviving to a height of *c.*0.7m. The wall (115) was interpreted during the NPA 07 excavation as forming a southern boundary south of the kiln (Town 2007) as it visibly abutted the southwest corner of the eastern building and probably continued westward towards the western building. However, the wall (115) appeared to have been constructed directly on top of the deposit (119) which had largely encased the foundation wall (114), suggesting that the wall (115), and most probably the cobbled surface (116), may have been secondary to the initial ground plan of the pottery.
- 4.2.11 Trench 3 was extended further west for *c.*4.9m at a width of *c.*1.6m in order to fully understand the relationship between the south wall of the kiln (113) and the foundation wall (114) which remained largely intact. This is surprising given that the centre of the wall (113) had been largely destroyed by later services and a well (Figure 3). Although, the return northwards of the kiln wall (113) was exposed within the Trench 3 extension, the foundation wall (114) did not follow the same northward return, and continued in a west-southwest direction past the southwest corner of the kiln, towards the western building of the pothouse (Plate 6, Figures 2 & 3).
- 4.2.12 The central position of the foundation wall (114) between both the eastern and western buildings is almost certainly due to the design of the pothouse; a design which left the south side of the substantial kiln structure exposed to the effects of subsidence on the unstable marsh land. Therefore, the location and robust nature of the wall (114) would have been critical in securing the stability of the kiln.

- 4.2.13 **Trench 4:** Trench 4 was excavated to the west of the site, adjacent to the southwest limit of the NPA 07 excavated area (Figure 3), in an attempt to locate further shardruck deposits. The north-northwest–south-southeast aligned trench was excavated by machine and measured *c.*1.1m in length, *c.*1.3m in width, and *c.*0.9m in depth (Plate 7). Trench 4 exposed a heavily truncated cobbled surface (**120**) (Plate 8) below industrial waste and soil backfill (**104**) and topsoil (**122**). An east–west aligned concrete wall (**121**) was also exposed towards the south-southeastern end of Trench 4 below *c.*0.28m of topsoil (**122**). The wall (**121**) measured *c.*0.22m in height and *c.*0.35m in width, and had severely truncated the cobbled surface (**120**).
- 4.2.14 It is probable that the concrete wall (**121**) was associated with one of several storage sheds which were still partially visible at the western limit of the site. These storage sheds were associated with either the gasworks or the later Grubb’s building. The cobbled surface (**120**), located further north during the NPA 07 excavation, probably post-dated the pottery, and would have provided access to the rear of the site from the quayside when the building was in use as tenements and workshops (Town 2007).



Plate 7: *View north-northwest along Trench 4*



Plate 8: *View north-northwest of Trench 4 showing part of cobbled surface (120)*

- 4.2.15 **Test Pit 1:** Test Pit 1 was excavated in order to investigate the shardruck deposits south of the pothouse which were located during the NPA 07 excavation. The test pit was located immediately south of the southwest corner of the eastern building (Figure 2) and measured *c.*3m in length and *c.*1.4m in width. However, the pottery dump was barely exposed at a depth of *c.*0.5m before the excavation of the test pit had to be abandoned due to diesel contamination.
- 4.2.16 **Test Pit 2:** A further test pit was excavated *c.*12m southwest of Test Pit 1 (Figure 2) in an attempt to locate the limit of the southern shardruck deposits. Test Pit 2 measured *c.*4.5m in length and *c.*1.4m in width, and was excavated to a depth of *c.*1.5m until the natural clay (101) was reached. The test pit exposed a *c.*0.15m layer of broken pottery directly above the natural clay (101). However, this layer of pottery (144) was very hard and compact, and was largely contaminated by industrial waste, suggesting that the deposit (144) may have been the remnants of the southern pottery dumps which were possibly dispersed around when the site was levelled. The layer of pottery (144) was below a deposit of soil and industrial debris (104) and topsoil (122) (Plate 9).



Plate 9: View east-northeast of Test Pit 2

- 4.2.17 The results obtained during the NPA 07 excavation strongly suggested that the entire pothouse, including the kiln structure, had been constructed on substantial foundations due to the unstable marsh land in the area. Therefore, the decision was taken to excavate three further test pits (Test Pits 3-5) in order to support the NPA 07 results and to better understand the foundation footprint of the pothouse. All three test pits exposed substantial foundations.
- 4.2.18 **Test Pit 3:** Test Pit 3 was located immediately west of the kiln (Figure 2) and measured *c.*1m x 0.5m, and was excavated to a depth of *c.*0.9m. The test pit was excavated through a *c.*0.4m hard packing deposit (136) which was sealing the light brown clay deposit (137), and exposed *c.*0.9m of the roughly laid western foundation wall (124) of the kiln (123) (Plate 10).



