

**THAMES WATER FLOOD ALLEVIATION SCHEME,  
WEST HAM**

**DENSHAM OPEN SPACE CONSTRUCTION SHAFT,  
CHURCH STREET NORTH/DENSHAM ROAD**

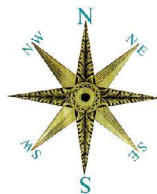
**LONDON BOROUGH OF NEWHAM**

**AN ARCHAEOLOGICAL INVESTIGATION**

**June 2009**



**COMPASS**



**ARCHAEOLOGY**

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NGR TQ: 39393 83925

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June 2009

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## ***Abstract***

*Two phases of archaeological work were undertaken at Densham Open Space, Densham Road and Church Street North, London Borough of Newham, during engineering works associated with shaft construction as part of the Thames Water West Ham Flood Alleviation Scheme. An initial phase of archaeological evaluation, consisting of two trial trenches, was undertaken in September 2007. The work identified remains dating from the later 15<sup>th</sup> century and a subsequent phase of archaeological work was determined necessary. Archaeological monitoring and hand investigation was undertaken in January and February 2009 during the excavation of the central shaft area.*

*The archaeological sequence recorded during works at Densham Open Space spanned a period of occupation dating from the 15<sup>th</sup> century to the modern day. Natural deposits were exposed at the base of the sequence, consisting of discoloured natural gravels and sandy clay deposits. These were overlain by a series of 'dump layers' representing waste material dumped on the site in the later 15<sup>th</sup> to later 16<sup>th</sup> centuries. The material is thought to represent waste produced by a combination of local activities, significantly that produced by a nearby tanning industry. It is possible that the deposits are recorded here in a secondary context, having been originally dumped elsewhere and subsequently gathered up and redeposited on the study site. Environmental assessment of the deposits does not indicate that they were waterlain, but suggests instead that they accumulated in a natural or artificial depression in the natural gravels. The significant time span of almost a century of accumulated material suggests that the deposition was not undertaken as a deliberate act of infilling, for which one would expect a significantly shorter time period, more that the site represented a useful location for waste disposal and featured as such for a range of local activities. The finds certainly indicate a close association with the nearby tannery operation, but additional assemblages and assessment of the animal bone indicate that the site was not solely associated with this industry.*

*Apart from a few residual finds, there was virtually no evidence for occupation of the site between the 17<sup>th</sup> and early 19<sup>th</sup> centuries. Whether the site was open and unused during this period, or whether the later 18<sup>th</sup> century and Victorian occupation effectively destroyed any archaeological remains, is unclear. Evidence for this latter period was fairly substantial, recorded in the form of a series of brick built drains, foundations and rubbish pits. This too was subsequently truncated by demolition and clearance works in the later 19<sup>th</sup> century and by the construction of Densham Road c.1900, and from this date the site itself formed an open space. The most recent recorded deposits are thought to originate from rubble and demolition material associated with bombing in the Second World War that was used to landscape the area.*

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## **1. Introduction**

- 1.1** This report details the results of archaeological work undertaken at Densham Open Space, Church Street North/Densham Road, West Ham, London Borough of Newham on the site of a construction shaft excavated as part of the West Ham Thames Water Flood Alleviation Scheme. The archaeological work was undertaken in two stages: an initial evaluation consisting of two trenches (September 2007) undertaken prior to construction works following consultation with English Heritage, and a programme of archaeological monitoring and hand-investigation undertaken during the shaft construction works (January-February 2009).
- 1.2** The site is approximately centred at NGR TQ 39393 83925. Both phases of archaeological work between 2007 to 2009 were recorded under the site code CSJ07 as assigned by the London Archaeological Archive and Research Centre (LAARC). The site lies within an Archaeological Priority Area as defined by the London Borough of Newham Unitary Development Plan (2001), and immediately adjacent to an Area of Archaeological Interest as defined by English Heritage.
- 1.3** The on-site and post-excavation work was supervised by Rosie Cummings of Compass Archaeology, with additional support from Jonathan Henckert and Joanna Smith, overall management of the project was undertaken by Geoff Potter.

## **2. Acknowledgements**

- 2.1** The archaeological work was commissioned by Dave Jones of Thames Water Utilities Ltd. following recommendations made by David Divers of English Heritage, GLAAS. Machining during the initial evaluation phase (2007) was undertaken by Enterprise PLC, with additional assistance from Milan Vora of Faber Maunsell Ltd.

The on-site shaft construction work (2009) was carried out by Costain PLC, Compass are grateful to Russell Cracknell and Pieter Steyn of Costains for their help and support during the course of the archaeological works. Compass are also grateful to Paul Blinkhorn for undertaking the pottery assessment, John Brown of Gifford for assessment of the brick samples and Rob Batchelor of Quaternary Scientific (QUEST), University of Reading for the analysis and assessment of the environmental samples.

## **3. Site Location and Geology**

- 3.1** The site lies east of West Ham Lane, between Densham Road (to the north) and Church Street North (to the south). All Saint's Church lies just south/south east of the site (see Figure 1 below). The excavations took place in a grassed area known as Densham Open Space, bounded to the north by Densham Road, to the southeast by the All Saints Churchyard and to the southwest by modern residential properties.

- 3.2 The British Geological Survey (North London *Sheet 256*, 1996) indicates that the site lies on extensive River Terrace Deposits of Taplow Gravel. Kempton Park gravel lies just to the south of the site.
- 3.3 The site lies at *c* 7.0m OD and is generally level although the ground rises to the north. The Channelsea and Lea rivers lie to the west of the site, which is potentially on the edge of an old alluvial floodplain.



**Figure 1:** The site location in relation to the modern Ordnance Survey map.

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## 4. Archaeological and Historical Background

### 4.1 Prehistoric

Relatively few finds of prehistoric date have been recorded within the vicinity of the study area. Residual finds have included a Bronze Age axe and Neolithic and Bronze Age worked flints and pottery found *c.* 500m west of Church Street North/Densham Road. The lack of evidence for prehistoric



occupation of the area may well stem from the limited extent of archaeological investigations in the immediate vicinity of the site. However, as much this part of East London was flooded marshland during the prehistoric period and into the post-medieval era, extensive occupation remains relatively unlikely.

#### **4.2 Roman (43 – 409 AD)**

There are no recorded finds of Roman date in the vicinity of the study area, and no major or permanent settlement is known to have existed in this period. Roman activity in this part of East London was apparently restricted to roads and thoroughfares connecting the city to other settlements in the north and east of England. The two main roads known to run through this district were Ermine Street (connecting London to Lincoln and York, running via Stamford Hill and Stoke Newington) and in closer proximity a road running from Aldgate crossing the Lea into Stratford Langthorne and branching northeast into East Anglia and Essex to Colchester. Evidence has been found for a later Roman settlement at Old Ford, where the road crossed the River Lea in the 4<sup>th</sup> and 5<sup>th</sup> centuries, approximately 1.7km west of the study site. A number of more minor roads are thought to intersect in the Stratford area, north of the site.

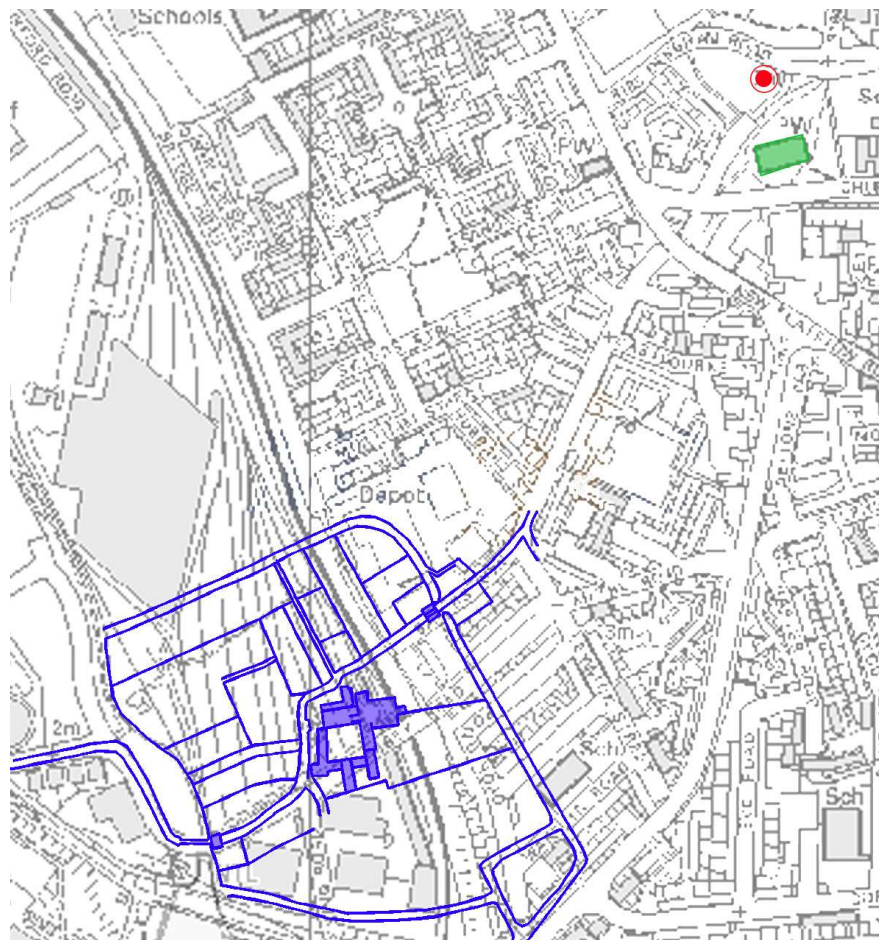
#### **4.3 Saxon (410 – 1066 AD)**

The parish church of All Saints (immediately south of the study site) is reputedly Saxon in origin although there is no archaeological evidence to support this. The nature of surrounding settlement about the church is also unknown, and no materials relating to this period were recovered from excavations in the immediate vicinity.

#### **4.4 Medieval (1066 – 1540)**

Documentary evidence supports the existence of All Saints Church from at least the 12<sup>th</sup> century, when in a charter of Henry II (1133 to 1189) dating between 1181-2 confirmed the church of West Ham to the Abbey of Stratford Langthorne. The parish of All Saints included the whole of West Ham excluding the lands of the Abbey which constituted a separate parish with its own church distinct from the Abbey church. The Abbey itself was founded in 1135 by William de Montfichet initially as a house of the Order of Savigny, but converted just 12 years later to the Cistercian Order and dedicated to St Mary. In 1267 the Pope's legate was received at Stratford Langthorne by the then King Henry III (1207-1272) and where he made peace with the Barons following the Baron's War of 1264-7. The Abbey suffered considerable damage during the Peasants Revolt of the 14<sup>th</sup> century and was later restored by King Richard (1367-1400). The Abbey was finally dissolved by Henry VIII in 1538 and the land granted to Peter Mewtas (or Meautas) and his wife. The Abbey buildings were left to fall into ruin and nothing now survives above ground. Surviving relics of the fabric are visible in All Saints Church, a skull-stone, window and font. The site of Stratford Langthorne lies some 600m southwest of the study site, in the area of Abbey Road, Manor Road and the Jubilee Line track between West Ham station to the south and terminating at

Stratford to the north. Excavations by the Museum of London during the Jubilee Line extension works recorded parts of the foundation levels of the abbey buildings and large numbers of burials recovered from the abbey cemeteries (Barber et al: 2004). More recent archaeological work at Bakers Row in advance of the DLR extension works exposed remains of a building adjacent to the Great Gate in the northern part of Abbey precinct. The gate itself survived until the earlier 19<sup>th</sup> century when it was eventually demolished. The extent of the Abbey buildings and precinct, and their proximity of to the study site are shown in Figure 2 below, the approximate layout of the site is reproduced from Museum of London drawings (Barber et al: 2004: 72) and overlain on the modern Ordnance Survey map.



**Figure 2:** The extent of the precinct of the Abbey of St Mary Stratford Langthorne (blue), in relation to the study site (red) and All Saints Parish Church (green). Based on the modern OS map.

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The site was bounded to the north, south and east by 'le grove dyche', a wide boundary ditch, and by the Channelsea River to the west. A bridge crossed the river in the southwestern corner of the precinct where the abbey mills also stood. A road ran from this bridge across the precinct to the 'Great Gate' in the northeastern corner, where it continued on the approximate line of the modern

Baker's Row and Abbey Road towards All Saints Church and the core of the medieval settlement at West Ham. The abbey did not attract settlement around its walls, existing largely in isolation from the nearest neighbouring villages. The settlement at West Ham grew up around the parish church, located on a raised gravel terrace island above the surrounding marshland, with forest to the north. In 1086 the population was recorded at 130 rising to 240 by the later 14<sup>th</sup> century and by 1670 a total of 410 houses were recorded (VCH:6). West Ham remained a relatively small rural settlement outside London until well into the post-medieval period.

The location of the study site, immediately north of the parish church of All Saints, places it within the probable bounds of the small medieval settlement. Archaeological work in the vicinity has produced sufficient evidence for occupation during this period. Immediately east of the study site excavations undertaken by the Passmore Edwards Museum in 1973 (HW-CS-73) exposed wattle lined pits containing horn cores of cattle and dated from 13<sup>th</sup> century. Remains of a brick house built c.1550, at the very end of the medieval period was recorded and included footings containing materials thought to originate from the then demolished abbey buildings at Stratford Langthorne, this was built on the alignment of an earlier medieval property. The house was recorded as measuring c. 15.5m in length and featuring two internal partition walls and two fireplaces. These two homes were thought to be associated with industrial processes, namely tanning as indicated by the earlier pit features and a tannery known from documentary evidence to have existed in the area in the earlier 17<sup>th</sup> century (Cherry:1977: 90). This site is now designated by English Heritage as an area of 'Archaeological Interest' (see section 5: Planning below). Further work immediately south exposed 16<sup>th</sup> century tanning and other waste across the site, although no major features associated with the tannery were exposed (VWH96) A watching brief undertaken during works at All Saints Church in 1985 by Newham Museums Service recorded the 12<sup>th</sup> and 13<sup>th</sup> century footings and a 15<sup>th</sup> burial (HW-AS-85). Approximately 250m to the southwest of the study site, at 128 West Ham Lane/Arthingworth Street, an evaluation undertaken by Newham Museums Service in 1996 exposed post-holes and rubbish pits dating to the medieval period, indicating some level of domestic occupation in the area (HW-WL-96). Documentary evidence indicates the existence of a tenement in the medieval period in the vicinity of All Saints Church, and an evaluation to the west of the site at West Ham Lane produced a single sherd of medieval pottery (HW-GC-96).

Along with the establishment of Stratford Langthorne Abbey, another well-recorded event in the early history of West Ham was significant in securing its future development. The long established Roman route connecting Essex to London and crossing the Lea River at Old Ford was still in use in the early medieval period, but the crossing was notoriously dangerous. Queen Matilda, wife of Henry I, was said to have suffered a near-fatal accident while crossing the river and a subsequent enquiry and survey was undertaken to establish a safer route. This resulted in one of the most major public works of the medieval period, the construction of the Bow and Channelsea bridges in the 12<sup>th</sup> century linked by a causeway and carrying the road across the marshes. This resulted in the developments of Stratford-Bow and Stratford-Langthorne,

and with the subsequent establishment of the Abbey, the area of West Ham was afforded greater prosperity and links with major settlement of London.

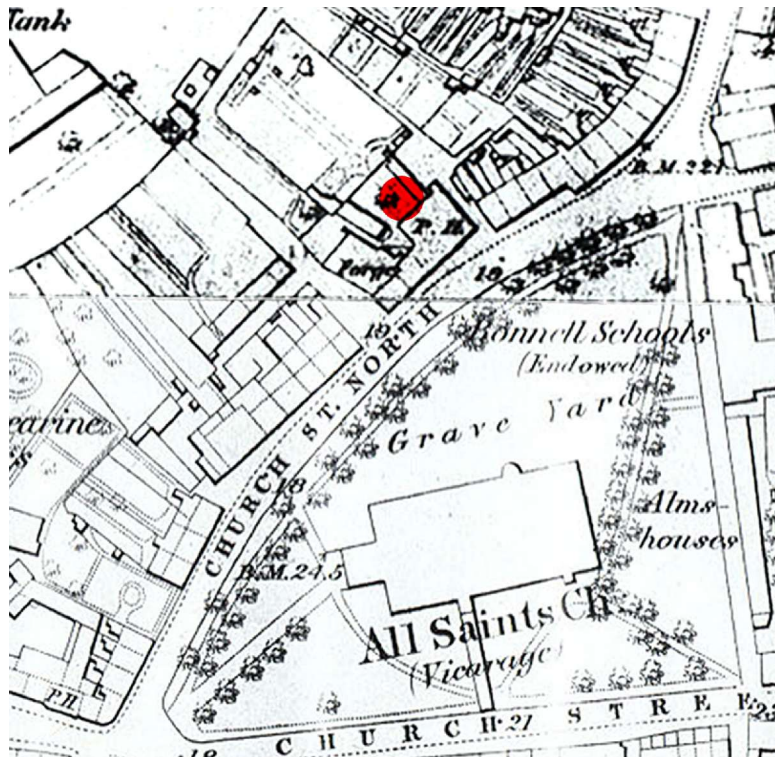
#### **4.5 Post-medieval (1541-1901)**

West Ham remained a rural settlement until well into the post-medieval period. By 1538 the Abbey of Stratford Langthorne had been dissolved, its land reassigned and the buildings falling into disrepair. In the post-medieval period Church Street North continued north beyond its modern limit and curved eastward to join Portway; Densham Road was not constructed until *c.*1900 and prior to the associated land clearance the area north of Church Street North was occupied by houses and associated plots of land. At Church Street North, in the Area of Archaeological Interest immediately east of the study site, the late medieval property survived with alterations until *c.*1900. In the early 18<sup>th</sup> century, however, the site was divided into plots by a path *c.*5m wide. A further house was built on the vacant plot measuring *c.*9m wide with two internal partitions. Cartographic evidence (Rocque's map of London 1746) also shows several buildings, with possibly associated land to the north, as does the OS First Edition of 1799 and Clayton's Survey of West Ham of 1821. Stanford's Library Map (surveyed 1862-77) shows several small buildings in the immediate site vicinity, at the northern end of the track which runs between the two main houses. Further evidence for tanning was recorded at this site and immediately south (VWH96) into the 16<sup>th</sup> century. At the church burials and vaults dating between 16<sup>th</sup> and late 19<sup>th</sup> centuries have been recorded (HW-AS-85) while to the southwest of the study site on West Ham Lane (HW-WL-96) building footings dating from 16<sup>th</sup> to 18<sup>th</sup> centuries were recorded along with contemporary drains, soils, pits and post-holes. Excavations undertaken by LP-Archaeology at 48 Church Street (south of All Saints Church) recorded a clay-lined well, brickearth quarrying pits and tanning pits dating between 17<sup>th</sup>-18<sup>th</sup> centuries (CWJ07).

