ST PHILIP'S BUILDINGS
SHEFFIELD STREET
WESTMINSTER

ARCHAEOLOGICAL WATCHING BRIEF ON GEOTECHNICAL WORKS

SSI10

FEBRUARY 2010

PRE-CONSTRUCT ARCHAEOLOGY

An Archaeological Watching Brief of Geotechnical Works at the St Philip's Buildings, London School of Economics, Sheffield Street, City of Westminster, WC2

Site Code: SSI 10
Central National Grid Reference: TQ 30720 81220

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CONTENTS

1 Abstract 3
2 Introduction 4
3 Planning Background 7
4 Geology And Topography 8
5 Archaeological And Historical Background 9
6 Methodology 11
7 Archaeological Sequence 13
8 Conclusions 24
9 Acknowledgements 25
10 Bibliography 26

FIGURES

Figure 1: Site Location 5
Figure 2: Trial Pit And Borehole Location 6
Figure 3: Trial Pit Sections 1-4 & Borehole Section 7 22
Figure 4: Borehole Section 5 & 6 And 9-11 23

APPENDICES

Appendix 1: Context Descriptions 27
Appendix 2: Matrix 30
Appendix 3: Oasis Form 31

1 ABSTRACT

1.1 This report details the results and working methods of an archaeological watching brief conducted during geotechnical investigations in the St Philip's Building of the London School of Economics. The watching brief, commissioned by London School of Economics and Political Science, was conducted by Pre-Construct Archaeology Limited during geotechnical investigations undertaken between 5th of January to the 17th of February 2010. The works formed part of advanced preparations for proposed re-development of the site.

1.2 The investigations found evidence for natural deposits, significantly brickearth, but also including sand and gravel mixed with either sand or clay. Modern layers, such as made ground or bedding horizons, and features associated with the existent St Philip's Building were observed to be overlying or cutting the natural horizons. The only archaeological features observed were possible late 19th-century structures in two locations, though little could be ascertained of these due to the limited areas exposed during the works.

2 INTRODUCTION

2.1 This report details the results of an archaeological watching brief conducted by Pre-Construct Archaeology Ltd at the St Philip's Building of the London School of Economics, Sheffield Street, London, WC2. The archaeological watching brief was conducted during geotechnical investigations undertaken between the 5th of January and the 17th of February 2010. The works formed part of advanced preparations for proposed re-development of the site.

2.2 The investigation encompassed six test pits excavated along the eastern pavement, four geotechnical test pits and five geotechnical boreholes and associated hand-dug starter pits, with an additional sixth starter pit that was abandoned following excavation (Fig. 2). The work was commissioned by Gifford on behalf of the London School of Economics, the groundworks contractors were GEH Groundworks, and the geotechnical contractors were Soil Consultants.

2.3 The site is located on Sheffield Street, London, WC2 (Fig. 1). The site is bounded by Portsmouth Street to the north-east, Sheffield Street to the east, The Peacock Theatre to the south and west, and Sardinia House/Portsmouth House to the north. The buildings on the site comprise the former St Philip's Hospital (1904), of two wings with a small sunken courtyard between.

2.4 The National Grid Reference of the site centre is TQ 30720 81220.

2.5 The evaluation was supervised by Sarah Barrowman of Pre-Construct Archaeology Ltd and monitored by Andy Shelley of Gifford. The project was managed by Tim Bradley for Pre-Construct Archaeology Ltd.

