



# C257 WORK PACKAGE ARCHAEOLOGY CENTRAL

## Fieldwork Report

### Archaeological Targeted Watching Brief Charterhouse Square Boreholes (XTE12)

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C257 Charterhouse Sq Boreholes Fieldwork Report v3 26-11-15 doc



## Non technical summary

*This report presents the results of an archaeological targeted watching brief carried out by Museum of London Archaeology (MOLA) on boreholes within Charterhouse Square Gardens, in the London Borough of Islington. This report was commissioned from MOLA by Crossrail Ltd. This work is being undertaken as part of a wider programme to mitigate the archaeological implications of railway development proposals along the Crossrail route.*

*A series of six inclined boreholes were drilled, and the columns were observed and recorded to the surface of the terrace gravels. This revealed a sequence of deposits indicating natural terraced gravels, disturbed by possible quarrying or ditch digging activity, overlain by a series of post-medieval levelling deposits and cultivated or garden soil.*

*It was thought that the Outer Medieval Cemetery of Charterhouse and earlier plague burials may have extended to the area of the boreholes, but no human remains or evidence for this was observed. The archaeological sequences in the boreholes did not extend under the road bounding Charterhouse Square to the south.*

*It therefore remains uncertain whether burials extended to this part of Charterhouse Square gardens, or whether any burials extended beneath the modern roadway on the southern side of Charterhouse Square.*



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# 1 Introduction

Crossrail is a new Cross-London Rail Link project which will provide transport routes across the south-east of England and London. The route will link Maidenhead and Heathrow in the west with Shenfield in the north-east and Abbey Wood in the south-east. In central London, from Royal Oak in the west to Pudding Mill Lane and Royal Victoria Dock in the east, Crossrail will consist of a tunnelled section with seven new stations linked to the existing transport network.

The Charterhouse Square boreholes were located in the south-eastern part of Charterhouse Square, a private park maintained and run by Charterhouse; the park is bounded on all sides by the roads of Charterhouse Square, in the London Borough of Islington (Fig 1).

Six inclined boreholes were drilled in the south-eastern area of Charterhouse Square to assess the nature of deposits ahead of construction (Fig 2).

The Crossrail mitigation response to archaeology is described in the Crossrail Generic WSI (Crossrail 2009) and the detailed desk based assessment (DDBA; Crossrail 2008), and can be summarised as follows:

- In the event that intact and important archaeological remains are identified at Crossrail worksites through this process, it may be preferable, where practicable, to preserve these where they are found (ie preservation in situ).
- However, because of the nature of major works projects such as Crossrail, experience of other similar projects suggests that preservation by record is usually the most appropriate method of dealing with archaeological finds.
- Following an extensive Environmental Impact Assessment (EIA) supporting the Crossrail Bill, and the production of site-specific DDBAs, appropriate mitigation measures were scoped and specified in detail in individual project designs (site-specific WSIs – Written Schemes of Investigation) which were prepared in accordance with the principles set out in the Generic WSI, and developed in consultation with the relevant statutory authorities.
- Archaeological information that is gained from fieldwork will be followed by analysis and publication of the results and will be transferred to an approved public receiving body.

This fieldwork report describes the results of an archaeological targeted watching brief (TWB) carried out during the drilling of the above-mentioned boreholes by Museum of London Archaeology (MOLA) under Crossrail contract C257 Archaeology Central. The approximate centre of the borehole drilling area is at Ordnance Survey National Grid Reference 531965 181885.

The boreholes were conducted under C257 Archaeology Central Addendum to Method Statement: *Archaeological Targeted Watching Brief Charterhouse Square Gardens (Doc. No.C257-MLA-X-GMS-M123-50004, Version 1.0, 28.11.14)*, an addendum to the original Method Statement for Archaeological Targeted Watching Brief Charterhouse Square Grout Shaft, and General Watching Brief Smithfield Market Basement Grout Shafts (MOLA 2012).

**All levels in this document are quoted in metres Above Tunnel Datum (m ATD). To convert Tunnel Datum to Ordnance Datum subtract 100m, i.e. 1m OD = 101m ATD.**



All fieldwork was conducted by MOLA Senior Archaeologists Karl Macrow and Tim Johnston between 18/12/14 and 10/02/15.

Table 1 Site Details

Task	Principal Contractor	Programme
<ul style="list-style-type: none"><li>• <b>Targeted Watching Brief</b> on ground investigation and ground treatment boreholes (6 inclined boreholes , 150mm diameter, drilled at angle of c 45°) in <b>Charterhouse Square Gardens</b>, Farringdon</li></ul>	C435 Bam Nuttall, Ferrovia, kier (BFK)	18/12/14 to 10/02/15

The event code (sitecode) is XTE12.



## 2 Planning background

The overall framework within which archaeological work will be undertaken is set out in the Environmental Minimum Requirements (EMR) for Crossrail (<http://www.crossrail.co.uk/about-us/crossrail-act-2008/environmental-minimum-requirements-including-crossrail-construction-code#>). The requirements being progressed follow the principles of Planning Policy Guidance Note 16 (PPG16)(DoE, 1990), and its replacements Planning Policy Statement 5 (PPS5)(DCLG, 2010) and the National Policy Planning Framework (NPPF)(DCLG, 2012), on archaeology and planning. Accordingly the nominated undertaker or any contractors will be required to implement certain control measures in relation to archaeology before construction work begins.

