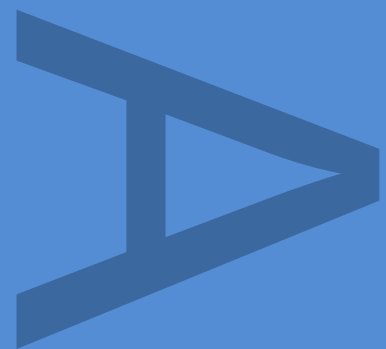


**AN ARCHAEOLOGICAL EXCAVATION AT  
TRINITY COURT, 55-57 QUAYSIDE,  
NEWCASTLE UPON TYNE, TYNE AND WEAR**

**JUNE 2015**



**PRE-CONSTRUCT ARCHAEOLOGY**

**DOCUMENT VERIFICATION**

**TRINITY COURT, 55-57 QUAYSIDE,  
NEWCASTLE UPON TYNE, TYNE AND WEAR**

**POST-EXCAVATION ASSESSMENT REPORT**

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<i>Site Code</i>	TRQ14
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<i>Task</i>	<i>Name</i>	<i>Signature</i>	<i>Date</i>
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**An Archaeological Excavation at Trinity Court, 55-57 Quayside,  
Newcastle upon Tyne, Tyne and Wear**

**Central National Grid Reference: NZ 2540 6394**

**Site Code: TRQ 14**

**Commissioning Client:**

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***PART A: PROJECT SUMMARY***



## **1. NON-TECHNICAL SUMMARY**

- 1.1 An archaeological excavation was undertaken in June and July 2014 by Pre-Construct Archaeology Limited at Nos. 55-57 Quayside, Newcastle upon Tyne. The work was commissioned by the landowner, Live Theatre, and was carried out as a condition of planning permission for a development scheme known as 'LiveWorks'. The main components of the scheme comprise a new office block on and extending back from the Quayside frontage, a new public park and performance space behind the office block and refurbishment of two listed standing buildings - a range of former almshouses and an adjacent outhouse - in the north-western corner of the site.
- 1.2 The LiveWorks development site comprises a vacant plot of land on the street frontage of the Quayside and, to the north, takes in part of an adjoining open area which is accessed from the east from Broad Chare; previous development proposals had named this overall open space 'Trinity Court'.
- 1.3 The archaeological excavation was conducted in the south-easternmost part of the overall development site, the area to be covered by the footprint of the new office block, this being a sub-rectangular area covering c. 835m<sup>2</sup>, with central NGR NZ 2540 6394. This portion of the overall site had been in use as a car park immediately ahead of the work, with the street frontage area occupied by a small public park.
- 1.4 The main archaeological interest of the site lies in its location within the circuit of the medieval town wall of Newcastle, upon a strip of land reclaimed from the north foreshore of the River Tyne by c. 1400 AD. Several pieces of archaeological work conducted on and around the Newcastle Quayside have demonstrated the presence of important, deeply stratified remains of medieval and post-medieval occupation.
- 1.5 An archaeological evaluation undertaken at the LiveWorks site in 2000 recorded c. 1.20m of stratified deposits representing medieval and post-medieval occupation, including substantial structural remains, underlying later post-medieval and modern 'overburden'. The lowermost deposits recorded in each trench comprised material probably dumped onto the Tyne foreshore as part of a large-scale programme of medieval reclamation, material which was likely to have arrived at the site as ballast on cargo ships.
- 1.6 An archaeological desk-based assessment of the site undertaken in 2004 had underlined the potential of the site for archaeological remains of the medieval and post-medieval periods, as demonstrated previously by the trenching evaluation.
- 1.7 The scope of work for the excavation was set out in a Specification compiled by the Tyne and Wear Specialist Conservation Team; in sum, two trenches (Trenches 1 and 2) were to be investigated at the site, both measuring c. 4m square at base. Trench 2 was located in the southernmost part of the development site, near to the street frontage, while Trench 1 was located further north-west. The aim of the work was to excavate and record stratified medieval and post-medieval deposits at these specific locations, extending as far down into the depositional sequence as it was practicable and safe to do so. A Written Scheme of Investigation for the excavation was compiled by Pre-Construct Archaeology and approved by Newcastle City Council in advance of the fieldwork.

- 1.8 No *in situ* natural geological material was encountered in either trench.
- 1.9 Some of the earliest deposits (Phase 1) recorded in both trenches probably arrived at the site as ships' ballast as the Tyne foreshore was reclaimed in the medieval period. The findings suggest that at least some of the material originated from southern England, with flint cobbles from one deposit in Trench 2 being beach cobbles typical of those found on the South Downs, while cobbles from Trench 1 probably most likely originated from the lower Thames or its estuary. One of the ballast layers in Trench 2 yielded most of the fish bones from the site, while an alluvial deposit which developed between episodes of ballast dumping in the same trench yielded a large quantity of crustacean remains along with plant remains typical of both waterlogged ground and slow-moving or still water. Pottery recovered from Phase 1 deposits indicates that reclamation of the Tyne foreshore took place during the 13th/14th century. A radiocarbon date of 687–880 cal AD was obtained by the AMS technique from plant remains recovered from a column sample of the alluvial deposit. This date appears to be invalid (i.e. too early) for the deposition of the alluvium, given its stratigraphic position within what appears to be a sequence of medieval ballast dumps. A factor in this erroneous date may be the low quantity of carbon submitted, which was at the minimum weight required for an AMS date, due to the limited plant material available from the column sample.
- 1.10 Phase 2a - assigned a broad 13th/14th-century date - represents evidence of human activity on reclaimed foreshore, indicating that the area was sufficiently dry by c. 1400 AD, the presumed date at which the town wall was built along the Quayside. The dominant component of this sub-phase in Trench 1 was a monumental NW-SE aligned sandstone wall, interpreted as a long-lived property boundary. Sequences of deposits accumulated either side of this wall, with evidence of episodic surfacing being recorded, while limited evidence of structural activity in association with the surfaces was also evident. Further ballast, some containing evidence of industrial activity, possibly continued to be dumped at the site. In Trench 2, the limited remains of this sub-phase comprised a wide, linear feature, possibly a robbed-out construction cut related to a former riverfront, and a refuse pit, which contained a large sandstone 'disc' and the relatively complete, unbutchered, skeleton of a young chicken.
- 1.11 Phase 2b in Trench 1 comprised further evidence of medieval activity, this dated to the 14th/15th century, represented by further stratified deposits recorded either side of the main boundary wall. One deposit yielded many sherds from a large three-handled jug, probably a cistern, and numerous whole or part bricks of 15th-century date. Additional structural remains were assigned to Phase 2b in Trench 1, including an SW-NE aligned wall which had been appended to the eastern side of the main boundary wall. No deposits could be assigned to this sub-phase in Trench 2.
- 1.12 In broad terms, Phase 3 covered the post-medieval period. In Trench 1, very little evidence of activity of this date survived, while in Trench 2 significant structural remains were recorded, these of a complexity which warranted sub-phasing. Phase 3a most likely commenced in the late 17th or 18th century, with the structural remains recorded representing one or more cellar rooms within Quayside frontage buildings. The bedding layer for a flagstone surface in this sub-phase yielded a glass bottle seal of probable late 17th-century date. Phase 3b saw structural modifications to the cellar rooms, this activity probably occurred in the second half of the 18th century. Phase 3c saw further modifications, probably during the late 18th to mid-19th century,

with the surviving remains comprising flagstone flooring and significant brick additions, including cellar walls and barrel-vaulted ceilings.

- 1.13 Phase 4 represents activity undertaken in both trenches towards the end of the 19th century and up to the mid-20th century. In Trench 2, the recorded deposits and structures were for the most part closely associated with Phase 3 structural remains. Phase 5 comprised modern era activity in both trenches, including the existing ground surfaces.
- 1.14 This Post-Excavation Assessment Report has three parts. Part A, the Project Summary, begins with an introduction to the site, then details its location, geology and topography, continuing with summaries of the planning and historical/archaeological background to the project, then describes the archaeological methodology employed during both the fieldwork and post-excavation stages of the work and concludes with an illustrated summary of the excavation results.
- 1.15 Part B, the Data Assessment, begins with a quantification of the written, graphic and photographic elements of the Site Archive. It contains specialist assessments of each artefactual and palaeoenvironmental category of evidence, with recommendations for any further work for each. This part concludes with a summary discussion of the project to date and a summary of the significance of each component of the project data for further analysis. Part C contains the references and acknowledgements.
- 1.16 The report has nine appendices: Appendix A is a collection of photographic plates from the fieldwork; Appendices B and C are the stratigraphic matrices and context index, as compiled in post-excavation; Appendices D, E, and F comprise technical catalogues of, respectively, pottery, ceramic building materials and stone; Appendix G is the radiocarbon dating certificate; Appendices H and I are respectively Newcastle City Council's Project Specification and PCA's approved Written Scheme of Investigation.

## **2. INTRODUCTION**

### **2.1 General Background**

- 2.1.1 This report details the methodology and results of an archaeological excavation undertaken by Pre-Construct Archaeology Limited (PCA) 2 June to 18 July 2014 at a proposed development site, Nos. 55-57 Quayside, Newcastle upon Tyne (Figures 1 and 2). The site comprised a vacant plot of land on the Quayside street frontage, situated between No. 39 (the Custom House) and No. 63 (formerly 'Flynn's Bar'), and extending to the north to take in part of a large open court, which is accessed from its eastern side, from Broad Chare (Figure 2; Plates 1-3). The nomenclature 'Trinity Court' was assigned during a previous development proposal which took in the current site.
- 2.1.2 Planning permission was granted in June 2014 for development of the site as the 'LiveWorks' scheme, which will see a new office block on and extending back from the Quayside frontage, a new public park and performance space behind the office block and refurbishment of two listed standing buildings in the north-western corner of the site. A Heritage Statement for the scheme was compiled in February 2014 and submitted as part of the planning application (Dyer 2014). The archaeological project was commissioned by the landowner and developer, Live Theatre (North East Theatre Trust Limited) (the Client), and both the fieldwork and reporting components of the project were required as separate conditions of planning permission for the LiveWorks scheme.
- 2.1.3 The site lies within a corridor of land which was reclaimed from the north foreshore of the River Tyne in the medieval period. As reclamation took place, a deeply-stratified sequence of dumped material – including much ballast from arriving cargo ships - occupation deposits and structural remains accumulated behind successive new river frontages until, by c. AD 1400, the circuit of the medieval town wall was completed along the line of the road which forms the modern Quayside. Two evaluation trenches excavated at the site in 2000 demonstrated that important archaeological deposits, of probable medieval and early post-medieval date, survived at the site (Tyne and Wear Museums 2000). A desk-based assessment undertaken in 2004 underlined the archaeological potential of the site prior to the evaluation (Tyne and Wear Museums 2004).
- 2.1.4 The scope of archaeological work required in order to fulfil the relevant planning conditions – relating to both fieldwork and reporting - was set out in a Specification compiled by the Tyne and Wear Specialist Conservation Team (Newcastle City Council 2014; the revised document was dated 24 March 2014 - see Appendix H). In sum, two trenches were to be excavated, each measuring c. 4m square at base, with both trenches sited in the south-easternmost portion of the development site, within the footprint of the main new build component of the scheme.
- 2.1.5 As a requirement of the Specification, a Written Scheme of Investigation for the programme of archaeological work was compiled, in advance of the fieldwork, by PCA in May 2014 (PCA 2014a - see Appendix I). The overarching aim of the excavation was to record stratified medieval and post-medieval material within the two trenches, extending as far down into the depositional sequence as it was practicable to do so, taking all relevant Health and Safety considerations into account.

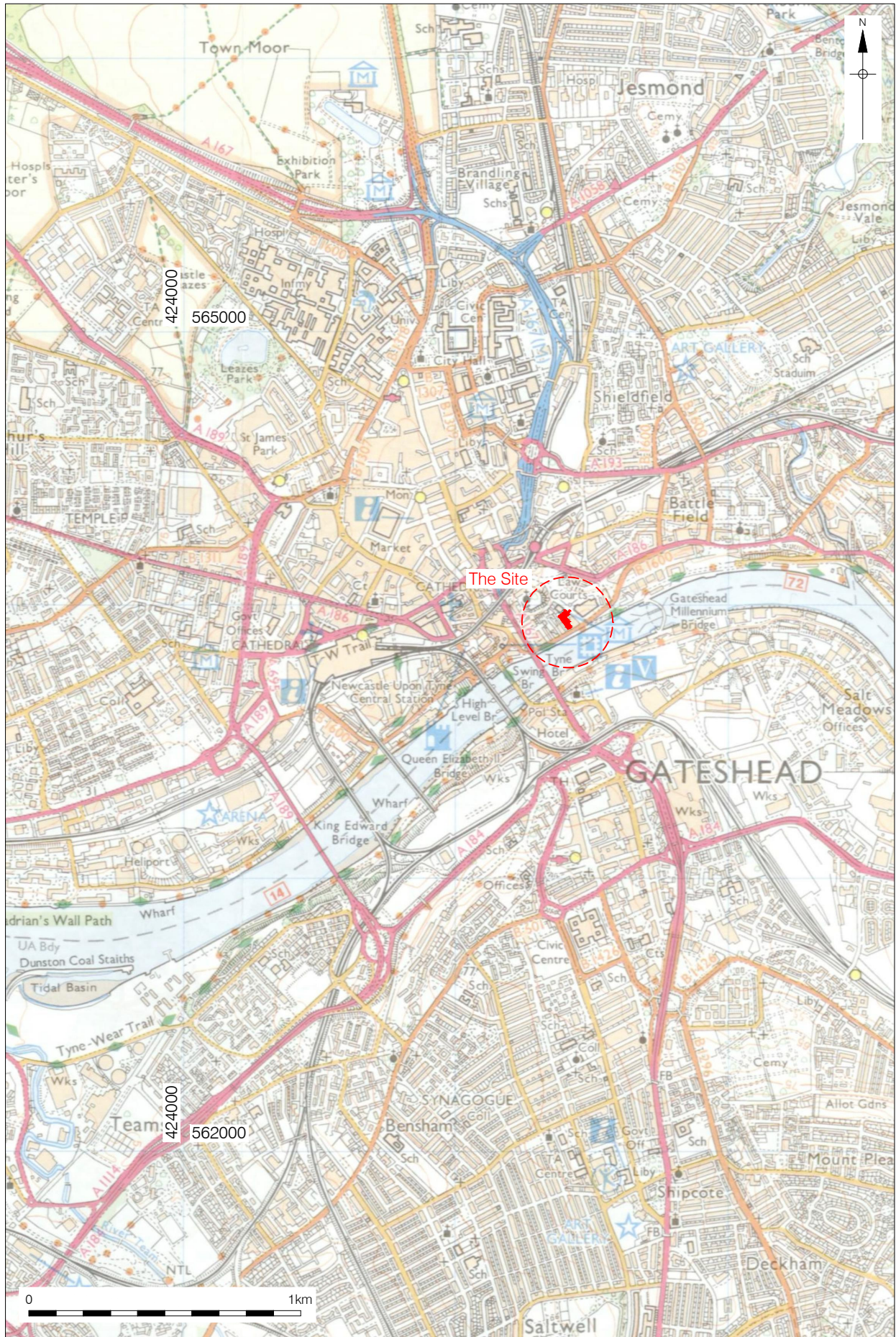
- 2.1.6 The archaeological project herein described was designed according to the guidelines set out in *Management of Research Projects in the Historic Environment* (MoRPHE) (English Heritage 2006). In line with MoRPHE guidelines, this Assessment Report sets out a formal review of the data collected during the fieldwork. As mentioned, preparation of this report was a requirement of one of the archaeology-related conditions of planning permission for the development scheme.
- 2.1.7 At the time of writing, the Site Archive (site code: TRQ 14) is currently held at the Northern Office of PCA. The retained element, comprising the written, drawn and photographic records, as well as assemblages of artefactual and ecofactual material, will be eventually deposited with the Great North Museum: Hancock, Barras Bridge, Newcastle upon Tyne, NE2 4PT, under the site code TRQ 14.
- 2.1.8 The Online Access to the Index of Archaeological Investigations (OASIS) reference number for the project is: preconst1-205077.

## **2.2 Site Location and Description**

- 2.2.1 The LiveWorks development site is situated on the street frontage of the Newcastle Quayside (the B1600), with the modern riverfront c. 25m to the south and Broad Chare to the east (Figures 1 and 2). Ahead of the current scheme, the site was vacant (Plates 1-3), with the street frontage portion, historically Nos. 55-57 Quayside, having been most recently occupied by a single-storey, probable 1930s building. This building was referred to in the Heritage Statement for the LiveWorks scheme as the 'Youngers warehouse' and, following a variety of uses, was demolished around the turn of the millennium (R. Spence pers comm.). An unimplemented development proposal from 1989 is thought to be the origin of the 'Trinity Court' nomenclature, then used to describe the entire open area behind the Broad Chare and Quayside frontages and including the current site (article in the *Evening Chronicle* 13 March 1989).
- 2.2.2 The overall LiveWorks development site is irregular in shape, covering c. 1,670m<sup>2</sup> (Figure 2). The archaeological excavation was conducted in the southernmost portion of the overall site, an area effectively taking in the footprint of the office block which is to be the main new build component of the scheme (hereafter, therefore, 'the site' refers only to the portion of the overall development site in which the excavation was undertaken). Although technically aligned NW-SE, the site alignment is hereafter described for the most part simply as north-south. The site thus comprised a sub-rectangular area measuring c. 45m in length by c. 23m wide, to the north, narrowing to c. 13 wide on the Quayside frontage. Covering c. 835m<sup>2</sup>, the site had a central National Grid reference NZ 2540 6394 (Figure 2).
- 2.2.3 The site is bounded to the west by a narrow footpath, Trinity Chare, immediately beyond which, on the street frontage, lies the Custom House, with its ancillary components to the rear, running along Trinity Chare (Plates 2-4). To the north of the site lies the existing Live Theatre complex, many components of which were originally associated with Trinity House, a charitable guild associated with Newcastle's maritime community, which formally came into being in the early 16th century. Beyond the curtilage of the Live Theatre, to the north, lie the existing components of the Trinity House complex, including three Grade I listed buildings within its core.

- 2.2.4 Ahead of the LiveWorks scheme, the main components of the Live Theatre complex lay to the north of the site, fronting onto Broad Chare from the west, with ancillary structures to the rear (Plate 5). Prominent amongst the rear elements of the complex are a group of mid and late 18th- and early 19th-century brick buildings, including The Schoolhouse (refurbished as part of a previous Live Theatre project) and a range of former almshouses, Nos. 9-10 Trinity Chare, set around two contemporary courtyards. The former almshouses, which lie within the north-western corner of the LiveWorks site (Plate 4), are to be refurbished as part of the current scheme. Building recording of Nos 9 and 10 Trinity Chare, an outbuilding and a stone wall was undertaken in September 2014 and is the subject of a separate report (PCA 2014b).
- 2.2.5 To the east of the site is a large open court behind both the Quayside and Broad Chare frontages. Vehicular access to this area is gained from the east, through a built-over passageway through the developed frontage of Broad Chare (Plate 5), while pedestrian access is also possible at its south-eastern corner, from the Quayside, through an alleyway, Rewcastle Chare. To the south-east, on the Quayside frontage, the site is bounded by No. 63 Quayside, a late 18th- or early 19th-century brick building, a vacant former public house (most recently 'Flynn's Bar') with accommodation above (Plates 2, 3 and 10). A short alleyway between the south end of the eastern site boundary and No. 63 represents the remains of what was once a more extensive access route, named on historic maps as 'Three Indian Kings Court'.
- 2.2.6 At the commencement of the archaeological project, the street frontage portion of the LiveWorks site was a recently de-commissioned 'pocket park', comprising grassed areas with raised planting beds and a tarmac pathway, set in front of a hoarding. The hoarding was removed and the open southern boundary of the site delineated with temporary 'Heras' type fencing, while existing fencing of this type along the western site boundary was repositioned. The remainder of the site was in use as a car park prior to the archaeological work, with a rough rubble surface and small area of concrete hardstanding in the north-westernmost corner. At the commencement of the archaeological work, the entire eastern site boundary was delineated by timber fencing, gated at its northern end. Additional temporary fencing was used to further secure this boundary for the duration of the project. The northern limit of the site was bounded by the south-eastern gable end of the former almshouses and an adjoining brick wall, with iron railing above, which ran to the east to the gated entrance in the eastern boundary fence. Beyond the northern site boundary lay the existing Live Theatre complex, as described.
- 2.2.7 Therefore, at the commencement of the archaeological work, the site was vacant, secured with fencing on three sides and bounded by an existing building and its boundary wall to the north. All the buildings immediately adjacent to the site are listed: No. 39 Quayside, the Custom House (Grade II\*) - a three-storey sandstone building with adjoining brick components to the rear, built 1766 and refronted 1833; No. 63 Quayside (Grade II), the former Flynn's Bar - a four-storey brick building of late 18th- or early 19th-century date, and; Nos. 9-10 Trinity Chare (Grade II), the former almshouses of Trinity House - a two-storey brick range dated to 1820, as described on its wall plaque. The LiveWorks scheme includes refurbishment of the former almshouses, along with an adjacent brick outhouse, also a listed building (Grade II), this dating to the late 1770s. The Heritage Statement should be consulted for details of all designated heritage assets in the vicinity the site.





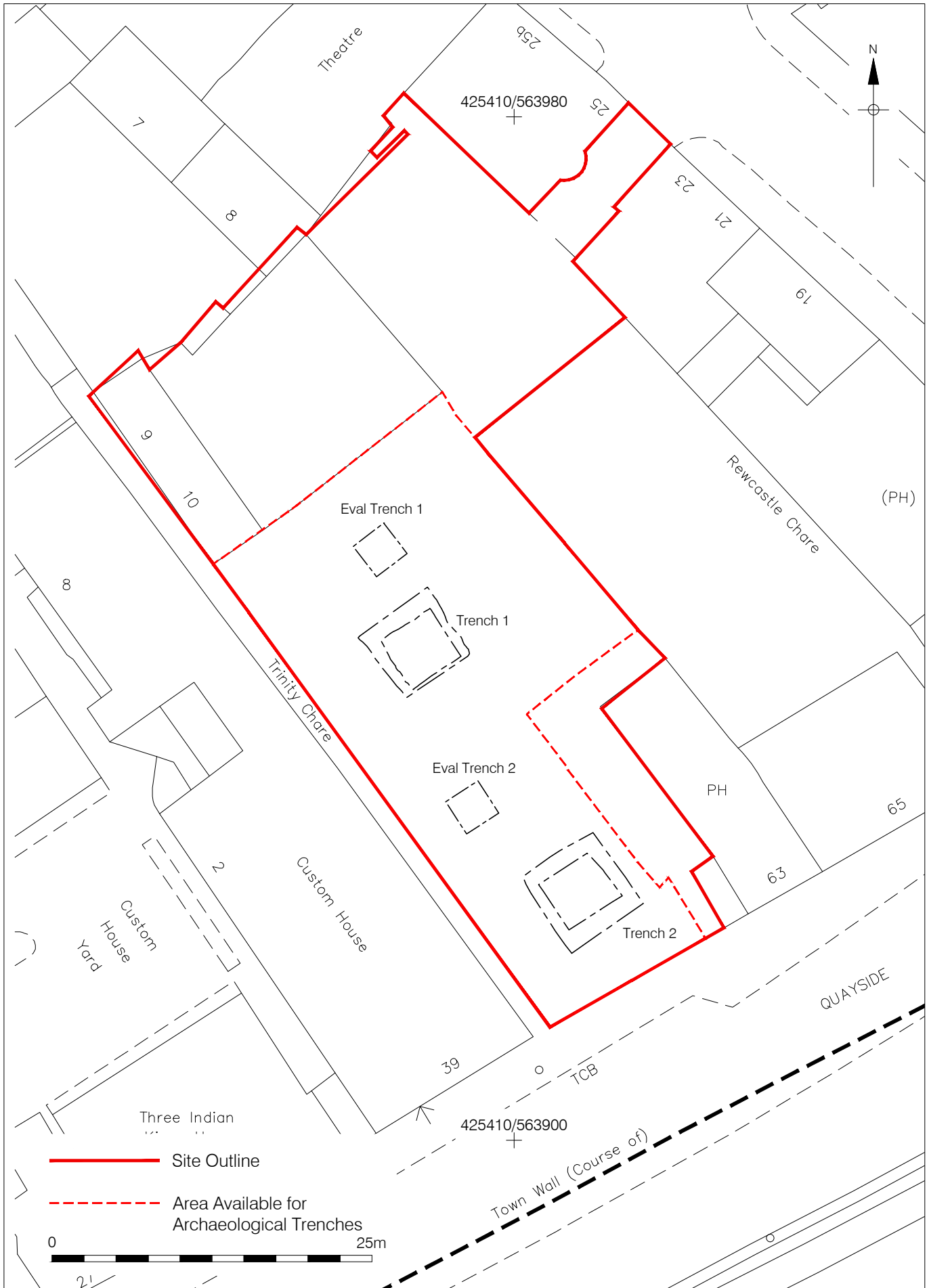
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24/09/14 JB, updated 20/01/2015 AMB

Figure 1  
Site Location  
1:20,000 at A4







## 2.3 Geology and Topography

- 2.3.1 The solid geology of Newcastle comprises material of the Pennine Middle Coal Measures Formation, this being sedimentary bedrock, specifically mudstone, siltstone and sandstone, of the Carboniferous Period (*British Geological Survey website*).
- 2.3.2 In terms of superficial geology, Newcastle is generally known for Devensian Till, which formed up to two million years ago in the Quaternary Period (*British Geological Survey website*) and comprises material known generally as 'boulder clay'. Such material has been exposed during previous archaeological investigations on the Quayside, for example, during a programme of work conducted in 1984-85 at Queen Street and below Dog Bank, respectively c. 60m and c. 90m to the north of the current site. At Queen Street, 'natural deposits' were recorded at a height of 1.50m OD (O'Brien *et al.* 1988, 7), while 'bright yellow clay', interpreted as the 'natural clay of the cliff edge', was the earliest deposit encountered at Dog Bank (O'Brien *et al.* 1988, 25).
- 2.3.3 In order to provide a broad overview of the topographical situation of the site, some information relating to the archaeological and historical background of the site is required, although these components of the project background are more fully detailed in due course. Relevant information has been extracted from a number of sources (the principal ones being O'Brien *et al.* 1988, 2-5 and 154-155; Graves and Heslop 2013, 171-173).
- 2.3.4 Prior to medieval and later canalisation, the River Tyne at Newcastle/Gateshead was much wider and shallower than it is in its modern form, although nevertheless it was naturally confined within a narrow, steep-sided gorge. The original settlement core of Newcastle developed above the north cliff, on a prominent spur, at c. 29m OD, overlooking tidal mudflats. This higher ground was selected for the site of the Roman fort and was then used as the cemetery of the Saxon town, before being developed for the site of the Norman castle.
- 2.3.5 The medieval bridgehead was established at Sandhill, to the south of the elevated settlement core, and the medieval town gradually developed on the higher ground. There were, however, significant topographical constraints to settlement development, in the form of a series of natural burns which cut deep inlets (denes) through the boulder clay of the river cliff, discharging at low tide into broad, shallow estuaries on the Tyne foreshore. Skinner Burn and Pandon Burn effectively delimited the extent of the earliest medieval town to the west and east, respectively, while roughly midway between the two emerged Lort Burn, which skirted the east side of the bridgehead area at Sandhill.
- 2.3.6 Ahead of reclamation and development in the medieval period - a process which created the modern riverside 'platform' throughout central Newcastle - the entire foreshore was largely unusable, except for specific activities. Construction of the town wall is known to have begun c. 1265 and continued into the 15th century (Graves and Heslop 2013, 182-185; Harbottle 2009, 34-37). Within the completed circuit of the medieval town wall, the Tyne riverfront was c. 0.8 km in length, divided roughly in half by the inlet of Lort Burn, a topographical feature long buried below Grey Street, Dean Street and the Side.

- 2.3.7 The LiveWorks development site is situated within the eastern portion of the early riverside area, east of the Lort Burn and towards Pandon Burn, which met the Tyne west of Sandgate, the site of the south-eastern corner of the wall circuit (Graves and Heslop 2013, fig. 5.37, 182). The original north cliff of the Tyne lay c. 90m north of the site, overlooked by the spur of land upon which All Saints' Church stands (Plate 4). Evidence from previous archaeological work indicates that construction of the portion of the town wall along the eastern riverfront, that is the section running south-westwards from Sandgate towards the bridgehead, took place in the early 15th century. This evidence therefore implies that the corridor of land in which the development site lies must have been reclaimed from the Tyne foreshore by c. 1400 AD.
- 2.3.8 Ground level at the site at the time of the work was c. 4.80m OD, this value recorded on the concrete slab in its north-western corner, falling away almost imperceptibly to the south-east, to c. 4m OD on the Quayside frontage to the south-east.

## **2.4 Planning Background**

- 2.4.1 A planning application (reference 2014/0254/01/DET) was submitted in February 2014 for the LiveWorks scheme which will see Nos. 55-57 Quayside developed as a new cultural hub and commercial venture. The Local Planning Authority (LPA) is Newcastle City Council. The development is being undertaken by Live Theatre (North East Theatre Trust Limited) (the Client) with funding derived from Newcastle City Council, a European Regional Development Fund grant and private sector supporters.
- 2.4.2 The planning application for the LiveWorks scheme, names the overall development site '*55-57 Quayside and former Trinity Chambers, 9-10 Trinity Chare*' and the proposal was summarised as '*Demolition of curtilage walls and erection of four-storey office building (Class B1), provision of landscaped seating area to rear and alterations to Alms House and outhouse as amended by plans received 02/05/14 and 10/06/14*'. The Heritage Statement compiled in February 2014 formed part of the supporting documentation for the planning application; the history of previous development proposals for the site, which stood empty between the early 1900s and probably the 1930s, then again since c. 2000, is outlined in that document (Dyer 2004, 9). Details of the proposals (including planning application drawings) were contained in a Design and Access Statement, also compiled in February 2014 and submitted as part of the planning application (Flanagan Lawrence 2014).
- 2.4.3 In sum, the main new build element of the LiveWorks scheme comprises construction of four-storey commercial office accommodation on the Quayside frontage and extending to the north. The scheme will be completed by the creation of a new landscaped public park and performance space situated adjacent to the listed former almshouses (Nos. 9-10 Trinity Chare). The almshouses themselves will be refurbished, to create a children and young people's writing centre, the adjacent listed outhouse will also be refurbished, while some curtilage walls associated with these structures are to be demolished.
- 2.4.4 Construction of the new office block, the main commercial component of the scheme, necessitated the archaeological excavation due to the invasive nature of preparatory groundworks. The Tyne and Wear Specialist Conservation Team at Newcastle City Council is the body which provides archaeological development control in the county.

- 2.4.5 The decision to impose planning conditions relating to the archaeology of the site was informed by archaeological work undertaken in association with a previous, unimplemented, development proposal for the site. The archaeological evaluation of the site undertaken in 2000 demonstrated, through the investigation of two trenches, the presence of important archaeological deposits of medieval and early post-medieval date (Tyne and Wear Museums 2000). The evaluation recorded c. 1.20m of complex stratified material of probable medieval and early post-medieval date, underlying late post-medieval and modern 'overburden'. The lowermost deposits recorded in each trench were interpreted as probable ballast material derived from medieval reclamation of the Tyne foreshore.
- 2.4.6 The archaeological desk-based assessment compiled for the site in 2004 was again associated with a previous, unimplemented, development proposal. This concluded that the site lies within a corridor of land reclaimed in the medieval period from the north foreshore of the River Tyne (Tyne and Wear Museums 2004). By c. 1400 AD this land lay within the circuit of the town wall, which by then ran along the riverfront, and had been greatly elevated, initially through ballast dumping and subsequently by years of occupation and development, this resulting in a substantial depth of archaeological remains.
- 2.4.7 The archaeological excavation was therefore required as a condition of planning permission granted on 16 June 2014 for the LiveWorks scheme; the full set of planning conditions relating to the archaeology of the site are set out in full below. In sum, however, in commenting on the planning application, the Tyne and Wear Archaeology Officer, a member of the Specialist Conservation Team, concluded that *'the site is of considerable archaeological interest'*.
- 2.4.8 The requirement to undertake the excavation was in line with planning policy at a national level as now set out in the *National Planning Policy Framework* (NPPF) (Department of Communities and Local Government (DCLG) 2012). A key component of the NPPF - retained from the previous national guidance document *Planning Policy Statement 5: Planning for the Historic Environment* (PPS5) (DCLG 2010) - is the concept of heritage assets, those parts of the historic environment that have significance because of their historic, archaeological, architectural or artistic interest. Despite the deletion of PPS5 and its replacement with the NPPF, the *PPS5 Practice Guide* (English Heritage, Department of Culture, Media and Sport and DCLG revised 2012) remains a valid and UK Government endorsed document.
- 2.4.9 The planning conditions relating to the archaeology of the LiveWorks site were as follows:

*Archaeological Excavation and Recording Condition*

*Condition 13. No groundworks or development shall commence until a programme of archaeological excavation has been completed. This shall be carried out in accordance with a specification provided by the Local Planning Authority.*

*Reason: The site is located within an area identified as being of potential archaeological interest. The investigation is required to ensure that any archaeological remains on the site can be preserved wherever possible and recorded, in accordance with saved Unitary Development Plan Policies C4.2, C4.3, C4.4 and paragraph 141 of the NPPF.*

Archaeological Post Excavation Report Condition

*Condition 14. The final report of the results of the archaeological excavation undertaken in pursuance of [the above] condition shall be submitted to and approved in writing by the Local Planning Authority within one year of the granting of planning permission.*

*Reason: The site is located within an area identified as being of potential archaeological interest. The investigation is required to ensure that any archaeological remains on the site can be preserved wherever possible and recorded, in accordance with saved Unitary Development Plan Policies C4.2, C4.3, C4.4 and paragraph 141 of the NPPF.*

Archaeological Publication Report Condition

*Condition 15. Within one year of the granting of planning permission, a report detailing the results of the archaeological excavation shall be produced in a form suitable for publication in a suitable and agreed journal and shall be submitted to and approved in writing by the Local Planning Authority prior to submission to the editor of the journal.*

*Reason: The site is located within an area identified in the Unitary Development Plan as being of potential archaeological interest and the publication of the results will enhance understanding of and will allow public access to the work undertaken in accordance with paragraph 141 of the NPPF and paragraph 135 of the PPS5 Planning for the Historic Environment: Historic Environment Planning Practice Guide March 2010.*

- 2.4.10 Another condition (condition no. 12) of planning permission related to historic standing buildings at the northern boundary of the LiveWorks site, namely: the Grade II listed former almshouses dating to 1820 (listed as 'Former Trinity House, Nos. 9 and 10 Trinity Chare'); an adjacent Grade II listed brick outhouse dating to c. 1778 (listed as 'Outbuilding to east of former Trinity House, Nos. 9 and 10 Trinity Chare') and; a sandstone link wall between the aforementioned almshouses and outhouse. The condition required recording of the standing buildings prior to their conversion as part of the scheme and recording of the link wall prior to its proposed demolition. The results of this component of the overall programme of archaeological work undertaken in association with the LiveWorks scheme are detailed in a separate report (PCA 2014b).
- 2.4.11 The Specification for the archaeological excavation (see Appendix H) was compiled by the Tyne and Wear Archaeology Officer. In response, and as required by the Specification, PCA compiled, in May 2014, the Written Scheme of Excavation for the work (see Appendix I) and this was approved by the Specialist Conservation Team ahead of commencement of the fieldwork.
- 2.4.12 While the archaeological excavation itself was the requirement of condition no. 13, this report is the requirement of condition no. 14, with condition no. 15 being ultimately fulfilled by a subsequent publication report on the archaeological findings and condition no. 12 - that related to the historic standing buildings – being covered as mentioned by a separate piece of fieldwork and subsequent report.

## 2.5 Archaeological and Historical Background

- 2.5.1 As outlined above and as identified in the Newcastle City Council Specification for the excavation, the archaeological potential of the LiveWorks site was predominantly for medieval and post-medieval remains. This was based on the findings of numerous archaeological investigations, mostly conducted during and since the 1980s, which have examined the development and usage of the waterfront in central Newcastle, a significant body of work which has been recently reviewed and summarised (Graves and Heslop 2013, 171 and table 5.6 , 172–173). The findings of three previous investigations are of particular relevance when discussing the archaeological background to the LiveWorks site: Queen Street 1985, an excavation area located between Fenwick’s Entry and Broad Garth, c. 60m to the north-west of the current site; the Milk Market 1992, located c. 120m to the east; and the 2000 evaluation conducted within the boundary of the LiveWorks site itself (Tyne and Wear Museums 2000).
- 2.5.2 Prior to reclamation in the medieval period, the LiveWorks site was located on the north foreshore of the Tyne, which probably remained largely unused by humans, except for specific activities associated with such a location/environment, e.g. beaching shallow draught boats. The 2004 desk-based assessment of the ‘Trinity Court’ site identified no evidence for prehistoric, Romano-British or early medieval activity within the area studied (Tyne and Wear Museums 2004, 7). What limited evidence there is for pre-medieval activity, as recorded by previous archaeological investigations along the waterfront in Newcastle, is summarised elsewhere (Graves and Heslop 2013, 173).
- 2.5.3 Within the circuit of the medieval town wall in Newcastle, the western section (*i.e.* Skinner Burn to Lort Burn) and eastern section (*i.e.* Lort Burn to Pandon Burn) of the early waterfront are thought to have developed independently, although largely contemporaneously, probably due to differing requirements of the parts of the town with which they were associated (Graves and Heslop 2013, 173). In total, the river frontage within the town extended c. 0.8 km in length, with the medieval bridgehead located at Sandhill (this being the site of the existing Swing Bridge), *i.e.* immediately west of the inlet of the Lort Burn. The first stone bridge across the Tyne opened in 1250 (Horsley 1971, 2). Documentary records have established that, in 1299, the separate village of Pandon, lying beyond the broad dene of Pandon Burn, became incorporated into the town of Newcastle under the authorisation of Edward I, with the result that the riverfront was extended further eastwards, as far as the inlet of another tributary stream, The Swirle (Harbottle 2009, 29).
- 2.5.4 The LiveWorks site is located within what was the c. 0.3 km long eastern section of the early waterfront, between the inlets of the Lort Burn and Pandon Burn and downstream from the bridgehead, this portion of the waterfront having been previously identified as ‘*the core of the medieval port*’ (O’Brien *et al.* 1988, 1). The original north cliff of the Tyne lay c. 90m north of the site, below the hill on which All Saints’ Church now stands (Plate 4); deconsecrated in 1961, the existing church was built 1786–96 to replace a medieval church - possibly of 12th-century origin – which stood on the same site (*Sitelines* website; Tyne and Wear HER no. 1423).

- 2.5.5 The recent review of the body of archaeological work undertaken along the waterfront in central Newcastle has produced a detailed synthesis of the evidence, thereby elucidating the chronological progress of medieval re-sculpturing of the Tyne's north riverbank through reclamation of the foreshore, as well as examining the evidence for organisation of this significant undertaking (Graves and Heslop 2013, 171–182). As necessary, the study incorporated relevant documentary evidence to set the minutiae of the evidence provided by archaeological work in context. This has thus produced the most comprehensive summary to date of the actual physical processes involved in medieval reclamation of the foreshore – a process which resulted in the creation of the Quayside – as well as identifying the nature of activity, occupation and development undertaken in association with the newly-won land.
- 2.5.6 Graves and Heslop's review also incorporated evidence from relevant documentary material related to the development of trade and economy in Newcastle as a whole throughout the medieval period (2013, 119–122), this complementing an earlier synthesis of such evidence (Fraser 2009). With the port a fundamental component of the trade and economy of the medieval town, there would have been strong economic drivers for the creation and development of a formal, accessible quayside at its core, highlighting the fact that any overview of trade and economy in medieval Newcastle is of direct relevance to the LiveWorks site. Irrespective of how the quayside was created, with the evidence for that discussed in due course, it is clear that in overall terms the town invested heavily in its riverside infrastructure, to the extent that there was a significant increase in both the quantity and value of maritime trade from the second half of the 13th century, with the Low Countries, the Baltic and France being the main trading partners as that time (Graves and Heslop 2013, 180). In 1265 Henry II licensed the collection of tolls on exports and imports at the port in order to generate finances towards the cost of constructing a town wall (Fraser 2009, 42).
- 2.5.7 It has been long been recognised that waterfront development in medieval Newcastle largely followed a pattern established in the medieval era in other North Sea ports, both elsewhere in England, such as London, and in continental Europe, such as Bergen in Norway (O'Brien *et al.* 1988, 156). Newcastle, however, is notable in topographic terms, in that its waterfront area lies at a much lower level than the remainder of the town in most, if not all, of the other examples studied. This notwithstanding however, in overview the conclusion is that the fundamental driver behind the creation of an improved riverfront infrastructure in medieval Newcastle was the potential for increased sea-borne trade.
- 2.5.8 In terms of trade, Newcastle historically found itself mired in a struggle between the burgesses of the town and the Priory of Tynemouth and the Bishop of Durham, with each party attempting to achieve a monopoly in trade along the Tyne (Fraser 2009, 43–46; Graves and Heslop 2013, 179). With Newcastle designated a Customs port in 1275, there are documentary references from the late 13th century to tolls on a wide variety of sea-borne commodities, including fish (*e.g.* salmon and herring), livestock (*e.g.* horses, oxen and pigs), products related to clothing, textiles, *etc.* (*e.g.* wool, linen and felt, hides, furs and animal skins), foodstuffs (*e.g.* grain, salt, butter and cheese, pepper, almonds, cumin, figs and raisins, garlic, onions and wine) and an assortment of other domestic and/or industrial commodities (*e.g.* grease and tallow, sea-coal, wax, charcoal, woad, alum, kitchenware, lead, pitch and tar, peat, oil and millstones) (Fraser 2009, 42). Amongst this plethora of goods, wool and hides came to dominate the trade of the town in this period (Graves and Heslop 2013, 119–121).

- 2.5.9 Amongst the overall group of medieval merchants who, up to the Civil War in the mid-17th century, assumed responsibility for the organisation and financing of industrial development across Tyneside and Wearside, a significant role was played by the Newcastle colliers. In the context of the trade and economy of the town as a whole, coal had achieved dominance, in terms of both value and volume, by the early 16th century, with associated industries, particularly glass- and salt-making, developing in tandem (Graves and Heslop 2013, 122).
- 2.5.10 Coal mining began in the Newcastle area in the medieval period and coal export is thought likely to have been fundamental in the development of medieval industry in Flanders and Holland, probably contributing significantly to numerous industrial processes, such as in the textile, brewing, ironworking and construction industries. Coal was also used in a variety of industrial and domestic processes in the Low Countries, France and throughout England (Graves and Heslop 2013, 121). Documentary evidence indicates that by the second quarter of the 14th century there were significant coal exports from Newcastle to Flanders and Holland, and extending as far as the Baltic, so that the coal trade had become the dominant component of the economy of the town by the early 16th century. Around the English coastline, the main trading routes from Newcastle were between London and East Anglia, with Normandy and Picardy the main continental destinations for exported coal.
- 2.5.11 When exported from the Tyne by sea, coal often acted as ballast, while arriving vessels would have to off-load their own ballast – carried to aid stability in ‘empty’ vessels - to make space for the coal or other cargo. Dumping of ballast is known to have been a valuable source of revenue as the town developed in the medieval period, with the earliest ballast shores created immediately east of the bridgehead area at Sandhill from the late 13th century (Graves and Heslop 2013, 121). It is now firmly established from both archaeological and documentary evidence that ballast dumping proved a significant factor in the creation of the corridor of reclaimed land upon which the Quayside of Newcastle was formed.
- 2.5.12 In terms of date, it has been concluded that reclamation of the Tyne’s north foreshore began in the 12th century, possibly even as early as the 11th century to the west; the earliest evidence of reclamation to date has been identified on The Close, in the western section of the early waterfront. Reclamation was at its most concentrated between the 13th and 15th centuries, and continued into the 17th century to the east, beyond Pandon Burn (Graves and Heslop 2013, 171; O’Brien *et al.* 1988, 156–157). Construction of the town wall in Newcastle is known to have begun in the mid-13th century, but the circuit was not completed until the 15th century. Archaeological evidence from the Milk Market indicates that construction of the portion of the wall along the eastern riverfront, that is the section from Sandgate running south-westwards along the Quayside towards the bridgehead on Sandhill, took place in the early 15th century (Graves and Heslop 2013, p.184). Therefore, it can be reasonably concluded that the corridor of land in which the LiveWorks site lies must have been reclaimed from the Tyne foreshore by c. 1400 AD, as the riverside section of the town wall cannot have been built before the land upon which it stood was reclaimed and consolidated (O’Brien *et al.* 1988, 157).

- 2.5.13 Once established, the eastern stretch of waterfront in Newcastle became a public quay, initially the 'Key', then the 'Keyside', then today's Quayside, a continuous street running alongside the river and bridging the former burns. As a consequence of the process by which the public quay was created, a series of narrow lanes/alleyways (known locally as 'chares') ran back at right angles from the waterside street across the platform of reclaimed land to the Tyne cliff edge to meet a link road, Dog Bank-Akenside Hill, then onto Pilgrim Street, the principal road in the eastern part of the town from the medieval period (O'Brien *et al.* 1988, 156). Today, with the town wall no longer present, the Quayside remains as a continuous street along the riverfront (Plate 1) and, despite development over the centuries, many of the chares remain fossilized in the street layout as alleyways or footpaths, such as Trinity Chare (Plate 4) and Rewcastle Chare in the vicinity of the LiveWorks site.
- 2.5.14 Archaeological evidence suggests that reclamation of the north foreshore of the Tyne occurred along the entire waterfront of the medieval town in somewhat piecemeal fashion (Graves and Heslop 2013, 179–180). This was certainly the conclusion drawn from Queen Street, where land was evidently won by individual landowners advancing in succession from their own revetments and quays, with docking spaces between, at different times (O'Brien *et al.* 1988, 158–159). A similar finding was made following work in 1990 above the Tyne Bridge, where it was shown that the waterfront developed in a staged manner, with different properties being enlarged at different rates from the 13th century (summarised in Graves and Heslop 2013, 180). Such an approach would have necessarily meant that waterfront development was fragmented throughout the 13th and 14th centuries, with different riverside land holdings terminating at different locations at any one time. With regard to the level of organisation involved in the overall process, it has been concluded that '*It is not known who was laying out the plots or who was controlling the process of reclamation*' (Graves and Heslop 2013, 180).
- 2.5.15 In general, it seems that stone structures appeared in the 13th century in association with waterfront reclamation along the Tyne in Newcastle (Graves and Heslop 2013, 180). At Queen Street, initial reclamation of the foreshore in the 13th century involved construction of stone-fronted revetments to create a platform from which piers were extended, presumably with the purpose of providing docking facilities; the excavated evidence indicates that the piers were simple open platforms with timber frameworks (O'Brien *et al.* 1988, 7–9 and 157–158). Subsequently, extensive dumping of landfill material occurred alongside the piers, with properties then laid out upon the consolidated ground, so that the spaces previously occupied by the piers came to represent the lines of the chares in the developed street system.
- 2.5.16 Previous investigations have identified a variety of materials used for landfill in the process of reclamation along the waterfront in medieval Newcastle. Broadly though, a picture has emerged to indicate that material brought into the port from the 13th century as ballast in cargo ships was used extensively for landfill, supplemented by lesser quantities of locally-derived domestic refuse or small-scale industrial debris (Graves and Heslop 2013, 180). Having unloaded their ballast, vessels would then leave laden with whatever commodities the Newcastle merchants had available with, as mentioned, wool and hides dominant from the 13th century, and then, increasingly, coal, grindstones, iron and lead, *etc.*, these heavier commodities having the advantage of acting as ballast as the ships left the Tyne.



- 2.5.17 At Queen Street, situated much closer to the natural cliff edge than the LiveWorks site, initial landfill material included 'soil', along with domestic refuse, industrial waste and waterside debris including boat timber, caulking and cordage (O'Brien *et al.* 1988, 158). At the Milk Market, landfill deposits comprised a mixture of sand, gravel and pebbles in varying proportions (Graves and Heslop 2013, 177). With some of this material identified as having probably come from the Thames Estuary – through its high proportion of glauconite, a mineral characteristic of the Greensands of that area (Graves and Heslop 2013, 122) - it can be reasonably surmised that it arrived as ballast on cargo ships; interestingly at that site, the town wall had been built with little foundation work directly upon material interpreted as dumped ballast (Graves and Heslop 2013, 185). An excavation at 10-17 Sandhill, near the Tyne Bridge (Plate 1), c. 300m west of the LiveWorks site, recorded sandstone rubble more than 1m thick, interpreted as landfill material. In similar fashion, 13th-century landfill material recorded on The Close, in the western section of the early waterfront in Newcastle, included stone also thought to have arrived as ships' ballast (Graves and Heslop 2013, 179).
- 2.5.18 The basal deposit recorded in both of the evaluation trenches excavated at the LiveWorks site in 2000 (Figure 2) comprised a substantial thickness of sand and gravel, interpreted as probable dumped ballast for landfill during medieval land reclamation (Tyne and Wear Museums 2000). The base of the material was not reached at depths of c. 3.80m below ground level in each trench, and the material was overlain by approximately 1.20m of complex stratigraphy of probable medieval or early post-medieval date, this in turn overlain by approximately the same thickness of late post-medieval/modern 'overburden', giving a thickness of more than 3.50m of stratified material at each location. Within the strata overlying the ballast, a number of walls were recorded, most of which had been re-used as foundations for a complex of successive later structures.
- 2.5.19 As mentioned above, the alignments which came to determine the siting of properties along the Quayside throughout the medieval period and thereafter, continuing to the present day, were established at an early date. This was clearly demonstrated at Queen Street where, following landfill, consolidation and capping, the lines of the earlier waterfront piers became the lines of thoroughfares running alongside newly-created landholdings (phase 4), with buildings then constructed in the plots between the newly established streets (phase 5) (O'Brien *et al.* 1988, 10–11). The possibility has been raised that the adopted street layout in the eastern section of the early waterfront was simply an extension of the existing layout of burgage plots in the already developed portion of the town on the higher ground to the north (Tyne and Wear Museums 2004, 8). It seems fairly certain that, with the town becoming an increasing important commercial centre in the 13th century, as outlined above, and the Quayside very much at the core of this activity, there would have been considerable pressure for additional domestic accommodation and commercial premises along the waterfront. Thus, as the narrow landholdings were first created then gradually extended into the river through ongoing land reclamation, it is likely that lines of adjoining properties were established fronting onto the chares through necessity. As time went on and plots required redevelopment, it seems that the newly constructed buildings simply used the surviving walls of earlier, derelict buildings as their footings, so that the footprints of buildings remained unchanged, as seen at Queen Street (in phase 6 there, dated to the late 16th or early 17th century) (O'Brien *et al.* 1988, 23).

- 2.5.20 The syntheses of documentary material related to the trade and economy of medieval Newcastle as a whole gives an indication of the wide variety of commodities which would have both left from and been landed upon the Quayside, with coal being the dominant export by the 16th century. The pivotal role of trade guilds has been identified by those studies (Fraser 2009, 48–51; Graves and Heslop 2013, 181), this fitting the broad picture which has emerged of the crucial and significant role played by guild associations in shaping the morphology many early English towns (Heley 2007, 174). With the Quayside very much the hub of trade and commerce in medieval Newcastle, arriving merchants, shipmasters, factors, and agents would have been required to report to the Guildhall (the building at the bridgehead on Sandhill was neither Newcastle’s first town hall nor its last (McCombie 2009, 180)). Any guildhall would have been very much the focus for waterfront trade, for the weighing and admission of goods and in order for merchants *et al.* to pay revenues on coal, ballast, salt and grindstones (Graves and Heslop 2013, 181–182).
- 2.5.21 From their creation and throughout the medieval period, properties on the Quayside, both the street frontage and its associated chares, are likely to have comprised a combination of domestic accommodation and commercial premises; an analysis of a sample selection of probate inventories of Newcastle tradesmen in the period 1548–1641 indicate that this was very much the case in the early post-medieval period (Heley 2007, 176). A proportion of the businesses would inevitably have been shore-based industries connected with shipping, with merchants and agents operating from offices and engaged in the business of buying and selling commodities wholesale, while other premises would have been occupied by workers involved in trades associated with boat building and maintenance. Premises generally at street level would have housed tradesmen offering goods for sale directly to Quayside workers and seafarers, such as meat, fish, grain, beer, baked foods, clothing and leather goods, and others would have housed service professions, such as scribes or barber surgeons (Heley 2007, 177). Probate records indicate that, by the early post-medieval period, some degree of trade specialization had evolved along many streets, with reciprocal services being provided by adjacent premises, such as shipwrights, keelmen and mariners on the Quayside (Heley 2007, 175). Heley’s study also discovered instances of individuals of varying social status apparently occupying the same building by the early post-medieval period, for example, master mariners sharing housing along the Quayside chares with ordinary seamen and there is every reason to suggest that this was a practise of medieval origin.
- 2.5.22 Tyneside’s coal trade expanded rapidly between 1570 and the 1620s (particularly after 1600 and there was no slowing until the 1630s) and it was this more than anything which drove the increase in consumption and production among other trades in Newcastle in the early 17th century (Heley 2007, 334). The single most important event for the expansion of the coal industry in this period is considered to be the granting of the Grand Lease of 1583, which transferred ownership of Tyneside’s major collieries from the Bishop of Durham to the merchants of Newcastle (Graves and Heslop 2013, 218).

- 2.5.23 The coal trade increasingly served as a catalyst for incipient industrialization across the area, since coal extraction was a consumer of metal goods, which therefore stimulated the local iron industry, while the vast quantities of sand ballast dumped along the river over centuries, as discussed, proved to be the basis for the local glass industry (Barke and Taylor 2013, 1). Foreign trade continued to develop and while, by the mid-18th century, exports from Tyneside included glass, ironwork, lead and textiles, it is known that by 1730 coal comprised more than 95% of all exports shipped to worldwide destinations (Ellis 2001, 5–6). By the late 17th century, the accumulation of ballast within the Tyne over several centuries was increasingly recognised as a significant problem; of the estimated 100,000 tons of chiefly gravel and sand arriving annually on the Tyne as ballast, as calculated in 1765, some fell into the river accidentally, some was shovelled overboard from vessels through laziness and some was blown by high winds into the river (Horsley 1971, 2).
- 2.5.24 In addition to documentary material, previous archaeological work provides direct evidence of medieval and post-medieval trades and industries being practiced along the Quayside chares. Queen Street yielded evidence for shoemaking and cobbling, as well as fish processing, by gutting, filleting and beheading, of both inshore and deep sea fish, with catches probably landed at the Quayside (O'Brien *et al.* 1988, 160). Textiles found at Queen Street emphasise the Scandinavian trade links previously mentioned, while the pottery assemblage was described as being '*typical of medieval assemblages from British North Sea ports*', with wares from Germany and the Low Countries replacing what had been the most common wares, namely locally made green glazed wares, in the 15th century (O'Brien *et al.* 1988, 160).
- 2.5.25 The 2004 desk-based assessment of the proposed development area which included the LiveWorks site contains full details of historic map evidence and should be consulted for full details, including illustrative material (Tyne and Wear Museums 2004); a summary of the findings is included below. The earliest illustration examined for that study, known as '*The Cotton Manuscript*', is described as a 'bird's eye view' of the town; dating to c. 1590, it broadly suggests that the Quayside was heavily developed by this date, as one might expect. John Speed's map of 1611 indicates that the frontage of Trinity Chare was fully developed by that date, in common with the other chares along the riverside; however, the Quayside frontage of the LiveWorks site, and indeed some of the area behind the frontage, may not have been developed. By the time of Speed's map, Newcastle had become one of the most advanced regions in the country in economic terms, with the North-East coal trade providing the principal catalyst for exceptional industrial and commercial growth in the area in the early post-medieval period (Heley 2007).
- 2.5.26 Speed's map portrays, on the western side of Broad Chare and the Pandon Burn, the Trinity House complex of buildings. The Live Theatre now occupies elements of this complex, which developed and expanded in the centuries following the creation, in the 15th century, of what was a charitable guild to support the growing maritime community and their dependents and which, by 1700, was responsible (along with the Guildhall at Sandhill) for the management of mercantile trade and sea transport in Newcastle (McCombie 2009, 171). Originally 'The Guild of the Blessed Trinity', the organisation formally came into being in 1505, with its earliest structures documented as a hall, chapel and lodging rooms. Buildings which were at one time part of the Trinity House complex to be affected by the current scheme have been previously described.

- 2.5.27 Beyond the curtilage of the Live Theatre lie the remaining components, including three Grade I listed buildings in the northern core of the original Trinity House complex: the Gatehouse and Chapel (HER 4876), mostly of 17th-century date but incorporating fabric of earlier buildings; the Banqueting Hall (HER 8876), dated 1721, and; Nos. 4, 5 and 6 (HER 8877), these being of early 16th-century date. Dendrochronological dating of timbers in the chapel cellar indicates usage of timbers felled in the late 12th century, suggesting a much earlier origin for structures at this location, on what would have been a small promontory overlooking the confluence of the Tyne and the Pandon Burn (Graves and Heslop, 2013, 174). Details of all surviving components of the Trinity House complex, including those now occupied by the Live Theatre, are outlined in the aforementioned Heritage Statement for the LiveWorks scheme, with historical evidence and detailed descriptions of the structures available elsewhere (McCombie 2009, 171–179).
- 2.5.28 The analysis of early post-medieval probate inventories of Newcastle tradesmen underlines the commercial nature of the Quayside at that time; that study established that the most numerous trades along the quay and its chares at the time were bakers, brewers, butchers, mariners and master mariners (Heley 2007, 152). Probate records also give an indication of the types of properties on the Quayside and its chares at this time, with some substantial houses indicated, most between two and four - but up to five - storeys high, the larger buildings likely being the abodes of wealthier inhabitants, these often incorporating net, sail or fish lofts, ground floor shop and cellar. By way of example, records indicate two millers occupying separate properties on 'Trinity House Chare', one of which included a cellar and shop leased to a scrivener, while the second let a property close to the quayside to a baker and brewer (Heley 2007, 153).
- 2.5.29 What seems clear from the probate records studied is that, across the town, the largest early post-medieval houses were not confined to main street frontages and that extensive properties, often with both commercial and domestic rooms incorporated, were situated on the very narrow side streets in several parts of Newcastle, including the Quayside chares (Heley 2007, 176). The probate evidence for Newcastle certainly indicates that, by the early 17th century, the population was, in common with those of other towns and cities in the country, densely crowded into trading areas typified by the Quayside. Given the importance of the coal trade by this date, it was evidently customary for houses on the riverfront to be leased with a staithe (Graves and Heslop 2013, 219).
- 2.5.30 It has been noted that 18th- and 19th-century illustrations depicting the Newcastle riverfront broadly indicate houses along the Quayside and its chares of the form suggested by 16th/17th century documentary evidence; of note are Samuel Buck's illustrative view of Newcastle from 1745 (a detail of 'The Key' is reproduced in Fraser 2009, 53) and John Storey's 1852 painting which reconstructed Newcastle in the second half of the 16th century (the work is housed in the Laing Art Gallery, with an extract showing the Quayside, viewable on the *Tyne and Wear Museums and Archives* website). Both works depicts the fully-developed Quayside but Storey's painting, albeit a reconstruction, is useful in that it provides a clear indication of the natural topographic situation of the town prior to post-medieval development, with a series of hills overlooking the river with the inlets of the burns between them. Writing after a visit in the early 18th century, Daniel Defoe wrote that Newcastle had '*the longest and largest quay for landing and lading goods that is to be seen in England*' (Horsley 1971, 226).

