

**THE MIDDLE DRAWBRIDGE,
TOWER OF LONDON**

**AN ARCHAEOLOGICAL
WATCHING BRIEF**

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SITE CODE: ToL125

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PRE-CONSTRUCT ARCHAEOLOGY

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THE MIDDLE DRAWBRIDGE, TOWER OF LONDON
AN ARCHAEOLOGICAL WATCHING BRIEF

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1 ABSTRACT

- 1.1 This report details the results of an archaeological watching brief conducted by Pre-Construct Archaeology Limited at the Tower of London, undertaken discontinuously between 8th November 2013 and 7th January 2014. It also reassesses some of the data which resulted from an initial site investigation by PCA in 2012.
- 1.2 The work was commissioned by Historic Royal Palaces and comprised the monitoring of the excavation of two test pits to the east of the Middle Drawbridge, a foundation trench under the Middle Drawbridge and a series of duct trenches across the gate within the Outer Wall at the north of the Middle Drawbridge.
- 1.3 The Middle Drawbridge Project is designed to enable the replacement of the Middle Drawbridge at the Tower of London, and re-establish a working drawbridge in its place.
- 1.4 Six archaeological phases were identified. The first, dating to the early post-medieval period, relates to a cobbled surface and associated bedding layer which may relate to the early post-medieval development of the Tower between the Outer and Inner Walls around the Wakefield and Lanthorn Towers. Phase 2 was represented by demolition and make-up layers which could be the result of clearance of the post-medieval development and landscaping of this area in the 19th century. Phase 3, early 19th century in date, was associated with natural sedimentation and the dumping of material into the moat, prior of the construction of the first bridge in 1834. That phase of construction, Phase 4, was evidenced by a brick footing for the first bridge.
- 1.5 Phase 5 may be attributable to the draining of the moat in 1843 and its subsequent landscaping, whilst Phase 6 relates to later usage of the area further to its continued resurfacing and landscaping in the 19th and 20th Centuries.
- 1.6 Natural deposits were not encountered in any intervention.
- 1.7 The archive from the site work, comprising written, drawn, photographic and artefactual evidence all identified with site code ToL125, will eventually be transferred to Historic Royal Palaces for long-term curation and storage.
- 1.8 The results of the archaeological investigation will be published as an entry in the London Archaeologist 'Round Up'.

2 INTRODUCTION

- 2.1 An archaeological investigation and watching brief was conducted by Pre-Construct Archaeology Ltd at the Tower of London, London Borough of Tower Hamlets in advance of and during a project to rebuild the Middle Drawbridge Project. A first phase of fieldwork in 2012 comprised the investigation of three test-pits on the western side of the existing bridge to inform upon ground conditions and foundations (Mayo, 2012). The recent phase of work, Phase 2, during the construction of the bridge, monitored the excavation of two further test pits on the eastern side of the drawbridge and ground reduction for a foundation trench, together with the monitoring of a new duct trench just inside and to the north of the Outer Wall. This report contains the findings from Phase 2 and should be read in conjunction with the previous PCA report, although the specialist appendices herein supersede those in the previous report.
- 2.2 Part of the new scheme included a limited number of localised piles within the moat to support the new bridge. Due to their small footprint and limited number these pile constructions required no mitigation, with the agreement of English Heritage (pers comm J. Spooner, HRP, 19/12/13)
- 2.3 The works were conducted in accordance with a 'Brief' prepared by Jane Spooner, Curator of the Tower of London for Historic Royal Palaces (Spooner, 2012b). The principle objectives of the work, as outlined in that document, were to consider:
- Possible traces of previous foundations, truncated walls, early paving and earlier features, *in situ* or visible within the trenches or excavated foundation test pits
 - The remains of pottery and other finds deposited in the trenches.
- 2.4 The central National Grid Reference of the work area was TQ 3357 8048. The works were carried out on 8th November, 12th November, 19th-20th November 2013 and 7th January 2014 with the watching brief being supervised by Alexis Haslam and Paw Jorgenson.
- 2.5 The Tower of London is a World Heritage Site and a Scheduled Ancient Monument (Greater London No. 10). Scheduled Monument Consent for the investigative work was obtained by Historic Royal Palaces.
- 2.6 The site was given the unique site code ToL125 by the curator of the Tower of London and all site archive material was labelled with this code. The completed archive comprising written and photographic records from the watching brief will be deposited at the Historic Royal Palaces store at the Tower of London.

3 PROJECT BACKGROUND

3.1 Geology

- 3.1.1 The Tower of London and surrounding land are located on bedrock geological deposits of London Clay. The bedrock is overlain by a complex superficial sequence, the deposition of which created a natural island of Taplow Gravel suitable for the defensive structure which was later built upon it (British Geological Survey online, accessed April 2014).

3.2 Site Location and Topography

- 3.2.1 The site comprises the Middle Drawbridge at the Tower of London, which connects the Wharf to the south to the doorway through the Outer Wall, across the moat or ditch. Archaeological works were located beneath and adjacent to the drawbridge within the moat and also within the Outer Wall and its doorway (Figure 2).

- 3.2.2 A topographic survey of the site provided by HRP (drawing number TOL/ENV/044/96, dated May 1996) shows approximate ground level spot heights of c4.8m OD upon the Wharf to the south and within the doorway through the Outer Wall to the north, and c1.9m OD beneath the bridge within the moat. These levels are calculated from various OSBMs within the Tower of London.

3.3 Archaeological and Historical Background: General

- 3.3.1 During the Early Middle Roman Period (c. 200 AD) *Londinium* was protected by a defensive wall with the site of the future Tower of London lying within the southeast corner of the Roman city defences (Parnell, 1993, p13-16).
- 3.3.2 With the arrival of the Normans, William The Conqueror (1066-1087) consolidated his authority over Saxon London by establishing a motte and bailey castle utilising the surviving Roman city walls to the south and east and adding defensive ditches to the north and west. During the last decade of William's rule, the building that was to form the core of the Tower of London, the White Tower, was constructed, (Parnell. 1993, p17-22).
- 3.3.3 The first significant expansion of the defences of the Tower dates to the end of the 12th century in the reign of Richard I (1157-1199). During this period the fortifications extended west to encompass the positions later occupied by the Bell and Beauchamp Towers (12th and 13th centuries respectively).
- 3.3.4 During the reign of Henry III, the Tower of London underwent extensive alterations and expansions (Parnell. 1993, p322).
- 3.3.5 In the Post Medieval period, specifically the late 17th century, The Tower began to be used as an armoury and, as a result, underwent numerous alterations to adapt it from its medieval form. By the 19th century, as architectural trends reverted back towards those of the medieval period, many of the Post Medieval constructions were removed in order to reinstate the earlier vistas.
- 3.3.6 The Tower suffered damage during World War II which necessitated its restoration. It is currently one of the most popular tourist attractions in the country.

3.4 Archaeological and Historical Background: Site Specific

3.4.1 The Brief prepared by the Curator to the Tower of London for the archaeological work (Spooner, 2012b) included the following statement regarding the Middle Drawbridge:

- *The Middle Drawbridge entry was created in 1834 to allow munitions to be brought into the basement of the White Tower from the wharf, along a buried tramway (Parnell, 2009, p53). A plan and section drawing of 1834 of the ammunition tunnel and the route of the tram rails demonstrates the original drawbridge design. The bridge spans the moat supported by a single large column, with a raising drawbridge, or platform, at its northern end. It had crossed timber balustrades protecting the sides of the immovable portion of the bridge. A historic photograph from the 1880's demonstrates that the balustrades of the Middle Drawbridge were of the same design as those built later on the Eastern Drawbridge, which was re-built after 1856. The three arched brick supports for the Eastern Drawbridge differ from the single stone pier supporting the original middle bridge. The battlement high gateway was rebuilt in the 1870's by surveyor John Taylor, who also crenellated most of the Tower curtain walls. The dressing of the gateway appears to be in Portland stone, which differs from the stone used elsewhere in the outer curtain wall for crenellation copings and quoins.*
- *The present bridge was finally built in 1915, to a design in an undated Ministry of Works proposal drawing (Historic Royal Palaces Plan Archive drawing: TOL 1932). This drawing shows that this early twentieth century bridge was also originally a rising drawbridge, and the 19th century counterweight pits it used still survived underneath, recessed in the outer curtain wall. In 1978 the rising drawbridge element was again found troublesome, removed and a permanently fixed series of joints and planking was installed, as well as extended handrails to match the 1915 work. Pre-cast and pre-stressed concrete bridge beams were installed in 1978 to remove the structural loading from the timber elements of the bridge (PSA drawing XB1/1 dated June 1977repr. in Philipou and Dixon, 1986, Summary). In 1986, the timber arches, trestles, beams and parapets of the bridge were recommended for preservative treatment, which was presumably carried out (Philipou and Dixon, 1986, Summary). All timber used in the construction of the bridge is of oak, which is painted black. The present Middle Drawbridge was constructed long after the Duke of Wellington had drained the moat in 1843. The current moat surface is post 1843 backfill.*
- *Between 1995-7, Oxford Archaeology excavated selected locations in Tower Moat, which included the bases of the revetment walls, and the foundations of the Middle Drawbridge. Two pits (t43 and t\$\$) were dug in 1996 against the east side of the Middle Drawbridge to look at its foundations. Trench 43 was dug directly to the east of the current bridge's stone pier...A concrete base approximately 1m deep was observed, which extended c. 0.0.3m east from the stone pier. Trench 44 was dug to the south east, adjacent to a timber pier of the current bridge...and the brick and*