Schedules 9, 10 and 15 of the Crossrail Act (2008) concern matters relating to archaeology and the built heritage and allows the dis-application by Crossrail of various planning and legislative provisions including those related to listed building status, conservation areas and scheduled ancient monuments (Schedule 9). Schedule 10 allows certain rights of entry to English Heritage given that Schedule 9 effectively dis-applied their existing rights to the Crossrail project, and Schedule 15 allows Crossrail to bypass any ecclesiastical or other existing legislation relating to burial grounds.

Notwithstanding these disapplications, it is intended that agreements setting out the detail of the works and requiring relevant consultations and approvals of detail and of mitigation arrangements will be entered into by the nominated undertaker with the relevant local planning authorities and English Heritage in relation to listed buildings and with the Department of Culture, Media and Sport (DCMS) and English Heritage in relation to Scheduled Ancient Monuments (SAMs).

## 3 Origin and scope of the report

This report has been commissioned from Museum of London Archaeology (MOLA) by Crossrail Ltd. The report has been prepared within the terms of the relevant standard specified by the Institute for Archaeologists (IFA, 2014). It considers the significance of the fieldwork results (in local, regional or national terms) and makes appropriate recommendations for any further action, commensurate with the results.





## 4 Previous work relevant to archaeology of site

The principal previous Crossrail studies are as follows:

- Crossrail, February 2005a *Environmental Statement*
- Crossrail, February 2005b *Assessment of Archaeology Impacts, Technical Report. Part 2 of 6, Central Section: Westbourne Park to Stratford and Isle of Dogs. 1E0318-C1E00-00001 [Specialist Technical Report (STR)]*
- MOLA for Crossrail, Central Section Project Interim Statement: *Archaeological Targeted Watching Brief Charterhouse Square Grout Shaft (XTE12) (Doc. No. C257-MLA-X-RGN-M123-50003, Revision 2.0, 20.06.13).*

All on-site archaeological work was carried out in accordance with the following documents:

- The WSIs (see above)
- MOLA, C257 Archaeology Central Method Statement: *Archaeological Targeted Watching Brief Charterhouse Square Grout Shaft, and General Watching Brief Smithfield Market Basement Grout Shafts, Farringdon Eastern Ticket Hall (Doc. No. C257-MLA-X-GMS-M123-50001 Revision 3.0, 11.12.12).*
- MOLA, C257 Archaeology Central Addendum to Method Statement: *Archaeological Targeted Watching Brief Charterhouse Square Gardens (Doc. No. C257-MLA-X-GMS-M123-50004 Version 1.0, 28.11.14).*
- C257 PMI 0057: TBM ground treatment mitigation at Farringdon, C257-XRL-W-AIE-CRG03-50016

## 5 Geology and topography of site

The geology and topography of the site is covered in the method statement v3; a short summary is provided here.

The geology of the site consists of Pleistocene river terrace gravels (Hackney sands and Gravels) overlying London Clay.

## 6 Archaeological and Historical Background

The topographical, archaeological and historic background to the site is covered in the method statement v3 and is not repeated here. The following is a brief summary of the results of the more recent archaeological fieldwork in the immediate vicinity:

Charterhouse Square is understood to have been used to bury plague (Black Death) victims in the medieval period, and to have been a cemetery for burials around a chapel, later forming the Outer Cemetery of Charterhouse.

One *in situ* skeleton was found in an archaeological trial trench in the north-east corner of the square in 1998, and 25 *in situ* skeletons were archaeologically excavated within a Crossrail Grout shaft in the roadway on the west side of the square in 2013 (Fig 1). Ancient-DNA testing indicates that that at least some of the latter 25 burials died of the plague (*Yersinia pestis*), and pottery and radiocarbon dating suggest that the initial phase of burial was from the Black Death of 1348/9, the second phase from that plague or *pestis secunda* of 1361, and the third phase may have been from a later outbreak of plague, perhaps in the 15th century.

A small scale community excavation (for Charterhouse, and sponsored by Bam Ferrovial Kier, Crossrail and MOLA) within the gardens of Charterhouse Square in 2014 (Fig 1) exposed parts of two burials in the east side of the gardens, which were left *in situ*, at 115.87m ATD.

In addition, Crossrail works monitored by MOLA on their behalf in 2011 revealed disarticulated human bone from the roadways at the north-west and south-west corners of the square, redeposited in deposits dating approximately from the 18th–19th centuries. These are assumed to be reworked from the medieval cemetery, but may have been moved, and do not indicate whether the roadway south of the square lay within the burial ground or outside it.

The boundaries of the burial ground, therefore, remain unknown, it having gone out of use following the medieval period. It may have been limited to the area of modern Charterhouse Square (either just gardens, or including some, or all of the surrounding roadway), or have extended further to the south.

## **7 Research objectives and aims**

### **7.1 Overall Research Aims**

The two WSIs (Crossrail 2012 and 2014) listed the following regional research aims (from *A Research Framework for London Archaeology 2002*, Nixon et al, MOLAS, 2003) to which fieldwork on this site might contribute:

- Understanding Prehistoric activity in London, in relation to the Terrace Gravels;
- Examining the concept of core/periphery for different periods in London's past, as a means of understanding how evolving settlement patterns reflect the need for sustainable, beneficial relationships between a settlement and its environs, a city and its hinterland;
- Contributing to our understanding of the creation of the London suburbs; Understanding the reasons for evolution of the road systems, street layouts, river crossings and ferries, and their importance as engines of development and change; and
- Identifying the consequences of infrastructure development at a local level.