- 2.5.31 The period following the Civil War (1642–1651) is documented as a period of extensive re-development in Newcastle (Tyne and Wear Museums 2004, 9), which is largely borne out by Beckman's map of 1684, which, although lacking in detail, indicates the LiveWorks site was fully developed, with the courtyard/alleyway later known as Three Indian Kings Court depicted by this time. Thompson's map of 1746, which names 'the Key', shows the LiveWorks site almost fully developed, with just two narrow areas - probably rear courtyards – depicted within the built-up area behind the frontage. Hutton's map of 1770 also shows the site fully developed, although relatively little detail is depicted.
- 2.5.32 Oliver's map of 1830 is the first to depict property divisions in the developed area comprising the LiveWorks site. The Ordnance Survey first edition map of 1859 shows a broadly similar developed layout at the site as Oliver's map, again with a narrow rear courtyard evidently depicted. The similarity perhaps suggests that the major fire of 1854 in Gateshead/Newcastle did not significantly affect the site or indeed the surrounding buildings, although of course the upper storeys of buildings may have suffered. Supporting this supposition is the fact that the Custom House, immediately west of the site, built in 1733 and refronted in 1833, evidently survived intact and the adjacent brick building to the east (No. 63), of probable late 18th- or early 19th-century date, also survived (Plate 2). The Ordnance Survey first edition is the first map to number the frontage properties at the site - as Nos. 55 and 57 (Quayside) - while the former almshouses in the north-western portion of the overall LiveWorks site are also numbered – Nos. 9-10 (Trinity Chare). East of the almshouses stands a public house, the 'Three Indian Kings Head', accessed from the Quayside via the blind alley/court similarly named. Adjoining the almshouses to the south and fronting onto Trinity Chare is a long rectangular building, named as 'Trinity Chambers'.
- 2.5.33 County/street and trade directories of the late 18th and 19th centuries provide detailed insights into commercial operations on the Quayside in that era. For example, William Whitehead's 1780s directory identifies four occupants of property on Trinity 'chair', namely John Chein, a surveyor and school-master, John Hedly who had a fitter's office at the end of the chare, raff merchants (dealing in used maritime materials) Kidd and Milburn, and Mrs Nicholson, publican of 'The Boar's Head', while both Joseph Dixon and T. Graham were named as publicans of 'The Three Kings' on the Quayside.
- 2.5.34 Parson and White's 1827 directory lists , either on the Quayside or its chares or at Sandhill: numerous coal merchants, colliery owners and fitters (the agents and offices of specific collieries are named, such as Wallsend, Tanfield Moor, Hebburn, Ellison's Main, Pelaw Main, Burradon, Killingworth); numerous brokers for insurance and shipping, as well as general commission agents and wharfingers (keepers or owners of wharves, with responsibility for taking delivery of goods, preparing tide tables, *etc.*); several underwriters and their agents; several vice consuls, with American, Dutch, Mecklenburgh, Hanoverian and Danish, Portuguese and Brazilian, Swedish, Norwegian and Prussian vice consuls named.

- 2.5.35 In addition, a wide variety of other trades and professions are named in the vicinity of the site in Parson and White's directory, including: accountants; an alkali works; bakers (some making sea biscuits) and flour dealers; brewers (including an ale and porter brewer); brick and tile manufacturers; brush makers; butchers; cheese factors and mongers (some also butter dealers and bacon factors); chemists; cork cutters; corn merchants and factors; fruiterers; grocers and tea dealers; coal tar manufacturers; linen and woollen drapers, maltsters; mast, block and pump makers; oil merchants (including a whale oil merchant); ship chandlers; rope manufacturers; stone merchants; tobacco and snuff manufacturers; watch and clock makers; and several inns and taverns.
- 2.5.36 Ward's directory of 1850 notes that of the 814 vessels which brought cargoes into the Tyne in 1848, the largest number (nearly 20% of the total) were from Denmark, with Dutch (c. 13%), German and Norwegian (c. 10% each) ships being the next most numerous, with the principal imported cargoes being grain, cheese, butter, linseed, flax, brimstone, tar and apples. The rapidly growing population fuelled the requirement for specific foodstuffs not easily available in sufficient quantities in the region. Traditionally, in the post-medieval period and into the industrial era, Scandinavia provided much timber to the North-East coal trade, for example to manufacture supporting timbers for pit shafts and galleries, as well as supplying other industries, such as shipbuilding, for example for actual vessel construction, and ironworking, particularly to provide the vast quantities of charcoal required; by the end of the 17th century Scandinavia and Eastern Europe remained the only major forested areas across Europe that were still comparatively untouched.
- 2.5.37 Following the 1854 fire, re-development across the Quayside area generally meant that, with the suburbs increasingly favoured for residential occupation, this part of the town developed a more commercially orientated character than previously (Tyne and Wear Museums 2004, 10). Kelly's Post Office directory of 1858 identifies the occupants of individual properties on the Quayside, with Nos. 36-38 named as 'Three Indian Kings court' and Nos. 40-45 named as 'Trinity lane'. Similar professions are listed as those in the aforementioned 1827 directory, with numerous coal merchants and fitters, colliery owners and their agents, as well as brokers for insurance and shipping being named. By this date the vice consuls of Denmark, Sweden, Norway, Prussia and Turkey, Austria and Greece and America, all evidently had offices on Three Indian Kings Court or Trinity Chare.
- 2.5.38 Beginning in 1861, a major programme of river improvements, undertaken by the Tyne Commission and designed by John Ure, principally through steam dredging to remove sand banks and shoals, resulted in the '*tortuous and shallow*' Tyne becoming '*a broad, fine, deep river*' (Guthrie 1880, 140). The works continued into the 20th century, very much driven by the needs of ship-owners and riverside traders, as well as shipbuilders, all of whom needed larger vessels to be able to compete with other ports in the region (Milne 2006, 84).
- 2.5.39 The Ordnance Survey second edition map of 1894 shows relatively little change from the first edition in terms of the layout of the buildings at the site, with just minor amendments to the internal/rear courtyard area and what appears to be another alleyway added to the Quayside frontage, this giving access to another possible courtyard. The broad implication of the layout depicted on this edition is that the buildings at the site were probably not destroyed by the fire of 1854, as previously intimated.

- 2.5.40 By the time of the Ordnance Survey third edition of 1919, the LiveWorks site had been largely cleared of buildings, so that an open space extended between Trinity Chare and Three Indian Kings Court. At the north-west corner of this space, the Three Indian Kings Head hotel/inn was retained. The site remained undeveloped until the early 1930s when a single-storey brick garage, the 'Youngers warehouse', was erected, with a pitched roof gable fronting the Quayside. An undated (c. 1940) utilities plan (provided by J. Nolan) indicates that these premises were operated at the time of the Second World War by J. Baxter and Co. (Newcastle) Limited, with the former Three Indian Kings Head also probably used by that business.
- 2.5.41 Subsequently, at least in the 1980s, the Quayside frontage 'garage' is known to have served as a music venue and indoor Sunday market, known as 'Finnegan's Warehouse'. Several photographs of the building are available online (e.g. on the *SkyScraperCity* website), one set of images show the frontage of the garage/warehouse building in a ruinous state and then demolished around the turn of the millennium. Since then, the site has remained undeveloped. Separate development proposals, by Amalgamated Leisure Industries in 1989 (*Evening Chronicle* 1989) and by UK Land Estates in 2006 (Young in the *Evening Chronicle* 2006) were never implemented. The former proposal may have been the origin of the 'Trinity Court' name. As previously mentioned, the frontage area was used most recently, between 2010 (*The Journal* 2010) until the onset of the current scheme, as the 'Quayside Pocket Park', with the remainder of the site used for car parking.

### **3. PROJECT AIMS AND RESEARCH OBJECTIVES**

#### **3.1 Project Aims**

3.1.1 The archaeological component of the LiveWorks scheme was threat-led, since the development had potential to disturb or destroy important sub-surface archaeological remains of the medieval and early post-medieval period, specifically remains relating to occupation and development on the reclaimed riverfront. Underlying archaeological remains representing the actual process of medieval land reclamation would also be of importance, as would any deposits representing potentially earlier occupation (such as Saxon or Roman) of the area. Any deposits representing the foreshore of the Tyne prior to medieval reclamation would also be of importance.

3.1.2 Archaeological excavation was therefore required, as part of the planning process, in two trenches at targeted locations within the footprint of the main new build component of the scheme. The work represented an opportunity to archaeologically investigate land close to the final extended Quayside area and principally aimed to provide dating evidence for the recorded sequence of medieval and early post-medieval reclamation and development.

3.1.3 In sum, therefore, the main aims of the archaeological excavation, as outlined in the project Specification and subsequently detailed in the Written Scheme of Investigation were:

- To investigate the natural environment during which reclamation of the foreshore took place by a palaeoenvironmental sampling strategy.
- To ascertain the presence or absence of any Roman or Saxon occupation of the area.
- To determine the origins and nature of land reclamation by archaeological recording and, where appropriate, a sampling strategy; were these deposits derived from domestic or industrial waste, or were they re-deposited natural material, perhaps comprising/including material dredged locally from the river bed or even from elsewhere?
- To excavate and record in detail the stratigraphic sequence above reclamation material – presumed to represent medieval and early post-medieval occupation of the area - with later post-medieval and modern material being subject to a lesser degree of recording.
- To locate, if possible, the quayside wall indicated on post-medieval mapping, e.g. that compiled by Corbridge in 1723.

3.1.4 Additional aims of the project were:

- To compile a Site Archive consisting of all site and project documentary and photographic records, as well as all artefactual and palaeoenvironmental material recovered.
- To compile a report that contains an assessment of the nature and significance of all data categories, stratigraphic, artefactual, *etc.*



## 3.2 Research Objectives

3.2.1 Specific research objectives to be addressed by the project were formulated with reference to *Shared Visions: The North-East Regional Research Framework for the Historic Environment* (NERRF) (Petts and Gerrard 2006) and these were set out in the Written Scheme of Investigation. The NERRF highlights the importance of research as a vital element of development-led archaeological work. It sets out key research priorities for all periods of the past allowing commercial contractors to demonstrate how their fieldwork relates to wider regional and national priorities for the study of archaeology and the historic environment. The aim of NERRF is to ensure that all fieldwork is carried out in a secure research context and that commercial contractors ensure that their investigations ask the right questions.

3.2.2 The following research priorities for the later medieval period (MD) within the NERRF research agenda and strategy were considered to be of particular relevance to this project:

- MDi. Urbanism

*“ urban domestic structures.....non-domestic buildings.....have the potential to inform us about the impact of urbanism on vernacular architectural traditions while their layout and organisation also has implications for the use of space in medieval towns, particularly the role of backlots as foci for small scale industrial activity”.*

*“Any development on the backlots of urban properties should be the focus of adequate evaluation and, where, necessary, full excavation”.*

- MDvii. Medieval ceramics and other artefacts

*“Ceramic evidence is crucially important, it can be used as chronological indicator and tells us about patterns of economic exchange and consumption.”*

- MDviii. Other medieval industries

- MDix. Trade and economy

- MDx. The fishing industry

*“The fishing industry was an important sector in the economy of the North-East in the medieval period....and was also an important element of the economy on the regions’ major rivers....this should be explored archaeologically.”*

- MDxi. The medieval to post-medieval transition

3.2.3 The following research priority for the post-medieval period (PM) within the NERRF research agenda and strategy was considered to be of particular relevance to this project:

- PMii. Industrialisation

3.2.4 In sum, the work had potential to contribute to key research priorities in the NERRF research agenda and strategy for both the later medieval and post-medieval periods.

## **4. ARCHAEOLOGICAL METHODOLOGY**

### **4.1 Fieldwork**

- 4.1.1 The excavation fieldwork was undertaken 2 June to 18 July 2014.
- 4.1.2 The Specification compiled by the Tyne and Wear Archaeology Officer was used as the basis for the fieldwork methodology described in the Written Scheme of Investigation. The fieldwork was undertaken in accordance with *Standard and guidance for excavation* (Institute of Field Archaeologists 2008, updated November 2013). Other IfA publications were also of relevance: *Yorkshire, The Humber and the North-East: A Regional Statement of Good Practice for Archaeology in the Development Process* (IfA 2009a) and *By-Laws – Code of Conduct* (IfA 2010).
- 4.1.3 The Tyne and Wear Archaeology Officer was notified in advance of the start date and provisional programme for the fieldwork and invited to monitor the progress of the fieldwork.
- 4.1.4 Two excavation trenches (Trenches 1 and 2) were simultaneously investigated at the locations shown on the accompanying figure (Figure 2), these being the locations detailed in the Written Scheme of Excavation (which were based on the indicative trench locations depicted on a plan which accompanied the Specification). The trenches, which both measured up to 6.80m square at ground level, were initially set out by manual surveying means (Plates 5 and 6). When part-excavated, the trenches were tied in to the Ordnance Survey National Grid using a Leica Viva Smart Rover Global Navigation Satellite System (GNSS). The Smart Rover GNSS provides correct Ordnance Survey co-ordinates in real time, to an accuracy of 1cm.
- 4.1.5 In both trenches, 'overburden', *i.e.* demonstrably modern or early modern material, was initially removed by machine; this varied in thickness from c. 0.80m in Trench 2 to c. 1.80m in Trench 1. A 180° wheeled excavator of c. 7.5-tonnes size (a 'JCB' type back-actor) was employed for this purpose. The machine initially used a toothed bucket to remove the compact uppermost overburden, much of this representing the 'piling mat' of the previous development scheme which was never implemented, then a toothless wide blade 'ditching' bucket as excavation continued towards the upper interface of archaeological deposits of significance. All such work was undertaken under the supervision of PCA's Site Director.
- 4.1.6 In Trench 1, where overburden was at its thickest, the trench was 'stepped-in' at a depth of c. 1.10m below ground level to create an inner trench area c. 4.40m square. Machine excavation continued in this area removing overburden, ceasing at the uppermost level of archaeological remains of significance, this being c. 1.80m below ground level. At this point, hand excavation of archaeological remains commenced (Plate 5).

- 4.1.7 In Trench 2, substantial cellar structures were revealed below the overburden; the Specification had stipulated that '*remains of buildings which are clearly mid to late nineteenth century (later than OS first edition) will be removed without further recording*' and that '*Eighteenth century and earlier buildings will be fully recorded then removed in order to reach medieval deposits beneath*'. Since the structures in Trench 2 appeared to be of probable 18th century or earlier date, although with probable 19th-century or later modifications, they were retained to be examined and recorded, with demolition rubble removed by hand (Plates 7 and 8). Some 'stepping-in' was also undertaken in Trench 2, although for the most part the walls of the cellar structures exposed formed adequate support for the trench sides.
- 4.1.8 In both trenches, 'shoring' was installed in the inner trench area when excavation had proceeded to a depth of c. 1.80m below ground level, in order that hand excavation could continue (Plates 9 and 10). The shoring methodology employed was the 'Titan' MH box system which involves 'bottom' boxes of 2.50m height and additional 'top' boxes each of 1.50m height connected above the bottom box as excavation progresses downwards, thereby providing full support to archaeological personnel working within the boxes. Supplementary edge protection barriers, access platforms and closing off end panels were provided to ensure a safe working environment within the shored trenches. The MH box system measures 4.40m square externally which in turn gives an internal area of 4.20m square; the minimum area to be excavated, as stipulated in the Specification, was 4.0m square in each trench.
- 4.1.9 The shoring methodology employed at the site in theory presented no basal limit to the excavation but, as anticipated, the maximum depth of excavation was determined by ground conditions. In Trench 1, ground contamination with hydrocarbons at a depth of c. 4.10m below ground level in the western part of the shored trench forced abandonment of the excavation. In the eastern part of the shored trench the contamination was encountered at a shallower depth, which initially necessitated the imposition of a reduced eastern limit of excavation. It appeared that the contaminant had moved laterally into the depositional sequence – probably from an adjacent 19th-century or later cellar or storage tank – so that the overlying strata were free of contamination, an occurrence seen previously during an excavation at the Crown Court site, c. 75m north-east of the LiveWorks site (O'Brien *et al.* 1989, 142). In Trench 2, tidal water ingress at a depth of c. 3.70m below existing ground level prevented further hand excavation, which had been anticipated, there being no drainage facility on site in which to pump water from the trench.
- 4.1.10 A c. 20 tonne 360° tracked excavator was retained on site during the whole period that the shoring was in place. The machine was employed to push down the bottom boxes as the work progressed and then added the necessary 'top' boxes as dictated by ground levels and excavation depth. The machine was also employed for removal of hand-excavated material from within the trenches, using a sling and c. 1-tonne polypropylene bulk material bags.
- 4.1.11 All excavated spoil was retained on site, mounded in a safe manner. The excavation trenches were backfilled with the excavated material on completion of the archaeological work. The machine bucket was used to 'tamp down' the back-fill and period 'tracking in' was undertaken by the machine as backfilling progressed.

- 4.1.12 PCA's approved Written Scheme and Investigation should be consulted for full details of methodologies employed regarding archaeological excavation, recording and sampling. PCA's standard manual for fieldwork procedures was also adhered to (PCA 2009). In sum, full excavation of the stratified sequence of deposits and structures was required in order for the shoring methodology to be implemented successfully. As mentioned, while this was successfully achieved in Trench 2 until tidal water ingress caused the cessation of the work, the ground contamination encountered in Trench 1 proved the determining factor in the depth of excavation which could be achieved.
- 4.1.13 All archaeological remains were excavated by hand tools and recorded in plan at 1:20 or in section at 1:10 using standard 'single context recording' methods. Drawings were on polyester based drawing film, and were related to an overall site survey grid. Deposits and feature cuts were be individually recorded using the PCA pro-forma 'Context Recording Sheet'. Structural remains were recorded using the PCA pro-forma 'Masonry Recording Sheet'. All site records were marked with a unique-number Site Code (TRQ 14). Photography and archaeological recording took place at appropriate stages in the process. A selection of digital photographs is included within this report (Plates 1-30 form Appendix A).
- 4.1.14 Temporary bench marks (TBMs) were established at the site using a dumpy level from the Ordnance Survey cut bench mark, value 4.47m OD, on No. 15 Lombard Street. The TBMs were located on a concrete block at ground level close to the northern site boundary (value 4.83m OD) and on a tarmac surface at the southern site boundary (value 4.17m OD). The height of all principal strata and features were calculated relative to Ordnance Datum and indicated on the appropriate plans and sections.

## **4.2 Post-excavation**

- 4.2.1 Not everything recovered from an archaeological site has the same significance and thus the same potential for further study, thus the process of 'assessment' identifies those elements of the site data that require further analysis. In accordance with MoRPHE guidelines, the site data has been assessed for its potential for further analysis in relation to the research objectives of the project and any additional questions that have come to light as a result of the fieldwork. This Assessment Report enumerates the different kinds of evidence (stratigraphic, artefactual and palaeoenvironmental) from the site and sets out a formal assessment of the potential of each element of the collected data for further analysis.
- 4.2.2 The stratigraphic data generated by the project is represented by the written, drawn and photographic records. A total of 137 archaeological contexts were defined in the two trenches (Appendix C). Post-excavation work involved checking and collating site records, grouping contexts and phasing the stratigraphic data (Appendix B). A written summary of the archaeological sequence was then compiled, as described below in Section 5. The contents of the paper and photographic elements of the Site Archive are quantified in Section 6.

- 4.2.3 The artefactual material recovered during the excavation comprised assemblages of medieval and post-medieval pottery and ceramic building material, as well as small assemblages of struck flint (prehistoric and thus residual in context), medieval and post-medieval metalwork and worked stone items and post-medieval glass items. In addition, samples of stone masonry and mortar were collected from various excavated structures and various other, unworked, stone items were collected to identify, if possible, their geological provenance. Possible industrial related residues – including possible metalliferous slag - were also collected by hand as bulk finds and through bulk sampling, with five such samples collected for this specific purpose. Small assemblages of animal and fish bones, as well as a small assemblage of marine shell, comprised the recovered faunal remains.
- 4.2.4 All recovered artefacts and faunal remains were treated in an appropriate manner and were cleaned, marked, conserved, bagged, packaged, boxed and stored, as appropriate and in accordance with recognised guidelines (UKIC 1983; Watkinson and Neal 2001). For each data category, an assessment report has been produced including a basic quantification of the recovered material and a statement of its potential for further analysis and recommendations for such work (see the relevant sections of Part B of this report).
- 4.2.5 The palaeoenvironmental sampling strategy of the project was to recover bulk samples where appropriate, from well-dated stratified deposits covering the main periods or phases of occupation and the range of feature types represented, with specific reference to the objectives of the excavation. To this end, 12 bulk samples and one column sample (by Kubiena tin) were collected from deposits of probable medieval date; of the group of bulk samples all but two were selected for post-excavation processing and assessment for palaeoenvironmental remains. An assessment report has been produced including a basic quantification of the recovered material and a statement of potential for further analysis and recommendations for such work (see the Section 13 in Part B of this report). Artefacts and faunal remains, including fish bones, recovered during the processing of bulk samples were added to the hand collected material for assessment.
- 4.2.6 Assessment of one bulk sample collected in Trench 2, from an alluvial deposit within the sequence of ballast dumps on the medieval foreshore, identified large numbers of a diverse group of crustaceans (ostracods), as well as waterlogged plant macrofossils and pollen. This deposit was the one from which the column sample was collected, therefore the column sample was subject to additional assessment, in order to provide further details of the palaeoenvironment of the medieval foreshore and also for AMS dating, using terrestrial plant remains contained therein.
- 4.2.7 The complete Site Archive will be packaged for long term curation. In preparing the Site Archive for deposition, all relevant standards and guidelines documents referenced in the Archaeological Archives Forum guidelines document (Brown 2007) will be adhered to, in particular a well-established United Kingdom Institute for Conservation (UKIC) document (Walker, UKIC 1990) and the relevant IfA publication (IfA 2009b, updated 2013). The depositional requirements of the body to which the Site Archive will be ultimately transferred will be met in full.

## 5. SUMMARY OF ARCHAEOLOGICAL RESULTS

*During the excavation, separate stratigraphic entities were assigned unique and individual 'context' numbers, which are indicated in the following text as, for example [10], [11], etc. The recorded archaeological remains are described in this section according to series of broad chronological phases. In this case, the phasing has been assigned on a site-wide basis, with the remains in each trench described separately for each phase or sub-phase, as appropriate. An attempt has been made to add interpretation to the data, and correlate the phases with recognised historical and geological periods.*

*As previously mentioned, the long axis of the site runs NW-SE, and both trenches were similarly aligned. In general throughout this section, directions are given in simplified form, e.g. 'to the west', 'west-east', etc., while the alignments of linear structures and features are given more correctly, e.g. 'NW-SE', etc.*

### 5.1 Phase 1: Medieval Foreshore Reclamation (13th/14th Century)

- 5.1.1 The earliest deposits recorded in both trenches have been interpreted as representing ships' ballast material dumped initially onto the north foreshore of the Tyne, then on the 'dry' land thus created, as part of a concerted large-scale programme of medieval land reclamation. Within this site-wide episode of activity, deposits likely to be associated with the early stages of this reclamation programme in the 13th/14th century have been assigned to Phase 1. Fundamental to the reclamation process was episodic advancement of the riverfront southwards from the natural channel edge, infilling behind the frontage structures, initially using ballast, with the aim of creating dry, usable land, elevated above the level of the natural foreshore.
- 5.1.2 Use of solid ballast materials, such as rocks and sand, was common-place in sea-going vessels prior to the late post-medieval period. The principal aims of adding ballast were to increase vessel draft and regulate stability; materials were typically brought aboard vessels manually and dumped into and distributed throughout cargo holds, then discharged, as here, when cargo was to be loaded on board. The consequence in archaeological terms is that ballast material is often recorded during archaeological excavations in seaport towns (Anson et al., 1963).

#### ***Trench 1: Phase 1***

- 5.1.3 The earliest material to be recorded in Trench 1 was a compact deposit, [141], comprising medium and large fragments of sandstone in a matrix of soft, light brownish yellow silty clay. This was observed in section only (Figure 3, Section 8; Plates 11 and 12), at the conclusion of the excavation, where it was recorded at a maximum height of c. 1.23m OD. Extending c. 1.0m west-east, meeting the limit of excavation to the east, and at least 0.30m thick, the deposit could not be exposed further due to the hydrocarbon contamination which affected the investigation area laterally from the east towards the basal limit of excavation.
- 5.1.4 Deposit [141] probably represents either a dump of ships' ballast or, alternatively, its composition suggests that it may have been quarried locally from the geological sub-stratum and was dumped as part of the process of foreshore reclamation. To the west, deposit [141] was overlain by a compact layer, [138], comprising flint cobbles (these c. 80% of the overall composition) in a matrix of soft, light yellow clay. This deposit extended in excess of 2m west-

east in section (Figure 3, Section 8; Plates 11 and 12), meeting the limit of excavation to the west, and was recorded at a maximum height of 1.44m OD. As recorded, it was up to c. 0.50m thick, with its lowermost part merging into what appeared to be a similarly composed deposit, though further examination was not possible due to the contamination. Specialist assessment of a sample of the nodular flint cobbles from deposit [138] has determined that these are most likely to have originated from deposits in the south-east of England, perhaps from Pleistocene terrace gravel along the lower Thames and the Thames estuary, therefore an origin as ships' ballast can be reasonably surmised. A similar dump of flint nodules was recorded at the Crown Court site (area H, phase 3 layer [281]) (O'Brien *et al.* 1989, 149). As previously mentioned, excavations to the east at the Milk Market identified medieval landfill material as having probably come from the Thames Estuary through its high glauconite content, a mineral characteristic of the Greensands of that area (Graves and Heslop 2013, 177).

- 5.1.5 To the west, meeting the western limit of excavation, was a layer, [106], of stiff, light yellow clay, potentially re-deposited natural boulder clay (Figure 3, Section 8; Plates 11 and 12). Up to 0.25m thick, it was recorded at a maximum height of 2.03m OD. A bulk sample of this deposit yielded an uncharred plum fruitstone, one of only a very small number of plant macrofossil remains to be identified in the group of assessed samples. To the east, dump layer [106] was overlain by an extensive compact dump deposit, [115], which comprised a matrix of mid orange brown clay and gravel in which were frequent medium and large fragments of sandstone and cobbles. Recorded across an area measuring c. 2m north-south, continuing beyond the limit of excavation in each direction, by up to c. 2.20m west-east, continuing to the west and mostly truncated to the east, it was up to 0.60m thick, recorded in plan at a maximum height of 2.27m OD. Like earlier deposit [141], this material - layer [115] - probably represents either ships' ballast or material locally derived from the geological sub-stratum, dumped during foreshore reclamation. A bulk sample of this deposit yielded a poorly preserved barley grain. In addition, a small quantity of hammerscale was present in the sample residue. A thin spread, [118], of crushed coal and ash was recorded at one location, lying upon dump deposit [115].
- 5.1.6 Two deposits recorded towards the eastern limit of excavation in Trench 1 at the conclusion of the excavation – and therefore subject to limited examination due to the contamination - have also been interpreted as probable ballast. The earliest, layer [137], comprised firm, dark grey silty sand with frequent small and medium cobbles and larger flint nodules throughout, this recorded at a maximum height of 1.50m OD. Overlying this stony layer to the east was a compact deposit, [136], comprising lenses of grey and reddish brown sand, recorded at a maximum height of 1.56m OD.
- 5.1.7 To the east, deposits [136] and [115], both underlay, at least to some extent, a layer, [135], which comprised firm, dark grey sandy silt with frequent flint cobbles and occasional sandstone fragments throughout (Figure 3, Section 8; Plate 11). Stony layer [135] was exposed across an area measuring c. 2.30m north-south, continuing beyond the limit of excavation in both directions, by up to c. 1m west-east, meeting the limit of excavation to the east and ending approximately along the line of a subsequent structure, wall [12], to the west. Up to c. 0.40m thick, layer [135] was recorded at a maximum height of 1.60m OD.
- 5.1.8 A single sheep or goat tooth from layer [135] and the hammerscale in the sample of layer [115] represent the only cultural debris recovered from the Phase 1 deposits in Trench 1.

### **Trench 2: Phase 1**

- 5.1.9 The earliest deposits recorded in Trench 2 represent further dumping of ships' ballast material as reclamation of the north foreshore of the Tyne continued towards the intended line of the medieval town wall, overlooking the river. Again the materials recorded were, for the most part, essentially rocks and sand, although an exception within the recorded depositional sequence in Trench 2 was a single alluvial layer, [130], which had evidently accumulated through fluvial inundation at some point during reclamation of the foreshore.
- 5.1.10 The earliest ballast material recorded in Trench 2 was a layer, [139], comprising loose, light grey sand with occasional large flint nodules throughout. This was observed in only a very small area, adjacent to the west-facing section of a NW-SE aligned sondage hand-excavated at low tide through the ballast sequence at the conclusion of the excavation (Plate 13). Lying at an estimated maximum height of c. 0.60m OD, layer [139] was the lowermost such deposit to be observed and although this could not be investigated further, a bulk sample was recovered and this produced small quantities of chalk, coal and burnt shale.
- 5.1.11 Overlying layer [139] was another ballast deposit, [131], comprising loose flint gravel, with occasional large nodular-shaped flint cobbles, in a matrix of mid orange brown sand. Up to 0.25m thick, layer [131], recorded at a maximum height of c. 0.80m OD, fell away to the south, as seen in the section of the sondage (Figure 4, Section 7; Plate 14). Specialist assessment of one of the flint cobbles ascertained that it was translucent black flint with a stained, worn and battered cortex – this likely to be the result of cobbles being smashed against each other during collection or transport - and in essence was a typical beach flint cobble, very similar to those found on the South Downs, suggesting a possible source on the south coast of England. A bulk sample of layer [131] yielded no palaeoenvironmental evidence.
- 5.1.12 Overlying layer [131] was the alluvial layer, [130], which comprised firm, mid brownish grey silty clay, mottled with reddish brown iron staining, and with occasional thin sand lenses throughout. This distinctive layer, up to 0.35m thick, was recorded at a maximum height of c. 1.10m OD, also falling away to the south (Figure 4, Section 7; Plate 14). A bulk sample of deposit [130], collected from the east-facing section of the hand-excavated sondage, yielded a large quantity of ostracod remains (a diverse group of crustaceans) and plant remains typical of both waterlogged ground, including as hemlock, celery-leaved buttercup and bog-bean, and slow moving or still water, such as crowfoots and horned pondweed.
- 5.1.13 Analysis of a column sample taken through this deposit was also undertaken. An assemblage of terrestrial plant macrofossils was extracted from the monolith and submitted to the radiocarbon lab at SUERC, East Kilbride, however an initial attempt to obtain an AMS date failed due to the low carbon weight. A second attempt was made using additional material extracted from the monolith tin, but it was only possible to obtain the minimum weight limit of carbon required for an AMS date. This radiocarbon analysis provided a date range of 687–880 cal AD (Appendix G). This date appears to be too early, given the stratigraphic position of the alluvium within what appears to be a sequence of medieval reclamation material; there is no evidence for shipping – which would account for imported ballast - to Tyneside at such an early date (Dave Heslop pers. comm). Studies have shown that some caution is necessary when interpreting the results of single radiocarbon dates from fluvial systems (Howard *et al.* 2009).



Another factor in this evidently erroneous date may be the low quantity of carbon due to the limited material available from the column sample.

- 5.1.14 Pollen assessment was undertaken on four samples from the monolith recovered from alluvium [130] and similar assemblages were recorded in each case, suggesting rapid accumulation or a relatively stable landscape. Most of the grains were from herbaceous taxa, with grasses and members of the sedge family recorded most frequently. A few cereal-type grains were recorded along with low numbers of trees and shrubs. Pollen from aquatic plants was recorded in the lowest three samples and spores of Sphagnum moss, polypody, bracken and other ferns were present in low numbers. An open landscape was therefore indicated by the pollen, with possible evidence for farming activity in the catchment area. Regional woodland comprised oak, birch, elm and pine, with alder and willow probably growing more locally. The microfaunas in each of the four samples taken from the monolith were also very similar, suggesting little change in the environment during the time span of their deposition. Sizeable populations of brackish foraminifera and ostracods together with freshwater ostracods a distinctive assemblage which indicate a tidal river with mudflats (with saltmarsh in the near vicinity). The combination of pollen, microfauna and plant macrofossils in the column samples indicate that the layer was deposited in a still or slow-flowing, shallow aquatic environment, with both freshwater and brackish/marine influences. This may have been a slow backwater channel of the tidal river, with input from freshwater streams, or a freshwater pool or brackish lagoon behind the quay with regular overtopping during high tides, in addition to probable input from freshwater streams. It is possible that early ballast deposition accidentally or deliberately created this low energy environment.
- 5.1.15 Alluvial layer [130] was overlain by a sequence of dumped ballast deposits, [134], [123], [140], [122], [84], [125], [121] and [124], all of which were excavated in plan to some degree, while the majority appeared in the west-facing section of the hand-excavated sondage (Figure 4, Section 7; Plate 14).
- 5.1.16 For the most part, these dumped ballast deposits were generally similar, predominantly sandy and fairly sterile in composition, with varying quantities of flint gravel or cobbles or other stones, throughout. A notable exception was one of the uppermost deposits, a very stony dump layer, [125], comprising medium and large fragments of sandstone, occasional medium and large cobbles and nodular-shaped flint cobbles, all within a sticky matrix of mid brownish grey silty sand and clay. This deposit had a maximum recorded thickness of c. 0.90m and was recorded in plan at a maximum height of 1.58m OD, this the highest level recorded for any of the Phase 1 ballast deposits in Trench 2.
- 5.1.17 Collectively, the Phase 1 ballast deposits in Trench 2 produced more than 50 sherds of pottery, much of the material abraded and almost all of 13th- or 13/14th-century date, the single exception being a rim sherd of possible post-medieval origin, this probably intrusive in context. In total, six fragments of tile, mostly from flat tiles, were also recovered, all but one of medieval date, and those fragments which could be more closely dated were, like the pottery, of 13th- or 13th/14th-century date; one tile fragment, from layer [134], was probably post-medieval and thus probably intrusive in context. In overall terms, this dating evidence correlates well with the previously proposed date of Tyne foreshore reclamation, with the existing line of the waterfront (and thus all reclamation deposits to the north, in the area of the site) thought to have been in

place by c. AD 1400. A single iron nail shank (SF 10) from deposit [84] and a disintegrating fragment of copper alloy (SF 11) from deposit [123] were the only other man-made object recovered from the ballast deposits in Trench 2.

- 5.1.18 The Trench 2 ballast deposits also produced more than 50 fragments of animal bone; this being a significant proportion (c. 30% in terms of number) of the overall assemblage of faunal remains recovered during the excavation. Layer [122] provided, by way of a bulk sample, most of the variety of fish species to be recovered, these essentially gadids (cod family), flatfish and herring, all of which were potentially caught in the Tyne estuary. Bone collected from ballast deposits was notable for its generally high degree of fragmentation and poor preservation, and this, along with the abraded nature of much of the pottery, is entirely consistent with having been rolled around within ships' ballast, with the added effect of water wear following being dumped on a tidal foreshore. The ballast deposits in Trench 2 also produced more than 70% by weight of the small assemblage of edible marine shellfish recovered during the excavation, these mostly oyster but with mussel, periwinkle, cockle and limpet also present, all possibly derived from human food waste. The sample from layer [122] also yielded a hazel nutshell fragment, while a sample from layer [123] was unproductive in terms of palaeoenvironmental evidence.

## **5.2 Phase 2a: Medieval Activity (13th/14th Century)**

- 5.2.1 Phase 2a - assigned a broad 13th/14th-century date - represents evidence of human activity on the dumped ballast deposits of Phase 1, indicating that the area had been made sufficiently dry for the undertaking of such activity following reclamation of the Tyne foreshore. While it is acknowledged that in Trench 1 some components of the stratified sequence of Phase 2a deposits may have arrived on site as a result of continued ballast dumping, the accumulation of a combination of imported ballast and waste material from the adjacent, expanding settlement area is perhaps more likely. In Trench 2, very limited activity could be assigned to Phase 2a, since little or no 'horizontal stratigraphy' survived below later cellar structures.

### ***Trench 1: Phase 2a***

- 5.2.2 The dominant component of Phase 2a in Trench 1 was a monumental NW-SE aligned sandstone wall, [12] (Figure 3, Section 8; Figure 5; Plates 11-12 and 17-20). The base of the structure occupied a construction cut, [127], which had evidently been excavated through deposit [115], with its western side backfilled with a generally compact stony deposit, [128] (Figure 3, Section 8; Plate 11). This backfill was up to c. 0.20m thick and comprised variously sized sandstone fragments – some large – and small and medium cobbles in an overall matrix of dark orange grey clayey sand. Deposit [135], described above as part of Phase 1, could conceivably have been a continuation of fill [128], but located on the eastern side of wall [12], although this is not certain. Of the construction cut, only the western side was therefore seen, with the wall built upon fill [128] so that, at least to the south, it had an angled base (Figure 3, Section 8). The construction cut, up to c. 1.30m wide as seen and c. 0.60m deep, was recorded at a maximum height of 2.12m OD. A similar construction 'trench' (for phase 5 sandstone wall [299]) was recorded at Queen Street in the 1980s (O'Brien *et al.* 1988, 11). Wall [12] is interpreted as representing a long-lived property boundary, possibly originating as a lateral retaining wall for a platform of consolidated ground built up behind a quay wall; similar

structures have been recorded at other Quayside sites, for example, at Queen Street (phase 5 wall [299]) and at the Crown Court site (area H, phase 3 wall [074]) (O'Brien *et al.* 1989, 149).

- 5.2.3 In the northernmost part of the c. 3.10m length of the wall which was fully excavated, what may have been a simple footing or setting-out structure, [132], was recorded, consisting of a line of roughly hewn sandstone blocks (up to 500mm by 300mm by 250mm). Overlying deposit [135], this putative structure lay either directly below the wall or just to its east, thereby 'retaining' fill [128] for at least part of its length and also, by design, effectively delimiting the western extent of construction cut [127]. A grey sandy silt deposit, [111], which abutted and partly overlaid structure [132] on its eastern side, yielded a single sherd of medieval, but otherwise undatable, pottery.
- 5.2.4 Wall [12] was exposed for total length of 4.55m running NW-SE through Trench 1, meeting the limit of excavation in both directions (Figure 5; Plates 17-20). Its maximum width was 1.05m, although it was more generally c. 0.80m wide, and it survived to a height of c. 1.50m, this in the southern part of the trench, and up to c. 0.95m at the northern limit of excavation. The full surviving height of the wall was never seen, however, due to the upper portion having to be excavated, for Health and Safety reasons, as the excavation progressed; therefore Figure 8, Section 4e shows the top of the structure as its northernmost portion met the original limit of excavation (*e.g.* Plate 20), while Figure 3, Section 8 (Plate 11) shows the lowermost portion of the structure, further south, at the conclusion of the excavation. The maximum level recorded on the wall was 3.0m OD.
- 5.2.5 Wall [12] mostly comprised random sandstone rubble, with some blocks - these often exhibiting some squared or roughly dressed faces - of monumental dimensions (up to 600mm by 500mm by 250mm). The masonry was roughly coursed along each face, with cobbles noted in the wall faces on occasion, leaving an irregular narrow core filled with loose, grey silt and small and medium stones. The lowermost portion of the wall employed firm yellow clay, in places mixed with the grey silt from the core, as a bonding material, while the uppermost part was bonded with lime-rich shelly mortar, this probably derived from either late medieval or post-medieval repointing. In terms of overall construction, the wall corresponds closely with boundary walls recorded at Queen Street in the 1980s (*e.g.* phase 5 sandstone walls [299] and [348]) (O'Brien *et al.* 1988, 11-12).
- 5.2.6 Wall [12] was undoubtedly an extremely long-lived feature, with upstanding structural fabric probably remaining for many centuries, so that, as mentioned, while it possibly originated as a retaining wall for a platform of consolidated ground behind a quay wall, it eventually came to define a property boundary. In its earliest period of usage, sequences of deposits accumulated alongside it to the west and east, as described below. The earliest components of this sequence were exposed in plan in only limited areas, due to the imposition of reduced limits of excavation to the south and east as result of the lateral contamination. Figure 5 shows wall [12] in plan as initially exposed, along with two of the more substantial layers associated with it, putative surfaces [21] and [95], depicted; both deposits have been interpreted as later components of the Phase 2a stratigraphic sequence either side of the wall, although they were not necessarily in use contemporaneously.
- 5.2.7 Within a deep sequence of stratified deposits recorded to the east of wall [12], a grey silty sand deposit, [133], was the earliest interpreted as post-dating the structure (Figure 3, Section 8;

Plate 12). Up to c. 0.20m thick, it was recorded at a maximum height of 1.76m OD. Abutting wall [12] to the west, deposit [133] extended c. 1.15m north-south by c. 0.95m west-east, meeting the limit of excavation to the south and east and petering out to the north over deposit [111], to which it was physically similar. For the most part, however, layer [133] physically overlay deposit [135] (Phase 1), which can be more confidently interpreted as pre-dating wall [12]. Layer [133] was overlain by a succession by dump deposits: firm silty sand [129]; stiff clay [110], possibly re-deposited natural clay; compact clayey sand [126]; firm sandy clay [109]. Of these, none were particularly noteworthy deposits, with layers [110] and [126] producing very small quantities of pottery only broadly attributable to the medieval period; a bulk sample of layer [110] produced a small oat grain while a sample from layer [133] yielded no palaeoenvironmental information of particular note.

- 5.2.8 As a group, the deposits described above were probably laid down to consolidate and raise ground level to the east of wall [12] ahead of the establishment of a surface, possibly of a yard, lane or street, represented by layer [117] (Figure 3, Section 8). A probably associated aim of bulk deposition here would have been to stabilise what was a monumental structure. Surface [117] comprised compact, brownish orange sandy gravel, with frequent medium and large cobbles throughout. Abutting wall [12] to the west, the surface, up to c. 0.10m thick and recorded at maximum height of 2.15m OD, was recorded across an area of c. 1.40m north-south by c. 1.30m west-east, meeting the limit of excavation to the north and south and petering out to the north over make-up deposit [109].
- 5.2.9 Cut through gravel/cobble surface [117], immediately adjacent to wall [12], was a small sub-circular posthole, [120], measuring c. 0.40m by c. 0.30m and only 0.10m deep. The feature had a loose fill, [116], comprising reddish grey sandy gravel with frequent clinker/ cinder noted throughout, while stones concentrated around the concave sides of the features were presumably the remnants of post-packing. The fill extended to the east and south beyond the edge of the posthole, possibly a result of the original upright timber having been removed. The feature presumably relates to some form of structure associated with surface [117] and/or wall [12]. Although the nature of the structure is impossible to establish on the basis of the excavated evidence, the feature is of no little importance since it indicates, along with surface [117] itself, that ground raising had ceased, at least to the east of the wall, and that activity was being conducted there. At Queen Street, evidence of timbers set into the surface of a solid pier (phases 2 and 3) built up on the reclaimed foreshore was interpreted as representing possible mooring posts or cargo handling equipment (O'Brien *et al.* 1988, 8–9).
- 5.2.10 Abandonment of the structure represented by posthole [120] was evidently followed by the laying down of another surface alongside wall [12], this version represented by a layer, [108] (Figure 3, Section 8). This comprised compact, orange brown sandy gravel with occasional medium and large cobbles and was up to c. 0.22m thick. Recorded at maximum height of 2.22m OD, it was exposed across an area measuring c. 0.80m north-south by c. 1.45m west-east, meeting the limit of excavation in all directions except westwards where, like the earlier surface, it abutted wall [12]. Overlying surface [108] were two patchy spreads, [119] and [107], both mostly coarse sand in composition and up to 0.10m thick; these may have been levelling deposits.

- 5.2.11 Spread [107], the uppermost of the two deposits lying above surface [108], was cut through by a sub-circular posthole, [102], this a much more substantial feature than posthole [120], measuring c. 0.95m by c. 0.74m and 0.60m deep. Its loose, dark brown sandy silt fill, [101], in which some voids were noted, had patches of ash or cinder throughout, while the frequent medium and large stones and some cobbles also noted likely represent the remains of the packing for the upright originally housed within the posthole. A fragment of medieval brick, probably of 14th-century date was recovered from fill [101]. Again, the feature can reasonably be assumed to relate to some form of structure associated with the existing ground surface, then formed by surface [108], and/or wall [12], which lay only c. 0.40m to the west.
- 5.2.12 Sealing infilled posthole [102] was an extensive and distinctive dump layer, [95] (Figure 5). This comprised compact, black and dark orange brown crushed and fragmented coal and ash with iron slag noted throughout. Excavated within the eastern part of the shored trench prior to the reduced limits of excavation being imposed, this deposit was exposed across an area measuring c. 4.30m north-south by up to c. 2.65m west east, meeting the limit of excavation on all sides except to the west, where it partly abutted wall [12] but also petered out. Up to 0.15m thick, it was recorded at a maximum height of 2.40m OD. In yielding more than 30 sherds of 13th/14th-century pottery and three fragments of similarly-dated tile, layer [95] was, therefore, a relatively well-dated deposit.
- 5.2.13 While possibly merely a ground-raising and consolidation dump, layer [95] potentially represents another surface, possibly, given its recorded extent, for a yard or lane alongside wall [12]. Specialist assessment of a sample of layer [95] for evidence of technological, specifically metallurgical, residues, identified heavily weathered lumps of iron-rich conglomerate, possibly the broken up remains of a compacted earth/detritus floor from an iron forge. While this material was undoubtedly the most likely candidate for a by-product of industrial activities amongst the group of samples to be examined from the excavation, the relatively uniform size of the lumps suggest that, rather than representing an *in situ* forge floor, this deposit perhaps more likely represents the remains of a floor deliberately broken up into manageable pieces to be disposed of. Therefore, this material probably originated from an industrial working area in the vicinity. An excavation in 1995 at Stockbridge (c. 125m north of the LiveWorks site) established that metalworking formed the principal occupation throughout the development of that site, where land was reclaimed from the Pandon Dene by the early 13th century. Alternatively, this material could have arrived at the current site as ships' ballast.
- 5.2.14 Four relatively small areas of different deposits were recorded overlying parts of layer [95] in the northern half of the shored trench: in the north-eastern corner of the trench was a loose clayey sand spread, [93], up to 0.10m thick and notable for the frequent inclusion of chalk fragments; to the west, adjacent to the northern limit of excavation and abutting wall [12], was a firm clay spread, [94], up to 0.15m thick; south of this, also abutting wall [12] to the west, was a loose mixed spread, [99]; the eastern edge of spread [99] was overlain by a compact stony sand spread, [98], up to 70mm thick, which met the limit of excavation to the east.
- 5.2.15 Of the components of the sequence of Phase 2a deposits recorded to the east of wall [12], as described above, clay spread [94] was recorded at the highest level, 2.53m OD. Therefore, the cumulative effect of the accumulation of the Phase 2a deposits was to elevate ground level east of wall [12] by c. 0.90m. Over what period of time this occurred can only be speculated

upon, given that two or three distinct surfaces were evidently represented within the sequence, as well as two structural episodes, albeit of uncertain nature.

- 5.2.16 West of wall [12], a substantial compact dump layer, [58], was interpreted as the earliest deposit post-dating its construction (Figure 8, Section 4e; Plate 17). A section revealed towards the northern limit of excavation, during facilitatory work undertaken for shoring installation, demonstrated that layer [58] sealed infilled construction cut [127] and abutted the west side of the wall. Layer [58] comprised medium and large cobbles and sandstone fragments in a matrix of yellowish grey silty sand. Exposed within the c. 4.10m north-south by c. 1.20m west-east portion of the shored trench delineated to the east by wall [12], this was a substantial deposit, up to 0.40m thick and recorded at a maximum height of 2.71m OD, this to the north, falling away to c. 2.40m OD to the south. No cultural material was recovered during its excavation.
- 5.2.17 Overlying the lower-lying southernmost portion of layer [58], as exposed, was a layer, [71], of loose, orange - possibly burnt - sand. Up to 0.15m thick, this deposit, interpreted as a levelling layer, was recorded at a maximum height of 2.57m OD. It yielded three sherds of 13th/14th-century pottery and a small quantity of oyster shell. In turn, this was overlain by a layer, [21], of stiff, yellowish brown clay, up to 0.12m thick and interpreted as a possible floor surface (Figure 5; Plates 19-22). Exposed across an area measuring 3.65m north-south and across the c. 1.20m west-east portion of the shored trench, it was recorded at maximum height of 2.69m OD. A sample of the deposit produced a very small quantity of coal fragments but was essentially unproductive with regard to either palaeoenvironmental remains or in terms of identifying evidence of industrial activity such as metal smelting or smithing.
- 5.2.18 What appeared to be the eastern side of a NW-SE aligned wall, [46], was exposed in the south-western corner of the lower part of the original trench (Figure 5). It was evidently 'trench-built' within a narrow construction cut, [54], identified in clay surface [21]. A length of c. 1.90m of the structure was exposed, with its side effectively running partway along the base of the lower section of the original trench, running parallel to wall [12], but only c. 1.40m further west (Figure 5).
- 5.2.19 Wall [46] comprised roughly coursed random sandstone rubble with light grey mortar and was recorded at a maximum height of 3.08m OD. At least 0.40m high, the structure was seen to continue below the basal limit of excavation in the original trench but was subsequently obscured behind the shoring and not seen again. Precisely what the structure represented is very difficult to ascertain on the basis of the very limited extent to which it was possible to expose it - it may have delimited the western side of lane running between it and wall [12]. Possibly it may have been related to another similarly aligned structure, wall [66], which was briefly observed to the west and tentatively assigned to Phase 2b.

### ***Trench 2: Phase 2a***

- 5.2.20 Phase 2a in Trench 2 is evidence, albeit limited, of human activity on the dumped ballast, again indicating that, as a result of reclamation of the foreshore, the area had been made sufficiently dry for the undertaking of such activity. Part of a shallow pit, [113], was recorded adjacent to the eastern limit of excavation (Figure 6; Plate 15). This feature – evidently a refuse pit – was notable in terms of its contents amongst the medieval remains recorded in the trench. In its entirety the pit was probably sub-circular, but its full extent to the east was not seen. Measuring

1.30m north-south by 0.85m west-east, continuing to the east, the surviving portion was up to 0.25m deep. It had varying sides, recorded at a maximum height of 1.55m OD, and an uneven base, this form largely due to the nature of the underlying ballast material into which it cut. The lowermost portion of the pit was filled with a rather sterile deposit, [114], comprising loose, mid brownish green clayey sand with frequent flint gravel throughout. Up to c. 0.20m thick, this deposit yielded a small quantity of animal bone, while a bulk sample was unproductive in terms of palaeoenvironmental remains, and produced limited quantities of clinker/cinder, coal and shale.

- 5.2.21 The uppermost fill of pit [113] was a distinctive mixed deposit, [100], comprising friable, dark brown silty sand with numerous patches of crushed charcoal and frequent flint gravel throughout. Excavation of the upper part of this fill revealed a large sandstone 'disc' (SF 9), (weight c. 10kg, dimensions 570mm by 550mm by c. 20mm thick), broken into three closely-fitting parts, occupying the southern end of the feature (Figure 6; Plates 15 and 16). The item had clearly been deliberately fashioned, given its shape, rounded edge and with one surface having been ground or polished noticeably smoother than the other. For what purpose it had been made is unclear, it may have been the lid of a large container or small circular structure or feature, such as a drain or cess-pit. Fill [100] yielded three sherds of late 13th-century pottery, eight fragments of small yellow bricks (including half and quarter examples), these of medieval, broadly 14th-century date, crushed and fragmented mortar and a single flat-headed iron nail (SF 8). In terms of organic material, hand excavation yielded a single fragment of oyster shell and an assemblage of animal bone including, most notably, more than fifty bones representing the relatively complete, unbutchered, skeleton of a young chicken. This lay directly beneath the stone disc, indicating that the pit had been used to dispose of an unwanted, possibly diseased, bird carcass.
- 5.2.22 Partly overlying infilled pit [113] was a sandy spread, [97], recorded over an area measuring up to c. 1.80m north-south by c. 0.60m west-east, meeting meet the limit of excavation to the north and east and truncated to the west. Up to 50mm thick and recorded at a maximum height of 1.69m OD, this deposit produced a sherd of medieval pottery and a few fragments of animal bone.
- 5.2.23 The second Phase 2a feature in Trench 2, feature [86], of which again only a part was revealed, appeared to be linear in form, its north side crossing the full c. 4.40m width of the shored trench on a SW-NE alignment, running parallel with the southern limit of excavation (Figure 6). A squarish extension to the north was located roughly central along the exposed length of the side, which was generally steep and straight, recorded at a maximum height of 1.51m OD. Due to its proximity to the southern limit of excavation, the full north-south extent of the feature was not seen, while the exposed portion was up to c. 2.40m wide. For the same reason, coupled with the practical difficulties presented by water ingress at the basal limit of excavation, it was not possible to reach the base of the feature, so that its maximum excavated depth was c. 0.90m.
- 5.2.24 A distinct stony fill, [103], was recorded in feature [86], this comprising a dark grey silty sand matrix containing pebbles, medium and large cobbles and occasional nodular flint cobbles. Several stones recovered from the fill appeared atypical amongst what was evidently a majority of fluvial sandstone or igneous cobbles. These included two other igneous stones - one a

metavolcanic rock type - possibly from regional or local glacial Till and two, probably river worn, stones comprising calcareous mudstone, one with mortar attached indicating that it had been used as walling rubble and one with barnacles attached suggesting that it may have been acquired from the foreshore from Carboniferous strata. In addition, a translucent black flint flake (SF 12) struck from a nodular cobble was possibly derived from the lower Thames or its estuary; this item supports the notion that at least some of the material within this deposit arrived at the site as ships' ballast. A total of 34 sherds of pottery were recovered from fill [103], all of 13/14th-century date. A definite explanation of feature [86] is difficult, given the limited degree to which it was exposed, although it conceivably represented a construction cut, possibly for a section of riverfront wall or revetment, while the evidently regular form of its squarish extension could suggest that some form of structure, perhaps a temporary pier or jetty – either stone or timber - once occupied this component of the feature.

- 5.2.25 Partly overlying infilled feature [86] was an extensive dump layer, [81], comprising rounded and sub-rounded cobbles, some of very large dimension (the maximum recorded was 550mm by 390mm by 140mm) in a yellowish brown silty sand matrix (Plate 23). Due to intrusive activity, three separate areas of this distinctive deposit were exposed, with a total recorded extent of 4.40m west-east by up to c. 3.60m north-south and maximum recorded thickness of c. 0.35m. Recorded at a maximum height of 1.81m OD, this was highest surviving deposit assigned a medieval origin in Trench 2.
- 5.2.26 Excavation of the separate areas of layer [81] yielded eight sherds of pottery and a fragment of ridge tile, all of 13th/14th-century date, and three small fragments of iron (SF 14), two probably from nails, the other a small roughly oval object which appeared to have a deliberate slit or notch in it. Examination of three sample cobbles from the deposit determined that one example comprised micaceous sandstone, probably from the local Lower Coal Measures, while the other two comprised harder crystalline igneous rocks, these probably eroded out relatively locally from glacial Till and transported by river action downstream by the Tyne. In sum, all were considered more likely to have originated from the adjoining channel of the Tyne, rather than having been imported from further afield as ships' ballast.
- 5.2.27 Layer [81] appeared to form a substantial capping/consolidation 'raft', potentially representing a definitive concluding episode of medieval land reclamation. Overlying the raft adjacent to the southern limit of excavation was a distinctive spread, [80], of mid grey, with light yellowish grey banding, silty sandy clay. Up to only c. 10mm thick, this deposit was recorded across an area measuring c. 2.20m west-east, by c. 0.50m north-south, meeting the limit of excavation to the west and south. It yielded two sherds of medieval pottery and two iron nails, one a possibly complete example (SF 4), the other a fragmented example (SF 5), with a large head and probably parts of its shank recovered.

### **5.3 Phase 2b: Medieval Activity (14th/15th Century)**

- 5.3.1 Phase 2b in Trench 1 encompasses further evidence of human activity in this part of the site, as represented by continuation of the sequences of stratified deposits recorded either side of NW-SE aligned boundary wall [12]. The assignment of a different sub-phase is based principally on the recovered dating evidence, which indicates that these deposits accumulated broadly in the 14th/15th century; it is acknowledged, however, that in practice sub-phases 2a



and 2b are likely to have represented a lengthy, yet probably continuous, period of usage during the medieval period.

- 5.3.2 No deposits could be assigned to Phase 2b in Trench 2.
- 5.3.3 In Trench 1, to the east of wall [12], the initial activity assigned to this sub-phase was probably conducted as deliberate preparation for the construction of a SW-NE aligned wall, [39], recorded abutting the earlier structure adjacent to the southern limit of excavation in the shored trench (Figure 7; Plate 18). The earliest deposit interpreted as probably representing this ground-raising and consolidation activity was an extensive, distinctive dump layer, [96], comprising firm, black, with dark orange brown patches, crushed coal and ash with occasional medium and large sandstone and chalk fragments throughout. Exposed across an area measuring c. 2.90m north-south by c. 2.40m west-east, the deposit met the limit of excavation to the south and east, abutted wall [12] to the west and petered out to the north. Up to c. 0.10m thick, it was recorded at a maximum height of 2.47m OD. Excavation of layer [96] yielded 20 sherds of pottery, the latest material of 14th/15th-century date, two similarly-dated fragments of flat tile and approximately half of one medieval brick. In addition, a small piece of sheet lead (SF 6) was recovered.
- 5.3.4 With dump layer [96] evidently comprising, for the most part, fire debris and/or industrial waste, specialist assessment of a sample was undertaken to identify any evidence of technological, specifically metallurgical, residues. This identified heavily weathered lumps of iron-rich conglomerate, although in similar fashion to the constituent material of Phase 2a layer [95] it is considered that this material is probably more likely to represent disposal of the deliberately broken up remains of a compacted iron forge floor, away from the actual site of the forge. Again, it is uncertain whether this material originated from an industrial working area in the near vicinity or wider area, or alternatively, originated much further afield, potentially arriving at the site as ships' ballast. In any case, layer [96] was, as mentioned, evidently deposited as part of a deliberate episode of ground-raising and consolidation.
- 5.3.5 Overlying deposit [96] was another extensive dump layer, [70], consisting of loose, black and dark orange ash, clinker/cinder and sand (Plate 17). This extended across the majority of the eastern portion of the shored trench, abutting wall [12] to the west and was up to c. 0.12m thick, recorded at a maximum height of 2.54m OD. Given its composition, this deposit probably derived for the most part from fire or hearth debris, and while a sample of the deposit produced coal and clinker/cinder fragments, specialist assessment identified no evidence of specific industrial/metallurgical activity, such as metal smelting or smithing. The deposit yielded 12 sherds of pottery, the latest material of 14th/15th-century date, two fragments of flat tile of similar date, as well as a small 'drip' of lead (SF 13), probably smithing residue.
- 5.3.6 A loose patchy spread, [69], comprising light reddish orange sand, was recorded overlying layer [70] towards the south-eastern corner of the trench. Up to 30mm thick, it was recorded at a maximum height of 2.48m OD. To the south, this was overlain in part by two small areas of thin sandy spreads, [73] and [76], probably dumped as levelling material. Deposit [76] yielded three sherds of pottery and fragment of tile, indicating a 14th/15th-century date of deposition. Both deposits underlay a stony, generally loose dump layer, [72], which comprised medium and large fragments of sandstone in a matrix of mid purplish grey sandy clay, up to 0.10m thick and recorded at a maximum height of 2.65m OD. The latest material amongst five sherds of

pottery recovered was of 14th/15th-century date. A small clayey silt spread, [67], up to 0.10m thick, was recorded overlying stony dump [72] in the south-eastern corner of the trench.