Plate 10: *Test Pit 3 showing west elevation of western foundation wall of kiln (124)*

- 4.2.19 **Test Pit 4:** Test Pit 4 was located c.2.2m northwest of Test Pit 3, immediately east of the western building's east wall (Figure 2), and measured c.1.2m x 0.7m. The test pit was excavated through the hard packing deposit (136) and the light brown clay deposit (137), and followed the foundations for the east wall (127) down for c.1m until the water table was reached (Plate 11).



Plate 11: *Test Pit 4 showing east elevation of eastern foundation wall of western building (127)*

- 4.2.20 **Test Pit 5:** Test Pit 5 was located immediately east of the east wall of the eastern building, below the shardruck deposit (111) (Figure 2). The test pit measured c.1m x 0.5m and was excavated through the clay packing deposit (137), following the eastern foundation wall of the eastern building (126) for c.0.7m. At this depth, a U-shaped foundation trench for the wall (126) was noted cutting the natural clay (101) (Plate 12). The cut [138] measured c.0.3m in depth and was filled by the deposit (143), which was very similar to the levelling deposit (137) above.



Plate 12: *Test Pit 5 showing east elevation of eastern foundation wall of eastern building (126) and wall cut [138]*

- 4.2.21 **The Kiln:** A limited investigation of the kiln working floor was also conducted during the watching brief which located four separate floor surfaces (Plate 13). These floor surfaces were comprised of heavily fired red brick (128), (130), (132) and (134) separated by c.0.5m deposits of sand (131) and (133), with the upper two surfaces (128) and (130) separated by a c.0.02m layer of fired clay tiles (129). The brick surfaces had been constructed above a c.0.5m deposit of red sand (135) and a c.0.4m stone and mortar (136) packing layer, which was above the clay deposit (137).
- 4.2.22 From the limited investigation of the kiln floor, it was concluded that each floor surface had been used for an indeterminate period of time until it had been heated to a point of degradation, after which a new surface was constructed directly above the old one. Several sherds of kiln furniture were retrieved from the sand deposits (133) and (135).



Plate 13: Kiln floor after excavation

- 4.2.23 Samples of the kiln surface were also taken for analysis in an attempt to establish whether coal or wood was used as the primary firing material for the kiln. However, these results have not yet been obtained.

5. FINDS

5.1 INTRODUCTION

- 5.1.1 A total of 290 litres of pottery were retrieved from the shardruck deposits **(106)**, **(111)** and **(112)**. Several sherds of kiln furniture were also retrieved from deposits **(133)** and **(135)** within the kiln working floor. All finds were retained and cleaned by members of the Northern Ceramics Society. The finds analysis was undertaken by Barbara Blenkinship.
- 5.1.2 A detailed discussion of the finds will be provided in a separate report produced by the Northern Ceramics Society.

5.2 DISCUSSION

- 5.2.1 As the pottery assemblages from deposits **(111)** and **(112)** came from an area which had already been heavily investigated during the NPA 07 excavation, little could be added to the current knowledge about these particular shardruck deposits, although several sherds of biscuitware which displayed sketches of patterns were particularly interesting as they possibly represent practice pieces.
- 5.2.2 The pottery assemblage retrieved from the southern shardruck deposit **(106)** proved to be much more interesting. Although the sherds within this area had been heavily contaminated by iron oxide and were difficult to retrieve, the assemblage contained much larger examples, and of a type not previously noted during the NPA 07 excavation. More importantly, the decoration on some of the material from the deposit **(106)** may be unlike anything noted from any other delftware factory. Furthermore, one particular form is recorded as having been made in other delftware factories but is generally accepted to have stopped being produced by 1740. That particular shape was noted within the assemblage from the deposit **(106)**, indicating that it was definitely in production at Lancaster.
- 5.2.3 Although several interesting results were obtained from the finds analysis, the site would greatly benefit from further investigation as significant amounts of pottery still remain *in-situ*.