### **7.2 Objectives of the Targeted Watching Brief**

The Addendum to Method Statement Archaeological Targeted Watching Brief Charterhouse Square Gardens Document Number: C257-MLA-X-GMS-M123-50004 stated that site specific objectives were:

- To mitigate the impact of the boreholes by collecting and identifying any human remains and reburying them as required by the Ministry of Justice (MoJ licence no. 14-0263, issued 24/11/14).
- To record the archaeological sequence and in particular, whether burials are likely to extend beyond the perimeter of Charterhouse Square gardens, and into Charterhouse Square road to the south, and over what distance.
- To compare the results of this targeted watching brief with those of earlier archaeological fieldwork undertaken at the Charterhouse Grout Shaft and the Charterhouse square community excavation.



## 8 Methodology of site-based and off-site work

All archaeological excavation and recording during the fieldwork was carried out in accordance with the WSIs and method statements listed in section 4, and:

- English Heritage Centre for Archaeology Guidelines, 2002, Environmental archaeology: a guide to the theory and practice of methods, from sampling and recovery to post-excavation
- English Heritage, 2004, Geoarchaeology: using earth sciences to understand the archaeological record
- Museum of London *Archaeological Site Manual* (MoL 1994)
- English Heritage, July 2009, Standards for Archaeological Work, London Region, External Consultation Draft
- English Heritage, Greater London Archaeology Advisory Service (GLAAS), February 2014, Standards for Archaeological Work, London Region

The site records can be found under the site code XTE12 in the MOLA archive. They will be stored there pending a future decision over the longer-term archive deposition and public access process for the wider Crossrail scheme.

## 9 Summary of methodology

For the Targeted watching Brief:

- The C257 Principal Contractor set up the drill rig and drilled each of the boreholes, numbers 1 to 6 (BH01 to BH06).
- The first 6m of each borehole being drilled was monitored by the MOLA on site supervisor.
- The first 6m of each borehole column was set aside for inspection and recording by the MOLA on site supervisor.
- The location of each borehole was surveyed by the Principal contractor (Fig 2).

The first 6m of each inclined borehole column was set aside for inspection (which equates to 4m vertical depth).

The MOLA Senior Archaeologist inspected the 6m column, and in liaison with the supervisor of the borehole drilling team determined the natural geology (*in situ* terrace gravels and sands) to start where the gravel and sand looked completely clean to the eye, as opposed to overlying gravel and sand with a silt element. The surface of the natural geology was recorded, but as is standard practice where there is no geoarchaeological interest, was not recorded below that point. The Senior Archaeologist noted that the entire natural deposit within the 6m observed looked the same throughout.

## 10 Results and observations including stratigraphic report and quantitative report

### 10.1 Borehole 1 (BH01)



Photo 1 Showing Borehole drilling rig, drilling Borehole at 45° angle, looking east

Borehole 1 (Fig 2)	
Location	Charterhouse Square (south-eastern part)
Dimensions	150mm diameter by >6m
LSG coordinates	82322 36597
OS National grid coordinates	531966 181886
Modern Ground Level/top of the slab	117.70m ATD
Modern subsurface deposits	Topsoil
Level of base of archaeological deposits observed and/or base of trench	115.3m ATD
Natural observed	Natural terrace gravel and sand and possible waterlain clay 115.3m ATD
Extent of modern truncation	None
<b>Archaeological remains</b>	<b>Dating Evidence, Finds, and Samples</b>
Dark (blackish) silt (cultivated soil) (117.70m ATD) [1]	None



silty clay with crushed brick and tile fragments (116.68m ATD) [2]	None
Silty clay with flint gravel inclusions (115.58m ATD), at surface a 0.05m thick deposit of dark greyish blue silty clay (115.63m ATD), apparently waterlain deposit [3]	None
<b>Interpretation and summary</b>	
<p>Natural terrace gravel was overlain by what was potentially the fill of a feature such as a quarry pit or ditch, or possibly a grave [3], 1.1m thick, sealed by a thin waterlain clay deposit, indicating standing water, possibly after the disuse of a pit or ditch feature.</p> <p>This material, at c 115.6m ATD, was at least 0.8m or more lower than the burial found in the 1998 trial trench in the north-eastern part of the gardens (CSQ98, c 116.46 to 116.56m ATD), and its base was immediately above the level of the latest burials in the Crossrail grout shaft (114.14 to 115.29m ATD). It was at a similar level to the burial found in the eastern trench of the 2014 community excavation (115.89m ATD), where it was cut into material that was not excavated. However, it was also to the 16/17th-century dumping (over the burials) in the grout shaft, and to the possible quarry pit fills in both the 1998 trench and the eastern community excavation trench (Fig 3).</p> <p>The composition of the soil is similar to the grave fills in the grout shaft, and to the silty gravel into which the earliest burials had been cut, but also to the majority of soils in the Charterhouse Square sites, and thus does not help interpret the deposits in the boreholes.</p> <p>It is therefore most likely that this material represents either dumping or a quarry pit fill, but there remains a possibility that it may have been grave fill.</p> <p>This borehole was the closest one to the road on the southern side of Charterhouse Square, but Fig 3 demonstrates that the archaeological sequence in the boreholes did not approach the boundary of the gardens and roadway.</p> <p>Above this lay deposits of probable post-medieval silty clay with crushed brick and tile inclusions [2], probably to landscape or level the ground surface of the square. A thick deposit of cultivated garden soil [1] indicates a relatively long period of cultivated open land. No human remains were present within the borehole risings.</p>	