mortar foundation for the previous bridge on the site was observed, beneath the concrete foundation for the current bridge.

3.4.2 The investigation by PCA in 2012 on the western side of the drawbridge (Mayo, 2012) recorded the following findings within Test Pits 1, 2a, 3a and 4 (Figure 2):

- The earliest deposits identified were made ground / levelling material which dates from the 19th century, which was below a brick-built foundation considered to relate to the 1834-build of the drawbridge. Further made ground levelling material sealed the foundation.
- Next in the sequence were three mass concrete foundations for the masonry and timber piers of the current Middle Drawbridge, which was built in 1915. These were found beneath further made ground and topsoil horizons.
- In all interventions the groundworks did not extend deep enough to threaten any significant archaeological deposits or features. All masonry remains were recorded and left in situ. Natural strata was not observed in any test pit.

3.4.3 This report reassesses the finds assessments for the previous investigation beneath the Middle Drawbridge by PCA, and the date presented here within Appendices 4-7 supersedes the previous report.

4 METHODOLOGY

- 4.1 During the fieldwork the following interventions, required for the implementation of the new scheme, were monitored:

Trench	Location	Dims at GL	Max depth	Surface height	Purpose
Test Pit 5	East of Drawbridge	1.16m x 0.60m	1.08m	1.86m OD	To expose foundations of the existing bridge.
Test Pit 6	East of Drawbridge	1.25m x 0.75m	1.33m	2.06m OD	To expose foundations of the existing bridge.
Foundation Trench	Beneath Drawbridge	6.18m x 5.63m	0.60m	c1.84m OD	To allow the creation of a new surface below the bridge.
Duct Trench	Within Outer Wall and doorway	10.91m x 2.65m	0.62m	c4.74m OD	To divert services which previously traversed the old bridge.

- 4.2 The Duct Trench also included a very small intervention within the staff accommodation adjacent to the Outer Wall opening, excavated to a depth of only 80mm to ascertain whether a cable could be inserted but abandoned upon discovery of a modern surface which prevented further excavation.
- 4.3 Part of the new scheme included a limited number of localised piles within the moat to support the new bridge. Due to their small footprint and limited number these pile constructions required no mitigation, with the agreement of English Heritage (pers comm J. Spooner, HRP, 19/12/13).
- 4.4 Figure 2 shows the trench locations. All trenches were broken out and excavated by HRP's groundworks contractor using hand tools, under the close supervision of an attending archaeologist.
- 4.5 Following all excavations the relevant faces of each intervention were cleaned using appropriate hand tools and were recorded in plan at a scale of 1:20 and in section at a scale of 1:10. Descriptions of all deposits and features were recorded on pro-forma sheets with photographs being taken as appropriate.
- 4.6 The trenches were located by measuring to fixed points which could be correlated to the topographic survey plan covering the area (drawing number TOL/ENV/044/96, dated May 1996). This plan was also used to provide spot heights for the archaeological records.

5 ARCHAEOLOGICAL PHASE DISCUSSION

5.1 Phase 1: Early Post-Medieval

- 5.1.1 The earliest deposits encountered during this watching brief were seen exclusively in the Duct Trench just within the Tower precinct and relate to a cobbled surface which was sealed by deposits considered to be 16th to 18th century in date, and therefore the surface is considered to either pre-date or be contemporary with this period.
- 5.1.2 The surface comprised an undated bedding layer [24] of soft, dark black clay with patches of yellow brown clay, with frequent inclusions of flecks and fragments of charcoal. It was seen throughout the western end of the Duct Trench, therefore exceeding 0.90m north south and 2.52m east-west, and was seen at a height of 4.08m AOD. The layer was encountered at the base of the trench in areas where the overlying surface (which was left in situ) had been disturbed and was missing, and hence its thickness is not known.

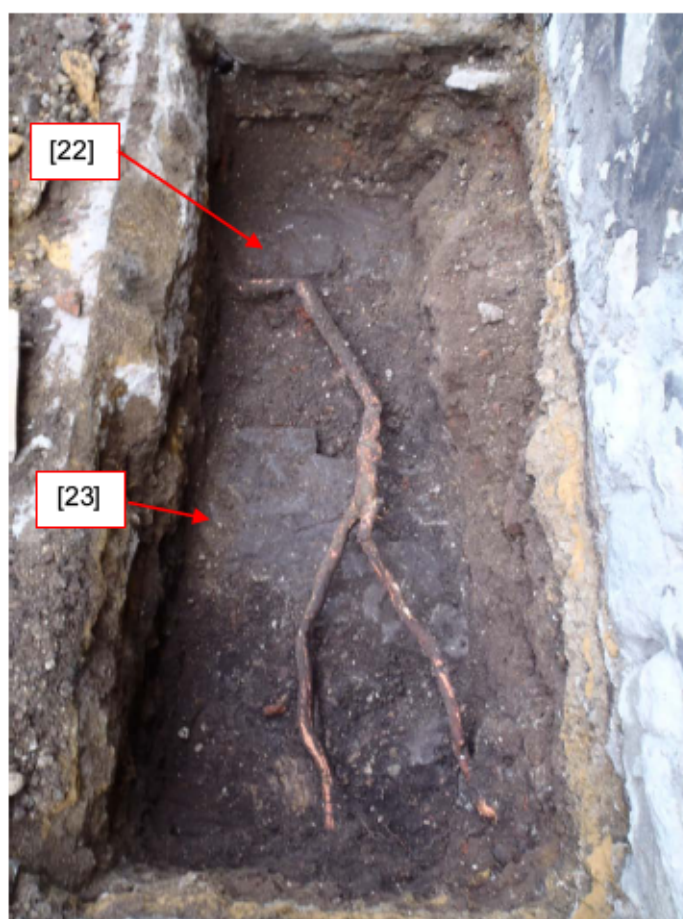


Plate 1: cobbled surface [22] and [23] in Duct Trench, viewed east

- 5.1.3 Laid directly on to bedding [24] was a cobbled surface (contexts [22], [23] and [37]) comprising a combination of grey sub-rounded and sub-angular pebbles, each extremely irregular in shape and with varying dimensions up to approximately 150mm by 100mm. The entire surface as formed by the combination of contexts [22], [23] and [37] measured at least

0.90m north-south by 3.90m east-west, where it continued beyond the trench in each direction. It was recorded at heights of between 4.13m and 4.20m AOD.

- 5.1.4 The cobbled surface is considered to be a relic of the early post-medieval arrangement of this area of the Tower, the landscape of which was 'transformed by demolition of post-medieval buildings and new landscaping by [the] time of 1896 OS edition' (Keevill 2006, figure on page 11). According to Keevill, *'Post-medieval structures in Water Lane associated with the Ordnance Office in the inmost Ward can be seen between the Wakefield and Lanthorn Towers in late 17th and 18th century plans. ... The Lanthorn Tower seems to have been engulfed by Ordnance buildings by this time with a range running fully across Water Lane...'* (Keevill 2006, 36; Figure 1). It is therefore entirely possible that this surface formed an external yard to post-medieval structures associated with the Ordnance Office.