- 5.3.7 As mentioned, the previously-described strata were evidently deposited ahead of the construction of NE-SW aligned wall, [39]. The exposed portion of this structure was c. 2.30m in length, running from its abutment to the west with wall [12] alongside the limit of excavation to the south-eastern corner of the trench (Figure 7; Figure 8, Section 4f; Plate 18). Up to c. 1.0m wide, the surviving structure stood to height of c. 0.60m, recorded at a maximum height of 3.06m OD. It comprised dry sandstone rubble, indicating that it was not intended to be a load bearing wall – it may have formed a property sub-division or partition – and its relatively simple construction was underlined by the fact that it been built directly upon the underlying levelling and consolidation material, *i.e.* without any construction cut. This notwithstanding, the lowermost course of masonry included the largest stones (up to 540mm by 400mm by 290mm) within the structure; many of these larger components with squared faces, which given the relatively simple form of the wall, perhaps suggests re-use from an earlier structure. As excavated, the wall masonry yielded three sherds of pottery, indicating a date of construction during or after the 14th/15th century.
- 5.3.8 Lying immediately to the north of wall [39], and post-dating its construction, was an extensive, very distinctive dump deposit, [31] (Figure 7; Plates 18 and 19). This comprised firm, bluish grey ashy clay, with frequent medium and occasional large sandstone rubble throughout. A locally derived sandstone block recovered from the deposit displayed a dowel hole, indicative of it having been extracted from a quarry. In addition, layer [31] was particularly notable for the large quantity of medieval brick rubble which it contained, as described below. The deposit extended c. 3.40m north-south by c. 2.40m west-east, lying against walls [12] and [39] to the west and south, respectively, and meeting the limit of excavation to the east and north. Up to 0.13m thick, it was recorded at a maximum height of 2.66m OD. Given its composition, particularly the brick rubble inclusions, it can be reasonably assumed that the dump incorporated building demolition rubble, potentially derived from an adjacent structure.
- 5.3.9 Excavation of layer [31] yielded more than 50 sherds of pottery, including many sherds from a large three-handled jug with bridge spout, the overall assemblage indicating a date of deposition during the 15th century. In addition, four fragments of flat tile recovered from the deposit were also of 15th-century date, as was the brick assemblage, which comprised more than 35 whole (typical dimensions 200mm by 100mm by 45-55mm) or part bricks, predominantly in a creamy-yellow fabric. A small fragment of copper alloy (SF 1) was also recovered from layer [31].
- 5.3.10 Overlying dump deposit [31] across the eastern portion of Trench 1 was another distinctive, substantial dump deposit, [30] (Figure 8, Section 4f; Plate 21). This comprised loose, light greyish yellow sand but, in contrast to the underlying material, was a relatively sterile deposit with only occasional inclusions, notably medium and large sandstone rubble and cobbles and very little cultural debris recovered, this amounting to a small quantity of animal bone. Largely identical in extent to dump [31], it therefore also abutted walls [12] and [39] to the west and south, respectively, and met the limit of excavation to the east and north. Up to 0.50m, but more typically 0.35m, thick, it was recorded at a maximum height of 2.89m OD. Deposition of this material was evidently undertaken as a simple ground-raising or levelling episode, since

the nature of the material employed does not suggest that ground consolidation was a primary consideration. Similar sand deposits (e.g. phase 5i spread [353]) recorded at Queen Street in the 1980s were interpreted as material dumped for ground-raising (O'Brien *et al.* 1988, 19).

- 5.3.11 Amongst a group of Phase 2b deposits recorded on the west side of wall [12], the earliest - lying above Phase 2a clay surface [21] - was a patchy spread, [19], of loose, dark reddish brown ashy sand. Up to 60mm thick and recorded at a maximum height of 2.69m OD, this material, seemingly incorporating fire or hearth debris, was likely a levelling deposit. Overlying spread [19] was a more extensive layer, [20] (Figure 7; Figure 8, Section 4e). Comprising firm, black and dark purple sandy ash and crushed coal, this extended the full c. 4.60m north-south extent of the original trench and covered the c. 1.25m wide area between the western limit of excavation and wall [12]. Up to 0.13m thick, it was recorded at a maximum height of 2.81m OD, this in section. Probably derived for the most part from fire or hearth debris, a sample of the deposit produced coal fragments and a small quantity of clinker/cinder but assessment for the purposes of identifying evidence of industrial activity such as metal smelting or smithing was unproductive. Whatever industries or processes were using a long-lived complex of hearths and ovens in the phase 5 building recorded at Queen Street in the 1980s remained unclear (O'Brien *et al.* 1988, 13–22; 160).
- 5.3.12 A thin - up to 50mm thick - but extensive layer, [16], comprising crushed coal, overlay layer [20] west of wall [12] (Figure 8, Section 4e). Again, a sample of the deposit failed to produce any evidence of industrial activities, although a small amount of clinker/cinder was present, this also probably derived from fire or hearth debris. To the south, adjacent to the west side of wall [12], layer [16] was overlain by a loose spread, [14], comprising sandy ash and crushed coal, up to 80mm thick, which produced four sherds of pottery broadly of late medieval date.
- 5.3.13 In turn, layer [14] was overlain by an extensive layer, [13], comprising loose crushed coal, also recorded across the full extent of the c. 1.25m wide area between the western limit of excavation and wall [12]. Up to 0.10m thick, and recorded at a maximum height of 3.04m OD, this deposit appeared to overlie wall [46], which as previously described had been exposed alongside the western limit of excavation of the original trench. Layer [13] yielded 15 sherds of pottery and nine fragments of flat or possible hip tile, all this material broadly of late medieval date.
- 5.3.14 Overlying part of layer [13] was a loose spread, [11], comprising crushed and fragmented lime mortar, probably demolition debris, seen in section only and up to 0.20m thick. To the north this was overlain by another loose mortar spread, [60], this recorded at a maximum height of 2.91m OD. In turn, this was overlain to the north by a loose sandy spread, [59], up to 0.18m thick. This material, probably a levelling dump, underlay an extensive dump layer, [9], this the most extensive of a group of deposits – the others being layers [17], [65], [53], [10] and [7], which comprised the uppermost components of the medieval stratigraphy recorded in Trench 2. Dump layer [9] was a compact, mixed but generally silty layer, recorded in plan to the east of wall [12], but also traced in section across the majority of the extent of the trench (Figure 8, Section 4e and 4f). Up to 0.28m thick, it was recorded at a maximum height of 3.11m OD. Of the other deposits in this group, a sandy silt layer, [17], was excavated in plan overlying the previously described sandy dump [30], while some – layers [65] and [53] - were recorded only in section ahead of the installation of the shoring (Figure 8, Section 4e and 4f); the remainder

survived in plan to a greater or lesser extent and were excavated and recorded accordingly. Some of these deposits produced small quantities of pottery, indicating a date of deposition in or after the 14th or 15th century. Layer [17] was also notable in that it produced six fragments of flat and possible hip tile, all of 14th/15th-century date. The two uppermost deposits in the sequence, layers [7] and [10], each produced two fragments of similarly dated tile, with a variety of forms noted.

- 5.3.15 The eastern edge of a sandstone wall, [66] was exposed in plan, on the western step of the original Trench 2 (Figure 7); with exposure occurring during section recording immediately ahead of the shoring installation, it was not possible to expose the structure further. A length of c. 4.40m of wall [66] was exposed, running SE-NW, parallel to wall [12] but c. 2.0m further west. It comprised uncoursed random sandstone rubble with lime mortar and was recorded at a maximum height of 3.88m OD. Its period of origin and stratigraphic position are difficult to determine on the basis of the very limited extent to which it was seen, but a medieval date is broadly assumed on the basis of its form. Phase 2a wall [46], also exposed to only a very limited extent in the lower part of the original trench, would have lain between wall [12] and wall [66], indicating that all three structures were probably not in use contemporaneously.

#### **5.4 Phase 3a: Post-Medieval Structures (17th/18th Century)**

- 5.4.1 In very broad terms, Phase 3 encompasses the post-medieval period. In Trench 1, very little evidence of activity of this date survived and that which did was of relatively limited interest, being recorded in section in the original stepped trench, immediately ahead of the shoring installation; these remains are described below (Section 5.7). In Trench 2, however, significant structural remains of post-medieval date survived, and these were of a complexity which warranted sub-division into three sub-phases 3a, 3b and 3c.
- 5.4.2 Phase 3a in Trench 2 represents the earliest components of a post-medieval constructional sequence, which is considered most likely to have commenced in the 17th or 18th century and continued - as the subsequent sub-phases of Phase 3 - through the 18th and into the 19th century. The recorded structures evidently represent one or more cellar rooms within Quayside frontage buildings throughout this period. While it is acknowledged that a medieval origin is possible for the earliest structural components in Trench 2 - with these certainly then seeing modification during the post-medieval period - no evidence was recovered to be able to assign such a date of origin with any degree of confidence.
- 5.4.3 A NW-SE aligned sandstone wall, [32], has been interpreted as probably the earliest masonry structure to survive in Trench 2 (Figure 9). In the original trench it was recorded extending c. 4.10m from the southern limit of excavation (Plate 27), terminating to the north, and was up to c. 0.70m wide standing to a maximum height of c. 2.40m, with its maximum recorded height being 3.62m OD. Comprising coursed random sandstone rubble (blocks ranging in size from 200mm by 100mm by 80mm, up to 800mm by 400mm by 300mm) it was bonded with mortar of which two distinct recipes were identified by sampling. The first was a loose, dark grey earthy lime mortar, while the second, probably representing repointing (or even rebuilding), was a much tougher material, a concrete-like, light grey lime mortar with occasional coal and shell inclusions. A sample of the sandstone from the wall masonry itself established that the fragment examined was of Upper Carboniferous origin, from a coarse sandstone unit of the

Lower Coal Measures, bedrock which was quarried extensively throughout history in the Newcastle area. A large fragment of brick recovered from the heavily-mortared lowermost part the structure was of probable 17th-century date; this a key piece of dating evidence.

- 5.4.4 The northern termination of wall [32] was certainly a later modification and when originally built, the structure had run the full north-south extent of the trench, continuing beyond the limit of excavation in each direction. In the modification (Phase 3c), a section of the wall was removed, but not to its full depth, in order to create a cellar doorway (Figure 12; Plates 27 and 28). North of this aperture, a short section, c. 0.60m long, of what was likely to be the surviving upper part of the original structure was recorded, as wall [43], running up to the northern limit of excavation of the original trench. In the shored trench, a length of c. 1m of the lowermost surviving part of the structure was exposed, meeting the limit of excavation to the north, with the northernmost portion of this masonry underlying the flooring which had been laid in the doorway.
- 5.4.5 To the north, the lowermost part of wall [32] occupied a very shallow linear construction cut, [105], which was exposed for a length of c. 2.40m, running from the northern limit of excavation of the shored trench to a squarish terminal, which cut into the northern edge of cobble raft [81]. To the east, the edge of the feature was barely perceptible, although this was probably due to the underlying loose, predominantly sandy, ballast deposits, while to the west it had been truncated by a subsequent (Phase 3b) structural episode, the construction of wall [33]. Up to 0.60m wide, the maximum recorded depth of construction cut [105] was 0.12m, as recorded in the terminal, where the base of the feature was recorded at a height of 1.57m OD.
- 5.4.6 The wall had evidently been trench-built, with no backfill evident in the base of the construction cut, at least where this survived. South of the terminal, a length of c. 1.30m of the wall appeared to have been built directly onto the underlying ballast deposits, with no construction cut evident. However, the southernmost c. 0.80m long portion of wall [32] occupied a more substantial, up to 0.50m deep, construction cut, [104], which continued to the southern limit of excavation. The reason for this greater depth of construction cut to the south is uncertain; it may have been required due to the proximity to the waterfront or perhaps due to the addition of a structural component, wall [40], to the eastern side of wall [32], as described below.
- 5.4.7 In the extreme south-eastern corner of shored Trench 2, construction cut [104] for wall [32] extended to the east to house the lowermost part of an associated SW-NE aligned wall, [40] (Figure 9). This structure evidently post-dated wall [32], having been keyed into its eastern side, a relationship which was most apparent in the lowermost portion of the combined structures. Thus it appeared that construction cut [104] was evidently shared by the southernmost portion of wall [32] and adjoining wall [40], with both structures having being trench-built, lying directly upon the flat base of the construction cut, which was recorded at a height of 1.20m OD. It may well have been the case that wall [32], certainly its southernmost portion, and wall [40] were constructed contemporaneously. Wall [40] was constructed similarly to wall [32], again using random sandstone rubble (blocks up to c. 550mm by 300mm by 200mm) bonded with compact light grey lime mortar with frequent cream and pink clay and occasional quartz inclusions. The sandstone itself was evidently of similar origin to the sample examined from wall [32]. A length of c. 1.70m of wall [40] was exposed, meeting the limit of

excavation to the east and, as described, keyed into wall [32] to the west; up to 0.50m in width, it stood to a maximum height of c. 1.95m, its maximum recorded height being 3.14m OD.

- 5.4.8 Dump deposits recorded in the north-eastern corner of shored Trench 2, abutting the eastern side of wall [32], have been interpreted as post-dating the construction of the wall, probably dumped as part of an episode of ground consolidation and levelling. The earliest of these was a loose mixed deposit, [79], notable for the frequent inclusions of crushed and fragmented mortar towards the base of the deposit. Up to 0.10m thick and recorded at a maximum height of 1.80m OD, it met the limit of excavation to the north and east and petered out to the south. Although producing a sherd of medieval pottery, deposit [79] has, as mentioned, been interpreted as the earliest non-structural post-medieval context in Trench 2. To the north it was overlain by a loose spread, [78], of silty sand and crushed charcoal. Up to 60mm thick at most, this thin dump deposit nevertheless yielded key dating evidence, in the form of two pieces of clay pipe stem, one of which bore the stamp of a Gateshead maker active between about 1692 and 1736, with the oval shape of the stamp indicating a date of manufacture probably before 1710. Two iron nail fragments (SF 7) were also recovered.
- 5.4.9 Overlying dump deposit [78] in the north-easternmost corner of Trench 2 was a loose rubble make-up layer, [82], which continued to the south, abutting walls [32] and [40]. Up to 0.20m thick, it comprised dark grey silty sand with frequent building rubble, in the form of fragmented mortar, chalk and sandstone, throughout. This was overlain by a loose, sandy bedding layer, [77], for a flagstone surface, [75] (Figure 9; Plates 25 and 26). In common with the bedding and make-up layers, this surface abutted walls [32] and [40] to the west and south, respectively, and met the limit of excavation to the north and east.
- 5.4.10 Bedding layer [77], which was up to 50mm thick, yielded a fragment of a green glass bottle (SF 3), with seal showing a lion rampant, with the initials 'W' and 'E' either side and 'L' above' (Plate 30). Specialist examination indicates that the item, a hitherto unrecorded example, probably dates to around the last decade of the 17th century, and is likely to have been part of a beverage bottle (probably but not certainly wine), which would have been used as a decanter in a tavern, with the lion probably representing (at least part of) the name of the premises and the initials probably those of a couple (e.g. 'William and Elizabeth L...') who were the owners or more likely the licensees (David Burton pers. comm.). This item may have been deposited deliberately in the bedding material of flagstone surface [75], which is assumed to have been laid as a cellar floor in the Quayside frontage property.
- 5.4.11 The flagstones of surface [75] were hewn from locally quarried brownish sandstone, included some of substantial size, up to 660mm by 620mm in plan and up to 150mm thick (although most were more typically c. 100mm thick). The upper portion of each had been dressed fairly neatly square, displaying large chisel marks, while the lowermost part was far more crudely dressed, with this portion bedded down into the underlying sandy bedding layer, [77].

## **5.5 Phase 3b: Post-Medieval Structural Modifications (18th Century)**

- 5.5.1 Phase 3b in Trench 2 represents structural modifications to the subterranean elements of the Quayside frontage building(s), with this activity thought to have occurred in the broad span of the 18th century, possibly in its second half.

- 5.5.2 A NW-SE aligned sandstone wall, [33], was constructed against wall [32], tightly abutting the upstanding structure on its western side (Figure 10; Plates 23 and 25-28). In the original trench, a length of c. 4.30m of wall [33] was recorded, meeting the limit of excavation to the south and terminating to the north, in identical fashion to wall [32]. This termination was the result of the same later (Phase 3c) modification and it can be reasonably assumed that, when originally built, the structure had run – at full height - the entire north-south extent of the trench, continuing beyond the limit of excavation in each direction. Once again, removal of a section of the wall masonry had been undertaken to create a cellar doorway (Figure 10; Figure 12, Section 2; Plates 27 and 28). In the original trench, a short c. 0.70m length of the surviving upper part of the original structure was recorded, as wall [44], on the north side of the doorway and running up to the northern limit of excavation. In identical fashion to walls [33] and [32], wall [44] tightly abutted wall [43] – the continuation of wall [32] - on its western side. In the shored trench, a length of c. 1m of the lowermost surviving part of wall [33] was exposed, running beyond the line of modification for the doorway and meeting the new limit of excavation to the north. Again, the northernmost portion of this masonry underlay the flooring within the later doorway, providing clear evidence that the modification had not entailed removal of the wall masonry to its full depth.
- 5.5.3 Wall [33] comprised roughly coursed random sandstone rubble (blocks up to c. 500mm by 400mm by 300mm) with a sample of the mortar being largely similar to one of the previously described recipes - the dark grey earthy lime mortar - recovered from wall [32]. Overall, the structure was up to c. 0.70m wide and survived to a height of up to c. 2m, to a maximum recorded level of 3.53m OD. A half brick recovered from the lowermost part of the wall [33] was of probable late 18th-century date, this again considered to be key dating evidence for the structure.
- 5.5.4 The lowermost part of wall [33] displayed only intermittent stepping out at its base, which occupied a linear construction cut, [90], exposed across the full extent of the shored trench cutting into the underlying ballast deposits. Up to 0.40m deep as recorded, the feature had a flattish base which sloped down slightly from north (1.59mOD) to south (1.47m OD), across the extent of the trench. The generally irregular sides of the feature as excavated were largely the result of the loose nature of the underlying, predominantly sandy, material; similarly, the recorded width of the construction cut, up to c. 1.30m, was most likely somewhat inaccurate since the footing of the wall was probably essentially trench-built. This notwithstanding, a narrow, strip of silty sand backfill, recorded as [91] and [92] either side of a structural addition, west-east wall [34], was identified within the lowermost edges of construction cut [90].
- 5.5.5 A SW-NE aligned sandstone wall, [34], had been constructed against and tightly keyed into the western side of wall [33], at roughly the centre of the shored trench (Figure 10; Figure 12, Section 2; Plates 23-29). The two structures met at an angle which was slightly less than perpendicular (c. 83°), this presumably a constructional error. With walls [33] and [34] being very similar in overall construction and the keying-in very neatly executed, some degree of contemporaneity can be reasonably assumed for their construction. A length of 3.70m of wall [34] was exposed, running from its junction with wall [33] in the east to the western limit of excavation in the original trench. The structure comprised roughly coursed random sandstone rubble (blocks up to 500mm by 380mm by 220mm) bonded with concrete-like, light grey lime mortar with occasional inclusions of coal and brick/tile flecks. In addition, a fragment of flat tile

was recovered from the lowermost part of the structure during its excavation, this only broadly dateable to the post-medieval era. Overall, wall [34] was up to c. 0.60m wide, with a maximum height of c. 1.80m of masonry surviving, c. 1.25m of this standing above the level of the flagstone surfaces ([35] and [36] – see Phase 3c) with which it was associated at the time of disuse; it was recorded at a maximum height of 3.24m OD. In this case, the lowermost portion of the structure is perhaps more correctly described as a footing since it consistently ‘stepped out’, by up to c. 0.20m, from the line of the upper structure, with this portion incorporating numerous sub-rounded cobbles (up to c. 250mm by 200mm).

- 5.5.6 Wall [34] occupied a linear construction cut, [87], and while for the most part this feature cut into underlying medieval ballast deposits (Plates 23 and 24), it also appeared to cut through the construction cut backfill for wall [33] at the junction of the two structures. Up to 0.30m deep as recorded, construction cut [87] had a flattish base, recorded at c. 1.45m OD. As for wall [33] and its construction cut [90], a wider feature, up to c. 1.30m, with generally irregular sides was inevitably created through the process of excavation within loose, predominantly sandy, material. Silty sand backfill, recorded as [88] and [89] on the north and south sides, respectively, was identified within the lowermost edges of construction cut [87]. Fill [88] yielded a sherd of medieval pottery, this almost certainly derived from the underlying ballast material and thus residual in context.

## **5.6 Phase 3c: Post-Medieval Structural Modifications (Late 18th to Mid 19th Century)**

- 5.6.1 Phase 3c in Trench 2 represents further structural modifications to the cellars of the Quayside frontage buildings, represented by the Phase 3a and 3b remains, with this activity probably occurring during the late 18th to mid 19th century.

- 5.6.2 Towards the southern limit of excavation of the original trench, a SW-NE aligned brick wall, [28], had been constructed against and tightly keyed into the western side of wall [33], meeting it at an angle slightly off the perpendicular, therefore running parallel to wall [34] (Figure 11; Figure 12, Section 2; Plates 27 and 28). A length of 3.85m of wall [28] was exposed, running from its junction with wall [33] in the east to the western limit of excavation of the original trench (Figure 13, Section 1; Plates 27 and 28). The bricks (average dimensions c. 250mm by 122mm by 60mm) were laid in stretcher bond with concrete-like, light grey lime mortar, slobbered and obscuring the brickwork in places. For the most part, the bricks were only broadly datable to the post-medieval period, although one of the recovered examples was perhaps more closely attributable to the 18th century, possibly its first half. Overall, the structure was up to c. 0.60m in width and as recorded stood to a height of c. 1.70m with a maximum recorded level of 3.64m OD; its lowermost portion – below the level of the adjacent surface, [35] - was not seen following the installation of the shoring. While the full width was seen in plan in the original trench, only its north elevation was exposed, with the structure effectively forming the lowermost part of the southern edge of the trench prior to the installation of the shoring.

- 5.6.3 For much of its exposed length, although not towards the western limit of excavation, the uppermost surviving brick course of wall [28] comprised the springer course, laid as stretchers, for the south side of a brick barrel-vaulted ceiling, with a few bricks of the next course, laid as headers, surviving close to the junction with wall [33]. The fairly shallow (c. 20°) angle at which



the bricks of the springer course were set indicated a ceiling arch of almost semi-circular form. In the very limited part of the ceiling arch which survived, there was some indication that its soffit had been rendered with lime mortar. The arch span would have been c. 1.95m, with the south abutment provided by wall [28], running parallel to the north abutment, provided by wall [34], which, as described below, was adapted to accommodate the brick ceiling. The arched cellar roof may have had just one course, possibly two, with the space above probably infilled with loose material.

- 5.6.4 Brickwork [29] was added to the top of sandstone wall [34] using concrete-like, light grey lime mortar (Figure 11; Figure 12; Plates 27-29). The brickwork was exposed along the full length of the earlier, sandstone structure and extended for a length of c. 3.70m, continuing to the west beyond the limit of excavation. Recorded at a maximum height of 3.61m OD (Figure 13, Section 1), up to three courses of brickwork survived, representing the remains of barrel-vaulted ceilings above cellar rooms to the north and south of wall [34]. Thus for much of its length, the surviving brickwork included the springers for the arched brick ceiling along both sides, with the interface between sandstone masonry [34] and brickwork [29] representing the horizontal plane of the spring line.
- 5.6.5 On the south side, it appeared that the arched ceiling spanning the room between walls [34] and [28] did not continue as far as the western limit of excavation - as suggested in the westernmost part of wall [28]. Of the constituent bricks in brickwork [29], only a single complete example (dimensions 255mm by 125mm by 63mm) could be recovered and this was broadly of 18th-century date. Along the south side, the springer course for the ceiling arch had been laid as headers, with the next course - of which very little survived, this at the junction with wall [34] - laid as stretchers. Again, the fairly shallow (c. 20°) angle at which these bricks were set indicated an almost semi-circular ceiling arch, corresponding with the previously discussed evidence provided by wall [28], the southern abutment for the arch. Along the north side, the springer course had also been laid as headers, but here the springers were set more steeply, an angle in excess of 50°, indicating a segmental ceiling arch with a span in excess of c. 2.80m; in this case the wall forming the north abutment was not seen within the trench.
- 5.6.6 Brick wall [37] was recorded running SE-NW adjacent to the eastern limit of excavation of the original trench (Figure 11; Plates 27 and 28). It had been built at a right angle across sandstone wall [40] and although its relationship with the associated flagstone floor, [75], was not ascertained, it can be reasonably assumed to have post-dated the floor. A length of c. 2.80m of wall [37] was exposed, meeting the limit of excavation at the south-eastern corner of the trench and ending in a vertical face to the north, this presumably representing one side of a cellar doorway. The exposed portion of the wall was up to 0.42m wide, although its eastern edge was not seen and it stood to a height of c. 1.15m, with a maximum recorded level of 3.67m OD. The component bricks (average dimensions 240mm by 115mm by 60mm), some with a shallow combed frog, were of late 18th- or possibly very early 19th-century date. Angled bricks in the fragmentary uppermost surviving course of wall [37] appeared to represent the remains of the springer course for a barrel-vaulted ceiling which would have covered a narrow, up to c. 1.35m wide, corridor between wall [37] and sandstone wall [32]; no evidence for brickwork representing such a ceiling survived along the portion of wall [32] lying directly opposite wall [37].

- 5.6.7 Towards the northern limit of excavation of the original trench, tightly-abutting sandstone walls [32] and [33] had been cut through to create a cellar doorway c. 1.50m wide, as previously discussed (Figure 12; Plates 27-29). Both sides of the aperture thus created were faced with brickwork, [38] to the south (Plate 29) and [42] to the north, each elevation up to c. 1.20m wide. Both sections of brick facing were laid in English Garden Wall bond, with a header course every sixth course, using hand-moulded bricks (average brick dimensions in the two brick faces were 220mm by 109mm by 67mm), generally with fairly regular sharp edges, and lime mortar.
- 5.6.8 The bricks in both faces were largely similar, datable to the first half of the 19th century, perhaps its first quarter. Recorded at a maximum height of 3.67m OD, brick facing [42] was more than 1.50m high, although its base was not seen as it continued below the level of an adjacent floor surface, [36]. Part of the springer course, laid as stretchers, for a ceiling arch survived, with a c. 40° skewback evident in the form of a cut brick in the second course down. This ceiling presumably covered the doorway, although no trace of corresponding masonry remained in brickwork [38] on the south side; the ceiling arch for the doorway presumably connected in some way with the barrel-vaulted ceiling which had evidently sprung to the north from wall [34]/brickwork [29]. The base of brick facing [38] was discernible on the south side of the doorway, neatly mortared into the earlier sandstone masonry of wall [33] and this section of brickwork was c. 1.20m high, recorded at a maximum height of 3.35m OD.
- 5.6.9 Two areas of flagstone floor, [35] and [36], have been assigned to Phase 3c (Figure 11; Plates 25-26 and 28). The narrow cellar room formed between walls [28] and [34]/[29], with its end wall formed by wall [33], was surfaced with a well-preserved flagstone surface, [35], recorded across an area measuring 2.70m west-east, continuing to the west beyond the limit of excavation, by 1.90m, this the north-south width of the room (Plate 25). Surface [35], recorded at a maximum height of 1.98m OD, was underlain with a silty sand levelling and make-up layer, [74], up to 0.20m thick. This deposit yielded a mixed assemblage of finds, including a sherd of medieval pottery, a sherd of red earthenware of 18th- or 19th-century date, several brick fragments (half and quarter), some of early 19th-century date, two fragments of 19th-century tile and a copper-alloy shoe buckle (SF 2) of probable 18th-century date. For the most part, the surface itself comprised sandstone flagstones with smaller, rectangular slabs to the south, against wall [28], and larger (up to 600 by 600mm square and up to 60mm thick), squarer examples to the north. The sandstone was of a laminated micaceous type, probably locally quarried from the Lower Coal Measures bedrock. A widening gap between the floor and wall [34]/[29] had been infilled with smaller cut flagstones and some part bricks, as was a narrow gap between the floor and wall [33] in the south-east corner of the room; these gaps had been created as a result of the less than perpendicular angle between walls [34] and [28] and wall [33]. It is assumed that the surface was laid broadly contemporaneously with the structural modifications already outlined. It is possible that the component flagstones were re-used from existing surfaces, laid in the earlier post-medieval period, within the cellar rooms.
- 5.6.10 Surface [36] had been laid to the north of wall [34]/[29], extending for c. 2.20m to the limit of excavation in the north-west corner of the trench, where it was very poorly preserved (Figure 12; Plate 25). To the east, the surface had been laid up against wall [33] (Plates 25 and 29), where it was recorded at maximum height of 1.99m OD. It also extended into the doorway which had been created in walls [33]/[44] and [32]/[43], with this portion sloping up to the east to provide access to the slightly higher level floor, surface [75], of the retained through corridor.

- 5.6.11 Surface [36] was underlain with a silty sand levelling and make-up layer, [83], up to c. 0.10m thick, which did not produce any cultural material. Again, the surface itself comprised sandstone flagstones, this time with larger (up to 600mm by 600mm square and up to 60mm thick), squarer examples in its southernmost row, laid alongside wall [34] and smaller, rectangular slabs to the north, this area being very disturbed. Again, the less than perpendicular angle between walls [33] and [34] resulted in a widening gap between wall [33] and the floor towards the south-eastern corner of the room. Much brick infilling (using bricks 120mm wide by 60mm thick) had been undertaken in the sloping doorway portion of the surface, most notably to the north, alongside brick facing [42] (Figure 11).
- 5.6.12 A brick fireplace, [41], recorded in the south-eastern corner of Trench 2 had presumably been constructed in the north-western corner of a room which lay beyond the southern and eastern limits of the trench (Figure 11). With its back wall, *i.e.* to the north, formed by existing sandstone wall [40], its one-skin thick side walls were brick-built (average dimensions of recovered bricks 237mm by 110mm by 66mm), these effectively forming a lining to walls [32] and [37] to the west and east, respectively. The bricks, most with shallow frogs, were of early 19th-century date, and most displayed some heat damage. The fireplace surround was exposed in the south-eastern corner of the original trench, standing *in situ* and comprising sandstone uprights and lintel, with some brick infill recorded on its western side, joining to the side wall.

## **5.7 Phase 3: Post-Medieval Activity (Trench 1)**

- 5.7.1 Four deposits recorded in the section of the original Trench 1 (Plates 5 and 6), ahead of the installation of the shoring, have been assigned a broad post-medieval date. These were: layer [62], comprising firm crushed coal and clinker/cinder and silt; layer [50], comprising compact clay; layer [51] comprising compact crushed coal; layer [64], comprising compact silty sand, crushed coal and clinker/cinder. The earliest, layer [62] overlay Phase 2b deposit [10], as seen in section (Figure 8, Section 4f). The uppermost, layer [64], was recorded at a maximum height of 3.3.1m OD.

## **5.8 Phase 4: Early Modern Activity (Early 20th Century)**

- 5.8.1 Phase 4 represents activity undertaken in both trenches towards the end of the 19th century and up to the mid-20th century. In Trench 1, deposits assigned to this phase were recorded in section in the original trench, ahead of the installation of the shoring, while in Trench 2, discussed first below, the deposits and structures were recorded in plan, for the most part being closely associated with Phase 3 structural remains.

### ***Trench 2***

- 5.8.2 In Trench 2, disuse of fireplace [41] was represented by a mortared brick infill, [47], which incorporated an assortment of bricks including large, part white glazed, fire bricks, the product of the Leeds Fireclay Company Limited, documented as having been operational between 1889 and 1957. This structure may in fact have been a firebox within the fireplace at the time of disuse, with this likely to have seen repeated repair into the 20th century, prior to disuse (Plates 27 and 28).

5.8.3 A loose sandy silt and ash fill, [45], dumped in around brickwork [47], represented abandonment of the fireplace and this yielded much artefactual material of 19th- and early 20th-century date, including pottery and both beer and mineral/soda water bottles. In addition, all but one of the ten bones recovered from infill [45] displayed evidence of rodent gnawing, a typical feature of bone assemblages recovered from 19th-century urban deposits.

5.8.4 When exposed, the south-western and north-western cellar rooms within the western side of the original trench were infilled with demolition rubble deposits, [1] and [6], respectively (Figure 13; Plates 7 and 8). Up to c. 1.50m thick, these probably represented demolition of the building which stood above the cellar space. Much cultural debris was present, of which a selection was retained for dating evidence, along with items of intrinsic interest. Cellar backfill [6] yielded a complete clay tobacco pipe, marked on the stem with the name of wholesaler Robert Sinclair and one of his products 'Golden Twist' tobacco. Founded in Newcastle in the second half of the 19th century, Sinclair's company lasted into the 20th century. Another pipe fragment from backfill [6] was of William Tennant, a pipemaker operating in Newcastle from 1875 to 1925. A few fragments of high-status marble moulding and possible flooring found within infill [6] probably came from kitchen or bathroom fittings or furnishings in a fairly well-appointed residence. The eastern corridor was infilled with demolition rubble, [2].

#### **Trench 1**

5.8.5 A large intrusive feature, [57], was recorded, ahead of the shoring installation, towards the south end of the west-facing section of the lower step of Trench 1 (Figure 8, Section 4f). It extended c. 2.10m north-south in section, continuing beyond the limit of excavation to the south, and was 0.65m deep, recorded at maximum height of 3.30m OD. It may have been related to a brick cellar - potentially part of its construction cut - of probable late post-medieval date that was observed immediately to the east of Trench 1 during shoring installation. Two backfills were recorded, the first, deposit [61], comprising loose ash and sand which yielded a 20th-century milk bottle, above which was deposit [57], comprising crushed coal and ash; in addition, the feature appeared to contain a large fragment of *ex situ* concrete floor slab, [52].

5.8.6 Another intrusive feature, [49], possibly a pit, was recorded further north in the west-facing section of the lower step of Trench 1 (Figure 8, Section 4f). It extended c. 0.75m north-south in section and was c. 0.30m deep, recorded at maximum height of 3.30m OD. A single fill, [48], was recorded, comprising compact crushed coal, silt and clinker/cinder. To the east, a length of brick wall, [55], was exposed in plan on the upper step of the original trench, this probably part of the cellar. Four courses of 19th-century brick were exposed and in total the structure extended c. 0.90m NW-SE, recorded at a maximum height of 3.81m OD.

5.8.7 A layer, [63], of firm sand was recorded at the north end of the west-facing section of the lower step of Trench 1 (Figure 8, Section 4f). Up to c. 0.10m thick and recorded at a maximum height of 3.35m OD, this deposit was considered to be of post-medieval origin. To the west, another intrusive feature, [18], was recorded in the south-facing section of the lower step of the original trench. It was c. 1.70m wide west-east and was c. 0.35m deep, with a stepped eastern side and flat base; it was recorded at a maximum height of 3.16m OD. Its single fill [8], comprised firm sandy silt, a very thin spread of which was also exposed in plan to the south of the section, indicating that the feature was probably of linear form, but with only its flat base, containing deposit [8], being revealed in plan.

## **5.9 Phase 5: Modern Activity (Late 20th to Early 21st Century)**

- 5.9.1 Phase 5 represents modern era activity in both trenches, with all strata assigned to this phase being removed by machine at the onset of the excavation and then recorded in section in the original stepped trenches ahead of the installation of the shoring.

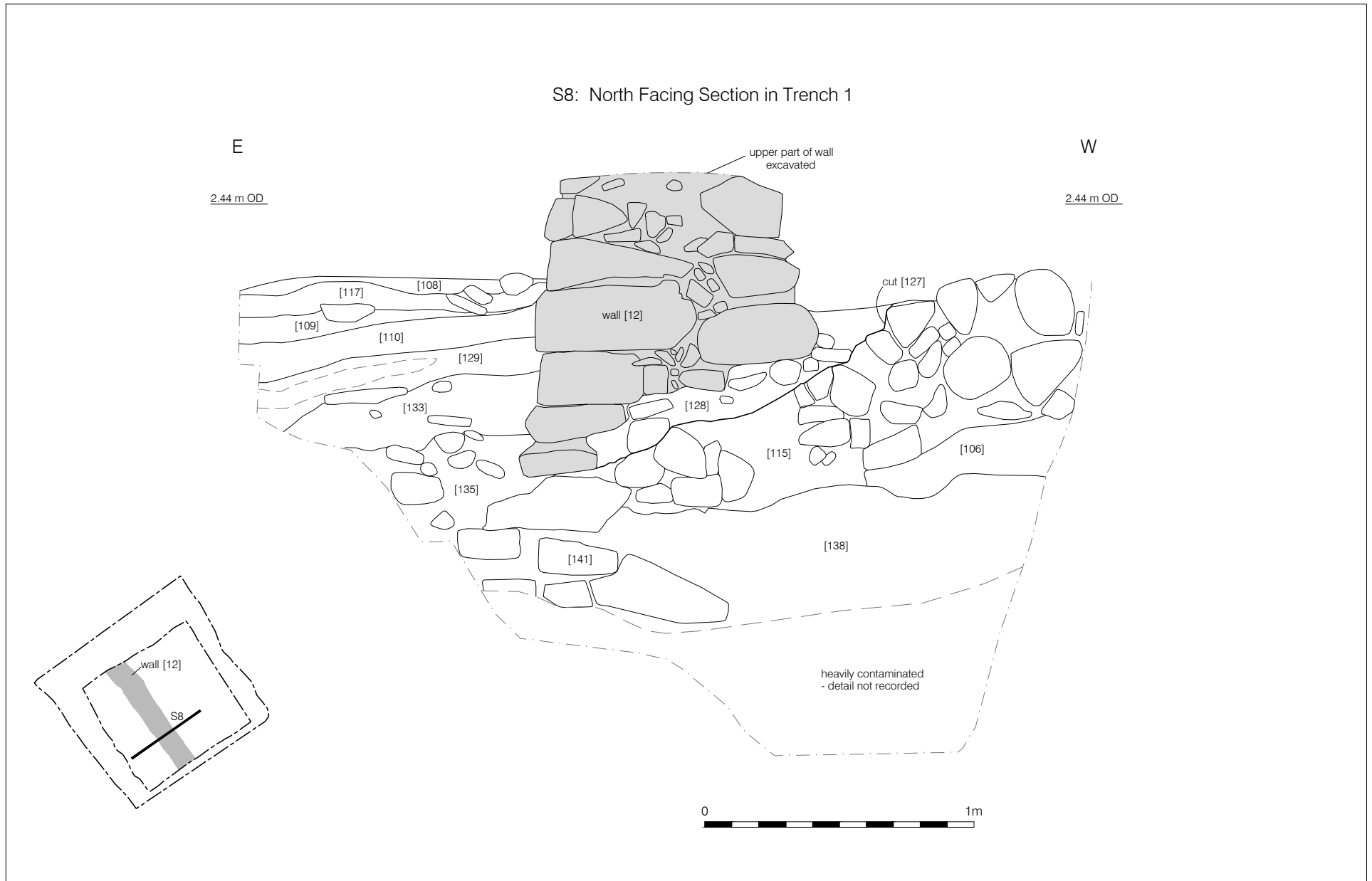
### ***Trench 1***

- 5.9.2 The predominant component of the uppermost strata in Trench 1 was compact layer, [5], of recycled aggregate (graduated fragments of inert mineral materials, mostly brick, concrete, stones and gravel). This was a substantial, up to 1.90m thick, and extensive deposit, recorded in all sections of the original trench, with a maximum recorded height of 4.59m OD (Figure 8, Section 4b and 4e; Plate 5). It is thought to have been laid down as a piling mat in association with a previous, unimplemented, development proposal around the turn of the millennium.
- 5.9.3 Overlying layer [5], throughout Trench 1 was a compact layer, [4] of yellow dolomite roadstone, up to 0.28m thick (Figure 8, Section 4b). This was a ground-raising and consolidation deposit laid down when the site was turned over to parking following the abandonment of the previously mentioned development scheme. The existing ground surface comprised a tarmac surface, [3], up to c. 0.30m thick, although more generally only c. 50mm thick, recorded at a maximum height of 4.84m OD. Loose rubble covered this surface across the area of the site in which Trench 1 was located but this did not appear in the sections of the trench as recorded.

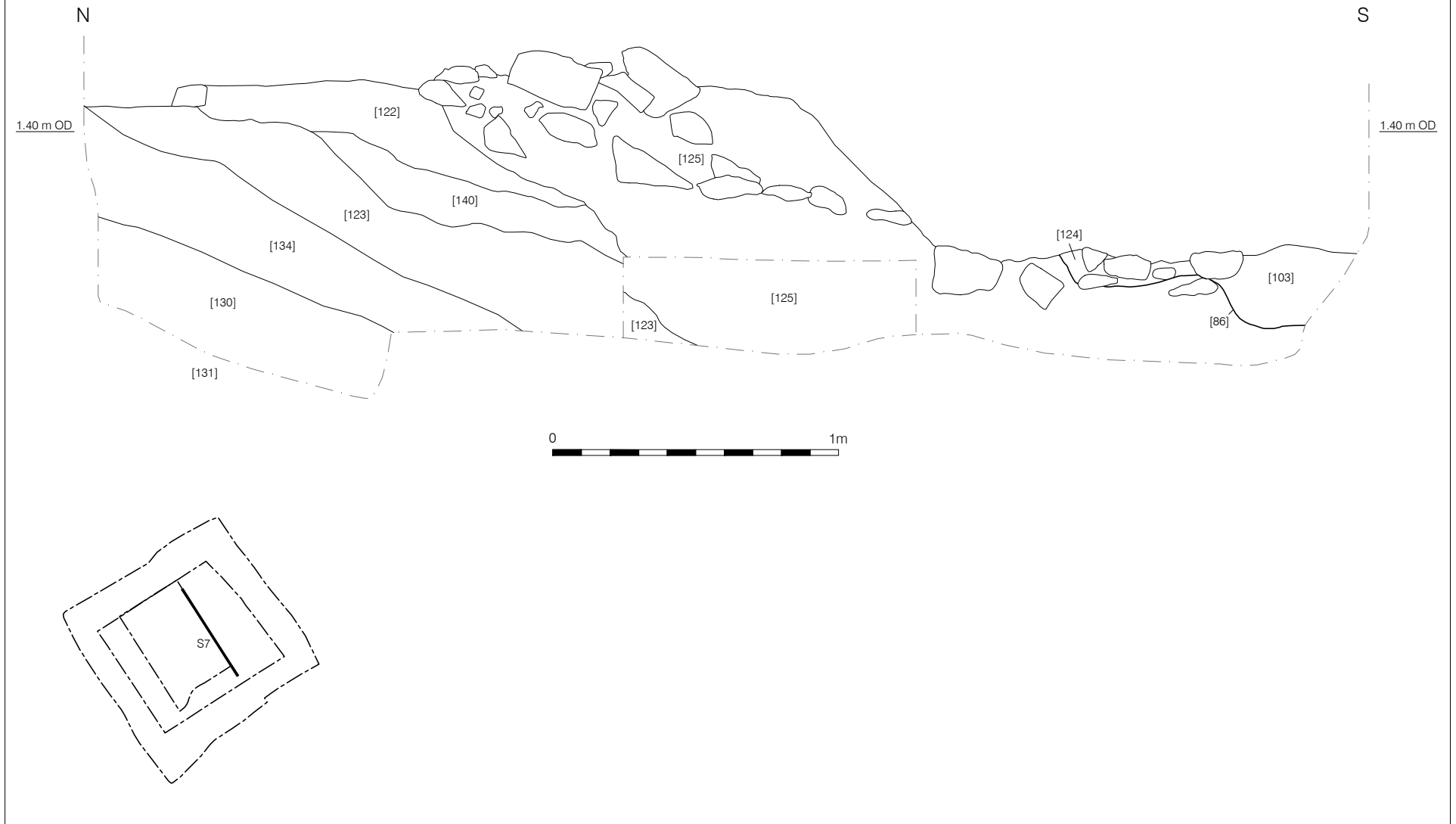
### ***Trench 2***

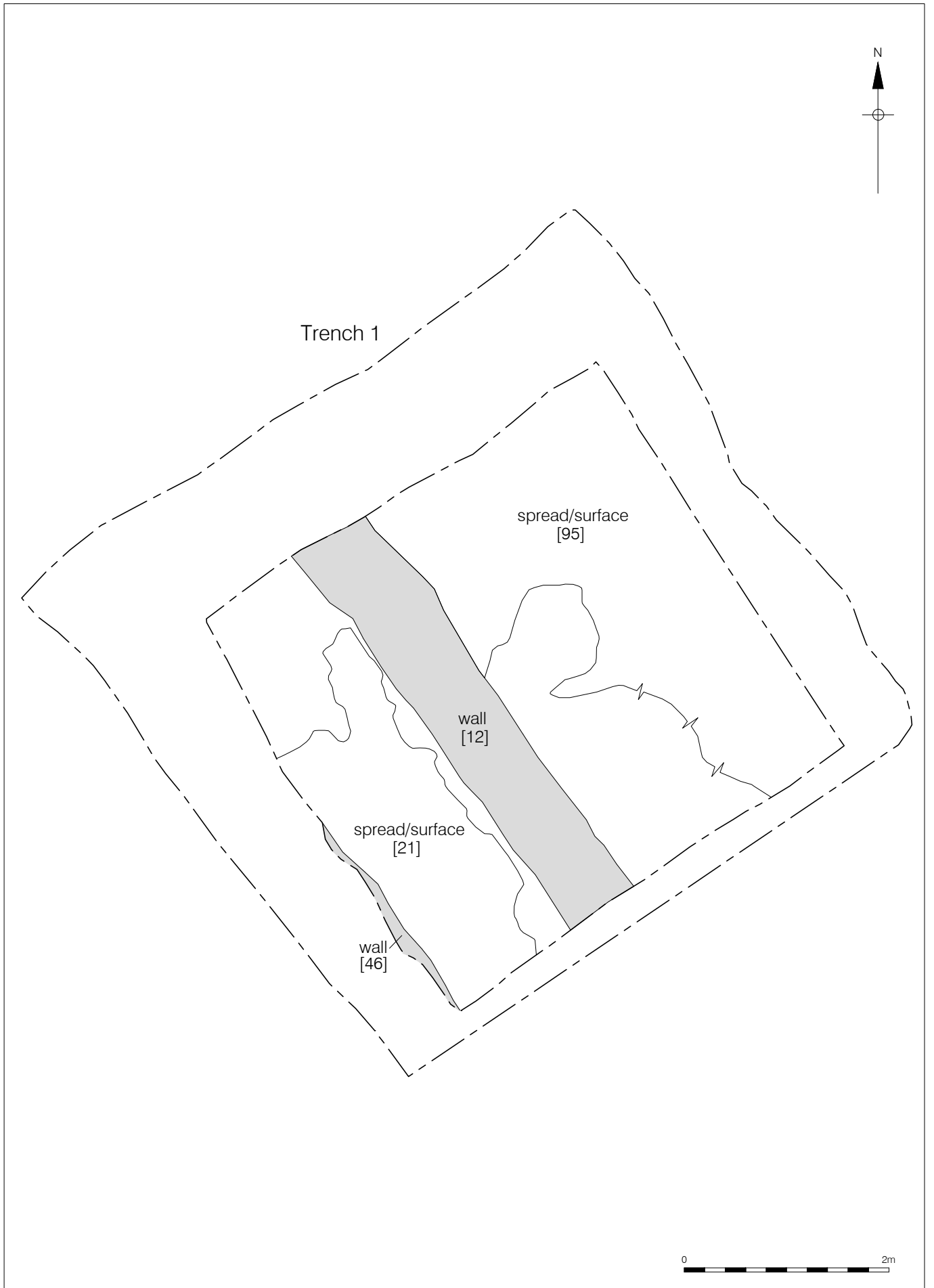
- 5.9.4 Throughout Trench 2, the part demolished and backfilled cellar rooms were overlain with a compact layer, [26], of recycled aggregate, the same as layer [5] in Trench 1, here up to c. 0.55m thick and recorded at a maximum height of 4.16m OD (Figure 13, Section 1; Plate 27).
- 5.9.5 The 'piling mat' formed by layer [26] was again overlain by a compact layer, [25], of dolomite roadstone, up to 0.25m thick and recorded at a maximum height of 4.37m OD. In turn, this deposit underlay a layer, [24], of imported topsoil, up to 0.20m thick and recorded at a maximum height of 4.46m OD. Across much of the trench, this deposit, along with its associated turf-line, [23], comprised the existing ground surface, while in places the remains of a tarmac pathway, [22], survived, this recorded at a maximum height of 4.48m OD (Figure 13, Section 1). Ahead of the excavation, the area in which Trench 2 was sited had been a 'pocket park' on the Quayside frontage, with both the pathway and grassed area having been components of this park.

S8: North Facing Section in Trench 1

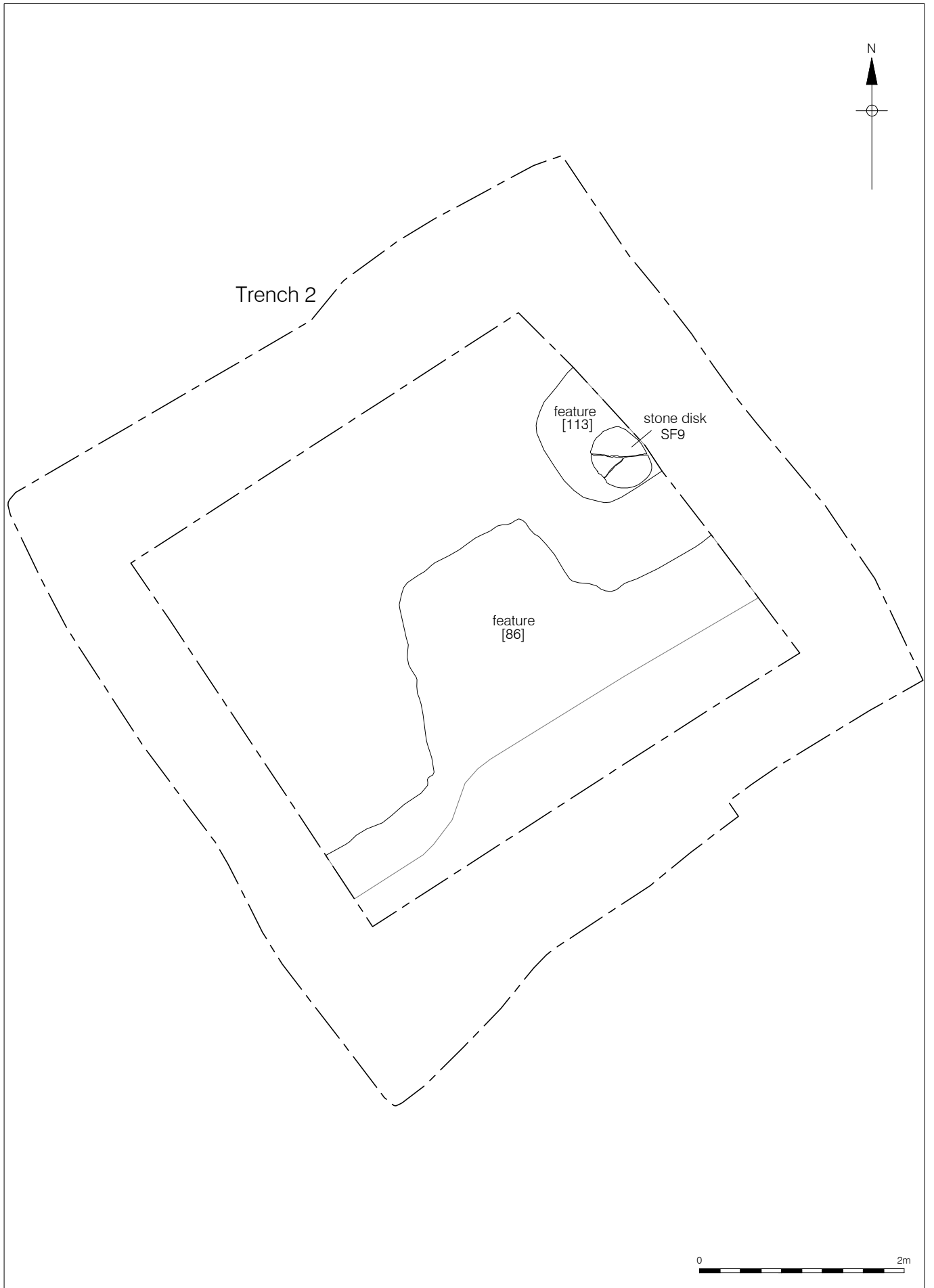


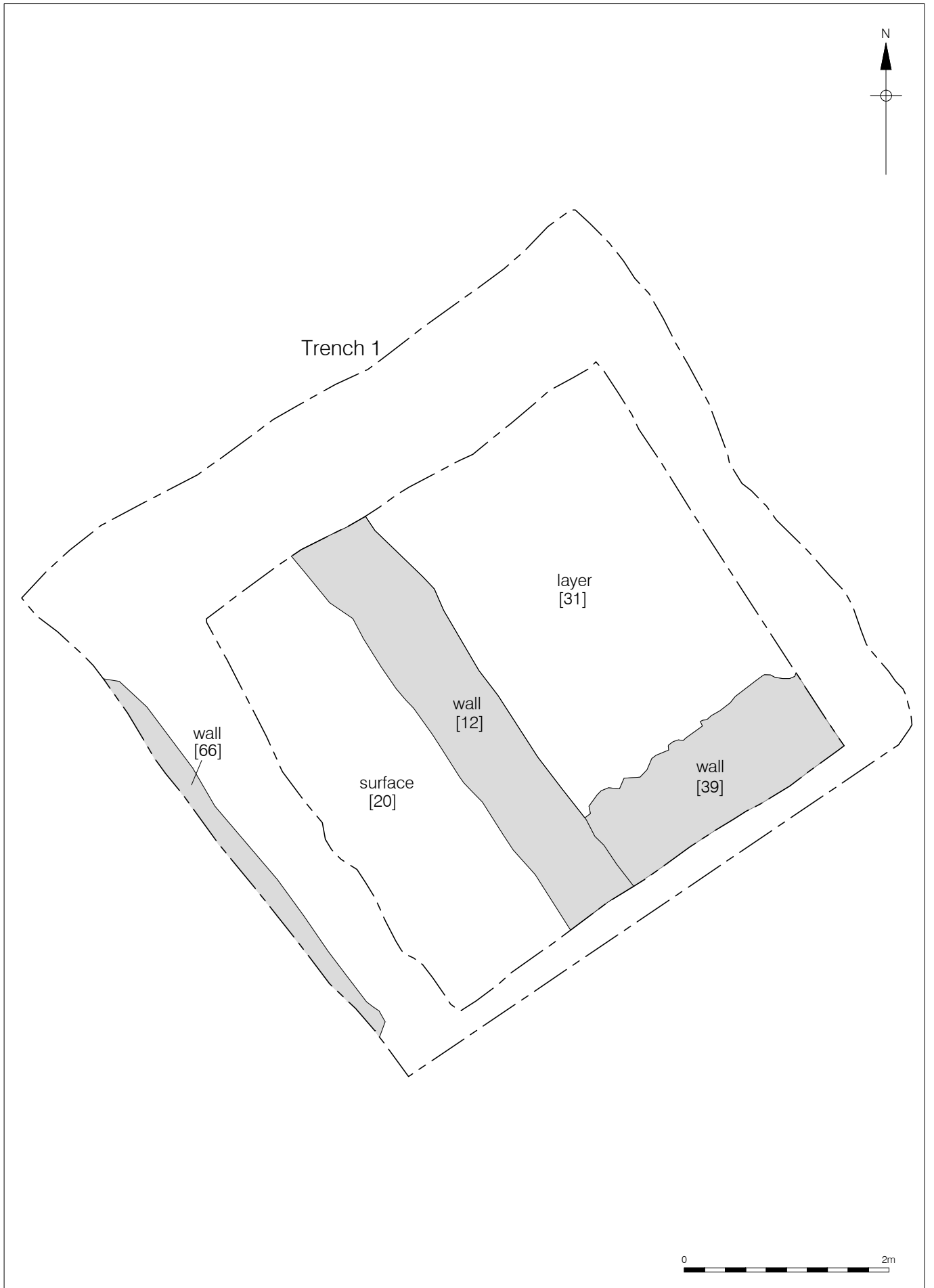
S7: Phase 1 Deposits in West Facing Section of Sondage in Trench 2