## 10.2 Borehole 2 (BH02)



Photo 2 View of site showing area of borehole drilling works, looking south-east

<b>Borehole 2 (BH02) (Fig 2)</b>	
Location	Charterhouse Square (south-eastern part)
Dimensions	150mm diameter by >6m
OS National grid coordinates	531967 181887
LSG grid coordinates	82323 36598
Modern Ground Level	117.70m ATD
Modern subsurface deposits	Topsoil
Level of base of archaeological deposits observed	115.09m ATD
Natural observed	Natural terrace gravel and sand (115.09m ATD)
Extent of modern truncation	None
<b>Archaeological remains</b>	<b>Dating Evidence, Finds, and Samples</b>
Blackish clayey silt, cultivated soil (117.70m ATD) [4]	None
Sandy clay with crushed brick and tile fragment inclusions (116.45m ATD) [5]	None



Silty clay and flint gravel (115.58m ATD) [6]	None
<b>Interpretation and summary</b>	
<p>Natural terrace gravel was cut by a feature such as a quarry pit or ditch, or possibly grave fill, similar to [3] in BH1 (see 10.1).</p> <p>It was overlain by a sandy clay deposit with crushed brick and tile inclusions, to landscape or level the ground surface of the square. This is probably followed by a relatively long period of cultivated open land indicated by a large deposit of cultivated/garden soil at the top of the sequence. No human remains were present within the borehole risings.</p>	

### 10.3 Borehole 3 (BH03)



*Photo 3 Column sample from borehole, laid out ready to be inspected*



<b>Borehole 3 (BH03) (Fig 2)</b>	
Location	Charterhouse Square (south-eastern part)
Dimensions	150mm diameter by >6m
OS National grid coordinates	531967 181888
LSG grid coordinates	82323.9580 36599.9110
Modern Ground Level	117.70m ATD
Modern subsurface deposits	Topsoil
Level of base of archaeological deposits observed	114.74m ATD
Natural observed	Natural terrace gravel and sand and possible alluvial clay deposit (114.74m ATD)
Extent of modern truncation	None
<b>Archaeological remains</b>	<b>Dating Evidence, Finds, and Samples</b>
Post-medieval blackish topsoil with occasional crushed brick and tile fragments (117.70m ATD) [7]	None
Orangey brown silty clay (115.58m ATD) [8]	None
Silty clay and gravel (114.88m ATD) [9]	None
<b>Interpretation and summary</b>	
<p>Natural terrace gravels and sands were overlain by a possible waterlain deposit, indicating an open ditch or pit cut into the natural. This was overlain by a sequence of redeposited natural sands and gravels, representing the fills of a probable quarry pit or ditch, or possibly grave fill, similar to [3] in BH1 (see 10.1). No human remains were found within the borehole risings.</p> <p>This was then overlain by a series of post-medieval silty clay deposits, to landscape or level the ground surface of the square. The large deposit of cultivated soil at the top of the sequence suggests a relatively long period of cultivated open land.</p>	

## 10.4 Borehole 4 (BH04)



Photo 4 Showing contents of column sample from borehole 4

<b>Borehole 4 (BH04) (Fig 2)</b>	
Location	Charterhouse Square (south-eastern part)
Dimensions	150mm diameter by >6m
OS National grid coordinates	531966 181886
LSG grid coordinates	82322 36598
Modern Ground Level	117.70m ATD
Modern subsurface deposits	Topsoil
Level of base of archaeological deposits observed	114.56m ATD
Natural observed	Brickearth (114.56m ATD), over Natural terrace sand and gravel (114.48m ATD)
Extent of modern truncation	None
<b>Archaeological remains</b>	<b>Dating Evidence, Finds, and Samples</b>
Cultivated soil (117.70m ATD) [21]	None
Silty clay with inclusions of brick and tile fragments (116.52m ATD) [22]	None
Silty clay (116.20m ATD) [23]	None

Very dark brown (blackish) silty clay, with frequent gravel inclusions (115.76m ATD) [24]	None
Redeposited terrace gravels and sands, possible fill of quarry pit (115.10m ATD) [25]	None
<b>Interpretation and summary</b>	
<p>Natural geology was probably cut by a quarry pit or ditch, or possibly grave fill, similar to [3] in BH1 (see 10.1). No human remains were present within the risings of the borehole.</p> <p>This was in turn overlain by a series of post-medieval silty clay levelling layers with crushed brick and tile inclusions, probably to landscape or level the previous ground surface of the square. The large blackish garden soil deposit overlying this could then suggest a reasonably long period of undisturbed cultivation in the open square. This interpretation must, however, remain tentative due to the very small area observed in a borehole.</p>	