Figure 1
Site Location
1:20,00 at A4

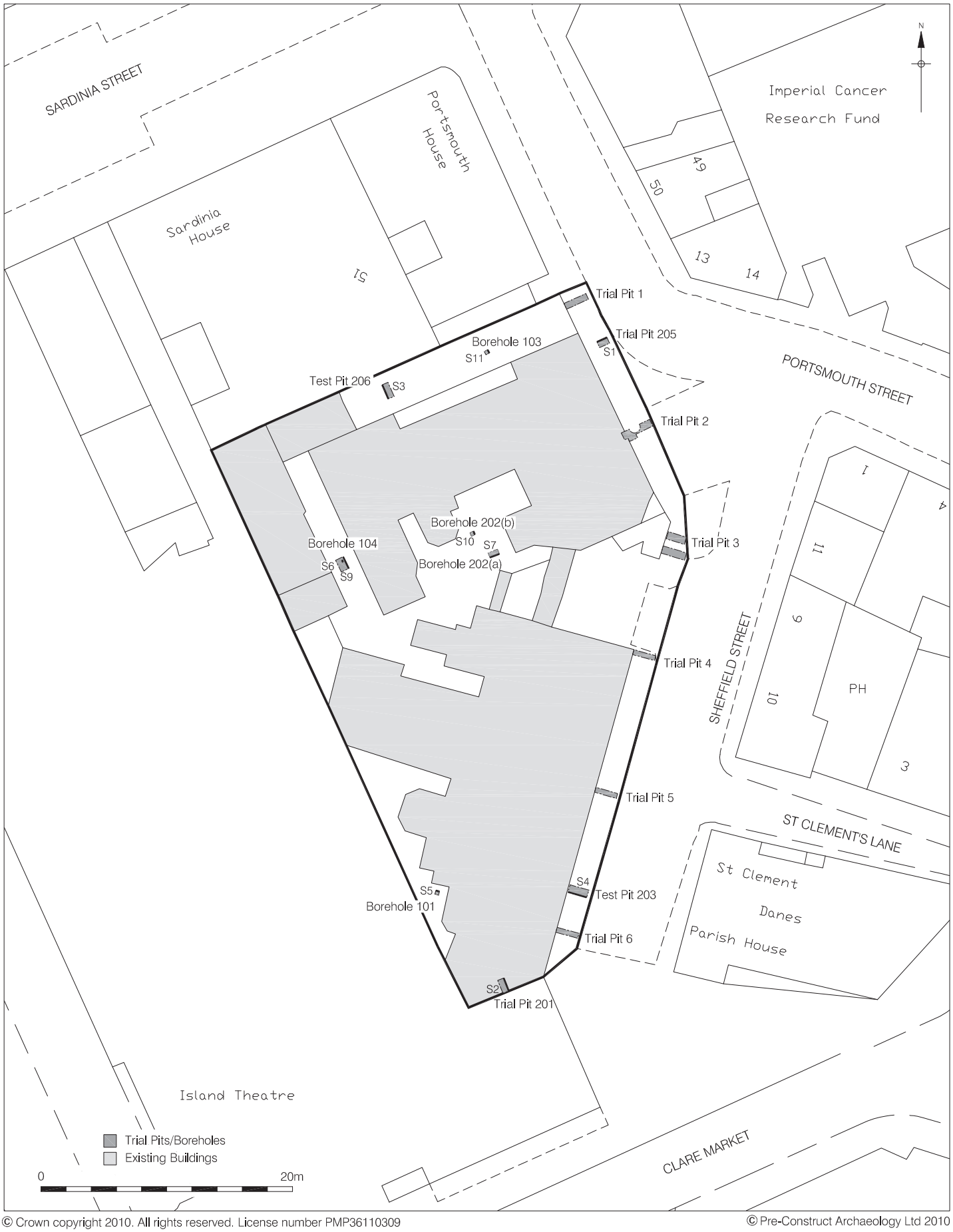


Figure 2
Trial Pit and Borehole Location
1:400 at A4

3 PLANNING BACKGROUND

3.1 The planning background for this site has been comprehensively detailed in an Archaeological Desk Based Assessment prepared for the study area[1] and as such only a brief outline is included in this report.

3.2 The work was designed by Gifford as part of a staged programme of pre- and post-determination archaeological mitigation works, and followed consultation between Gifford and English Heritage (GLAAS).

3.3 The site lies within the Strand Conservation Area, and within the Lundenwic and Thorney Island Area of Special Archaeological Priority, both defined by the City of Westminster in its Unitary Development Plan of 2007.

3.4 The site does not contain any nationally designated sites, such as Scheduled Monuments, Listed Buildings or Registered Parks and Gardens.

[1] Schofield 2008.