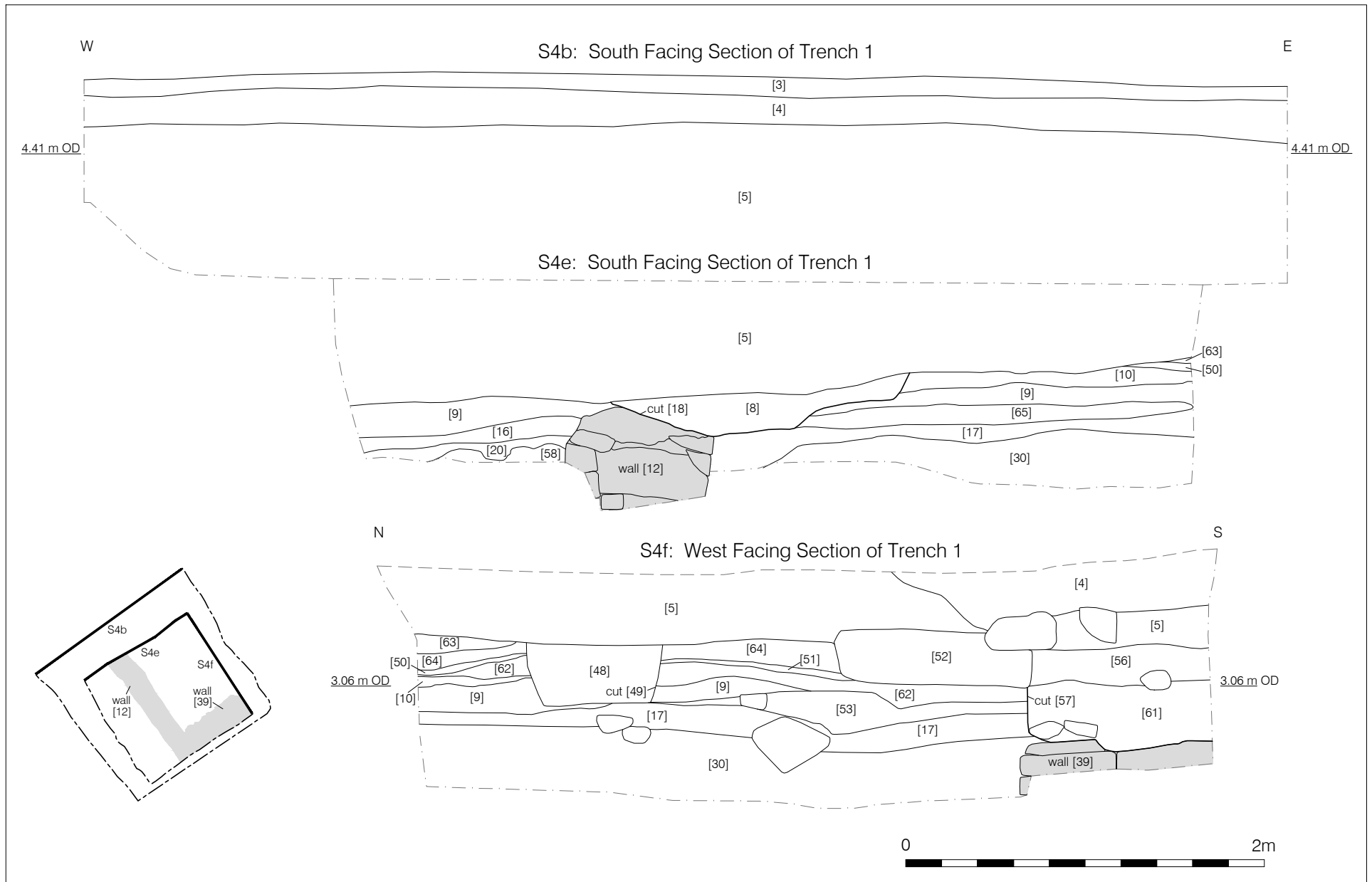


Figure 8  
Trench 1, Sections 4b, 4e and 4f  
Plan 1:200, Section 1:30 at A4



Figure 9  
Trench 2, Phase 3a  
1:50 at A4



Figure 10  
Trench 2, Phase 3b  
1:50 at A4

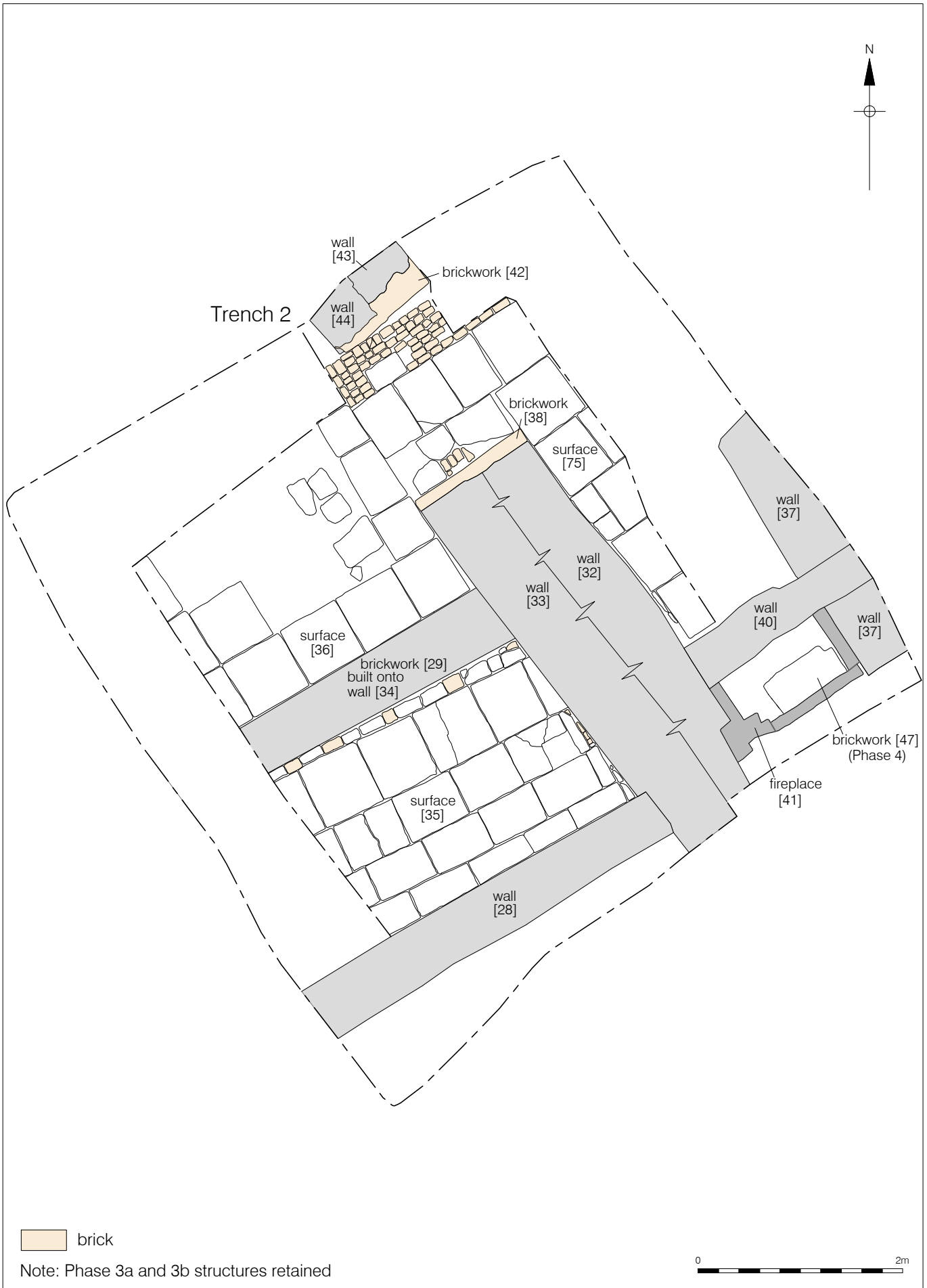
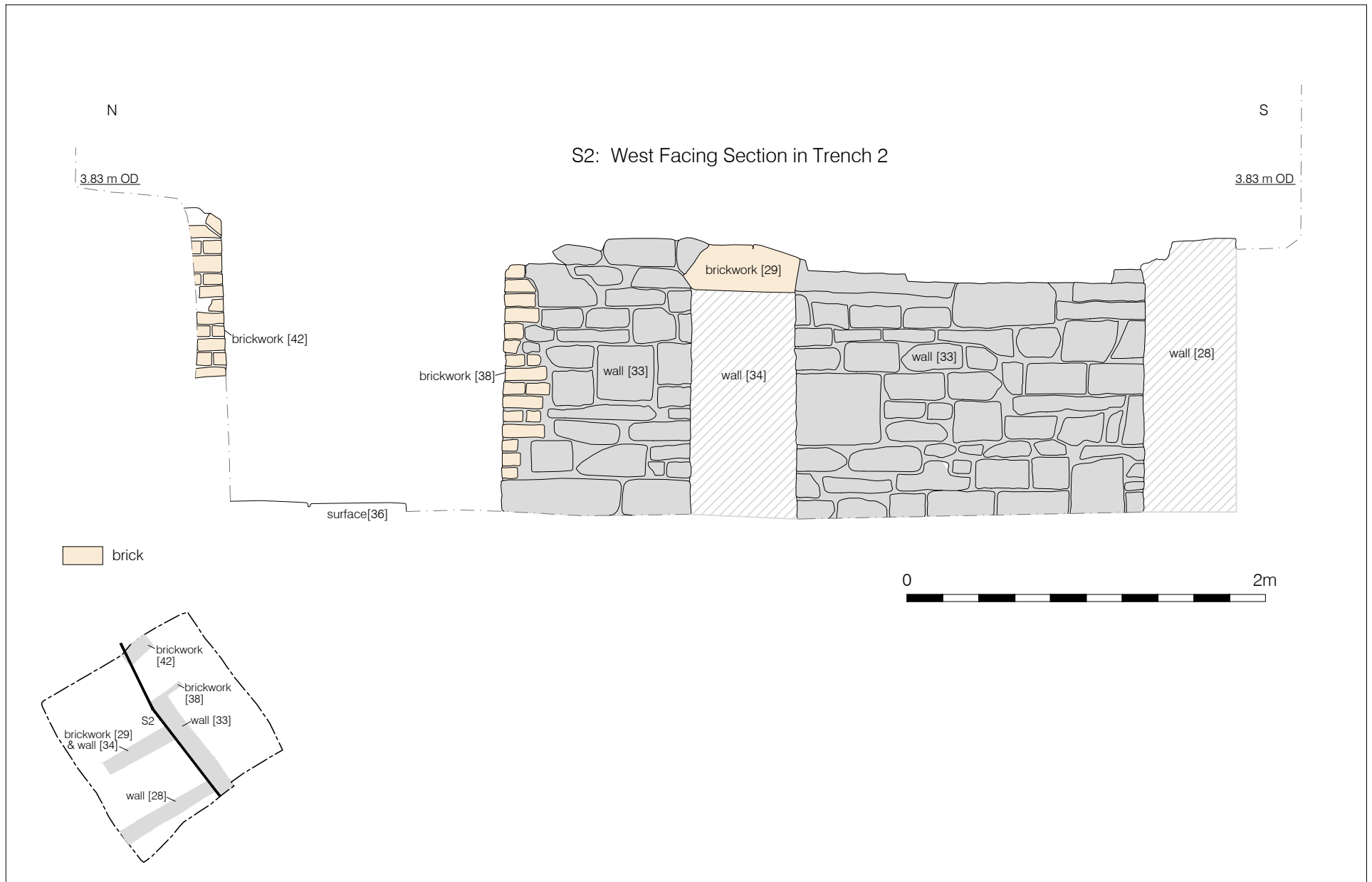


Figure 11  
Trench 2, Phase 3c  
1:50 at A4



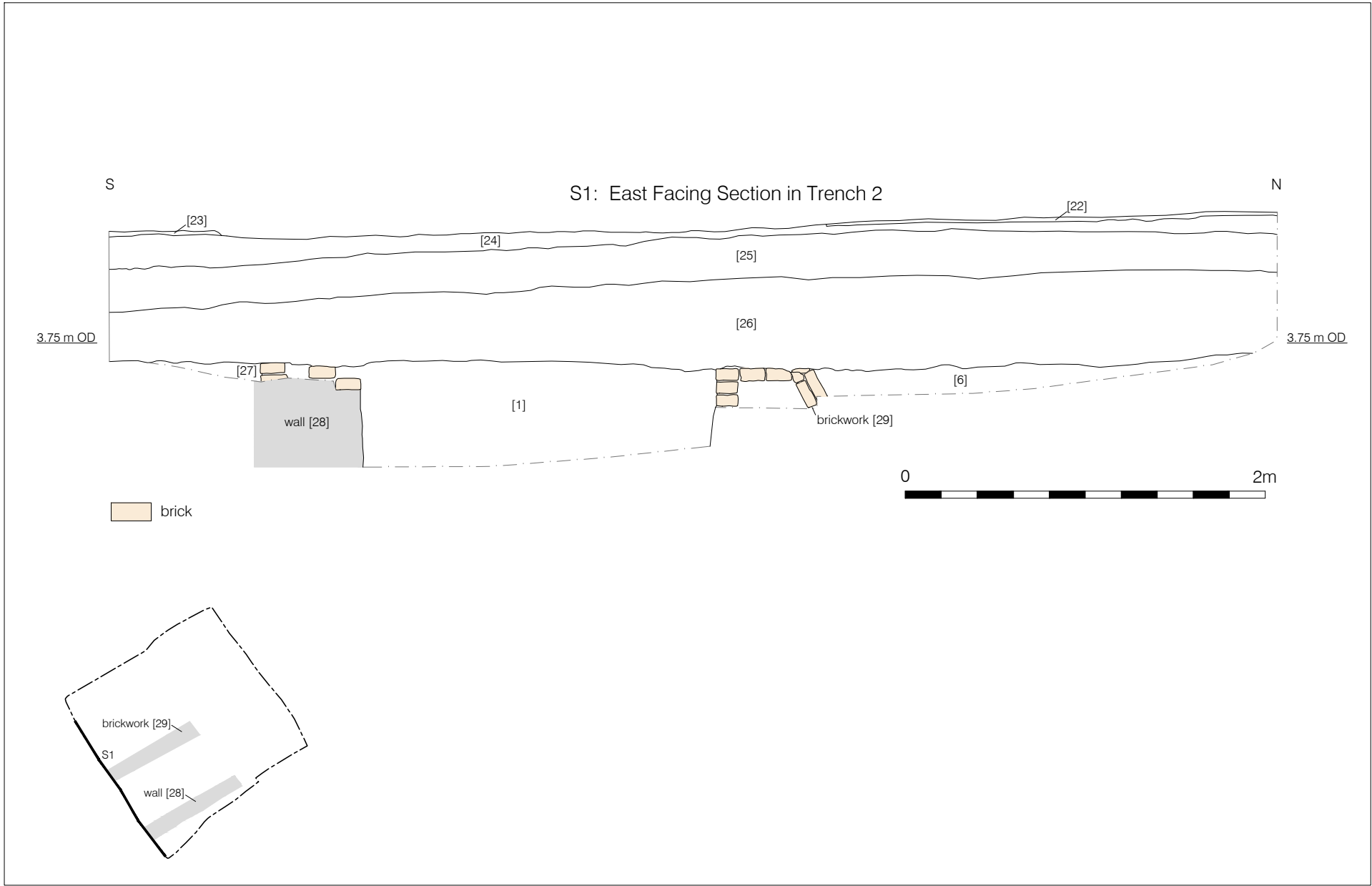


Figure 13  
 Trench 2, Section 1  
 Plan 1:200, Section 1:30 at A4



## ***PART B: DATA ASSESSMENT***

## 6. STRATIGRAPHIC DATA

### 6.1 Paper Records

6.1.1 The paper element of the Site Archive is as follows:

<i>Item</i>	<i>No.</i>	<i>Sheets</i>
Context register	1	4
Context (incl. masonry) sheets (137 no. contexts assigned)	-	138
Section register	1	1
Section drawings	8	28
Plans	90	96
Small Finds register	1	1
Environmental samples register	1	1
Environmental sample sheets	-	18

*Table 6.1. Contents of the paper archive*

### 6.2 Photographic Records

6.2.1 The photographic element of the Site Archive is as follows:

<i>Item</i>	<i>No.</i>	<i>Sheets</i>
Digital photographs register	1	11
Digital photographs (each image in JPEG and TIFF formats)	282	1 (CD)
Monochrome prints (from 35mm film) register	3	4
Monochrome prints (from 35mm film)	58	8
Monochrome negatives (from 35mm film)	58	3

*Table 6.2. Contents of the photographic archive*

### 6.3 Site Archive

6.3.1 At the time of writing, the paper and photographic records component of the Site Archive (site code: TRQ 14) is currently held at the Northern Office of PCA. Some components of the artefactual and ecofactual assemblages have been retained by specialists pending further analysis, as detailed in the following sections.

6.3.2 Eventually, the Site Archive, comprising the documentary material (written, drawn and photographic records) and the physical evidence (retained artefactual and ecofactual material), will be deposited with the Great North Museum: Hancock, Barras Bridge, Newcastle upon Tyne, NE2 4PT, under the site code TRQ 14.

6.3.3 The detailed requirements of the repository will be met prior to deposition.

## 7. POTTERY

Jenny Vaughan (NCAS)

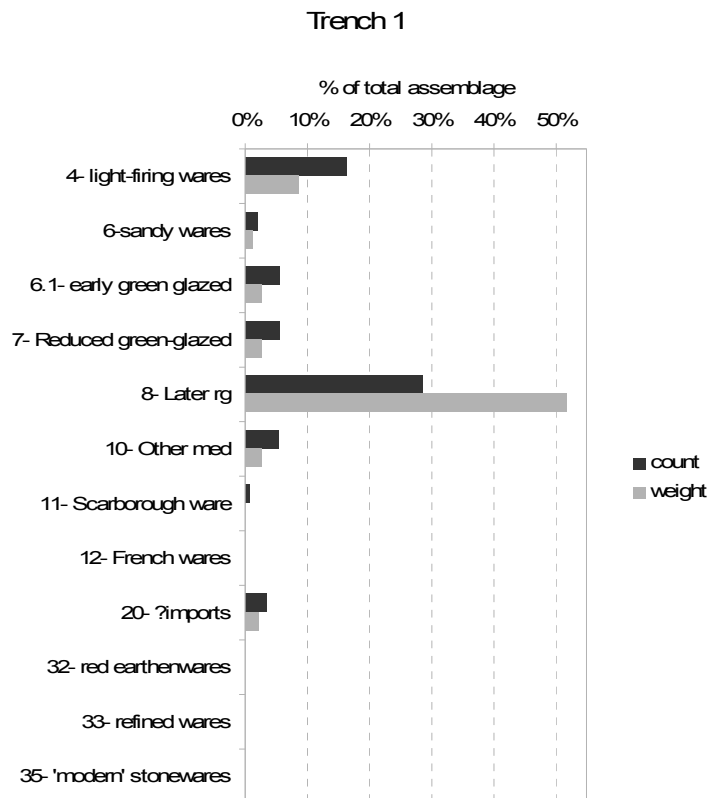
### 7.1 Introduction

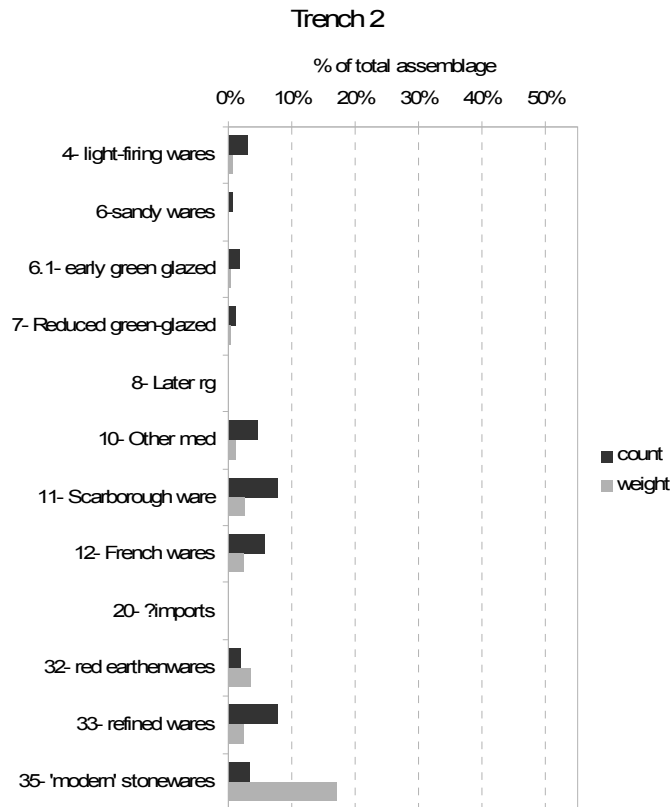
7.1.1 An assemblage of 303 sherds of pottery, weighing 11.479 kg, was recovered. Trench 1 produced the larger of the two assemblages, which was exclusively medieval, ranging in date from the 13th century to the 15th century. The medieval pottery from Trench 2 was broadly 13th/14th century but that trench also produced a group of post-medieval ceramics of broadly 19th- or early 20th-century date.

7.1.2 Many sherds from Trench 1 were discoloured with areas of de-vitrified glaze and rust-coloured accretions. Some of the medieval material from Trench 2 was abraded, perhaps water-worn.

### 7.2 Pottery Types Present in the Assemblage

7.2.1 The trench assemblages are summarised in the two charts, below. Some small groups have been amalgamated, but the distinctions remain in the catalogue (Appendix D), which should be consulted for full details.





7.2.2 The largest group present was made up of the later reduced greenwares (Fabric Group –FG - 8) from Trench 1. Nearly half the sherds belonged to a large three-handled jug with bridge spout. It may have been a cistern, *i.e.* with a bung hole, but no bung hole was present. There were two other large strap handles and a rim with handle scar probably from similar vessels. A smaller handle and base from a vessel with internal glaze and a buff coloured deposit is possibly a urinal. There were two bases (one splayed) of smaller vessels and a jug rim in FG 7 which includes oxidised and part-oxidised green-glazed wares. Two joining sherds from Trench 2 had both applied and impressed decoration. There were only a few sherds of the early coarser green-glazed wares. These included a rim and rod handle.

7.2.3 Light-firing wares (*e.g.* buff-white wares) were the second largest group. Of the five rims present (all from Trench 1), four were everted jar rims of various forms and one was a straight rim possibly from a dripping pan. The 'other medieval' category includes sherds which were too small, abraded or discoloured to identify clearly. Some may be non-local wares; these included two bases with fingering.

7.2.4 Two identifiable groups of imports were Scarborough ware and French wares. Apart from two fragments of Scarborough ware, these were from Trench 2. Amongst the Scarborough ware were sherds of a green glazed ?jug with vertical ribs, a fragment of handle and one of probably a decorative 'false' handle. There were several sherds including the base of a Saintonge mottled green glazed jug, and another jug base and rim, also probably Saintonge, in a very fine white fabric. In addition to these imports, there were sherds of unglazed greyware. One 'family' of these (in Trench 1), including a jar rim and base, are probably from the Low Countries. Low Countries greyware was found at the Castle in Newcastle in association with late medieval material, as it is here. The identification of two other sherds of a finer grey fabric is uncertain.

- 7.2.5 One sherd from Trench 2 (context [125]) of a sandy fabric is possibly the 'South Curtain Wall' type; so called because it was identified first amongst the pottery from the excavations at the south curtain wall of the Castle in Newcastle (Harbottle 1966). A distinctive jar form is a large part of the definition of this type so single body sherds are always open to question. The type appears to be short-lived, in Newcastle at least, and if the identification is correct, this is indicative of activity in the early 13th, or even late 12th, century.
- 7.2.6 The main component of the post-medieval group from Trench 2 comprised various 19th-century (or later) stonewares. These included a complete brown-glazed stoneware bottle with maker's stamp, probably Doulton but the mark is very degraded, and an almost complete buff stoneware bottle with an internal bright blue powdery deposit. This vessel had a stamp reading 'SKEY'. George Skey was a bottle manufacturer in Tamworth from 1860 into the early 20th century. It seems likely that this bottle contained laundry blue which has dried up. Part of another bottle has the mark of James Stiff, a manufacturer who set up in competition to Doulton in Lambeth. A fragment of a beer bottle with part of its printed stamp has been identified as coming from the Manor Brewery in Newcastle of Ridley, Cutter and Firth Limited (R. Taylor-Wilson pers. comm.). All these items are likely to date to the late 19th century or early 20th century. The same context ([6]) produced a single fragment of china.
- 7.2.7 A substantial part of a transfer-printed dish with flanged rim came from context [45] in Trench 2, together with a few fragments of another vessel with both gold and blue decoration and a piece of a red earthenware rectangular 'Tyneside' dish with slip-trailed decoration. A few fragments of unglazed red earthenware also occurred both in Trench 2 and unstratified. These may be 'horticultural wares' (e.g. flower pots) or perhaps even fragments of chimney pot.

### **7.3 Summary Discussion of the Pottery**

- 7.3.1 The difference between the ceramic material recovered from the two trenches is very marked. None of the small group of medieval pottery from Trench 2 is necessarily later than the 13th century, although there were comparatively few buff wares (FG 4), which are the dominant fabric on Tyneside from the mid/late 13th to the early 14th century. Instead the two largest groups are imported wares (Scarborough and French).
- 7.3.2 The assemblage from Trench 1 covers a wider date range from the 13th century to the 15th century, includes a significant quantity of FG 4 wares, and, even discounting the large jug, was less fragmented than the medieval material in Trench 2 (*i.e.* average sherd size was larger).

### **7.4 Pottery: Potential for Further Analysis and Recommendations**

- 7.4.1 The medieval assemblage from Trench 2 is certainly too small to allow any serious interpretation of this pattern, or, although there are some interesting sherds present, to merit further analysis. It should, however, be noted that Scarborough wares are known to constitute a significant proportion of the medieval pottery found on the Quayside. French wares, on the other hand, are not so common.
- 7.4.2 Although the large cistern from Trench 1 is an impressive vessel and the presence of the Low Countries greyware is of some interest, again, the assemblage is too small to have potential for any in-depth analysis, especially in view of the large quantities of medieval pottery recovered from other sites nearby.

7.4.3 The later post-medieval stonewares from Trench 2 are of intrinsic interest, but have limited value for site interpretation.

## 7.5 Spot Dates for Contexts (which produced pottery)

Context	Trench	Dating
1	0	19th/20th c.
2	2	19th/20th c.
6	2	Late 19th/20th c.
7	1	14th c.
10	1	14th/15th c.
13	1	Late medieval
14	1	Late medieval
17	1	14th/15th c.
31	1	15th c.
39	1	14th/15th c.
45	2	19th c.
58	1	Medieval
70	1	14th/15th c. (some ?earlier)
71	1	13th/14th c.
72	1	14th/15th c.
73	1	Medieval
74	2	19th c. (one medieval)
76	1	14th/15th c.
79	2	Medieval
80	2	Medieval
81	2	13th/14th c.
84	2	13th c.
88	2	Medieval
94	1	13th/14th c.
95	1	Late 13th/14th c.
96	1	14th/15th c.
97	2	Medieval
100	2	13th c. (later)
103	2	13th/14th c.
109	1	Medieval
111	1	Medieval
121	2	?
122	2	13th/14th c.
123	2	13th/14th c.
124	2	13th/14th c.
125	2	13th c.
126	1	Medieval

## **8. CERAMIC BUILDING MATERIAL**

*John Nolan (NCAS)*

### **8.1 Introduction**

8.1.1 Eighty-seven brick items and fifty-one fragments of roof tile, from medieval and post-medieval contexts, were received for cataloguing and assessment. All the material had been washed, dried, and marked. Some smaller roof tile fragments had provisionally been identified and bagged as pottery.

### **8.2 Methodology**

8.2.1 The material was examined, described, and dimensions recorded where meaningful. Fragments were not weighed, as experience has shown this is not significantly helpful to identification and dating.

8.2.2 The material was compared with actual reference and published material from other sites in Newcastle and on size and appearance broadly assigned to medieval or post-medieval periods. These were then refined, as far as possible, by comparison with bricks from dated buildings in the reference collection of NCAS and previously published reports (principally Harbottle and Ellison 1981).

8.2.3 This report summarises the catalogue data, and offers date ranges for the samples. With the brick, this may not necessarily be the same as the date of the context from which the samples derive, since brick can survive for centuries as part of an upstanding structure. Conversely, roof-tile, by virtue of its structural function, is likely to have had a shorter lifespan and the suggested dating is more likely to accord more closely with the context date.

8.2.4 The catalogues of brick (along with plaster) and tile (Appendix E) should be consulted for full details.

### **8.3 The Brick Assemblage**

8.3.1 The 87 collected brick items ranged in size from fragments, from which no meaningful dimensions could be taken, whole bricks. The catalogue records appearance, dimensions in millimetres (length, width and thickness) and any evidence for manufacture and use. The terms 'upper', 'lower', 'side' and 'header/end' are used to distinguish the faces: those with the largest surface area being the upper and lower bedding faces, and the smallest being the ends or header faces. Upper and lower faces are distinguished by the former having a 'wiped' appearance, and the latter being rougher, often with a creased appearance, and sanded or bearing impressions of the straw or grass onto which the green bricks were turned out.

### **Medieval Brick**

- 8.3.2 Fifty-four whole and fragmentary bricks, predominantly in a creamy-yellow fabric, sometimes with stone or shell inclusions, were recovered from contexts [31], [39], [76], [96], [100] and [101]. A fragment also occurred residually in post-medieval context [74]. Dimensions are typically 200mm by 100mm by 45-55mm. The largest quantity (36 samples), and the most complete examples, came from context [31], a dump/levelling deposit dated to the 15th century.
- 8.3.3 Brick of this form has been recorded at many sites in Newcastle, such as the Castle, Black Friars and Mansion House, in 14th- to late 16th-century contexts, and has been designated 'Type 1' in the published Newcastle brick type series (Harbottle and Ellison 1981; Fraser *et al.* 1995). The date range for this assemblage, based on associated pottery, spans the later 13th to the 15th century.
- 8.3.4 Examples in this assemblage had been bonded with a coarsely-gritted white mortar, which in one example retained the impressions of two overlying bricks laid at 90° suggesting a simple header-stretcher bond. One fragment from context [31], although possibly a post-medieval intrusion, shows signs of heavy burning and may have been part of a hearth or oven. Others had evidence for knife-trimming, or depressed margins attributed to use of the mould edge to press down 'lipping' of the wet clay caused when the brick was shaken out of the mould.

### **Post-medieval Brick**

- 8.3.5 Post-medieval brick occurred in several Trench 2 contexts, [28], [29], [32], [37], [38], [41], [42], [47] and [74], the majority of which are components of the cellar structures examined in the initial part of the excavation. The assemblage is characterised by orange-red, light to dark red fabrics, often with reduced cores, and bricks are generally larger, heavier, and denser than the medieval brick. As in the medieval period the upper faces are still 'wiped' and the lower rough, but the latter also have a shallow lateral comb-like 'scrape' prefiguring the later frog. Most of the assemblage is hand-moulded, indicative of the period before c. 1850, after which pressed and wire-cut brick becomes widespread.
- 8.3.6 The bricks from structures [28] (a brick cellar wall with vaulted roof) and [32] (a stone cellar wall with the brick recovered from the mortared footing) are probably of 17th-century date, with structure [29] (a brick cellar wall with vaulted roof) spanning the late 17th–early 18th century. Contexts [37] (a brick cellar wall) and [74] (the make-up layer for flagstone cellar floor) produced types which appear to span the second half of the 18th century and extending perhaps into the 1810s. Samples from wall [37] show signs of sooting, reflecting the proximity of the structure to the fireplace recorded in its vicinity.
- 8.3.7 The bulk of the post-medieval brick, in structures [38] (the brickwork facing of a doorway insert in a stone cellar wall), [41] (a brick chimney breast) and [42] (as [38]), belongs to the first quarter, or perhaps the first half, of the 19th century. All are apparently hand-moulded, though the samples from brickwork [38] appear unusually regularly-formed, with sharp edges, so may be early press-moulded brick. A brick from brickwork [42] has been cut obliquely at one end to form a springer for an arch or vault.



- 8.3.8 The most identifiably recent brick came from brickwork[47], probably a firebox or material used to block fireplace [41], in the south-east corner of Trench 2. The items comprise three samples of white-glazed press-moulded or cast brick marked in the frog 'Leeds Fireclay Co. Ltd.' and 'Burmantofts.', with the impressed number '22' on one header face. The company – which operated the Burmantofts Works - was formed as a result of a merger of firms in 1889 and closed in 1957.

#### **8.4 The Roof Tile Assemblage**

- 8.4.1 Four types of roof tile were present: pantile, flat tile, ridge tile and hip tile. The catalogue description of the material distinguishes 'upper' and 'lower' faces: the former has a smoothed or 'wiped' appearance, the latter is rough and usually sanded.

##### ***Flat or Plain Tile***

- 8.4.2 Most of tile appears to be flat or plain tile, although where only a small fragment is present it could be the flattish part of a ridge-tile apron or hip-tile. Fabrics were predominantly shades of orange-red to reddish-brown, often with a reduced core, with one face – taken as the 'upper' - wiped, the other sanded. The red fabric has been considered non-local, and Netherlands imports are suggested as the source (Harbottle and Ellison 1981, 173). No nail-holes were noted, and only four nibs, three of which were turned to the wiped face. Thicknesses vary from 10mm -20mm, but the majority are 14mm–15mm.

- 8.4.3 Flats occurred in Trench 1 contexts [10], [13], [14], [17], [31],[70], [95], [96], and [99], and in Trench 2 contexts [34], [84], [121] and [134]. Associated pottery dates for these contexts span the 13th-15th centuries, with the majority being 14th/15th century. The largest numbers of fragments in any one context (five) came from a late medieval coal spread, context [13], the next being dump/levelling deposit [31] (15th century) and a spread [95] (late 13th-14th century) with three fragments each. The first appearance of flats is difficult to date: at the Castle they typically occurred in late 16th-century contexts, though a few were apparently found in medieval contexts. At this site they occur in contexts with 14th/15th-century brick, such as dump/levelling deposit [31], suggesting both were broadly contemporary in their use.

##### ***Ridge Tile***

- 8.4.4 Two fragments of ridge tile in a gritty fabric, with pale pinkish margins, reduced cores, and green external glaze, came from 13th/14th-century contexts [81] and [122], both probably dumped ships' ballast, in Trench 2. This fabric is very similar to ridge tiles of comparable date from the Castle (Harbottle and Ellison 1981, and Nolan, forthcoming).

##### ***Hip Tile***

- 8.4.5 Six fragments of hip tile (Society for the Protection of Ancient Buildings 2009) came from 14th/15th-century and late medieval contexts, [10], [13] and [17], all dump deposits in the upper part of the excavated sequence in Trench 1. The fabric is an orange-red, perhaps again indicating an origin in the Netherlands.

- 8.4.6 Context [17] produced four fragments, the largest single piece indicating a trapezoidal or 'fish-scale' shaped tile, curved and tapering more sharply toward the top, with a single small rectangular nail-hole pierced in the green clay. The edges seem to have been knife-trimmed, and the broader tapering lower edge has a band of thin clear glaze. The large piece from context [17] has been roughly 'nibble' trimmed on its top edge, bringing it closer to the nail hole, perhaps to make the tile fit closer to the hip beam for nailing. This context is dated from associated pottery to the late 15th to 16th century. The tile from deposit [17] appears to have been 380mm long, 290mm across at its widest point, and 18mm thick.

#### ***Pantile***

- 8.4.7 These are not thought to have appeared in Newcastle before the second half of the 16th century (Harbottle and Ellison 1981). Pantile fragments of a uniform orange-red were present in contexts [1] and [74] in Trench 2; associated pottery and their appearance suggests an 18th/19th-century date. Another possible fragment occurred in dump deposit [76] in Trench 1, although this is a 14th/15th-century context, which suggests this piece is either intrusive, or not pantile.

#### ***Uncertain***

- 8.4.8 A very over-fired – or severely burned – fragment from 14th/15th-century context [7], a spread in Trench 1, appeared to be a layer-cake composed of one or more pieces of orange-red tile and lime mortar. The original form may have been a red clay ridge tile or overlapping flat tiles that have subsequently been subjected to intense heat. Given the interpretation of the context, this item may have derived from some industrial activity.

### **8.5 Discussion of the Ceramic Building Material**

- 8.5.1 The distribution and dating of most of the recovered ceramic building material largely reflects the locations of the two trenches. In Trench 2, the material is predominantly post-medieval, since the stratigraphy investigated on the Quayside frontage was dominated by brick and stone-built cellaring. In this trench, brick occurred in ten contexts, only one of which (a pit fill) was medieval, and roof tile in eight, half of which were medieval.
- 8.5.2 Trench 1 produced more medieval material, with brick in five contexts and roof tile in twelve. The greater quantity of roof tile perhaps suggests this area was, at the time of deposition, an open yard or backland area, where building debris, such as that generated by re-roofing, might be expected to have been discarded.
- 8.5.3 The range of brick types is broadly comparable with similar sites in Newcastle, such as Close Gate and Mansion House, and apart from the survival of complete Type 1 examples, the assemblage is generally unremarkable.

- 8.5.4 Of the roof tile, none of the 'flats', or plain tiles, was complete enough for the original size to be determined. The only evidence for their attachment to laths comes from three nibs, apparently formed from a projection of the tile clay into a notch at the top edge of the mould, and turned after the tile was taken from the mould (Lewis 1987, 8). All three nibs were turned onto the wiped 'upper' face. Perceptually this is the 'outer' face that would have been visible, but obviously for the nibs on these pieces to function as hangers, the rough sanded face would have to be outermost. Could these tiles have been manufacturing errors, perhaps hinting at mass-production and perhaps an unskilled or careless worker? The evidence of mortar adhering to one sample shows it, at least, was used. An alternative possibility is that the nibs acted as spacers, allowing the use of a layer of moss (Salzman 1952, 233) or mortar as a wind-proof bedding.
- 8.5.5 Unfortunately there is insufficient published ceramic building material data from the other major 'East Quayside' excavations – Queen Street, The Swirle, Stockbridge and the Crown Court sites – with which to compare the current assemblage. Surprisingly, only one of these excavation reports (The Swirle) actually includes a short catalogue of ceramic building material in its 'finds' section.
- 8.5.6 The Queen Street report refers to brick used as oven lining in mid-14th-century contexts, and roof tile in late 16th- to early 17th-century contexts; at Stockbridge, some small brick and tile fragments are noted in the 13th-century phase, and more in the mid-late 14th- and 15th-century contexts. The Crown Court report mentions brick walls and brick rubble in a very broad 'Phase 4' (1400-1600). The Swirle report records flat or plain roof tile in phases spanning the 13th to the mid-17th century, and the published description of their fabrics broadly accords with those from the current site, although all appear to have had paired nail-holes rather than nibs. This report also suggests a Low Countries origin for the medieval types.

## **8.6 Ceramic Building Material: Potential for Further Analysis and Recommendations**

- 8.6.1 As stated above, the range of brick types in this assemblage is broadly comparable with similar sites in Newcastle, such as Close Gate and Mansion House, and apart from the complete medieval examples is generally unremarkable and unlikely to repay further study. Further archival research might enable the date of the Leeds Fireclay Co. bricks in context [45] to be established more precisely, although late post-medieval evidence is not a research priority of this project. While a photograph of the brick stamp could be included in the excavation report, it would be of intrinsic interest only.
- 8.6.2 On the evidence of the rather scant published excavation reports there appears to be no previous record of hip tile having been found in excavations in Newcastle, although it is possible that the form may not have been recognized if severely fragmented. It is also possible that for the three sites mentioned above as lacking published ceramic building material reports, this find type was not examined or catalogued in any detail, and may contain further examples of hip tile. These tiles would repay further investigation, looking for parallels elsewhere in the region and for evidence as to their production source.
- 8.6.3 It is recommended that the large piece of hip tile from context [17] should be illustrated.

***Building Material Recommended for Retention***

- 8.6.4 It is recommended that all hip tile fragments be retained. The nibbed fragments of flat or plain tiles in contexts [13] and [31] should also be retained, as future study may establish if these are 'seconds' or a common form of plain tile.
- 8.6.5 One example of the complete medieval Type I bricks from context [31] should be retained in the archive, as should one complete example from post-medieval contexts [28], [29], [37], [38], [41], [42] and [45], all from Trench 2.

## 9. MISCELLANEOUS FINDS (CLAY PIPE, GLASS AND METALWORK)

*Jenny Vaughan and Robin Taylor-Wilson*

### 9.1 Introduction

9.1.1 Small quantities of other artefact categories were recovered: these comprising clay tobacco pipe, glass and metalwork (iron, copper alloy and lead).

### 9.2 Clay Tobacco Pipe

9.2.1 One complete, though chipped, clay pipe and six fragments of pipes were recovered, all from Trench 2.

9.2.2 The complete pipe with spurless bowl (from context [6]) is marked on the stem 'ROBERT SINCLAIR' one side and 'GOLDEN TWIST' the other. Robert Sinclair was the manufacturer of Golden Twist tobacco not the pipe maker. A piece of stem also from context [6] had the same marks, while another with the start of a bowl was marked '...NNANT' one side and 'NEWCASTLE' the other. This is William Tennant, a pipemaker in Newcastle from 1875 to 1925. As the Sinclair Company lasted well into the second half of the 20th century, the items so marked could all date to the 20th century.

9.2.3 There were two pieces of pipe stem from context [45], one with traces of yellow glaze. Although unmarked, the narrow bores (c. 5/64") indicate a late date.

9.2.4 Two pieces of stem from context [78] were earlier. Both had bores of about 7/64" and one had a stem stamp and a thickened portion of the stem with rouletted encircling grooves. The stamp, reading 'MIC/PARK', was that of Michael Parke, a maker in Gateshead between about 1692 and 1736. This type of oval stem stamp went out of use (for makers) about 1710 so this gives a relatively close dating of about 20 years.

### 9.3 Glass

9.3.1 Thirteen glass items were recovered, all but one from Trench 2. These are listed below:

*Context [6] (Trench 2)*

- Small heavy moulded clear drinking glass.

*Context [45] (Trench 2)*

- Small clear glass phial.
- Blue egg-shaped bottle but with flattened base, top missing, marked 'I TUCKER & Co/GATESHEAD'.
- Lower part of light green glass bottle of same shape as above and probably the same mark.
- Light green mineral bottle without top, marked 'MELVILLE/NEWCASTLE with the bottle maker in a smaller mark 'DALE, BROWN & Co LTD/SWINTON'.
- Base of dark brown bottle marked 'VAUX'.

- Fragment of dark brown bottle.
- Two brown bottle tops with internal screw stoppers in place: one marked 'VAUX', the other 'WHITBREAD & Co LONDON'.
- Small base of burnt, devitrified glass vessel.
- Rectangular strip of mirror glass.

*Context [61] (Trench 1)*

- Small clear 'Craven Dairies' milk bottle.

*Context [77] (Trench 2) (SF 3)*

- Fragment of an iridescent olive green glass bottle with seal: lion rampant flanked by the letters 'W' to the left, 'E' to the right and 'L' above, within a lined border. The fragment measures 95mm x 55mm, thickness 4-6mm and the seal diameter is 30mm.

9.3.2 The bottle fragment with seal is the most interesting item amongst the glass assemblage, being part of an early tavern bottle and a hitherto unrecorded example (D. Burton pers. comm.). From the mid-17th century, glass bottles began to replace stoneware flagons in general use (Leeds 1941, 54) and were most frequently used as decanters for the service of wine (as well as other beverages), more often than simply for storage, from both public taverns or private cellars (Leeds 1941, 54; Burton 2014, 1672). Thus, it became the fashion for merchants, artisans, tavern holders, landed gentry and other well-to-do families to have bottles made for their service, often including their seal during manufacture. The seal usually carried the name or initials of an individual, or a couple, a family crest or coat of arms, an emblem or motif of tavern, or indeed any other mark or means of identification (Burton 2014, 1669). The initials on this item may be those of a couple, such as a husband and wife with Christian names beginning 'W' and 'E', such as William and Elizabeth – a fairly common combination in the 17th century and surname beginning 'L'; suggesting co-licensees of a tavern, which, given the inclusion of the lion, indicates a 'Lion' tavern, likely qualified, for example, golden, red, rampant, etc. (D. Burton pers. comm.).

9.3.3 Unfortunately the seal does not include a date. Nevertheless, studies of seals and the bottles upon which they were stamped have established that it is possible to fix approximately the date of bottles which have no date on their seal by their overall form (Leeds 1941, 51). Other details, such as the lettering on the seal or indeed the position of the seal on the bottle can also be useful in this regard. For this item, the curvature of the glass certainly indicates a late 17th-century bottle, while the seal position, on the shoulder of the bottle and thus at an angle of approximately 45° from a sideways viewpoint, places it at c. 1690-1700 (D. Burton pers. comm.).

9.3.4 The glass from context [6] in Trench 2 is likely to be of 20th-century date. The group from context [45] in the same trench can be dated by the Melville bottle. The manufacturer, Dale, Brown and Co., took over the Swinton glassworks in 1913 (*Swinton Heritage Society website*). The milk bottle from Trench 1 is also of 20th-century date.

## 9.4 Metalwork

9.4.1 Eleven metal items were recovered, most from Trench 2. These are listed below:

### *Iron*

9.4.2 Six iron items (in 11 fragments) were recovered. These were X-rayed then examined. All but one appeared to be nails, or parts of nails.

- SF 4 - context [80] (Trench 2): possibly complete nail; 67mm long with a slightly domed head 22mm wide; weight 65g.
- SF 5 (three fragments) - context [80] (Trench 2): part of another nail with large head, c. 21mm wide; the other pieces were probably parts of the nail shank; weight 42g.
- SF 7 (two fragments) - context [78] (Trench 2): large bent nail with no clearly defined head, and part of a shank; weight 27g.
- SF 8 - context [100] (Trench 2): small nail c. 32mm long, with flat head c. 10mm wide; weight 11g.
- SF 10 - context [84] (Trench 2): probably a nail shank fragment; weight 65g.
- SF 14 (three fragments) - context [81] (Trench 2): two appeared to be nail fragments, the other a small roughly oval piece which appeared to have a deliberate slit or notch in it; weight 50g.

9.4.3 Of this group of items, the nails are of no particular interest, and the assemblage as whole is too small to have value for site interpretation. The other item, even if its form could be clearly seen, is unlikely to be identifiable as to function.

### *Copper Alloy*

9.4.4 Three copper-alloy objects were recovered, only one (SF 2) identifiable:

- SF 1 – context [31] (Trench 1); small unidentifiable fragment; weight 1g.
- SF 2 – context [74] (Trench 2); complete example (31g) of an 18th-century shoe buckle; weight 31g.
- SF 11 - context [123] (Trench 2); disintegrating unidentifiable fragment; weight c. 1g.

### *Lead*

9.4.5 Two lead items of leads were recovered, both from Trench 1:

- SF 6 – context [96]; small piece of sheet, possible off-cut/trimming; weight 18g.
- SF 13 – context [70]; probable leadworking 'drip'; weight 5g.

## 9.5 Miscellaneous Finds: Potential for Further Analysis and Recommendations

9.5.1 Some of the clay pipe fragments have been of use during the assessment in dating the contexts from which they were recovered, but on the whole there is little or no potential for further analysis for the clay pipe assemblage. One or two of the items may merit mention in any publication of the results of the work.

- 9.5.2 Some of the glass items are of intrinsic interest but on the whole there is little or no potential for further analysis for the assemblage, with the notable exception of the 17th-century bottle seal. Research could allow the 'owner(s)' of the seal to be identified and thus its date confirmed. Such work would target documentary evidence for late 17th-century taverns – particularly 'lion' taverns - on the Quayside or in its vicinity with the aim of identify licensees with the initials on the seal. This work is recommended due to the stratigraphic position of the item, within a make-up layer for a cellar floor in Trench 2. The seal may merit mention and possibly illustration in any publication of the results of the work.
- 9.5.3 Due to its small size and the fragmentary nature of many of the items, there is very little potential for further analysis for the metalwork assemblage. The 18th-century shoe buckle does however merit mention and possibly illustration in any publication of the results of the work.



## 10. STONE AND MORTAR

*Dr Kevin Hayward*

### 10.1 Introduction and Aims

10.1.1 Three crates of worked and unworked stone items (29 items/samples, weighing 55.3kg) and one box of bagged mortar samples were retained from the excavation. For full details of the material examined, reference should be made to the *Access* catalogues for the stone ('TRQ14 Stone.mdb') and the mortar ('TRQ14 Mortar.mdb') which form part of the digital archive. An abbreviated version of the stone catalogue is included herein (Appendix F).

10.1.2 The assemblage was assessed with these principle aims in mind:

- To identify the fabric of the unworked and worked stone samples (under binocular microscope) from probable dumped ships' ballast of medieval origin and an assortment of structural remains of medieval and post-medieval date, in order to determine what the material was made of and, if possible, to elucidate whether it came from local sources (*i.e.* North-East England) or from further afield (*e.g.* could a case be made for any of the material having arrived at the site as ships' ballast).
- To provide a review of the different mortar types used in the medieval and post-medieval structures which had been bonded.
- To make recommendations for further study of any of the assessed material.

### 10.2 Methodology

10.2.1 The application of a 1 kg stonemason's hammer and sharp chisel to each example ensured that a small fresh fabric surface was exposed. The fabric was examined at x20 magnification using a long arm stereomicroscope or hand lens (Gowland x10). As there was no existing Tyneside stone reference collection available, a decision was made to prefix each lithotype with 'NEW'. Thus 'NEW 1'; 'NEW 2', *etc.*, for each lithotype. The local geological 1:50 000 solid and drift maps (1975; 1978; 1992) and accompanying memoir for the Newcastle district (Mills and Holliday 1998) were consulted to identify sources of suitable quarried stone.

### 10.3 Mortar Types

10.3.1 A summary of the medieval and post-medieval mortar types, as well as their suggested period of use at the site, are given below (Table 10.1).

Mortar/Concrete Type	Description	Use at the Site
T1 - hard woody lime mortar	Tough concrete-like light grey lime mortar, woody matter up to 10mm, angular coal inclusions 5-10mm, occasional bivalve shell 5mm, Quartz sparse, chunk of purple siltstone lithotype 4	1750-1900; repointing (?) of post-medieval (N-S) stone-cellar wall [32] in Trench 2
T1a – hard lime mortar	Light brown variant of above, fine with lime chunks and angular coal fragments 5-10mm	1750-1900; repointing (?) of post-medieval brick cellar wall [37] in Trench 2
T2 - loose dark grey earthy mortar	Loose dark grey earthy recipe with small chunks (10mm) of T3 quartz-lime mortar	1500-1800; possible primary mortar of post-medieval (N-S) stone cellar walls [32] and [33] in Trench 2; found on the same block of stone from wall [32] as T1 mortar

T3 - lime rich Tufa mortar	Lime rich white grey shelly bulbous mortar, sparse but large quartz fragments, pebbles 5mm across, pink and pale cream clay inclusions, occasional coal flecks 2-5mm	1500-1800; possible repointing mortar for medieval stone wall [12] in Trench 1; also used in medieval or post-medieval (E-W) stone wall [40] in Trench 2 and N-S stone walls [43] and [44] (interrupted continuations of walls [32] and [33]) in Trench 2
T4 - beige/white quartz rich lime mortar	Abundant small angular inclusions of quartz, no clay inclusions or coal, pebbles of local sandstone	1400-1600; relict medieval mortar from secondary fill [100] of pit [113] in Trench 2

*Table 10.1. List of identified mortar types in the samples*

- 10.3.2 Five hard and soft lime mortars were sampled and identified from one medieval structure, stone wall [12] in Trench 1, and six post-medieval stone and brick structures, [32], [33], [37], [40], [43] and [44] in Trench 2, with an additional example recovered from the secondary fill, [100], of a medieval pit, [113], in Trench 2. The inclusions (maroon siltstone; coal and sandstone fragments) suggest local Upper Carboniferous materials were included in the recipe. Shell, which was probably acquired from the River Tyne and its estuary, was also common.
- 10.3.3 The earliest mortar type is probably T4, which is quartz dominated, from medieval pit [113]. T3, a lime-rich recipe with numerous cream and pink clay inclusions, is the most common type, associated with the medieval wall [12] in Trench 1 and several of the wall components, [40], [43] and [44], of the post-medieval cellar complex in Trench 2. It is entirely possible that the long-standing wall [12] was repointed during the early post-medieval period using this mortar. T2, also from the post-medieval cellar complex, walls [32] and [33], was poorly-preserved and may simply represent dissolved T3 mortar.
- 10.3.4 Later harder recipes (T1 and T1a) of a type that were patented from the mid-18th to 19th century throughout England are associated with some components of the post-medieval cellar complex in Trench 2, walls [32] and [37]. The former is on the same stone block as the T2 mortar, suggesting repointing at a late post-medieval date.

## **10.4 Stone Types**

- 10.4.1 29 samples of stone, weighing 56 kg in total, were recovered.
- 10.4.2 Twelve lithotypes (NEW1-NEW12) were identified from medieval and post-medieval walls and floors in Trenches 1 and 2, as well as within stones taken from a ballast cobble 'raft', [81], in Trench 2. A separate examination of flint cobbles from two ballast dumps, [131] and [138], in Trench 1 has been conducted (Section 11).

### **Local Upper Carboniferous Sandstones**

- 10.4.3 Although it was not possible to compare samples of the worked and unworked stone with a local stone reference collection, it was nevertheless possible to make general comments on the macroscopic characteristics of these sandstones. The rocks texture and mineralogy are typical of fine and coarse grained fluvial sandstones from Upper Carboniferous. A whole range of such sandstones were exploited locally for building materials from quarries in the Newcastle district, such as the 'Third-Grit', Low Main, High Main, Seventy Fathom and Grindstone Posts (Mills and Holliday 1998, 90). None of these are active quarries.

### **NEW1**

- 10.4.4 A fine pale olive-green laminated micaceous sandstone; the local equivalent of York Stone (Elland Flags) of the Leeds-Bradford-Elland District. Probably a sandstone unit from the Lower Coal Measures Tyneside District.
- 10.4.5 The rock, which weathers (oxidises) red-brown and has distinctive laminae c. 20mm apart is a 'flagstone' which shares some characteristics with, but is not identical to, York Stone, which was mined in enormous quantities in the Victorian period (Godwin 1984, p.1).
- 10.4.6 The ability of this rock to split made it eminently suitable for paving, as shown in the example from flagstone floor [36] in the post-medieval cellar complex in Trench 2. The same material was also used in medieval wall [12] in Trench 1 and for a large circular (c. 60cm diameter) stone 'disc' (SF9) from medieval pit fill [100] in Trench 2. In addition, one of the cobbles from medieval cobble 'raft' [81] in Trench 2 was also of this material; it was likely acquired from the adjacent Tyne river-bed, as demonstrated by 'chatter' marks (irregular gouges made by the slipping of rock fragments held in the lower portion of a glacier).

### **NEW2**

- 10.4.7 A banded fawn-brown medium grained quartz sandstone; the local equivalent to 'blond' channel sandstones from Glasgow (Hayward in prep; Hyslop and Alborno-Parra 2008) and elsewhere. A coarse sandstone unit from the Lower Coal Measures Tyneside District.
- 10.4.8 The most common lithic material amongst the assemblage (6 examples, with total weight 13.66kg), this had been used in components of post-medieval cellar structures, walls [32], [33] and [40], as well as for flagstone floor [75], all in Trench 2. A robust stone type, this was suitable for rough dressing, as shown by large chisel marks in the sample from flagstone floor [75], and as walling could be worked into large rectangular blocks typical of those seen at this site (where 200mm x 120mm x 120mm block dimensions were typical). The fact that these blocks were extracted from quarries is shown by the presence of a dowel hole in a poorly worked block from a medieval dump layer, [31]. One example, from wall [40], displayed ripped up mud-clasts and cross-bedding, indicating that the rock was deposited in high energy river conditions. The final item came from fill [103], the fill of a feature, [86], seemingly related to medieval reclamation of the foreshore; although this item resembled a whetstone – this being the reason it was retained – it was most probably simply from walling rubble.

### **NEW3**

- 10.4.9 A fine pale-grey laminated micaceous sandstone; the local equivalent of York Stone (Elland Flags) of the Leeds-Bradford-Elland District. Probably a sandstone unit from the Lower Coal Measures Tyneside District.
- 10.4.10 Another flagstone lithotype comparable with NEW1, this was identified in the flooring of the post-medieval cellar complex, floor [35], in Trench 2.

### **Local Upper Carboniferous Siltstone**

#### **NEW4**

- 10.4.11 A fine purple-maroon micaceous siltstone. A local siltstone unit from the Lower Coal Measures Tyneside District.

10.4.12 This poor quality hard siltstone was only identified in a rubble block from post-medieval cellar wall [40] in Trench 2, and as an ingredient in 19th-century mortar (T1).

#### **Igneous Materials from Till Deposits**

10.4.13 Two of the cobbles with 'chatter' marks from cobble 'raft' [81] in Trench 2 are made from older harder crystalline granitoid rocks (NEW 5 and NEW 6) rocks.

10.4.14 **NEW5** is a pink feldspathic acid igneous rock and **NEW6** is a dark-grey coarsely crystalline intermediate igneous rock, with a distinct band of NEW5 present within it. Much of the Tyneside region is blanketed with boulder clay containing local and exotic inclusions, some plucked up during glaciation from granites as far afield as the Lake District and Scotland (Mills and Holliday 1998, 75). These tills were subsequently eroded out and transported by Holocene river action downstream by the Tyne. As with the aforementioned NEW1 sandstone cobble from 'raft' [81], these items are unlikely to have arrived at the site as ships' ballast, but were probably acquired from the adjacent channel of the Tyne. Also in NEW6 was another item, this with a distinctly smoothed underside, from aforementioned fill [103], this again probably walling rubble.

10.4.15 Other 'exotic' materials identified are NEW7 and NEW8. **NEW7** is a hard metadolerite or lamporhye, with an item in this material recovered from fill [103] considered likely to be a river pebble reworked from boulder clay, again likely used as walling rubble. Although smooth like a whetstone - this being the reason the item from fill [103] in NEW7 was retained - in all probability this form is most likely simply the result of prolonged river wear. Another item from fill [103] is in **NEW8**, a green metavolcanic rock, probably a tuff; rather than being a worked hone or rubstone, as it may have appeared - again this being the reason the item was retained - this was also probably from walling rubble

#### **Anomalous Rock Type**

10.4.16 **NEW9** is one rock type which does not fit in with the local Carboniferous sands nor the glacial tills. Two examples, both from fill [103], occur in this hard calcareous mudstone, both reddened or 'heated' and one with barnacles attached, suggesting acquisition from the foreshore, probably from Carboniferous strata jutting out to sea. However, it could conceivably be Lower Jurassic Mudstone, such as that from Whitby, and therefore potentially imported to the site as ballast. Mortar attached to one of these items provides a strong indication that the group of similar (in form but in a variety of lithotypes) stones recovered from fill [103] had been used as walling rubble, as previously intimated.

#### **Decorative Stones**

10.4.17 Three rock types identified as polished decorative stone were recovered from the early modern demolition infill [6] of a post-medieval cellar in Trench 2.

10.4.18 **NEW10** is a white marble, similar to Carrara from Tuscany, Italy. The item has a moulded curved profile with a hole on its underside for attachment.

10.4.19 **NEW11** is a brecciated red polychrome marble similar to Africano, a colourful marble from Teos in Turkey.

10.4.20 **NEW12** is a grey brachiopod rich black marble, potentially a Dorsetshire marble or even an import from continental Europe.

## **10.5 Discussion of the Mortar and Stone**

- 10.5.1 Assessment of the samples of paving stone, walling rubble, cobbles and decorative stone from the site has identified mainly local materials likely acquired from quarries/outcrops or as pebbles/cobbles from the Tyne itself. The underlying rock for this region is dominated by hard and robust Upper Carboniferous (Coal Measure) river sandstones and siltstones, which would have been ideal material with which to construct and pave structures on the Quayside from its inception.
- 10.5.2 The possibility that the cobblestones forming medieval consolidation 'raft' [81] were brought in as ballast from elsewhere in the British Isles or even continental Europe can be largely discounted. However, one of the two blocks of a hard burnt mudstone (lithotype NEW 9) recovered from another feature, fill [103] of medieval feature [86], had a barnacle attached, suggesting acquisition from the foreshore. Furthermore, this rock is somewhat similar to Liassic mudstones from the Yorkshire coast, e.g. Whitby, and it is possible that this material arrived at the site as ships' ballast having been transported north along the coast.
- 10.5.3 Future archaeological excavation along the Tyne, or at other ports along the eastern coast of England, should still consider the dredging of flint and Kentish ragstone from the River Thames or Medway, as well as the acquisition of demolished medieval constructions in the capital for ballast.
- 10.5.4 Finally, there is the source of the high-status marble moulding and possible flooring identified from the early modern demolition backfill, [6], of a post-medieval cellar to consider. One item has a moulded curved profile with a hole on its underside for attachment. This item, along with another in what looks to be a brecciated red polychrome marble similar to Africano from Turkey and another in a grey shelly bioclastic fossil marble, were all probably derived from kitchen or bathroom fittings or furnishings. The range of materials would suggest the fittings of a fairly well-appointed residence.