## 10.5 Borehole 5 (BH5)

<b>Borehole 5 (BH05) (Fig 2)</b>	
Location	Charterhouse Square (south-eastern part)
Dimensions	150mm diameter by >6m
OS National grid coordinates	531967 181887
LSG grid coordinates	82323 36599
Modern Ground Level	117.70m ATD
Modern subsurface deposits	Topsoil
Level of base of archaeological deposits observed	115.3m ATD
Natural observed	Natural terrace gravel and sand 115.3m ATD
Extent of modern truncation	None
<b>Archaeological remains</b>	<b>Dating Evidence, Finds, and Samples</b>
Cultivated soil (117.70m ATD) [28]	None
Silty clay with post-medieval brick, tile and chalk fragments (117.04m ATD) [29]	None
silty clay with frequent gravel and occasional post-medieval brick and tile fragment inclusions (116.5m ATD) [30]	None

Post-medieval organic silt (116.22m ATD) [31]	None
Possible quarry pit fill – silty clay with very frequent gravel inclusions (115.86m ATD) [32]	None
Possible primary fill of quarry pit – gravel mixed with silty clay (115.44m ATD) [33]	None
<b>Interpretation and summary</b>	
<p>Natural gravels were probably cut by a quarry pit or ditch, or possibly grave fill, similar to [3] in BH1 (see 10.1).</p> <p>This was in turn overlain by a series of post-medieval silty clay levelling deposits with crushed brick, chalk inclusions, probably to landscape or level the previous ground surface of the square. The large blackish garden soil deposit over this suggests a reasonably long period of undisturbed cultivation in the square. This interpretation must, however, remain tentative due to the very small area observed in a borehole. No human remains were present within the risings of the borehole.</p>	

## 10.6 Borehole 6 (BH06)

<b>Borehole 6 (BH06) (Fig 2)</b>	
Location	Charterhouse Square (south-eastern part)
Dimensions	150mm diameter by >6m
OS National grid coordinates	531966 181888
LSG grid coordinates	82322 36599
Modern Ground Level	117.70m ATD
Modern subsurface deposits	Topsoil
Level of base of archaeological deposits observed	115.90m ATD
Natural observed	Natural terrace gravel and sand (115.90m ATD)
Extent of modern truncation	None
<b>Archaeological remains</b>	<b>Dating Evidence, Finds, and Samples</b>
Cultivated soil (117.70m ATD) [34]	None
Organic silty clay (117.04m ATD) [35]	None
Silty clay with brick, tile fragments, stones, shell and chalk fragment inclusions ( 116.68m ATD) [36]	None
Possible quarry pit fill – sandy/silty gravel (115.94m ATD) [37]	None



### Interpretation and summary

Natural gravels were probably cut by a quarry pit or ditch [37], or possibly grave fill, similar to [3] in BH1 (see 10.1). Possible quarry pit or ditch fill [37] was significantly thinner, and the base of the deposit significantly higher, than that of its equivalents [25] and [32] in BH04 and BH05. This would suggest that the location of BH06 is much nearer to the edge of the possible quarry pit than BH04 or BH05.

This was sealed by a series of post-medieval levelling layers [35] and [36], consisting of organic silty clays and silty clay with brick and tile fragments, chalk and shell fragment inclusions, probably to landscape or level the previous ground surface of the square. The large blackish garden soil deposit overlying this suggests a reasonably long period of undisturbed cultivation in the square. This interpretation must, however, remain tentative due to the very small area observed in a borehole. No human remains were present within the risings of the borehole.

## 11 Assessment of results against original research aims

The current GLAAS guidelines (English Heritage, 2014) require an assessment of results against original expectations (these no longer mention the criteria for assessing national importance).

### 11.1 Original research aims

The original research objectives were met as follows:

- *To mitigate the impact of the boreholes by collecting and identifying any human remains and reburying them as required by the Ministry of Justice (MoJ licence no. 14-0263, issued 24/11/14).*

No human remains were present, and therefore none were collected to require reburial.

- *To record the archaeological sequence and in particular, whether burials are likely to extend beyond the perimeter of Charterhouse Square gardens, and into Charterhouse Square road to the south, and over what distance.*

The archaeological sequence was recorded in each of the six boreholes. A comparable sequence was observed between the boreholes leading to a broader interpretation of the general stratigraphy within the excavation area (see 13.3).

No human remains or other evidence for burials were present. This absence of evidence, however, does not indicate whether burials may or may not have extended into this part of Charterhouse Square Gardens. Although it is possible that burials may not be present in this localised area, it is equally possible that the very limited footprints of the six boreholes missed any human remains or penetrated grave fills, but not skeletal remains. Whilst it appears most likely that the earliest deposits seen in each borehole were quarry pit fill or dumping, it is possible that any of them may have been grave fills (see 10.1).

The archaeological sequence in the inclined boreholes did not approach the boundary of the gardens and roadway (see Fig 3), and therefore there is no evidence as to whether or not burials may have extended beneath the roadway.

- *To compare the results of this targeted watching brief with those of earlier archaeological fieldwork undertaken at the Charterhouse Grout Shaft and the Charterhouse square community excavation.*

The interpreted sequence derived from observation of the boreholes is comparable, indeed very similar to, the sequence of deposits recorded in the Charterhouse Grout Shaft. In the Grout Shaft natural gravels were recorded at 114.66m ATD. In two of the boreholes, BH03 and BH04 natural gravels were recorded at 114.7m ATD and 114.48m ATD respectively, approximately the same level. The highest natural deposit recorded in BH06 at 115.9m ATD, c 1.2m higher than the Grout Shaft.



A 0.9m thick deposit of brickearth was recorded in the Grout Shaft. No brickearth was seen in the boreholes, except for a brickearth 0.08m thick in BH04. However, being present only in BH04, it could be the result of another process such as localised dumping of clean brickearth.