5.2 Phase 2: 16th – 19th Century

- 5.2.1 The cobbled surface was sealed by a layer [21] of soft dark grey-brown clayey silty sand with occasional inclusions of flecks of charcoal and fragments of red brick, oyster shell and animal bone. It had dimensions of at least 0.90m north-south by 2.52m east-west, with a thickness of 0.19m; the layer was seen at a height of 4.40m AOD. Two pottery sherds were collected from this layer and have been dated to between 1550 and 1650 (Appendix 6). This layer was recorded as being a possible demolition horizon (Section 8, Figure 4).



Plate 2: View West of Section 8 in Duct Trench

- 5.2.2 Layer [20] sealed [21] and was either a demolition or make up deposit. It comprised of soft/loose brownish grey silty sand with occasional inclusions of flecks and fragments of mortar, charcoal and red brick. It had dimensions of at least 0.90m north-south by 2.52m

east-west, was 0.22m thick and was seen at a height of 4.55m AOD. Pottery from this layer is considered to date the deposit from the late 17th-18th century (Appendix 6; Section 8, Figure 4).

- 5.2.3 These deposits could actually be the result of clearance and landscaping of this area in the 19th century rather than specifically dating to the periods suggested by the artefacts found within; however with the absence of any later material this hypothesis cannot be proven.

5.3 Phase 3: Early 19th Century

- 5.3.1 Test Pits 5 and 6 were excavated to the east of the drawbridge within the moat to investigate the footings of the structure. The earliest deposits encountered were layers [29] in Test Pit 5 and [36] in Test Pit 6, which should be regarded as the same; they comprised of coarse orange yellow gravel with dimensions of in excess of 1.00m by 0.60m in Test Pit 5 and 0.50m by 0.33m in Test Pit 6. Layer [36] was at least 0.26m thick to the limit of excavation. No datable material was found within either deposit (Figure 4).
- 5.3.2 Layers [29] and [36] were sealed by layers [28] and [35] respectively, which can also be regarded as the same. They comprised of coarse, black-brown, sandy gravel with dimensions in plan identical to those above and a thickness of between 0.08m and 0.20m. Layer [28] was seen at a height of 0.90m AOD and layer [36] at a height of 1.17m AOD. No datable material was found within either deposit (Figure 4).
- 5.3.3 The above were sealed by deposits of clay, [27] in Test Pit 5 and [34] in Test Pit 6 which, once again, should be regarded as the same. They comprised of stiff, light yellow-brown clay with occasional inclusions of large cobbles and brick fragments and frequent charcoal fragments. The dimensions of layer [27] were at least 1.00m by 0.35m by 0.35m thick whilst [34] measured 0.60m by 0.33m by 0.12m thick. These layers were seen at heights of between 1.23m AOD and 1.29m AOD. Recovered within layer [27] was clay tobacco pipe dated from 1700-1740 and pottery dated from 1805-1900 (Appendices 5-6).
- 5.3.4 These deposits were cut by later activity associated with the construction of the first Middle Drawbridge in 1834, and therefore they must date from before 1834. They are perhaps deposits which accumulated within the moat by natural sedimentation (applicable to [28], [29], [35] and [36]) which was known to be a manifest problem, leading to the draining of the entirety from 1843 (Spooner 2012a, 1-2). The uppermost layer encountered, [27] and [34], contained proportions of material such as CBM which discounts them from being natural accumulations; rather they are suggestive of dumping within the moat.

5.4 Phase 4: 1834 Bridge

- 5.4.1 A brick footing found in Test Pit 6 was considered to be associated with the 1834 drawbridge, the first one constructed for the newly made opening into the Tower (Spooner 2012a, 1). The footing was contained within construction cut [32], which had vertical sides and was visible for at least 0.34m in a north-south direction and at least 0.07m in an east-west direction; it was at least 0.57m deep, continuing below the base of the trench, and was recorded at an upper height of 1.29m AOD. Constructed into this was a brick footing [30]

comprising of red brick (it could not be discerned if the bricks were frogged) with a brick size of 120mm (length) x unknown width x 70mm (depth), bonded with hard cement. Although much of the brick footing extended beyond the limit of excavation it was visible in section for 0.32m north-south, was at least 0.58m high and was seen at a height of 0.83m AOD. Cut [32] was backfilled by [31] which comprised of loose, grey-brown silty clay with occasional inclusions of brick and flint fragments and occasional rounded and sub angular pebbles.

- 5.4.2 The brick footing undoubtedly relates to the 1834 drawbridge and therefore is contemporary with brick footing [12] which was exposed on the western side of the bridge (see Mayo 2012). The brick footing was covered in concrete which formed part of the footing for the extant drawbridge, constructed in 1915.



Plate 3: View north-west within Test Pit 6 showing brick footing [30] beneath footing of the extant 1915 bridge.

5.5 Phase 5: 1843 and Later Levelling

- 5.5.1 Layers [26] in Test Pit 5 and [33] in Test Pit 6 are regarded as the same. They comprised of soft, dark yellow-brown silty clay with dimensions of at least 1.00m by 0.60m by 0.10m thick in Test Pit 5 and 1.36m by 0.30m by 0.30m thick in Test Pit 6. This layer was seen at heights of between 1.58m and 1.31m AOD. Clay tobacco pipe (CTP) recovered from [26] is dated from 1820-1860, whilst ceramic building material (CBM) is dated from 1830-1900, therefore the layers can be confidently dated to the mid 19th century. It is considered that these may be attributable to the draining of the moat in 1843 and its subsequent landscaping, often with material inclusive of building rubble (Keevill 2004, 213).

5.6 Phase 6: 19th – 20th Centuries

- 5.6.1 In the Duct Trench was found a mortar bedding layer [19] comprising of firm, mid white-grey mortar with dimensions of at least 0.90m by 2.52m and a thickness of 0.10m, recorded at a height of 4.64m AOD. This bedding layer was not associated with the paving slabs above and therefore pre-dates the current surface; its precise date however is unknown.
- 5.6.2 Also seen within the Duct Trench was a large granite block [25] measuring at least 0.32m by 0.12m, with a thickness of 0.30m and seen at a height of 4.56m AOD. This granite block had a metal (lead?) fitting attached to it which had subsequently been covered by concrete during the instillation of a modern manhole to the south-west. It had apparently been truncated in antiquity for the exposed face (below) was a cut one, yet the metal had bent over this face.
- 5.6.3 The block is almost certainly Victorian/20th century, when there was huge upsurge in the use of granite in this part of London – particularly the setts which line up by their thousand along the cobbles facing the river and in their construction of the nearby 1890s Tower Bridge . Obviously only mechanised tools would be able to shape a large bevelled edged granite block. It is possible that the block could be discarded material from the Bridge or Tower as sort of structural fitting, which necessitated the exposed socket (Kevin Hayward, PCA, pers comm 29/05/14). Alternatively it is suggested that the block could have originated from a plinth or perhaps it was a piece of coping (Fiona Keith-Lucas, HRP, pers comm 13/05/14).



Plate 4: View west of granite block with metal fitting.

- 5.6.4 In the Foundation Trench was observed layer [38] with dimensions of at least 1.20m north-

south by 1.30m east-west and was excavated to a depth of between 0.30m and 0.60m below ground level. The layer comprised of friable, dark grey-brown sandy silt with occasional inclusions of small round pebbles. This layer is considered to be levelling material, probably deposited beneath the base of the current 1915 bridge to finish the ground surface, and is equivalent to layer [6] recorded during the previous site investigation by PCA in 2012.