By the early 17<sup>th</sup> century, the parish of West Ham had been divided into wards, Church Street, Plaistow, Stratford and Upton. The study site, within the village of West Ham lay within the Church Street ward which in 1670 was recorded as contained 103 houses (VCH:6). From this period until the early 19<sup>th</sup> century West Ham, like many London suburbs, was something of a rural retreat for the wealthier citizens of London. The excavations at 48 Church Street exposed two properties fronting Church Street dating to the mid-18<sup>th</sup> century, the second of considerable size and probably representing one of wealthy country houses (CWJ07). West Ham developed in line with the majority of London suburbs, which saw the arrival of the railways in the later 19<sup>th</sup> century promoting large-scale development in both residential properties and industry. Cartographic evidence dating to the later 19<sup>th</sup> century (Ordnance Survey 1867 & 1870 – Figure 2b) shows a number of Victorian properties over the study area and immediate vicinity. To the west is the site of the Abbey Mills Distillery which operated from 1848 to 1898. These survived until *c.*1900 when the area was cleared, presumably associated with the construction of Densham Road, which connected West Ham Lane to the west and Portway to the east, now forming the modern boundary of the study site.



**Figure 2a:** An extract from Clayton's map of 1821 showing the site location.



**Figure 2b:** An extract from the Ordnance Survey map of 1867 showing the site location.

## 4.6 Modern (1901-present)

Following the construction of Densham Road in c.1900, the study site lay within a small area of open space that remains today. The area suffered considerable bomb damage during World War II, and although the worst affected areas were concentrated to the far south near the river, large schemes of slum clearance and redevelopment were instigated following the end of the war including the Church Street area. The area to the south of the study site was redeveloped in the 1980s as residential estates replacing the earlier industrial works and kennels shown on preceding maps.

## 5. The Planning Background

- 5.1 The London Borough of Newham maintains specific policies relating to the importance of archaeological remains within the planning process, published in the Unitary Development Plan (2001) these are reproduced below:

### ARCHAEOLOGY

#### Archaeology: Investigation, Excavation and Protection

**3.114** Archaeological remains often provide the only evidence of the Borough's past. They are a finite and fragile resource very vulnerable to modern development and land use. The archaeology of the Borough is a community asset which should be preserved and the needs of development balanced and assessed against this. Early consideration of and consultation on archaeological issues will maximise preservation in accordance with PPG16. The destruction of such remains should be avoided if possible and either left in situ if the remains are of national or particular local interest, or excavated and recorded prior to development, where remains are of lesser importance. Site layouts designed to retain archaeological features intact will be considered favourably by the Council.

**3.115** The Greater London Archaeology Advisory Service (GLAAS - part of English Heritage) provides impartial advice to Newham Council. Sites of potential archaeological importance, to which this policy relates, can be defined as any site within an Archaeological Priority Area (APA). APAs are defined by GLAAS as areas having particular interest or value (Please refer to Map EQ6), or as sites where it can reasonably be shown from existing sources of information (most notably the Greater London Sites and Monuments Record) that remains of archaeological importance may survive. For further information, please refer to SPG Note 'Archaeological Code of Practice'. An archaeological assessment (either a desk study or a preliminary field investigation) will normally be required for any development involving a site more than 0.4 acres within an APA. The Council will also require such an assessment for smaller sites within the APAs, and sites outside the APAs, where this is clearly justified by the archaeological sensitivity of the site. Developers should undertake early consultation with the Council, and recognised archaeological organisations such as GLAAS, to avoid uncertainty and later delays.

**POLICY EQ43:** THE COUNCIL WILL PROMOTE THE CONSERVATION, PROTECTION AND ENHANCEMENT OF THE ARCHAEOLOGICAL HERITAGE OF THE BOROUGH. DEVELOPERS OF SITES OF POTENTIAL ARCHAEOLOGICAL IMPORTANCE WILL BE REQUIRED TO PRODUCE A WRITTEN REPORT, AS PART OF THE APPLICATION FOR PLANNING PERMISSION, ON THE RESULTS OF AN ARCHAEOLOGICAL ASSESSMENT OR FIELD EVALUATION CARRIED OUT BY A SUITABLY QUALIFIED

ARCHAEOLOGICAL CONTRACTOR; AND WHEN REMAINS OF IMPORTANCE ARE IDENTIFIED, THE COUNCIL WILL SEEK PRESERVATION OF THE REMAINS IN SITU. ON OTHER IMPORTANT SITES, WHERE THE BALANCE OF OTHER FACTORS IS IN FAVOUR OF GRANTING PLANNING PERMISSION BY MEANS OF THE IMPOSITION OF CONDITIONS ON THE GRANT OF PLANNING PERMISSION, AND POSSIBLY BY LEGAL AGREEMENTS, THE COUNCIL WILL ENSURE THAT ADEQUATE PROVISION IS MADE FOR THE PROTECTION, EXCAVATION AND RECORDING OF REMAINS, AND THE SUBSEQUENT PUBLICATION OF THE RECORDS OF EXCAVATION, PROVIDING A WRITTEN ACCOUNT OF THE ARCHAEOLOGICAL EXPLORATION, INCLUDING RECORDS OF FINDS.

**3.116** The Council will promote co-operation between landowners, developers and archaeological organisations in accordance with the British Archaeologists' and developers' Liaison Group Code.

**5.2** The site lies within an Archaeological Priority Area (APA) as defined by the London Borough of Newham UDP and English Heritage; this is shown in relation to the site on the existing Ordnance Survey map in Figure 3 below.



**Figure 3:** The site in relation to the Archaeological Priority Area as defined by the Newham UDP and English Heritage, based on the modern Ordnance Survey map.

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5.3 The site is also in close proximity to an ‘Area of Archaeological Interest’ which relates specifically to the medieval and post-medieval remains exposed during excavations by the Passmore Edwards Museum in 1973 (HW-CS-73). These remains included the footings of a house built *c.*1550 on the alignment of an earlier medieval property. The house survived until *c.*1900 when it was presumably cleared along with the surrounding area and Densham Road was constructed. A later, early 18<sup>th</sup> century property was also recorded along within wattle-lined pits containing horn cores thought to be related to a late-medieval early-post medieval tannery. The extent of the Area of Archaeological Interest is shown in relation to the modern Ordnance Survey map on Figure 4 below.



**Figure 4:** The site in relation to the ‘Area of Archaeological Interest’ (green) based on Passmore Edwards Museum excavations in 1973, on the modern Ordnance Survey map.

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## **6. Objectives**

**6.1** The archaeological work was split into two phases, initial trench evaluation undertaken prior to shaft construction work in 2007, and a subsequent phase of archaeological monitoring and hand-investigation undertaken during construction works in 2009. Initial research aims were revised in view of the results from the initial phase of archaeological works.

### **6.2 Phase 1: Evaluation**

**6.2.1** The trench excavations associated with the shaft were essentially for engineering purposes, however, archaeological observation was required during the excavations to determine whether any archaeological deposits survived on the proposed shaft site.

#### **6.2.2 Archaeological Research Questions**

The initial evaluation provided an opportunity to address several specific research questions:

- What is the natural topography and geology of the site; in particular the level of the Terrace gravels and whether there is overlying alluvium?
- Is there any evidence for prehistoric, Roman or Saxon activity, and what is the stratigraphic context and date range?
- Is there any evidence for medieval activity? Can the nature of this be defined – for example, occupation or agriculture – and can it be related to previous discoveries?
- What evidence is there for post-medieval activity, and does this add anything to what is known from cartographic sources relating to the development of the area?
- What remains survive from the 19<sup>th</sup> century development of the site, which is shown on contemporary plans?

### **6.3 Phase 2: Archaeological Monitoring and Hand Investigations**

**6.3.1** Following the initial trial excavations further archaeological work was deemed necessary. The groundworks were still primarily for engineering purposes associated with the shaft construction, however, the increased excavation area within the central shaft space allowed for greater exposure of the archaeological deposits in plan. The wider available area for archaeological investigation provided an opportunity to gain further information on the nature of the archaeological deposits identified during the evaluation phase, and consequently a revised research objective was formulated:

### 6.3.2 Revised Archaeological Research Questions

The original research aims were revised in the light of the evaluation, as follows:

- Are the lowest deposits described in the evaluation natural, or are they in fact infilling some form of deeper feature or hollow in the landscape? If so, what is the nature and depth of this, and can its extent be established?
- Following on from the above:
  - (a) Is there any dating or environmental evidence from these lower deposits? What is the nature of this, and do any dates reflect the occasional residual medieval material in the 16<sup>th</sup> century horizon?
  - (b) What is the natural geology of the site, in particular the level of the Terrace gravels and whether there is overlying alluvium related to the ancient floodplain of the Channelsea and Lea rivers?
- More generally, is there any evidence for prehistoric, Roman or Saxon activity, and what is the stratigraphic context?
- What further evidence is there within the 15<sup>th</sup>/16<sup>th</sup> century horizon for local activity, particularly relating to the nearby tannery?
- What other evidence is there for post-medieval activity? In particular, is there any significant evidence for 17<sup>th</sup> or 18<sup>th</sup> century activity or occupation?
- Can any post-medieval remains or features be related to cartographic evidence, for example the north-south property boundaries that are shown on Clayton's Survey of 1821 (Fig 2) or the probable yard and outbuilding to the east shown on the OS plan of 1867 (Fig 3)?

## 7. The Archaeological Programme

### 7.1 Introduction

The field evaluation and off-site work was carried out in accordance with English Heritage guidelines (in particular, *Standards and Practices in Archaeological Fieldwork, Guidance Paper 3*). Works also conformed to the standards of the Institute of Field Archaeologists, and overall management of the project was undertaken by a full Member of the Institute. Fieldwork was carried out in accordance with the Construction (Health, Safety & Welfare) Regulations, and safe working conditions were assessed during the course of the archaeological work.

### 7.2 Phase 1: Evaluation

#### 7.2.1 Fieldwork

The field evaluation consisted of two trial trenches, located within the proposed shaft footprint according to the drawing 1D2F-F1-02090-EX (© Thames Water Utilities Ltd 2004). Two trenches were dug, crossing at their

approximate centres and respectively *c* 15.4m and 9.5m in length. Due to their depth – up to 2.8m – the trench sides were also stepped in and aligned roughly north-east south-west.

Initial clearance of the trenches was undertaken by mechanical excavator, working under archaeological supervision. Deposits were removed in this way to the latest significant archaeological horizon.

## **7.2.2 Methodology**

Following initial clearance archaeological deposits and features were selectively excavated and recorded in stratigraphic sequence, and finds dating and other evidence recovered.

Archaeological contexts were recorded as appropriate on *pro-forma* sheets by written and measured description, and drawn in plan and/or section. The trench positions were recorded on a general site plan and related with appropriate accuracy to the Ordnance Survey grid. The fieldwork record was supplemented as appropriate by photography (35mm/digital).

The recording system followed the procedures set out in the Museum of London recording manual. By agreement the recording and drawing sheets used are directly compatible with those developed by the Museum.

The objective of the evaluation was to define the character, extent and significance of potential remains, and to recover dating and environmental evidence, and to ascertain whether any deposits encountered required further excavation so that the shaft may be put in place without damaging archaeological evidence.

The further work required as a result of the evaluation followed the procedures set out in MAP II (Management of Archaeological Projects, English Heritage 1991), including assessment of potential for further analysis.

## **7.3 Phase 2: Archaeological Monitoring and Hand Investigations**

### **7.3.1 Fieldwork**

The evaluation demonstrated that the top 1m of deposition was very recent and has no archaeological significance. It was therefore proposed that initial ground reduction/levelling operations would not be monitored: it was understood that these would not be deeper than the nearby pathway between the site area and the Churchyard.

Below this level and from a depth of no more than 1 metre an archaeologist was on site to monitor the machine reduction of 19<sup>th</sup> century horizons, which have been recorded to at least 1.7m from the present surface. Where possible deposits were examined and finds retained: significant hand investigation did not take place at this stage.

It was requested that where possible the machine would be fitted with a grading bucket, and particularly in the ensuing stages of investigation.

Between a depth of 1.7m and 2m it was anticipated that machine excavation would expose the surviving top of 15<sup>th</sup> and 16<sup>th</sup> century horizons. At this level selective hand investigation and recording was undertaken by a team of archaeologists, supported by a metal detectorist. Hand investigation was interspersed with controlled machine reduction, so as to most effectively sample different areas and levels of the significant archaeological deposit that was defined.

It was uncertain whether the lowest deposits recorded in the evaluation were of archaeological significance, and possibly overlay further remains, or if these represented the top of the natural sequence. For this reason it was proposed to monitor the machine excavation of these deposits, but with a contingency for further hand investigation by several archaeologists, plus controlled stages of machining.

### **7.3.2 Methodology**

In general the archaeological work involved selective excavation and recording of deposits and features, with adequate recovery of finds dating and other evidence. Additional techniques were applied as appropriate, for example metal detecting and environmental sampling.

Archaeological contexts were recorded on *pro-forma* sheets by written and measured description, and drawn in plan and/or section. Areas of investigation and discrete deposits and features were recorded on a general trench plan, and this in turn related to the Ordnance Survey grid. The fieldwork record was supplemented as appropriate by photography (35mm/digital).

The recording system followed the procedures set out in the Museum of London recording manual. By agreement the recording and drawing sheets used were directly compatible with those developed by the Museum.

## **8. Post-excavation Work**

### **8.1 Finds, Samples and Reporting**

The fieldwork was followed by a programme of off-site processing and assessment and by compilation of an illustrated report, and by ordering and deposition of the site archive. This report gives details of field methodology and of archaeological remains and finds, and an interpretation of the deposits investigated.

Finds and samples were treated in accordance with the appropriate guidelines, including the Museum of London's '*Standards for the Preparation of Finds to be permanently retained by the Museum of London*'. Material was retained and bagged with unique numbers related to the context record, although some categories will be discarded now that an appropriate record has been made.

Assessment of finds and samples was undertaken by appropriately qualified staff.

Copies of this report will be supplied to the client, English Heritage, the local planning authority and the local studies library. The level of reporting was determined by the on-site record, and includes a series of scale drawings, photographs and deposit descriptions.

A short summary of the fieldwork is appended using the OASIS Report Form, and in paragraph form suitable for publication within the 'excavation round-up' of the *London Archaeologist*.

## **8.2 The site archive**

An ordered, indexed and internally consistent site archive of the work will be compiled in line with MoL *Guidelines for the Preparation of Archaeological Archives* and it is anticipated that this will be deposited in the Museum of London Archaeological Archive.

The integrity of the site archive should be maintained, and the landowner will be urged to donate any archaeological finds to the Museum.

## **9. The Archaeological Investigations**

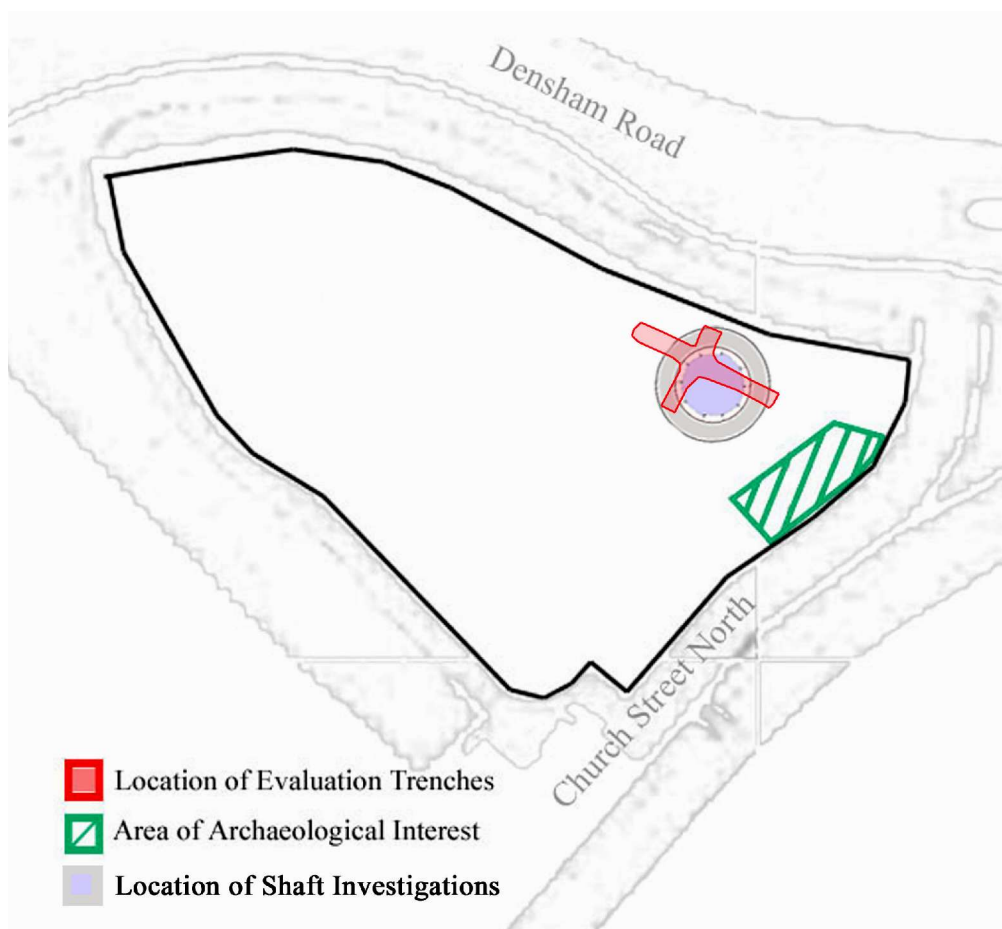
The archaeological work at Densham Open Space was undertaken in two distinct phases: an initial two-trench evaluation completed in June 2007, and a subsequent phase of archaeological monitoring and hand investigations completed in February 2009 during engineering works in the construction of a shaft associated with the Thames Water Flood Alleviation Scheme. Both phases of archaeological work encountered similar deposits and sequences which were fully recorded, with finds and environmental samples retained and subsequently assessed. The results of both the evaluation and follow-up investigations are discussed together in Section 10 below, which presents a chronological assessment and interpretation of the recorded archaeological remains in combination with the results of environmental and finds analysis. Section 9 below presents the summary details of each phase of archaeological work including locations, dimensions, and recorded contexts.

### **9.1 The Archaeological Evaluation**

The initial phase of archaeological work at Densham Open Space followed consultation with English Heritage and the identification of the site as holding potential for archaeological remains. The work was undertaken primarily for engineering purposes to establish the nature of underlying deposits and was monitored for archaeological remains. The following detail describes the methodology and summary results of this phase of work; interpretation and discussion is presented in conjunction with the results of the secondary phase of archaeological work in Section 10 below.