## **10.6 Stone and Mortar: Potential for Further Analysis and Recommendations**

- 10.6.1 With the possible exception of some Liassic mudstones, potentially from the Whitby area, petrological assessment has discounted the possibility of an 'exotic' ballast source for the sampled building stone and cobblestones. Publication as such should be limited to a review (paragraph) of the hand-collected specimen study. Other than an illustration of the circular stone 'disc' (SF 9) from fill [100], for which an explanation of function cannot as yet be provided, and some comments on the mortar, very little else needs to be explained at publication stage with regard to the stone and mortar collected.

## **11. LITHICS**

*Dr Barry Bishop*

### **11.1 Introduction**

11.1.1 The excavation revealed substantial quantities of flint cobbles, most notably within deposits assumed to have arrived at the site as ships' ballast during the medieval period. This report comments samples of these bulk materials, as well as a single struck flint item that was recovered, and discusses their archaeological significance.

### **11.2 Description of Items Examined**

***Context [103], Trench 2, SF 12***

11.2.1 A large primary flake struck from a nodular shaped cobble of translucent black flint with a smooth-worn cortex. The 'striking platform' is heavily crushed and the flake's ripple marks indicate it was detached with a disproportional use of force, essentially causing the nodule to shatter. There is also heavy chipping around its edges. It measures 96mm long by 49mm wide and is 29mm thick.

***Context [131], Trench 2***

11.2.2 This comprises a single sub-rounded nodular-shaped cobble weighing 5,017g of mottled opaque grey / translucent black flint with a yellow-brown stained (Fe?) worn and battered cortex. It has had three flake scars, one of which is large and has resulted in the removal of nearly half of the mass of the cobble, and there are several large incipient Hertzian cones visible on the flake scar surfaces.

***Context [138], Trench 1***

11.2.3 This sample comprises five large rounded to sub-rounded cobbles that weigh between 1,590g and 419g, averaging at 906g. The cobbles consist of a semi-translucent light grey flint with a completely worn and heavily 'chattermarked' light grey cortex. The flint is severely thermally flawed, causing some to cobbles to partially disintegrate.

### **11.3 Discussion of the Lithics**

11.3.1 All of the cobbles examined are likely to have arrived at the site as ships' ballast, vast quantities of which were deposited along the banks of the Tyne during the Post-Medieval period. The flake from context [103] has undoubtedly been 'struck' but, as with the flakes removed from the cobble from context [131], it shows an excessive use of force and a randomly delivered blow, which would suggest this has occurred accidentally, such as from cobbles being smashed against each other. A force sufficient to flake the cobbles is unlikely to have happened naturally but more probably occurred when the cobbles were being gathered or deposited.

11.3.2 The size of the cobbles indicate they most likely originate from the south-eastern English chalk, but the types of flint and the condition of the pieces from the three contexts vary and suggest different sources. The cobbles from [131] are typical beach cobbles and the flint is very similar to that from the South Downs, suggesting a possible south coast source. The flake from [103] and the cobble from [138] are both nodular shaped and are more typical of the constituents of Pleistocene terrace gravel deposits, perhaps those from along the lower Thames and the Thames estuary which contain similarly large nodular-shaped cobbles that are relatively freshly eroded out of the chalk. It is therefore possible that the ballast was used by ships trading between Newcastle and south-eastern England, with the ballast being replaced with heavy goods, such as coal. However, it should also be remembered that that flint as ballast was transported all over the world, sometimes being discarded and forming vast dumps, which could then be reused as demand dictated. In such cases, ballast may have multiple origins and have travelled considerable distances before being finally deposited at the Quayside.

#### **11.4 Lithics: Potential for Further Analysis and Recommendations**

11.4.1 The flint samples do not warrant any further technological or metrical analyses and no further work is recommended. Their presence and the fact of their re-use, does however, represent an interesting aspect of the history of trade in Newcastle and it is therefore recommended that they should be mentioned in any published account of the fieldwork.

## 12. POSSIBLE INDUSTRIAL RELATED RESIDUES

*Dr Rod Mackenzie*

### 12.1 Introduction

- 12.1.1 An archaeometallurgical assessment was undertaken on possible metalliferous slag and/or industrial related residues recovered from the site.
- 12.1.2 The aim of the assessment was to identify the materials present in the assemblage, and determine whether further analysis of these could provide additional information about the site, or activities previously carried out there.
- 12.1.3 The material in the assemblage has been examined visually and the results of the assessment are given in Table 12.1 below.

### 12.2 Results of Assessment

Context No.	Sample No.	Wt (g)	Date of context	Description of material in sample
16	1	3000	Medieval	Fragments of coal, ranging in size from dust to small lumps c. 5cm <sup>3</sup>
20	2	2850	Medieval	Sand with small fragments of natural chalk/limestone rock
21	3	240	Medieval	Sand with small fragments of natural chalk/limestone rock
70	4	3650	Medieval	Sand with small fragments of natural chalk/limestone rock
93	5	5730	Medieval	Predominately lumps of chalk rock ranging in size from <1cm <sup>3</sup> to c.6cm <sup>3</sup> . Small number of coal fragments <2cm <sup>3</sup>
93	5 (sub-sample)	<5	Medieval	Small amount of natural iron rich sand; processed sample micro-residue
95	Bulk find	30800	Medieval	Weathered lumps of iron rich conglomerate, size range <4cm <sup>3</sup> to 10cm <sup>3</sup> . Possibly compacted floor material from iron foundry/forge
96	Bulk find	3250	Medieval	Heavily weathered lumps of iron rich conglomerate, size range <4cm <sup>3</sup> to 10cm <sup>3</sup> . Possibly compacted floor material from iron foundry/forge
99	Bulk find	50	Medieval	Fragment of undiagnostic slag-like material, very similar to that from contexts [95] & [96]
115	15 (sub-sample)	<5	Medieval	Small amount of natural iron rich sand containing small fragments of coal; processed sample micro-residue

*Table 12.1: Results of assessment of possible industrial related residues*

- 12.2.1 The assemblage largely consists of bulk samples recovered from archaeological contexts that are thought to date from the medieval period. The weight of each bulk sample ranges from approximately 240g to 32kg, with individual fragments within the samples ranging in size from less than 1mm<sup>3</sup> to around 100mm<sup>3</sup>. The assemblage also included two small samples of micro-residues (from contexts [93] and [115]) that each weight less than 5g in total.

### 12.3 Discussion and Interpretation of the Possible Industrial Related Residues

- 12.3.1 The assemblage consists of three broad groups of material; small fragments of coal and coal dust, fragments of stone (chalk or soft limestone), and fragments of a ferruginous conglomerate.



- 12.3.2 The material most likely to be a by-product of industrial activities is the heavily weathered lumps of iron rich conglomerate recovered from context [95] in Trench 1, this a putative surface assigned to Phase 2a. The conglomerate has a few small fragments of coal and possibly degraded charcoal embedded within its matrix; the fresh fracture surface of the material suggests that it is may be the broken up remains of a compacted earth/detritus floor from an iron forge. The process of forging traditional wrought iron produces significant amounts of fine debris that tend to build up on the floor in the working area. If this fine debris is left to accumulate, it can become compacted and then fuse into a dense layer, which will gradually raise the floor level. The relatively uniform size of the lumps of the compacted material suggests that it was deliberately broken up into manageable pieces to be disposed of. In addition, the relatively high weight of the material for its size, its low monetary value, and the location all suggest the possibility that the material may have arrived at the site as ballast on board a ship docked at the nearby quayside, being dumped to aid landfill before the ship was loaded with cargo.
- 12.3.3 The bulk of the coal in the assemblage consists of very fine dust and small fragments of coal that is typical of the residual 'coal slack' found in the bottom of coal bunkers. The small amounts of magnetic micro-residues (sample 15 and sub-sample 5) were found to consist entirely of ferruginous sand and stone, and no spheroidal hammerslag or flake hammerscale was present in the samples.
- 12.3.4 The assemblage does not contain enough evidence to suggest that industrial activities such as metal smelting or smithing were being carried out at the site, and it is suggested that the majority of the assemblage may well have been material brought in as backfill to make up new ground.
- 12.3.5 One possible explanation for the presence of coal slack together with stone and low value industrial waste is that empty coal carrying vessels returning from southern England and further afield discharged their excess ballast and coal slack onto the quayside, before being loaded with coal and goods for export. Newcastle's renowned coal industry certainly began in the medieval period, with the first shipments of coal coming from pits located close to the riverbank, for example at Whickham (Graves and Heslop 2013, p.121). It is documented that significant exports of coal were being shipped from Newcastle from the second quarter of the 14th century to Flanders and Holland, some even going as far as the Baltic; the suggested 13th/14th-century dating of, for example, context [95], corresponds closely with this.

## **12.4 Possible Industrial Related Residues: Potential for Further Analysis and Recommendations**

- 12.4.1 No further action is recommended on the assemblage, and it can be disposed of.

## **13. PALAEOENVIRONMENTAL REMAINS**

*Archaeological Services Durham University*

### **13.1 Introduction**

13.1.1 Palaeoenvironmental assessment was undertaken of 15 bulk samples of medieval and post-medieval origin, collected during the excavation (site code TRQ 14). The deposits sampled by bulk comprised: an alluvial deposit associated with the medieval foreshore of the River Tyne; possible ships' ballast dumped as medieval landfill and related to the initial construction of a substantial medieval boundary wall; medieval refuse pit material, possibly cess; deposits possibly related to medieval industrial activity. In addition, a small assemblage of hand-recovered shell and a column sample (in a 0.5m Kubiena tin) were submitted for assessment. This section of the report presents the results of palaeoenvironmental assessment of the bulk samples and the column sample assessment including radiocarbon dating by the AMS technique (see Section 13.6), with the shell assessment forming Section 15

13.1.2 All samples were received by Archaeological Services on 6 August 2014. Assessment and report preparation for the bulk samples was conducted between 13 August and 15 September 2014. Bulk sample processing, assessment and report preparation was conducted by Lorne Elliott.

13.1.3 The residues, flots and finds from the bulk samples were returned to PCA on completion of the assessment. At the time of writing, the plant remains are retained at Archaeological Services Durham University.

### **13.2 Aims**

13.2.1 The objectives of the work were to assess the palaeoenvironmental potential of the samples, as well as to establish the presence of suitable radiocarbon dating material, and thereby provide appropriate recommendations.

### **13.3 Methods**

13.3.1 The bulk samples were manually floated and sieved through a 500µm mesh. The residues were examined for shells, fruitstones, nutshells, charcoal, small bones, pottery, flint, glass and industrial residues, and were scanned using a magnet for ferrous fragments. The flots were examined at up to x60 magnification for charred and waterlogged botanical remains using a Leica MZ7.5 stereomicroscope. Identification of these was undertaken by comparison with modern reference material held in the Environmental Laboratory at Archaeological Services Durham University. Plant nomenclature follows Stace (1997). Habitat classification follows Preston *et al.* (2002).

13.3.2 Selected charcoal fragments were identified, in order to provide material suitable for radiocarbon dating. The transverse, radial and tangential sections were examined at up to x600 magnification using a Leica DMLM microscope. Identifications were assisted by the descriptions of Schweingruber (1990) and Hather (2000), and modern reference material held in the Environmental Laboratory at Archaeological Services Durham University.

13.3.3 The work was undertaken in accordance with the palaeoenvironmental research aims and objectives outlined in the regional archaeological research framework and resource agendas (Petts and Gerrard 2006; Hall and Huntley 2007; Huntley 2010). The works address the need to improve our understanding of locations at which trade and exchange occurred in North East England, highlighted as a key research theme (Petts and Gerrard 2006).

#### **13.4 Palaeoenvironmental Remains from Bulk Samples: Results**

13.4.1 The bulk samples produced sparse finds with a few sherds of pottery present in four samples and small quantities of fish and indeterminate bone noted in three samples. Coal-rich deposits included traces of clinker/cinder, and chalk was abundant in a medieval dump layer, [93], in Trench 1. Occasional to abundant quantities of flint nodules were present in all the possible medieval ballast deposits sampled in Trench 2, in addition to small quantities of chalk, coal and burnt shale noted in one of these, layer [139]. Ostracods (small bivalved crustaceans) were frequently recorded in a medieval alluvial deposit, [130], in Trench 2. Other remains noted from the samples included poorly preserved fragments of possible daub/clay in medieval dump layer [110] in Trench 1, traces of mortar in a variety of medieval deposits, [16], [70], [114] and [122], from both trenches, hammerscale in two medieval deposits, [93] and [115] in Trench 1, and a large quantity of gypsum crystals in a medieval dump deposit, [106], in Trench 1. Material typical of cess was, however, absent from medieval pit fill, [114], in Trench 2.

13.4.2 Charred plant macrofossil remains from the samples were sparse with a hazel nutshell fragment present in a possible medieval ballast deposit, context [122], in Trench 2, a small oat grain from a medieval dump layer, [110], in Trench 1, and a poorly preserved barley grain from a make-up layer, [115], also in Trench 1.

13.4.3 A moderate-sized assemblage of uncharred plant remains typical of waterlogged conditions was recorded for a probable medieval alluvial deposit, [130], recorded towards the base of the stratified sequence in Trench 2. These remains included plants associated with damp ground habitats such as bogbean (*Menyanthes trifoliata*), celery-leaved buttercup (*Ranunculus sceleratus*), hemlock (*Conium maculatum*) and sedges (*Carex* sp), and plants characteristic of aquatic conditions including crowfoots (*Ranunculus* subgenus *Batrachium*), horned pondweed (*Zannichellia palustris*) and pondweeds (*Potamogeton* sp). An uncharred plum fruitstone (*Prunus domestica*) occurred in a medieval dump layer, [106] in Trench 1.

13.4.4 Very small quantities of charcoal recorded in nine contexts were predominantly identified as oak stemwood (timber). The remains of alder were noted in a medieval dump layer, [129], in Trench 1. Material for radiocarbon dating is available for five of the samples, although some of this material may be unsuitable due to long-lived species or insufficient weight of carbon. The results are presented in Appendix 1.

#### **13.5 Discussion of the Palaeoenvironmental Remains from Bulk Samples**

13.5.1 Very small quantities of charcoal recorded in nine contexts were predominantly identified as oak stemwood (timber). The remains of alder were noted in ballast deposit [129]. Material for radiocarbon dating was available for five of the samples, although some of this material may be unsuitable due to long-lived species or insufficient weight of carbon. The results are presented in Table 13.1.

Sample	1	2	3	4	5	6	9	10	11	12	13	14	15	17	18
Context	16	20	21	70	93	114	123	130	131	110	133	106	115	122	139
Feature	ID	ID	ID	ID	ID	pit	ballast	alluvial	ballast	layer	layer	layer	layer	ballast	ballast
<i>Material available for radiocarbon dating</i>															
Volume processed (l)	8	6	8	9	7	9	9	9	9	7	5	7	7	10	7
Volume of flot (ml)	300	400	20	400	100	170	20	50	5	10	250	50	150	230	30
<i>Residue contents</i>															
Bone (calcined) indet. frags	-	-	-	-	-	-	-	-	-	-	-	-	-	(+)	-
Bone (unburnt) indet. frags	-	-	-	-	-	+	-	-	-	-	-	-	-	+	-
Bone (unburnt) fish	-	-	-	-	-	+	-	-	-	-	-	-	-	+	-
Chalk	-	-	-	-	++++	-	-	-	-	-	-	-	-	-	++
Charcoal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Clinker / cinder	-	-	-	++	-	-	-	-	-	+	-	-	-	-	-
Coal	++++	+++	-	++++	+++	-	-	(+)	-	+	++	-	-	-	++
Daub? / clay / CBM	+	-	-	-	-	-	-	-	-	+++	-	-	-	-	-
Flint nodules	-	(+)	-	-	-	+++	+++	++	++++	-	++	+	-	-	++
Fuel waste compacted	-	++	-	-	-	-	-	-	-	-	-	-	-	-	-
Gypsum crystals	-	-	-	-	-	-	-	-	-	-	-	+++	-	-	-
Hammerscale flake	-	-	-	-	(+)	-	-	-	-	-	-	-	+	-	-
Mortar	+	-	-	(+)	+	-	-	-	-	-	-	-	-	(+)	-
Ostracod valves	-	-	-	-	-	-	-	+++	-	-	-	-	-	-	-
Pot (number of fragments)	-	-	-	-	1	1	-	-	-	-	1	-	-	1	-
Shale	-	-	-	-	-	+++	-	-	-	-	-	-	++	-	++
<i>Flot matrix</i>															
Bone (unburnt) fish	-	-	-	-	-	+	(+)	-	-	-	-	-	-	++	-
Chalk	-	-	-	-	++	-	-	-	-	-	-	-	-	-	-
Charcoal	-	-	(+)	(+)	-	+	(+)	-	(+)	(+)	(+)	-	+	+	-
Clinker / cinder	+	+	(+)	++	+	++	-	-	-	-	+	-	++	++	(+)
Coal	+++	+++	++	+++	+++	++	++	+	+	++	+++	(+)	+++	+++	++
Heather twigs (charred)	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-
Insect / beetle	-	-	-	-	-	-	-	+	-	-	-	(+)	-	-	-
Roots (?modern)	-	-	++	-	-	-	-	-	-	++	-	-	-	-	-
Vegetative material (uncharred)	-	-	-	-	-	-	-	+++	-	-	-	-	-	-	-
<i>Charred remains (total count)</i>															
(c) <i>Avena</i> sp (Oat species) grain	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-
(c) <i>Hordeum</i> sp (Barley species) grain	-	-	-	-	-	-	-	-	-	-	-	-	1	-	
(t) <i>Corylus avellana</i> (Hazel) nutshell frag.	-	-	-	-	-	-	-	-	-	-	-	-	-	1	
<i>Waterlogged / Uncharred remains (abundance)</i>															
Fruitstones	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-
Seeds (aquatic conditions)	-	-	-	-	-	-	-	++	-	-	-	-	-	-	-
Seeds (wet/damp ground)	-	-	-	-	-	-	-	++	-	-	-	-	-	-	-

Key:

c = cultivated; t = tree/shrub; ID = industrial deposit

(+) = trace; + = rare; ++ = occasional; +++ = common; ++++ = abundant

Waterlogged remains are scored from 1-5 where 1 = 1-2; 2 = 3-10; 3 = 11-40; 4 = 41-200; 5 = >200

(□) may be unsuitable for dating due to size or species

Table 13.1. Data from palaeoenvironmental assessment

13.5.1 The samples provided little interpretative value due to the absence of diagnostic charred plant macrofossils and low quantities of charcoal. Samples collected for industrial residues comprised large quantities of coal with some evidence of burning, although fuel waste and clinker/cinder residues were rare. Alluvial deposit [130] from Trench 2 comprised a large quantity of ostracod valves and plant remains typical of aquatic conditions with slow moving or still water and damp ground. Amongst the plant remains is horned pondweed, a native submerged perennial aquatic that grows in a range of shallow-water habitats such as ponds, ditches and brackish lagoons and is a frequent colonist of disused mineral workings (Preston *et al.* 2002).

## 13.6 Column Sample: Microfossil Assessment and C14 Dating

### 13.6.1 Introduction

13.6.1.1 The objective was to date the deposit and assess the potential of the microfossil assemblages to provide details of the foreshore palaeoenvironment.

13.6.1.2 The column sample was received by Archaeological Services on 6th August 2015. Assessment, radiocarbon dating and report preparation was conducted between November 2014 and April 2015.

13.6.1.3 Pollen assessment and report preparation was conducted by Dr Charlotte O'Brien. Pollen preparation was by Dr Helen Drinkall. Microfaunal assessment was by Dr John Whittaker. Radiocarbon dating was undertaken at the Scottish Universities Environmental Research Centre (SUERC).

### 13.6.2 Radiocarbon Dating

13.6.2.1 An AMS radiocarbon date was obtained from an assemblage of terrestrial plant macrofossils extracted from 0.29-0.36m depth below the top of the monolith tin (below 0.95 mOD). The assemblage included *Urtica dioica*, *Conium maculatum*, *Oenanthe* sp, *Carex* sp, Cyperaceae cf. *Schoenoplectus*, *Rumex* sp, *Reseda* sp, *Potentilla anserina*, *Mentha* cf. *aquatica*, Caryophyllaceae cf. *Cerastium*, Chenopodiaceae and *Betula* sp. The sample was sent to the radiocarbon lab at SUERC, East Kilbride. Radiocarbon analysis provided a date range of 687-880 cal AD. Full details of the radiocarbon results are presented in Appendix G with a summary below in Table 13.2.

Context	Sample	Laboratory code	Material	$\delta^{13}\text{C}$	Radiocarbon Age BP	Calibrated date 95.4% probability
130	19	SUERC-59016 GU37076	Waterlogged terrestrial plant macrofossils	-27.4 ‰	1234 ± 29	687 (95.4%) 880 cal AD

[The calibrated age ranges are determined using OxCal 4.1 (Reimer *et al.* 2009)]

Table 13.2 Radiocarbon dating results

### 13.6.3 Pollen Assessment

- 13.6.3.1 Pollen assessment was undertaken on four samples through the column at 0.12m, 0.22m, 0.32m and 0.42m below the top of the monolith tin. Pollen was extracted from 1ml of sediment from each level, using standard techniques of sodium hydroxide digestion, followed by heavy liquid separation (Moore *et al.* 1991). A *Lycopodium* spore tablet was added in order to facilitate calculation of total pollen concentrations. Each tablet has an average of 18583 spores per tablet. The pollen was mounted in silicone fluid and scanned at up to x600 magnification. At least six traverses of a 24 x 24mm coverslip were scanned for each sample. Pollen nomenclature follows Moore *et al.* (1991). The results are presented in Table 13.3.
- 13.6.3.2 Pollen was poorly preserved in all four samples, with the grains frequently being degraded. Pollen concentration was low, with an average of 14,000 grains/ml of sediment. This compares with concentrations of approximately 100,000 grains/ml for typical Holocene sediments. Dinoflagellate cysts and fungal spores were occasionally noted. Microscopic charcoal was present.
- 13.6.3.3 The pollen assemblages were similar for all of the samples suggesting rapid accumulation or a relatively stable landscape. Most of the grains were from herbaceous taxa, with grasses and members of the sedge family recorded most frequently. Dandelion-type, ribwort plantain and members of the cabbage and carrot family were noted. A few cereal-type grains were recorded in the samples from 0.22m and 0.32m. Trees and shrubs were represented by low numbers of alder, birch, pine, oak, elm and hazel grains. A single occurrence of willow was noted at 0.12m. Pollen from aquatic plants was recorded in the lowest three samples, with water-milfoils, pondweeds and cf. bur-reeds noted. Spores of *Sphagnum* moss, polypody, bracken and other ferns were present in low numbers.
- 13.6.3.4 The poor preservation of pollen in the silty clay [130] may be due to a fluctuating water table resulting in periodic drying out. The low pollen counts (<50 land pollen per sample), prevent a detailed palaeoenvironmental reconstruction and some differential preservation may have taken place. The presence of aquatic plant pollen supports the evidence from a previous plant macrofossil assessment which suggested that the layer was deposited in a shallow waterbody of still or slow flowing water (see Section 13. 5 above). Dinoflagellate cysts point to an aquatic environment with a marine influence, as most dinoflagellates are marine plankton, although some are found in freshwater habitats. Sedges and members of the carrot family would have favoured the marginal damp ground conditions, and waterlogging-tolerant trees such as alder and willow probably grew locally.
- 13.6.3.5 The predominance of herbaceous taxa compared to arboreal species, suggests a relatively open landscape. Herbs such as dandelion-type, ribwort plantain and bracken have been associated with managed habitats (Behre 1986), and may reflect some pastoral farming on the outskirts of Newcastle town, with the pollen either blown to the site or washed in via streams feeding the River Tyne, such as Lort Burn. A few cereal-type pollen grains were noted which may originate from cultivated land, although this pollen type includes some semi-aquatic grasses such as *Glyceria* (sweet-grass) which is common on pond margins and other shallow water habitats (Preston *et al.* 2002).

13.6.3.6 The few pollen grains from oak, elm and birch may derive from higher canopy woodland growing on well-drained soils at a distance from the site. Hazel scrub may have been growing more locally, for example on the valley slopes behind the site. The few pine pollen grains may represent long-distance transport from refuge populations of pine woodland, as the deposit accumulated prior to the widespread medieval replanting of pine in Britain.

Sample	19	19	19	19
<b>Context</b>	<b>130</b>	<b>130</b>	<b>130</b>	<b>130</b>
<b>Depth below top of column sample (m)</b>	<b>0.12</b>	<b>0.22</b>	<b>0.32</b>	<b>0.42</b>
<i>Volume processed (ml)</i>	1	1	1	1
<i>Tree taxa</i>				
<i>Alnus glutinosa</i> (Alder)	1	2	4	2
<i>Betula</i> sp. (Birches)	2	-	5	1
<i>Pinus</i> sp. (Pines)	1	2	2	1
<i>Quercus</i> sp. (Oaks)	-	4	3	3
<i>Ulmus</i> sp. (Elms)	1	-	-	1
<i>Shrub taxa</i>				
<i>Corylus avellana</i> (Hazel)	4	3	4	3
<i>Salix</i> sp (Willows)	1	-	-	-
<i>Herbaceous taxa</i>				
Apiaceae undiff. (Carrot family)	-	1	3	1
Brassicaceae undiff. (Cabbage family)	1	-	1	1
Cereal-type	-	1	2	-
Cyperaceae undiff. (Sedge family)	6	9	5	4
<i>Plantago lanceolata</i> (Ribwort plantain)	2	2	1	-
Poaceae undiff. (Grass family)	8	11	17	9
<i>Taraxacum</i> -type (Dandelion-type)	2	2	1	1
<i>Aquatic taxa</i>				
<i>Myriophyllum</i> sp (Water-milfoils)	-	1	-	-
<i>Potamogeton</i> sp (Pondweeds)	-	-	2	1
cf. <i>Sparganium</i> sp (cf. Bur-reeds)	-	-	1	1
<i>Spores</i>				
<i>Polypodium vulgare</i> (Polypody)	-	-	-	1
<i>Pteridium aquilinum</i> (Bracken)	1	1	1	1
Pteridophyta (monolete) undiff. (Ferns)	1	1	2	1
<i>Sphagnum</i> sp. (Sphagnum moss)	-	-	2	-
Other				
Dinoflagellate cysts	3	5	-	-
Fungal spores	-	1	2	2
Total land pollen counted	29	37	48	27
Concentration of land pollen (grains/ml of sediment)	16845	14633	14870	9840
<i>Exotic (Lycopodium) spores</i>	32	47	60	51
Microscopic charcoal	Present	Present	Present	Present
Pollen concentration	Low	Low	Low	Low
Pollen preservation	Poor	Poor	Poor	Poor
Unidentified pollen grains	-	-	1	-

Table 13.3. Data from pollen assessment

### 13.6.4 Microfauna Assessment

13.6.4.1 Four samples from a 0.5m monolith tin of alluvial clay from (context 130) were submitted for microfaunal assessment (with particular reference to the foraminifera and ostracods).

Depth in monolith	Weight processed
0.12m	75g
0.22m	55g
0.32m	50g
0.42m	50g

13.6.4.2 The samples were placed in ceramic bowls and dried in an oven; any large pieces of sediment having been broken up by hand. A small amount of sodium carbonate was added (to disperse any clay fraction) and hot water was poured on them. They were then left to soak overnight. Washing was through a 75 micron sieve using hand-hot water, the resulting residues being decanted back into the bowls for final drying in the oven. The residues were stored in labelled plastic bags to await examination. Next each residue was put through a nest of small sieves (>500, >250, >150 microns) with a base pan. A little residue at a time from each grade was sprinkled onto a tray and a representative selection of foraminifera and ostracods was picked out under a binocular microscope and stored in a 3x1" faunal slide for archive purposes. Notes were made of the "organic remains" that were seen and these were logged on a presence(x)/absence basis, whereas the foraminifera and ostracod species were logged semi-quantitatively, as seen in Table 3.4.

13.6.4.3 It was reported that the sediment from the monolith, based on a previously undertaken assessment of a bulk sample, was an alluvial deposit which contained....*"a large quantity of ostracod valves, and plant remains typical of aquatic conditions with slow moving or still water and damp ground"* (see Section 13.5). For this reason an assessment of the ostracods (and foraminifera, if present) was requested.

13.6.4.4 The results obtained from the four samples collected between 0.12 and 0.42m within the monolith tin are presented in Table 3.4. The uppermost table in Table 3.4 lists the distribution (on a presence/absence basis) of useful "organic remains" and other items of potential interest environmentally. The lower five tables list semi-quantitatively the distribution of, respectively, brackish and marine/outer estuarine foraminifera, and brackish, marine/outer estuarine and freshwater ostracods. Colour-coding is added to highlight the environmental preferences of the various species found. This is gleaned from Murray (2006) for the foraminifera; Athersuch *et al.* (1989), for the brackish and marine ostracods; and Meisch (2000) for the freshwater ostracods. With regards to the brackish foraminifera, grey colour-coding indicates calcareous foraminifera of tidal flats and low saltmarsh; turquoise colour-coding indicates agglutinating foraminifera of mid-high saltmarsh. For the foraminifera and ostracods labelled marine/outer estuarine, they are highlighted in two shades of blue. Brackish ostracods (colour-coded light-green) are species of tidal rivers (particularly *Cytheromorpha fuscata*) and mudflats. All the freshwater ostracods (more accurately referred to as "non-marine ostracods" and colour-coded light-blue) can tolerate low salinities and occur in coastal or estuarine situations, in marginal pools and ditches, and are often washed in at times of heavy rainfall or by overtopping of the river bank.



13.6.4.5 From Table 3.4 it can be seen, therefore, that all four samples have very similar microfaunas, suggesting little had changed environmentally within the time span of their deposition. The co-existence of sizeable populations of brackish foraminifera and ostracods together with freshwater ostracods, however, presents a distinctive assemblage which needs an explanation. The calcareous foraminifera are of low diversity but reasonably common and well preserved in the main, as one would expect from a low brackish mudflat environment. One sample did contain, in addition, a few agglutinating foraminifera characteristic of mid-high saltmarsh. The only real common brackish ostracod is *Cytheromorpha fuscata*. Moreover, it is mainly found as complete carapaces, suggesting an *in situ* population with little or no transport. Both the foraminiferal and ostracod components, so far, indicate a tidal river with mudflats (with saltmarsh close by). *Cytheromorpha fuscata* is common in historical collections throughout the east coast of Britain, but today it is all but extinct. The only modern population in this area known to the author is from a coastal site in the Norfolk Broads; its ecological preference, whatever that may be, seems to have almost entirely disappeared. There is also a very minor input of marine species, that can also penetrate outer estuaries – but this is so small as to suggest it has been brought in by high tides or storm events. There is also a possibility that here it may sourced from ships' ballast.

13.6.4.6 The key to the co-occurrence of freshwater ostracods of a high diversity (as many as seven species in one sample) must lie in the nature of the site at the time of deposition, as understood by archaeologists. Fragments of coal and 'slag' in the sediment do indeed suggest human activity, possibly even the loading of coal boats here. The author has no information on the nature of the quayside at that time, if this was the case – whether the boats were just beached or wooden structures for mooring existed. Either there were small streams entering the Tyne at this place, or behind the "quay" were freshwater pools or still but relatively uncontaminated freshwater bodies close by (charophytes, for example, live in pure shallow water, although they can tolerate low salinities). These latter could be thus added by high tides and overtopping. Major redeposition is thought unlikely as the freshwater ostracod valves (relatively large and fragile) are unbroken in the main.

<b>ORGANIC REMAINS</b>				
<b>Depth (m)</b>	<b>0.12</b>	<b>0.22</b>	<b>0.32</b>	<b>0.42</b>
Plant debris and seeds	x	x	x	x
Brackish foraminifera	x	x	x	x
Marine/outer estuarine foraminifera	x	x	x	
Brackish ostracods	x	x	x	x
Freshwater ostracods	x	x	x	x
Molluscs	f	x	f	f
<i>Bithynia opercula</i>		x	x	x
Marine/outer estuarine ostracods		x		
Charophyte oogonia		x	x	x
Insect remains			x	x
Iron mineral and tubes	x			x
Coal/slag		x	x	x
Ecology	Tidal river, microfauna containing brackish and freshwater components; marine input rarer, brought in through high tides			
<b>BRACKISH FORAMINIFERA</b>				
<b>Depth (m)</b>	<b>0.12</b>	<b>0.22</b>	<b>0.32</b>	<b>0.42</b>
<i>Haynesina germanica</i>	xx	x	x	x
<i>Elphidium williamsoni</i>	x	x	o	x
<i>Ammonia</i> sp. (brackish)		x	x	x
<i>Trochammina inflata</i>			x	
<i>Jadammina macrescens</i>			x	
<b>MARINE/OUTER ESTUARINE FORAMINIFERA</b>				
<b>Depth (m)</b>	<b>0.12</b>	<b>0.22</b>	<b>0.32</b>	<b>0.42</b>
<i>Lagena</i> spp.	x			
<i>Ammonia batavus</i>		o	o	
<b>BRACKISH OSTRACODS</b>				
<b>Depth (m)</b>	<b>0.12</b>	<b>0.22</b>	<b>0.32</b>	<b>0.42</b>
<i>Cytheromorpha fuscata</i>	x	xx	xx	xx
<i>Leptocythere porcellanea</i>		x	o	x
<i>Cyprideis torosa</i>			x	o
<b>MARINE/OUTER ESTUARINE OSTRACODS</b>				
<b>Depth (m)</b>	<b>0.12</b>	<b>0.22</b>	<b>0.32</b>	<b>0.42</b>
<i>Hemicythere villosa</i>		o		
<i>Semicytherura nigrescens</i>		o		
<b>FRESHWATER OSTRACODS</b>				
<b>Depth (m)</b>	<b>0.12</b>	<b>0.22</b>	<b>0.32</b>	<b>0.42</b>
<i>Candona neglecta</i>	xx	xx	xx	xx
<i>Limnocythere inopinata</i>	x	x	x	x
<i>Fabaeformiscandona</i> sp.	x		x	
<i>Prionocypris zenkeri</i>	x			
<i>Pseudocandona</i> sp.	x	o	x	o
<i>Herpetocypris reptans</i>	x	x		
<i>Cyclocypris</i> sp.	o		o	o
<i>Ilyocypris bradyi</i>		x		x
<i>Candona candida</i>				o

[Organic remains are listed on a presence (x)/absence basis; f-fragments only  
Foraminifera and ostracods are listed: o-one specimen; x-several specimens; xx-common]

Table 13.4. Data from microfauna assessment

### **13.6.5 Microfossil Assessment and C14 Dating Conclusions**

13.6.5.1 The radiocarbon results suggest an early medieval date for layer [130], although the presence of evidently medieval ballast material underlying the alluvium brings the validity of the radiocarbon date into question. Studies have shown that some caution is necessary when interpreting the results of single radiocarbon dates from fluvial systems (Howard *et al.* 2009). The pollen, microfauna and plant macrofossils indicate that the layer was deposited in a still or slow-flowing, shallow aquatic environment, with both freshwater and brackish/marine influences. This may have been a slow backwater channel of the tidal river, with input from freshwater streams, or a freshwater pool or brackish lagoon behind the quay with regular overtopping during high tides, in addition to probable input from freshwater streams. It is possible that early ballast deposition accidentally or deliberately created this low energy environment.

13.6.5.2 The works were undertaken in accordance with the palaeoenvironmental research aims and objectives outlined in the regional archaeological research framework and resource agendas (Petts and Gerrard 2006; Hall and Huntley 2007), and have enabled a reconstruction of the palaeoenvironment of the medieval foreshore at Newcastle. As few attempts have been undertaken to apply microfaunal analysis within environmental archaeology (Griffiths *et al* 1993), the project provides a valuable dataset for future studies. The work also highlights the benefits of multi-proxy analyses for palaeoenvironmental reconstructions.

### **13.7 Palaeoenvironmental Remains: Potential for Further Analysis and Recommendations**

13.6.1 No further analysis is recommended on the palaeoenvironmental samples.

13.6.2 No further work is required for the column sample, as the assessment has enabled a reconstruction of the former palaeoenvironment, and additional information is unlikely to be provided from a full analysis.

13.6.3 An integrated report on all the palaeoenvironmental remains should be prepared for inclusion in any publication of the site.

## **14. ANIMAL AND FISH BONES**

*Kevin Rielly (with Philip Armitage)*

### **14.1 Introduction**

14.1.1 The LiveWorks site fronts onto Quayside c. 100 metres to the west of the Tyne Bridge, in an area of land reclaimed from the River Tyne by 1400, so that it now lies c. 90m to the south of the original north bank of the river, indicating that all excavated strata can be no earlier than the medieval period.

14.1.2 Excavated deposits in both trenches yielded generally small quantities of animal bones. The majority of the bones were recovered by hand with the exception of those provided by the sorted residues of bulk samples taken from three medieval deposits. All the fish bones were identified by Philip Armitage who also commented on their size and condition.

### **14.2 Description of the Faunal Remains**

14.2.1 The excavation provided a hand recovered total of 150 animal bones as well as a further 22 from the three samples (see Table 14.1). When examined, the stratigraphic phasing was rather broad, essentially medieval, post-medieval and late post-medieval. In addition a proportion of the deposits have been tentatively dated as medieval, noted as 'M' in Table 14.1, but generally included with the medieval phase in the following text.

14.2.2 The preservation of the bones is generally good while fragmentation can be described as moderate (largely related to butchery practices rather than post-depositional breakage), with the notable exception of two medieval collections, layers [84] and [122]. Of interest is the occurrence of rodent gnawing, this limited to the late post-medieval phase, essentially the fill [45] of the brick structure [41] (see below).

### **14.3 Bones from Medieval Contexts**

14.3.1 Bones (95 in total) were hand recovered from a series of layers generally described as ballast layers or dumps, as well as (63 bones) from the fills of a refuse pit, [113], in Trench 2. A similar division concerning the sieved collection provided 16 and 6 bones respectively. As mentioned above, the majority of the bones were in good condition, with the exception of those from two ballast layers, [84] and [122], from Trench 2, each providing a mix of preservation states, though mainly moderate to poor, plus a generally high degree of fragmentation. This was particularly shown amongst the sieved collection from context [122] where the majority of the fish bones were described as poorly preserved, brittle and much fragmented.

<b>Trench</b>	<b>1</b>	<b>1</b>	<b>2</b>	<b>2</b>	<b>2</b>
<b>Phase</b>	<b>M</b>	<b>'M'</b>	<b>M</b>	<b>PM</b>	<b>LPM</b>
<b>Species</b>					
Cattle	4	8	11	1	
Cattle-size	5	8	22(2)	2	1
Sheep/Goat	2	4	8		4
Pig			1(1)	1	
Sheep-size	2		3(4)	1	4
Cat			1		
Rabbit					1
Chicken			54		
Goose		1			
Cod (medium-sized)			1(2)		
Cod (small)			(1)		
Haddock (small)			(1)		
Small gadid			(4)		
Saithe			1		
Flatfish (small)			(1)		
Herring			(2)		
Unidentified fish			(4)		
<b>Grand Total</b>	<b>13</b>	<b>21</b>	<b>124(22)</b>	<b>5</b>	<b>10</b>

Key for provisional phases: M and 'M' - medieval and potential medieval; PM - post-medieval; LPM - late post-medieval.

Table 14.1. Species abundance of hand collected and sieved (in brackets) animal bones divided by phase and trench

<b>Recovered:</b>	<b>H</b>	<b>H</b>	<b>S</b>	<b>S</b>
<b>Deposit:</b>	<b>L</b>	<b>F</b>	<b>L</b>	<b>F</b>
<b>Species</b>				
Cattle	21	2		
Cattle-size	32	3	1	1
Sheep/Goat	12	2		
Pig		1	1	
Sheep-size	5		4	
Cat		1		
Chicken		54		
Goose	1			
Cod (medium-sized)	1		2	
Cod (small)			1	
Haddock (small)			1	
Small gadid			2	2
Flatfish (small)			1	
Herring			2	
Unidentified fish			1	3

Table 14.2. Species abundance within the medieval deposits divided by recovery method (H hand collected and S sieved) and type of deposit (L layers and F fills).

- 14.3.2 The medieval assemblage consisted of a wide array of domesticates, mammalian and bird, as well as a variety of fish species, these mainly provided by the sample taken from layer [122] in Trench 2. There was undoubtedly a greater proportion of cattle compared to the other two mammalian domesticates, also highlighted by the relative abundance of cattle-sized compared to sheep-sized fragments. There was a general mixture of cattle and indeed sheep/goat skeletal parts, with a notable array of butchery to the cattle bones, clearly signifying the dumping of processing as well as food waste. Notably, two heavily butchered cattle skull pieces were recovered from dump layer [10] (phased as medieval) which may well represent butchery waste.
- 14.3.3 The domestic bird bone collection was dominated by chicken, this largely representing the remains of a juvenile bird recovered from the secondary fill [100] of pit [113]. The skeleton of this bird was relatively complete, including phalanges, and without any obvious signs of butchery it could be supposed that this may represent an unwanted, possibly diseased, carcass.
- 14.3.4 The fish species are essentially composed of gadids (cod family), flatfish and herring, all of which may have been locally caught. This can certainly be suggested for the typical estuarine species – the flatfish, while the generally small size of the gadids and the migratory habits of the herring (see *e.g.* Wheeler 1979, 171–172) would perhaps suggest they were also fished within the Tyne estuary.

#### **14.4 Bones from Post-medieval Contexts**

- 14.4.1 This small collection was taken from the fill [88] of a construction cut [87] (2 bones) and from dump layer [97] (3 bones), both in Trench 2. The only point worth noting is that one of these deposits [97] provided one of only three pig bones found at this site. The poor representation of this species is remarkable and not easily explained at this juncture.

#### **14.5 Bones from Late Post-medieval Contexts**

- 14.5.1 A few bones were recovered from the fill [45] of the brick structure [41] in Trench 2. They include a small number of major domesticate bones and a single rabbit bone. The character of these bones is demonstrably within the designated phasing, with sheep bones (a femur) from a large, possibly improved, type/breed, as well as a number of sawn items. The use of the saw for butchery purposes essentially dates from the latter part of the 18th century; this coinciding approximately with the introduction of 'improved' breeds to the urban meat markets (Albarella 2003, 74 and Rixson 2000, 215).
- 14.5.2 A similar late claim can also be made concerning another attribute of these bones – a wealth of rodent gnawing (present on 9 out of the 10 bones taken from this deposit). Such damage, or at least a substantial concentration of rodent gnawing, tends to be limited to 19th-century urban collections (this based on evidence from London and Manchester, as shown for example from Southwark in Rielly 2013 and Salford in Rielly 2014).

## **14.6 Discussion of the Faunal Remains**

- 14.6.1 Concerning the medieval assemblage – which comprises the vast majority of the overall collection from the site - bones recovered from probable reclamation dumps will undoubtedly arise from numerous sources, providing a general indication rather than direct evidence concerning animal usage from a particular area. Of note, however, is the fact that a sizeable proportion of the medieval bone assemblage was taken from a single refuse pit, [113], which can probably be taken as evidence of local habitation.
- 14.6.2 A proportion of the bones were less than well preserved, including the deposit which provided most of the fish bones. The noted state of the bones may well be indicative of some bias regarding the survival of the more fragile (smaller) fish species. The paucity of pig bones amongst these deposits is of note and while some collections are better preserved, there is the possibility that the bones of this species, being particularly susceptible to adverse soil conditions and fragmentation pressures, may have suffered a survival bias.
- 14.6.3 However, it should also be pointed out that there is clear evidence for good preservation, most notably the recovery of the near complete chicken skeleton from refuse pit [113], as well the obviously good surface condition of a large portion of the cattle bones allowing for the preservation and identification of the aforementioned butchery cuts as well as some minimal but nonetheless useful ageing and size evidence. In addition, the near absence of pigs may in fact relate to a noted reduction in pig bones seen at numerous English sites, particularly urban, dating from the later medieval period (see Albarella 2006, 80). This may explain the representation of pig at this site or at least suggest a prevailing pattern, a pattern which would clearly need to be compared to the findings of contemporary Newcastle sites, as well as perhaps those from the surrounding rural area.
- 14.6.4 The later post-medieval data is essentially of use to demonstrate the period of use, as based on the butchery utensil, size and gnawing data

## **14.7 Animal and Fish Bones: Potential for Further Analysis and Recommendations**

- 14.7.1 In summary, it is clear that the quantity of bones recovered from the site is too small to provide any meaningful review of animal usage during the two main broad occupation phases, *i.e.* the medieval and post-medieval eras.
- 14.7.2 This conclusion notwithstanding, the assessment has identified that, while a proportion of the bones were less than well preserved, some evidence for good preservation within the assemblage has also come to light. Therefore, on balance, while it is suggested that the animal and fish bones warrant no further examination, it is recommended that the evidence supplied in this report should be included with any forthcoming publication, with additional information supplied by comparisons with contemporary medieval sites in this locality. As well as the pig evidence, this could include comparisons regarding the species utilised, here in terms of their relative abundance, age and size. While, as stated, the later post-medieval data is essentially of use only to demonstrate the period of use, the particularly noteworthy facets of the 19th-century material may also bear some level of comparison with contemporary collections, with any findings of interest thus generated also included with any forthcoming publication.

## **15. MARINE SHELL**

*Archaeological Services Durham University*

### **15.1 Introduction**

- 15.1.1 Assessment was undertaken of the marine shell assemblage recovered from the excavation, which for the most part was hand-collected, with a small amount of additional material recovered by sieving bulk sediment samples.
- 15.1.2 Samples were received by Archaeological Services on 6 August 2014. Full assessment and report preparation was conducted in October 2014 by John Carrott (Paleoecology Research Services) on behalf of Archaeological Services.
- 15.1.3 At the time of writing, the marine shell assemblage is retained at Archaeological Services Durham University.

### **15.2 Aim**

- 15.2.1 The objective of the work was to examine the marine shell assemblage in order to provide species identifications and information about the use of marine resources.

### **15.3 Methods**

- 15.3.1 All of the shell fragments recovered were identified as closely as possible, principally with reference to Hayward and Ryland (1995) for marine shell; nomenclature follows this work. The weights (in grams), numbers of fragments and maximum dimensions of shell of different taxa from each context were recorded (where determinable) and the minimum numbers of individuals (or individual valves for bivalve taxa) represented calculated where possible.
- 15.3.2 For oyster (*Ostrea edulis* L.) shell additional notes were made (where possible) regarding: numbers of left (or lower) and right (or upper) valves; evidence of having been opened using a knife or similar implement; measurability of the valves; damage from other marine biota (e.g. polychaete worms and dog whelks); encrustation by barnacles. Preservation was recorded using two, subjective, four-point scales for erosion and fragmentation—scale points were: 0 – none apparent; 1 – slight; 2 – moderate; 3 – high. For those valves able to provide more than a simple measurement of maximum linear dimension, measurements were taken (using callipers) following Claassen (1998).

### **15.4 Marine Shell: Results**

- 15.4.1 The recovered shell assemblage was very small, amounting to just 716.8g from 17 contexts only two of which yielded more than 100g, these being contexts [122] and [124], 176.6g and 102.9g, respectively, the latter provided by a single large left oyster valve.



- 15.4.2 The identifiable components of the assemblage were composed entirely of edible marine shellfish – principally oyster (*Ostrea edulis* L.) but also including mussel (*Mytilus edulis* L.), periwinkle (*Littorina littorea* (L.)), cockle (*Cerastoderma edule* (L.)) and limpet (*Patella vulgata* L.) – and presumably derive from human food waste. There was a single operculum recorded from context [114] (from Sample 6) which *may* be from a freshwater Bithynia species but which could not be confidently identified as such within the constraints of an assessment.
- 15.4.3 The assemblage as a whole was dominated by generally rather poorly preserved oyster valves, although even the largest numbers of individual valves recorded amounted to no more than nine (context [122]). Overall, a total of 27 individual oyster valves were recorded (12 left valves, 13 right valves, and two of indeterminate side) of which only seven could provide biometrical data beyond a simple maximum linear dimension. Evidence of the oysters having been opened using a knife or similar implement (as shown by characteristic damage to the shell margins) was noted on at least 22% (perhaps as much as 56% if more tentatively recorded evidence is included); in some cases such evidence has almost certainly been rendered inconclusive or lost entirely through deterioration of the shell in the ground. Fresh breakage was noted on around 72% of the valves, presumably caused during recovery of the remains and this too may have destroyed evidence of opening (some of the bags of shell from individual contexts also contained small flakes of shell showing that the valves had disintegrated further post-excavation). There was no definitive evidence of damage to the oyster valves by other marine biota (e.g. by polychaete worms or dog whelks) or encrustation (e.g. by barnacles).
- 15.4.4 Details of the remains recovered from each context are given in Table 15.1, while Table 15.2 shows measurements (other than of maximum linear dimension which are given in Table 15.1) for the small number of oyster valves able to provide such data.

## 15.5 Discussion of the Marine Shell

- 15.5.1 The hand-collected shell assemblage was small and recovered from medieval and post-medieval deposits. Most of the remains were of rather poorly preserved oyster valves (although there were occasional remains which exhibited much better preservation), together with other edible shellfish including mussel, periwinkle, cockle and limpet, and most likely derived from human food waste (given that at least some of the evidence of opening on the oyster valves was compelling); limpets are not generally consumed in modern Britain but there are comparatively recent records from the British Isles (from the late 17th century to early modern times) of the regular collection of limpets as a staple food stuff of coastal communities (see, e.g., sources cited by Wickham-Jones 2003), and elsewhere in the world they are still eaten regularly. All of the positively identified marine shellfish are indigenous (and often common) to British coasts and, in the case of the medieval 'ballast' deposits, it is possible that some may have been accidentally collected together with dredged sand imported for land reclamation; there were no records of exotic taxa to provide evidence of importation from further afield, however.

15.5.2 If the oysters were supplied from a cultivated source (or sources) then current evidence suggests that they were most likely imported from the Kent, Essex or Suffolk coasts or the Firth of Clyde (Winder 1992 and pers comm.). However, Kenward (2009) has speculated that exploitation of local (but as yet unlocated) oyster beds may well have been more widespread along the east coast of England. Certain organisms (e.g. *Polydora* spp. polychaete worms) which infest oysters have known preferred habitats, and this can help to identify the source of the oysters, but unfortunately such evidence was lacking. The assemblage of oyster shells was too small and too poorly preserved (in general) to form any impression of consistency in size, or otherwise, which might suggest a cultivated source or more casual collection, respectively.

## **15.6 Marine Shell: Potential for Further Analysis and Recommendations**

15.6.1 No further study of the shell assemblage recovered during the excavation is considered to be warranted.

CN	SN	Oyster										Notes	wt
		l	r	i	e	f	meas	kn	fr	biota			
10	-	0	1	0	1	1	1	0	1	0	Oyster ( <i>Ostrea edulis</i> L.) valve to 53 mm	8.7	
14	-	1	0	0	3	3	0	?1	1	0	Oyster valve to 51 mm	7.4	
31	-	2	1	0	3	2	2	1/?2	3	0	Oyster valves to 77 mm (57.6 g); 2x larger oyster valve fragments (to 39 mm) and +++ mm-flakes of shell (0.8 g); 1x common limpet ( <i>Patella vulgata</i> L.) to 16 mm (high) by 34 mm (base) (4.5 g); 3x fragments of mnv=mni=1 common mussel ( <i>Mytilus edulis</i> L.) shell to 27 mm (1.1 g)	64.0	
71	-	1	1	0	3	3	0	?1	2	0	Oyster valves to 81 mm (35.4 g); ++ larger fragments of oyster shell (to 54 mm) and ++++ mm-flakes of shell (18.1 g)	53.5	
72	-	0	0	0	-	-	-	-	-	-	7x fragments of mnv=3 (mni=2) common mussel to 41 mm (9.1 g); 2x fragments of mnv=2 (mni=1) common cockle ( <i>Cerastoderma edule</i> (L.)) to 26 mm (2.8 g); 1x common periwinkle ( <i>Littorina littorea</i> (L.)) to 33 mm (7.1 g); +++ indeterminate shell fragments to 9 mm (<0.1 g)	19.0	
76	-	0	0	0	-	-	-	-	-	-	1x common cockle valve to 31 mm	3.4	
80	-	0	0	0	-	-	-	-	-	-	12x common cockle valves to 29 mm (14.2 g; mni=6) – also a few (+) mm-scale fragments; 14x fragments of mnv=13 (mni=7) heavily eroded ?Trough shells (perhaps <i>Spisula elliptica</i> (Brown)) but this is only very tentatively asserted) to 28 mm (11.6 g); 1x indeterminate ?tellin valve (cf. Tellinidae sp.) to 28 mm (0.8 g)	26.6	
84	-	2	0	0	3	2	1	1/?2	1	0	Oyster valves to 65 mm (23.9 g); 3x larger oyster valve fragments to 59 mm (43.8 g); 1x ?common periwinkle fragment (to 25 mm; 2.8 g); +++ mm-flakes of shell (most, if not all, probably of oyster) to 7 mm (<0.1 g)	70.5	
100	-	1	0	0	3	1	1	?1	1	0	Oyster valve to 49 mm (7.4 g); 2x oyster valve flakes to 10 mm (<0.1 g)	7.4	
111	-	0	0	0	-	-	-	-	-	-	++ oyster shell fragments to 63 mm (13.0 g) – perhaps all representing a single right valve	13.0	
114	6	0	0	0	-	-	-	-	-	-	++ fragments of indeterminate marine shell to 12 mm but mostly less than 3 mm (0.1 g); 1x unidentified operculum to 3 mm (<0.1 g)	0.1	
121	-	0	2	0	3	2	0	2	0	0	Oyster valves to 59 mm (26.0 g); 1x flake of oyster shell to 19 mm (0.1 g); 6x larger fragments and +++ mm-flakes of mnv=mni=1 mussel valve to 43 mm (4.4 g)	30.5	
122	-	2	5	2	3	3	0	1/?3	6/?7	0	Oyster valves to 87 mm (159.0 g); 7x larger oyster valve fragments to 56 mm and +++++ mm-flakes 14.6 g); 1x common limpet to 10 mm (high) by 28 mm (base) (2.1 g); 5x fragments of mni=1 common periwinkle to 15 mm (0.9 g)	176.6	
123	-	1	2	0	2	2	1	1/?2	1	0	Oyster valves to 68 mm (57.5 g); 1x oyster valve fragment to 46 mm (7.4 g); 2x common cockle valves (mni=2) to 33 mm (7.0 g)	71.9	
124	-	1	0	0	3	3	1	0	1	0	Oyster valve to 101.5 mm	102.9	
125	-	1	1	0	3	3	0	?1	2	0	Oyster valves to 82 mm (42.9 g); 1x larger oyster valve fragment to 47 mm and ++++ mm-flakes (13.0 g); 1x common cockle valve to 30 mm (2.8 g); 1x ?common periwinkle shell fragment to 25 mm (2.5 g)	61.2	
139	18	0	0	0	-	-	-	-	-	-	++ fragments of indeterminate shell (probably all from marine taxa) to 15 mm	0.1	
		12	13	2			7	6/?15	19/?20	0		716.8	

Key: 'CN' = context number; 'SN' = sample number (if applicable – records without sample numbers are of hand-collected remains); 'l' = number of left (or lower) valves; 'r' = number of right (or upper) valves; 'i' = number of valves of indeterminate side; 'e' = average erosion score for valves; 'f' = average fragmentation score for valves; 'meas' = number of valves intact enough to provide biometric data beyond a simple measurement of maximum linear dimension; 'kn' = number of valves showing damage characteristic of the oyster having been opened using a knife or similar implement; 'fr' = number of valves showing fresh breakage; 'biota' = number of valves with evidence of damage or encrustation from/by other marine biota; 'wt' = total weight of shell (in g); 'mni' = minimum number of individuals; 'mnv' = minimum number of valves. Semi-quantitative record for shell fragments are on the following scale: '+' = present (1-3 items); '++' = occasional (4-20); '+++ = common (21-50); '++++' = abundant (51-200); '+++++' = super-abundant (201+).

Table 15.1. Hand-collected shell by context

Context	Valve side	LVH	LVL	LHW	LHL	LAS	LASH	RVH	RVL	RHW	RHL	RAS	RASH
10	R	-	-	-	-	-	-	53	48	5	5	15	33.5
31	L	-	72	12	14	24	43	-	-	-	-	-	-
31	L	77	60.5	8	9	-	48	-	-	-	-	-	-
84	L	61	54	7	8	17	34	-	-	-	-	-	-
100	L	49	41.5	7	8	-	27	-	-	-	-	-	-
123	R	-	-	-	-	-	-	64	55.5	7.5	12	19	38
124	L	94	101.5	8.5	11	22	53	-	-	-	-	-	-

Key: LVH = left valve height; LVL = left valve length; LHW = left hinge width; LHL = left hinge length; LAS = left anterior scar length; LASH = left anterior scar height; RVH = right valve height; RVL = right valve length; RHW = right hinge width; RHL = right hinge length; RAS = right anterior scar length; RASH = right anterior scar height.

Table 15.2. Measurements from oyster valves (mm)

## **16. POTENTIAL OF THE SITE DATA FOR FURTHER ANALYSIS**

### **16.1 Addressing the Project Aims and Objectives**

- 16.1.1 The five overall aims of the archaeological excavation at the LiveWorks site were initially outlined in the Newcastle City Council Specification and subsequently detailed in PCA's Written Scheme of Investigation. With the excavation complete and this report setting out the results of the data assessment, these aims are addressed below, allowing conclusions drawn in each case.
- 16.1.2 Firstly, the work aimed to investigate the natural environment during which reclamation of the Tyne foreshore took place by means of palaeoenvironmental sampling. Although extensive sampling of probable ballast deposits dumped onto the foreshore during medieval reclamation was undertaken, little or no palaeoenvironmental evidence of interpretative value was forthcoming due to the absence of diagnostic charred plant macrofossils and low quantities of charcoal. However, a bulk sample of an alluvial layer recorded within the sequence of ballast deposits in Trench 2 was far more productive in this regard, yielding a large quantity of ostracod (small bivalved crustaceans) remains, which, although an underused fossil group in environmental archaeology, are recognised as valuable indicators of palaeohydrology, palaeoecology and palaeoclimatology; the same sample also produced waterlogged plant macrofossils typical of aquatic conditions and damp ground. Assessment of a column sample taken through the alluvial deposit was therefore undertaken to record additional ostracod remains, plant macrofossils and pollen in order to provide further details of the palaeoenvironment of the medieval foreshore. This work has enabled a reconstruction of the palaeoenvironment of the medieval foreshore at Newcastle. Few attempts have been undertaken to apply microfaunal analysis within environmental archaeology and the project therefore provides a valuable dataset for future studies. AMS dating was undertaken on terrestrial plant remains from the sample, however following an initial failed attempt, the date obtained is unfortunately considered to be invalid (too early).
- 16.1.3 Secondly, the work aimed to ascertain the presence or absence of any Roman or Saxon occupation of the area. With the earliest strata encountered in each trench being deposits dumped onto the foreshore during medieval reclamation and with no Roman or Saxon artefactual material recovered residually in medieval or later deposits, it is concluded that the work cannot elucidate this matter further.
- 16.1.4 Thirdly, the work aimed to determine the origins and nature of medieval land reclamation by archaeological recording and, where appropriate, sampling; were reclamation deposits derived from domestic or industrial waste, or were they re-deposited natural material, perhaps comprising/including material dredged locally from the river bed or even from elsewhere? The excavation has provided a great deal of information of note with regard to this avenue of enquiry. It can be concluded that at least a proportion of the earliest deposits (Phase 1) recorded in both trenches probably arrived at the site as ships' ballast as the Tyne foreshore was reclaimed in the medieval period, specifically the 13th/14th century.
- 16.1.5 Assessment of stone recovered from bulk deposits identified as most likely to derive from ships' ballast has established that some of the constituent material potentially originated from southern England, with flint cobbles from one deposit in Trench 2 being beach cobbles typical

of those found on the South Downs, while cobbles from Trench 1 probably most likely originated from the lower Thames or its estuary. Evidence that locally-quarried geological deposits, both glacial 'boulder clay' and Carboniferous sandstone bedrock, were used as bulk reclamation material was also forthcoming.