6 INTERPRETATIONS AND CONCLUSIONS

- 6.1 The principle objectives of the Watching Brief as stipulated in the brief (Spooner, 2012b) were to consider:
- Possible traces of previous foundations, truncated walls, early paving and earlier features, in situ or visible within the trenches or excavated foundation test pits
 - The remains of pottery and other finds deposited in the trenches.
- 6.2 The archaeological findings during this phase of fieldwork reported here have been discussed in Section 5 and can be summarised thus:
- 6.3 Phase 1: Early Post-Medieval: This phase relates to a cobbled surface (assumed to have been external) and associated bedding layer which may relate to the early post-medieval development of the Tower between the Outer and Inner Walls around the Wakefield and Lanthorn Towers. These buildings were particularly associated with the Ordnance Office.
- 6.4 Phase 2: 16th – 19th Century: Although only hypothetical, this phase – represented by demolition and make-up layers – could be the result of clearance of the post-medieval development and landscaping of this area in the 19th century.
- 6.5 Phase 3: Early 19th Century: This phase is associated with firstly natural sedimentation within the moat and secondly with possible dumping of material into the moat, prior of the construction of the first bridge in 1834.
- 6.6 Phase 4: 1834 Bridge: The brick footing found in Test Pit 6 relates to the 1834 drawbridge and therefore is contemporary with brick footing [12] which was exposed on the western side of the bridge (see Mayo 2012).
- 6.7 Phase 5: 1843 and Later Levelling: Layers in Test Pits 5 and 6 may be attributable to the draining of the moat in 1843 and its subsequent landscaping.
- 6.8 Phase 6: 19th – 20th Centuries: This phase relates to later usage of the area further to its continued resurfacing and landscaping.
- 6.9 Natural deposits were not encountered in any intervention.
- 6.10 The archive from the site work, comprising written, drawn, photographic and artefactual evidence all identified with site code ToL125, will eventually be transferred to Historic Royal Palaces for long-term curation and storage.
- 6.11 The results of the archaeological investigation will be published as an entry in the London Archaeologist 'Round Up'.

7 ACKNOWLEDGEMENTS

- 7.1 Pre-Construct Archaeology would like to thank Alexandra Attelsey, Conservation Building Surveyor for Historic Royal Palaces at the Tower of London, for commissioning this project. We also thank Jane Spooner and Fiona Keith Lucas, both of Historic Royal Palaces for monitoring it.
- 7.2 The author would like to thank Alexis Haslam and Paw Jorgensen for supervising the Watching Brief, Chris Mayo for his project management and editing, and Jennifer Simonson for preparing the illustrations.

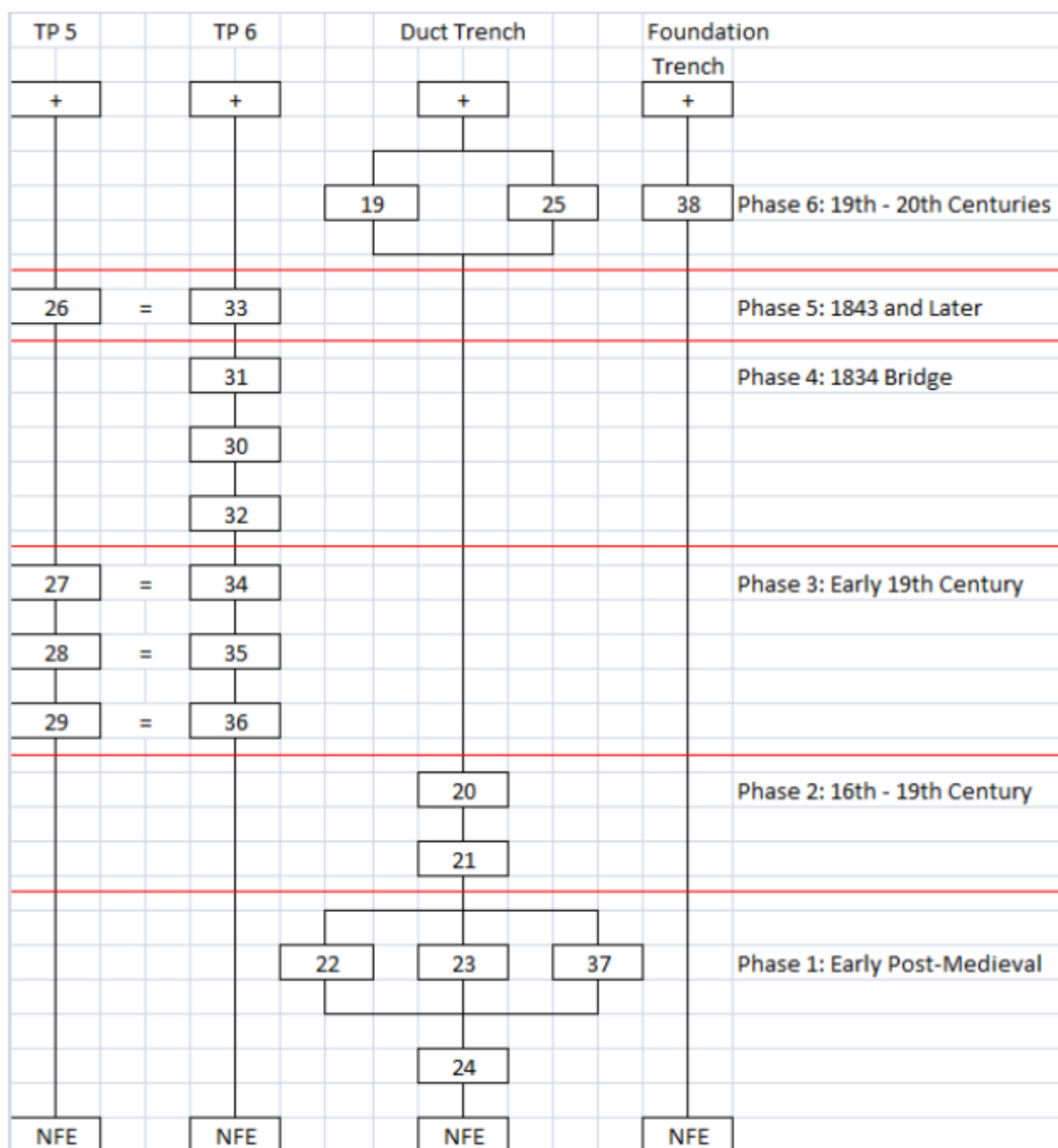
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APPENDIX 1: CONTEXT INDEX

Site Code	Context No	Trench	Plan	Section	Type	Description	Low level	High level	Pottery	CTP	CBM	Context Date	Phase
TOL 125	1-18	Numbers used during PCA site investigation in 2012											
TOL 125	19	Duct Trench		8	Layer	Bedding Layer		4.64m					6
TOL 125	20	Duct Trench		8	Layer	Demo/Makeup Layer		4.55m	1580-1900			Late 17th-18th C	2
TOL 125	21	Duct Trench		8	Layer	Demo Layer		4.40m	1550-1650			1550-1650	2
TOL 125	22	Duct Trench	Duct Trench		Cobble Surface	Cobble Surface		4.13m					1
TOL 125	23	Duct Trench	Duct Trench		Cobble Surface	Cobble Surface		4.13m					1
TOL 125	24	Duct Trench	Duct Trench		Layer	Bedding Layer		4.08m					1
TOL 125	25	Duct Trench	Duct Trench		Stone	Granite Block		4.56m					6
TOL 125	26	TP 5		9	Layer	Silty Clay Layer	1.31m	1.33m		1820-1860		1820-1860	5
TOL 125	27	TP 5		9	Layer	Clay Layer	1.23m	1.24m	1805-1900	1700-1740		19th C	3
TOL 125	28	TP 5		9	Layer	Sandy Gravels		0.90m					3
TOL 125	29	TP 5	TP 5	9	Layer	Gravel Layer		0.83m					3
TOL 125	30	TP 6		10	Masonry	Brick Footing		1.30m					4
TOL 125	31	TP 6	TP 5	11	Fill	Fill of [32]		1.29m					4
TOL 125	32	TP 6	TP 5	11	Cut	Construction Cut for [30]		1.29m					4
TOL 125	33	TP 6	TP 5	11	Layer	Silty Clay Layer		1.58m		1680-1710	1830-1900	Mid-Late 19th C	5
TOL 125	34	TP 6	TP 5	11	Layer	Clay Layer		1.29m					3
TOL 125	35	TP 6		11	Layer	Sandy Gravels		1.17m					3
TOL 125	36	TP 6	TP 5	11	Layer	Gravel Layer		0.98m					3
TOL 125	37	Duct Trench	Duct Trench		Cobble Surface	Cobble Surface		4.20m					1
TOL 125	38	Foundation Trench	Foundation Trench		Layer	Levelling		1.85m					6