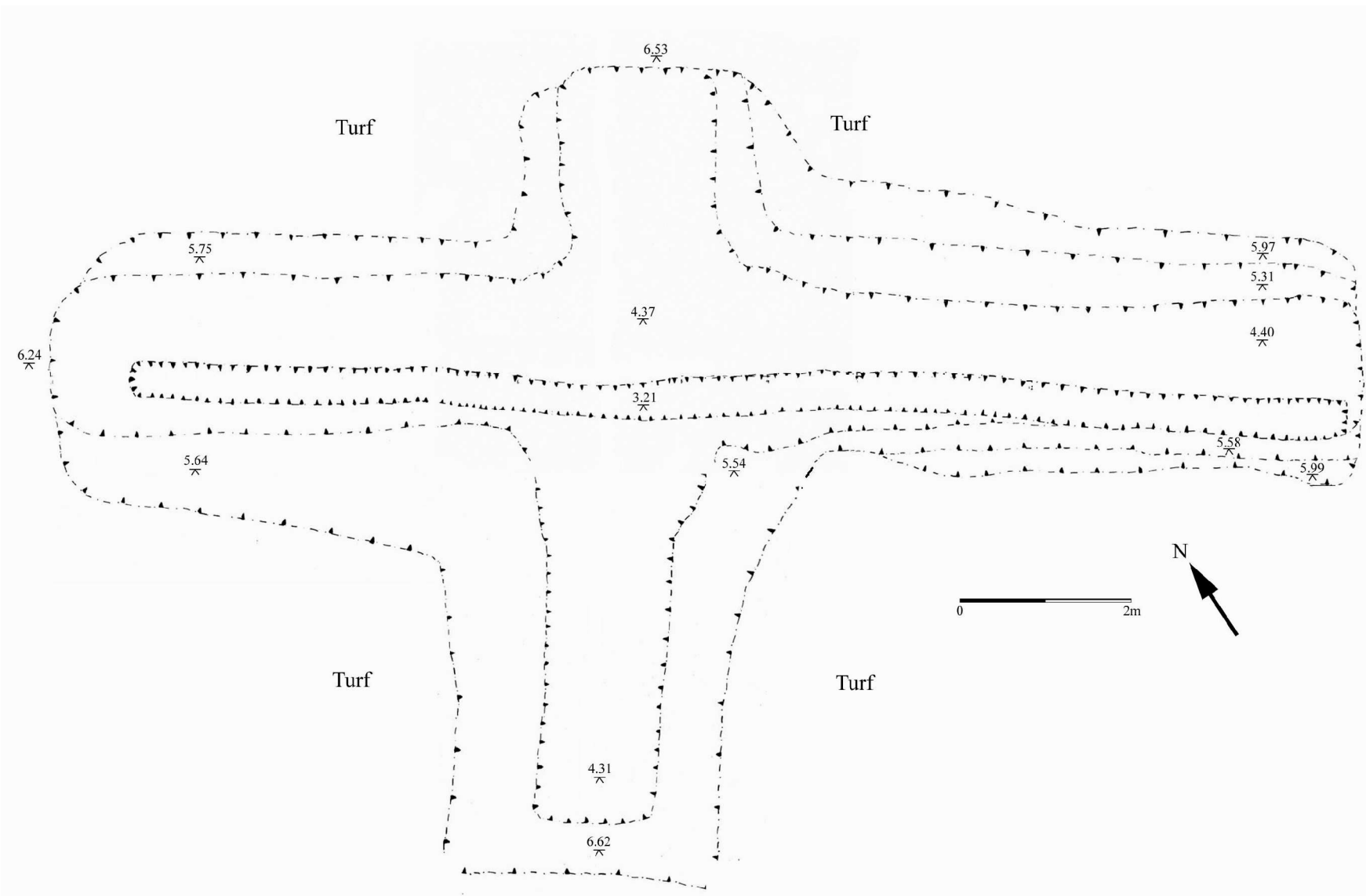
### 9.1.1 Location and On-Site Methodology

Initial excavation was undertaken using a small 360-degree mini-digger, although this was later substituted with a JCB due to heavy sub-soil compaction and the density of rubble made-ground layers. Two trenches running northeast-southwest and northwest-southeast respectively were excavated using a JCB, intersecting at the central point to create a cross-shaped trench. The excavated area was located adjacent (to the north-west) of the 'area of archaeological interest' as indicated by English Heritage (see Figure 5 below and Section 5.3 above).



**Figure 5:** Location of evaluation trenches and construction shaft within the 'open' space on the junction of Church Street North and Densham Road, with the Area of Archaeological Interest highlighted.

Due to the significant depth of deposits, the trenches were stepped to ensure the safety of individuals working in the base of the excavated area. Figure 6 (below) shows the overall plan of the final trenches, including all stepping as indicated by hachuring and appropriate height levels, recorded as metres OD.



**Figure 6:** Plan of evaluation trenches showing stepping and relative height levels (m OD).

### 9.1.2 List of Recorded Contexts

Context	Description	Interpretation
1	Compact, mid-grey brown sandy silt below turf, moderate pebble inclusions <50mm.	Top-soil
2	Compact, mid-grey yellowish brown sandy silt with red CBM inclusions, occasional glass and modern pottery.	Modern made-ground subsoil.
3	Modern demolition rubble in sandy silt matrix, frequent brick and concrete inclusions.	Modern demolition rubble and ground make-up layers. Possibly relating to post-war clearance and demolition.
4	Demolition rubble, brick and tile in sandy silt matrix, moderate quantities of late 19 <sup>th</sup> century pottery and glassware.	Demolition rubble and ground-makeup probably associated with clearance c.1900 and construction of Densham Road.
5	Possible <i>in-situ</i> tiled surface associated with [6] and [7] [8] [9]	Victorian tiled surface, possibly associated with Victorian drain [8].
6	Mid yellow-brown compact clay with occasional gravel inclusions, red CBM flecking.	Compact clay surface below [5], possibly bedding for tiled surface.
7	Firm, dark grey-brown silt with clay, frequent gravel inclusions with occasional CBM and clay pipe.	Fill of 19 <sup>th</sup> century drain feature [8] deposited sometime after drain construction and use.
8	Brick-built 19 <sup>th</sup> century drain, 3 x horizontal courses laid on-bed surviving in plan, greater survival in section.	19 <sup>th</sup> century drain.
9	Cut of Victorian drain feature [8]. Orientated north-south across trench, c. 350mm width, and exposed in length across trench at 1.4m.	Cut of drain [8]
10	Fill of Victorian rubbish pit exposed in section. Frequent pottery, glasswares, clay-pipe and CBM in silty clay matrix, sandy lens sealing rubbish grouped under same number.	Victorian rubbish fill, pottery included stamped later 19 <sup>th</sup> century plate bearing potters stamp <i>Floyd, Till &amp; Wildin</i> .



<b>Context</b>	<b>Description</b>	<b>Interpretation</b>
11	BOST sharp 60°, sharply sloping sides, BOSB sharp 90°, flat base. 0.95m (depth), 2.05m (diameter) – circular cut pit exposed in section.	Cut of Victorian rubbish pit, filled by [10]
12	Firm, dark-grey/brown silt/clay, frequent gravel inclusions, occasional flint, CBM, clay pipe and bone.	Fill of Victorian Drain [13] in cut [14]
13	Brick drain feature, two courses of bricks to north side (visible in section). Orientated northeast-southwest.	Victorian bricks constructed drain, in cut [14], filled by [12].
14	Linear cut c.0.4m deep by c.0.5m in width, length exposed as trench width 1.4m continuing beyond LOE, BOST sharp 90°, flat vertical sides and base, BOSB sharp, 90°.	Cut of Victorian drain feature [13], filled by [12].
15	Discreet concentration of horn-cores in light yellow-grey sandy matrix, frequent horn and other animal bone, occasional pot and CBM (tile).	Discreet concentration of horn-cores (discreet dump?) within overall dump layer [19].
16	VOID	VOID
17	Mid-grey/yellow sandy clay fill, loose-friable with moderate pot/bone and CBM inclusions, occasional gravel.	Fill of small post-medieval pit [18]
18	Sub-circular pit-cut, approximately 0.5m in width, extending into section beyond LOE. Shallow 80mm max-depth, gradual sloping sides and flat base.	Cut of post-medieval pit.
19	Mid-grey sandy/silty clay with frequent gravel inclusions. Oyster shell, bone, horn cores, pot, CBM and occasional metal objects (nails/unidentified).	Late Medieval/early Post-medieval dump layer/made-ground. Identified pottery suggests a late 16th / early 17th century date.

Context	Description	Interpretation
20	Same as [19], referring to section below Victorian drain cut [14]	Same as [19]
21	Loose gravel in a sandy clay matrix, mid-brown/orange.	Loose/shallow gravel layer overlying dump layer [19] [22] [23]. Possibly re-deposited natural.
22	Mottled blue/green silty clay, moderately compact with moderate-frequent gravel inclusions, pottery, CBM, animal bone and horn cores.	Dump layer similar to [19] containing pottery dating from 1480-1600 (context refers to west spur of trench).
23	Same as [22].	Same as [22] but referring to south end of trench. Pottery recovered dates to between 1480-1550.
24	Loose mixed green/yellow gravels in sandy clay matrix.	Gravels observed below [19] [22] and [23], appear very discoloured, unclear whether natural or redeposited as represent limit of excavation depth.
25	Mid-brown silty soil, discrete colour change in [19], moderate pebble inclusions, pottery, CBM and bone.	Colour change/discrete deposit within [19].
26	Blue-green clay observed in west end of trench below [24].	Discoloured clay, represents limit of excavation to west, unclear whether deposit of natural layer.

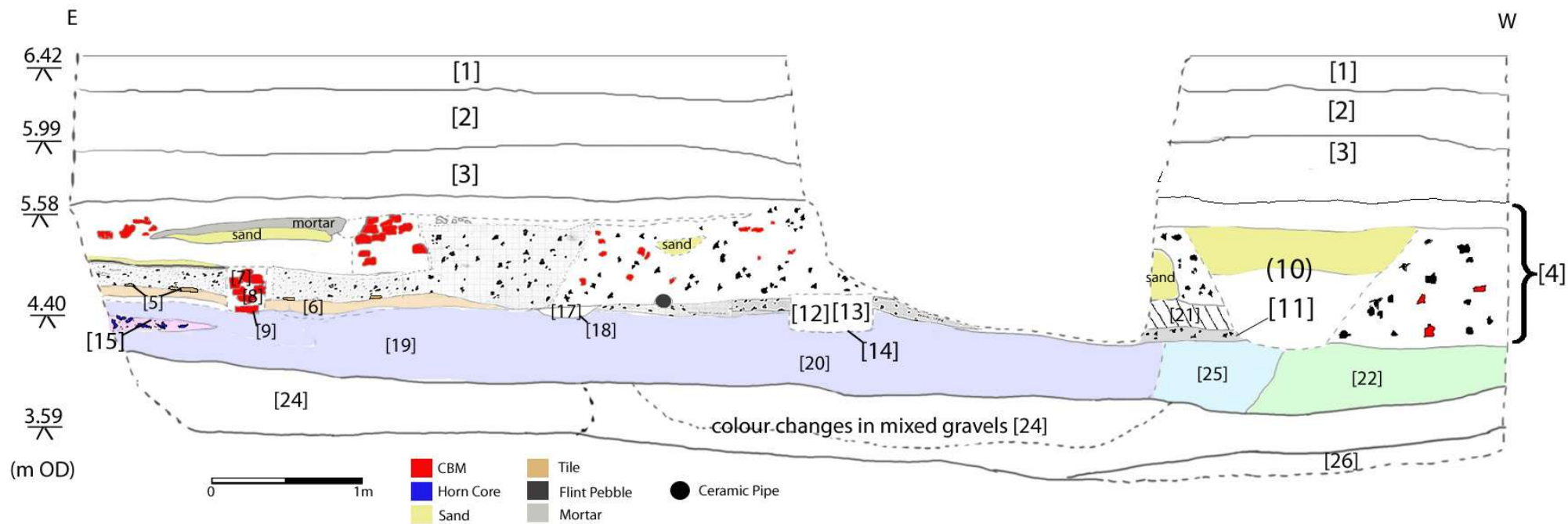
### 9.1.3 Summary and Discussion

Topsoil [1] and compact subsoil [2] were initially removed by machine to a depth of 5.99m OD, some 0.43m below the current ground level. Modern demolition rubble and made-ground [3] were exposed beneath, approximately 0.41m in thickness and removed to a level of 5.58m OD. The latter deposit contained glass, ceramic building material and pottery from the 20<sup>th</sup> century, this probably relates to post-war demolition activity and clearance. Context [4] relates to a series of dump layers and made-ground probably associated with demolition and clearance in the 19<sup>th</sup>/early 20<sup>th</sup> century. These layers consist of building rubble and domestic rubbish, featuring pottery and glass from the late 19<sup>th</sup> century. Context [4] is probably contemporary with the construction of Densham Road *c.* 1900, and the clearance of the site location. Truncated, partially surviving features from this period survive within this sequence of dump layers. Two Victorian brick-built drains [9] and [14] were exposed at an average depth of 4.45m OD. Associated with the eastern most drain [9], was a partially surviving tiled surface [5], laid on a compacted clay surface [6]. A Victorian rubbish pit [11] was exposed in the west end of the trench, the fill [10] contained significant quantities of Victorian ceramics including a later 19<sup>th</sup> century plate bearing the potters stamp *Floyd, Till & Wildin*.

These *in-situ* Victorian features truncated the underlying deposits [19] [20] [22] [23] and [25]. Layer [19] consisted of a mid-grey silty clay with frequent bone and horn core, moderate quantities of pottery and tile, charcoal flecking and oyster shell, context [20] represents the same deposit but refers specifically to the area beneath the Victorian drain [14]. Context [25] was of similar composition and consistency, and contained a similar assemblage of finds, but was browner and darker in colour. Contexts [21] and [22] represent the same deposit (exposed in the west and south ends of the trench respectively). The deposit consisted of a blue-green clay with moderate gravel inclusions, but containing a similar datable assemblage of pottery as [19]. The frequency of horn-cores and animal bone within these deposits, most notably in the concentration represented by context [15], suggests they may be associated with the tannery in operation nearby by the 16th century.

Following hand investigation of the 16<sup>th</sup> century deposits discussed above, a 400mm wide trench was excavated in the base of the trench (4.4m OD) using a 360-degree mini-digger. The trench was cut adjacent to the south section and running east-west, removing the dump-layers and exposing the underlying deposits. At the east end green gravels were exposed for some 400mm, giving way to blue-green clay. These gravels continued for the length of the trench and were entirely sterile of finds. Various colour changes were exposed as the trench progressed west, and the blue-green clay exposed at the eastern extent rose sharply to the west. It was considered unclear at this stage whether the gravels and underlying clay represent the natural, undisturbed deposits. The discolouration observed across the trench suggested that some form of disturbance had taken place.

The results of the evaluation were largely inconclusive, although a number of different deposits were exposed and an overall sequence established the nature of the earliest phase of archaeological remains was unclear. The archaeological deposits continued beyond the limits of excavation in all directions, it was consequently unclear whether they represented fills of isolated features, a single large feature, or alternatively a series of overlying deposits in an area of general 'dumping' activity. Furthermore, it remained uncertain whether the discoloured gravels and clays exposed at the base of the excavations were natural or dumped deposits. The trenches were excavated to the maximum possible depth, due both to machine access and safety limits, therefore, further investigation was required to establish the nature of the exposed deposits.



**Figure 7:** Section illustration of exposed deposits from east to west. The significant (16<sup>th</sup> century) horizon is represented by the surface of contexts [19], [20], [22] and [25]



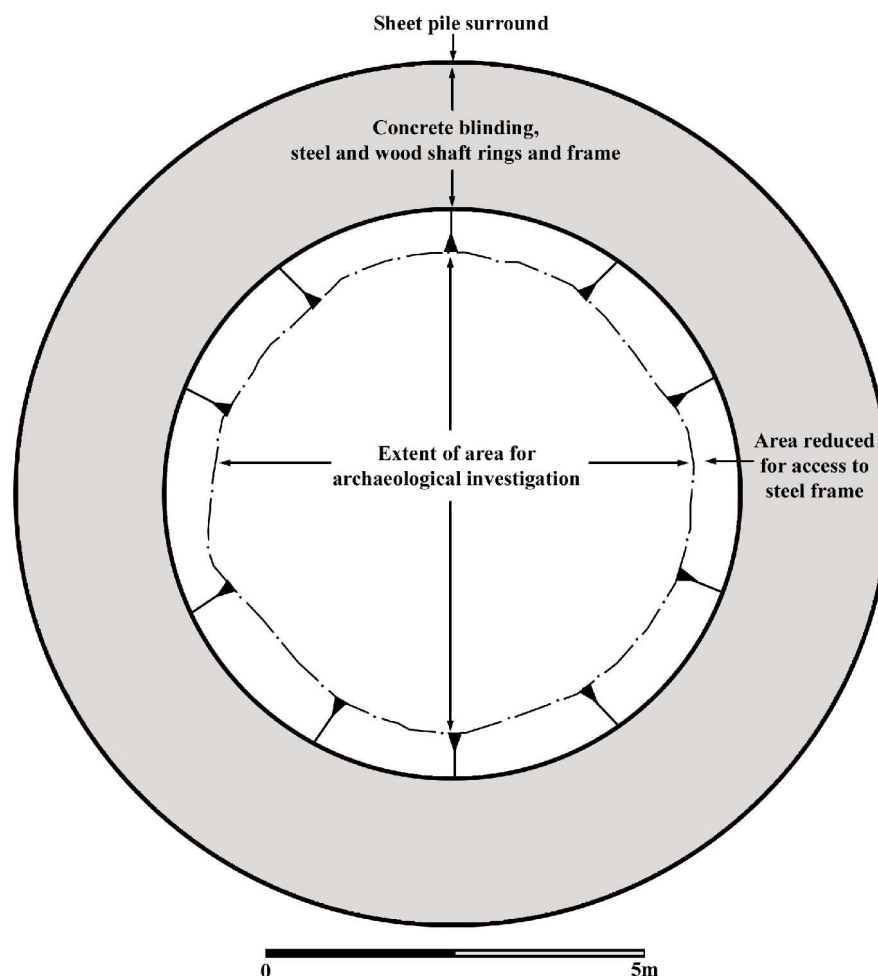
**Figure 8:** Views of the 2007 evaluation trenches, looking west (top) and oblique view to the southwest showing the main part of the section illustrated in Figure 7 (bottom).

## 9.2 Archaeological Monitoring and Hand Investigations

The preceding archaeological evaluation clearly demonstrated the presence of significant remains dating to the 15<sup>th</sup> and 16 centuries, but due to the limited area available for investigation the exact nature of the remains exposed remained unclear. Further archaeological work was considered necessary to clarify the nature of the exposed remains and ensure that no further material of significance was encountered during excavations for the main construction shaft. A programme of archaeological monitoring and hand investigation was proposed, to be undertaken during the main shaft construction works.

### 9.2.1 Location and On Site Methodology

The recent phase of archaeological monitoring and hand investigation was conducted during the ground reduction works within the construction shaft. Initial machine reduction was monitored to the desired archaeological horizon, removing overlying modern and Victorian dump layers to the deposits identified during the initial evaluation phase. The central shaft area was then left *in-situ* to allow for archaeological hand investigation and monitoring was undertaken during machining of the outer ring (see Figure 9 below).



**Figure 9:** Basic plan showing the extent of the archaeological investigation area in relation to the outer ring construction works.

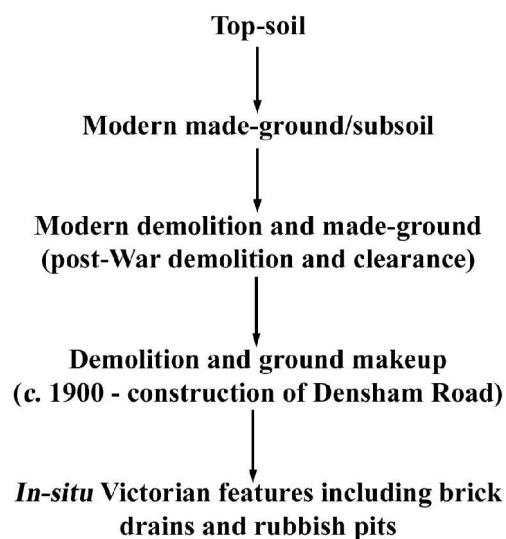
The central archaeological investigation area covered approximately 44m<sup>2</sup> while a further 60m<sup>2</sup> was monitored within the outer ring. All archaeological deposits were recorded in section and/or in plan as appropriate; a full photographic and written record was completed for both the monitoring phase and subsequent hand investigations.