4 GEOLOGY AND TOPOGRAPHY

4.1 The Archaeological Desk-Based Assessment (Schofield 2008) undertaken for this site provides the details of the geological and topographical background of the site. It indicated that the geology of the area comprises Anglian to Devensian Hackney gravel terrace, which was cut by the Thames during the glacial period. This is overlaid by brickearth (within London this is also known as Langley Silt Complex), a fine-grained silt believed to have accumulated by a mixture of processes (e.g. wind, slope and freeze-thaw) mostly since the Last Glacial Maximum around 17,000BP (Before Present).

4.2 From maps and other records, though not from archaeological observation, a major ditch that was open in the medieval period crosses the site from north-west to south-east. It was probably originally a stream.

4.3 Investigations at the site revealed the presence of *in-situ* geological horizons. Brickearth was encountered in three locations at highest levels of between 16.44m OD and 16.79m OD. The most recent geological horizons encountered in other locations were sands recorded at highest levels of between 16.15m OD and 16.69m OD, clayey-gravels at heights of between 16.21m OD and 16.28m OD, and sandy-gravels at between 16.98m OD and 15.62m OD.

4.4 The site has a varying gradient due to the impacts of the construction of the buildings, with the work undertaken being undertaken in the basement level. The ground level in the areas where the work was undertaken varies between 16.61m OD and 18.98m OD.

5 ARCHAEOLOGICAL AND HISTORICAL BACKGROUND

5.1 A comprehensive archaeological and historical background to this site has been detailed in the Desk Based Assessment prepared for this site[2], and consequently only a brief summery is included in this section, based on information revealed on a 250m radius search of the Greater London SMR.

5.2 Prehistoric & Romano-British

5.2.1 Little of these two periods has been found on archaeological investigations on surrounding sites. But the recovery of a part of a Roman bronze statue from Kingsway, while unexplained, shows that chance finds of importance can always be made.

5.3 Saxon

5.3.1 Saxon period remains of Lundenwic have been found on several surrounding sites, and it is of importance to chart the uncertain east boundary of the Saxon town if at all possible. Here the stream may be of some importance, if its origins can be identified by archaeological work. Within its backfills may be environmental evidence of importance; the origin or first human use of the stream may be part of the environment or even internal life of the Saxon town.

5.4 Medieval

5.4.1 Throughout this period the site probably lay within open fields and was not developed. The open ditch which crossed the site, and formed a boundary of some importance between fields and between parishes (and later between Westminster and Camden) would have been an important local feature, and might possibly contain a medieval revetment, along with artefacts and palaeoenvironmental remains which may have survived the truncation of the existing basement.

5.5 Post-Medieval and Modern

5.5.1 Historic maps indicate that the site was developed by at least the 17th century. The majority of the post-medieval building remains will have been removed by the construction of the existing basement, although it is possible that footings of buildings survive, along with cut features such as rubbish and cess pits, ditches and any structural remains associated with enclosing the ditch which crossed the site. In

[2] Schofield 2008.

addition, any information about the early development of St Philip's Hospital itself, that is the workhouse which preceded it both literally and institutionally (in that the Hospital grew out of the workhouse arrangement) would potentially be of local historical interest.

6 METHODOLOGY

6.1 The geotechnical investigations consisted of six test pits excavated along the eastern pavement and four geotechnical test pits excavated around the site. The trial pits were excavated by hand under archaeological supervision. Their relative dimensions are shown below:

Geotech Ref Number	Length at top (m)	Width at top (m)	Max. Depth (m)
TP 1	1.90m	0.40m	0.60m
TP 2	2.46m	0.90m	0.69m
TP 3	1.94m	0.60m	0.59m
TP 4	1.80m	0.40m	0.60m
TP 5	1.80m	0.40m	0.60m
TP 6	1.80m	0.40m	0.10m
TP 201	1.10m	0.50m	1.94m
TP 203	1.50m	0.60m	1.60m
TP 205	0.86m	0.50m	1.00m
TP 206	1.20m	0.50m	1.18m

6.2 Four geotechnical boreholes, with five associated hand-dug starter pits, were also undertaken (the position of BH202 was re-located following the initial digging of the pit due to access issues). Their relative dimensions are shown below:

Geotech Ref Number	Dimensions of Hand Dug Starter Pit (m)	Diameter of Drilled Sequence (m)	Max. Depth (m)
BH 101	N/A	0.20m for first 2.70m, then 0.15m	30.00m
BH 103	0.32m by 0.30m, by	0.15m	12.15m (extent of monitored deposits)
BH 104	1.05m by 0.69m, by 1.11m deep	0.15m	30.00m
BH 202(a) Original Location	0.80m by 0.40m, by 1.18m deep	N/A	1.18m
BH 202(b) Revised Location	0.35m by 0.30m, by 0.50m deep	0.15m	30.00m

6.3 Levels for the site were calculated by Pre-Construct Archaeology staff from a nearby Ordnance Survey Benchmark, and locations for the Trial Pit and Borehole locations were calculated by the author on scale plans.

6.4 Site records were complied in plan at a scale of 1:20 and in section at a scale of 1:10 and 1:20, as appropriate. All written data was entered on *pro-forma* sheets following standard recording methods, and a photographic record was made using digital format.

6.5 The work was undertaken following English Heritage (GLAAS) guidelines.[3]

[3] English Heritage 2009.

7 ARCHAEOLOGICAL SEQUENCE

For the purposes of Section 7, the phases featured below represent the following:

Phase 1 – Natural deposits
Phase 2 – late 19th century (pre- 1904 St Philip's Building construction)
Phase 3 – 20th century (St Philip's Building)

The natural horizon was not encountered within any of Trial Pits 1 – 6, which were situated over the below-ground parts of the St Philip's Building. The sequences are summarised below for completeness:

7.1 Trial Pit 1

Phase 3

7.1.1 The earliest deposit encountered during the excavation of this trial pit was a layer of made ground [75] that was composed of friable mid-dark greyish-brown sandy-silt, being 0.38m thick and encountered at a highest level of 19.63m OD. This was overlain by a 0.39m thick layer of light-mid greyish-brown concrete [74] at a height of 19.81m OD. This formed the bedding for the overlying cobbles of the existent driveway [73], which was encountered at a height of 19.92m OD.

7.2 Trial Pit 2

Phase 3

7.2.1 One of the earliest features encountered within this test pit was the roof of the existent basement of the St Philip's Building [21], observed at 18.88m OD. A coal chute [84], also associated with the St Philip's Building, was the other of the earliest features observed, being constructed in the round out of red and yellow bricks with a mid yellowish-brown mortar, in an uncertain bonding pattern, observed at 19.57m OD.

7.2.2 A layer of made ground [83] post-dated the construction of [21] and [84]. This was composed of loose light to mid yellowish-brown silty-sand with frequent sub-angular gravels and occasional CBM fragments, and was encountered at a height of 19.44m OD, with a thickness of 0.56m. In the eastern end of the pit the made ground was overlain by a layer of friable mid brownish-yellow sand with mid greyish-brown silty mottling [82], this was 0.08m thick and observed at a highest level of 19.52m OD. In the western end of the trench the made ground was overlain by a loose layer of light yellowish-grey sand with small gravels [81], that was 0.08m thick and encountered at a highest level of 19.52m OD. Both of these sand lenses formed the bedding layer for the overlying paving [76], which sealed the location at 19.57m OD.

7.3 **Trial Pit 3**

Phase 3

7.3.1 The earliest feature encountered in this trail pit was the roof of the existent basement for the St Philip's Building [21], observed at 19.20m OD. This was overlain by a layer of made ground [87], which was composed of loose mid greyish-brown silty-sand that contained frequent CBM pieces and moderate amounts of sub-angular gravels, and was 0.48m thick, being encountered at 19.29m OD. This was overlain by a loose layer of mid-brownish-yellow sand [77] recorded at a highest level of 19.32m OD, which was 0.09m thick and formed the bedding for the overlying existent paving [76], at 19.38m OD.