6. CONCLUSIONS & RECOMMENDATIONS

6.1 CONCLUSIONS

- 6.1.1 The watching brief provided the opportunity to further investigate the Lancaster Delftware Pottery, following the extensive excavation undertaken there in 2007 by North Pennines Archaeology Ltd. Many of the results obtained during the watching brief served to support some of the conclusions drawn from the NPA 07 excavation, including definitive proof that the main pottery buildings, including the kiln, had been built to a specific ground plan which included the construction of significant and extensive foundations in order to counteract the effects of subsidence on unstable marshland. This was nowhere more apparent than with the substantial foundations for the south wall of the kiln.
- 6.1.2 During the watching brief, the opportunity was taken to conduct a limited investigation of the kiln surface. This investigation concluded that four separate floor surfaces were present within the kiln, each one probably constructed after the previous surface had become degraded. Samples of the kiln surface were also taken for analysis in an attempt to establish whether coal or wood was used as the primary firing material for the kiln. However, these results have not yet been obtained.
- 6.1.3 One of the primary aims of the current investigation was to establish the extent of the shardruck deposits and to obtain further information regarding the types of pottery in production at Lancaster, especially styles unique to that particular factory. The investigation was largely successful in both aims. The watching brief revealed a further shardruck deposit further south of those investigated during the 2007 excavation, and it is highly probable that the southern limit of this pottery dump was reached. Further investigations undertaken on the site suggest that the shardruck deposits do not extend more than c.12m south of the pottery buildings.
- 6.1.4 Although a large quantity of pottery was retrieved from three separate shardruck deposits, it was the newly exposed southern deposit which provided the best results. The pottery assemblage retrieved from this area not only contained examples never before attributed to Lancaster, but it also contained styles which are possibly unique to this factory. However a significant amount of pottery remains *in-situ* at Lancaster which would certainly benefit from further investigation.

6.2 RECOMMENDATIONS

- 6.2.1 As this watching brief was conducted at the request of the Northern Ceramics Society to monitor controlled investigations on the site, no further work is deemed necessary. However, as previously mentioned, the opportunity to thoroughly examine a delftware production site which has been largely undisturbed for over two hundred years is very rare. Furthermore, the pottery is situated within an area of proposed redevelopment. Therefore, it is recommended that further research and investigation into the Lancaster Pottery be strongly considered.

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APPENDIX I: CONTEXT INDEX

Context No.	Category	Above	Below	Description
100	Deposit	102	/	Tarmac/Concrete Surface
101	Deposit	/	106/125/138/144	Natural Ground/Marsh Deposit
102	Deposit	103	100	Modern Hardcore
103	Deposit	104/107	102	Coal Waste
104	Deposit	105/107/120/144	122/103	Industrial Waste/Soil Backfill
105	Deposit	106/140	104/107	Grey Clay Deposit
106	Deposit	101	105	South-Eastern Pottery Dump
107	Structure	105	104	NNW-SSE Running Wall
108	Deposit	109	/	Rubble/Soil Mix
109	Deposit	110	108	Dark Silty Clay
110	Deposit	111	109	Mid-Brown Silty Clay
111	Deposit	137	110	North-Eastern Pottery Dump
112	Deposit	137	109	Central Pottery Dump
113	Structure	114	/	South Wall of Kiln
114	Structure	125	113/119	Foundation Wall of (113)
115	Structure	119	109	NE-SW Running Wall South of Cobbles (116)
116	Structure	117	/	Cobbles South of Kiln
117	Deposit	118	116	Clayey Sand Deposit
118	Deposit	119	117	Red Brick Demolition Layer
119	Deposit	114/137	115/118	Clayey Sand Deposit
120	Structure	121	104	Cobbled Surface S-W Corner of Site
121	Structure	120	122	20th Century Concrete Wall
122	Deposit	104/121	/	Topsoil
[GFN] 123	Structure	124/136	/	Internal Firing Chamber of Kiln
124	Structure	/	[GFN] 123	Supporting Wall of [GFN] 123
125	Cut	101	114/142	Cut for Foundation Wall (114)
126	Structure	138	/	East Wall of Eastern Building
127	Structure	/	/	East Wall of Western Building
128	Structure	129	/	Upper Layer of Bricks in Firing Chamber
129	Structure	130	128	Tiled Surface Between (128) and (130)
130	Structure	131	129	Second Layer of Bricks in Firing Chamber
131	Deposit	132	130	Sand Deposit Between (130) and (132)
132	Structure	133	131	Third Layer of Bricks in Firing Chamber
133	Deposit	134	132	Sand Deposit Between (132) and (134)
134	Structure	135	133	Lower Layer of Bricks in Firing Chamber
135	Deposit	124/136	134	Sand Deposit Below (134)
136	Deposit	137	135	Hard Packing Layer Beneath Kiln

Context No.	Category	Above	Below	Description
137	Deposit	101/142/143	111/112/119/136	Light Brown Clay Packing Layer
138	Cut	101	126/143	Cut for Wall (126)
139	Structure	117	/	Curbing Stones South of Western Building
140	Fill	141	105	Fill of Cut [141]
141	Cut	106	140	Cut Through South-Eastern Pot. Dump
142	Fill	125	137	Fill of Cut [125]
143	Fill	138	137	Fill of Cut [138]
144	Deposit	101	104	Compact Pottery Layer

Table 1: *Context Index*

APPENDIX II: FIGURES