**Figure 10:** The central area designated for hand investigation following machining and laying of concrete in the outer ring.

### 9.2.2 Recorded Contexts

Initial machine clearance to the level of archaeologically significant deposits was monitored throughout and exposed the same sequence observed during the evaluation phase. Machined layers consisted of the following stratigraphic sequence:



A number of *in-situ* Victorian features were observed, both continuations of those observed during the evaluation and further features outside of the evaluated area. These consisted of red-brick drains and foundations running at various orientations across the area; these were photographed and located on an overall site plan.



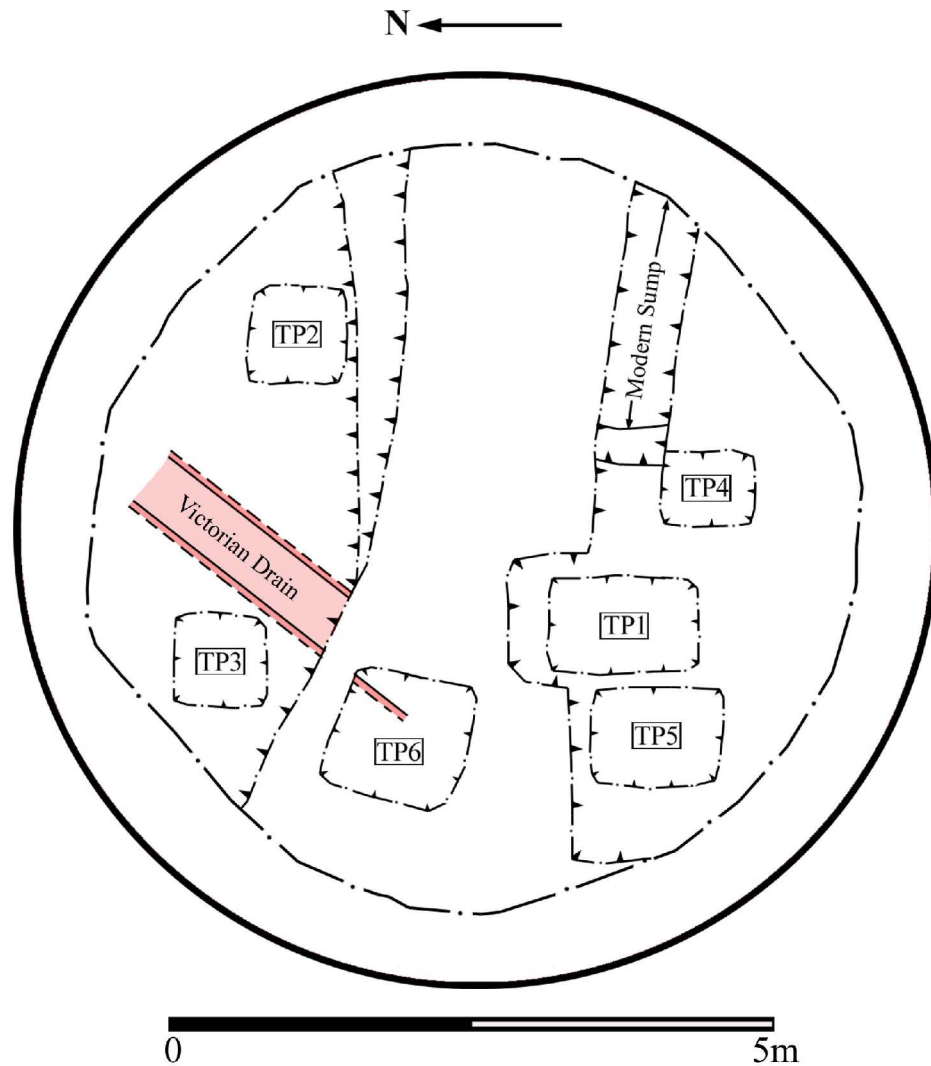
**Figure 11:** Victorian features observed during initial machine reduction; brick foundation (top) and brick drains (bottom).



Initial monitoring of the outer ring identified archaeological deposits overlying discoloured natural gravels. Finds were recovered from these contexts and bagged appropriately. To the north of the site similar deposits to those observed during the evaluation were noted. These are discussed below in relation to the subsequent hand investigations of the same deposits within the central area of the shaft.

### 9.2.3 Hand Investigations

An initial trench was dug from the eastern end of the site to locate the evaluation trench excavated in 2007. A further trench was dug in the southern half of the site in the area of a modern sump briefly exposed during machining. A total of six test-pits were excavated across the available area, avoiding the areas suffering from modern disturbance or where excavation had been undertaken in 2007.



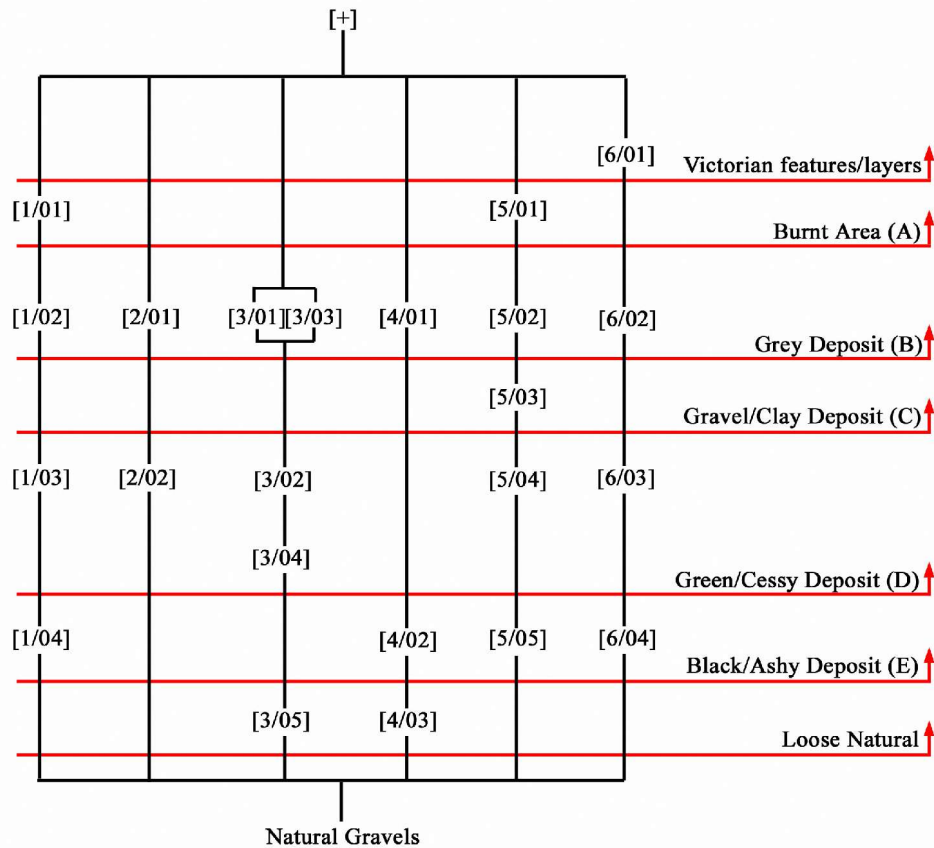
**Figure 12:** Plan of the site showing the location of hand investigations, Test Pits 1-6.

## 9.2.4 Stratigraphic Matrix and Recorded Contexts

Contexts were recorded individually by test-pit and finds were labelled with the test pit number and appropriate context number (*ie.* 1/01, 2/01 etc). The sequences observed in each test pit were broadly the same and individually assigned contexts can be grouped as representing the same distinct deposit observed in multiple test pits.

<i>Context</i>	<i>Description</i>	<i>Interpretation</i>
[1/01] [5/01]	Discrete area of apparently burnt material with degraded wood and horn core, yellow sandy patches in a silty clay matrix, contained pot, burnt bone, CBM and oyster shell.	Discrete deposit observed in the southwest corner of the site – approx. 2m by 2.2m in plan and 80mm thick.
[1/02] [2/01] [3/01] [4/01] [5/02] [6/02]	Light-mid grey friable silty clay deposit with charcoal and oyster shell flecking. Pot, CBM, metal and bone inclusions and very occasional gravel. 80-170mm thick.	Grey deposit observed during evaluation 2007 – observable across majority of site, thinning out to the west becoming darker with more gravel [5/03].
[1/03] [2/02] [3/02] [5/04] [6/03]	Silty clay cassy green deposit similar to overlying layer (above) with more bone, larger sherds of pottery; frequent charcoal and oyster shell <i>c.</i> 100m thick.	Cess deposit observed across majority of site but thinning out and disappearing towards the southeast corner of the site.
[1/04] [4/02] [5/05] [6/04]	Very dark grey/black loose silt and sand, ashy deposit with frequent burnt bone, bone, pot and CBM inclusions, degraded wood and horn core.	Very dark ashy deposit observed in the southern part of the site, not observed in the northern test pits or during Eval 2007.
[3/03]	Light mid-grey friable silty deposit with pot, bone and CBM, occasional charcoal.	Depression/lens in TP3 within/same as deposit [3/01].
[3/04]	Grey deposit with yellow mottled sandy patches, pot, shell and bone inclusions with occasional gravel.	Lens/discrete patch of sandier deposit in [3/02].
[4/03] [3/05]	Loose gravel at the base of test pits 4 and 3, recorded as separate context.	Loose gravel at interface between natural and overlying deposits.
[5/03]	Frequent flint gravel in a sandy clay matrix with CBM, bone and pot inclusions.	Darker/more gravely deposit observed only to the western part of the site (observed here during machining of outer ring).
[6/01]	Continuation of Victorian brick drain and associated fill in TP6.	Continuation of Victorian brick drain and associated fill in TP6.

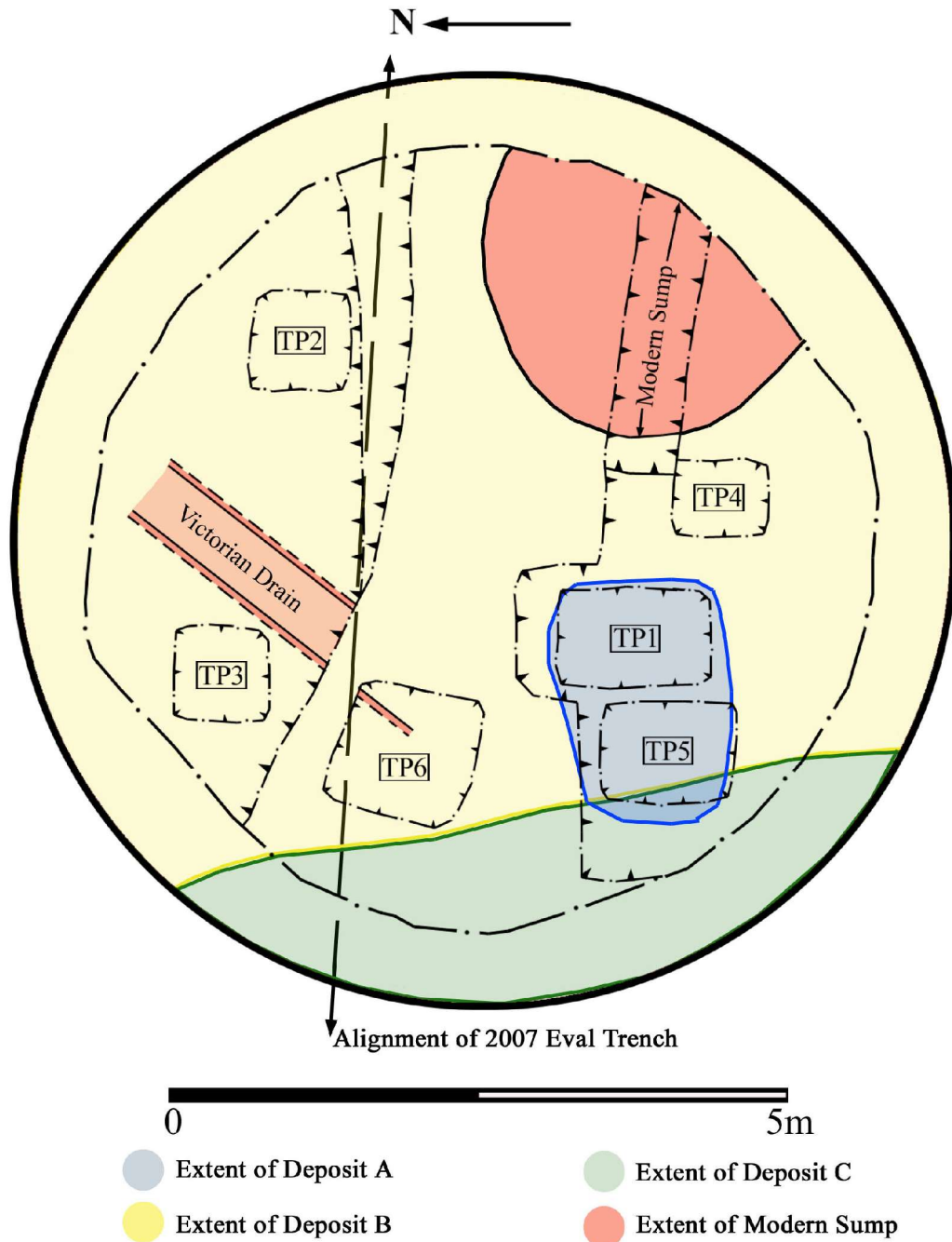
The stratigraphic matrix below shows the contexts listed above in stratigraphic order and grouped where the same or very similar deposits were observed in multiple test pits. It should be viewed in conjunction with Figures 13 and 14 below showing a plan of the site marked with the known/approximate extent of each layer/deposit.



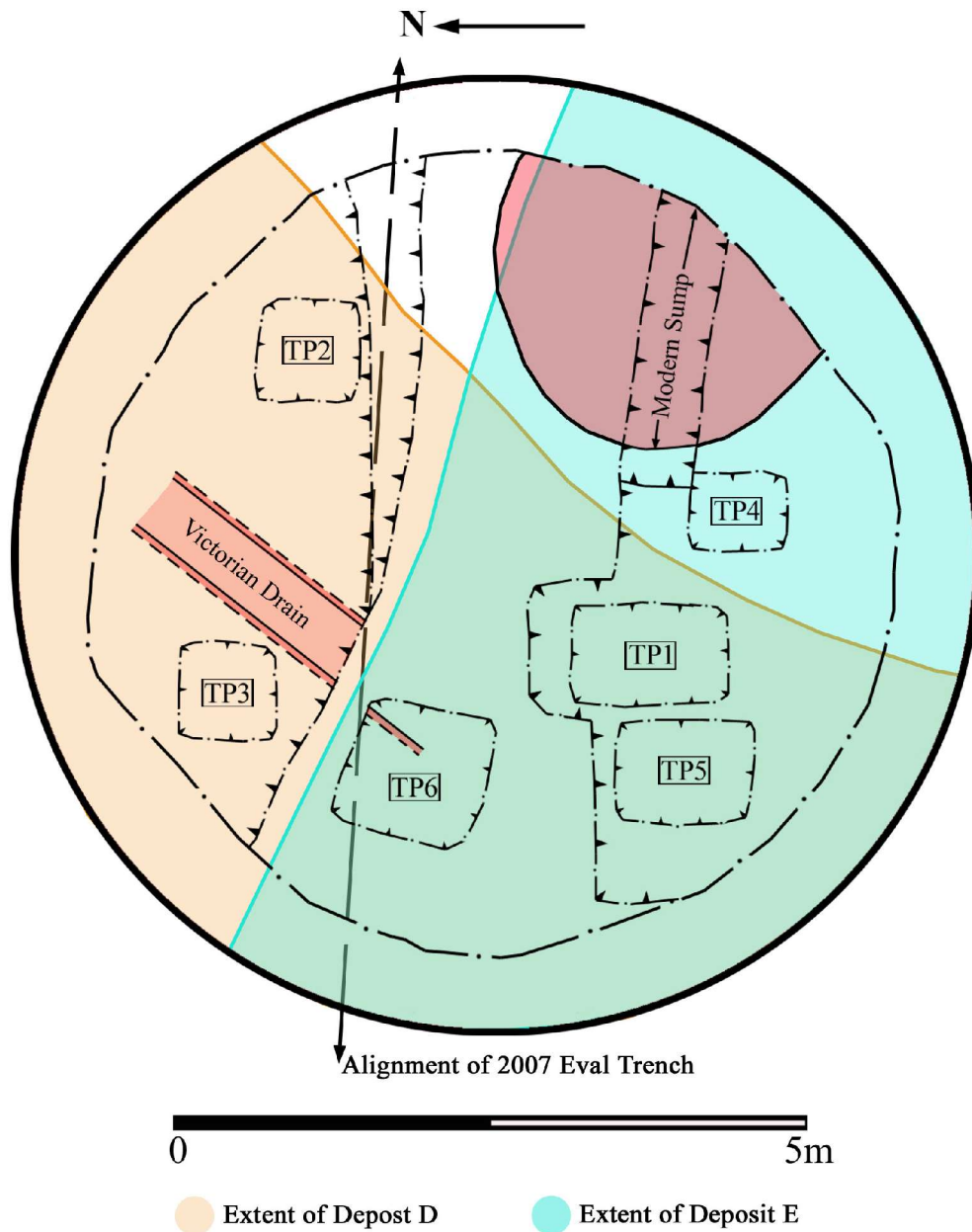
### 9.2.5 Summary and Discussion

As shown in the stratigraphic matrix above and Figures 13 and 14 below, a broadly similar sequence of deposits was observed in each test pit. A relatively uniform grey silty deposit (B) was observed across almost the entire excavation area and is the same deposit observed at this level during the evaluation phase. As with the recorded deposits in 2007, this layer became thinner to the west where a notably darker, more clayey deposit with more frequent gravel (C) began and became thicker heading west. Both these layers overlay a silty green and cessy deposit (D) which was again observed across the majority of the site but thinned out towards the northeast and was not observed in the most north-easterly of test pits – again these deposits were observed in the 2007 evaluation phase. In the northern part of the site this deposit directly overlay natural, indurated sand and gravels but in the southern and southwestern areas of the site a further deposit was recorded, one not observed during the 2007 evaluation phase. This deposit (E) consisted of a very fine, loose sandy ashy deposit, very dark brown/black in colour and containing sizeable lumps of very degraded wood and large quantities of animal bone. The natural gravels observed across the whole site were

noticeably discoloured and varied in compaction. It was initially unclear whether these deposits were indeed natural or represented disturbed or redeposited material. Subsequent reduction of the central shaft by machine was observed and it became clear that the natural deposits were merely discoloured. To the north the gravels were noticeable greener in colour, while to the south more orange deposits were observed – this colour change occurred gradually from north to south.



**Figure 13:** Plan of the site showing the extent of deposits A, B and C



**Figure 14:** Plan of the site showing the extent of deposits D and E.

The archaeological deposits observed during machine monitoring and hand investigations consisted of wide spread layers of dumped material. The nature of these deposits remained unclear – their full extents were not observed within the excavation area and they appeared to overly one another as opposed to cut into one another. Whether the recorded deposits reflect the infilling of a natural hollow or large pond or depression in the landscape is unclear. The site appears to be simply an anomalous area of low-lying ground for which there is no record or extent.