APPENDIX 2: MATRIX



APPENDIX 3: OASIS REPORT

OASIS ID: preconst1-173672

Project details

Project name	The Middle Drawbridge, Tower of London: An Archaeological Watching Brief
Short description of the project	The work comprised the monitoring of the excavation of two test pits to the east of the Middle Drawbridge, a foundation trench under the Middle Drawbridge and a series of duct trenches across the gate within the Outer Wall at the north of the Middle Drawbridge. It follows from a previous investigation by PCA in advance of the project in 2012. Six archaeological phases were identified. The first, dating to the early post-medieval period, relates to a cobbled surface and associated bedding layer which may relate to the early post-medieval development of the Tower between the Outer and Inner Walls around the Wakefield and Lanthorn Towers. Phase 2 was represented by demolition and make-up layers which could be the result of clearance of the post-medieval development and landscaping of this area in the 19th century. Phase 3, early 19th century in date, was associated with natural sedimentation and the dumping of material into the moat, prior of the construction of the first bridge in 1834. That phase of construction, Phase 4, was evidenced by a brick footing for the first bridge. Phase 5 may be attributable to the draining of the moat in 1843 and its subsequent landscaping, whilst Phase 6 relates to later usage of the area further to its continued resurfacing and landscaping in the 19th and 20th Centuries. Natural deposits were not encountered in any intervention.
Project dates	Start: 08-11-2013 End: 07-01-2014
Previous/future work	Yes / No
Any associated project reference codes	ToL125 - Sitecode
Any associated project reference codes	preconst1-138602 - OASIS form ID
Type of project	Recording project
Site status	World Heritage Site
Site status	Scheduled Monument (SM)
Current Land use	Other 8 - Land dedicated to the display of a monument
Monument type	FOUNDATION Post Medieval
Monument type	COBBLED SURFACE Post Medieval
Significant Finds	POTTERY Post Medieval
Significant Finds	CTP Post Medieval
Significant Finds	CBM Post Medieval
Investigation type	"Watching Brief"
Prompt	Scheduled Monument Consent

Project location

Country	England
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Site location	GREATER LONDON TOWER HAMLETS TOWER HAMLETS Tower of London, Middle Drawbridge
Postcode	EC3N 4AB
Study area	105.00 Square metres
Site coordinates	TQ 3357 8048 51.5069450487 -0.0751536993425 51 30 25 N 000 04 30 W Point
Lat/Long Datum	Unknown

Project creators

Name of Organisation	Pre-Construct Archaeology Limited
Project brief originator	Historic Royal Palaces
Project design originator	Historic Royal Palaces
Project director/manager	Chris Mayo
Project supervisor	Alexis Haslam
Project supervisor	Paw Jorgensen
Type of sponsor/funding body	Charity
Name of sponsor/funding body	Historic Royal Palaces

Project archives

Physical Archive recipient	Historic Royal Palaces
Physical Archive ID	ToL125
Physical Contents	"Glass","Ceramics"
Digital Archive recipient	Historic Royal Palaces
Digital Archive ID	ToL125
Digital Contents	"Stratigraphic"
Digital Media available	"Images raster / digital photography","Images vector","Spreadsheets","Text"
Paper Archive recipient	Historic Royal palaces
Paper Archive ID	ToL125
Paper Contents	"Stratigraphic","other"
Paper Media available	"Context sheet","Drawing","Photograph","Plan","Report","Section","Unpublished Text"

Project bibliography 1

Publication type	Grey literature (unpublished document/manuscript)
Title	The Middle Drawbridge, Tower of London: An Archaeological Watching Brief
Author(s)/Editor(s)	Cipin, I.
Other bibliographic details	PCA R11704

Date	2014
Issuer or publisher	Pre Construct Archaeology Limited
Place of issue or publication	London
Description	A4 client document with blue covers

Project bibliography 2

Publication type	Grey literature (unpublished document/manuscript)
Title	The Middle Drawbridge, Tower of London: An Archaeological Investigation
Author(s)/Editor(s)	Mayo, C.
Author(s)/Editor(s)	Seddon, G.
Other bibliographic details	PCA R11339
Date	2012
Issuer or publisher	Pre-Construct Archaeology Limited
Place of issue or publication	London
Description	A4 bound client document with blue cover

Entered by	Chris Mayo (cmayo@pre-construct.com)
Entered on	29 April 2014

APPENDIX 4: CERAMIC BUILDING MATERIALS REPORT

By Kevin Hayward, Pre-Construct Archaeology Limited

Quantification, Typology and Dating

Context	Fabric	Form	Size	Date range of material		Latest dated material		Spot date	Spot date with mortar
1	2586 2276	Pan Tile (59g); Peg Tile (68g)	2	1480	1900	1480	1900	1700-1800+	No mortar
33	3032R 2586	Fragment of post great fire brick (21g) post medieval pan tile (51g)	2	1630	1900	1664	1900	1750-1850	No mortar

Review

The assemblage (4 fragments 199g) consists of small pieces of fragmentary 18th to 19th century building materials (pan; peg roofing tile and post great fire brick) from [1] and [33].

Recommendations

The assemblage consists of very common late post medieval roofing and construction fabrics and other than recording Georgian/Victorian activity in this part of the Tower warrants no further analysis.

APPENDIX 5: CLAY TOBACCO PIPE REPORT

By Chris Jarrett, Pre-Construct Archaeology Limited

Introduction

A small sized assemblage of tobacco pipes was recovered from the site (one box). Most fragments are in a good condition; however six bowls are residual indicating that not all of the material had been deposited soon after breakage. Clay tobacco pipes occur in eleven contexts, as small (under 30 fragments) groups.

All of the clay tobacco pipes (30 fragments and none are unstratified) were recorded in an ACCESS database and classified by Atkinson and Oswald's (1969) typology (AO) and 18th-century examples are by Oswald's (1975) typology and prefixed OS. The pipes are further coded by decoration and quantified by fragment count. The degree of milling on 17th-century examples has been noted and recorded in quarters, besides their quality of finish. The tobacco pipes are discussed by their types and distribution.

Quantification and Index

The clay tobacco pipe assemblage from the site consists of sixteen bowls, thirteen stems and one nib (mouthpiece). The pipe bowls range in date between 1660 and 1860. All of the bowls show evidence for being smoked.

1660-1680

- AO15: one spurred, rounded profile bowl with half milling of the rim and a fair finish. Context [7].

1680-1710

- AO20: four heeled, rounded bowls and two have their rims missing, while the other two examples have three quarters milling of the rim and all have a fair finish. Context [6]: three examples, context [7], one example.
- AO22: one heeled, straight-sided angled bowl with its rim missing and of a fair finish. Context [33].

1700-1770

- OS10: two heeled upright bowls with rounded fronts and a straight back. Both the bowls are initialled on the heel, with illegible initials present on the example from context [6], while the example from context [10] is marked I P. The possible pipe makers for the latter bowl was either John Pinkard (1), 1703 or John Pinkard (2) 1732 (Oswald 1975, 143).

1730-1780

- OS12: one heeled upright bowl with a rounded front, a straight back and thin stem. The bowl is not initialled and was recovered from context [27].

1770-1845

- AO27: three, square heeled upright bowls with rounded fronts, a straight back and all are initialled on their heels:
- W ?: three bowls where the family name initial is illegible or broken off. Two examples are plain (context [1]), while the third bowl is decorated with even sized fluting on the lower two thirds and a border of stars around the rim (context [9]).
- W R/B: one plain bowl and the family initial is poorly moulded, however, there are two possible local pipe makers with the initials W R who could have made this bowl: William Russell, 1774-1784, Wapping and William Ruscoe, 1805-11, Bow (Oswald 1975, 144). Context [6].

1820-1860

- AO28: two spurred upright bowls and both are initialled:
- I G: one plain possibly made by either John Goodwin (Godwin), 1805, John Goodyer, 1828 and the relatively local pipe maker Joseph Grout, 1849, Shadwell (Oswald 1975, 137). Context [26].
- W W: one bowl decorated with oak leaf and grass borders There are a number of possible pipe makers working in London who could have made this bowl, although two were working relatively close to the Tower of London: William Walker, 1837-60, Spitalfields and William Young (2), 1856-69, Mile End Road (Oswald 1975, 149). Context [7].

Other bowls

- One other bowl is in too fragmentary a state to assign to a type (context [1]).

Distribution

The clay tobacco pipes are found in Phases 1-5 and their distribution is shown in Table 1.