7.4 **Trial Pit 4**

Phase 3

7.4.1 The earliest deposit observed in this location was a loose layer made ground [80] that was composed of mid greyish-brown silty-sand with occasional CBM and frequent sub-angular gravels. This was 0.43m thick and encountered at 19.21m OD. This was overlain by a layer of loose mid brownish-yellow sand [79], which was encountered at 19.20m OD with a thickness of 0.08m. This formed a bedding layer for the overlying 0.06m thick concrete foundation layer [78], which was observed at a highest level of 19.24m OD. This was overlain by a further bedding layer [77] of loose layer of mid brownish-yellow sand, that was 0.06m thick at a height of 19.27m OD, and above which the existent paving [76] was laid, at 19.33m OD.

7.5 **Trial Pit 5**

Phase 3

7.5.1 The earliest feature observed in this location was part of the wall and roof of the basement of the St Philip's Building [21], seen at 19.19m OD and 18.68m OD respectively. Overlying this was a layer of made ground [86] composed of loose mid yellowish-brown sandy-silt containing moderate amounts of CBM and frequent medium sub-angular gravels, and within which services were laid. This layer was 0.54m thick and encountered at a height of 19.22m OD. This was overlain by a loose mid brownish-yellow sand bedding layer [79], with a highest level of 19.17m OD and a thickness of 0.08m OD. Above this was a 0.06m thick concrete foundation layer [78], observed at 19.19m OD. This was overlain by a further 0.04m thick bedding sand [77], being loose mid brownish-yellow sand, at 19.22m OD. This sand formed the bedding layer for the existent paving, which lay at 19.28m OD. Also overlying the made ground

[86] and abutting the paving [76] was a layer of tarmac [85], which was 0.06m thick and observed at 19.28m OD, being associated with the modern existent surface around a light-well of the St Philip's Building.

7.6 Trial Pit 6

Phase 3

7.6.1 In the location of this trial pit the basement roof of the St Philip's Building [21] was encountered at 19.30m OD, being directly underneath the bedding sand [77], for the existent paving [76], which lay at 19.40m OD.

7.7 Trial Pit 201 (Fig. 3)

Phase 1

7.7.1 The earliest deposit exposed in this trial pit was an in-situ, natural layer of loose mid brownish-yellow sandy-gravels [11]. A 0.24m thick layer of this deposit was exposed, with it continuing beyond the limit of excavation, recorded from a top height of 15.63m OD.

Phase 2

7.7.2 Overlying the natural [11] was a 1.16m thick deposit of post-medieval made ground [8] that was encountered from a highest level of 16.79m OD. This was composed of soft mottled mid greyish-brown and mid brownish-orange silty-clay, which contained occasional fragments of ceramic building material and mortar (with a more prevalent concentration towards the base of the deposit), coke pieces, and clay tobacco pipe stems.

7.7.3 In the north-east corner of the trench the made ground [8] was cut by a construction cut [10]. This was only exposed in the section of the test pit, with vertical sides, with the base beyond the limit of excavation, and it had exposed dimensions of 0.36m in width and 0.93m in depth, being encountered from a highest level of 16.79m OD. This cut was filled by a concrete structure of unknown form or purpose [9], a corner of which was partly exposed, having an observable width of 0.20m, a height of 0.93m, and was seen at a height of 16.82m OD. A void existed between [9] and [10], and is presumed to have been to position of the shuttering used to pour the concrete.

Phase 3

7.7.4 In the southern end of the test pit the made ground [8] was also cut by the construction cut [22] for the foundations of the St Philip's Building [21], which was cut from a height of 16.92m OD and extended below the base of the trial pit.

7.7.5 Overlying both the footing of the building [21] and the concrete structure [9] was a hard light-brownish-grey concrete-type layer [7], associated with the footings of the building. This had observable dimensions of 0.50m by 0.34m, a thickness of 0.06m, and was encountered at a highest level of 16.86m OD. This was sealed by a layer of indurated light brownish-grey concrete [12], which had exposed dimensions of 1.10m by 0.50m, a thickness of 0.10m, and was encountered from a highest level of 16.94m OD. It possibly represents a capping layer for the underlying deposits and structures that was not intended to be seen as it was roughly finished. Above the concrete was a layer of loose mid yellowish-brown sand mixed with ceramic building material rubble and gravels [6], which extended beyond all of the limits of excavation, with a thickness of 0.21m, that was encountered at a height of 17.14m OD. Overlying this and sealing the area of the test pit was the concrete floor slab of the St Philip's Building [1] at a top height of 17.32m OD.