**Figure 15:** Looking south east with Test Pits 3 and 2 in the foreground.



**Figure 16:** Deposit A in the southern part of the site prior to the excavation of Test Pits 1 and 5.



**Figure 17:** Test Pit 1 looking north



**Figure 18:** Test Pit 2 (very shallow) showing Deposits B and D overlying natural gravels.



**Figure 19:** Test Pit 3, plan south facing section (top) and plan view (bottom)



**Figure 20:** Test Pit 4 – west facing section





**Figure 21:** Test Pit 5, south facing sections.



**Figure 22:** Test Pit 6 showing continuation of Victorian drain and north facing section.

## **10. Assessment and Interpretation of the Archaeological Remains**

The archaeological remains encountered during groundworks at Densham Open Space represent successive phases of occupation of the site, with the earliest well-represented period during the late medieval and early post-medieval era. The following sections discuss the chronological development of the site based on the archaeological remains recorded during the investigative works in combination with the post-excavation assessment of finds and environmental samples. This material is supplemented by further research into the history of the area, archaeological work undertaken in the vicinity of the study site and with reference to comparable sites across the London area and beyond.

### **10.1 Natural Deposits**

The natural deposits encountered at the limit of excavations in both phases of archaeological work consisted of discoloured gravels overlying similarly discoloured sandy clay deposits. Gravel deposits were recorded between 3.926m and 4.106m OD with underlying clay recorded at 3.59m OD. Initial observation of these deposits could not clarify whether they represented *in-situ* natural geology or redeposited materials. The varying colourations including greenish blue to orange suggested some level of disturbance or intrusion. Extended monitoring of machining during the final shaft excavations in 2009 continued to expose gravels and clay becoming less discoloured with depth. It thus seems likely that the upper levels of the natural deposits were merely discoloured by overlying deposits and did not represent redeposited or disturbed material. Environmental analysis of the deposits immediately overlying the natural gravels indicated waterlogging and high organic content (QUEST: 2009), conditions to which the discolouration of natural gravels can be confidently attributed.

### **10.2 Prehistoric, Roman and Saxon**

No evidence of occupation dating to the prehistoric, Roman or Saxon periods was recorded during the archaeological investigations. Historic understanding of the earlier periods indicates that there was little established settlement in this part of East London, and archaeological remains are scarce. It is possible that later occupation, in this case represented by the earliest recorded deposits of the later medieval period, truncated any earlier surviving remains but the lack of even residual material dating from the prehistoric to Saxon periods seems to indicate that there was no occupation of the study site at this time.

### **10.3 Early Medieval**

The earliest datable material recovered from the archaeological investigations consisted of pottery sherds dating from the later 13<sup>th</sup> century to mid-14<sup>th</sup> century. These included three sherds of Kingston-type ware (1230-1400) and two sherds of Mill Green Ware (1270-1350). However, these earlier sherds appear to be residual material recovered from later contexts dating to the 15<sup>th</sup> and 16<sup>th</sup> centuries. Their presence alone may suggest some marginal

occupation of the site in the earlier medieval period, but the absence of the more common wares of the area and period argues firmly against any significant activity. It is again possible that later occupation in the 15<sup>th</sup> and 16<sup>th</sup> centuries truncated remains dating from the earlier medieval period, but as the levels of even residual early medieval material are so low it seems more probable that the site was either empty or extremely marginal in this period.

#### 10.4 Late Medieval to Early Post-Medieval (later 15<sup>th</sup> to early 17<sup>th</sup> Century)

The earliest stratified and datable material recorded during the archaeological work consisted of a series of broadly contemporary deposits dating from the later 15<sup>th</sup> century to the late 16<sup>th</sup> or early 17<sup>th</sup> century.

Deposit	Phase 1 Contexts	Phase 2 Contexts	Description	Date (based on pottery)
A	N/A	1/01 5/01	Discrete area of burnt/degraded wood and bone.	Mid-late 16 <sup>th</sup> Century
B	[15] [19] [20]	1/02 2/01 3/01 4/01 5/02 6/02 3/03	Grey silty clay deposit with frequent oyster shell and charcoal.	Mid-late 16 <sup>th</sup> Century
C	[22] [23]	5/03	Darker gravel and clay deposit with frequent tile.	Late 15 <sup>th</sup> to mid 16 <sup>th</sup> Century
D	[21]	1/03 2/02 3/02 5/04 6/03 3/04	Green cassy deposit	Late 15 <sup>th</sup> to mid 16 <sup>th</sup> Century
E	N/A	1/04 4/02 5/05 6/04	Dark ashy deposit	Late 15 <sup>th</sup> to mid 16 <sup>th</sup> Century

The extent and relationships of these deposits are discussed in detail in Section 9 above, but to summarise they consisted of at least 5 distinct contexts distinguishable by colour and composition but containing broadly similar assemblages of datable pottery and other finds. The full extent of any of the deposits was not established (barring a discrete area of degraded bone and burnt material – Deposit A [1/01] [5/01] Phase 2, not observed in Phase 1-Evaluation). Deposits A to E were clearly not fills of individual discrete cut features, but the limited area available for archaeological investigation made it difficult to determine whether they represent a series of fills of a single larger

cut feature (the edges of which lay beyond limit of excavation) or whether they represented a series of ‘dump layers’ in an area of land generally demarcated for the disposal of waste material.

#### **10.4.1 Dating**

Stratigraphically the earliest recorded deposit of this period was Deposit E, a dark ashy soil containing pottery dating from the late 15<sup>th</sup> to mid 16<sup>th</sup> century. The latest stratigraphic deposit of this period was Deposit A, containing pottery datable from the mid-late 16<sup>th</sup> century. Therefore, although the five deposits were stratigraphically distinct they are not further distinguishable chronologically through a study of the pottery types. The deposits are consequently discussed in this section as contemporary, representing activity on the site dating from the late 15<sup>th</sup> century to the late 16<sup>th</sup> century.

#### **10.4.2 Deposition and Topographic Context**

Environmental bulk samples were taken from Deposits A and E, and a column sample taken from the south facing section of Test Pit 1. The samples were processed and analysed by Quaternary Scientific (QUEST) (the full report is included as an appendix to this report). Analysis of the sedimentary sequence observed in the column sample indicated that the contexts represented accumulated material within a depression, either natural or artificial, in the natural gravels in close proximity to an area of residential or industrial activity. There was no evidence to indicate that the deposits were waterlaid, but alternatively dumped casually and deliberately in “...a dry or possibly marshy dell or gully dissecting the bluff forming the riverward edge of the Taplow Terrace...” (QUEST: 2009:7). Unfortunately there are no contemporary cartographic sources illustrating such a feature; the earliest available source of this type, Rocque’s map of 1746, indicates nothing of the type, although if the recorded deposits are indeed dumps within a dry depression it is likely to have been in-filled and levelled off by this time.

A sample of Deposit A was shown to contain a range of taxa including holly, hazel and oak, willow or poplar fragments contained particles of sediment, a type of ‘infiltration’ observed typically in low-lying areas or in saturated deposits (possibly intermittently by fluctuations in the water table). The animal bone assemblage indicated similar conditions, being frequently dark brown in colour indicative of waterlogged conditions. This analysis thus seems to support the theory that the deposits represent the accumulation of material in a natural or artificial depression that was subsequently waterlogged either intermittently or over a more extended period. Analysis of the pottery sherds recovered from the associated deposits (Blinkhorn 2009) noted a lack of abrasion and relatively few cross-fits between fragments. These observations may indicate that the deposits are secondary, perhaps representing material originally dumped elsewhere and subsequently gathered and redeposited in the observed sequence.

### 10.4.3 Associated Activity

The quantity of material dumped in this relatively small area of investigation implies at least some concentrated occupation in the immediate vicinity of the study site in the late 15<sup>th</sup> to late 16<sup>th</sup> centuries. The nature of this associated activity can be partly inferred by further examination of its waste products: the finds and environmental evidence recovered from deposits A-E. Further study of this material can be used to indicate whether the associated occupation responsible for generating the deposits was of a domestic or industrial nature, and if the latter the types of industry in existence during the period.

A full assessment of the pottery is included as an Appendix in this report (Paul Blinkhorn: 2009), the results of which indicate a general assemblage of utilitarian wares of the late-medieval to early post-medieval periods. The majority of sherds were identified as fragments of large jugs or storage vessels, with a still considerable assemblage of drinking vessel fragments including Tudor Green cups and German Stoneware mugs. There was virtually no pottery associated with food preparation or consumption, with the assemblage dominated by wares reflecting storage and consumption of drink. This type of assemblage is not indicative of domestic waste, and thus it is likely the nearby occupation generating this waste material is industrial in nature.

The pottery assemblage (totalling 334 sherds) was the largest category of finds represented on the site; however, the animal bone assemblage was comparatively large totalling 109 bones recovered from 25 contexts (Phases 1 and 2 inclusive). The bone assessment (undertaken by Quest and included as an Appendix in this report) identified six species: cattle, sheep/goat, pig, dog and goose, with cattle skull, horn cores and teeth representing the largest proportion. The bone was generally of adult and sub-adult animals and frequently displayed signs of butchery, generally as bones chopped through and occasionally with smaller, finer cut marks. Overall assessment of the animal bone indicated 'mixed origins', potentially including general domestic waste of meat-bearing limb bones of cattle, sheep and pig. However, the quantity of horn cores, cattle skull bones and teeth may also reflect the inclusion of primary butchery waste in this assemblage.

Initial interpretations of the site suggested that the dumped material was directly associated with a nearby tannery, evidence for which was recorded during archaeological investigations in close proximity to the study site (see Section 4 above). The results of the pottery and animal bone assessment certainly appear to support this interpretation. Other notable tanning sites have recorded similar assemblages of waste material, for example the contemporary late 15<sup>th</sup> to 17<sup>th</sup> century tanning complex at The Green, Northampton (Shaw: 1996). The pottery assemblage here was dominated by drinking related wares, and lacked a similar degree of cooking or food consumption wares. The species assemblage was again similar, representing predominately cattle, sheep and pig and in the case of the cattle bones a large proportion of skull bones and teeth. Tanners operating in the later medieval period received their hides with the skulls and hooves attached, these were subsequently removed resulting in a generally large proportion of horn cores at tanning sites (Cherry:1977). This is

certainly true of the West Ham assemblage and it thus seems likely that at least part of the animal bone assemblage represents waste associated with the tanning process.

Other finds recovered from the deposits are less indicative of purely industrial waste. The ceramic building material was very typical of the period, consisting predominantly of plain roofing tile, with some identifiable peg tile fragments and a single fragment of nib tile. The fabrics were varied suggesting a number of different sources; the thickness of tile also differed across the assemblage and other variables noted included single or double pegs, indented borders and waster fragments. Some tiles showed blackened edges indicating use and subsequent disposal. The tile assemblage is not typical of industrial tanning sites, and seems to indicate a broader range of activities producing waste material accumulated at the study site. This is supported by the variance in animal bones, with a number of meat-bearing limb bones suggesting domestic waste. Further finds recovered from these contexts included two pieces of leather patten (the leather 'in-sole' of an open toed item of footwear supported on wooden or leather clog and held onto the foot by straps), and a single tin spoon, all of which are typical of the later medieval period (more detailed analysis included as an Appendix to this report). These finds could easily be included as additional items in more typical industrial waste from a tannery, but they may also indicate a wider accumulation of waste from different sources. It is possible that the deposits represent secondary contexts, material initially dumped elsewhere and subsequently gathered and dumped in a natural or artificially created hollow. Alternatively, the site may have acted as a general 'dumping ground' for locally produced waste material, including excess material from local industries and that produced by local domestic occupation.

The material appears to have accumulated over the period from the late 15<sup>th</sup> to late 16<sup>th</sup> centuries. This prolonged period spanning approximately a century suggests that the waste disposal was not a deliberate infilling or levelling of the hollow, which would presumably have occurred over a shorter time period. The finds assemblages, most particularly the pottery, indicate a fairly intense period of use between the 15<sup>th</sup> and 16<sup>th</sup> centuries, but activity at the site appears to cease rather abruptly in the late 16<sup>th</sup> or very early 17<sup>th</sup> centuries. Later pottery types typical of the period and location are absent from the assemblage, indicating an end to use of the study site somewhere around AD1600.

## **10.5 Mid Post-Medieval to 19<sup>th</sup> Century**

Following apparent abandonment of the study area as a 'dump-site' around the beginning of the 17<sup>th</sup> century, there is no evidence for occupation until the Victorian period. The intervening period is basically unrepresented except for a very small amount of residual material in the later deposits. It is possible that remains from this period have simply been destroyed, or fully truncated, by the later Victorian features which intrude to a significant depth. It is, however, equally possible that the site was unused during the mid-late post-medieval period and the site was left open and unoccupied much like its current use.

The later post-medieval period, particularly the 19<sup>th</sup> century, saw widespread development of the area, largely due to the arrival of the railways and the improvement of transport links into the city. As discussed below, it is likely that the increased development of the area in this period saw the reclamation of previously open land and the construction of residential properties.

## **10.6 Victorian**

The later post-medieval and Victorian period saw rapid development of this part of east London. The Victorian features exposed during the archaeological works, consisting largely of brick drains, rubbish pits and walls probably represent this period of development. The available cartographic sources for this time certainly show the study site as occupied by houses and gardens. Clayton's map of 1821 and the earliest Ordnance Survey maps of the 1860s illustrate properties covering the entire study site and it is clear that the contemporary features recorded during the evaluation and subsequent works are associated.

## **10.7 Modern**

The surviving evidence of Victorian and later-post-medieval occupation of the study site is restricted to below ground features including brick drains, truncated rubbish pits and foundations. The properties that once stood across the site in this period were demolished and the site levelled around 1900. These works are clearly represented in the exposed sequence with upper deposits of demolition material containing pottery, glass and other finds datable to the turn of the century. The works were presumably associated with the construction of Densham Road, which now bounds the study site to the north. Later deposits exposed at the top of the sequence are thought to represent rubble and waste material associated with bombing during the Second World War. The Civil Defence Bomb Maps certainly show explosives in the surrounding area and it is likely that much of the demolition material resulting from this period was spread across the site, subsequently levelled off and turfed resulting in the existing open-space.

## **11. Summary and Conclusions**

### **11.1 Results**

The archaeological sequence recorded during works at Densham Open Space spanned a period of occupation dating from the 15<sup>th</sup> century to the modern day. Natural deposits were exposed at the base of the sequence, consisting of discoloured natural gravels and sandy clay deposits. These were overlain by a series of 'dump layers' representing waste material dumped on the site in the later 15<sup>th</sup> to later 16<sup>th</sup> centuries. The material is thought to represent waste produced by a combination of local activities, significantly that produced by a nearby tanning industry. It is possible that the deposits are recorded here in a secondary context, as suggested by the pottery assemblage, having been originally dumped elsewhere and subsequently gathered up and redeposited on the study site.

Environmental assessment of the deposits does not indicate that they were water-lain, but suggest instead that they accumulated in a natural or artificial depression in the natural gravels. An artificial depression might suggest previous gravel extraction, but there was no conclusive evidence for this within the site area. The significant time span of almost a century of accumulated material suggests that the deposition was not undertaken as a deliberate act of infilling this depression, for which one would expect a significantly shorter time period, more that the site represented a useful location for waste disposal and featured as such for a range of local activities. The finds certainly indicate a close association with the nearby tannery operation, but additional assemblages and assessment of the animal bone indicate that the site was not solely associated with this industry.

Apart from a few residual finds, there was virtually no evidence for occupation of the site between the 17<sup>th</sup> and early 19<sup>th</sup> centuries. Whether the site was open and unused during this period, or whether the later 18<sup>th</sup> century and Victorian occupation effectively destroyed any archaeological remains is unclear. Evidence for this latter period was fairly substantial, recorded in the form of a series of brick built drains, foundations and rubbish pits. This too was subsequently truncated by demolition and clearance works in the later 19<sup>th</sup> century and by the construction of Densham Road c.1900, by which the time the site was used as open space. The most recent recorded deposits are thought to originate from rubble and demolition material associated with bombing in the Second World War, and subsequently used for landscaping.

## **11.2 Assessment of Potential for Further Analysis**

The site and findings as summarised above could form the subject of a short publication paper, for example in the *London Archaeologist*. However, it is not considered that any significant further analysis could be undertaken on the finds or environmental material. Likewise, a fairly thorough search has been made of documentary and cartographic sources and it is unlikely that further research will provide any more meaningful evidence for the history of the site.

The study area seems to have originated as a localised hollow or depression in the landscape. From this there have clearly been two periods of activity, with the gradual accumulation of material during the 16<sup>th</sup> century and the subsequent development of the later 18<sup>th</sup> and 19<sup>th</sup> centuries.



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### General Sources

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**ADS** – Archaeological Data Services, on-line database

**GLSMR** – Greater London Sites and Monuments Record

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## Appendix I: Pottery Assessment

*Paul Blinkhorn*

### The Assemblage

The pottery assemblage comprised 334 sherds with a total weight of 4886g. It was recorded utilizing the Museum of London fabric codes (*eg.* Vince 1985, 38), as follows.

KING: Kingston-type ware, 1230 – 1400. 3 sherds, 20g.  
CBW: Coarse border ware, 1270-1500. 2 sherds, 11g.  
MG: Mill Green ware, 1270-1350. 2 sherds, 4g.  
TUDG: 'Tudor green' ware, 1380 – 1550. 3 sherds, 21g.  
LLON: Late London ware, 1400-1500. 5 sherds, 35g.  
COLS: Colchester slipped ware, 1400 – 1550. 11 sherds, 372g.  
LMSR: Late-medieval/transitional sandy redware, 1480 – 1600. 282 sherds, 4325g.  
CSTN: Cistercian ware, 1480 – 1600. 12 sherds, 99g.  
PMSRY: Yellow-glazed post-medieval slip-coated redware, 1480 – 1650. 14 sherds, 209g.  
FREC: Frechen stoneware, 1550-1700. 3 sherds, 51g.  
PMR: Post-medieval redware, 1580 – 1900. 2 sherds, 73g.  
STSL: Staffordshire slipware, 1650-1800. 1 sherd, 10g.  
CHINA: 'Ironstone' china, 1800-1900. 5 sherds, 28g.

The pottery occurrence by number and weight of sherds per context by fabric type is shown in Table 2. The chronology for each context-specific assemblage has been adjusted, where necessary, with reference to the site stratigraphic matrix. The range of fabric types is typical of the later medieval period in the London area, and can be paralleled at numerous sites of the period in and around the city.

### Discussion

The range of wares present suggests that activity at the site was intense, but fairly short-lived. There is a 'background' scatter of residual earlier medieval wares, but the earliest stratified pottery dates to the 15<sup>th</sup> century, and the main period of pottery deposition appears to have all ended by the close of the 16<sup>th</sup> century. The earliest dated pottery (Test-pit 5, context 5) only produced a single sherd, but it is the stratigraphically earliest deposit in the test-pit in question, and the dating of the 15<sup>th</sup> century appears reliable. The pottery occurrence by ceramic phase and the defining wares for the phase are shown in Table 1.