- 16.1.6 Bulk samples of medieval deposits in Trench 1 were assessed for evidence to indicate that industrial activities were being conducted on site and this work has established that much of the sampled material comprised coal slack, together with stone and low value industrial waste, this potentially the broken up remains of a compacted earth/detritus floor from an iron forge. Therefore, while this does not indicate metal smelting or smithing was carried out at the site itself, it perhaps more likely suggests that material continued to be imported onto the site for ground-raising and consolidation, after reclamation of the foreshore had been concluded. Thus, one plausible explanation for the presence of the coal slack, stone and industrial waste is that empty coal-carrying vessels returning from southern England and further afield discharged their excess ballast and coal slack onto the quayside, before being loaded with coal and goods for export.
- 16.1.7 Relatively little evidence was recovered to indicate that medieval reclamation deposits incorporated domestic or commercial waste (other than the industrial material). Of note was one sandy ballast dump in Trench 2 which yielded most of the fish bones from the site, these all potentially the remains of locally caught fish. While animal bone was generally scarce at the site, the evidence provided by what material there was did indicate dumping of processing waste, as well as food waste, with some of this material appearing in potential reclamation deposits.
- 16.1.8 Fourthly, the work aimed to excavate and record in detail the stratigraphic sequence above reclamation material, this presumed to represent long-lived medieval and early post-medieval occupation of the area, with later post-medieval and modern material being subject to a lesser degree of recording. In broad terms, the site evidence was entirely consistent with existing knowledge concerning the date - c. 1400 AD - by which this part of the north foreshore was reclaimed, thereby allowing the town wall to be built along the Quayside. The dominant component of medieval activity recorded in Trench 1 was a monumental NW-SE aligned sandstone wall, interpreted as a long-lived property boundary. Deeply stratified deposits were excavated either side of this wall, with evidence of episodic surfacing being recorded, while limited evidence of structural activity in association with the surfaces also was also evident. As mentioned above, the excavated deposits also potentially incorporated additional imported material, including industrial waste. Additional structural remains of medieval date were also recorded in Trench 1, although the boundary wall remained the dominant existent structure.

- 16.1.9 In terms of NERRF research priorities for the later medieval period (MD) considered to be of relevance to the project in advance of the fieldwork, it can be concluded that excavation of the sequence of occupation deposits in Trench 1, along with investigation of probable reclamation deposits in both trenches, has contributed information to each of these to a greater or lesser extent: *MDi. Urbanism; MDVii. Medieval ceramics and other artefacts; MDviii. Other medieval industries; MDix. Trade and economy; MDx. The fishing industry*. Limitations to the findings in any regard may be considered to be largely the result of the relatively restricted nature of the excavation areas, certainly in comparison to other, previous investigations conducted in and around the Quayside.
- 16.1.10 In Trench 2, very limited remains of medieval occupation survived above the reclamation deposits due to the presence of post-medieval cellars in street frontage buildings, the surviving features comprising just a possible robbed-out construction cut and a refuse pit. The cellar structures themselves were of note, however, with the earliest components likely dating to the 17th century, with a series of modifications being carried out over the course of the next two hundred or more years until the buildings were demolished in the early modern era.
- 16.1.11 Fifthly, the work aimed to, if possible, locate the quayside wall indicated on post-medieval mapping, e.g. Corbridge's 1723 map. No evidence of this structure was encountered in Trench 2, located within metres of the current Quayside road and pavement, along which the medieval riverfront wall is assumed to have run. Part of a potential substantial construction cut exposed along the southern edge of Trench 2 could conceivably relate to such a structure but, on the basis of the excavated evidence, this is far from certain.

## **16.2 Overall Conclusion Regarding Further Work**

- 16.2.1 In broad terms, the excavation at the LiveWorks site has undoubtedly contributed to archaeological knowledge of the medieval and post-medieval periods in Newcastle. More specifically, the work afforded the opportunity to closely investigate depositional sequences of medieval date and structural remains of post-medieval date in the section of the Newcastle Quayside between Lort Burn and Pandon Burn, and at two locations in relatively close proximity to the line of the medieval town wall.
- 16.2.2 In conclusion, the archaeological evidence of Phases 1, 2 and 3, covering the period between 13th/14th century reclamation of the foreshore and all subsequent occupation up to the 18th/19th century, is considered to be of significance at a local level. Assessment of the archaeological data-set has demonstrated that components of the stratigraphic, artefactual and palaeoenvironmental evidence warrant publication.

## **16.3 Summary of Potential for Further Work**

### ***Stratigraphic Evidence***

- 16.3.1 The depositional sequences of medieval date in both trenches and the structural remains of post-medieval date in Trench 2 should be outlined in a publication report. The medieval evidence should be compared and contrasted with the findings of previous work in the area, particularly on the same portion of the Quayside between Lort Burn and Pandon Burn, such as the excavations undertaken in the 1980s at Queen Street and Dog Bank.

### **Pottery**

- 16.3.2 The medieval pottery assemblage is considered too small to have potential for any in-depth analysis, especially in view of the large quantities of medieval pottery recovered from other sites in the area. Nevertheless, there are undoubtedly some items of note which should feature in a publication report, most notably the impressive large cistern from Trench 1, the presence of Low Countries greyware in the same trench and the relatively uncommon imported French material in Trench 2.
- 16.3.3 In addition, some of the post-medieval material from Trench 2 is of intrinsic interest, despite having limited value for site interpretation.

### **Ceramic Building Material**

- 16.3.4 The range of brick types in the ceramic building material assemblage is broadly comparable with similar sites in Newcastle, such as Close Gate and Mansion House. Apart from the complete medieval bricks, the assemblage is generally unremarkable and unlikely to repay further study. The late post-medieval evidence is certainly not a research priority of this project, therefore no further work is recommended for the items of 19th-century date. While a photograph of the Leeds Fireclay Company brick stamp could be included in a publication report, it would be of intrinsic interest only.
- 16.3.5 It is recommended that the large piece of hip tile from context [17] should be illustrated in a publication report. Previously published excavation reports from the Newcastle Quayside do not appear to have recorded any examples of hip tile having been found, although it is possible that the form may not have been recognized if severely fragmented. It is also possible that in the case of sites which lack published ceramic building material reports, this find type was not examined or catalogued in any detail, and thus their assemblages may contain further examples of hip tile. Additional examples would repay further investigation, looking for parallels elsewhere in the region and for evidence as to their production source.

### **Miscellaneous Finds**

- 16.3.6 Although some clay pipe fragments have been of use during the assessment in dating the contexts from which they were recovered, on the whole there is little or no potential for further analysis for the clay pipe assemblage. One or two of the items merit mention in a publication report.
- 16.3.7 With the exception of the late 17th-century bottle seal, there is little or no potential for further analysis for the glass assemblage, although some of the items are of intrinsic interest. Further research into the bottle seal could allow the 'owner' of the seal to be identified and thus its date confirmed. This work is recommended due to the stratigraphic position of the item, within a make-up layer for a cellar floor in Trench 2. The seal merits mention and possibly illustration in a publication report.
- 16.3.8 Due to its small size and the fragmentary nature of many of the items, there is very little potential for further analysis for the metalwork assemblage. The exception is the 18th-century shoe buckle, which does merit mention and possibly illustration in a publication report.



### ***Stone and Mortar***

- 16.3.9 With regard to the sampled building stone and cobblestones, publication as such should be limited to a review (paragraph) of the hand-collected specimen study. Other than an illustration of the stone 'disc' (SF 9) from fill [100], for which an explanation of function cannot as yet be provided, and some comments on the mortar, very little else needs to be explained in a publication report with regard to the stone and mortar collected.

### ***Flint***

- 16.3.10 The flint items do not warrant any further technological or metrical analyses and no further work is recommended. Their presence and the fact of their re-use, does however, represent an interesting aspect of the history of trade in Newcastle and it is, therefore, recommended that they should be mentioned in a publication report.

### ***Industrial Related Residues***

- 16.3.11 No further work is recommended on the assemblage of industrial related residues. Any noteworthy information within the assessment results can be used for a publication report.

### ***Animal and Fish Bones***

- 16.3.12 The quantity of bones recovered from the site is too small to provide any meaningful review of animal usage during the two main broad occupation phases, *i.e.* the medieval and post-medieval eras. Therefore, while it is suggested that the animal and fish bones warrant no further examination, it is recommended that the assessment results should be included within a publication report, with additional information supplied by comparisons with contemporary medieval sites in this locality. Any particularly noteworthy facets of the 19th-century material may also bear some level of comparison with contemporary collections, with any findings of interest thus generated also included in a publication report.

### ***Shell***

- 16.3.13 No further study of the shell assemblage is considered to be warranted. Any noteworthy information within the assessment results can be used for a publication report.

### ***Palaeoenvironmental Remains***

- 16.3.14 No further analytical work is recommended on the palaeoenvironmental remains.
- 16.3.15 A publication text detailing the results of the assessment should be prepared for inclusion in a publication report.

***PART C: ACKNOWLEDGEMENTS AND REFERENCES***

## 17. ACKNOWLEDGEMENTS AND CREDITS

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### **PCA Credits**

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*Fieldwork:* Robin Taylor-Wilson (Site Director), Dan Bateman, Aaron Goode (survey), Dave Green, Sophie Laidler, Jeff Lowery, Danni-Louise Parker, Aidan Pratt, Chris Tubman

*Report:* Robin Taylor-Wilson

*Post-excavation Management:* Jennifer Proctor and Robin Taylor-Wilson

*Illustrations:* Adela Murray-Brown

*Stone and Mortar Assessment:* Dr Kevin Hayward

*Animal Bones Assessment:* Kevin Rielly

### **Other Credits**

*Pottery and Miscellaneous Finds Assessment:* Jenny Vaughan (NCAS)

*Glass Bottle Seal Comment:* David Burton

*Ceramic Building Material Assessment:* John Nolan (NCAS)

*Palaeoenvironmental Assessment:* coordinated by Dr Charlotte O'Brien (ASDU)

*Marine Shell Assessment:* John Carrott (PRS for ASDU)

*Fish Bones Assessment:* Dr Philip L. Armitage (for PCA)

*Lithics Assessment:* Dr Barry Bishop

*Conservation:* Karen Barker

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*Department for Communities and Local Government* website:

[www.gov.uk/government/organisations/department-for-communities-and-local-government](http://www.gov.uk/government/organisations/department-for-communities-and-local-government)

*English Heritage* website: [www.english-heritage.org.uk/publications](http://www.english-heritage.org.uk/publications)

*Globalization and World Cities (GaWC) Research Network* website:

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*The Journal* website: <http://www.thejournal.co.uk/>

*MAGIC* website: [www.magic.gov.uk/website/magic/](http://www.magic.gov.uk/website/magic/)

*Oxford University Text Archive* website: <http://ota.ahds.ac.uk/>

*Oxfordshire Architectural and Historical Society* website: <http://oxoniensia.org/>

*Sitelines* website (the online Tyne and Wear Historic Environment Record):  
[www.twsitelines.info/](http://www.twsitelines.info/)

*SkyscraperCity* website: [www.skyscrapercity.com/](http://www.skyscrapercity.com/)

*Swinton Heritage Society* website (for information on Swinton – Dale Brown - Glassworks):  
[www.kilnhurstheritage.co.uk/the-towns-history/swinton-industry/](http://www.kilnhurstheritage.co.uk/the-towns-history/swinton-industry/)

*Tyne and Wear Museums and Archives* website (for the extract of John Storey's 1852 painting of Newcastle): <http://www.twmuseums.org.uk/engage/blog/the-real-barras-bridge-and-newcastles-beautiful-lost-dean/>

*University of Leicester Special Collections Online* website (for its collection of 'Historical Directories of England and Wales'):  
<http://specialcollections.le.ac.uk/cdm/landingpage/collection/p16445coll4>

**APPENDIX A**  
**PHOTOGRAPHIC PLATES**



Plate 1. Overview of site location on the Newcastle Quayside; the site is the open space in the street frontage to the right; looking south-west



Plate 2. Quayside frontage of the site; Custom House to the left, All Saints' Church in rearground; looking north-west



Plate 3. Quayside frontage of the site; Custom House to the left, Live Theatre in central rearground; looking north



Plate 4. Northern part of the site during the fieldwork; rear elements of Custom House, Live Theatre and All Saints' Church in rearground; looking north-west





Plate 5. Trench 1, prior to shoring installation; rear of Broad Chare frontage, including Live Theatre, in rearground; looking north

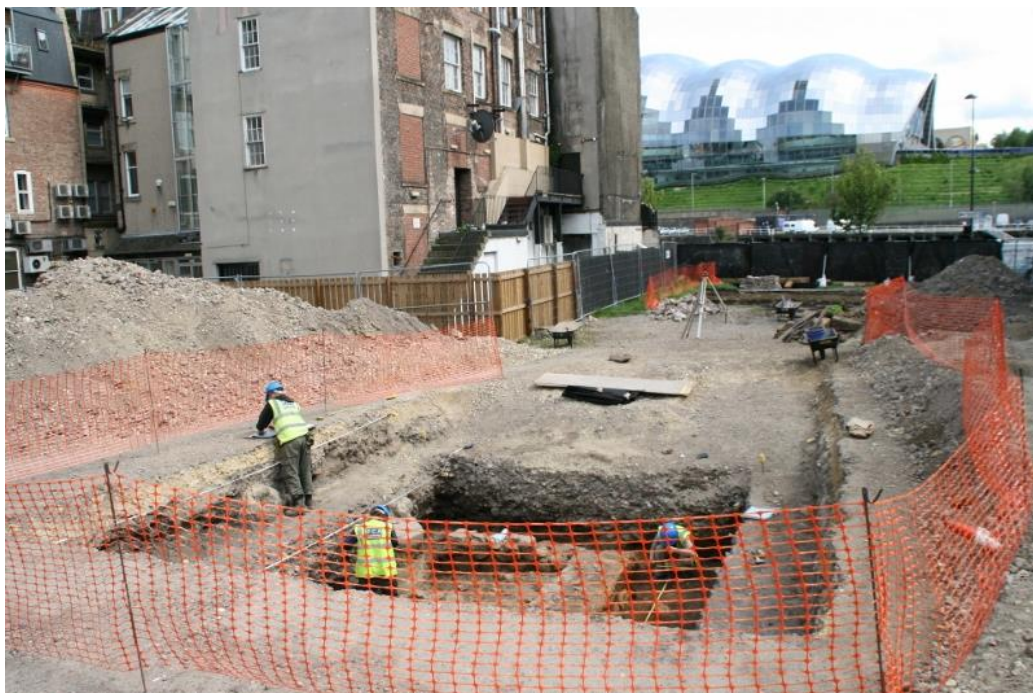


Plate 6. Trenches 1 (fore) and 2 (rear), prior to shoring installation; rear of Quayside frontage and Sage Gateshead in rearground; looking south-east





Plate 7. Trench 2, prior to shoring installation, working shot; Sage Gateshead in rearground; looking south-east



Plate 8. Trench 2, prior to shoring installation, working shot; looking south





Plate 9. Trench 1, during shoring installation, working shot; rear of Broad Chare, including Live Theatre, in rearground; looking north



Plate 10. Trenches 1 (fore) and 2 (rear) with shoring installed, working shot; looking south-east





Plate 11. Trench 1, Section 8, west end; including cross-section of wall [12]; looking south-east (1m scale)



Plate 12. Trench 1, Section 8, working shot; looking south





Plate 13. Trench 2, Phase 1 ballast deposits, working shot; looking north-west



Plate 14. Trench 2, Section 7, north end; looking north-east (0.5m scale)





Plate 15. Trench 2, Phase 2a pit [113], with stone disc (SF 9) *in situ*, working shot; looking north



Plate 16. Trench 2, Phase 2a pit [113], with stone disc (SF 9) *in situ*; looking east (0.5m scale)





Plate 17. Trench 1 (with shoring), Phase 2 remains: wall [12] (reduced in height); cobble dump [58] (right); coal spread [70] (left); looking south-east (2m scale)



Plate 18. Trench 1 (with shoring), Phase 2 remains: wall [12] (original height); wall [39] (left, rear); dump layer [31] (left); clay surface [21] (right); looking south-east (1m and 0.5m scales)





Plate 19. Trench 1 (prior to shoring installation), Phase 2 remains: wall [12] (original height); wall [39] (left, rear); dump layer [31] (left); clay surface [21] (right); looking south-east (2m scale)



Plate 20. Trench 1 (prior to shoring installation), Phase 2 remains: wall [12] (original height); clay surface [21] (left, fore); looking north-west (1m and 0.5m scales)





Plate 21. Trench 1 (prior to shoring installation), excavation of Phase 2 remains: dump layer [30] (left) and clay surface [21] (right), working shot; looking south



Plate 22. Trench 1 (prior to shoring installation), excavation of Phase 2 remains: clay surface [21], working shot; looking south-west



Plate 23. Trench 2, Phase 3 structures, walls [33] (rear) and [34] (fore) (reduced height), cut into medieval ballast deposits; looking north-east (1m and 0.5m scales)



Plate 24. Trench 2, Phase 3 wall [34] (reduced height), cut into medieval ballast deposits, working shot; looking west





Plate 25. Trench 2, Phase 3 structures: walls [33] (right) and [34] (left) (reduced height), surfaces [35], [36] and [75]; looking north-west (1m and 0.5m scales)

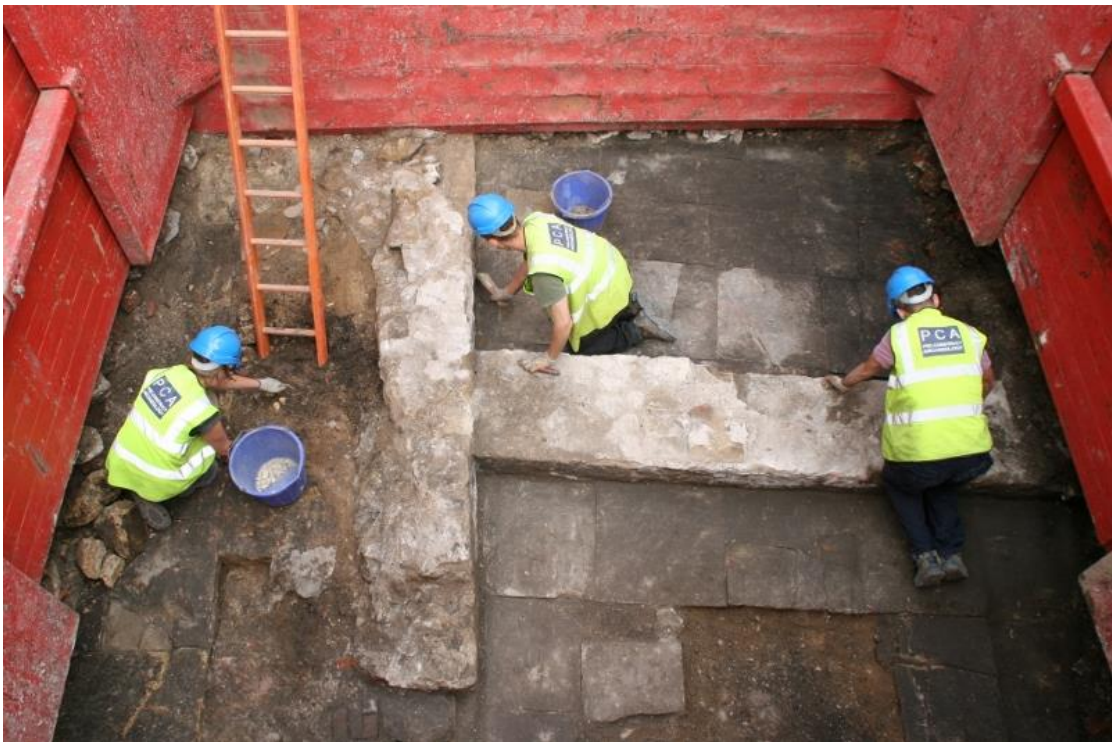


Plate 26. Trench 2, Phase 3 structures: walls [33] (left) and [34] (right) (reduced height), surfaces [35], [36] and [75], working shot; looking south-east





Plate 27. Trench 2, Phase 3 structures: wall [37] (left); walls [32] and [33] (with brick facing [38]) (central); wall [34] (right, fore); wall [28] (right, rear); looking south-east (1m and 1m scales)



Plate 28. Trench 2, Phase 3 structures: wall [37] (rear); walls [32] and [33] (central); wall [34] (left, fore); wall [28] (right, fore); looking north-east (1m and 1m scales)

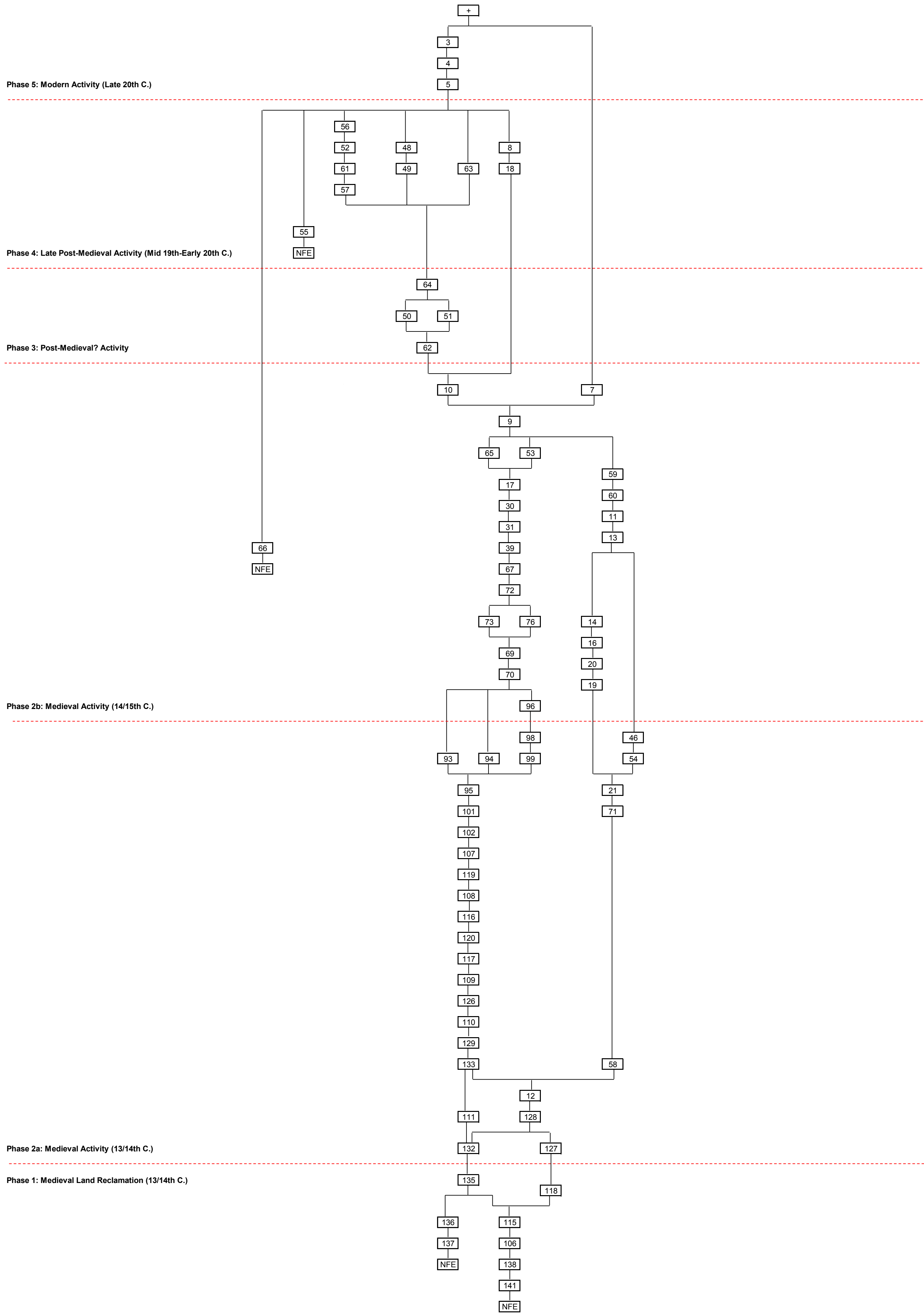


Plate 29. Trench 2, Phase 3 structures: walls [32] and [33] (with brick facing [38]) at junction with wall [34] (right); looking south-east (1m scale)

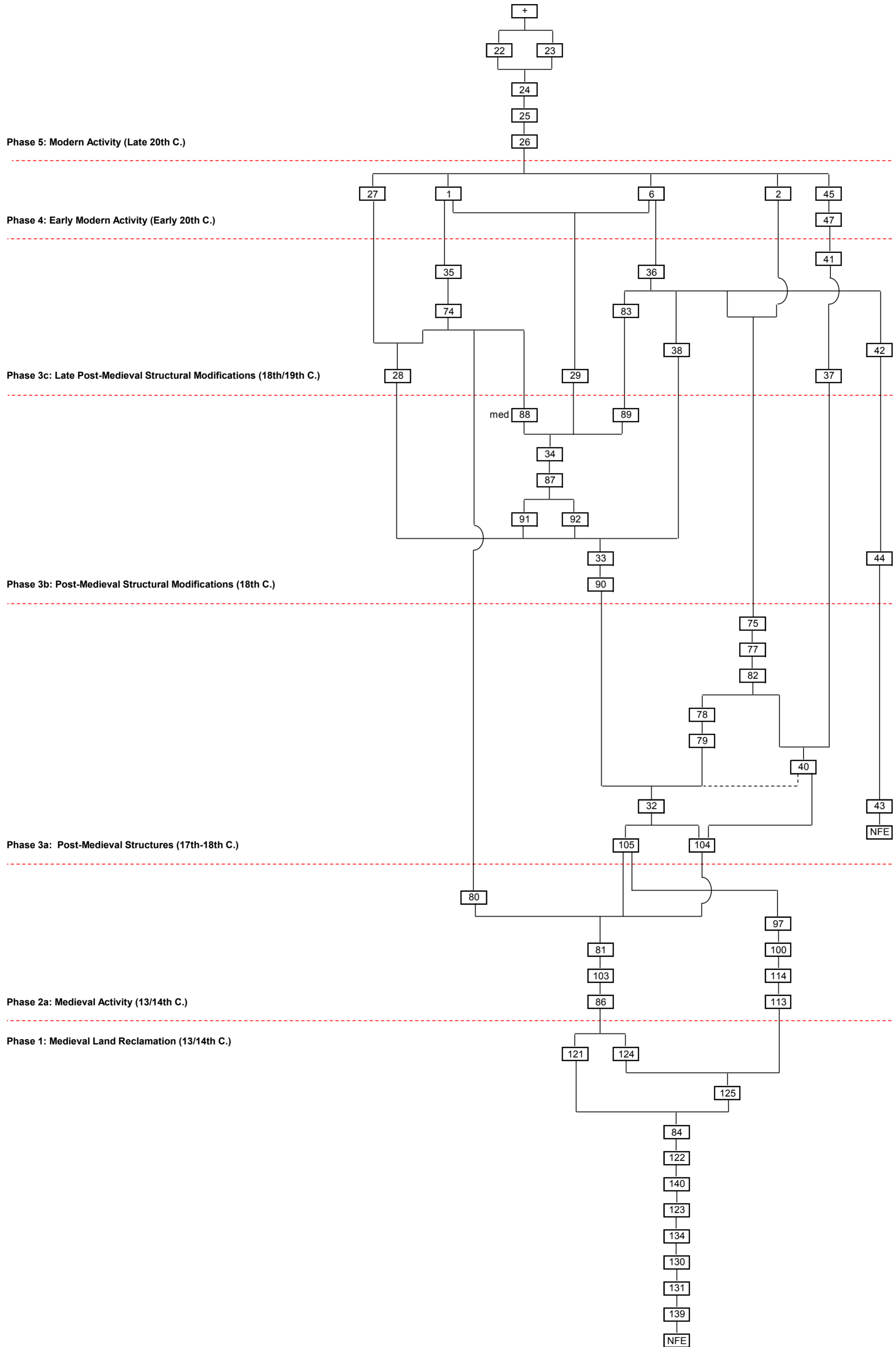


Plate 30. Glass bottle fragment with seal (SF 3) from layer [77], Trench 2 (10cm scale)

**APPENDIX B**  
**STRATIGRAPHIC MATRICES**







**APPENDIX C  
CONTEXT INDEX**

**TRQ 14: CONTEXT INDEX**

<b>Context</b>	<b>Trench</b>	<b>Phase</b>	<b>Type 1</b>	<b>Type 2</b>	<b>Interpretation</b>
1	2	4	Deposit	Fill	Demolition rubble backfill of SW cellar
2	2	4	Deposit	Fill	Demolition rubble backfill of E cellar
3	1	5	Deposit	Surface	Tarmac surface
4	1	5	Deposit	Layer	Roadstone layer; make-up for surface [3]
5	1	5	Deposit	Layer	Recycled aggregate 'made ground'; former piling mat
6	2	4	Deposit	Fill	Demolition rubble backfill of NW cellar
7	1	2b	Deposit	Layer	Coal spread
8	1	4	Deposit	Fill	Fill of feature [18]
9	1	2b	Deposit	Layer	Silty sand dump layer
10	1	2b	Deposit	Layer	Sand dump layer
11	1	2b	Deposit	Layer	Mortar spread; possible demolition material
12	1	2a	Masonry	Structure	Stone boundary wall (NW-SE)
13	1	2b	Deposit	Layer	Coal spread
14	1	2b	Deposit	Layer	Sand, ash and coal dump layer
15	<i>Void</i>				
16	1	2b	Deposit	Layer	Coal dump layer
17	1	2b	Deposit	Layer	Sandy silt dump layer
18	1	4	Cut	Feature	Intrusion; possible 'robbing out' feature
19	1	2b	Deposit	Layer	Burnt sand and ash spread
20	1	2b	Deposit	Layer	Ash and coal dump layer
21	1	2a	Deposit	Layer	Clay spread; possible surface
22	2	5	Deposit	Surface	Tarmac surface
23	2	5	Deposit	Layer	Turf
24	2	5	Deposit	Layer	Imported topsoil
25	2	5	Deposit	Layer	Roadstone layer
26	2	5	Deposit	Layer	Recycled aggregate 'made ground'; former piling mat
27	2	4	Deposit	Layer	Silt dump layer
28	2	3c	Masonry	Structure	Brick cellar wall and remains of vaulted roof
29	2	3c	Masonry	Structure	Remains of brick vaulted roof
30	1	2b	Deposit	Layer	Sand dump layer
31	1	2b	Deposit	Layer	Rubble, ash and clay dump layer
32	2	3a	Masonry	Structure	Sandstone cellar wall (NW-SE)
33	2	3b	Masonry	Structure	Sandstone cellar wall (NW-SE)
34	2	3b	Masonry	Structure	Sandstone cellar wall (SW-NE)
35	2	3c	Masonry	Surface	Flagstone floor surface of SW cellar
36	2	3c	Masonry	Surface	Flagstone floor surface of NW cellar
37	2	3c	Masonry	Structure	Brick cellar wall (NW-SE)
38	2	3c	Masonry	Structure	Brick facing to doorway aperture
39	1	2b	Masonry	Structure	Sandstone wall (SW-NE)
40	2	3a	Masonry	Structure	Sandstone wall (SW-NE)
41	2	3c	Masonry	Structure	Fireplace
42	2	3c	Masonry	Structure	Brick facing to doorway aperture
43	2	3a	Masonry	Structure	Sandstone cellar wall (NW-SE); formerly linked to [32]
44	2	3b	Masonry	Structure	Sandstone cellar wall (NW-SE); formerly linked to [33]
45	2	4	Masonry	Structure	Demolition rubble backfill of fireplace [41]
46	1	2a	Masonry	Structure	Stone wall (NW-SE)
47	2	4	Deposit	Fill	Brick infill of fireplace [41]
48	1	4	Deposit	Fill	Fill of feature [49]
49	1	4	Cut	Linear?	Intrusion

**TRQ 14: CONTEXT INDEX**

50	1	3	Deposit	Layer	Clay dump layer
51	1	3	Deposit	Layer	Coal dump layer
52	1	4	Masonry	Item	Part of concrete slab; within feature [57]
53	1	2b	Deposit	Layer	Sand dump layer; possibly = [65]
54	1	2a	Cut	Linear	Construction cut for wall [46]
55	1	4	Masonry	Structure	Brick cellar wall (NW-SE)
56	1	4	Deposit	Layer	Coal and ash dump layer
57	1	4	Cut	Linear?	Intrusion; possibly construction cut for cellar [55]
58	1	2a	Deposit	Layer	Cobble and stone dump layer; possible surface
59	1	2b	Deposit	Layer	Sand dump layer
60	1	2b	Deposit	Layer	Mortar spread; possible demolition material
61	1	4	Deposit	Layer	Sand and ash dump layer
62	1	3	Deposit	Layer	Coal, ash and silt dump layer
63	1	4	Deposit	Layer	Sand dump layer
64	1	3	Deposit	Layer	Coal, ash and sand dump layer
65	1	2b	Deposit	Layer	Sand dump layer; possibly = [53]
66	1	2b	Masonry	Structure	Sandstone wall (N-S)
67	1	2b	Deposit	Layer	Silt levelling layer
68	<i>Void</i>				
69	1	2b	Deposit	Layer	Sand dump layer
70	1	2b	Deposit	Layer	Ash, sand and coal dump layer
71	1	2a	Deposit	Layer	Sand levelling layer
72	1	2b	Masonry	Surface	Stony levelling layer
73	1	2b	Deposit	Layer	Clayey sand dump layer
74	2	3c	Deposit	Layer	Sand dump layer; make-up for surface [35]
75	2	3a	Masonry	Surface	Flagstone floor surface of E cellar
76	1	2b	Deposit	Layer	Sand dump layer
77	2	3a	Deposit	Layer	Sand bedding layer for surface [75]
78	2	3a	Deposit	Layer	Sand and charcoal dump/levelling layer
79	2	3a	Deposit	Layer	Mixed dump layer
80	2	2a	Deposit	Layer	Sand and clay dump layer
81	2	2a	Deposit	Layer	Cobble dump; probable ballast
82	2	3a	Deposit	Layer	Mixed dump layer
83	2	3c	Deposit	Layer	Sand bedding layer for surface [36]
84	2	1	Deposit	Layer	Sand and gravel dump layer; probable ballast
85	<i>Void</i>				
86	2	2a	Cut	Linear	Uncertain; possible structural robber cut
87	2	3b	Cut	Linear	Construction cut for wall [34] (N side)
88	2	3b	Deposit	Fill	Fill of construction cut [87] (S side)
89	2	3b	Deposit	Fill	Fill of construction cut [87] (N side)
90	2	3b	Cut	Linear	Construction cut for wall [34] (S side)
91	2	3b	Deposit	Fill	Fill of construction cut [90] (S side)
92	2	3b	Deposit	Fill	Fill of construction cut [90] (N side)
93	1	2a	Deposit	Layer	Sandy dump layer
94	1	2a	Deposit	Layer	Clay dump layer
95	1	2a	Deposit	Layer	Coal and ash dump layer
96	1	2b	Deposit	Layer	Coal and ash dump layer
97	2	2a	Deposit	Layer	Sand dump layer
98	1	2a	Deposit	Layer	Stony dump layer
99	1	2a	Deposit	Layer	Silt dump layer



**TRQ 14: CONTEXT INDEX**

100	2	2a	Deposit	Fill	Upper fill of pit [113]
101	1	2a	Deposit	Fill	Fill of posthole [102]
102	1	2a	Cut	Discrete	Posthole
103	2	2a	Deposit	Fill	Fill of feature [86]
104	2	3a	Cut	Linear	Construction cut for wall [40] (and possibly part of wall [32])
105	2	3a	Cut	Linear	Construction cut for wall [32] (N end
106	1	1	Deposit	Layer	Clay dump layer
107	1	2a	Deposit	Layer	Sand dump layer
108	1	2a	Deposit	Layer	Stony layer; possible surface
109	1	2a	Deposit	Layer	Stony clay dump layer
110	1	2a	Deposit	Layer	Clay dump layer
111	1	2a	Deposit	Layer	Silty dump layer
112	<i>Void</i>				
113	2	2a	Cut	Discrete	Refuse pit; filled by [114] and [100]
114	2	2a	Deposit	Fill	Primary fill of pit [113]
115	1	2a	Deposit	Layer/Fill	Stony dump layer; probable ballast & make-up for wall [12]
116	1	2a	Deposit	Fill	Fill of posthole [120]
117	1	2a	Deposit	Layer	Gravel layer; possible surface
118	1	1	Deposit	Layer	Coal and ash spread
119	1	2a	Deposit	Layer	Sand dump layer
120	1	2a	Cut	Discrete	Posthole; filled by [116]
121	2	1	Deposit	Layer	Sand and cobble dump layer; probable ballast = [124]
122	2	1	Deposit	Layer	Sand dump layer; probable ballast
123	2	1	Deposit	Layer	Sand dump layer; probable ballast
124	2	1	Deposit	Layer	Sand and cobble dump layer; probable ballast, = [121]
125	2	1	Deposit	Layer	Stony clay dump layer; probable ballast
126	1	2a	Deposit	Layer	Clayey sand dump layer
127	1	2a	Cut	Linear	Construction cut for wall [12]
128	1	2a	Deposit	Fill	Fill of construction cut [127]
129	1	2a	Deposit	Layer	Sand dump layer
130	2	1	Deposit	Layer	Alluvial deposit
131	2	1	Deposit	Layer	Flint gravel and cobble dump layer; probable ballast
132	1	2a	Masonry	Structure	Possible offset footing for wall [12]
133	1	2a	Deposit	Layer	Sand dump layer
134	2	1	Deposit	Layer	Sand dump layer; probable ballast
135	1	1	Deposit	Layer/Fill	Stony dump layer; probable ballast
136	1	1	Deposit	Layer	Sand dump layer; probable ballast
137	1	1	Deposit	Layer	Stony dump layer; probable ballast
138	1	1	Deposit	Layer	Flint cobbles and clay dump layer; probable ballast
139	2	1	Deposit	Layer	Sand and flint cobble dump layer; probable ballast
140	2	1	Deposit	Layer	Sand and cobble dump layer; probable ballast
141	1	1	Deposit	Layer	Stone dump layer; probable ballast

**APPENDIX D  
POTTERY CATALOGUE**

*Information to accompany pottery catalogue*

<b>Fabric No.</b>	<b>Type</b>	<b>Abbreviations Used/Comment</b>
2	South Curtain Wall	scw - An early coarse sandy ware
3	Gritty wares	e.g. coarser varieties of types in FG 4: buff gr
4	Light firing wares	bw, h = hard, of = over-fired
5	Oxidized wares	See entry
6	Sandy unglazed	Grey cored fabrics
6.1	Early green glazed sandy wares	eg2 = type formerly called rg2, egw
7	Reduced green glazed wares, includes part-oxidised with same characteristics	General rg category for iron-rich types perhaps coarser or not as well glazed as the later types (FG 8) but finer than eg wares
8	Later reduced green-glazed wares	
10	Other medieval	Unidentified, unidentifiable, various
11	Scarborough ware	scarb
12	French wares	Sain m = Saintonge mottled green gl.
20	Imported redware	
21	Low Countries greyware	lcg
27	Red earthenware	Uncertain fabric
32	Later red earthenwares - 18 <sup>th</sup> /19th c.	lgre (later glazed red earthenware), ..sl (with slip coat), blgre (black ..), ungre (unglazed)
33	Refined whitewares - late 18th/19th c.	refww
35	Utilitarian stoneware - 19th c./20 <sup>th</sup> c.	Various
36	Porcelain/china	china

Other abbreviations used:

appl applied  
 dec decoration  
 ext external, exterior  
 frags fragments  
 gl glazed  
 int internal  
 ox oxidised  
 sh sherd  
 ves vessel

**APPENDIX E**  
**CERAMIC BUILDING MATERIAL CATALOGUES**

TRQ 14: CBM and Plaster Catalogue

Context no.	Sample no.	Material	Form	Qty	L	W	Th	0%	Comments	Marks	Date	Site date
					<i>(all in mm)</i>							
28	3/4	CBM	Brick	1	245	122	62	Whole	Dark red-orange, chipped one end, white mortar on both sides, one end, both beds, shallow frog, wiped upper face	None	Post-med	Post-med
28	2/4	CBM	Brick	1	242	124	57	Whole	Dark red-orange, mortar all faces, shallow combed frog	None	Post-med	Post-med
28	4/4	CBM	Brick	1	243	117	55	Whole	Dark red-orange, mortar all faces except one end, some sooting?, mould mark one side	None	Post-med	Post-med
28	1/4	CBM	Brick	1	265	126	62	Whole	Dark red-purple, white mortar sides, one end, upper & lower bed faces, faint combed frog, wiped upper face	None	Post-med 1700-50?	Post-med
29	1/2	CBM	Brick	1	255	127	63	Whole	Dark red-brown, reduced core, end chipped, white mortar all faces, hand moulded, upper face wiped	None	l.17-e.18C	Post-med
29	2/2	CBM	Brick	1	0	122	55	3/4	Mid pinkish-red, some reduced patches in core, white mortar all but one side, frag of another brick adhered	None	Post-med	Post-med
31	N/A	CBM	Brick	1	0	0	0	Frag	Dark red-purple, very hard fired, hand moulded, no measurable dimensions	None	?15-16C	Medieval
31	N/A	CBM	Brick	1	0	0	0	Frag	Dark red, softish, sandy, n.m.d. Type 1 or intrusive early post-med?	None	?Post-med	Medieval
31	N/A	CBM	Brick	1	0	0	40	Frag	Dark orange red, fairly soft, Type 1 variant or early post-med	None	?Post-med	Medieval
31	N/A	CBM	Brick	1	0	0	0	Frag	Wedge-shaped, very hard fired, some small inclusions, possibly intrusive post-med	None	?Post-med	Medieval
31	N/A	CBM	Brick	1	0	0	51	Frag	Dark red, sandy, quite hardfired, some pale yellow/buff wash, overfired Type 1/3 or post-med?	None	14C	Medieval
31	N/A	CBM	Brick	1	0	0	0	Frag	Type 1/3 brick embedded in lump of white lime mortar with blackish grits	None	14C	Medieval
31	N/A	CBM	Brick	1	195	95	45	Whole	Pale creamy yellow, some pale inclusions, Type 1?, white mortar with dark grits on one side & both end faces	None	14C	Medieval
31	N/A	CBM	Brick	1	200	100	45	Whole	Pale creamy yellow, some pale inclusions, Type 1?, white mortar with dark grits on one side & both end faces	None	14C	Medieval
31	N/A	CBM	Brick	1	195	100	50	Whole	Pale creamy yellow, some pale inclusions, Type 1?, mortar shows overlying bricks laid at 90 degrees, depressed margins	None	14C	Medieval
31	N/A	CBM	Brick	1	200	102	50	Whole	Pale creamy yellow, some pale inclusions, Type 1?, one corner missing	None	14C	Medieval
31	N/A	CBM	Brick	1	198	100	45	Whole	Pale creamy yellow, some pale inclusions, Type 1?, brown staining on mortar on lower bed face, knife trim at one end	None	14C	Medieval
31	N/A	CBM	Brick	1	194	92	43	Whole	Pale creamy yellow, some pale inclusions, Type 1?, brown staining, no mortar one side & one end, depressed margins	None	14C	Medieval
31	N/A	CBM	Brick	1	200	100	49	Whole	Pale creamy yellow, some pale inclusions, Type 1?, knife trim one end, depressed margins	None	14C	Medieval
31	N/A	CBM	Brick	1	195	100	43	Whole	Pale creamy yellow, some pale inclusions, Type 1?, no mortar one side & end, knife trim one end, slightly depressed margins	None	14C	Medieval
31	N/A	CBM	Brick	1	195	95	46	Whole	Pale creamy yellow, Type 1/3?, bowed, mortar one end only, depressed margins	None	14C	Medieval
31	N/A	CBM	Brick	1	198	98	45	Whole	Pale yellow, some white mortar & thin brown deposit on lower face, no frog	None	14C?	Medieval
31	N/A	CBM	Brick	1	0	95	40	1/4	As above, end, no mortar, one side burned black	None	14C?	Medieval
31	N/A	CBM	Brick	1	0	100	45	3/4	As above, some white mortar with black grits	None	14C?	Medieval
31	N/A	CBM	Brick	1	0	98	40	1/2	As above, some gritty mortar, end face discoloured dark red (in firing?)	None	14C?	Medieval
31	N/A	CBM	Brick	2	215	100	55	Whole	As above, two frags joining, some brown sandy mortar on lower face	None	14C?	Medieval
31	N/A	CBM	Brick	1	0	100	45	3/4	As above, white grotty mortar on lower face	None	14C?	Medieval
31	N/A	CBM	Brick	1	0	95	40	1/2	As above, no mortar obvious, ash glaze on end face	None	14C?	Medieval
31	N/A	CBM	Brick	1	0	105	56	1/4	As above, end, no mortar obvious, vegetation impressions on bottom face, discoloured purple/dark red end & lower face	None	14C?	Medieval
31	N/A	CBM	Brick	1	0	97	44	1/2	As above, much white gritty mortar on both upper & lower beds	None	14C?	Medieval
31	N/A	CBM	Brick	1	0	0	50	Frag	As above, Type 1/3?, corner, some white mortar on edge & lower bed, some heat discolouration	None	14C?	Medieval
31	N/A	CBM	Brick	1	0	100	55	1/4	As above, abraded, some inclusions	None	14C?	Medieval
31	N/A	CBM	Brick	1	0	96	40	1/2	As above, some vegetation impressions on upper & lower beds	None	14C?	Medieval
31	N/A	CBM	Brick	1	0	100	45	1/4	As above, Type 1/3?, end, cockleshell impression, mortar with dark grits on upper & lower bed, depressed margins	None	14C?	Medieval
31	N/A	CBM	Brick	1	0	95	42	Frag	As above, Type 1/3?, some bubbled ash glaze on lower bed face	None	14C?	Medieval

TRQ 14: CBM and Plaster Catalogue

Context no.	Sample no.	Material	Form	Qty	L	W	Th	0%	Comments	Marks	Date	Site date
31	N/A	CBM	Brick	1	0	100	45	Frag	As above, Type 1/3?, white mortar & dark grits on upper & lower bed faces	None	14C?	Medieval
31	N/A	CBM	Brick	1	0	101	35	Frag	As above, Type 1/3?, thick gritty mortar on upper & lower beds, slightly discoloured rusty brown	None	14C?	Medieval
31	N/A	CBM	Brick	1	0	0	0	Frag	As above, Type 1/3?, corner, no measurable dimensions	None	14C?	Medieval
31	N/A	CBM	Brick	1	0	0	50	Frag	As above, Type 1/3?	None	14C?	Medieval
31	N/A	CBM	Brick	1	0	95	40	Frag	As above, Type 1/3, end, some mortar, some brown staining	None	14C?	Medieval
31	N/A	CBM	Brick	1	0	95	43	1/2	As above, Type 1/3?, two joining frags, some mortar, some reddish-brown staining	None	14C?	Medieval
31	N/A	CBM	Brick	1	0	0	0	Frag	Type 1/3?, no measurable dimensions	None	14C?	Medieval
31	N/A	CBM	Brick	1	0	0	53	Frag	Corner, dark red-purple, sandy, wiped upper face & margins, one side rough and black, possibly from hearth/oven?	None	Post-med 17-18C	Medieval
32	N/A	CBM	Brick	1	0	110	40	1/4	Mid-dark red, with grits and pale inclusions, white lime mortar all faces, therefore probably a reused brick	None	17C	Post-med
33	N/A	CBM	Brick	1	0	112	51	1/2	Dark red, grey core, mortar both long beds & one side, probable corner brick, sandstone chip embedded in mortar, thin yellow wash sides & upper face	None	Post-med I.18C-1850	Post-med
37	3/4	CBM	Brick	1	242	117	57	Whole	Dark red-purple, white mortar upper & lower beds, ends & one side, other side blackened, possibly from chimney/flue?, shallow frog	None	1750-1800	Post-med
37	1/4	CBM	Brick	1	237	114	58	Whole	Dark red-brown, pale yellow wash one side, other side sooted, white mortar all but one end, abraded one end	None	1750-1800	Post-med
37	4/4	CBM	Brick	1	243	116	64	Whole	Dark red-brown, pale yellow wash one side, other side sooted, white mortar all but one end, shallow combed frog	None	1750-1800	Post-med
37	2/4	CBM	Brick	1	234	114	61	Whole	Mid red-orange, white mortar one end, one side & upper & lower beds, sooty one side & end, slight combed frog, depressed margins	None	1800	Post-med
38	2/4	CBM	Brick	1	215	108	70	Whole	Dark red-brown, sandy gritty dense fabric, white mortar all but one side, overfired, hand moulded?-very regular sharp edges	None	1800-25ish	Post-med
38	3/4	CBM	Brick	1	218	105	65	Whole	Dark red-brown, sandy gritty dense fabric, white mortar all but one side, hand moulded? (less regular than above)	None	1800-25ish	Post-med
38	1/4	CBM	Brick	1	221	111	67	Whole	Dark red-brown, sandy gritty dense fabric with some Fe inclusions, white mortar all but one side, faint frog, hand moulded?	None	1800-25ish	Post-med
38	4/4	CBM	Brick	1	218	127	63	Whole	Dark red-brown, sandy gritty dense fabric, white mortar all but one side, hand moulded? (very regular sharp edges)	None	1800-25ish	Post-med
39	N/A	CBM	Brick	1	0	0	0	Frag	Bright-mid red, dense fabric with small gritty inclusions, flake of upper face & some grey mortar also present	None	?Post-med	Medieval
39	N/A	CBM	Brick	1	0	104	50	1/2	Type 5?, pinkish brown, fairly hard, no visible inclusions, grass impressions on lower face, skintling mark	None	14C	Medieval
41	1/4	CBM	Brick	1	240	121	60	Whole	Dark red-brown-purple, white flinty inclusions, some distortion/cracking, upper face wiped, vegetation impressions on lower face, faint frog, pale yellow wash upper & end, white mortar upper face, one end & side (which is sooted)	None	1800-25ish	Post-med
41	2/4	CBM	Brick	1	241	103	68	Whole	Pale yellow wash one end, upper face wiped, lower face has vegetation impressions, shallow combed frog, sooted one side	None	1800-25ish	Post-med
41	3/4	CBM	Brick	1	236	108	72	Whole	Dark red-brown, one large grit inclusion, quite rough, white mortar both ends & upper & lower beds, faint combed frog	None	1800-25ish	Post-med
41	4/4	CBM	Brick	1	230	107	65	Whole	Dark red-brown, mortar on all but sides, one of which is sooted, faint combed frog, more regularly shaped than above	None	1800-25ish	Post-med
42	1/4	CBM	Brick	1	227	107	74	Whole	Dark red-brown, sandy, quite dense & hardfired, white mortar all faces, hand moulded but regular, like bricks in [38]	None	1810-40	Post-med
42	2/4	CBM	Brick	1	220	105	67	Whole	As above, but less mortar one side	None	1810-40	Post-med
42	3/4	CBM	Brick	1	218	108	69	Whole	As above, but more lumpy and slightly less mortar one side, pale yellow wash upper face	None	1810-40	Post-med
42	4/4	CBM	Brick	1	0	103	68	1/2	As above, cut to give wedge end, white mortar all but one side, beginning of arc of arch?	None	1810-40	Post-med



Context no.	Type	Fabric no.	Sherd no.	Wt. (g)	Form	Comments
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### Trench 1

7	og	7	1	17		
7	rg sandy	7	5	27		
10	og	7	2	21		Sooted/burnt
10	rg sandy	7	4	41		Sandier than lrg
10	lrg	8	7	263		Not all the same ves
10	grey ungl	10	2	22	r	Small everted rim; not same as lcg?
10	lcg?	21	5	136	r	Possibly Low Countries greyware; upright expanded jar rim, internal sooting
13	lrg	8	4	123		
14	lrg	8	2	35	r+h	
17	rg	7	1	125	b	Base of small ves; ox margins/surfaces, patches glaze
17	lrg	8	2	206	h b	Glazed int with deposit; possibly a urinal
17	lr/og	8	1	23		Fine sandy
17	lcg?	21	4	99	b	As in context [10]
31	og	7	1	38	b	Splayed base
31	lrg	8	10	681	b	Misc other sherds; base has thumbled cordon round
31	lrg	8	41	3783	r+sp hs b	Large three handled jug with bridge spout; does not appear to be direct join between base (several joining sherds) and upper part; rim is complete, as are the handles and much of the upper body joins; appl vert strips, frills around top
31	grey	10	1	5		
39	pink	4	1	5		
39	lrg	8	1	67		Appl strip
39	lr/og	8	1	115	h	Strap handle with ox ext
58	buff gr	3	3	22		Yellowish buff; discoloured, devitrif
58	imp red?	20	1	3		Possibly imported ( <i>i.e.</i> Low Countries) redware
70	bwh	4	1	49		
70	bwp	4	6	96	h	Ext accretion
70	pink	4	1	20	b	Discoloured and abraded
70	o/r	5	1	40		Red brown ext, some mid grey int; one or two small spots gl; fits broadly into orange buff hard-fired group
70	lrg	8	3	139		Thick walled
71	pink	4	1	6		
71	bwp	4	1	14		
71	rg sandy	7	3	46	r	Jug type rim; ox int with ext accretions
72	bwp	4	1	91	h	Oval sectioned rod handle; rusty accretions
72	lrg	8	4	234	h	Large strap handle, ox lower surface; sherd has appl flower motif
73	bwp	4	1	6		
76	lrg	8	3	67		
94	bw	4	2	47		Ext accretions and devitrif glaze
95	buff gr	3	1	5	r	Coarse buff fabric with orange-buff surfaces; jar rim
95	bw	4	13	226	b h	Handle is just a scar
95	bwp	4	1	17		
95	bw	4	1	55	r	Straight rim, possibly dripping pan
95	bw	4	1	8	r	Everted jar rim
95	bw	4	1	46	r	Everted jar rim
95	eg2	6.1	3	78	r h	Rod handle



Context no.	Type	Fabric no.	Sherd no.	Wt. (g)	Form	Comments
95	pink c	10	2	11		Coarse sandy pink
95	orange	10	8	200	r b	Some base sherds with fingering, some without but possibly same ves; some Cu green gl.
95	pink	10	1	16	r	Upright sl inturned rim ?jug
95	med	10	1	6		
96	bw	4	8	89	r	Jar rim (everted/angled); other sh maybe same ves; discoloured and with rusty accretions
96	bwh	4	3	91	b	With ferrous grits on surface; two sherds possibly from same ves
96	bw	4	1	35	r	Everted/rounded jar rim
96	bw of	4	1	35		Hard grey/brown overfired frag
96	lrg	8	6	91		
96	scarb?	11	1	13		
109	eg2	6.1	2	29		
111	scarb	11	1	3		
126	eg2	6.1	1	17		Thin buff surfaces

Context no.	Type	Fabric no.	Sherd no.	Wt. (g)	Form	Comments
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## Trench 2

2	red gl st	35	1	31		Red fabric
2	brown gl st	35	1	65		Greyish/buff fabric, appears to be small rounded ves
6	brown gl st	35	1	764	ves	Complete bottle with pouring lip and circular stamp above base; stamp is probably 'DOULTON' and 'LONDON' but wording is very worn; '10' is clear in middle of stamp
6	buff gl st	35	5	770	prof	Virtually complete bottle; stamp at base '..SKEY'; bright blue powdery internal deposit
6	stonew	35	1	116		Fragment of a bottle with brown wash on upper body and printed stamp incl. 'RIDLEY...', therefore most likely part of a stout bottle from the Manor Brewery of Ridley, Cutter & Firth Ltd, Newcastle
6	stonew	35	1	172	b	Base of bottle with brown mottled ext gl and plain int; stamp 'STIFF LAMBETH'
6	china	38	1	9	r	With blue dec
45	lgresl	32	1	45	r	With white slip trailed dec; a 'Tyneside' dish
45	unglre	32	2	196	r	Slightly expanded
45	refww	33	18	251	r b	Dish with flanged rim transf print int and ext; background is pale blue but not pearlware
45	refww	33	4	18	r	Some gold and blue paint
74	egw	6.1	1	18		Worn
74	unglre	32	2	145	r	
79	pink	10	1	3		Dark pink fabric
80	grey?	10	2	28		These are not the same ves
81	whitew	4	2	5		Small worn sherds
81	rg	7	2	37		Sandy fabric; applied impressed curved (?in circle) strip, also two imp flowers
81	?rg	10	1	7		Worn sherd with light green glaze and two impressed roundels with checked pattern; fabric with light grey with white ext margin under the glaze
81	?	10	1	8		Fairly fine light red and grey-brown sherd with yellow-green gl with faint imp lines; not able to identify
81	scarb?	11	1	10		Fine sandy light orange fabric, some yellowish gl.
84	buff	4	1	6		
84	bwp	4	1	13	b	
84	ox sandy	6	1	22	b	With fingering; grey core
84	egw	6.1	2	14		
84	med	10	2	14		
84	scarb	11	5	63		Abraded
88	pgrey	6	1	13		Sandy grey with pink ext and brown int
97	buff	4	1	4		
100	saint	12	3	29	r b	Splayed base
103	pink ggl	10	1	2		Small pink sherd with green gl; does not look like Scarb
103	scarb	11	1	15		Ribs
103	frww	12	1	17	b	Thin pink core with darker margins and white surfaces
121	buff	4	1	8		
121	redw	27	1	16	r	Square rim, unglazed; possibly post-medieval
122	bw	4	1	4		
122	eg2	6.1	1	7		

Context no.	Type	Fabric no.	Sherd no.	Wt. (g)	Form	Comments
122	scarb	11	3	110	h	Abraded rod handle
122	Saint m	12	9	166	b	Green mottled gl; fabric is pale grey in core with white int and pinkish buff ext margin; frags same ves in context [123]
122	imp ww?	12	1	31		Piece from centre of base, possibly another French whitew - light grey with white margins; some patches of pale green gl beneath
123	bw	4	1	10		
123	eg2	6.1	1	6		
123	rg?	7	1	2		Some gl int, mid grey fabric, white ext margin under ?Cu ggl
123	pink	10	2	24	b	Abraded base with fingering and green gl; ?non-local
123	sain m	12	3	31		Same ves in context [122]
124	red c	10	1	8		Coarse red-brown sandy fabric
124	scarb	11	12	95		Green gl jug with vertical ribs
125	scw?	2	1	26		Sandy dark grey with grey-brown outer margin/surface
125	pink	4	1	13		Ungl
125	med	10	2	3		
125	scarb	11	1	16		Very worn fragment of handle/decoration

**APPENDIX F  
STONE CATALOGUE**

TRQ 14: Stone Catalogue

Context	Trench	ID	Feature & Location	SF no.	Fabric	Type	Suffix	Frag no.	Wt. (g)	Comment	Length (mm)	Width (mm)	Depth (mm)	Thick. (mm)	Diam. (mm)
6	2	391	Cellar backfill	N/A	NEW10	S	MOULD	1	1131	White marble; probably Carrara (Italy); probably a bathroom fitting (e.g. a sink); gently curved attachment hole	110	120	50	N/A	N/A
6	2	392	Cellar backfill	N/A	NEW11	S	PAV	1	244	Red polychrome marble; probably Africano (Turkey)	N/A	N/A	26	N/A	N/A
6	2	393	Cellar backfill	N/A	NEW12	S	PAV	1	342	Dark grey polished fossil marble; possibly Purbeck (England)	N/A	N/A	N/A	N/A	N/A
12	1	369	Boundary wall (N-S)	N/A	NEW1	S	PW	3	7300	Fine laminated micaceous ss, greenish; weathered	190	120	100	N/A	N/A
31	1	373	Dump deposit	N/A	NEW2	S	PW	1	3700	Coarser quartz ss, banded fawn-brown	180	170	85	N/A	N/A
32	2	375	Cellar wall (N-S)	N/A	NEW2	S	PW	1	4000	Coarser quartz ss, banded fawn-brown; part worked	200	120	120	N/A	N/A
33	2	376	Cellar wall (N-S)	N/A	NEW2	S	RUB	1	100	Coarser quartz ss, brownish mottling	N/A	N/A	N/A	N/A	N/A
35	2	370	Cellar floor	N/A	NEW3	S	FLAG	1	2100	Fine laminated micaceous ss, pale grey; flagstone	175	95	58	N/A	N/A
36	2	371	Cellar floor	N/A	NEW1	S	FLAG	2	1950	Fine ss; flagstone	90	70	55	N/A	N/A
40	2	374	Cellar wall (W-E)	N/A	NEW2	S	PW	1	2600	Coarser quartz ss, yellowish mottling; mud clasts 15mm & cross bedding	135	135	90	N/A	N/A
40	2	381	Cellar wall (W-E)	N/A	NEW4	S	RUBB	3	3300	Very fine micaceous siltstone, purple				N/A	N/A
75	2	372	Cellar floor	N/A	NEW2	S	PW	1	3000	Coarser ss, yellow; cross bedding & heavily pick/chisel marked	190	115	112	N/A	N/A
81	2	379	Ballast raft	N/A	NEW1	S	COBB	1	1600	Local fine laminated ss; 'chatter' marks	170	100	100	N/A	N/A
81	2	382	Ballast raft	N/A	NEW5	S	COBB	1	2300	Coarse acid igneous rock, yellow-brown	175	130	130	N/A	N/A
81	2	383	Ballast raft	N/A	NEW6	S	COBB	1	2800	Dark intermediate igneous rock, incorporates NEW5 band (28mm)	170	96	60	N/A	N/A
100	2	384	Pit fill	9	NEW1	S	CIRC	3	13800	Fine ss, very micaceous, laminated (20mm bands)	N/A	N/A	26	N/A	580
103	2	387	Feature fill	N/A	NEW2	S	RUB?	1	269	Micaceous ss; shaped like whetstone	N/A	N/A	N/A	N/A	N/A
103	2	386	Feature fill	N/A	NEW6	S	RUB?	1	340	Dark intermediate igneous rock, as in [81]; smooth underside	N/A	N/A	N/A	N/A	N/A
103	2	385	Feature fill	N/A	NEW7	S	COB	1	452	Metadolerite, dark grey; river pebble	152	35	35	N/A	N/A
103	2	388	Feature fill	N/A	NEW8	S	RUBB	1	811	Metavolcanic, green; probable tuff	160	80	25	N/A	N/A
103	2	390	Feature fill	N/A	NEW9	S	RUBB	1	1733	Calcareous pink mudstone; mortar attached, therefore likely used as walling?	N/A	N/A	N/A	N/A	N/A
103	2	389	Feature fill	N/A	NEW9	S	RUBB	1	1476	Calcareous pink-red mudstone; barnacle attached, therefore likely brought in from nearby outcrop	N/A	N/A	N/A	N/A	N/A
<b>Total</b>								<b>29</b>	<b>55348</b>						

**APPENDIX G**  
**RADIOCARBON DATING CERTIFICATE**

## RADIOCARBON DATING CERTIFICATE

30 March 2015

**Laboratory Code** SUERC-59016 (GU37076)

**Submitter** Charlotte O'Brien  
Archaeological Services  
Durham University  
South Road  
Durham DH1 3LE

**Site Reference** Trinity Court 55-57 Quayside Newcastle

**Context Reference** 130

**Sample Reference** 19

**Material** Waterlogged terrestrial plant macrofossils : Rumex, Carex,...

**$\delta^{13}\text{C}$  relative to VPDB** -27.4 ‰

**Radiocarbon Age BP** 1234 ± 29

**N.B.** The above  $^{14}\text{C}$  age is quoted in conventional years BP (before 1950 AD). The error, which is expressed at the one sigma level of confidence, includes components from the counting statistics on the sample, modern reference standard and blank and the random machine error.