Context	Phase	Trench	Assemblage size	FC	Context ED	Context LD	Bowl types (pipe makers)	Context considered date
1	5	TP 1	S	4	1770	1845	X1 AO27 (W, W ?), stems	1770-1845
2	5	TP 1	S	2	1580	1910	Stems	1580-1910
4	1	TP 1	S	5	1580	1910	Stems	1580-1910
5	1	TP 1	S	1	1580	1910	Nib, Stem	1580-1910
6	3	TP 2A	S	9	1770	1845	X3 AO20, X1 OS10 (? ?), X1 AO27 (W R), stems	1770-1845
7	3	TP 2A	S	3	1820	1860	X1 AO15, x1 AO20, x1 AO28 (W W)	1820-1860
9	3	TP 3A	S	1	1770	1845	X1 AO27 (W ?)	1800-1845
10	3	TP 3A	S	1	1730	1780	X1 OS10 (I P)	1730-1780
26			S	1	1820	1860	X1 AO28 (I G)	1820-1860
27			S	1	1700	1740	X1 OS10	1700-1740
33			S	2	1680	1710	X1 AO22, stem	1680-1710

Table 1. TOL125. Distribution of the clay tobacco pipes showing the phase, number of fragments (FC) and size of the group, the dates of the latest clay tobacco pipe bowl present (Context ED and LD), the bowls present (and initials) and a context considered (spot) date for each context.

Significance, potential of the collection and recommendations for further work

The clay tobacco pipes have little significance at a local level and it is assumed that the assemblage is derived from sources on the site. The bowl types present on the site fit within the typology for London and it is presumed that local clay tobacco pipe makers are represented in the assemblage or represent trade along the Thames. The main potential for the tobacco pipes is as an aide to dating the contexts in which they were found and to provide a sequence for them. None of the pipe bowls merit illustration. The clay tobacco pipes have very little potential to further the understanding of their study in London or Southwark. No further work on the clay tobacco pipe assemblage is recommended. A publication on the site should take information from this report.

APPENDIX 6: POTTERY REPORT

By Chris Jarrett, Pre-Construct Archaeology Limited

Introduction

A small sized assemblage of pottery was recovered from the site (one box). The Post-Roman pottery dates from the medieval and post-medieval periods. Only one sherd shows evidence for abrasion, although residual material is as 31% by sherd count indicating that not all of the pottery was deposited immediately after breakage. The state of fragmentation of the assemblage is as sherd material and no vessels are intact or survive with complete profiles, although most of the vessel forms could be identified. The pottery was quantified by sherd count (SC) and estimated number of vessels (ENV's), besides weight. Pottery was recovered from ten contexts. The sizes of the groups of pottery are all small (fewer than 30 sherds).

In total there are 91 sherds, 70 ENV, 1.486kg and none are unstratified. The assemblages were examined macroscopically and microscopically using a binocular microscope (x20), and recorded in an ACCESS database, by fabric, form and decoration. The classification of the pottery types is according to the Museum of London Archaeology. The pottery is discussed by types and its distribution.

Quantification and Index

The pottery occurs as Roman, medieval (both residual) and post-medieval dated wares and chronologically the pottery can be quantified as follows

- Roman: 3 sherds, 3 ENV, 67g
- Medieval: 7 sherds, 6 ENV, 135g
- Post-medieval: 83 sherds, 61 ENV, 1.284kg

Roman

- The three sherds of residual Roman pottery consists of a micaceous whiteware (context [7]) and two sherds of greyware, which includes the rim of a bowl, both sherds being found in context [33]. The Roman pottery is not further discussed.

Medieval

- The residual medieval pottery types and their forms are as follows
- Kingston-type ware (KING), 1240-1400, 1 sherd, 1 ENV, 7g, form: jug
- Mill Green ware MG 1270-1350 1 sherd, 1 ENV, 1 g, form: jug
- Late London-type ware (LLON), 1400-1500, 4 sherds, 3 ENV, 114g, form: unidentified closed shape
- London-type ware (LOND), 1080-1350, 1 sherd, 1 ENV, 13g, form: jug

Post-medieval

Surrey-Hampshire border wares

- Surrey-Hampshire border whiteware with green glaze (BORDG), 1550-1700, 2 sherds, 2 ENV, 17 g, form: unidentified
- Surrey-Hampshire border whiteware with yellow glaze (BORDY), 1550-1700, 1 sherd, 1 ENV, 15 g, form: porringer
- Surrey-Hampshire border redware (RBOR), 1550-1900, 1 sherd, 1 ENV, 11 g, form: unidentified

London post-medieval coarse red earthenwares

- London-area early post-medieval redware (PMRE), 1480-1600, 4 sherds, 4 ENV, 106 g, form: unidentified
- London-area post-medieval redware (PMR), 1580-1900 6 sherds, 6 ENV, 224 g, forms: flower pot, jug; rounded, jar; tall rounded
- London-area post-medieval slipped redware with clear (yellow) glaze (PMSRY), 1480-1650, 1 sherd, 1 ENV, 24 g, form: unidentified

London tin-glazed earthenwares

- English tin-glazed ware (TGW), 1570-1846, 4 sherds, 4 ENV, 23 g, form: bowl; medium rounded, dish, ointment pot
- Tin-glazed ware with plain pale-blue glaze (TGW BLUE), 1630-1846, 1 sherd, 1 ENV, 4 g, form: unidentified
- Tin-glazed ware with plain white glaze (TGW C), 1630-1846, 7 sherds, 3 ENV, 115 g, form: chamber pot
- Tin-glazed ware with external lead glaze/polychrome painted (TGW D), 1630-1680, 1 sherd, 1 ENV, 39 g, form: charger

Industrial/factory made earthenwares

- Bone china (BONE), 1794-1900, 1 sherd, 1 ENV, 2 g, form: saucer
- Creamware (CREA), 1740-1830, 1 sherd, 1 ENV, 4 g, form: plate
- Creamware with developed pale glaze (CREA DEV), 1760-1830, 1 sherd, 1 ENV, 3 g, form: plate
- Majolica (MAJO), 1850-1900, 2 sherds, 1 ENV, 27 g, form: jug
- Pearlware with under-glaze polychrome painted decoration (earth colours) (PEAR ERT), 1790-1820, 1 sherd, 1 ENV, 4 g, form: bowl; medium rounded
- Plain refined white earthenware (REFW), 1805-1900, 20 sherds, 14-ENV, 154 g, form: bowl, jar; cylindrical (jam jar), lid; tureen, mug; cylindrical, plate; dessert, tea cup
- Refined white earthenware with cut-out sponged decoration (REFW SPON1), 1830-1900, 1 sherd, 1 ENV, 23 g, form: bowl; medium rounded
- Transfer-printed refined whiteware (TPW), 1780-1900, 9 sherds, 3 ENV, 166 g, form: plate, tea cup; Bute shape
- Brown or black transfer-printed refined whiteware (TPW3), 1810-1900, 3 sherds, 3

ENV, 61 g, form: unidentified

Non-local

- Yellow ware with industrial slip decoration (YELL SLIP), 1820-1900, 1 sherd, 1 ENV, 47 g, form: chamber pot

English stonewares

- Derbyshire stoneware (DERBS), 1700-1900, 2 sherds, 1 ENV, 54 g, form: jar; shouldered
- English stoneware (ENGS), 1700-1900, 1 sherd, 1 ENV, 31 g, form: bottle; cylindrical
- White salt-glazed stoneware (SWSG), 1720-1780, 1 sherd, 1 ENV, 6 g, form: bowl, medium rounded

Miscellaneous

- Miscellaneous (post-medieval redware) (MISC), 1480-1900, 3 sherds, 1 ENV, 61 g, form: flower pot

Imported wares

- Chinese blue and white porcelain (CHPO BW), 1590-1900, 2 sherds, 2 ENV, 6 g, form: bowl
- Frechen stoneware (FREC), 1550-1700, 1 sherd, 1 ENV, 29 g, form: rounded jug
- Frechen stoneware inscribed band jug (FREC INSCR), 1550-1580, 1 sherd, 1 ENV, 5 g
- Westerwald stoneware (WEST), 1590-1900, 1 sherd, 1 ENV, 12 g, form: chamber pot
- Westerwald stoneware with purple and blue decoration (WEST PURP), 1665-1750, 1 sherd, 1 ENV, 11 g, form: rounded jug

Of interest is the number of 19th-early 20th-century dated plain refined whiteware (REFW) robust forms, which may be indicative of institutional wares commissioned for use by the army or other government personnel employed at the Tower of London.