Overlying this at both locations, redeposited silty gravel was recorded. The top of this deposit in the Grout Shaft was recorded at c 115.8m ATD, and in the boreholes between 115.1m ATD and 116.3m ATD. Although the boreholes show a varying level of the redeposited gravel, the level from the Grout Shaft falls within this range. The interpretation of this is discussed under the previous item.

At both locations, the redeposited gravel was overlain by a series of post-medieval dump or levelling deposits. Within the eastern trench (Trench 2) of the community excavation (Fig 1), a probable quarry pit was identified c 40m north of the borehole study area. It is unlikely that the same feature extends into the borehole study area. The presence of one quarry pit may suggest further gravel quarrying within this area. This may account for the layer of redeposited natural gravel observed in all six boreholes.

## 11.2 Additional research themes

No new research themes have been identified from the fieldwork results.





## 12 Statement of potential archaeology

The results from the evaluation and targeted watching brief have limited potential for future study, but add further, tentative, data to that from the earlier fieldwork in Charterhouse Square.

### 12.1 Importance of Resources

*The importance of the excavated remains have been assessed using professional judgement, informed, where applicable, by the criteria for assessing the national importance of monuments (DCMS 2010, Annex 1).*

The post-medieval cultivation soil, levelling deposits and redeposited gravel (or possibly grave fills) provided only limited evidence of possible quarrying activity, landscape levelling and horticulture which is slightly enhanced by comparison with other fieldwork in Charterhouse Square.

These deposits are assessed as being of **low importance**.

## 13 Conclusions

### 13.1 Geology

The geology of the site comprises terrace gravel deposits (Hackney sands and gravels) observed at between 114.6m ATD and 115.9m ATD.

### 13.2 Prehistoric to medieval

No deposits or residual artefacts of prehistoric, Roman, or medieval date were identified in the watching brief. It is probable that post-medieval agricultural and possible quarrying activity appears to have truncated any earlier remains, if once present, to below the surface of the natural terrace gravels.

No human remains were found (eg from the medieval plague burials or the Outer Cemetery of Charterhouse).

As discussed in section 11.1, the earliest silty gravel deposit seen in each borehole appears most likely to have been quarry pit fill or dumping (of medieval or post-medieval date), but might possibly have been grave fill, in one or more cases.

As described in section 10, the earliest deposits are consistent, silty clay with gravel with upper levels of c 115.35 to 115.95m ATD.

The base levels of BH3 and BH4 (not adjacent: Fig 2), which extend down to c 114.7 and 114.6m ATD respectively, are deeper than the others (c 115.1 to 115.9m ATD). However, this variation from the average level of 115.1 to 115.3 is comparable with that of the higher values, suggesting a variable level of modification of the natural geology.

This reinforces the suggestion of cut features, such as the quarrying interpreted towards the eastern part of the square, but possibly graves, given that the variations at BH3 and BH4 occur within the space of a metre. The base levels in these two boreholes lie at similar levels to the burials in the grout shaft. However, the surface level in BH4 was 115.76m ATD, higher than the top of the grout shaft burials (c 115.3m ATD), and the basal deposit in BH3 was interpreted as possible silting in the base of an open cut feature. These suggest that the interpretation as potential graves, whilst possible, appears less likely than quarrying or other mundane disturbance.

It should be stressed that because of the very restricted size of the six 100mm diameter boreholes, only limited interpretations should be put on their results, given the similarity of soils within the archaeological sequence.

However, within the very limited footprints of the boreholes, and given the inconclusive data from level and soil composition (see 10.1), it is not possible to determine whether:

- The boreholes had simply been located in the relatively large areas between graves, or within grave fills, but between skeletons,
- burials had never been present in this part of the square, or
- no burials had survived later truncation (eg by the quarrying seen in the 1998 trial trench, or potentially in the eastern community dig trench).



Therefore, the results of this watching brief do not provide any sound evidence for the extent of the burial ground.

It should be noted that natural terrace gravels and sands were reached in the boreholes before any of them had extended beneath the roadway on the southern side of the square, or the buildings to the south.

### 13.3 Post-medieval remains

The general sequence seen across the boreholes appears likely to represent quarrying, landscape levelling and cultivation, and is likely to be wholly post-medieval. The redeposited silty natural gravel at the base of the sequence could be a result of quarrying activity similar to that identified in the 1998 trench and the eastern trench (Trench 2) of the Charterhouse Square Community excavation (MOLA 2015).

A number of linear ditch features have also been recorded in the community excavation trenches and the Grout shaft excavation. The alignment of the of possible 'Faggesswell' brook channel seen in the Grout Shaft (MOLA 2015) suggests it would not run through the area of the boreholes.

It should be noted, however, that the provisional dating of the borehole sequence is based primarily on comparison with dated deposits from excavations in the near vicinity, as no artefactual evidence was recovered from the borehole samples. It should also be noted that any interpretations presented here must remain tentative, due to the limited scope of observation from small diameter borehole samples.

It was thought that the Outer Medieval Cemetery of Charterhouse and earlier plague burials may have extended into the study area, but no human remains or evidence for this was observed. However, given the limited footprint of the six boreholes, the extent of the burials remains unclear.