The calibrated age ranges are determined from the University of Oxford Radiocarbon Accelerator Unit calibration program (OxCal4).

Samples with a SUERC coding are measured at the Scottish Universities Environmental Research Centre AMS Facility and should be quoted as such in any reports within the scientific literature. Any questions directed to the Radiocarbon Laboratory should also quote the GU coding given in parentheses after the SUERC code. The contact details for the laboratory are email [Gordon.Cook@glasgow.ac.uk](mailto:Gordon.Cook@glasgow.ac.uk) or telephone 01355 270136 direct line.

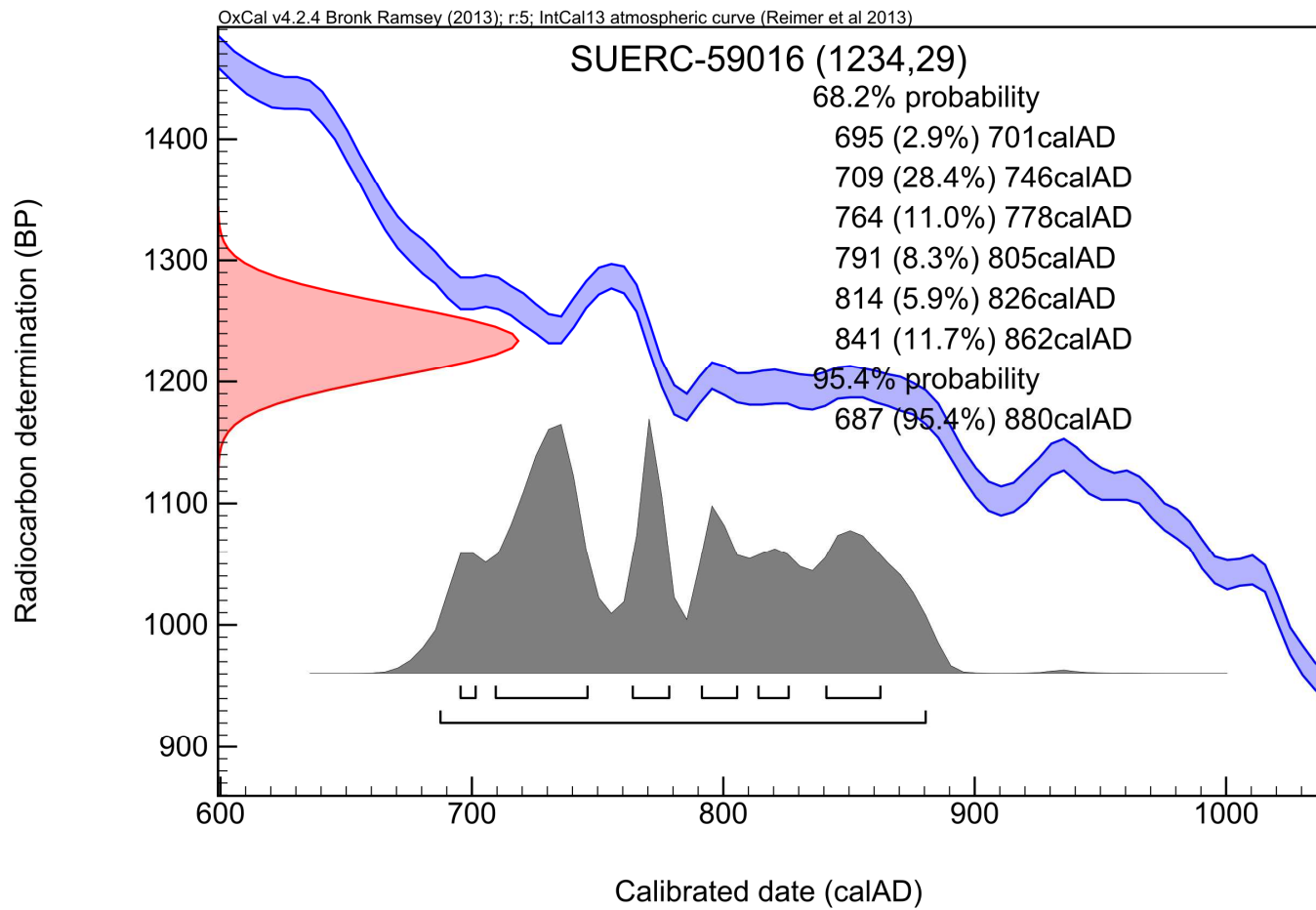
Conventional age and calibration age ranges calculated by :- *E. Dunbar*

Date :- 30/03/2015

Checked and signed off by :- *P. Naynab*

Date :- 30/03/2015

# Calibration Plot





**APPENDIX H  
NEWCASTLE CITY COUNCIL SPECIFICATION**

# Tyne and Wear Specialist Conservation Team

## Specification for Archaeological Excavation at Trinity Court, 55-57 Quayside, Newcastle upon Tyne

Planning Application: 2014/0254/01/DET

Author:

Jennifer Morrison  
Tyne and Wear Archaeology Officer  
Newcastle City Council  
Development Management  
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Civic Centre  
Barras Bridge  
Newcastle upon Tyne  
NE1 8PH  
Tel (0191) 2116218  
[jennifer.morrison@newcastle.gov.uk](mailto:jennifer.morrison@newcastle.gov.uk)

Date: 24 March 2014

County Archaeologist's Reference Number: MON11398

The Tyne and Wear Specialist Conservation Team is the curatorial service for archaeology, industrial archaeology and historic buildings throughout the Tyne and Wear districts. It helps and advises Newcastle, Gateshead, North Tyneside, South Tyneside and Sunderland Councils to carry out their statutory duties to care for the precious historic environment of Tyneside and Wearside. The Team can be found at the Housing, Planning and Transport Division of the Environment & Regeneration Directorate of

A planning application has been submitted for a 4 storey office with pocket park at the rear including an outdoor theatre/cinema. The site is presently a gravel-covered car park and pocket park.

Two evaluation trenches were excavated in June 2000 (Tyne and Wear Museums) which prove that archaeological deposits survive. The evaluation showed that a depth of at least 2m of complex stratigraphy survives on the site. A number of walls were recorded, most of which were re-used as foundations for a complex of successive later walls. The base of each trench contained extensive ballast deposits dating from a period of land reclamation. The base of this deposit was not reached. No material culture was recovered.

An archaeological desk based assessment was completed in 2004 (Tyne and Wear Museums). The report concludes that the development site lies within the medieval town walls in an area which was reclaimed from the River Tyne by the fourteenth century. The original north bank of the Tyne lay some 60m north of the development site and the land to the south of it was reclaimed from the river with a series of piers and stone/wicker revetments. As the land was reclaimed in stages, a build-up of ballast deposits and structural remains began to stratify across the area, raising the land higher than the river in order to allow development.

The appointed archaeological contractor **must** consult these reports before starting the excavation and must familiarise themselves with the history of the development of the quayside (copies of these and other relevant reports are held by the HER).

The development site is important as it represents an opportunity to archaeologically excavate land close to the final extended Quayside area and will provide a source of dating evidence for the medieval reclamation and development in this area.

It is anticipated that the earliest archaeological deposits which will be encountered will be reclamation deposits of thirteenth and fourteenth century date, upon which a continuous river frontage was constructed. The riverside section of the Town Wall was constructed on this reclaimed land in the fifteenth century. Reclamation and foreshore deposits will be sampled and subject to scientific analysis. What was their origin? Are they re-deposited natural, domestic or industrial waste or ballast? Where are the deposits from? Are they of local provenance or from elsewhere?

Occupation and levelling deposits above the reclamation will be subject to a similar environmental sampling programme.

General objectives of the excavation:

- Determination of the origins and nature of land reclamation by a palaeo-environmental sampling strategy
- Investigation of the natural environment during which the reclamation of the foreshore took place
- To ascertain the presence or absence of any Roman or Saxon occupation of the area
- Recording of all deposits above the reclamation dumping
- To locate if possible the quayside wall indicated on Corbridge's 1723 map

The excavation must be carried out by a suitably qualified and experienced archaeological organisation. The work will excavate, record and environmentally sample all archaeological deposits of importance found on the plot. The purpose of this brief is to obtain tenders for this work. The report must be the definitive record for deposition in the Tyne and Wear HER. It is anticipated that the results of the work will be subsequently published in *Archaeologia Aeliana*.

The scheme has received external funding. There are therefore tight deadlines for the work. The fieldwork will need to be completed by June 2014. The archive report will need to be finished at the latest by the end of May 2015.

### ***Research Aims and Objectives***

The excavation report should make reference to Regional and Thematic Research Frameworks.

‘Shared Visions: The North-East Regional Research Framework for the Historic Environment’ by David Petts with Christopher Gerrard, 2006 notes the importance of research as a vital element of development-led archaeological work. It sets out key research priorities for all periods of the past allowing commercial contractors to demonstrate how their fieldwork relates to wider regional and national priorities for the study of archaeology and the historic environment. The aim of NERRF is to ensure that all fieldwork is carried out in a secure research context and that commercial contractors ensure that their investigations ask the right questions.

See <http://www.algao.org.uk/Association/England/Regions/ResFwks.htm>

‘Frontiers of Knowledge’ edited by Matthew FA Symonds and David JP Mason 2010 is the Research Framework for Hadrian’s Wall, part of the Frontiers of the Roman Empire World Heritage Site. The aim of the publication is to assess the existing knowledge base for our understanding of the monument, to identify and prioritise key themes for future research and to set out a strategy and action plan by which the initial set of objectives might be achieved.

For the English Heritage Research Agenda see <http://www.english-heritage.org.uk/professional/protection/national-heritage-protection-plan/>

Where appropriate note any similar nationwide projects using ADS, internet search engines, ALSF website, HEEP website, OASIS, NMR excavation index.

All staff on site must understand the project aims and methodologies.

All staff employed by the Archaeological Contractor shall be professional field archaeologists with appropriate skills and experience to undertake work to the highest professional standards.

The work will be undertaken according to English Heritage Guidelines - Managing Archaeological Projects 2nd Edition ('MAP2') 1991 ([www.english-heritage.org.uk/guidance/map2/index.htm](http://www.english-heritage.org.uk/guidance/map2/index.htm)) and Management of Research Projects in the Historic Environment (MoRPHE) – The MoRPHE Project Managers' Guide, Project Planning Notes and Technical Guides 2006 ([www.english-heritage.org.uk/publications](http://www.english-heritage.org.uk/publications) ).

The work will be undertaken according to MoRPHE Project Planning Notes 2006 - PPN3 – Archaeological Excavation and PPN6 – Development of Procedural standards and guidelines for the historic environment.

All work must be carried out in compliance with the codes of practice of the Institute of Field Archaeologists and must follow the IFA Standard and Guidance for Archaeological Field Evaluations, Excavation or Watching Briefs as appropriate. [www.archaeologists.net](http://www.archaeologists.net)

### ***Notification***

**The County Archaeologist needs to know when archaeological fieldwork is taking place in Tyne and Wear so that he can inform the local planning authority and can visit the site to monitor the work in progress. The Archaeological Contractor must therefore inform the County Archaeologist of the start and end dates of the Excavation. He must also keep the County Archaeologist informed as to progress on the site. The CA must be informed of the degree of archaeological survival and of any significant finds. The Client will give the County Archaeologist reasonable access to the development to undertake monitoring.**

### **PROJECT INITIATION**

#### ***WRITTEN SCHEME OF INVESTIGATION***

The appointed archaeological contractor will prepare a detailed Written Scheme of Investigation for the excavation for the Client and for approval by the County Archaeologist before the excavation starts. This will detail the methodologies and the finds and environmental specialists which will be employed to meet the requirements of this specification.

#### ***HEALTH AND SAFETY AND RISK ASSESSMENT***

A health and safety statement and risk assessment, identifying potential risks in a risk log (see template in appendix 2 of The MoRPHE Project Manager's Guide) and specifying suitable countermeasures and contingencies, is required to be submitted to the commissioning client.

The Client may wish to see copies of the Archaeological Contractor's Health and Safety Policies.

The Archaeological Contractor must maintain a Site Diary for the benefit of the Client, detailing the nature of work undertaken on a day by day basis, with full details of Site Staff present, duration of time on site, etc. and contact with third parties.

The Management of Research Projects in the Historic Environment (MoRPHE) – The MoRPHE Project Managers' Guide 2006 contains general guidance on Risk management (section 2.3.2, Appendix 2).

Risk assessments must be produced in line with legislative requirements (for example the Health and Safety at Work Act 1974, the Management of Health and Safety at Work Regulations 1999, the Control of Substances Hazardous to Health (COSHH) Regulations 2002 and the Personal Protective Equipment at Work Regulations 2002) and best practice e.g. as set out in the FAME (Federation of Archaeological Managers & Employers) formerly SCAUM (Standing Conference on Archaeological Unit Managers) Health and Safety Manual

[www.famearchaeology.co.uk](http://www.famearchaeology.co.uk)

[www.scaum.org/uk](http://www.scaum.org/uk)

The Risk Assessment will identify what PPE (hard hats, glasses/goggles, steel toe cap and instep boots, gloves, high-viz clothing etc) is required.

Other potentially applicable legislation:

Working at Heights Regulations 2005, Manual Handling 1992

'Safe use of ladders and stepladders: An employers' guide' HSE Books 2005

Some archaeological work (such as those that last more than 30 days or involve more than 500 person days) may be deemed notifiable projects under C.D.M Regulations 1994 (amended 2007). Where C.D.M Regs apply, the HSE must be notified. A CDM Co-ordinator and principal contractor must be appointed. The CDM-C will produce a Health and Safety file. The PC will prepare the Construction Phase Plan. The HSE website includes a Power Point presentation on CDM training.

Detailed information on hazards and how to carry out a risk assessment can be obtained from the Health and Safety Executive ([www.hse.gov.uk](http://www.hse.gov.uk)) and the local authority health and safety department.

Specific guidance for land contamination and archaeology can be obtained from the Institute for Archaeologists ([www.archaeologists.net](http://www.archaeologists.net)), the Construction Industry Research and Information Association ([www.contaminated-land.org](http://www.contaminated-land.org)) and the Association of Geotechnical and Geoenvironmental Specialists ([www.aggs.org.uk](http://www.aggs.org.uk)).

See also Environment Agency, 2005 "Guidance on Assessing the Risk Posed by Land Contamination and its Remediation on Archaeological Resource Management".

The Archaeological Contractor must be able to provide written proof that the necessary levels of Insurance Cover are in place.

The Archaeological Contractor must detail measures taken to ensure the safe conduct of excavations, and must consult with the client's structural engineers concerning working in close proximity to the foundations of the surrounding buildings.

Excavation trenches should:

- Be protected from vehicles and guarded off for pedestrians
- not have steep sides or must be shored
- have good access and egress

The archaeologists must not work near overhead power lines.

Underground services can be easily damaged during excavation work. If proper precautions are not taken, it is all too easy for workers to hit these services resulting in a risk of

- heat, flame and molten metal from electric cables
- escaping gas from gas pipes
- flooding of the excavation when a water pipe is damaged
- interruption of services

Excavation work in the public highway, kerbside or pavement can only be undertaken by those with a Street Works certificate of competence. Before the excavation takes place the person supervising the digging must have been given service plans and be trained in how to read them. All persons involved in the excavation must know about safe digging practice and emergency procedures. A locator must be used to trace the line of any pipe or cable or to confirm that there are no pipes or cables in the way. The ground will be marked accordingly. There must be an emergency plan to deal with damage to cables and pipes.

### ***THE ARCHAEOLOGICAL EXCAVATION***

The evaluation showed that modern deposits are between 1.3m and 1.6m deep. Beneath this, walls stood to a height of some 2m. The evaluation trenches were dug to a maximum depth of 3.8m. The base of the medieval reclamation deposit was not reached.

Two areas will be excavated, each opened up at 5m x 5m.

Trench two is located immediately to the south of evaluation trench two (see figure 2 in the 2000 report).

The excavation areas will be excavated to 1.2m and then stepped on all sides to reach a depth of 2.4m.

Then shoring will be required in the two areas, each 4m x 4 m, in order that the trenches can reach natural subsoil/base of medieval reclamation deposits.

The excavation areas must be accurately surveyed prior to excavation and tied in to the national grid.

### **Tasks**

Hand excavation, recording and environmental sampling (as stipulated below) of deposits down to natural subsoil. Any modern overburden can be machined-off under strict archaeological supervision and the remaining deposits are to be excavated by hand. Excavation is to be carried out by single context planning and recorded on *pro forma* context sheets. Features over 0.5 m in diameter can be half sectioned.

The excavation areas will need to be backfilled afterwards. The commissioning client will advise whether this needs to be compacted by an engineering company.

Lower reclamation deposits in the evaluation trenches were permanently waterlogged. Pumping equipment will therefore be required. At the pre-excavation meeting it will be agreed if there is a drain on-site into which such water can be pumped.

In order to reveal and examine reclamation material deposited on the original foreshore large samples of uncontaminated stratified material will be collected for assessment and subsequent analysis. Jacqui Huntley, Science Adviser for English Heritage, will advise on the number of and size of the samples required and will be invited to visit the site during the collection process. The appointed environmental specialist will provide on-site advice on the methodology of sample taking. The thickness of reclamation deposits will be recorded and the nature of the underlying foreshore.

Environmental sampling should focus on enhancing understanding of the structural and occupation features on the site. Features of particular interest include occupation deposits, floor layers, midden material, refuse, cess pits and drain fills. Information from these deposits will enhance the understanding of living conditions and the past environment. Most samples will be bulk samples as described above, but every effort will be made to obtain column samples from well-preserved sequences of floor and occupation deposits.

Where possible floodclay deposits are observed, specialist advice will be taken from an appropriately qualified soil micromorphologist with the aim of determining the origin of these deposits.

Remains of buildings which are clearly mid to late nineteenth century (later than OS first edition) will be removed without further recording. Eighteenth century and earlier buildings will be fully recorded then removed in order to reach medieval deposits beneath.

All faces of the trench that require examination or recording will be cleaned.

Excavation is to be carried out by single context planning and recorded on *pro forma* context sheets. Features over 0.5 m in diameter can be half sectioned.



Environmental sampling (and where relevant scientific dating) are compulsory parts of the evaluation exercise. All tenders will give a price for the assessment, full analysis, report production and publication per environmental and scientific dating sample as a contingency.

Samples will be taken of bricks from any brick-built structures. The dimensions of the bricks and the type of bonding must be recorded.

Scientific investigations should be undertaken in a manner consistent with “The Management of Archaeological Projects”, English Heritage 1991 and with “Archaeological Science at PPG16 Interventions: Best Practice for Curators and Commissioning Archaeologists”, English Heritage, 2003. Advice on the sampling strategy for environmental samples and samples for scientific dating etc. must be sought from Jacqui Huntley, English Heritage Regional Advisor for Archaeological Science ([jacqui.huntley@english-heritage.org.uk](mailto:jacqui.huntley@english-heritage.org.uk) or 07713 400387) **before** the evaluation begins. See Appendix 1 for more information.

See Appendix 2 for guidance on procedures relating to human remains.

See Appendix 4 for guidance on Treasure Act procedures.

### ***Recording***

A full written, drawn (accurate scale plans, elevations and section drawings) and photographic record (of all contexts in **either** black and white print and colour transparency **or** with a digital camera) will be made. All images must include a clearly visible graduated metric scale.

All photographs forming part of the record should be in sharp focus, with an appropriate depth of field. They should be adequately exposed in good natural light or, where necessary, sufficiently well-lit by artificial means.

### **Use of digital cameras**

Use a camera of 8 megapixels or more.

For maximum flexibility digital Single Lens Reflex cameras offer the best solution for power users. 8 megapixels should be considered a minimum requirement.

When photographing with digital SLR cameras, there is often a magnifying effect due to smaller sensor sizes.

If the JPEG (Joint Photographic Experts Group) setting is used, set the camera for the largest image size with least compression. The JPEG format discards information in order to reduce file size. If the image is later manipulated, the quality will degrade each time you save the file.

For maximum quality, **the preferred option** is that the RAW (camera-specific) setting is used. This allows all the information that the camera is capable of producing to be saved. Because all of the camera data is preserved, post processing can include colour temperature, contrast and exposure

compensation adjustments at the time of conversion to TIFF (Tagged Interchangeable File Format), thereby retaining maximum photographic quality.

The RAW images must be converted to TIFF before they are deposited with the HER and TWAS because special software from the camera manufacturer is needed to open RAW files.

Uncompressed formats such as TIFF are preferred by most archives that accept digital data.

### **Post photography processing:**

The submitted digital images must be 'finished', ready to be archived.

Post photography processing workflow for RAW images:

- 1 Download images
- 2 Edit out unwanted shots & rotate
- 3 Batch re-number
- 4 Batch caption
- 5 Batch convert to TIFF
- 6 Edit in Photoshop or similar
- 7 Save ready to burn to CD
- 8 Burn to CD
- 9 Dispatch

Batch caption – the image files should be named to reflect their content, preferably incorporating the site or building name. Consistent file naming strategies should be used. It is good practice not to use spaces, commas or full stops. For advice, go to <http://ads.ahds.ac.uk/project/userinfo/deposit.html#filenaming> . In order to find images at a future date and for copyright the site or building name, photographer's name and/or archaeological unit etc must be embedded in the picture file. The date can be appended from the EXIF data. Metadata recording this information must be supplied with the image files. A list of images, their content and their file names should be supplied with the image files on the CDs.

Batch conversion to TIFF – any white balance adjustments such as 'daylight' or 'shade' be required then this can be done as part of the conversion process. Ensure that any sharpening settings are set to zero.

Edit in 'Imaging' software such as Photoshop – tonal adjustments (colour, contrast) can be made. Rotate images where necessary, crop them to take out borders, clean the images to remove post-capture irregularities and dust. Check for sensor dust at 100% across the whole image.

Save ready for deposit – convert to TIFF and save. Retain the best colour information possible – at least 24 bit.

If the JPEG setting has been used and the image has been manipulated in any way it should be saved as a TIFF to prevent further image degradation through JPEGing.

Burn to CD – the NMR recommends using Gold CDs. Use an archive quality disk such as MaM-E gold. Gold disks have a lower burn speed than consumer disks.

Disks should be written to the 'Single Session ISO9660 – Joliet Extensions' standard and not UDF/Direct CD. This ensures maximum compatibility with current and future systems.

Images should be placed in the root directory not in a folder.

The CD will be placed in a plastic case which is labelled with the site name, year and name of archaeological contractor.

**For more guidance on digital photography:**

Digital Imaging Guidelines by Ian Leonard, Digital Archive Officer, English Heritage 22 September 2005)

Understanding Historic Buildings – A guide to good recording practice, English Heritage, 2006

Duncan H. Brown, 2007, "Archaeological Archives – A guide to best practice in creation, compilation, transfer and curation"

IFA, Guidance on the use and preservation of digital photographs

FISH (Forum on Information Standards in Heritage), September 2006 v.1, A Six Step Guide to Digital Preservation, FISH Fact Sheet No. 1

Visual Arts Data Service and Technical Advisory Service for Images, Creating Digital Resources for the Visual Arts: Standards and Good Practice [http://vads.ahds.ac.uk/guides/creating\\_guide/contents.html](http://vads.ahds.ac.uk/guides/creating_guide/contents.html)

AHDS Guides to Good Practice – Julian Richards and Damian Robinson (eds), Digital Archives from Excavation and Fieldwork: Guide to Good Practice, Second Edition

**Printing the images:**

In view of the currently unproven archival performance of digital data it is always desirable to create hard copies of images on paper of archival quality.

A selection of the images will be printed in the finished report for the HER, two images per A4 page.

When preparing files for printing, a resolution of 300dpi at the required output size is appropriate.

A **full set** of images will also be professionally printed in black and white and colour for submission as part of the site archive.

Use processing companies that print photos to high specifications. Commercial, automatic processing techniques do not meet archival standards and must not be used.

All prints for the archive must be marked on the back with the project identifier (e.g. site code) and image number.

Store prints in acid-free paper enclosures or polyester sleeves (labelled with image number)

Include an index of all photographs, in the form of running lists of image numbers

The index should record the image number, title and subject, date the picture was taken and who took it

The print sleeves and index will either be bound into the paper report or put in an A4 ringbinder which is labelled with the site name, year and archaeological unit on its spine.

### **Plans and drawings**

The finished report must include plans and a section of each trench plus plans and sections through excavated archaeological features.

The plans will include at least two site grid points and will show section line end points.

The plans will depict building material (i.e. brick and stone) where a complex of structures has been found.

Where there is a complex of interlocking multi-phased structures, a phasing plan will also be included.

There will be elevation drawings of any standing structures such as walls.

Pro-forma context sheets will be used.

All deposits and the base of the trench will be levelled. Levels will be expressed as metres above Ordnance Datum.

Stratigraphy shall be recorded even when no archaeological features have been recognised.

A 'Harris' matrix will be compiled where stratified deposits are recorded.

## **2) Post-excavation and report production**

### ***Finds Processing and Storage***

The Archaeological Contractor will process and catalogue the finds in accordance with Museum and Galleries Commissions Guidelines (1992) and the UKIC Conservation Guidelines, and arrange for the long term disposal of the objects on behalf of the Client. A catalogue of finds and a record of discard policies, will be lodged with the finds for ease of curation.

Finds shall be recorded and processed in accordance with the IFA Guidelines for Finds Work

Finds will be assessed by an experienced finds specialist.

See 'Investigative Conservation. Guidelines on how the detailed examination of artefacts from archaeological sites can shed light on their manufacture and use', English Heritage, 2008.

Human and animal bone assemblages should be assessed by a recognised specialist (see Appendices 2 and 3 for more information).

Industrial slag and metal working debris will be assessed by a specialist.

Assessment should include x-radiography of all iron objects (after initial screening to exclude recent debris) and a selection of non-ferrous artefacts (including all coins). Refer to "Guidelines on the x-radiography of archaeological metalwork, English Heritage, 2006.

Brick dimensions will be measured and a note made of the bonding material.

If necessary, pottery sherds and bricks should be recommended for Thermoluminescence dating. See 'Luminence Dating: guidelines on using luminescence dating in archaeology', English Heritage, 2008.

Inductively-coupled plasma spectroscopy (ICPS) and thin sectioning can be used to establish the chemical composition of clay fabric (pottery), which helps to locate production sites and identify the products of known sites.

Finds processing, storage and conservation methods must be broadly in line with current practice, as exemplified by the IFA "Standard and guidance for the collection, documentation, conservation and research of archaeological materials", 2001. Finds should be appropriately packaged and stored under optimum conditions, as detailed in the RESCUE/UKIC publication "First Aid for Finds" (Watkinson and Neal 1998). Proposals for ultimate storage of finds should follow the UKIC publication "Guidelines for the Preparation of Excavation Archives for Long-term Storage" (Walker 1990). Details of methodologies may be requested from the Archaeological Contractor.

Other useful guidance – "A Strategy for the Care and Investigation of Finds", English Heritage, 2003, "Finds and Conservation Training Package", English Heritage, 2003.

All objects must be stored in appropriate materials and conditions to ensure minimal deterioration. Advice can be sought from Jacqui Huntley of English Heritage (07713 400387) where necessary.

## **PRODUCTS**

### **The report**

1. The Archaeological Contractor must produce an interim report of 200 words minimum, **two weeks after the completion of the field-work**, for the Client and the Planning Authority, with a copy for information to the County

Archaeologist. This will contain the recommendations for any further work needed on site.

2. The production of Site Archives and Finds Analysis will be undertaken according to English Heritage Guidelines - Managing Archaeological Projects 2nd Edition ('MAP2') 1991 and Management of Research Projects in the Historic Environment (MoRPHE) 2006.

3. A full archive report with the following features should be produced **at the latest by the end of May 2015**. All drawn work should be to publication standard. The report must include:

- \* Location plans of trenches and grid reference of site
- \* Site narrative – interpretative, structural and stratigraphic history of the site
- \* Plans showing major features and deposit spreads, by phase, and section locations
- \* Sections of the two main trench axes and through excavated features with levels
- \* Elevation drawings of any walls etc. revealed during the excavation
- \* Artefact reports – full text, descriptions and illustrations of finds
- \* Tables and matrices summarising feature and artefact sequences.
- \* Archive descriptions of contexts, grouped by phase (not for publication)
- \* Deposit sequence summary (for publication/deposition)
- \* Colour photographs of trenches and of archaeological features and finds
- \* Laboratory reports and summaries of dating and environmental data, with collection methodology.
- \* A consideration of the results of the field-work within the wider research context (ref. NERRF).
- \* Recommendations for further analysis of finds or environmental samples
- \* Copy of this specification

4. One bound and collated copy of the report needs to be submitted:

- for deposition in the County HER at the address on the first page.

Three digital copies (pdf of the report on CD) must be submitted:

- one for the commissioning client
- one for the planning authority (Newcastle City Council) – this must be formally submitted by the developer to the planning department with the appropriate fee.
- one for deposition in the County HER at the address below. This CD will also include all of the digital images as TIFFs and the accompanying metadata.

**The report and CD for the HER must be sent by the archaeological consultant or their client directly to the address below. If the report is sent via the planning department, every page of the report will be stamped with the planning application number which ruins the illustrations. The HER is also often sent a photocopy instead of a bound colour original which is unacceptable.**

### **Publication**

It is anticipated that the results will also warrant publication in a suitable archaeological journal. The tender should therefore include an estimated figure for the production of a report of, for example 50 pages, in a journal such as *Archaeologia Aeliana*. This is merely to give the commissioning client an indication of potential costs.

**Before preparing a paper for publication, the archaeological contractor must discuss the scope, length and suitable journal with the County Archaeologist.**

### ***Archive Preparation and Dissemination***

The archive should be a record of every aspect of an archaeological project – the aims and methods, information and objects collected, results of analysis, research, interpretation and publication. It must be as complete as possible, including all relevant documents, records, data and objects {Brown, 2007, 1}.

The site archive (records and materials recovered) should be prepared in accordance with *Managing Archaeological Projects*, Second Edition, 5.4 and appendix 3 (HBMC 1991), *MoRPHE Project Planning Notes 2006 PPN3 – Archaeological Excavation*, “Archaeological documentary archives” IFA Paper No. 1, “Archaeological Archives – creation, preparation, transfer and curation” *Archaeological Archives Forum* etc., *Guidelines for the Preparation of Excavation Archives for Long Term Storage* (UKIC 1990) and “Archaeological Archives – A guide to best practice in creation, compilation, transfer and curation” by Duncan H. Brown, *Archaeological Archives Forum*, July 2007.

### ***Documentary Archive***

The documentary archive comprises all records made during the archaeological project, including those in hard copy and digital form.

This should include written records, indexing, ordering, quantification and checking for consistency of all original context sheets, object records, bulk find records, sample records, skeleton records, photographic records (including negatives, prints, transparencies and x-radiographs), drawing records, drawings, level books, site note-books, spot-dating records and conservation records, publication drafts, published work, publication drawings and photographs etc.

A summary account of the context record, prepared by the supervising archaeologist, should be included.

All paper-based material must at all times be stored in conditions that minimise the risk of damage, deterioration, loss or theft.

Do not fold documents

Do not use self-adhesive labels or adhesive or tape of any kind

High quality paper (low-acid) and permanent writing materials must be used.

Original drawings on film must be made with a hard pencil, at least 4H.

Do not ink over original pencil drawings.

Use polyester based film for drawings (lasts longer than plastic).

Store documents in acid-free, dust-proof cardboard boxes

Store documents flat

All documents must be marked with the project identifier (e.g. site code) and/or the museum accession number.

All types of record must use a consistent terminology and format.

Use non-metal fastenings, and packaging and binding materials that ensure the longevity of documents.

Copies of reports and appropriate drafts, with associated illustrative material, must be submitted for inclusion with the archive.

### *Material Archive*

The material archive comprises all objects (artefacts, building materials or environmental remains) and associated samples of contextual materials or objects.

All artefacts and ecofacts retained from the site must be packed in appropriate materials.

All finds must be cleaned as appropriate to ensure their long-term survival

All metal objects retained with the archive must be recorded by x-radiograph (except gold or lead alloys or lead alloys with a high lead content and objects too thick to be x-rayed effectively e.t.c. )

The archive should include all environmental remains recovered from samples or by hand, all vertebrae remains not used for destructive analysis,



environmental remains extracted from specialist samples (such as pollen preparations in silicone oil).

All finds must be marked or labelled with the project and context identifiers and where relevant the small-finds number

Use tie-on rot-proof labels where necessary

Bulk finds of the same material type, from the same context, may be packed together in stable paper or polythene bags

Mark all bags on the outside with site and context identifiers and the material type and include a polyethylene label marked with the same information

Use permanent ink on bags and labels

Sensitive finds must be supported, where appropriate, on inert plastic foam or acid-free tissue paper. It is not advisable to wrap objects in tissue as the unwrapping could cause damage.

The archive will be placed in a suitable form in the appropriate museum (Great North Museum: Hancock).

Contact Keeper of Archaeology, Andrew Parkin at the Great North Museum (0191 222 6765).

A letter will be sent to the County Archaeology Officer within six months of the report having been submitted, confirming where the archive has been deposited.

#### *Digital Archive*

Copy of the report on CD as a pdf plus all of the digital images as TIFFs.

See MoRPHE Technical Guide 1 – Digital Archiving & Digital Dissemination 2006.

#### **Archaeology Data Service**

The digital archive including the image files can, if the appointed archaeologist and commissioning client choose to, be deposited with the ADS (The Archaeology Data Service) which archives, disseminates and catalogues high quality digital resources of long-term interest to archaeologists. The ADS will evaluate datasets before accepting them to maintain rigorous standards (see the ADS Collections Policy). The ADS charge a fee for digital archiving of development-led projects. For this reason deposition of the images with the ADS is optional.

Archaeology Data Service  
Department of Archaeology  
University of York  
King's Manor

York  
YO1 7EP  
01904 433 954

Web: <http://ads.ahds.ac.uk>

## **SIGNPOSTING**

### **OASIS**

The Tyne and Wear County Archaeologist supports the Online Access to the Index of Archaeological Investigations (OASIS) project. This project aims to provide an online index/access to the large and growing body of archaeological grey literature, created as a result of developer-funded fieldwork.

The archaeological contractor is therefore required to register with OASIS and to complete the online OASIS form for their evaluation at <http://www.oasis.ac.uk/>. Please ensure that tenders for this work takes into account the time needed to complete the form.

Once the OASIS record has been completed and signed off by the HER and NMR the information will be incorporated into the English Heritage Excavation Index, hosted online by the Archaeology Data Service.

The ultimate aim of OASIS is for an online virtual library of grey literature to be built up, linked to the index. The unit therefore has the option of uploading their grey literature report as part of their OASIS record, as a Microsoft Word document, rich text format, pdf or html format. The grey literature report will only be mounted by the ADS if both the unit and the HER give their agreement. The grey literature report will be made available through a library catalogue facility.

Please ensure that you and your client understand this procedure. If you choose to upload your grey literature report please ensure that your client agrees to this in writing to the HER at the address below.

For general enquiries about the OASIS project aims and the use of the form please contact: Mark Barratt at the National Monuments Record (tel. 01793 414600 or [oasis@english-heritage.org.uk](mailto:oasis@english-heritage.org.uk)). For enquiries of a technical nature please contact: Catherine Hardman at the Archaeology Data Service (tel. 01904 433954 or [oasis@ads.ahds.ac.uk](mailto:oasis@ads.ahds.ac.uk)). Or contact the Tyne and Wear Archaeology Officer at the address below.

### ***The tender***

Tenders for the work should contain the following:-

1. Brief details of the staff employed and their relevant experience
2. Details of any sub-contractors employed
3. A quotation of cost, broken down into the following categories:-

- \* Costs for the excavation, incl. sub-headings of staff costs on a person-day basis, transport, materials, and plant etc.
  - \* Post-excavation costs, incl. storage materials
  - \* Cost of Environmental analysis and scientific dating per sample
  - \* Estimated cost for full publication of results in an archaeological journal
  - \* Overheads
4. An indication of the required notification period (from agreement to start date) for the field-work; the duration of fieldwork and the expected date for completion of the post-excavation work (a maximum of 6 months after completion of the fieldwork)

### **Monitoring**

*The Archaeological Contractor will inform the County Archaeologist of the start and end dates of the excavation to enable the CA to monitor the work in progress.*

*Should important archaeological deposits be encountered, the County Archaeologist must be informed. If further archaeological evaluation is required on this site, then the archaeological contractor must submit a written scheme of investigation for approval by the CA before extending the size of the trenches.*

## **APPENDICES**

### **1 Environmental Sampling, Scientific Analysis and Scientific Dating**

**This is a compulsory part of the evaluation exercise.**

Advice on the sampling strategy for environmental samples and samples for scientific dating etc. must be sought from Jacqui Huntley, English Heritage Advisor for Archaeological Science (07713 400387) **before** the evaluation begins. The sampling strategy should include a reasoned justification for selection of deposits for sampling.

Scientific investigations should be undertaken in a manner consistent with "The Management of Archaeological Projects", English Heritage 1991 and with "Archaeological Science at PPG16 Interventions: Best Practice for Curators and Commissioning Archaeologists", English Heritage, 2004.

See also 'Environmental Archaeology: A guide to the theory and practice of methods, from sampling and recovery to post excavation', English Heritage, second edition 2011.

<http://www.english-heritage.org.uk/publications/environmental-archaeology-2nd/>

English Heritage guidance documents on archaeological science can be downloaded as pdf files from [www.helm.org.uk](http://www.helm.org.uk) or [www.English-Heritage.org.uk](http://www.English-Heritage.org.uk) > Learning and Resources > Publications > Free Publications.

See also the Environmental Archaeology Bibliography (EAB):  
[http://ads.ahds.ac.uk/catalogue/specColl/eab\\_eh\\_2004/](http://ads.ahds.ac.uk/catalogue/specColl/eab_eh_2004/)

and the NMR sciences thesaurus:

[http://thesaurus.english-heritage.org.uk/thesaurus.asp?thes\\_no=560](http://thesaurus.english-heritage.org.uk/thesaurus.asp?thes_no=560)

There must be full specialist liaison throughout the project – this need not necessarily be face-to-face.

Sampling should be demonstrated to be both fit for purpose and in-line with the aims and objectives of the project.

The choice of material for assessment should be demonstrated as adequate to address the objectives.

Evaluations and assessment of scientific material should provide clear statements of their potential and significance in addition to descriptive records. These statements should relate to the original objectives but may also lead to new or modified objectives.

Post excavation analysis and interpretation requires sufficient information exchange and discussion to enable scientific specialists to interpret their material within the established intellectual framework.

Archaeological and scientific analyses should be integrated as fully as possible. It is not acceptable to leave the scientific analyses simply as appendices.

Archive reports should include full data from all specialist materials. All reports, including any publications, must present sufficient primary data to support the conclusions drawn.

{From '10 principles of good practice in archaeological science' by English Heritage 2010}.

### ***Types of sample***

Flotation samples are used to recover charred and mineral-replaced plant remains, small bones, industrial residues etc. Such samples should be whole earth, 40-60 litres or 100% of small features. The flot mesh size should be 0.25-0.3mm. The residue sieve size should be 0.5-1mm. The flot and <2mm residue should be sorted under the microscope. >2mm residues can be sorted by eye.

Coarse-sieved samples are used to recover small bones (such as bird and fish), bone fragments, molluscs and small finds (beads, pottery, coins etc).

Such samples should be 100 or more litres, wet or dry sieved, minimum mesh 2mm. Specialist advice is recommended.

Other types of sample are monoliths, specialist, cores and small spot. These are taken for specific reasons and need specialists.

### ***Aims and objectives***

Aims of environmental sampling – to determine the abundance/concentration of the material within the features and how well the material is preserved, to characterise the resource (the site) and each phase, to determine the significance of the material and its group value, what crop processing activities took place on the site? What does this tell us about the nature of the site? Is there any evidence for changes in the farming practice through time? How did people use this landscape? Can we place certain activities at certain locations within the site? Function and date of individual features such as pits, hearths etc. Are the charred assemblages the result of ritual deposition or rubbish? Is the charcoal the result of domestic or industrial fuel?

Deposits should be sampled for retrieval and assessment of the preservation conditions and potential for analysis of biological remains (English Heritage 2002). Flotation samples and samples taken for coarse-mesh sieving from dry deposits should be processed at the time of fieldwork wherever possible. Sieving recovers fish, amphibian, small bird and mammal bone, small parts of adult mammals and young infused bones which may be under-represented otherwise. However it is noted that sticky clay soils in this region make sieving difficult. Discuss the potential for sieving with Regional Advisor for Archaeological Science.

Environmental samples (bulk soil samples of 30-40 litres volume) will be collected by the excavator from suitable (i.e. uncontaminated) deposits. It is suggested that a large number of samples be collected during evaluation from which a selection of the most suitable (uncontaminated) can be processed. All tenders will give a price for the assessment, full analysis, report production and publication per sample.

The full 30-40 litre sample must be assessed by the laboratory, not just a small sub-sample.

The following information should be provided with the environmental samples to be processed – brief account of nature and history of the site, aims and objectives of the project, summary of archaeological results, context types and stratigraphic relationships, phase and dating information, sampling and processing methods, sample locations, preservation conditions, residuality/contamination etc.

Laboratory processing of samples shall only be undertaken if deposits are found to be reasonably well dated, or linked to recognisable features and from contexts the derivation of which can be understood with a degree of confidence.

A range of features, and all phases of activity, need to be sampled for charred plant remains and charcoal. Aceramic features should not be avoided as the plant remains from these features may help to date them. Deep features should be sampled in spits to pick up changes over time. Part or all of each of the contexts should be processed. In general samples should be processed in their entirety. All flots should be scanned, and some of the residues.

### ***Scientific Dating***

Deposits will be assessed for their potential for radiocarbon, archaeomagnetic and Optically Stimulated Luminescence dating.

See 'Archaeomagnetic Dating: Guidelines on producing and interpreting archaeomagnetic dates', English Heritage, 2006 and

'Luminescence Dating: guidelines on using luminescence dating in archaeology', English Heritage, 2008.

Timbers will be assessed for their potential for dendrochronology dating. Sampling should follow procedures in "Dendrochronology: guidelines on producing and interpreting dendrochronological dates", Hillam, 1998.

All tenders will quote the price of these techniques per sample.

For large excavations, particularly of prehistoric sites, a specialist scientific dating consultant must be part of the post-excavation assessment team. They will ensure that money set aside for dating is well spent, that the most appropriate soil samples are submitted for dating, that the right number of samples are submitted for dating. The expert will explain what to date and why. Don't send off samples for dating just for sake of it. The English Heritage Scientific Dating team (contact Pete Marshall) can provide contact details for scientific dating experts.

Once radiocarbon date results come back from the lab, avoid eyeballing your C14 dates. Modelling gives better date estimates.

AMS can now be used to date cremated bone.

### ***Pollen***

Pollen samples can be taken from features such as lakes, ponds, palaeochannels, estuaries, saltmarshes, mires, alluvium and colluvium, and from waterlogged layers in wells, ditches and latrines etc. Substances such as honey, beer or food residues can be detected in vessels. Activities such as threshing, crop processing and the retting of flax can be identified. When taken on site, pollen samples should overlap. Your regional science advisor can advise on the type of corer or auger which would be most appropriate for your site. Samples need to be wrapped in clingfilm and kept dark and cool. Make a description of the sediments in which the pollen was found, and send this with the sample to be assessed.

### ***Forams and diatoms***

Coastal or estuary sites (even those which are now well drained) are suitable for sampling for foraminifera. Diatoms can also be found on marine sites, but also in urban settings (sewers, wells, drains, ditches etc). They only survive in waterlogged conditions. These aquatic microfossils are used as proxy indicators of the former aquatic ecological conditions on site, changes in sea levels and temperature, salinity, PH and pollution. Forams are taken from cores, monolith tins or bulk samples. Diatoms are cut from monolith tins or cores or taken as spot samples.

### ***Insects***

Insects, which are useful as palaeoenvironmental indicators, survive best in waterlogged deposits such as palaeochannels and wells. They can provide information on climate change and landscape reconstruction as some species are adapted to particular temperatures, habitats or even particular trees. Certain insects can indicate the function of a feature or building (eg. Weevils, which were introduced by the Romans, often indicate granary sites, parasites will indicate the presence of particular animals such as sheep or horse, latrine flies survive in the mineral deposits in latrines, or in the daub of medieval buildings etc). Samples need to be sealed (eg. in a plastic box).

### ***Industrial Activity***

Where there is evidence for industrial activity, macroscopic technological residues should be collected by hand. Separate samples should be collected for micro-slugs (hammer-scale and spherical droplets). Guidance should be sought from the English Heritage Regional Science Adviser on the sampling strategy for metalworking features and advice on cleaning and packaging. Specialist on-site advice must be sought on identification of metalworking features. Slag and metal working debris must be assessed by a specialist. Scientific analysis (such as x-ray fluorescence, chemical analysis, metallography or scanning electron microscope) of slag can provide information on the melting temperature, chemical composition (is it iron, zinc, copper etc), microstructure (the type and shape of the crystals), physical properties (the hardness or viscosity), isotopic composition (strontium\_87 or strontium\_88 etc) and mineralogical composition.

See “Archaeomagnetic dating”, English Heritage, 2006

“Guidelines on the X-radiography of archaeological metalwork”, English Heritage, 2006.

Historical Metallurgy Society, 2008, “Metals and metalworking: a research framework for archaeometallurgy”.

Centre for Archaeology Guidelines on ‘Archaeometallurgy’ 2001.

'Science for Historic Industries: Guidelines for the investigation of 17<sup>th</sup> to 19<sup>th</sup> century industries', English Heritage, 2006.

### ***Buried soils and sediments***

Buried soils and sediment sequences should be inspected and recorded on site by a recognised geoarchaeologist. Procedures and techniques in the English Heritage document "Environmental Archaeology", 2002 and "Geoarchaeology", 2004 should be followed.

See also 'Geoarchaeology. Using earth sciences to understand the archaeological record', English Heritage, 2007.

### ***Wood***

Sampling strategies for wooden structures should follow the methodologies presented in "Waterlogged wood. Guidelines on the recording, sampling, conservation and curation of waterlogged wood" R. Brunning, 1996. If timbers are likely to be present on your site, contact a wood specialist beforehand. Pre-excavation planning – determine questions to ask, agree on a sampling strategy, allocate reasonable time and budget. Soil samples should be taken of the sediments surrounding the timber. Keep the timbers wet! Record them asap on-site – plan, photograph, record the size and orientation of the wood (radial, tangential, transverse), any toolmarks, joints, presence of bark, insect damage, recent breaks, and if another piece of wood was on top of or below the piece sampled. Both vertical and horizontal positioning of wattling must be recorded. Wood samples can provide information on woodland management such as medieval coppicing, type of taxa (native or foreign), conversion technology (how the wood was turned into planks), building techniques and type of tools used.

Suitable samples should be submitted for dendrochronological dating. See English Heritage guidelines, 2004, "Dendrochronology".

### ***Leather and organic materials***

Waterlogged organic materials should be dealt with following recommendations in "Waterlogged Organic Artefacts – Guidelines on their Recovery, Analysis and Conservation", English Heritage, 2012 and "Guidelines for the care of waterlogged archaeological leather", English Heritage and Archaeological Leather Group 1995.

### ***Glass***

As glass-making furnaces are above ground structures, they rarely survive. However sample residues can produce glass fragments which define glass working even though no traces of furnaces survive. Excavations at Whitby Abbey recovered glassworking waste from preliminary sampling. Targeted bulk sampling in subsequent years recovered more



evidence for glass working. Raw glass, twisted rods of glass and a possible glass inlay for an illustrated book were found. Similar glass rods were found at St. Gregory's Minster at Kirkdale, North Yorkshire.

Analysis can find out where glass was imported from (a lot of Roman glass came from Alexandria).

Analysis of the composition of glass can show varying additives and salt composition. At Whitby Abbey the varying salt composition in glass throughout the Early Medieval period reflected climate change.

Is the glass made from recycled glass waste or raw materials?

Is there evidence of glass blowing?

English Heritage has guidance forthcoming in 2010.

## **2     *Animal Bone***

Animal bone can explore themes such as hunting and fowling, fishing, plant use, trade network, seasonality, diet, butchery, animal husbandry, food procurement, age structures, farrowing areas, species ratios, local environment.

Domestic animal bone was used in prehistoric and Roman cremation rituals.

Post medieval cattle bones – small cow bones invariably represent animals which produced high quality buttermilk for cheese. Big 'improved' cattle with large bones were produced for large quantities of meat and poorer quality milk. Large and small cattle bones are often found together on post medieval sites, usually with less of the small bones.

Animal bone assemblages should be assessed by a recognised specialist.

The specialist will need to know a brief account of the nature and history of the site, an account of the purpose, methods (details of sampling) for recovery of animal bones, and the main aims and results of the excavation, details of any specific questions that the excavator wants the animal bone specialist to consider, information about other relevant finds from the excavation (e.g. bone tools, fishing equipment, weaving equipment), specific information about each context that has produced significant quantities of animal bone (recovery method, phase, context type, position in relation to major structures, contamination by more recent material, some indication of the amount of bone (by weight or by container size). See "Ancient Monuments Laboratory Advisory Note, "Assessment of animal bone collections from excavations", Sebastian Payne, 1991 and "The Assessment of a collection of animal bones", S. Davis, n.d., Ancient Monuments Laboratory.

## **Fish bone**

Because fish bones are so small, particularly freshwater and estuarine species, they are often only recovered in large bulk samples. Samples must always be sieved.

Rescue excavations carried out in the 1970s at the Iron Age hillfort of Broxmouth in East Lothian produced an assemblage of fish bone. Recent analysis of this material has proved the presence of large specimens of ling and other species which suggests that the Broxmouth population carried out deep-sea fishing. It has previously been suggested that Iron Age fishing would only have been undertaken by lines from the shore. It has also been suggested that fish was not consumed in Iron Age Britain due to religious or cosmological reasons {Hannah Russ, Ian Armit, Jo McKenzie, Andrew Jones, 2012, Deep-sea fishing in the Iron Age? New evidence from Broxmouth hillfort, South-east Scotland in *Environmental Archaeology*, Vol 17, Number 2, pp 177-184}.

Roman agenda – did the Romans eat fish? Were they sourced locally or imported? Use of fish as a sauce (garum).

Excavations at Bridge Street, Chester showed that in the Roman period fish was eaten and was both locally sourced and imported (mullet and Spanish mackerel).

Medieval and post medieval agenda – evidence for the deep sea fishing ‘revolution’, size-biased collections, replacement or supplement of freshwater and estuarine fish in the diet by deep sea fish.

There was some herring exploitation in the early medieval period. Christian fasting from around 970 allowed fish to be eaten on Fridays which led to a huge demand for fish. There was an increase in marine fishing, fish trade and fish consumption (cod, haddock, ling, herring etc) around 1000 AD. Middens provide evidence of commercial fishing. There was a decline in freshwater fish (cyprinid or carp, salmon, smelt, eel, pike) from the eleventh century.

Smoking fish is a recent practice. They were previously air dried and salted.

Newcastle was a major port. Samples should be sieved to retrieve fish and bird bones along with small parts of other animal skeletons and young infused bones.

A crane bone was recovered from excavations at Tuthill Stairs, Newcastle – a rare find.

Herring bones are so small that they can only be retrieved by 2mm sieving.

Clay soils are difficult to sieve, hot water can help.

Acidic soils mean poor preservation of bone.

See English Heritage 2002, “Environmental Archaeology – a guide to the theory and practice of methods from sampling and recovery to post excavation”, Centre of Archaeology Guideline 1.

Isotope analysis can determine where the fish were coming from – North Sea, Scandinavia, Newfoundland, Iceland etc.

There is an excellent reference collection of fish bone at York.

Fish bones should be archived to museums for future dating and isotope analysis where this is not undertaken as part of the post-excavation process.

[www.fishlab.org](http://www.fishlab.org)

### **3 Human Remains**

Human remains must be treated with care, dignity and respect.

Excavators must comply with the relevant legislation (essentially the Burial Act 1857) and local environmental health concerns. If found, human remains must be left in-situ, covered and protected. The archaeological contractor will be responsible for informing the police, coroner, local Environmental Health department and the County Archaeologist. If it is agreed that removal of the remains is essential, the archaeological contractor will apply for a licence from the Home Office and their regulations must be complied with.

The excavation area must be shielded from public view with screens.

The excavation of human remains is a delicate and time consuming operation. The process can take one or two days per skeleton. If the skeleton cannot be excavated all in one day cover it with plastic sheeting overnight to prevent it from drying out. The remains should be excavated as completely as possible to give the bioarchaeologist the maximum amount of data.

A bioarchaeologist should be employed for any burial excavation from the start of the project.

A basic diagram of a skeleton should be available on site for staff to consult (such as that in Abrahams et al, 2008, McMinn's the human skeleton).

Once the top of a skeleton is reached, excavation will be undertaken using delicate tools such as paintbrushes, teaspoons, dental equipment and plasterers' leaves.

Recover all teeth, hand and foot bones.

Excavate the pubic symphysis of the pelvis with care as it is needed for age estimation of adults.

The ends of the ribs that meet the sternum are useful for age estimation of adults.

There will be a possibility that gall, bladder and kidney stones may survive. Sesamoid bones may be present in the hands and feet, calcified cartilages in the neck, on the ribs and on the hyoid bone in the neck.

Foetal bones may be present in the abdominal area of female skeletons.

The bones should be shaded from strong sunlight so they do not dry out and crack.

Bones should be drawn at 1:10 using a planning frame. Manual and digital photographs should be taken with a scale and a magnetic north arrow clearly visible. 3D recording using an EDM may be undertaken.