Distribution

Post-Roman Pottery was recovered from Phases 1-3. Table 2 shows the contexts containing pottery, the phase they occur in, the size/number of sherds, ENV and weight, the earliest and latest date of the most recent pottery type (Context ED/LD) and a considered (spot) date for the group.

Context	Trench	Phase	Assemblage size	SC	ENV	Weight (g)	Context ED	Context LD	Pottery types	Context considered date
1	TP 1	5	S	25	20	631	1850	1900	DERBS, ENGS, LLON, LOND, MAJO, MISC, PMR, PMRE, RBOR, REFW, REFW SPON1, TPW, TPW3	1880 onwards
4	TP 1	1	S	3	1	12	1805	1900	REFW	Late 19th- 20th century
5	TP 1	1	S	3	3	24	1805	1900	CREA, PMR, REFW	1805-1900
6	TP 2A	3	S	15	9	156	1805	1900	DERBS, KING, REFW, TGW, TGW C, WEST	1805-1900
7	TP 2A	3	S	16	14	304	1820	1900	BONE, BORDY, CHPO BW, CREA DEV, FREC, REFW, RPOT, TGW BLUE, TGW C, TGW D, TPW3, YELL SLIP	Late 19th century
9	TP 3A	3	S	3	3	32	1805	1900	CHPO BW, REFW	Late 19th century
20			S	5	5	31	1580	1900	FREC INSCR, MG, PMRE, TGW	Late 17th-18th century
21			S	2	2	30	1550	1650	BORDG, PMSRY	1550-1650
27			S	5	5	54	1805	1900	BORDG, PMR, REFW, SWSG, TGW	19th century
33			S	14	8	212	1830	1900	PEAR EARTH, PMR, REFW, RPOT, TPW, WEST PURP,	Mid-late 19th century

Table 2. TOL125: Distribution of pottery types showing individual contexts containing pottery, what trench, phase the context occurs in, the number of sherds (SC), ENV and weight (g), the date range of the latest pottery type (Context ED/LD), the pottery types present and a suggested deposition date.

Significance, Potential and Recommendations for further work

The pottery has little significance at a local level, although many of the refined whitewares forms recovered from contexts [4], [5], [6], [7], [9] and [33] are robust and probably represent late 19th-early 20th-century dated institutional wares, although no regimental insignia etc are present. The main potential of the pottery is to date the deposits they were recovered from. There are no recommendations for further work.

APPENDIX 7: GLASS REPORT

By Chris Jarrett, Pre-Construct Archaeology Limited

Introduction

A medium sized assemblage of glass was recovered from the site (one box). The glass dates entirely to the post-medieval period. The fragments show no evidence for abrasion, except for the presence of naturally weathered items, although residual vessels occur indicating that an element of redeposition is present. The assemblage is in a fragmentary state with no items recorded with no intact items or vessels with complete profiles being recorded, although the majority of forms could be identified. The glass was quantified by the number of fragments and was recovered from ten contexts and individual deposits produced small (fewer than 30 fragments) groups.

All of the glass (24 fragments, of which none are unstratified) was recorded in an ACCESS database, by type colour and form. The assemblage is discussed by the vessel shapes, *etc.* and its distribution and the glassware consists of late 17th-early 20th-century dated material.

The forms

All of the forms are dated to the post-medieval period and are mainly discussed according to their functions and by the number of fragments. A breakdown of the basic shapes is as follows:

- Bottle (generic): 1 fragment
- Bottle, cylindrical: 2 fragments
- Bottle, flat: 2 fragments
- Bottle, octagonal: 1 fragment
- Wine bottle, English: 6 fragments
- Wine bottle, English cylindrical: 4 fragments
- Pestle: 1 fragment
- Tumbler: 1 fragment
- Vessel glass: 3 fragments
- Window glass: 2 fragments
- Wine glass: 1 fragment

Vessel forms by function

Liquid storage

Bottle (generic)

- High lime low alkali glass with a pale green tint, moulded thick walled body sherd, embossed with illegible lettering, one fragment, 1830 onwards. Context [9].

Bottle, cylindrical

- Bright green soda glass, mould made, embossed with illegible letters, two fragments. Late 19th - 20th century. Context [2].

Bottle, flat, rectangular cross-section

- Pale green tint soda glass, moulded wall pieces, 2 fragments, 1830 onwards, Context [10].

Bottle, octagonal cross-section

- Pale green tinted soda glass, moulded, rounded shoulder and the wall has equal sized panels, one fragment, 1830 onwards. Context [10].

Alcohol storage

English wine bottle

- Natural olive green glass, free-blown, rims with a c. 1670 string-rim construction, four fragments, two vessels. Context [1]
- Natural olive green glass, free-blown, wall fragment, mid 17th century onwards, one fragment. Context [6].
- Natural olive green glass, free-blown, rim with a c. 1670 string-rim construction with a wide flat cordon, one fragment. Context [7].
- Natural olive green glass, free-blown, rims with a late 18th-early 19th-century string-rim construction, one fragment. Context [7].

English cylindrical wine bottle

- Natural green tinted glass, free-blown, rim with a late 18th-early 19th-century string-rim construction, one fragment. Context [6].
- Natural pale green tinted glass, free-blown, wall sherd, mid 18th century onwards, one fragment. Context [6].
- Natural olive green glass, free-blown, base with a rounded kick and slightly splayed profile, mid 18th-19th century, one fragment. Context [7].

Alcohol consumption

Tumbler

- Clear lead glass, moulded, recessed base with twelve rounded profile vertical flutings on the wall, mid-late 19th century, one fragment. Context [6].

Wine glass

- Clear soda, hollow stem with a flaring profile and irregular lobes at the top, one fragment, early 19th century. Context [6].

Miscellaneous

Pestle

- Clear soda glass consisting of a stem (9mm in diameter) with an uneven, half sphere of glass attached to it (55mm surviving length), one fragment, 19th century. Context [9].

Vessel glass

- Pale blue, High lime low alkali glass, moulded rounded wall fragment with vertical ribs and finer ribs with notching, as well as panels containing raised, segmented diamonds, two fragments, c. 1850 onwards. Possible vase or small rounded jug. Context [1].
- Clear soda, moulded base, one fragment, c.1830 onwards. Possible jar. Context [9].

Window glass

- Clear soda, machine made, one fragment, late 19th century onwards, two fragments. Context [9].

Distribution

The glass was recovered from Phases 3 and 5. Its distribution is shown in Table 1.

Context	Trench	Phase	No. fragments	Forms	Considered deposition date
1	TP 1	5	8	Bottles: flat rectangular cross-section, English wine bottle	c. 1850 onwards
2	TP 1	5	4	Bottle: cylindrical, window glass	c. 1850 onwards
6	TP 2A	3	5	Bottle: English wine bottle; cylindrical, tumbler, wine glass	Late 19th century
7	TP 2A	3	2	Bottle: English wine bottle; cylindrical	Late 18th - early 19th century
9	TP 3A	3	3	Bottle, pestle, vessel glass	Mid 19th century onwards
10	TP 3A	3	2	Bottles: English wine bottle; cylindrical, octagonal cross-section	Mid 19th century onwards

Table 1. TOL125: Distribution of the glass showing each context it occurs in, the phase and quantification by number of fragments, the forms present and a considered deposition date is shown.

Significance, potential and recommendations for further work

The glass has little significance at a local level, the assemblage containing frequently occurring forms recorded in the London area. The main potential of the glass is to date the contexts it was recovered from. There are no recommendations for further work.

This archaeological plan of the Tower of London provides a detailed view of its layout. Key features include:

- Outer Wall:** The perimeter wall with bastions at *Widge Mount* and *Grass Mount*.
- Inner Structures:** *The Casemates*, *The Tower* (main central area), *White Tower*, *Chapel*, *Wentfold* (site of), *Green*, *St Thomas's Tower*, *Walsfield Tower*, *Lanthorn Tower*, and *Cradle Tower*.
- Walls and Foundations:** *ROMAN WALL* (course of) and *ROMAN WALL* (foundations).
- Water Features:** *RIVER THAMES*, *Wooler's Water*, *Mud*, and *Groyne*.
- Other Features:** *Lower Gardens*, *Play Area*, *Thames Path*, *Mean High Water*, and *Foot Gate*.
- Measurements and Markers:** Numerous spot heights (e.g., BM 6.82m, 11.63m, 5.34m) and distances (e.g., 7.1m, 5.3m, 4.7m) are indicated throughout the plan.
- Orientation and Scale:** A north arrow is located in the top right corner, and a scale bar (0 to 50m) is in the bottom left corner.