The archaeological sequences in the inclined boreholes did not extend under the road bounding Charterhouse Square to the south, as the natural terrace gravel was reached within the area of the (current) gardens. There is therefore no information on whether or not burials extend beneath the modern roadway.



## **14 Post-excavation assessment, analysis, publication and dissemination proposals**

The fieldwork results will initially be disseminated via this report.

The fieldwork has produced very limited results. It is therefore suggested that publication should be confined to a brief mention of the results in the appropriate sections of Crossrail publication CRL8 on the results from Farringdon Eastern Ticket Hall, which includes the grout shaft and community excavation in Charterhouse Square.

In addition, the usual Summary Report has been prepared, in tandem with this Fieldwork Report. This will appear in the annual excavation round up in London Archaeologist and also be deposited with the LAARC.

Therefore no further work would be required for post-excavation assessment or analysis, and minimal work for publication. This decision lies with the Crossrail Project Archaeologist.

## **15 Archive deposition**

The site archive containing original records and finds will be stored with the LAARC pending a future decision over the longer-term archive deposition and public access process for the wider Crossrail project.



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## 17 Acknowledgements

The author would like to thank [REDACTED] and [REDACTED], Project Archaeologists, Crossrail for commissioning and managing the work for Crossrail.

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The targeted watching brief was supervised by [REDACTED] and [REDACTED]. The fieldwork was managed by MOLA Project Manager [REDACTED].



## 18 OASIS DATA COLLECTION FORM: England

**OASIS ID: molas1-206115**

### Project details

Project name	Charterhouse Boreholes
Short description of the project	A series of six boreholes were drilled and the first 6m of the columns was observed and recorded. This revealed natural terraced gravels, disturbed by possible quarrying or ditch digging activity overlain by a series of post-medieval levelling deposits and cultivated or garden soil. It was thought that the Outer Medieval Cemetery of Charterhouse and earlier plague burials may have extended into the study area but no human remains or evidence for this was observed.
Project dates	Start: 18-12-2014 End: 10-02-2015
Previous/future work	Yes / No
Any associated project reference codes	molas1-147733 - OASIS form ID
Any associated project reference codes	molas1-204149 - OASIS form ID
Type of project	Field evaluation
Current Land use	Other 5 - Garden
Monument type	NONE None
Significant Finds	NONE None
Methods & techniques	"Augering"
Development type	Rail links/railway-related infrastructure (including Channel Tunnel)



Prompt	Planning condition
Position in the planning process	After full determination (eg. As a condition)

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**Project location**

Country	England
Site location	GREATER LONDON ISLINGTON ISLINGTON Charterhouse House Square Borehole Investigation
Postcode	EC1
Study area	5.00 Square metres
Site coordinates	TQ 31967 81887 51.5199679374 -0.0977135777102 51 31 11 N 000 05 51 W Point
Lat/Long Datum (other)	None
Height OD / Depth	Min: 14.60m Max: 15.90m

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**Project creators**

Name of Organisation	MOLA
Project brief originator	Crossrail
Project design originator	Crossrail
Project director/manager	██████████
Project supervisor	██████████

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**Project archives**

Physical Archive Exists?	No
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Digital Archive recipient	LAARC
Digital Media available	"Images raster / digital photography"
Paper Archive recipient	LAARC
Paper Media available	"Context sheet", "Section"

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Entered by [REDACTED] [REDACTED]  
Entered on 13 March 2015