The assemblage is dominated by utilitarian pottery, particularly late medieval/transitional redwares (fabric LMSR). Small quantities of earlier medieval types, such as Surrey wares and Mill Green wares are present, and while it is entirely possible that the former are contemporary, the presence of the latter, which is residual, suggests that there may have been low-level activity at the site in later 13<sup>th</sup> or early/mid 14<sup>th</sup> century, but the fact that natural was encountered in all the test-pits without deposits of such a date being encountered indicates that the site was of a somewhat marginal nature before the 15<sup>th</sup> century. Certainly, all the common earlier medieval wares known from the region, particularly London ware (fabric LOND, c AD1080 – 1350), are entirely absent.

The pottery record suggests that the site reverted back to marginality in the later years of the 16<sup>th</sup> or early 17<sup>th</sup> century. Again, pottery types which are common in the London area in that time, particularly Border Ware (fabric BORD, c 1550-1700) and Tin-Glazed wares (fabric TGW, 1570-1800) are entirely absent, and while this may be due to truncation in the 19<sup>th</sup> century or later, such pottery was not even present as residual material, suggesting very strongly that the site was abandoned by AD1600, or soon after. Another common early post-medieval pottery type, Redware, was only represented by two sherds, which again strongly suggests abandonment of the site around AD1600.

*Table 1: Pottery Occurrence per ceramic phase*

Phase	Defining wares	No. Sherds	Wt. Sherds	Mean weight
1380 - 1480	TUDG, LLON	1	6	6g
1480-1550	CSTN, LMSR	200	2871	14.4g
1550-1580	FREC	86	1381	16.1g
1580 - 1600	PMR	40	584	6.8g
	Total	327	4842	

Generally, the assemblage is in very good condition, with the sherds mostly entirely unabraded. The mean sherd weight is not exceptionally high, however, and few cross-fits were noted, so it is entirely possible that the deposits are of a secondary nature, *eg.* midden deposits which were then gathered up from elsewhere, probably nearby, and dumped at this site. The majority of the sherds are from large utilitarian vessels, probably cisterns or large jugs or storage vessels, with the rest of the assemblage comprising fragments of drinking pottery in the form of Cistercian ware and Tudor Green cups and German Stoneware mugs. It is almost entirely pottery associated with the storage and consumption of drink; pots associated with the preparation and consumption of food is all but absent, other than one or two sherds from footed cooking vessels such as cauldrons, but these could of course have been used for heating non-culinary substances.

This suggests very strongly that the pottery was originally consumed at an industrial rather than domestic site. The presence of horn cores in one of the deposits suggests that much of the material encountered during this excavation, including the pottery, may be waste from a tannery. One of the features of pottery assemblages associated with late medieval industrial sites such as tanneries is that there is almost always a larger than normal proportion of drinking pottery, and little pottery related to food and its preparation and consumption. For example, at King Stable Street, Eton, excavation of the waterfront revealed a late medieval tannery complex (Blinkhorn and Pugh 2000), and the pottery assemblage for that period was dominated by drinking pottery in the form of mugs, cups, bottles and small bowls (Blinkhorn 2000, 21). A similar pattern has been noted at a number of other sites (*eg.* Shaw 1996).

It would appear therefore that the nature and date of the pottery assemblage is entirely in keeping with it and the associated archaeological material of other types being a series of dumps of waste from a late medieval industrial complex, most probably a tannery.

**Table 2: Pottery occurrence by number and weight (in g) of sherds per context by fabric type**

F	Cntxt	KING		CBW		MG		TUDG		LLON		LMSR		CSTN		PMSRY		FREC		PMR		STSL		CHINA		Date
		No	Wt	No	Wt	No	Wt	No	Wt	No	Wt	No	Wt	No	Wt	No	Wt	No	Wt	No	Wt	No	Wt	No	Wt	
EVAL	17											1	6									1	10	5	28	19thC
EVAL	19	1	4									9	312			1	8			1	37					L16thC
EVAL	20															13	201	1	35							M16thC
EVAL	22													1	17											L15thC
EVAL	23											3	104													L15thC
1	1							1	9	1	10	14	94													L16thC
1	2											11	74							1	36					L16thC
1	3					1	2					24	465	1	21											L15thC
1	4									1	11	38	464													L15thC
2	1											16	350													L15thC
2	2											2	13													L15thC
3	1					1	2					7	75	2	8											L15thC
3	2											2	27													L15thC
3	3							1	8																	L15thC
3	4			1	4							25	213													L15thC
3	5											5	166													L15thC
4	1											38	414	4	44			1	9							M16thC
4	2									1	4	21	572													M16thC
4	3	1	11					1	4			4	80					1	7							M16thC
5	1											4	36													L15thC
5	2	1	5									14	188													L15thC
5	4											15	182	2	3											L15thC

		KING		CBW		MG		TUDG		LLON		LMSR		CSTN		PMSRY		FREC		PMR		STSL		CHINA			
5	5									1	6																15thC
6	1											5	36														L15thC
6	2									1	4	10	264														L15thC
6	3											12	177	1	2												L15thC
6	4			1	7							2	13	1	4												L15thC
	Total	3	20	2	11	2	4	3	21	5	35	28	423	12	99	14	20	3	51	2	73	1	10	5	28		
												2	5				9										

## Appendix II: Environmental Assessment

# DENSHAM OPEN SPACE CONSTRUCTION SHAFT DENSHAM ROAD/CHURCH ST NORTH, LONDON BOROUGH OF NEWHAM (SITE CODE: CSJ07): ENVIRONMENTAL ARCHAEOLOGICAL ASSESSMENT

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## INTRODUCTION

This report summarises the findings arising out of the environmental archaeological assessment undertaken by Quaternary Scientific (University of Reading) in connection with the Densham Open Space Construction Shaft, Densham Road/Church Street North, London Borough of Newham (Site Code: CSJ07; National Grid Reference: NGR TQ 3938 8393). During recent archaeological investigations undertaken by Compass Archaeology Archaeology, an Evaluation Trench and 6 Test Pits were opened during excavation of a construction shaft as part of a Thames Water Flood Alleviation Scheme in the West Ham area of the London Borough of Newham. The excavations revealed a distinct series of mainly 15<sup>th</sup> and 16<sup>th</sup> century layers of dumped material, lying beneath Victorian features/deposits and overlying natural gravels. The nature of the deposits and manner of deposition was unclear from the archaeological investigations, and thus the following samples were obtained by Compass Archaeology for environmental archaeological assessment and possible analysis:

- Bulk sample <1> from Deposit A (Test Pits 1 and 5), described as a discrete area of burnt/degraded wood and bone exposed in plan in the southern part of the site
- Bulk sample Bulk sample <2> from Deposit E (Test Pits 1 and 5), described as very dark ashy deposit containing wood, leather and bone.
- Column sample <3> which was taken through the deposits exposed in Test Pit 1
- Twenty-four processed animal bone samples from various contexts in all Evaluation Trenches and Test Pits.

The overarching aim of the environmental archaeological assessment was to evaluate the potential of the samples for reconstructing the environmental history of the site and its environs. In order to achieve this aim, the environmental archaeological assessment consisted of:

1. Recording the lithostratigraphy of column samples <3> to provide a preliminary reconstruction of the sedimentary history
2. Rapidly assessing the potential of column sample (<3>) and bulk samples (<1> and <2>) for providing a geochemical signature that might indicate past industrial activities on the site
3. Assessment of the preservation and concentration of charred plant macrofossils (seeds and wood), and identification of the main taxa, from the two bulk samples to provide information regarding the site economy, activities undertaken, natural use of resources and the past vegetation at the site
4. Assessment of the preservation and concentration of animal bone, and identification of the main taxa, from all twenty-four samples to provide information regarding the site economy, activities undertaken, and possibly period of deposition

## **GEOLOGICAL CONTEXT**

The Densham Road site is in the lower valley of the River Lea about 3km upstream from the confluence with the River Thames and on the east side of the valley. At this point the floodplain alluvium of the Lea is about 1.75km across and is flanked on both sides by a low terrace underlain by sand and gravel, referred by the British Geological Survey (BGS) to the Taplow Gravel of Middle Pleistocene age (BGS 1:50,000 Sheet 256 North London 1994). The underlying bedrock at the site is the Lower Tertiary London Clay. The site is within 0.1km of the boundary between the Taplow Terrace and the floodplain alluvium and therefore in an area where the riverward edge of the Taplow Gravel is likely to have suffered erosion during the down-cutting in the Middle and Late Pleistocene that created the modern valley of the River Lea.

## **METHODS**

### ***Sediment descriptions***

A lithostratigraphic description of column sample <3> (Test Pit 1), was carried out using standard procedures for recording unconsolidated sediment and peat, noting the physical properties (colour), composition (gravel, sand, clay, silt and organic matter) and inclusions (e.g. artefacts). The procedure involved: (1) cleaning the samples with a spatula or scalpel blade and distilled water to remove surface contaminants; (2) recording the physical properties, most notably colour; (3) recording the composition e.g. gravel, fine sand, silt and clay; (4) recording the degree of peat humification, and (5) recording the unit boundaries e.g. sharp or diffuse. The results are recorded in Table 1, Figure 1.



### ***Geochemical assessment***

A geochemical assessment was carried out on column sample <3> and unprocessed bulk samples <1> (one bag) and <2> (4 bags). The process consisted of analysing the samples with a NI|TON portable x-ray fluorescence spectrometer (XRF) on each sample to provide an initial indication of the chemistry of the materials, and identify any elevated chemicals (such as Cr, Pb, Zn, Cu etc), that may identify different anthropogenic processes occurring within each archaeological deposit. Two readings were taken on bulk sample <1> and eight on bulk sample <2> (2 readings per 10 litres of sample), and one reading every 4cm through column sample <3>. The results are recorded in Table 2 and Figure 2.

### ***Charred plant macrofossil (seeds and wood) assessment***

Bulk samples <1> and <2> were processed by flotation using 1mm and 300µm mesh sieves to recover charred plant remains and charcoal. The flots were viewed under a stereozoom microscope at x7-45 magnifications and the quantities and preservation of the archaeobotanical remains in each sample were recorded in Table 3 to facilitate assessment. Preliminary identifications have been suggested with reference to comparative material and literature (Cappers *et al.* 2006). Nomenclature used follows Stace (1997).

Ten charcoal fragments from each sample were included in the assessment. These were fractured manually, following standardised procedures (Gale and Cutler 2000) and wood anatomical features were viewed under an incident light microscope at magnifications of x50, x100, x200 and x400 in the transverse, tangential longitudinal and radial longitudinal sections. Identifications were made using modern comparative material and reference atlases (Hather 2000, Schweingruber 1990, Schoch *et al.* 2004) and are provided in Table 4. Where possible identifications have been given to species, however genera, family or group names are given when inherent anatomical differences between taxa are too small for satisfactory identification. Where identifications are uncertain, due to poor preservation for example, the identification is preceded by *cf.*, denoting 'compares with'.

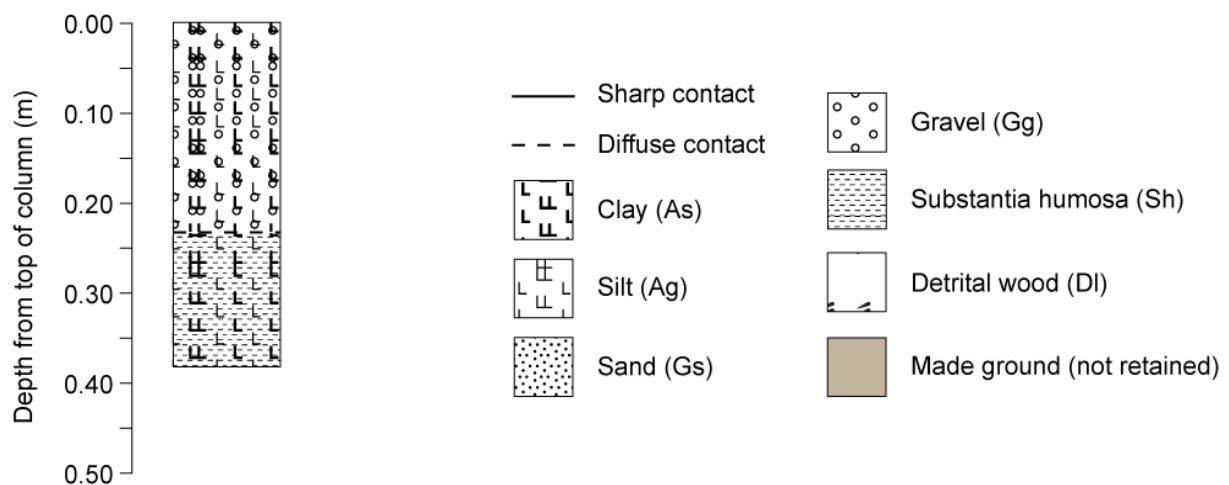
### ***Animal bone assessment***

Twenty four samples processed by Compass Archaeology from six test pits and one evaluation trench, were assessed for animal bone remains. The assessment conforms to the guidance on best practice as described by English Heritage (2002). The animal bone was rapidly scanned and recorded using the following criteria; number of bones, number of fragments, weight of bones in grams, number of bones identifiable to species, fragmentation and preservation, numbers of mandibles, epiphyses and whole bones, species and body

parts identified, age and state (including modifications such as butchery, burning, gnawing etc). The results are presented in Table 5.

## RESULTS AND INTERPRETATION OF THE SEDIMENTARY SEQUENCE

The sediments recorded in column sample <3> from Test Pit 1 are assigned to contexts (1/01), (1/02), (1/03) and (1/04) (Deposits A to D; Figure 1; Table 1). In the field, the sequence of deposits recognised in Test Pit 1 was seen to contain substantial quantities of anthropogenic material throughout. Laboratory examination of the column sample from this sequence showed that the sediment in which this anthropogenic material is preserved is a very poorly sorted mixture of silty clay, gravel and organic debris. Because the test pit excavations were small it is impossible to determine the nature of the bounding surfaces upon which the deposits rest. However, their character suggests that they represent material accumulating in a natural or artificial depression in the Taplow Gravel close to an area of residential or industrial activity. There is no indication that the deposits were waterlaid. A possible topographic context is a dry or possibly marshy dell or gully dissecting the bluff forming the riverward edge of the Taplow Terrace, in which domestic and other waste was casually or deliberately deposited.



**Figure 1: Lithostratigraphic description of column sample <3>, Densham Open Space Construction Shaft, Densham Road/Church Street North, London Borough of Newham (site code: CSJ07)**

**Table 1: Lithostratigraphic description of column sample <3>, Test Pit 1, Densham Open Space Construction Shaft, Densham Road/Church Street North, London Borough of Newham (site code: CSJ07)**

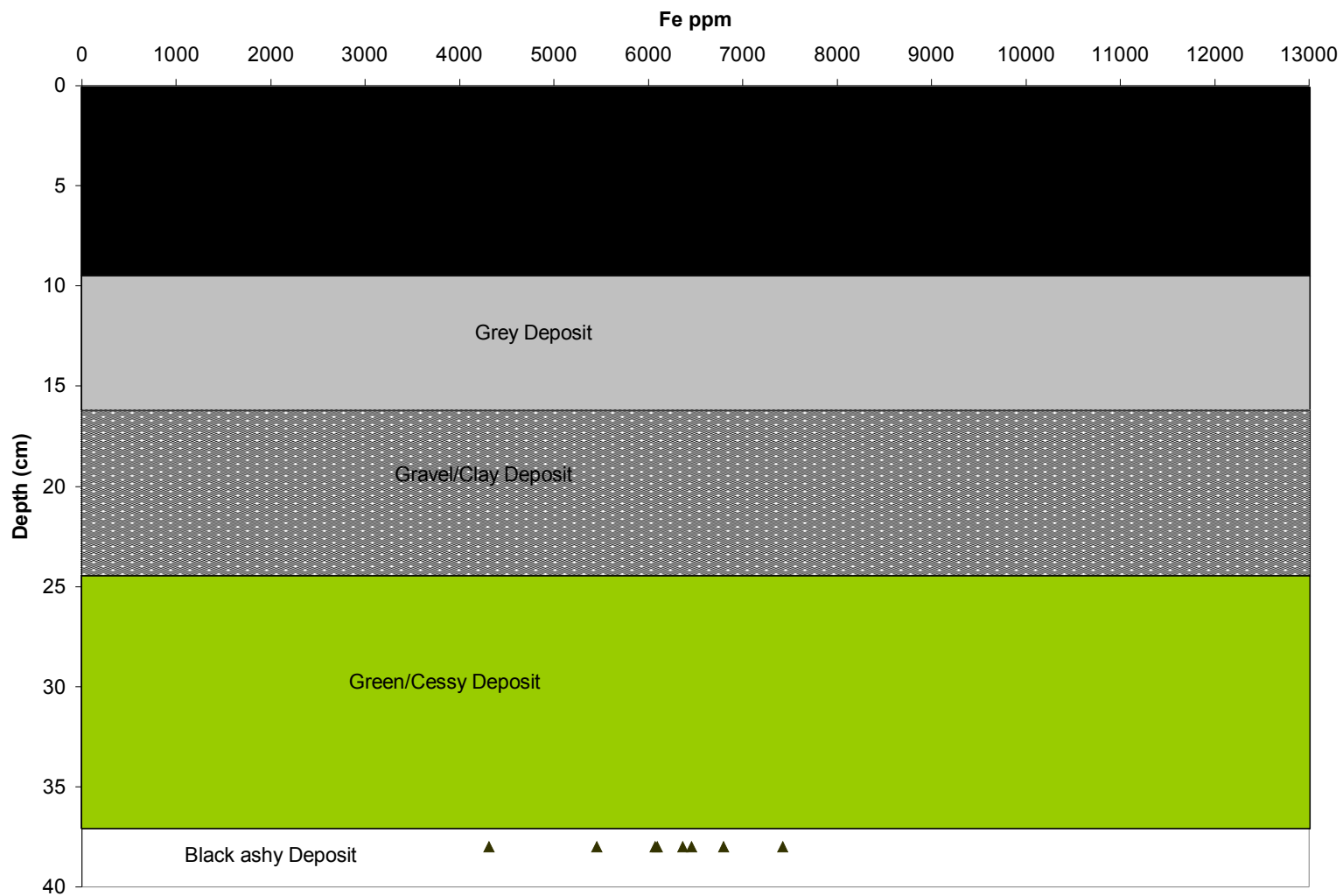
Depth from top of column (m)	Unit number	Context number	Deposit	Description
0 to 0.23	2	(1/01) / (1/02)	A/B	5YR 2.5/1; Ag2 As1 Gg1 Sh+; Black silty clay with gravel and some organic inclusions; diffuse contact into:
0.23 to 0.37	1	(1/03) / (1/04)	D/E	2.5YR 2.5/1; Ag2 As1 Sh1 Gg+; Reddish black organic-rich silty clay with gravel

## **RESULTS AND INTERPRETATION OF THE GEOCHEMICAL ASSESSMENT**

The results of the geochemical analysis of the bulk (<1> and <2>) and column (<3>) samples are recorded in Table 2. Figure 2 provides a geochemical profile of the iron content recorded within column sample <3>. The distribution of iron within column sample <3> shows a slight increase at the top of the sequence (Deposit A) associated with burning and a consistent concentration below (Deposits B to E; 6500 +/- 980 ppm). There are no significant elevated levels of other metals (e.g. Pb, Cu, Zn, Mn, Hg, Se, As, Co, Ni, Ti, U and Cr) which are all either less than the limit of detection (<10 ppm in most cases), or in the normal range of background materials, except for the reading made at 4-5cm from the top of column sample <3>. This sample shows moderately high Zn (122 +/- 39 ppm), Pb (67 +/- 22 ppm) and Mn (751 +/- 199 ppm) and may be associated with increased levels of organics and metal-rich materials.