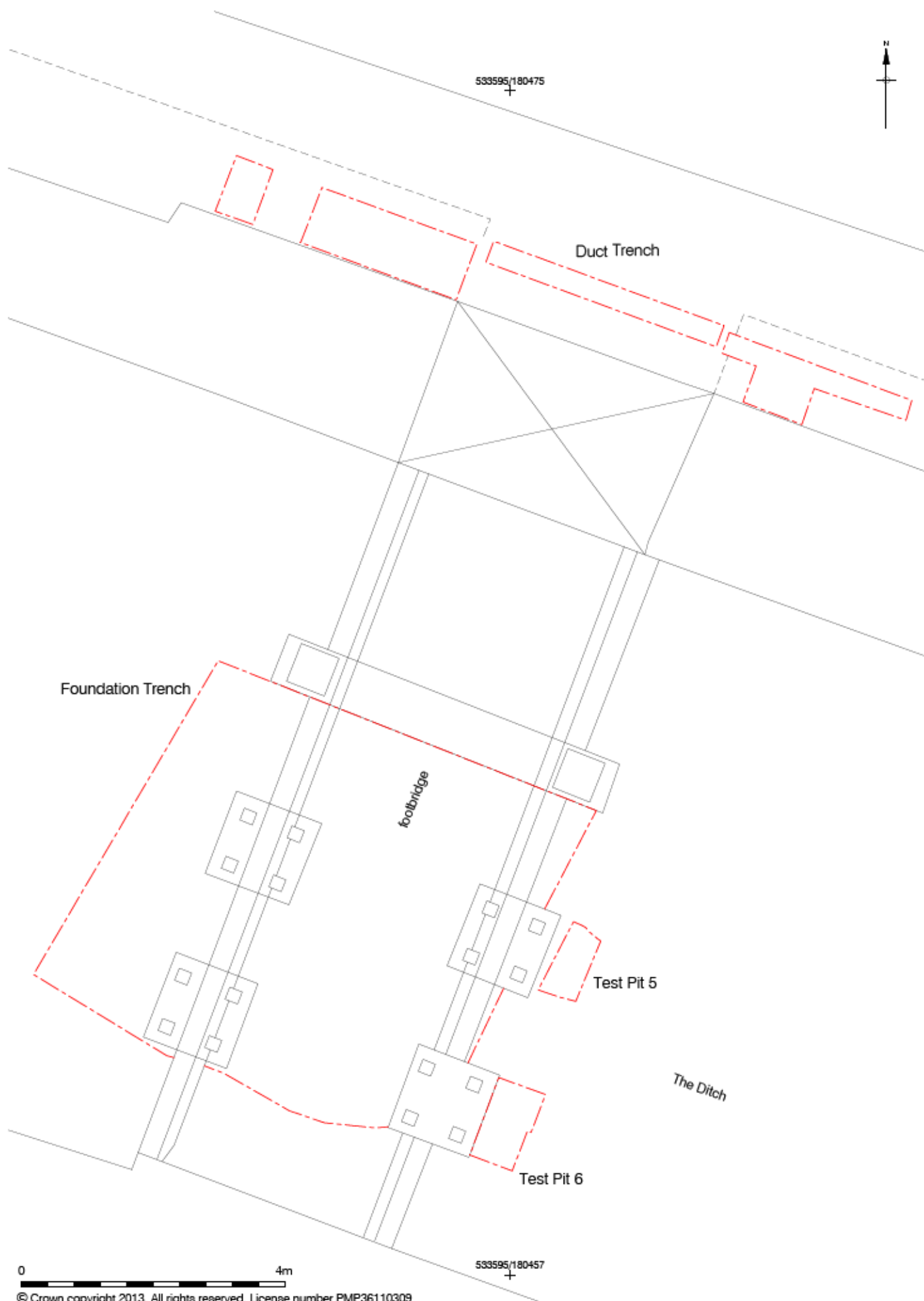
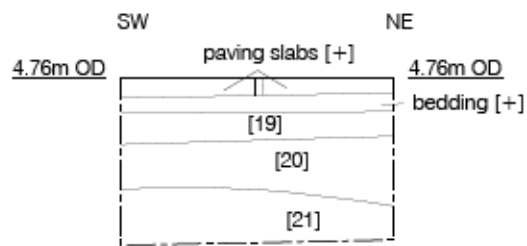


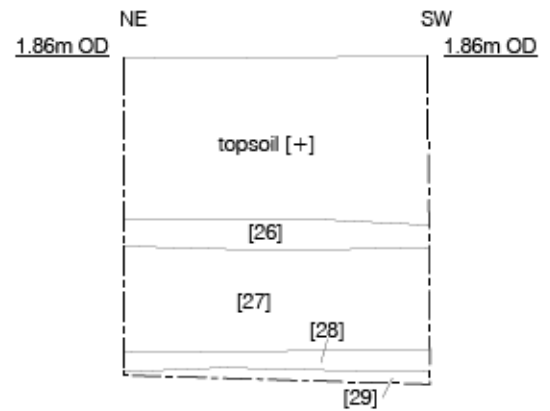
Figure 2
 Trench Locations
 1:75 at A4



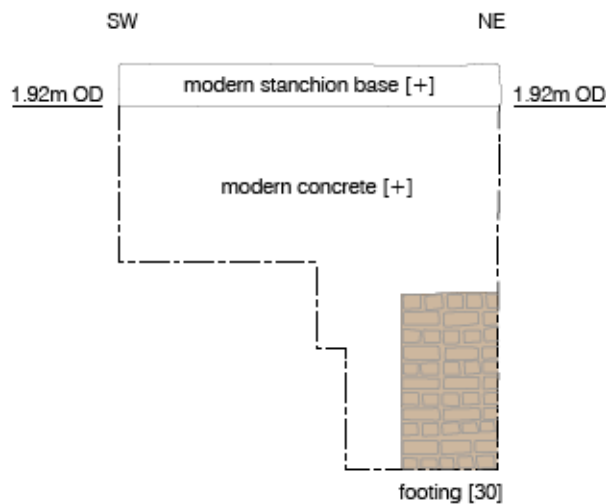
Figure 3
Plan of Trenches and Features
1:75 at A4



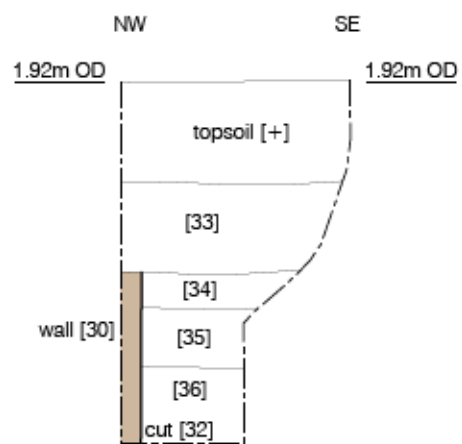
Section 8
Duct Trench
Southeast Facing



Section 9
Test Pit 5
Northwest Facing



Section 10
Test Pit 6
Southeast Facing



Section 11
Test Pit 6
Southwest Facing

0 1m

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Figure 4
Sections
1:25 at A4

PCA

PCA SOUTH

UNIT 54
BROCKLEY CROSS BUSINESS CENTRE
96 ENDWELL ROAD
BROCKLEY
LONDON SE4 2PD
TEL: 020 7732 3925 / 020 7639 9091
FAX: 020 7639 9588
EMAIL: info@pre-construct.com

PCA NORTH

UNIT 19A
TURSDALE BUSINESS PARK
DURHAM DH6 5PG
TEL: 0191 377 1111
FAX: 0191 377 0101
EMAIL: info.north@pre-construct.com

PCA CENTRAL

THE GRANARY, RECTORY FARM
BREWERY ROAD, PAMPISFORD
CAMBRIDGESHIRE CB22 3EN
TEL: 01223 845 522
FAX: 01223 845 522
EMAIL: info.central@pre-construct.com

PCA WEST

BLOCK 4
CHILCOMB HOUSE
CHILCOMB LANE
WINCHESTER
HAMPSHIRE SO23 8RB
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PCA MIDLANDS

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