## **19 Figures**



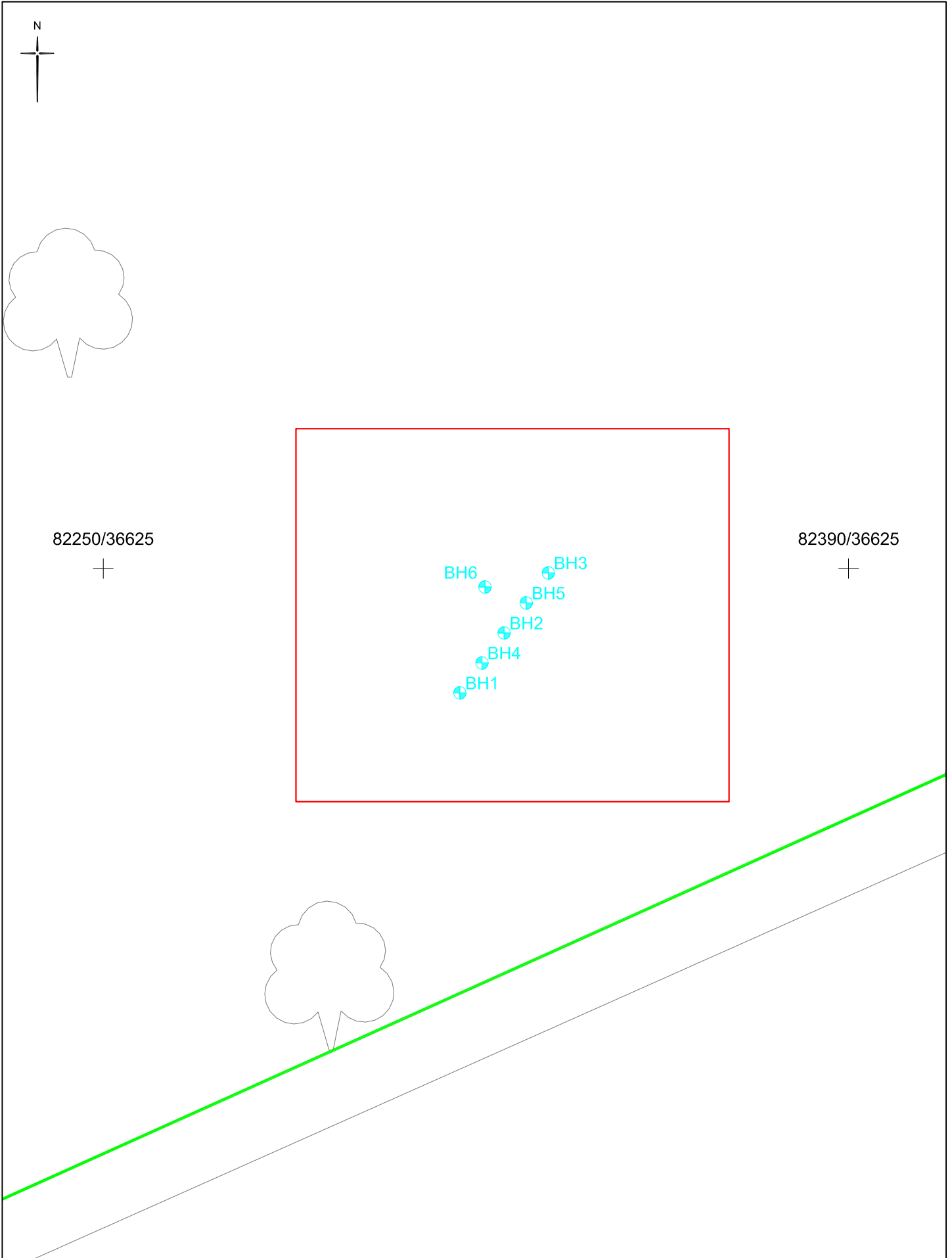




Fig 2 Position of boreholes

Site code: XTE12

-  Site outline
-  Boreholes

0 1:100 @ A4 5m

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CSQ98 EVALUATION	COMMUNITY DIG EAST	COMMUNITY DIG WEST	GROUT SHAFT
GROUND LEVEL 118.00mATD	GROUND LEVEL 118.05mATD	GROUND LEVEL 117.75mATD	GROUND LEVEL 117.47mATD
17th century and later dumps and topsoil	medieval to 1870 ditch or pit	later dumping	18/19th century dumping
116.56mATD		116.68mATD	
top of 0.2m deep grave, cut into brickearth		latest surface	
(elsewhere quarry pit to 115.88mATD or below)	115.89mATD	116.15mATD	
	burial cut into 2quarry pit (no further excavation)	earliest surface exposed (no further excavation)	115.70mATD
			16/17th century dumping 115.29mATD
			top of latest burials
			burials (3 phases)
			base of earliest burials 114.14 - 114.59mATD
			natural brickearth 113.60mATD
			natural sands & gravels

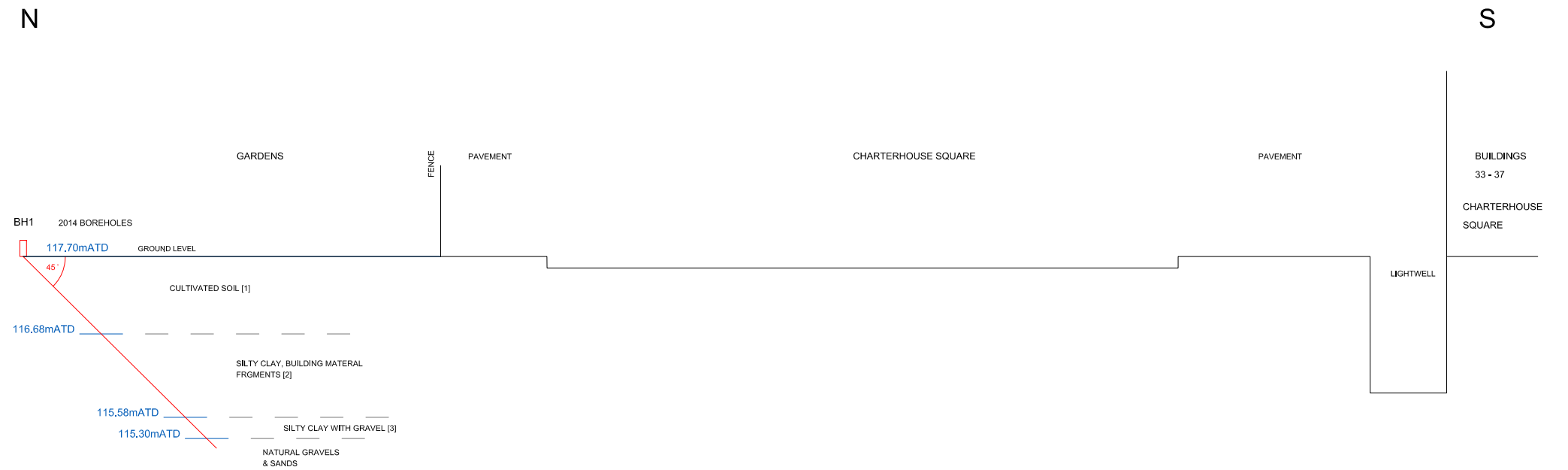


Fig 3 Section across boreholes and roadway, with comparative results from other fieldwork

Site code: XTE12