**Table 2: Initial chemical assessment by deposit description and context number, Densham Open Space Construction Shaft, Densham Road/Church Street North, London Borough of Newham (site code: CSJ07)**

Sample number	Bag number	Context	Deposit	Zr	+/-	Pb	+/-	Zn	+/-	Fe	+/-	Mn	+/-
<b>Bulk samples</b>													
<1>	1/1	(1/01)	A	224.82	25.11					9380.96	668.19	637.64	278.9
<1>	1/1	(1/01)	A	202.52	25.99					8659.37	691.32		
<2>	14	(1/04)	E	126.17	13.09					6071.96	357.65		
<2>	1/4	(1/04)	E	102.99	14.09					7420.99	437.21		
<2>	2/4	(1/04)	E	137.46	17.35					6456.33	467.3		
<2>	2/4	(1/04)	E	94.77	13.16					5452.85	372.47		
<2>	3/4	(1/04)	E	149.77	16.25			67.77	37.24	6799.68	429.08		
<2>	3/4	(1/04)	E	148.82	18.51	45.55	24.79	77.59	45.45	6097.73	471.43		
<2>	4/4	(1/04)	E	153.28	18.25	41.81	24.39			6361.3	471.13		
<2>	4/4	(1/04)	E	135.32	22.36					4308.22	530.57		
<b>Column sample</b>													
<b>Depth from top of column (cm)</b>			<b>Deposit</b>	<b>Zr</b>	<b>+/-</b>	<b>Pb</b>	<b>+/-</b>	<b>Zn</b>	<b>+/-</b>	<b>Fe</b>	<b>+/-</b>	<b>Mn</b>	<b>+/-</b>
0-1			A	219.77	18.2	31.75	19.15			12171.92	481.47	616.54	192.92
4-5			A	235.18	18.35	67.31	21.99	122.56	39.26	10075.11	491.8	751.39	199.03
8-9			A	114.13	17.68					6296.64	485.76	321.14	202.32
12-13			B	158.6	24.2					7748.7	710.79	632.03	288.36
16-17			B/C	166.94	17.9					5810.25	433.69		
20-21			C	169.55	17.74	36.03	21.57	93.06	42.07	5754.97	427.63		
24-25			C	143.52	18.16					7844.95	516.95	392.81	201.9
28-29			D	144.3	12.66			55.43	27.2	6483.96	343.73	231.86	122.83
32-33			D	141.06	15.33					7180.95	428.33		
36-37			D	129.27	22.35					7683.71	653.12		



**Figure 2: Chemical plot of column sample <3> for Fe (ppm), Densham Open Space Construction Shaft, Densham Road/Church Street North, London Borough of Newham (site code: CSJ07)**

## RESULTS OF THE CHARRED PLANT MACROFOSSIL ASSESSMENT

### **Charred Macroplant Remains**

Flots from samples <1> and <2> were small (<10ml) with approximately 50% of each consisting of modern uncharred, intrusive roots and other botanicals. Both flots also contained moderate quantities of charred macroplant remains including cereals and other crop remains, as well as weed seeds, chaff and wood charcoal fragments (Table 3)).

Sample <1> produced a small assemblage of poorly preserved cereal grains, including wheat (*Triticum* sp.) and moderately preserved arable weeds. Preliminary identifications of knotgrass / dock (*Polygonum/Rumex* sp.), a possible nettle (*Urtica dioica*), various seeds such as campion/stitchwort (*Silene/Stellaria* sp.) from the pink (Caryophyllaceae) family and grass (Poaceae) seeds including oat/brome (*Avena/Bromus* sp.) have been made.

Sample <2>, (1/04) contains a broader range of charred macrobotanicals. Wheat (*Triticum* sp.) grains and non-cereal crops including broad bean (cf. *Vicia faba*) and pea (*Pisum sativum*) are present in moderate quantities. Weed seeds and charred fruits are also common in this small flot. Taxa identified include oat/brome (*Avena/Bromus* sp.), Chenopodiaceae taxa (Orache - *Atriplex* sp. and goosefoot - *Chenopodium* sp.) and knapweeds (*Centaurea* sp.). All of these plants are typical arable weeds, or may be found on disturbed ground, and it is likely that these weed taxa were introduced with the crop seeds.

### **Wood Charcoal**

Small assemblages of wood charcoal fragments were present in the residues from samples <1> and <2> (Table 4). Sample <1> was taken from a discrete area of burning exposed in the surface of Test Pits 1 and 5. The sample contains a broad range of woody taxa including holly (*Ilex aquifolium*), hazel/alder (*Corylus/Alnus* sp.), privet/honeysuckle (*Lonicera/Ligustrum* sp.), deciduous oak (*Quercus* sp.), elm (*Ulmus* sp.) and possible willow/poplar (cf. *Salix/Populus* sp.). The willow/poplar fragments contain sediment particles which obscure the anatomical features in some areas and therefore this identification is suggested rather than secure. This type of sediment infiltration frequently occurs in low lying areas, in saturated deposits or in deposits that are intermittently saturated due to fluctuations in the watertable. Many of the fragments in this assemblage are from small round wood and twig fragments.

A small assemblage of charcoal was recovered from sample <2>, taken from a very dark grey/black ashy deposit (1/04). This charcoal assemblage contains small round wood and twig fragments and appears similar to charcoal from sample <1>. Elm (*Ulmus* sp.) and

willow/poplar (*Salix/Populus* sp.) were recorded however the majority of the fragments included in the assessment were identified as ash (*Fraxinus excelsior*).

**Table 3: Flot quantification of samples <1> and <2>, Densham Open Space Construction Shaft, Densham Road/Church Street North, London Borough of Newham (site code: CSJ07)**

Samp. No.	Context	Location and Description	Weight g	Flot volume ml	Unchar'd %	Sediment %	Unchar'd seeds	Charcoal >4mm	Charcoal <4mm	Charcoal <2mm	crop seeds charred	Identifications	Preservation	weed seeds charred	Identifications	Preservation	Other botanical charred	Identifications	Preservation
1	1/01	Deposit A in surface of Test Pits 1 and 5. Discrete area of burnt/ degraded wood and bone	<2	<5	50	<5	**	*	*	**	*	Cerealia including <i>Triticum</i> sp.	+	**	<i>Polygonum/Rumex</i> , Pocaceae including. <i>Avena/Bromus</i> sp., cf. <i>Urtica</i> dioica, Caryophyllaceae ( <i>Silene/Stellaria</i> ), Chenopodiaceae ( <i>Atriplex</i> sp.),	+ / ++			
2	1/04	Sample of Deposit E in area of Test Pits 1 and 5. Very dark ashy deposit	2	10	50	<5	**	**	***	****	***	Cerealia including <i>Triticum</i> sp., Legumes including <i>Vicia</i> cf. <i>faba</i> , <i>Pisum sativum</i> , & others to id.	++	***	<i>Avena /Bromus</i> sp., Chenopodiaceae (including <i>Atriplex</i> sp., <i>Chenopodium</i> sp.) Asteraceae (cf. <i>Centaurea</i> sp.)	++	*	node and internode fragments and some other possible chaff	+

Estimated Number of Specimens: \* = 1-10, \*\* = 11-50, \*\*\* = 51-250, \*\*\*\* = >250



**Table 4: Charcoal Identifications of samples <1> and <2>, Densham Open Space Construction Shaft, Densham Road/Church Street North, London Borough of Newham (site code: CSJ07)**

Sample Number	Context	Taxonomic Identifications						
		<i>Ilex aquifolium</i>	<i>Corylus avellana / Alnus sp.</i>	<i>Lonicera / Ligustrum sp.</i>	<i>Quercus sp.</i>	<i>Ulmus sp.</i>	cf. <i>Salix / Populus sp.</i>	<i>Fraxinus excelsior</i>
1	1/01	1	3	2	1	1	2	
2	1/04					2	2	6

## **Appendix III: Animal Bone Assessment**

### **RESULTS AND INTERPRETATION OF THE ANIMAL BONE ASSESSMENT**

Animal bone was recovered from 25 contexts; three from the earlier evaluation (019, 020, and 023) and 22 from the six Test Pits dug during the excavation. A total of 109 bones weighing 4.4kg were recovered, of these 65 bones were identifiable to species. The assemblage included eight mandibles and 24 epiphyses. The bone was generally in very good condition with low levels of modern breakage, many bones were dark brown in colour suggesting they had been recovered from very organic or waterlogged deposits. No direct equivalence is available for the evaluation contexts. The 22 excavation contexts fall within eight of the nine deposits identified across the site and as there is no spot-dating available, these descriptions are used as the basis for grouping the contexts within Table 5. The species identified were; cattle, sheep/goat, pig, dog and goose. Cattle remains were generally from the head including skull, horncore, mandibles and teeth. Some cattle limb bones, metapodials and phalanges were present. Sheep/goat remains included mandibles and limb bones, pig bones included skull, upper limb, lower limb and metapodial. Two dog bones were identified; an ulna (lower forelimb) and a metapodial. The only bird bone identified was a goose radius (wing bone). The remainder of the material was more fragmented and has been classified by size as cow-sized and sheep-sized.

#### *Victorian features*

Test Pit 6 (context (6/01); fill of a drain) produced animal bone comprising a cattle lower third molar and a cow-sized rib.

#### *Deposit A - Burnt area*

This was identified in Test Pit 1 (1/01) and Test Pit 5 (5/01) both of which contained animal bone that comprised cattle horncore and sheep lower limb bones. The specimens were from adult and sub-adult animals. Some ancient and modern breakage, as well as weathering was observed. Despite the fact that this deposit is described as burnt the animal bone examined from these contexts shows no signs colour changes resulting from burning.

#### *Deposit B - Grey deposit*

This deposit was identified in all six Test Pits with the animal bone recovered comprising; cattle, horncore, skull, teeth, limb bones metaopdials and phalanges; sheep/goat mandibles and teeth and limb bones; pig limb bones and metapodials and a goose radius.

#### *Deposit D - Green/cessy deposit*

This deposit was identified in Test Pits 1 to 5. The animal bone comprised; cattle skull, teeth and horncore; sheep/goat mandible and limb bones and dog limb bone and metapodial. The sheep mandible from context (5/04) exhibits a pathology; the jaw bulges slightly with newly formed bone and the socket around the fourth premolar has become enlarged so that the tooth is slightly loose. Changes such as these are usually interpreted as evidence of periodontal disease (Hillson 1986).

#### *Deposit E - Black/ashy deposit*

This deposit was towards the bottom of the sequence and identified in Test Pits 1, 4, 5 and 6; all of which produced small quantities of animal bone including cattle skull, horncore, teeth limb bones and phalanges, and sheep limb bones. The specimens were predominantly from adult animals and evidence of butchery was noted.

#### *Loose natural*

This deposit was identified in Test Pits 3 and 4, contexts (3/05) and (4/03) respectively. Both contexts produced animal bone which comprised cattle horncore mandibles and teeth, and a pig distal humerus. The latter exhibited a non-metric trait; a small hole above the articulation referred to as a supra-condylar foramen. This is not a pathology but part of the natural variation within the species. The identified specimens were all from adult animals. Butchery was noted amongst this material.

#### *Evaluation deposits*

The assemblage examined included animal bone from three evaluation contexts (contexts (019), (020) and (023)). This comprised mostly cattle skull and horncore fragments as well as a mandible and some limb bones. Sheep/goat bones included limb bones and metapodials, whilst pig was represented by a skull fragment and a metapodial. Most bones were from adult animals, but the cattle mandible was from a juvenile and the pig skull was sub-adult. Butchery was noted on fragments recovered from deposits (019) and (023).

#### **Age at death**

Age at death was estimated by means of the state of fusion of the long bones and the state of erupting and wear of the teeth. Specimens were mostly adult and sub-adult. Some items from juvenile animals such as the cattle mandible from evaluation deposit (020) were present.

### **Post-mortem damage**

Evidence of butchery was common; seen in just over half the contexts that produced animal bone. This generally took the form of bones which had been chopped through, although some examples of finer cut marks were observed. Weathering was rare as the bone was generally in very good condition, but noted in just two contexts (8%). Gnawing by dogs was noted in just one context (4%). Signs of ancient breakage were common in 72% of the contexts. Modern breakage occurred at lower levels (36%). Just one context contained bones showing pathological changes (the sheep mandible from context (5/04). One of the contexts from the *Deposit D* had a cess-like concretion on the bone surface, which is consistent with the description of this deposit.

**Table 5: Animal bone arranged by deposit description and context number, Densham Open Space Construction Shaft, Densham Road/Church Street North, London Borough of Newham (site code: CSJ07)**

Type	Context	No. of bones	Weight	No. of bones ID	Large Mammal	Bird	Mandibles	Epiphyses	Species/part	State	Age
Evaluation contexts	(019)	11	444	7	2			3	B(H,H+HC, UL) O/C(UL) S(H,MP) CSZ®	BT AB MB	A, SA
	(020)	4	134	4	1			2	B(HC,UL) O/C(UL,LL)	AB MB	A, J
	(023)	4	85	3	1			1	B(HC) O/C(UL,MP) CSZ (LB)	BT MB	A
<b>A</b> , Discrete area of apparently burnt material.	(1/01)	5	94	2	1			1	B(HC) O/C(LL) SSZ (LB,R)	AB MB WE	A, SA
	(5/01)	2	25	0	1				CSZ(V) SSZ®	AB	A, SA
<b>B</b> , light-mid grey friable silty clay deposit	(1/02)	2	39	0	1				CSZ(LB,R)	AB	
	(2/01)	8	292	3	1	1		1	B(MP) S(MP) GO(LL) CSZ(V,R,LB) SSZ(LL)	BT AB MB	A
	(3/01)	4	270	3	1			1	B(HC,LL) O/C(UL) CSZ (LB)	BT AB	A
	(3/03)	4	350	4	1		1		B(H)	AB MB	A
	(4/01)	7	252	4	1		2	1	B(H,P) O/C(H,UL) CSZ (R,LB) SSZ(LB)	BT MB	A
	(5/02)	9	513	7	1		2	2	B(H+HC,H,LL) O/C (H,UL) SSZ(R,LB)	BT AB	A, J
	(6/02)	2	102	2	1				B(H+HC) S(LL)	AB	A, SA
	<b>D</b> , Silty clay cassy green deposit similar to overlying layer (above) Grey deposit with yellow mottled sandy patches,	(1/03)	4	82	3	1			2	B(H) O/C(LL) SSZ®	AB MB
(2/02)		2	16	1	1				B(HC) SSZ®	AB GN	
(3/02)		2	10	0	1				CSZ® SSZ(LB)	AB	A
(3/04)		8	245	5	1			4	B(H,HC,LL) D(LL,MP) CSZ(LB,R,V)	AB MB	A
(5/04)		6	293	3	1		1	1	B(H+HC,LL) O/C(H) CSZ (UL,LL,LB)	BT CS WE PA	A
<b>E</b> , Very dark grey - black loose silt and sand, ashy deposit	(1/04)	6	538	4	1			1	B(H+HC,MP) CSZ® SSZ®	BT	A, SA
	(4/02)	3	148	2	1		1	1	B(H) O/C(LL) SSZ(LL)	BT AB	A
	(5/05)	3	72	1	1			1	B(UL) CSZ® SSZ(LB)	BT AB	A
	(6/04)	5	196	2	1		1	1	B(H,P) CSZ(R) SSZ(V)	BT	A

Type	Context	No. of bones	Weight	No. of bones ID	Large Mammal	Bird	Mandibles	Epiphyses	Species/part	State	Age
Continuation of Victorian brick drain and associated fill in TP6	(6/01)	2	30	1	1				B(H) CSZ®	AB	A
Loose gravel at the base of test pits 3 and 4, recorded as separate context	(4/03)	1	26	0	1				CSZ(FB)	BT	
	(3/05)	5	155	4	1			1	B(H,HC,P) S(UL) CSZ (LB)	BT AB	A
	<b>Totals</b>	<b>120</b>	<b>5026</b>	<b>74</b>			<b>10</b>	<b>26</b>			

**Key:**

Species; B = *Bos taurus* (cow), O/C *Ovis/Capra* (sheep/goat), S = *Sus scrofa* (pig), D = *Canis familiaris* (dog), GO = *Anser anser* (goose) CSZ = cow-sized, SSZ = sheep-sized, Parts; H = head, HC = horncore, V = vertebra, R = rib, UL = upper limb, LL = lower limb, MP metapodial, P = phalange, FB = flat bone, LB = long bone, F = fragment.

Large mammal = larger mammal (dog and larger) Ageing data; epiphyses, and mandibles both simple counts

State; WE = weathered, BT = butchery marks, BN = burnt, GN = gnawed, AB = ancient break, MB = modern break, PA = pathology.

Age; J = juvenile, SA = sub-adult, A = adult

## **Appendix IV: Discussion of the Environmental and Animal Bone Remains**

### **DISCUSSION**

The sediments preserved in Test Pit 1 suggest that they represent material accumulating in a natural or artificial depression in the Taplow Gravel close to an area of residential or industrial activity. There is no indication that the deposits were waterlaid. A possible topographic context is a dry or possibly marshy dell or gully dissecting the bluff forming the riverward edge of the Taplow Terrace, in which domestic and other waste was casually or deliberately deposited. Iron levels are high throughout the sequence, but particularly towards the top, where moderately high values of Zn (122 +/- 39 ppm), Pb (67 +/- 22 ppm) and Mn (751 +/- 199 ppm) are also recorded, and may be associated with increased levels of organics and metal-rich materials.

The macrobotanicals and wood charcoal fragments present provide evidence for a relatively broad range of taxa that probably derive from several different sources. Charred macrobotanicals provide evidence for cereal and non-cereal crops and their associated weed plants. It is likely that fully sorting these samples would reveal further taxa and the assemblages have some potential to characterise the arable weed vegetation introduced to the site with the crop plants. The value of undertaking this work is dependant upon the dates of these deposits and whether there they contain reworked or residual material.

The charcoal assemblage contains large woodland tree taxa as well as smaller shrubby plants found in a range of different habitats. It is dominated by small pieces of round wood and twigs. The round wood fragments are too small for coppice hurdles and the source of these is not clear from this assemblage. Although it is possible that the deposits derive from hearths, the prominence of small twigs in these assemblages indicates the main fuel (that is likely to be significantly larger pieces of wood) is not present. Further analysis may reveal as yet unidentified taxa however the limited amount of charcoal present suggests that further analysis would not add significantly to the interpretation of the site. Many of the charcoal fragments are suitable for radiocarbon dating if this is considered of value for further interpretation of these deposits.

The good preservation of the animal bone assemblage, and the lack of evidence for weathering and gnawing indicates that the animal bone was incorporated into these

deposits rapidly with little or no exposure on the ground surface prior to burial. This is a small assemblage, with a large proportion of material identifiable to species. However, without more information on the date of the deposits it is difficult to draw further conclusions. The species present give no indication of the likely date of the deposits as all would have been present from late prehistoric though to the present day. The preponderance of cattle skull horncores and teeth may reflect the disposal of primary butchery waste; however meat-bearing limb bones from cattle, sheep and pig are also present, suggesting the animal bone is of mixed origin rather than specialist butchery or craft waste. The dog ulna was large but as it was not complete, and thus a length measurement could not be taken.