Site inspection by a recognised osteologist is desirable for isolated burials and essential for cemeteries. The remains will be recorded in-situ and subsequently lifted, washed in water (without additives). They will be marked and packed to standards compatible with "Excavation and post-excavation treatment of cremated and inhumed human remains", McKinley and Roberts, 1993. After excavation, the remains will be subject to specialist assessment.

Analysis of the osteological material should take place according to published guidelines "Human Remains from Archaeological Sites, Guidelines for producing assessment documents and analytical reports, English Heritage, 2002.

There is a new (2013) English Heritage guideline for the destructive sampling of archaeological human remains for scientific analysis 'Science and the Dead'.

Some of the potential benefits from the study of human skeletons – demography, growth profiles, patterns of disease, genetic relationships, activity patterns, diet, burial practices, human evolution. New scientific techniques available include DNA and stable isotope analyses.

Diseases which yield ancient DNA – leprosy, syphilis, tuberculosis, mycobacterium bovis (animal form of TB passed to humans when they shared a living space from Neolithic period onwards).

Radiocarbon dating can be used to chronologically phase burial grounds and track developments in demographic change and variations in the health of the population.

Cremation destroys the crown of the tooth so it cannot be dated (the closure of the cranium vault can be used in adults for dating instead). Cremation also fragments bone, distorts it due to lack of water, shrinks the bone, causes microstructural alteration and destroys organic components (so DNA analysis not possible).

AMS can now be used to date cremated bone.

Carbon and nitrogen stable isotope analysis can be used to study diet, usually to address broad questions about a wider population, rather than to study an individual. Most studies use 30 or more skeletons. Studies have included how social position influenced diet and how diet varied with geographic location.

Strontium and oxygen stable isotope analysis can be used to determine where individuals originated from.

The final placing of the remains after scientific study and analysis will be agreed beforehand.

*Health & Safety associated with human remains:*

Micro-organisms that might cause harm to humans are extremely unlikely to survive beyond about 100 Years.

More recent remains could be more hazardous to health as they may be in sealed lead coffins. Lead coffins should not be opened. They should be reburied intact without archaeological examination.

There is a danger of lead poisoning arising from high levels of lead in the atmosphere generated by lead coffins (see H. Needleman, 2004, Lead poisoning in Annual Review of Medicine, 55, pp. 209-22).

The possible risks of contracting disease from excavated human remains are highly negligible but could include the virus smallpox, tetanus and anthrax spores, the bacterial infection leptospirosis and the fungal disease mycoses (a problem in dry dusty soils and in crypts).

Excavators should be up-to-date with tetanus inoculations.

Anthrax can come from materials derived from animals – coffin pads, pillows or coffin packing.

Working with human remains may cause psychological stress (see J. Thompson, 1998, Bodies, minds and human remains, in M. Cox (ed) 1998, Grave concerns: Death and Burial in England 1700-1850, pp 197-201).

Normal hygiene measures should be undertaken – washing hands, wearing masks and gloves. Heavily soiled clothing should be burned at an HSE approved site.

Further guidance is available in:

“Guidance for best practice for treatment of human remains excavated from Christian burial grounds in England”, The Church of England and English Heritage, 2005 ([www.english-heritage.org.uk/upload/pdf/16602\\_HumanRemains1.pdf](http://www.english-heritage.org.uk/upload/pdf/16602_HumanRemains1.pdf))

“Church Archaeology: its care and management”, Council for the Care of Churches, 1999

Charlotte A. Roberts, 2009, ‘Human Remains in archaeology: a handbook’, CBA Practical Handbooks in Archaeology No. 19  
S Mays, 2010, The Archaeology of Human Bones, second edition

The Advisory Panel on the Archaeology of Christian burials in England can provide free well-informed advice with consideration of relevant religious, ethical, legal, archaeological and scientific issues. Panel's website: <http://www.britarch.ac.uk/churches/humanremains/index.html> or email the secretary [simon.mays@english-heritage.org.uk](mailto:simon.mays@english-heritage.org.uk)

#### **4 Treasure**

All finders of gold and silver objects, and groups of coins from the same finds, over 300 years old, have a legal obligation to report such items under the Treasure Act 1996. Prehistoric base-metal assemblages found after 1st January 2003 also qualify as Treasure.

Summary Definition of Treasure (Portable Antiquities Scheme [www.finds.org.uk](http://www.finds.org.uk) )

The following finds are Treasure under the Act, if found after 24 September 1997 (or, in the case of category 2, if found after 1 January 2003):

- Any metallic object, other than a coin, provided that at least 10 per cent by weight of metal is precious metal (that is, gold or silver) and that it is at least 300 years old when found. If the object is of prehistoric date it will be Treasure provided any part of it is precious metal.
- Any group of two or more metallic objects of any composition of prehistoric date that come from the same find (see below)
- Two or more coins from the same find provided they are at least 300 years old when found and contain 10 per cent gold or silver (if the coins contain less than 10 per cent of gold or silver there must be at least ten of them). Only the following groups of coins will normally be regarded as coming from the same find: Hoards that have been deliberately hidden; Smaller groups of coins, such as the contents of purses, that may be dropped or lost; Votive or ritual deposits.
- Any object, whatever it is made of, that is found in the same place as, or had previously been together with, another object that is Treasure.
- single precious metal coins that have been modified into objects – that is, altered in some way as to make it likely that they were taken out of circulation - can, if older than 300 years old, qualify as Treasure. This is usually seen in the form of a conversion of the coin into a brooch or pendant, or some other form of jewellery or dress accessory, evidence of which can include the addition of a suspension loop to the top, a pin (or the remains of one) at the back, or gilding. Additionally, piercings can be present.

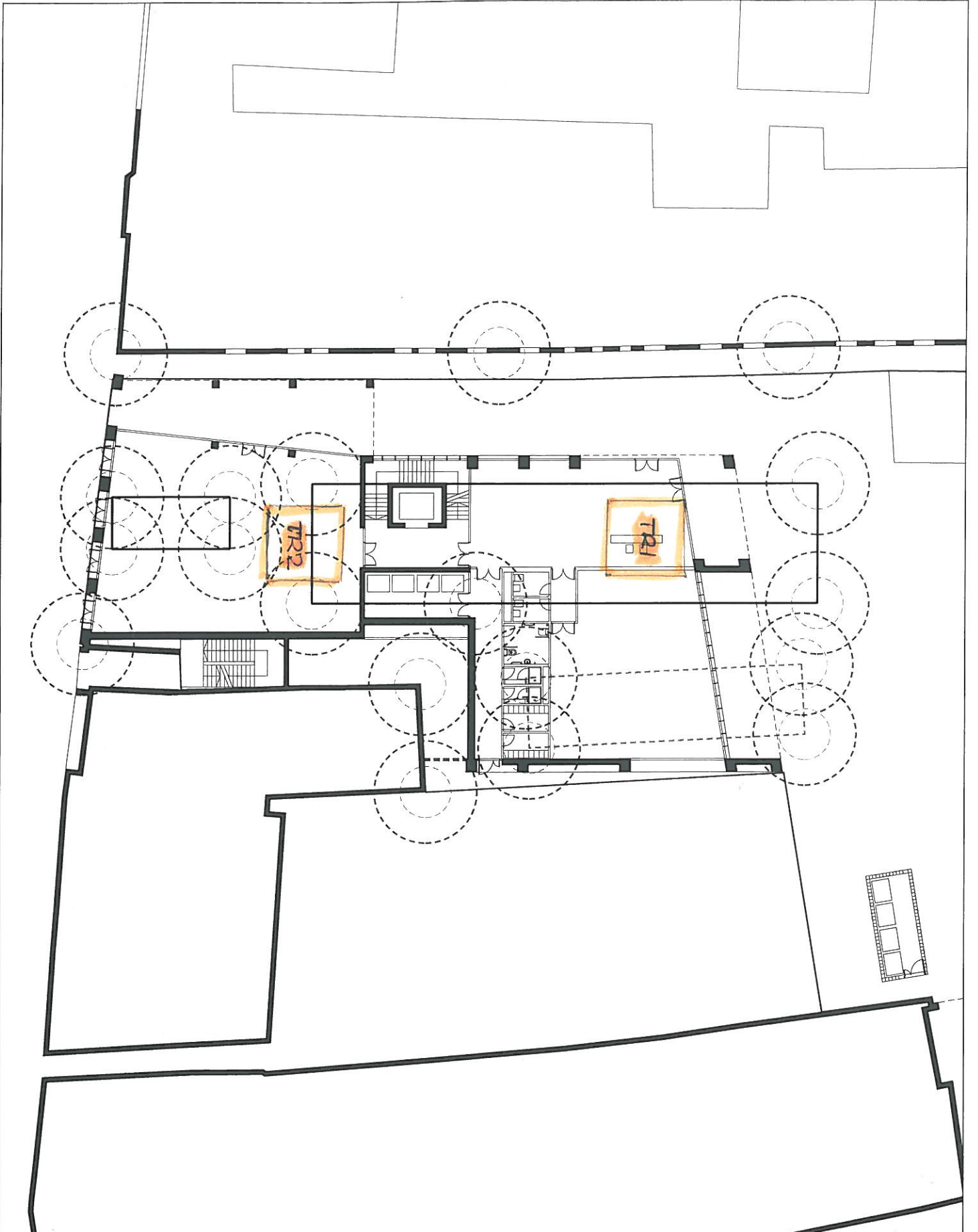
Any object that would previously have been treasure trove, but does not fall within the specific categories given above. Only objects that are less than 300 years old, that are made substantially of gold or silver, that have been

deliberately hidden with the intention of recovery and whose owners or heirs are unknown will come into this category.

Note: An object or coin is part of the 'same find' as another object or coin if it is found in the same place as, or had previously been together with, the other object. Finds may have become scattered since they were originally deposited in the ground.

If anything is found which could be Treasure, under the Treasure Act 1996, it is a legal requirement to report it to the local coroner within 14 days of discovery. The Archaeological Contractor must comply with the procedures set out in The Treasure Act 1996. Any treasure must be reported to the coroner and to The Portable Antiquities Scheme Finds Liaison Officer, Rob Collins and Lauren Proctor (0191 2225076 or [Robert.Collins@newcastle.ac.uk](mailto:Robert.Collins@newcastle.ac.uk) or [Lauren.Proctor@newcastle.ac.uk](mailto:Lauren.Proctor@newcastle.ac.uk) ) who can provide guidance on the Treasure Act procedures.

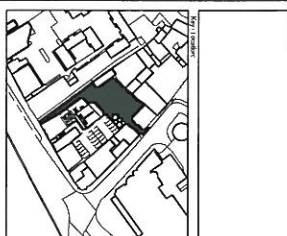
**If you need this information in another format or language, please contact Jennifer Morrison, Archaeology Officer.**



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Scale	Symbol	Description
1:100	[Symbol]	Architectural Survey Overlay
1:100	[Symbol]	Potential Fill Locations Study
1:100	[Symbol]	Architectural Survey Overlay
1:100	[Symbol]	Potential Fill Locations Study

Rev.	Issue	Date	By



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**PLANNING DRAWINGS**

**Project:** Live Theatre  
**Location:** Live Theatre  
**Scale:** 1:100 / 1:200  
**Date:** Feb 2014  
**Drawn by:** SG  
**Checked by:** SG  
**Project No.:** SK140226\_100



**APPENDIX I**  
**PCA WRITTEN SCHEME OF INVESTIGATION**

**WRITTEN SCHEME OF INVESTIGATION FOR AN  
ARCHAEOLOGICAL EXCAVATION AT TRINITY COURT,  
55-57 QUAYSIDE, NEWCASTLE, TYNE AND WEAR**

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<b><i>Title</i></b>	Written Scheme of Investigation for an Archaeological Excavation at Trinity Court, 55-57 Quayside, Newcastle, Tyne and Wear
<b><i>Author</i></b>	Robin Taylor-Wilson
<b><i>Derivation</i></b>	Requirement of Specification (24 March 2014, Reference No. MON11398) produced by the Tyne and Wear Specialist Conservation Team
<b><i>Origination Date</i></b>	13 May 2014
<b><i>Reviser(s)</i></b>	N/A
<b><i>Date of last revision</i></b>	N/A
<b><i>Version</i></b>	1.0
<b><i>Status</i></b>	For Comment
<b><i>Summary of changes</i></b>	N/A
<b><i>Circulation</i></b>	Lucy Bird (Live Theatre) Jennifer Morrison (Tyne and Wear Specialist Conservation Team) Jacqui Huntley (English Heritage Regional Advisor Archaeological Science) John Nielsen (CK21)
<b><i>Required Action</i></b>	Comment
<b><i>File Name/Location</i></b>	TRQ14 WSI v1.0 13May/C drive PCANorth1
<b><i>Approval</i></b>	tbc

## **PART 1: DESCRIPTION OF THE PROJECT**

### **1.1 Project Name**

1.1.1 The project is known as Trinity Court, 55-57 Quayside, Newcastle.

### **1.2 Summary Description**

1.4.1 The project entails an archaeological excavation ahead of re-development of the site, principally for a four-storey office block with small park area to the rear. The rear of the site is currently used as a car park, with an existing small park on the street frontage.

1.3.1 The main archaeological interest of the site lies in its location within the medieval town wall of Newcastle, in an area which was reclaimed from the River Tyne by the 14th century. As land on what had been the Tyne foreshore was gradually reclaimed, a build-up of ballast deposits and structural remains began to stratify across the area behind successive new river frontages. The site is therefore likely to contain buried evidence of medieval burgage plots built upon medieval ballast, with these remains overlain by stratified post-medieval material.

1.4.2 Two evaluation trenches in 2000 demonstrated that important archaeological deposits survive at the site. The evaluation recorded approximately 1.20m of complex stratified material of likely medieval and early post-medieval date, underlying late post-medieval and modern 'overburden'. The lowermost deposits recorded in each trench were likely ballast material derived from concerted land reclamation probably in the medieval period. The base of the ballast material was not reached in either trench.

1.4.3 Two areas (Trenches 1 and 2) are to be excavated at the site, with the overarching aim of recording stratified medieval and early post-medieval material at these locations, extending as far down into the depositional sequence as it is practicable and safe to do so.

### **1.3 Background**

#### ***Site Location and Description Summary***

1.3.2 The site is situated on the street frontage of the Newcastle Quayside (the B1600) with the riverfront c. 25m to the south (Figure 1). The area to be investigated ('the site') is a proposed development site '55-57 Quayside and former Trinity Chambers, 9-10 Trinity Chare' which lies within 'Trinity Court' a larger open area to the rear of the Quayside frontage. The site is sub-rectangular with its long axis aligned roughly NW-SE (hereafter the orientation is described as north-south). It measures c. 45m north-south by c. 23.0m west-east, to the north, narrowing to c. 13m on the frontage. The site covers an area of c. 835m<sup>2</sup>, and its central NGR is NZ 2540 6394 (see Figure 1).

1.3.3 To the west, the site is skirted by a narrow passageway, Trinity Chare, immediately beyond which lies a standing building, 39 Quayside (Custom House); a line of temporary fencing delineates the western site boundary. To the north, the site is bounded by a brick wall, beyond which lies a standing building, 9-10 Trinity Chambers, with, east of this, a further car park area. To the east, the site is bounded by a timber post and rail fence, with gate to the north; beyond this, to the north, lies a further car park area in Trinity Court, while to the south is a standing building, 63 Quayside, formerly a public house; a small yard lies between the southern part of the eastern site boundary and 63 Quayside.

- 1.3.4 Ground level across the site itself falls away from the north-west (c. 4.80m OD) to the south-east (c. 4.0m) on the frontage. The site is currently unoccupied, although in use as car park until the archaeological excavation herein described commences. The majority of the ground surface is rough compacted rubble, with an area of concrete hardstanding in the north-western corner and the street frontage portion a pocket park comprising grassed area with raised planting beds and tarmac pathway.

***Planning Summary***

- 1.3.5 A planning application (Newcastle City Council reference 2014/0254/01/DET) has been submitted for re-development of the site as a four-storey office block with park area at the rear, including an outdoor theatre/cinema. For planning purposes the site is '55-57 Quayside and former Trinity Chambers, 9-10 Trinity Chare'. The site is presently a roughly-surfaced car park with a small park on the street frontage. The landowner and developer is Live Theatre (the Client). The full postal address of the site is 55-57 Quayside, Newcastle-upon-Tyne, Tyne and Wear, NE1 3DE.

***Previous Archaeological Work Summary***

- 1.3.6 Two evaluation trenches excavated in 2000 (by Tyne and Wear Museums) recorded a depth of more than 3.50m of stratified material at each location, with at least 1.20m of late post-medieval/modern 'overburden' overlying approximately the same depth of complex stratigraphy of likely medieval or early post-medieval date. A number of walls were recorded, most of which had been re-used as foundations for a complex of successive later structures. The basal deposit in each trench comprised substantial sand and gravel ballast material, likely from medieval land reclamation, although no dating evidence was recovered to be able to confirm this; in each case the base of the ballast was not reached at depth of c. 3.80m below ground level.
- 1.3.7 An archaeological desk-based assessment was compiled for the site in 2004 (by Tyne and Wear Museums). This concluded that the site lies within the medieval town wall of Newcastle, in an area which was reclaimed from the River Tyne by the 14th century; original north bank of the Tyne lay approximately 60m north of the site below Dog Bank and All Saints. Land in this marginal strip of what was the former foreshore was gradually reclaimed from the river during the second half of the 13th century with a series of piers and stone/wicker revetments and terraces, supported on dumps of waste material up to 3m deep. As the land was reclaimed, a thick sequence of ballast deposits and structural remains began to stratify across the area, elevating the land higher than the river in order to allow development. A series of north-south streets (called chares) running down to the east-west running Quayside were laid out on this new land.
- 1.3.8 By 1684 Three Indian Kings Court had been laid out, the line of which skirts the eastern boundary of the site to be investigated. The site was fully developed by the mid 19th century. The Three Indian Kings Hotel occupied the north-easternmost part of the site in the late 19th century.

***Required Archaeological Work Summary***

- 1.3.9 In sum, archaeological excavation is required, as part of the planning process, in two trenches at targeted locations within the proposed development area. The work represents an opportunity to archaeologically investigate land close to the final extended Quayside area and will principally aim to provide dating evidence for the recorded sequence of medieval and early post-medieval reclamation and development.

- 1.3.10 It is anticipated that the earliest archaeological deposits which will be encountered will be reclamation deposits of 13th- to 14th-century date, upon which a continuous river frontage was constructed (the riverside section of the town wall was constructed on the reclaimed land in the 15th century). Medieval reclamation material should be underlain by deposits representing the medieval and earlier foreshore of the Tyne. Recording and sampling of medieval reclamation deposits and underlying foreshore deposits is also required.

## 1.4 Research Aims and Objectives

- 1.4.1 The project is threat-led with potential to disturb or destroy important sub-surface archaeological remains of the medieval and early post-medieval period, specifically remains relating to occupation and development of the reclaimed riverfront. Underlying archaeological remains representing medieval land reclamation would also be of importance, as would lower deposits representing earlier occupation (such as Saxon or Roman) of the area. The lowermost deposits likely to be encountered, representing the original foreshore of the Tyne prior to reclamation, would also be of importance.

- 1.4.2 In sum, therefore, the main aims of the archaeological excavation are:

- To investigate the natural environment during which reclamation of the foreshore took place by a palaeoenvironmental sampling strategy.
- To ascertain the presence or absence of any Roman or Saxon occupation of the area.
- To determine the origins and nature of land reclamation by archaeological recording and, where appropriate, a sampling strategy; were these deposits derived from domestic or industrial waste, or were they re-deposited natural material, perhaps comprising/including material dredged locally from the river bed or even from elsewhere?
- To excavate and record in detail the stratigraphic sequence above reclamation material – presumed to represent medieval and early post-medieval occupation of the area- with later post-medieval and modern material being subject to a lesser degree of recording.
- To locate, if possible, the quayside wall indicated on Corbridge's 1723 map.

- 1.4.3 Specific Research Objectives to be addressed by the project have been formulated with reference to *Shared Visions: The North-East Regional Research Framework for the Historic Environment* (NERRF) (Petts and Gerrard 2006). The NERRF highlights the importance of research as a vital element of development-led archaeological work. It sets out key research priorities for all periods of the past allowing commercial contractors to demonstrate how their fieldwork relates to wider regional and national priorities for the study of archaeology and the historic environment. The aim of NERRF is to ensure that all fieldwork is carried out in a secure research context and that commercial contractors ensure that their investigations ask the right questions.

- 1.4.4 The following research priorities for the later medieval period within the NERRF research agenda and strategy are of particular relevance to this project:

- MDi. Urbanism

*“ urban domestic structures.....non-domestic buildings.....have the potential to inform us about the impact of urbanism on vernacular architectural traditions while their layout and organisation also has implications for the use of space in medieval towns, particularly the role of backlots as foci for small scale industrial activity”.*

*“Any development on the backlots of urban properties should be the focus of adequate evaluation and, where, necessary, full excavation”.*

- MDvii. Medieval ceramics and other artefacts

*“Ceramic evidence is crucially important, it can be used as chronological indicator and tells us about patterns of economic exchange and consumption.”*

- MDviii. Other medieval industries
- MDix. Trade and economy
- MDx. The fishing industry

*“The fishing industry was an important sector in the economy of the North-East in the medieval period....and was also an important element of the economy on the regions’ major rivers....this should be explored archaeologically.”*

- MDxi. The medieval to post-medieval transition

1.4.5 The following research priority for the post-medieval period within the NERRF research agenda and strategy is of particular relevance to this project:

- PMii. Industrialisation

## **1.5 Business Case**

1.5.1 The project is being undertaken ahead of re-development of the site, principally for a four-storey office block with ‘pocket park’ to the rear including an outdoor theatre/cinema. The majority of the site, to the rear, is currently used as a car park, with an existing pocket park on the street frontage. The developer is the Client, Live Theatre.

1.5.2 Pre-Construct Archaeology Limited (PCA) has been appointed to undertake the archaeological excavation ahead of the main construction programme. The Sponsor will be the Client. PCA - [www.pre-construct.com](http://www.pre-construct.com) - is one of the largest archaeological contractors in the UK, operating a nationwide service from offices in London, Cambridge, Winchester, Market Harborough and Durham. PCA is a ‘Registered Organisation’ (RO 23) with the Institute for Archaeologists (IfA).

1.5.3 Ahead of the construction phase of the project, an appropriately specified programme of archaeological excavation is the required mitigation strategy. The main target is to excavate archaeological remains in two targeted trenches, in order to record detailed samples of the full archaeological sequence at the site.

## **1.6 Project Scope**

1.6.1 This archaeological project is described according to guidelines set out in *Management of Research Projects in the Historic Environment* (MoRPHE) (English Heritage 2006). A **Start-up Stage** was activated by a meeting, held on 29 April 2014 at Live Theatre on Broad Chare, Newcastle, between the Client and PCA at which the Specification provided by the Tyne and Specialist Conservation Team (T&WSCT) was discussed and instruction for PCA to undertake the work was confirmed. This WSI comprises the main product of the **Initiation Stage** of the project. The earlier trial trenching evaluation and DBA undertaken by T&WM were initial **Execution Stages** of the project and can be considered the first two elements of Data Collection of the project.

1.6.2 This WSI reflects the Evaluation Report compiled by T&WM and is a requirement of the Specification provided by the T&WSCT and sets out the research Aims and Objectives of the Data Collection element of the next **Execution Stage** of the project, namely archaeological excavation. In a series of detailed Methods Statements, the WSI describes the techniques and approaches that will be employed to achieve the Aims and Objectives of the project. The aim of the WSI for the excavation is to provide sufficient detail to permit authorisation of the subsequent stages of the project.

## 1.7 Interfaces

1.7.1 The archaeological excavation is required by the T&WSCT at Newcastle City Council as part of the planning process of Newcastle City Council (NCC). The work will be monitored on behalf of NCC by the Tyne and Wear Archaeology Officer, Jennifer Morrison.

1.7.2 The Client and PCA are holding ongoing discussions regarding logistical issues, programme and budget. The Client's CDM Co-ordinator, CK21 Consultants, are liaising with PCA with regard to Health and Safety issues. The Client's Agent and Cost Manager is Turner Townsend.

## 1.8 Communications

1.8.1 Every PCA project has a designated Project Manager and, where fieldwork is required, there will also be a Site Supervisor/Site Director. Other members of the Project Team are identified below. The Project Manager is the person responsible for preparation of the WSI and ensuring that execution and monitoring of project activities follow the general procedures of PCA and are in accordance with the WSI.

1.8.2 PCA's Project Team will communicate internally via scheduled meetings, both office-based and on site during the fieldwork element of the archaeological excavation.

1.8.3 PCA's Project Team will communicate externally the Client, and other Stakeholders (those parties with an active interest in the project) via scheduled meetings, email discussions, telephone conversations and written correspondence, as appropriate.

1.8.4 It is anticipated that a core element of project communication will be regular site visit/progress meetings with the T&WAO. The English Heritage Regional Science Advisor will also be invited to attend pre-scheduled meetings.

1.8.5 Additional site visits/progress meetings will be arranged as required and the T&WAO will be notified immediately should any unexpected important archaeological discoveries be made.

1.8.6 Principal points of contact:

- Live Theatre – Lucy Bird (Director of Development and Enterprise): 0191 269 3498; [lucy.bird@live.org.uk]
- Pre-Construct Archaeology - Robin Taylor-Wilson (Director): 0191 377 1111; [rtaylor-wilson@pre-construct.com]
- Newcastle City Council, Tyne and Wear Specialist Conservation Team – Jennifer Morrison (Tyne and Wear Archaeology Officer): 0191 211 6218; [jennifer.morrison@newcastle.gov.uk]
- CK21 Consultants LLP– John Nielsen : 0191 261 6312; [j.nielsen@ck21.co.uk]
- Turner Townsend– Alice Arciero : 0191 279 7200; [alessandra.arciero@turntownco.uk]

## **1.9 Project Review**

- 1.9.1 In MoRPHE terminology, the project is effectively at 'Review Point R3.1', following the 2000 evaluation, which detailed the findings of that work. The T&WAO has confirmed that the further work is required ahead of the development as a planning requirement and have advised the LPA to the effect that planning approval for the development will include a condition relating to implementation of an agreed Written Scheme of Investigation (WSI) for archaeological work.
- 1.9.2 Excavation fieldwork will be followed by a formal review of the collected data, known as 'Assessment', which is perhaps best regarded (as described in MoRPHE) as a technique to be applied during the Execution Stages of an excavation project, rather than as a separate Execution Stage itself. Since not everything recovered from a site will have the same potential and significance it is by Assessment that those elements that do require further study (an Execution Stage known as 'Analysis') are identified, thus Assessment is perhaps more appropriately known as 'Assessment of potential'.
- 1.9.3 'Review Point R3.2' 'Analysis' will be conducted at the conclusion of the Execution Stages of the project, signalled by circulation of the Assessment Report on the fieldwork elements of the required programme of work. The Assessment Report will describe the findings of all elements of the work. At R3.2 a decision will be made regarding the scope of further work, as appropriate. In any case the project would proceed to Review Point 'R3.3' 'Dissemination', which may require a final report/publication depending on the findings, and will require deposition of the Site and Research Archive.
- 1.9.4 'Review Point R3.4' is Closure, the final stage of the project, at which a decision is made as to whether or not the project has been satisfactorily completed.

## **1.10 Health and Safety**

- 1.10.1 A project specific Health and Safety (H&S) Plan has been compiled - to accompany this WSI – ahead of the excavation. At its core is PCA's H&S Policy, the starting point for managing H&S at all locations where PCA carries out its operations. The H&S Plan should be consulted for full details of all H&S matters, with a summary below and detail of methodologies related to H&S in Section 2.2.3.
- 1.10.2 The project will be 'H&S Executive (HSE) notifiable' due to its anticipated duration (approximately 30 days); CK21 Consultant, as CDM Co-ordinator for the Client, have submitted a form 'F10' to the HSE.
- 1.10.3 The site has been inspected by the PCA Project Manager with a view to establishing all Risks likely to be associated with the work, so that all such hazards can be mitigated prior to staff starting work. A 'Site Inspection Preliminary Risk Assessment' pro-forma was completed on site and 'written-up' as a formal Risk Assessment, as part of the project specific H&S Plan.
- 1.10.4 The PCA Project Manager will discuss all specific H&S issues with PCA staff who will be involved with work on site.
- 1.10.5 Adequate welfare facilities will be provided for PCA staff as part of the contract (for further details see the H&S Plan).
- 1.10.6 In general, with regard to H&S, all PCA staff are required to:
- take care of their own safety and that of any other person on the site or in the vicinity;



- co-operate with the Site Supervisor and the Directors of PCA to allow them to comply with their statutory obligations;
- be mindful of the requirements of the Sponsor/their Agent;
- be careful to minimise the environmental impact of their operations and activities.

## **PART 2: RESOURCES AND PROGRAMMING**

### **2.1 Project Team Structure**

- 2.1.1 The role of Project Manager and Site Director will be fulfilled for PCA by Robin Taylor-Wilson BSc MA MifA. As Project Manager he will have ultimate responsibility for the outcome of the project and will oversee day-to-day operations with responsibility for preparation of the WSI, project planning, identification of Risk, monitoring of costs and timetable and, in essence, ensuring that the project produces the work agreed in the WSI. Robin has nearly 30 years experience of archaeological work, mostly commercial and has worked for PCA since 1995.
- 2.1.2 Various personnel will be added to the Project Team as appropriate. As mentioned Robin Taylor-Wilson would also be the Site Director. As is the case with every project where fieldwork is to be undertaken, PCA will also appoint a Site H&S and Environmental Supervisor, and in this instance this role will be fulfilled by the Site Director.
- 2.1.3 Fieldwork will be undertaken by the Site Director and a field team comprising 6 Archaeologists, with office-based personnel providing support, as appropriate, in areas such as Computer Aided Design (CAD) and surveying. Archaeologists undertaking the recording and excavating of archaeological remains will have previous experience of such work.
- 2.1.4 Appropriate specialists will examine all categories of artefactual and palaeoenvironmental materials recovered during the fieldwork.
- 2.1.5 For PCA, some specialists are in-house, while others would be external specialists, sub-contracted specifically for this project. Likely external specialists are named below:
- Assessment of Roman ceramic material from the site would be undertaken and co-ordinated by Dr James Gerrard, of Newcastle University.
  - Assessment of medieval and post-medieval ceramic material from the site would be undertaken and co-ordinated by Jenny Vaughan, a ceramic specialist based in Newcastle.
  - Archaeological Services Durham University (ASDU) would undertake processing and assessment of bulk and column samples for palaeoenvironmental data. Any specialist scientific dating, for example by radiocarbon and dendrochronology, would also be co-ordinated by ASDU.
  - Archaeological conservation, including on-site conservation advice, would be co-ordinated by Karen Barker, an archaeological conservator based in County Durham.
  - Ancient timber technology, including on-site conservation advice, would be co-ordinated by Steve Allen of York Archaeological Trust.

2.1.6 In-house PCA specialists likely to be involved in this project are named below:

- Assessment of faunal remains – Kevin Rielly.
- Assessment of small finds – Marit Gaimster.
- Assessment of worked stone – Kevin Hayward.

## **2.2 Methods Statement Part A: Excavation Fieldwork**

### **2.2.1 Overall Excavation Methodology**

2.2.1.1 The research Aims and Objectives of the project will be achieved by the undertaking of an archaeological excavation. This work will represent further Data Collection and will form the next Execution Stage of the project. The fieldwork will be undertaken in accordance with *Standard and Guidance for archaeological excavation* (Institute of Field Archaeologists 2008, last updated November 2013). Also of relevance are: *By-Laws – Code of Conduct* (IfA 2010) and *A Regional Statement of Good Practice for Archaeology in the Development Process* (IfA, Yorkshire, the Humber and the North East 2009).

2.2.1.2 The T&WAO will be notified in advance of the start date and provisional programme for the fieldwork.

2.2.1.3 Two excavation trenches (Trenches 1 and 2) will be investigated at the locations shown on the accompanying Figure 1, these being the locations indicated on a plan which accompanied the T&WSCT Specification. It is proposed that the trenches are excavated simultaneously. The excavation trenches will be tied in to the Ordnance Survey National Grid by appropriate surveying means.

2.2.1.4 Both trenches will measure up to 6.80m square at ground level. Overburden, *i.e.* modern and mid to late 19th-century material (which is up to c. 1.20m thick, possibly thicker, as evidenced by the 2000 evaluation), will be removed by machine in both trenches (the T&WSCT Specification requires that *'remains of buildings which are clearly mid to late nineteenth century (later than OS first edition) will be removed without further recording'*). At a depth of 1.20m below ground level (bgl) the trenches will be 'stepped-in' to an inner trench area of 4.40m square and machine excavation will proceed in this area to remove overburden, if any remains, ceasing at the uppermost level of archaeological remains of significance (the T&WSCT Specification requires that *'Eighteenth century and earlier buildings will be fully recorded then removed in order to reach medieval deposits beneath'*). At this point, hand excavation of archaeological remains will commence. At a depth of c. 1.80m bgl (in the stepped-in inner trench) shoring will be installed in the inner trench and hand excavation will continue.

2.2.1.5 Plant and shoring form part of the archaeological project budget. Ground level in the excavation areas will initially be reduced by mechanical excavator, proposed as being a 180° wheeled excavator of c. 8-tonnes size (a 'JCB' or similar back-actor). The machine will use a toothless wide blade 'ditching' bucket to remove overburden or toothed bucket if deposits are compacted. This work will be undertaken under the supervision of PCA's Site Director.

- 2.2.1.6 Shoring will utilise a 'Titan' MH 'bottom' box (or similar) of 2.50m height with additional successive 'top' boxes each of 1.50m height connected above the bottom box as the two excavation trenches progress downwards. All supplementary edge protection barriers, access platforms and closing off end panels will be provided to ensure a safe working environment within the shored trenches. The MH box system measures 4.40m square externally which in turn gives an internal area of 4.20m square. The minimum area to be excavated will be 4.0m square in each trench, as per the Specification; a margin of c. 0.20m wide around this area maybe lost to facilitate downward installation of the shoring. The proposed shoring methodology in theory presents no basal limit to the excavation, with top boxes able to be added indefinitely. The shoring will be installed the full depth of the excavation, which is to be confirmed but in all likelihood will be determined by ground conditions; it is hoped that a depth of at least 5m or more bgl can be achieved.
- 2.2.1.7 A c. 20 tonne 360° tracked excavator will be retained on site during the whole of the time period that the shoring is in place. The machine will gradually push down the bottom boxes as the work progresses providing full support to archaeological personnel working within the boxes. There would be no machine interaction with shoring installation while archaeological personnel were within the working area. The machine will add the necessary 'top' boxes as dictated by ground levels and excavation depth. The machine would be utilised for removal of hand excavated material from the trenches.
- 2.2.1.8 All excavated spoil is to be retained on site, mounded in safe manner. The budget for archaeological work does not include for removal of any excavated material off-site should this be required for any reason. The excavation areas will be backfilled on completion of the archaeological work. The budget for archaeological work does not include for any formal compaction of backfill over and above 'tamping down' with the machine bucket and 'tracking in' by the machine as backfilling progresses.
- 2.2.1.9 There is potential for the lowermost deposit being investigated to lie below the level of ground water. There is however no appropriate facility on site or in the immediate vicinity for large quantities of groundwater to be pumped into. It is possible therefore that water ingress could curtail the archaeological work.

## **2.2.2 Detailed Archaeological Excavation and Recording Methodology**

- 2.2.2.1 Once ground level in the excavation trenches has been reduced to the required depth, machining will cease. This will likely be the level at which stratified post-medieval (probably prior to 19th-century) remains are evident. PCA's Site Director will have responsibility for deciding at what level machining shall cease. Following machine clearance of overburden in each excavation area, the sections and base of the inner trench area will be cleaned by PCA staff using appropriate hand tools.
- 2.2.2.2 All subsequent investigation of archaeological levels will be by hand, with cleaning, examination and recording both in plan and in section. Investigations will follow the normal principles of stratigraphic excavation and will be conducted in accordance with the methodologies set out in *Fieldwork Induction Manual. Operations Manual I* (PCA 2009) and *Archaeological Site Manual, Third Edition* (Museum of London 1994). All archaeological remains will be excavated by hand tools and recorded in plan at 1:20 or in section at 1:10 using standard 'single context recording' methods. Drawings will be on polyester based drawing film, and will be related to an overall site survey grid.
- 2.2.2.3 Deposits and feature cuts will be individually recorded using the PCA pro-forma 'Context Recording Sheet'. Any structural remains will be recorded using the PCA pro-forma 'Masonry Recording Sheet'. All site records will be marked with a unique-number Site Code (TRQ 14).

- 2.2.2.4 Archaeological excavation may require work by 'pick and shovel' or occasionally by further use of the machine. Such techniques will be used only for the removal of homogeneous and 'low grade' layers where it can reasonably be argued that more detailed attention would not produce information of value. They will not be employed on complex stratigraphy, and the deposits to be removed will be fully recorded prior to excavation.
- 2.2.2.5 The height of all principal strata and features will be calculated in metres above Ordnance Datum (m AOD) and indicated on the appropriate plans and sections.
- 2.2.2.7 'Harris Matrix' stratification diagrams will be used to record stratigraphic relationships and these records will be compiled and fully checked during the course of the excavation.
- 2.2.2 A detailed photographic record will be prepared. All photographs will include a legible graduated metric scale. The photographic record will illustrate both in detail and general context archaeological exposures and specific features and structures in all trenches. The photographic record will also include 'working shots' to illustrate more generally the nature of the archaeological operation mounted. The photographic record will be compiled using a digital SLR camera of at least 8 megapixels. Full and detailed photographic record sheets will be compiled, cross-referenced to the colour digital images/prints. For digital photography, the 'RAW plus JPEG' camera setting will be used (with the camera set for the largest image size with least compression to produce the highest quality possible JPEG images). The RAW setting allows all the information that the camera is capable of producing to be saved and images retained using this setting will form a key component of the photographic archive along with the black and white negatives generated by 35mm film. RAW images will be converted to the uncompressed format TIFF before they are burnt onto archival quality CD to form the digital element of the photographic archive. Limited use of an SLR camera with black and white 35mm film is proposed. This would provide negatives from which a set of prints will be generated; the digital element of the archive is the minimum requirement. Thus the photographic element of the Site Archive (for deposition with the appropriate repository) will comprise: a selection of colour prints generated from digital images, colour digital TIFF images on CD, along with any black and white negatives and resulting black and white prints generated.
- 2.2.2.8 All remains will be subject to 100% excavation by hand, as is necessary in urban excavation.

### **2.2.3 Health & Safety and Welfare Methodologies**

- 2.2.3.1 The site-specific H&S Plan should be consulted for full details of H&S matters. PCA will comply with all relevant legislation.
- 2.2.3.2 The HSE does not consider archaeological investigations to fall within the definition of 'construction work' in the *Construction (Design and Management) (CDM) Regulations 2007*. Irrespective of this, however, PCA's Project Manager will request - in advance of the fieldwork - a basic set of information from the Client, who is required, under the *CDM Regulations 2007*, to appoint or provide a CDM Co-ordinator and a Principal Contractor as part of the designated 'pre-construction phase of work'. With this information in hand, the Project Manager will address any specific H&S issues with the PCA's H&S Officers. The project CDM Coordinator, CK21, has notified the HSE of the work using Form F10.

- 2.2.3.3 Prior to the fieldwork, documentary material relating to the site has been reviewed and the site has been physically inspected (9 May 2014) with a view to establishing all Risks associated with it, so that all such hazards can then be mitigated prior to staff starting work. A Site Inspection Preliminary Risk Assessment (SIPRA) was undertaken by the Project Manager and a SIPRA pro-forma completed. As necessary, the Project Manager will liaise with the Company H&S Officers on specific issues or problems. The results of the SIPRA have been 'written-up' as a formal Risk Assessment as part of the project-specific H&S Plan, a copy of which will be added to the 'Project H&S and Environmental File'. Additional Risk Assessments will be completed as required during the project as and when/if new Risks are identified.
- 2.2.3.4 The Project Manager will discuss all specific H&S and environmental issues with the Site Director prior to a start on site. The Site Director will be deemed responsible for the H&S at the site under their control, meaning that they will be responsible for the implementation of safe working practices and the implementation of statutory legislation and PCA's site-specific H&S Plan throughout the duration of site operations. The Site Director will be responsible for site-specific induction talks to all PCA staff, volunteers, site visitors and sub-contractors before they start work or gain access to a site.
- 2.2.3.5 The open western and southern sides of the site will be fenced with 2.0m high galvanised mesh panels with block feet and couplers. The eastern side of the site is delineated with timber fencing, either post and rail (c. 1.30m high) or post-and-rail-and-uprights (c. 1.80m high). Additional Heras fencing will be used to ensure that these parts of the site perimeter are fully secure. The northern site perimeter is defined by a high brick wall (the end wall of building) and brick wall with iron railing
- 2.2.3.6 All PCA personnel will wear PPE equipment at all times when working on site. For each member of staff this will comprise: hard hat, hi-visibility garment, safety boots (steel toe-cap and insole), gloves and eye protection.
- 2.2.3.7 The fieldwork will be up to c. 30 days duration. Appropriate welfare facilities will be hired-in for use by PCA staff. A 'Module 20' unit with diesel generator and integral WC with hot water sink will be used.
- 2.2.3.8 There are no known live services within the site. A plan showing the results of a utility investigation have been provided.
- 2.2.3.9 A ground contamination report for the site is available. The H&S Plan should be consulted for details.
- 2.2.3.10 If, during the course of the work, it is suspected that sub-surface deposits contain hazardous contaminants all archaeological personnel will be required to wear appropriate PPE consisting of coveralls, masks with pre-filter and integral filters, PVC gloves and wellington boots. A decontamination unit with full washing facilities and separate areas for clean and dirty clothes would be required in such an event and additional costs would be incurred to provide such items.

## **2.2.4 Finds and Samples: On-Site Methodology**

- 2.2.4.1 High priority will be given to dating any archaeological remains; therefore all artefacts and finds will be retained. Consideration will also be given to the recovery of specialist samples for scientific analysis, particularly samples for cultural/environmental evidence, structural materials and absolute dating. Different sampling strategies may be employed according to the perceived importance of the strata under investigation.

- 2.2.4.2 Deposits will be assessed for their potential for high resolution radiocarbon and archaeomagnetic dating and, if appropriate, samples will be recovered for these purposes. Full analysis of ceramic assemblages (*i.e.* petrological analysis), including thermoluminescence dating would be applied if the site yields suitable material. Specialist analysis of material recovered for scientific dating would, therefore, be a requirement in post-excavation.
- 2.2.4.3 It may be necessary to seek advice regarding lifting and/or preservation of vulnerable objects or other remains during the work. Specialist on-site advice regarding archaeological conservation will be sought as appropriate. All gold and silver will be removed to a safe place and reported to the local coroner according to the procedures relating to the *Treasure Act 1996*. Where removal cannot be effected on the same working day as the discovery suitable security measures will be taken to protect the finds from theft.
- 2.2.4.4 Human remains are possible, although probably unlikely, at this site. If *in situ* human remains are encountered they would be recorded to an appropriate level by the use of photography and a *pro forma* 'Skeleton Recording Sheet' and including *in situ* examination by a palaeo-pathologist, if required, then exhumed following receipt of the appropriate exhumation licence from the Ministry of Justice. The Ministry has recently reconsidered its approach to burial licenses that it adopted in 2007: exhumation license applications under *The Burial Act 1857* will now be considered wherever human remains are buried in sites to which *The Disused Burial Grounds (Amendment) Act 1981* or other burial ground legislation does not apply.
- 2.2.4.5 The overall aim of the work with respect to archaeological science will be to determine the types of material preserved and in what quantity and condition, thus enabling the aims and objectives of the project as a whole to be addressed. The advice of Jacqui Huntley, English Heritage's Regional Advisor for Archaeological Science (RAAS) will be sought and, if appropriate, arrangements for a site visit will be made in order to determine the importance and sampling requirements for all deposits exposed during the investigation.
- 2.2.4.6 In general, the environmental sampling policy on the site will entail recovery of bulk material from well-dated (although palaeoenvironmental material recovered by sampling can itself provide the only evidence for dating), stratified deposits covering the main periods or phases of occupation. Bulk sampling will focus on enhancing understanding of the structural and occupation remains. Features of particular interest will likely include occupation deposits, floor layers, midden material, refuse, cess pits and drain fills. Information from these deposits will enhance the understanding of living conditions and the past environment.
- 2.2.4.7 Given the riverside location of the site, an aim of the work is to reveal and examine reclamation material deposited on the original foreshore of the Tyne through the recovery of samples of uncontaminated stratified material for assessment and subsequent analysis. Jacqui Huntley, Science Adviser for English Heritage, will advise on the number of and size of samples required and will be invited to visit the site during the collection process. PCA's nominated palaeoenvironmental specialist will provide on-site advice on the methodology of sample taking as required. The thickness of reclamation deposits will be recorded as well as the nature of the underlying foreshore where it is possible to continue to the depth of that horizon depth safely.
- 2.2.4.8 Sample size will take into account the frequency with which material is likely to occur. In general, however, samples will be of the order of 30-40 litres where sufficient material is available, although with the expectation that smaller quantities (*c.* 5-10 litres) will be processed and assessed.

- 2.2.4.9 Assessment of sufficient samples will be undertaken to cover the range of feature types and dates represented. The samples to be processed and assessed may be a sub-set of a larger number of samples actually recovered during the fieldwork.

## **2.3 Methods Statement Part B: Post-Fieldwork**

### **2.3.1 The Basis of Assessment**

- 2.3.1.1 Since not everything recovered from the site will have the same potential and significance, the process of Assessment is undertaken in order that those elements that require further study can be identified. It is important that Assessment establishes the full potential of the properly integrated data, that is, the stratigraphic record must be considered in tandem with the artefactual and environmental evidence. For this reason, Assessment is more properly called Assessment of potential.

### **2.3.2 Finds and Samples: Off-Site Methodology**

- 2.3.2.1 Specialists will examine all levels of finds (e.g. organic, ceramic, metallic) recovered during the fieldwork. All finds will be treated in a proper manner and will be exposed, lifted, cleaned, conserved, marked, bagged and boxed in accordance with the guidelines set out in *First Aid for Finds Third Edition, Revised* (Watkinson and Neal 2001), *Conservation Guidelines No. 2. Packaging and storage of freshly excavated artefacts from archaeological sites* (United Kingdom Institute for Conservation (UKIC) Archaeology Section 1983) and *Standard and guidance for the collection, documentation, conservation and research of archaeological materials* (IfA 2008, last updated 2013). PCA will arrange for the long term deposition of all items retained. A catalogue of finds and a record of discard policies will be lodged with the finds for ease of curation.
- 2.3.2.2 Any animal bone assemblages would be assessed by a recognised specialist.
- 2.3.2.3 Industrial slag and metal working debris will be assessed by a specialist.
- 2.3.2.4 All iron objects recovered would be subject to x-radiography (after initial screening to exclude recent debris) and a selection of non-ferrous artefacts (including all coins). *Guidelines on the x-radiography of archaeological metalwork* (English Heritage 2006) would be followed. All items will be assessed by a specialist. Some corroded metal artefacts may need remedial stabilisation work.
- 2.3.2.5 Worked timbers will be assessed for species identification, methods of working, etc.
- 2.3.2.6 Preliminary conservation and stabilisation of all objects will be undertaken as soon as possible during or upon completion of the fieldwork. Vulnerable materials that require immediate specialist archaeological conservation will be transported to appropriate facilities without delay. There will be an assessment of long-term conservation and storage needs of all excavated material.
- 2.3.3 Waterlogged organic materials are possible at this site. They would be dealt according to guidelines set out in the English Heritage documents *Guidelines for the care of waterlogged archaeological leather* (1995) and *Waterlogged Wood. Guidelines on the recording, sampling, conservation and curation of waterlogged wood, 3rd edition* (2010).
- 2.3.3.1 All processing of artefacts and ecofacts will be undertaken away from the site. Assessment of will be undertaken by suitably qualified personnel. For each category of artefact and ecofact an assessment report will be produced that will include a basic quantification of the material, a statement of its potential for further analysis and recommendations for such work.

2.3.3.2 Techniques of laboratory processing for material recovered through sampling are likely to vary depending upon the nature of the deposit. There would be assessment in respect of:

- the approximate proportions and types of mineral and organic components, including comments relating to presence/absence of industrial spatter and hammerscale or other technological material;
- the nature of biological remains;
- qualitative estimates of the amounts of each type of remains and their states of preservation;
- a broad indication of habitats represented;
- indications of origin of material;
- research questions that should be formulated if full analysis of any material is recommended;
- recommendations for additional sampling, specifically in the event that any further excavation is undertaken.

2.3.2.14 PCA's nominated specialist(s), as necessary, shall undertake a programme of pottery dating and analysis.

### **2.3.3 Site Archive**

2.3.3.1 PCA's Site Archive will be compiled through Data Collection during the excavation. In preparing the Site Archive for ultimate deposition, all relevant standards and guidelines documents referenced in the Archaeological Archives Forum guidelines document *Archaeological Archives. A guide to best practice in creation, compilation transfer and curation* (Brown 2007) would be adhered to, in particular *Standard and guidance for the creation, compilation, transfer and deposition of archaeological archives* (IfA 2009, updated 2013) and *Guidelines for the preparation of excavation archives for long-term storage* (Walker, UKIC 1990).

2.3.3.2 The Site Archive will include all materials recovered (or a comprehensive records of such materials) and all written, drawn, and photographic records generated by the Data Collection Stage of the project. In line with *MoRPHE. PPN3: Archaeological Excavation. Appendix 1* the Site Archive will be quantified, ordered, indexed, and internally consistent before transfer to the recipient museum. It will also contain a site matrix, a site summary and brief written observations on the artefactual and environmental data.

2.3.3.3 Prior to the Closure Stage of the project, the Site Archive (which by then may comprise an integrated Site and Research Archive) will be deposited with the Great North Museum. The Site Archive will be organised as to be compatible with the other archaeological archives produced in Tyne and Wear. Copyright of the written component of the Site Archive will be vested in the Great North Museum. An accession number for the Site Archive will be assigned at the time of deposition.

2.3.3.4 The landowner is urged to donate all finds to the Great North Museum as part of the Site Archive. Appropriate guidance set out in *Standard and guidance for the creation, compilation, transfer and deposition of archaeological archives* (IfA 2009, updated 2013); *Standards in the museum care of archaeological collections* (Museum and Galleries Commission 1992) and *Selection, retention and dispersal of archaeological collections* (Society of Museum Archaeologists 1993) will be followed in all circumstances.



2.3.3.5 The Site Archive will be presented to the archive officer or relevant curator at the Great North Museum within 6 months of the completion of the excavation (unless alternative arrangements have been agreed in writing with the T&WAO).

#### **2.3.4 Assessment Report**

2.3.1 The results of the archaeological excavation will be disseminated in the form of a written and illustrated Assessment Report, to be compiled following completion of the fieldwork. .

2.3.4.1 The Assessment Report will include:

- an introductory section setting out the general background to the project, details of the planning history, a summary of the site geology and topography, and the archaeological and historical background of the site;
- a section outlining the Aims and Objectives of the project;
- a section detailing the methods adopted during the fieldwork;
- a section describing the archaeological findings, including the nature, extent, date, condition and significance of the archaeological remains;
- illustrative material including maps, plans, sections, drawings, photographs, as necessary;
- as an appendix, a list of archaeological contexts, with summary descriptions of each;
- as one or more appendices, as necessary, specialist assessments of human remains, grave related artefacts and any other artefacts and palaeoenvironmental remains.

2.3.4.2 The report will include a location plan of the site, tied into the Ordnance Survey National Grid and at an appropriate scale. The report would also include a plan at an appropriate scale showing the location of the excavation area within the overall site.

2.3.4.3 The report will include a statement regarding the location of the Site Archive at the time of writing, and the intended depository of the Site Archive and, if applicable, Research Archive.

2.3.4.4 The T&WSCCT of Newcastle City Council supports the 'Online Access to the Index of archaeological investigations' (OASIS) project. Therefore, during compilation of the Assessment Report, the existing project OASIS entry would be updated and the reference number will be included in the introductory section of the report.

2.3.4.5 Copies of the Assessment Report will be sent to all project Stakeholders. The Tyne and Wear Historic Environment Record (HER) requires a copy in electronic (pdf) format on CD, in addition to hardcopy.

2.3.4.6 The T&WAO will be required to approve the Assessment Report in writing, before it can be considered that the Assessment Stage of the project has been completed to the satisfaction of the LPA.

#### **2.4 Stages, Products and Tasks**

2.4.1 Project Review Points have been described in detail in Section 1.9, above. Table 1 shows the stages and products for the project to date and predicted stages and products through to Review Point 'R3.2'. Updated Project Designs (subsequent to this document) will contain precise details of additional project stages through to Closure, again as described in Section 1.9.

2.4.2 Confirmation in writing will be required from the T&WAO that each of the main Execution Stages of the project, namely Data Collection (the excavation fieldwork), Assessment of potential, Analysis and Dissemination, has been completed to the satisfaction of the LPA.

## **2.5 Ownership of Archaeological Finds and Reburial of Human Remains**

2.5.1 The finds (*i.e.* the artefactual and palaeoenvironmental material) recovered by archaeological fieldwork contribute data of immeasurable academic worth towards the Site and Research Archive, but the bulk of the material is of little or no financial value. The legal owner of the site – that is usually the landowner - and consequently the owner of any material that is recovered during the course of archaeological work is usually urged to donate all finds to the appropriate repository of the Site and Research Archive.

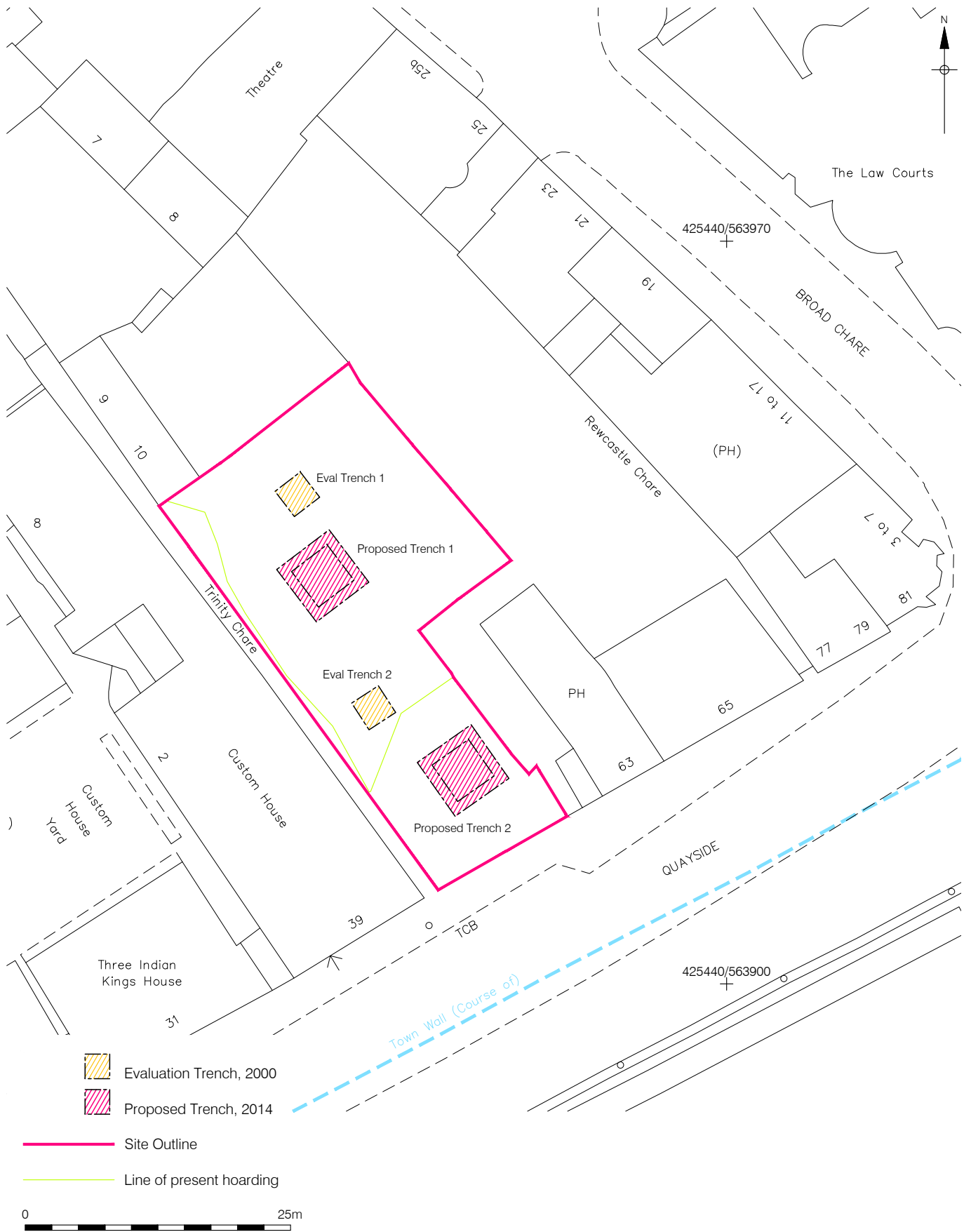
2.5.3 PCA is committed to respecting the intellectual property rights of its staff and others.

## **2.6 Budget**

2.6.1 The Client has been provided with a detailed fee proposal for the archaeological excavation and the subsequent Assessment of potential.

Table 1. Project Stages

Stage	Research Products	Archive Products	Dissemination Products
<b>Previous Execution Stages 1 and 2</b> Trenching Evaluation (2000)	T&WM Evaluation Report	Site Archive & Evaluation Report	Evaluation Report
Desk-Based Assessment (2004)	T&WM DBA Report	DBA Report	DBA Report
<p><b>Review Point R3.1: Does evaluation justify further fieldwork?</b>  <i>T&amp;WAO has confirmed that further work, namely further excavation, is required. Archaeological remains of significance were recorded in both evaluation trenches. Two additional excavation trenches are required to investigate two areas measuring 4m x 4m square into the full stratified sequence. The T&amp;WSCT Specification set out in detail the required programme of works and its aims and objectives.</i></p>			
<b>Start-up</b>			
PCA award of contract by Live Theatre (the Client). Pre-start meeting with Client 29 April 2014. Pre-start meeting with CDM Co-ordinator 9 May 2014	N/A	N/A	N/A
<b>Initiation</b>	Draft WSI	Project Management Archive created	Communications with Stakeholders: the Client; the T&WAO; CDM Co-ordinator (CK21) T&WAO notified of fieldwork programme and start date.
<b>Execution Stage 3:</b> Data Collection through excavation: June-July 2014	Approved WSI for archaeological excavation	Site Archive	OASIS entry
Assessment of potential	Assessment Report		Report drafted Dissemination plan drafted
<p><b>Review Point R3.2: Is the Site Archive complete? Does assessment merit full analysis of some or all of the Site Archive? Can the project proceed to the Dissemination Stage at this Review Point?</b></p>			



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Figure 1  
 Proposed Trench Location  
 1:500 at A4

# PCA

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