## **CONCLUSIONS AND RECOMMENDATIONS**

The sediments preserved at the Densham site comprise an intimate mixture of anthropogenic debris with components locally derived from nearby natural deposits. They occupy a site of accumulation of unknown form and origin. Further work on the sedimentology of the deposits cannot be expected to reveal additional information about their depositional environment and is not therefore recommended.

The geochemistry has shown few samples which are elevated in metal concentrations except for sample 4-5cm from the top of column sample <3>. This particular sample depth may require further investigation (e.g. microscopic investigation) but would not be worth a detailed geochemical assessment at this stage.

The macrobotanicals and wood charcoal fragments present provide evidence for a relatively broad range of taxa that probably derive from several different sources. It is recommended that if samples <1> and <2> derive from discrete, tightly dated deposits, they should be fully sorted and the macroplant remains analysed. Wood charcoal fragments have provided material suitable for dating however the value of obtaining scientific dates is dependant on the dating evidence already available for these features. If further work is to be undertaken any remaining sediment from these samples should be processed to maximise the recovery of plant remains and information about the deposits.

The animal bone assemblage is dominated by cattle skull horncores and teeth, possibly reflecting the disposal of primary butchery waste; however meat-bearing limb bones from cattle, sheep and pig are also present, suggesting the animal bone



is of mixed origin rather than specialist butchery or craft waste. If further information on the date of each deposit becomes available this should be added to the current animal bone tabulation.

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## Appendix V: Ceramic Building Material Assessment

### 1. Roof tile

The roof tile assemblage comprised a total of 203 fragments. No complete tiles were present in the assemblage.

The majority were plain roofing tiles typical of the later medieval period. A few identifiable peg tiles, single and double pegged were observed. A single fragment of nib tile was present. A number of tiles showed blackened edges resulting from use and exposure to the air. Tile thickness varied considerably suggesting the majority of the assemblage was produced prior to 1477 when legislation was introduced for the standardisation of roofing tiles. Two fragments showed small imprints from birds or rodents, and in one case probable rain-drops, which suggests the tiles were left outside to dry during the manufacturing process.



Samples of ceramic building material from CSJ07. Rounded peg hole (top-left), square peg-hole (top-right), nib tile fragment (bottom-left) and small bird print (bottom right).

A total of 9 different fabric types were recorded for the assemblage, described in the table below. The varying fabric types, thickness and styles suggests that the tiles come from various different sources and represent used material subsequently disposed off. Roofing tile was a common material used in the later–medieval period, it posed a lesser risk of fire in comparison to other roofing material such as wood and thatch.

<b>Fabric No.</b>	<b>Description</b>
1	Dark orange/brown, softer and coarser, sand and occasional grit inclusions, fired unevenly.
2	Lighter orange, harder, finer clay with no obvious inclusions, fired evenly.
3	Pinky orange, very hard, occasional sand/small grit inclusions, fine.
4	Lighter pinky/orange, frequent white inclusions – possibly chalk? Shell and small flint inclusions visible, pebble and grit.
5	Darker red brown with frequent sand and small flint/pebble inclusions, uneven firing, coarser.
6	Darkish orange brown, sand, unevenly fired, yellow/green glaze
7	Lightish orange/pink with sand and small gravel inclusions – nib tile from context 6/02
8	Very light brown/beige, flint inclusions, grit and porous underside
9	Floor tile – coarse red/brown flint and grit inclusions, yellow/green glaze

#### **Quantification of Ceramic Building Material (roof tile)**

<b>Context</b>	<b>ID</b>	<b>Fabric</b>	<b>Quantification</b>		<b>Description</b>	<b>Dimensions (cm)</b>		
			<b>No. Sherds</b>	<b>Weight (g)</b>		<b>L</b>	<b>W</b>	<b>T</b>
1/01	Misc	2	5	84	Five fragments, not identifiable.	-	-	-
	Plain	1	1	52	Single fragment of plain tile	-	-	1.2
	Plain	2	2	208	Two fragments of plain tile	-	-	1.2
	Plain	3	1	52	Single fragment with mortar adhering on both sides	-	-	1.2
	Plain	4	1	112	Single fragment, incomplete.	-	-	1.4
	Waster	-	1	40	Single fragment of over-fired waster	-	-	-
	Peg	1	2	114	Two fragments of peg-tile, part-surviving holes	-	-	1.5
	Peg	2	1	72	Single fragment, whitish mortar adhering to upper surface & part-surviving single peg-hole.	-	-	1.3

Context	ID	Fabric	Quantification		Description	Dimensions (cm)		
1/02	Misc	1	4	126	Four fragments, not identifiable	-	-	-
	Plain	1	2	198	Two fragments, incomplete	-	-	1.5
	Plain	2	1	98	Single fragment, indented border	-	-	1.1
	Peg	1	1	146	Single peg-hole, c. 5cm in from edge measuring 1.5cm diameter top, 1.1cm underside.	-	-	1.2
1/03	Misc	-	4	38	Four CBM fragments, not identifiable	-	-	-
	Plain	1	3	400	Three fragments of plain tile, incomplete, two showing indented borders, mortar adhering on two pieces.	-	-	1.1 to 1.4
	Plain	2	1	40	Single small fragment, incomplete, indented edge.	-	-	1.5 5
1/04	Misc	2	2	34	Two small fragments, incomplete	-	-	-
	Plain	1	3	374	Three fragments most with one surviving edge, blackened presumably exposed to elements (?)	-	-	1.2 - 1.6
	Plain	2	3	462	Three pieces, incomplete	-	-	1.1 - 1.6
	Plain	1	1	22	Small fragment with patch of greenish/yellow glaze	-	-	0.6 +
	Plain	5	3	312	Three fragments, incomplete	-	-	1.6 - 1.9
	Peg	8	1	140	Single fragment, one surviving edge, two peg-holes c.5.8cm apart and c.2cm from upper edge.	7+	9.5 +	1.3
	Peg	2	1	26	Single small fragment, rounded peg hole.	-	-	-
2/01	Misc	1	1	22	Single fragment	-	-	-
	Plain	1	1	354	Large fragment, mortar adhering to upper surface and surviving edge.	-	-	1.3

Context	ID	Fabric	Quantification		Description	Dimensions (cm)		
3/01	Misc	-	8	160	Eight small fragments	-	-	-
	Plain	1	3	140	Three fragments, incomplete	-	-	1.1
	Plain	2	1	200	Single fragment, two surviving edges showing indented border.	-	-	1.3
	Plain	5	4	196	Four fragments, all small and incomplete	-	-	-
	Plain	5	10	470	Ten small fragments	-	-	-
	Plain	6	1	28	Single small fragment with yellow/green glaze	-	-	0.9
3/02	Misc	1	2	60	Two small fragments	-	-	-
	Plain	1	1	44	Single fragment, one surviving partial edge, traces of adhering mortar	-	-	-
	Plain	5	1	54	Single small fragment, no edges	-	-	1.1
3/03	Misc	2	2	114	Two fragments, incomplete	-	-	-
3/04	Misc	5	4	158	Four fragments	-	-	-
	Misc	1	3	258	Three fragments varying thickness 1.1cm to 1.7cm	-	-	-
	Misc	Waster	-	54	Single over-fired waster	-	-	-
3/05	Misc	1	1	92	Single incomplete fragment	-	-	-
4/01	Plain	2	5	328	Five fragments, incomplete	-	-	1.3
	Plain	5	1	102	Single fragment, incomplete	-	-	1.0
4/02	Plain	1	2	82	Two small fragments, blackened. Small amount of adhering mortar	-	-	1.3
4/03	Plain	1	2	212	Two fragments – incomplete	-	-	1.3
5/01	Misc	1	3	94	Three fragments – incomplete	-	-	-
	Plain	2	1	242	Incised groove parallel to edge, smoothing lines. Incomplete	-	-	1.3
	Plain	2	3	268	Three fragments	-	-	-
	Peg	1	1	104	Single fragment, part surviving peg hole formed at distinct angle, pooling of clay on upper surface.	-	-	1.3

Context	ID	Fabric	Quantification		Description	Dimensions (cm)		
5/01	Peg	1	1	54	Single small fragment with roughly square peg hole, mortar adhering on upper surface and around edges of hole.	-	-	1.2
5/02	Misc	-	7	280	Seven fragments, incomplete	-	-	-
	Plain	1	5	660	Five fragments, varying thickness	-	-	1.3 - 2.2
	Plain	2	2	460	Two pieces, both have surviving edges, one shows distinct warping/curving towards edge	-	-	1.2
	Peg	1	1	126	Single fragment, surviving upper edge and single part surviving peg hole.	-	-	1.4
5/04	Misc	1	1	26	Single small fragment	-	-	-
	Plain	1	4	276	Four fragments, one example with blackened edge, all incomplete	-	-	1.3 - 1.6
5/05	Plain	1	3	162	Three fragments of plain tile, incomplete	-	-	-
	Peg	1	1	102	Single fragment with surviving peg hole.	-	-	1.1
		1	1	28	Single fragment with part surviving peg hole.	-	-	1.6
6/01	Misc	2	24	452	Various small fragments	-	-	-
	Plain	2	7	706	Seven fragments some showing smoothing lines and indented borders	-	-	1.3 - 1.4
	Plain	1	1	114	Single fragment, incomplete	-	-	1.1
	Peg	2	1	54	Single rounded part surviving peg hole 1.6cm diameter on upper surface, indented border	-	-	1.2
	Plain	6	1	68	Single fragment with a small patch of yellow/green glaze. Fabric unevenly fired, dark/black in places.	6.5 +	5.0 +	1.1

Context	ID	Fabric	Quantification		Description	Dimensions (cm)		
6/01	Peg	1	1	56	Single sherd, one surviving partial edge and complete peg-hole, rectangular 1.5cm length.	4.5 +	5.3 +	1.1
	Plain	1	3	212	Three fragments, incomplete			
6/02	Misc	1	6	108	Six small fragment – not identifiable	-	-	-
	Plain	1	9	768	Nine fragments varying in size, mortar adhering to one example.	-	-	1.2 - 1.4
	Plain	2	4	326	Two fragments, mortar adhering.	-	-	1.3
	Plain	1	1	128	Single sherd showing scratch marks and possible print of small animal or bird.	8.1 +	8+	1.2
	Nib	7	1	68	Single fragment of nib tile with single surviving projecting nib of clay, 1.3cm in height.	6.2 +	5.9 +	1.3
	Peg	2	1	44	Small fragment with very small part of single peg hole surviving	3.1 +	4.9 +	1.4
	Peg	2	1	42	Small fragment with single partial peg holes surviving	-	-	1.3
	Peg	5	1	100	Upper left hand corner of tile, single surviving peg hole c3.5cm from edge, implying double-pegged tile if complete	6.5 +	7+	1.2
	Floor	9	1	176	Single corner piece of glazed floor tile. Yellow / green glaze on upper surface with remnants on two surviving sides	6.8 +	5.6 +	2.5
6/03	Misc	-	3	52	Three small fragments	-	-	-
	Plain	2	2	248	Two fragments smoothing lines visible on surface.	-	-	1.4

Context	ID	Fabric	Quantification		Description	Dimensions (cm)		
6/04	Plain	5	1	140	Single fragment - incomplete	-	-	1.6
	Misc	5	1	24	Single fragment - incomplete	-	-	-
	Misc	2	1	40	Single fragment – incomplete	-	-	-
M/S	Plain	2	1	248	Single fragment, possible print of small bird, partial fingerprint and rain drop.	10.1+	10.5+	1.3

## 2. Brick and Floor Tile Fragments

*In consultation with John Brown of Giffords.*

A total of eleven pieces of brick, all very fragmentary. Six of these retain patches or traces of mortar, indicating that the material is from demolition. Total weight of assemblage *c* 1,875 gms.

All examples are in London fabric-type 3046 – unfrogged ‘Tudor’ type brick, broadly dated to 1450-1700. This fabric is slightly sandier than type 3033 and is more commonly found to the east of London: this is assumed to reflect the predominant nature of the local brickearth resource.

### Context 5/01

One item, with traces of sand/lime-based mortar on top and base. Original depth *c* 62mm.

### Context 5/02

Two items, both waster fragments that have been warped in firing (& may originally derive from the same brick). Unlike the other examples these pieces are unmortared, which may also indicate a local brick clamp – the suggestion being that the material is unused and has gone directly from clamp to find spot.

### Context 6/01

Five items. A 16<sup>th</sup> century manufacture date seems very likely – the material is in fabric-type 3046 and includes typical Tudor features of indented borders and uneven bases. Original depths (where present) *c* 50mm-60mm. Four of the pieces have traces of mortar: in one example this is also spread over a broken face, so this piece may have been reused in a building before its final disposal.

### Context 6/02

Three items, original depths *c* 53mm-62mm. One example has a flared header (*ie.*, overfired at one end, probably accidentally within the clamp). The other two pieces are as above [6/01], one with residual patches of mortar.



**Floor Tile**

**Context 6/02**

One corner fragment of floor tile with plain greenish-yellow glaze on red fabric (*c* 60mm x 70mm x 25mm thick; 173 gms). 'Westminster' type, *c* 1225-1275



## Appendix VI: Other Finds

The majority of the finds assemblage produced at CSJ07 consisted of pottery, animal and ceramic building material. Two other significant finds were recorded discussed whether relevant in the main text above. Part of a small, probable tin spoon was recovered from context [6/01] and a two pieces of leather shoe patten (the leather 'insole' of an open toed item of footwear supported on wooden or leather clog and held onto the foot by straps) from context 5/05.

### Tin Spoon

A small partial tin spoon was recovered from the upper deposits in Test Pit 6. The bowl was complete and part of the stem still attached. The spoon measuring 66mm in length by 25mm in width and was misshapen and dented in places. The bowl was oval if shape with a maximum width of 25mm. The stem was incomplete, measuring 25mm from the bowl junction and *c.*4mm in thickness, missing the terminus.



### Leather Shoe Pattens (see illustration overleaf)

Two partial fragments of leather 'pattens' were recovered from context 5/05. A patten is a generic term given to a type of open footwear that raised the foot off the ground, rather like clogs. Three common types consisted of a raised wooden base, a hinged wooden base or raised platform made of layers of leather. Although known in London in the earlier 14<sup>th</sup> century they were a fairly high-status item, and did not enter popular use until the 15<sup>th</sup> century. The two fragments recovered at West Ham are probably of this latter date, and may well represent two layers of leather from a single shoe 'stack'.



## APPENDIX VII: OASIS Data Collection Form

**OASIS ID: compassa1-60710**

### Project details

Project name	Densham Open Space Construction Shaft, Church St North/Densham Road, LB of Newham: An Archaeological Investigation
Short description of the project	Two phases of archaeological work were undertaken on Densham Open Space, during the construction of a shaft as part of the Thames Water Flood Alleviation Scheme in West Ham. Two evaluation trenches were excavated in 2007, identifying deposits of an uncertain nature but of probable 15th and 16th century origin. Further work during 2009 identified these as dump layers in a natural or artificial hollow, with late 15th to late 16th waste deriving partly from a local tannery complex.
Project dates	Start: 11-09-2007 End: 11-02-2009
Previous/future work	No / No
Any associated project reference codes	CSJ07 - Sitecode
Type of project	Field evaluation
Site status	Area of Archaeological Importance (AAI)
Current Land use	Other 14 - Recreational usage
Monument type	DEPOSIT Medieval
Monument type	DEPOSIT Post Medieval
Monument type	DRAIN Post Medieval
Significant Finds	POT Medieval
Significant Finds	BRICK Medieval
Significant Finds	ANIMAL BONE Medieval
Significant Finds	PATTEN Medieval
Significant Finds	SPOON Medieval
Methods & techniques	'Sample Trenches','Test Pits'
Development type	Service infrastructure (e.g. sewage works, reservoir, pumping station, etc.)
Prompt	Water Act 1989 and subsequent code of practice

### Project location

Country	England
Site location	GREATER LONDON NEWHAM WEST HAM Densham Open Space, Densham Road/Church St North
Postcode	E15
Study area	150.00 Square metres
Site coordinates	TQ 39393 83925 51.5364953903 0.01006900578990 51 32 11 N 000 00 36 E Point
Height OD / Depth	Min: 3.93m Max: 4.11m

### Project creators

Name of Organisation	Compass Archaeology
Project brief originator	English Heritage/Department of Environment
Project design originator	Compass Archaeology
Project director/manager	Geoff Potter
Project supervisor	Rosie Cummings
Type of sponsor/funding body	Thames Water Utilities
Name of sponsor/funding body	Thames Water Utilities

### Project archives

Physical Archive recipient	Museum of London archaeological archive
Physical Contents	'Animal Bones','Ceramics','Leather','Metal'
Digital Archive recipient	Museum of London archive
Digital Contents	'Animal Bones','Ceramics','Leather','Metal'
Digital Media available	'Images raster / digital photography'
Paper Archive recipient	Museum of London Archive
Paper Contents	'Animal Bones','Ceramics','Leather','Metal'
Paper Media available	'Context sheet','Drawing','Map','Matrices','Miscellaneous Material','Notebook - Excavation',' Research',' General Notes','Photograph','Plan','Report','Section','Unpublished Text'

### Project bibliography 1

Publication type	Grey literature (unpublished document/manuscript)
Title	Densham Open Space Construction Shaft, Densham Road/Church St North, LB of Newham: An Archaeological Investigation
Author(s)/Editor(s)	Cummings, R
Date	2009
Issuer or publisher	Compass Archaeology
Place of issue or publication	5-7 Southwark St, London, SE1 1RQ
Description	85-page bound report
Entered by	R Cummings (mail@compassarchaeology.co.uk)
Entered on	12 June 2009

## **APPENDIX VIII: London Archaeologist Summary**

Site Address:	Densham Open Space, Densham Road/Church St North, LB of Newham. E15
Project type:	Evaluation, Watching Brief, Hand Investigations
Dates of Fieldwork:	11 <sup>th</sup> September 2007 – 11 <sup>th</sup> February 2009
Site Code:	CSJ07
Supervisor:	Rosie Cummings
NGR:	TQ 39393 83925
Funding Body:	Thames Water Utilities Ltd

An initial phase of evaluation, consisting of two trial trenches, was undertaken in September 2007. Archaeological monitoring and hand investigation was undertaken in January and February 2009 during the excavation of the central shaft area. Natural deposits were exposed at the base of the sequence, consisting of discoloured natural gravels and sandy clay. These were overlain by a series of ‘dump layers’ representing waste material dumped on the site in the later 15<sup>th</sup> to later 16<sup>th</sup> centuries. The material is thought to represent waste produced by a combination of local activities, significantly that of a nearby tanning industry. Environmental assessment of the deposits suggests they accumulated in a natural or artificial depression in the natural gravels. The significant time span of almost a century of accumulated material suggests that this was not a deliberate act of infilling, for which one would expect a significantly shorter time period, more that the site represented a useful location for waste disposal and featured as such for a range of local activities.

Apart from a few residual finds, there was virtually no evidence for occupation of the site between the 17<sup>th</sup> and early 19<sup>th</sup> centuries. Whether the site was open and unused during this period or whether the later 18<sup>th</sup> century and Victorian occupation effectively destroyed any archaeological remains is unclear. Evidence for this latter period was fairly substantial, in the form of a series of brick built drains, foundations and rubbish pits. This too was subsequently truncated by demolition and clearance works in the late 19<sup>th</sup> century and by the construction of Densham Road c.1900. The most recent recorded deposits represent landscaping, possibly utilising rubble and demolition material associated with bombing in the Second World War.