7.8 **Trial Pit 203 (Fig. 3)**

Phase 1

7.8.1 The earliest deposit encountered in this test pit was a layer of loose mid yellowish-brown sandy-gravels [20]. This was encountered from a highest level of 16.27m OD, with observable dimensions of 1.04m by 0.36m, extending beyond the limits of excavation. This was overlain by a moderately compacted layer of mid yellowish-brown sandy-clayey-gravels [19], with dimensions of 0.96m by 0.36m, extending beyond the southwest limit of excavation, with a thickness of 0.26m that was encountered at a highest level of 16.47m OD. This in turn was overlain by a soft layer of mid orangey-brown sandy-clay brickearth [18], which was encountered at a highest level of 16.77m OD, being 0.30m thick, with visible dimensions of 1.02m by 0.36m, extending beyond the southwest limit of excavation.

Phase 3

7.8.2 The brickearth [18] was cut by the construction cut [22] for the existing St Philip's Building [21], from 16.90m OD down to 16.13m OD in the northwest and from 16.80m OD down to 15.55m OD the northeast and southeast. Foundations [21] were overlain by the concrete floor slab of the building [1], which sealed the location of the test pit at a top height of 16.90m OD.

7.9 **Trial Pit 205 (Fig. 3)**

Phase 1

7.9.1 The earliest deposit encountered in this location, from 15.91m OD, was a layer of loose mid greyish-brown sandy-gravels [5], which was 0.31m deep and extended beyond the base of the trial pit. Sealing this was a layer of loose mid yellowish-reddish-brown gravelly-sand [4], which was encountered at a highest level of 16.06m OD, being 0.15m thick. This was overlain by a loose layer of mid yellowish-greyish-brown sand [3] that was 0.11m thick and was encountered at 16.15m OD.

Phase 2

7.9.2 The natural deposits were truncated by the construction cut [22] for the existing building [21] at a height of 16.24m OD. These foundations were overlain by a layer of soft mixed deposit of mid yellowish-brown and light bluish-grey sandy-clay [2], which contained frequent gravel inclusions, and was likely to be re-deposited as made ground at the time of the construction of the current building. This layer was 0.23m thick, and was encountered at a highest level of 16.38m OD. The area of the trial pit was sealed by the concrete floor slab [1] of this building at a top height of 16.61m OD.

7.10 **Trial Pit 206 (Fig. 3)**

Phase 1

7.10.1 The earliest deposit observed within this test pit was a layer of moderately compacted mid bluish-grey sandy-clay with gravels [17], with exposed dimensions of 0.50m by 0.48m, and a thickness of 0.18m that was encountered from a highest level of 15.73m OD. This was overlain by a layer of in-situ soft sandy-clay brickearth [16] that appeared mid yellowish-brown with patches of light bluish-grey, and contained occasional small to medium sub-angular to sub-rounded gravels. This deposit was encountered at a highest level of 16.44m OD, with an observable length of 0.86m and a width of 0.50m, both extending beyond the limits of excavation, and a thickness of 0.71m.

Phase 3

7.10.2 The construction cut [22] for the foundations of the St Philip's Building [21] cut the brickearth [16] from 16.41m OD, to a depth of 14.63m OD. The foundations [21] were overlain by a 0.13m thick deposit of soft mid greyish-brown silty-clay [14], with frequent ceramic building material fragments, which was used to backfill the construction cut [22]. This was 0.28m in width, 0.50m long to the limits of excavation, and was encountered at a highest level of 16.42m OD. This was covered by a loose layer of fine mid brownish-red ceramic building material crush [13], with observable dimensions of 1.22m by 0.50m, continuing beyond the limits of excavation, and a thickness of 0.04m that was encountered from a highest level of 16.45m OD. The area of the test pit was finally sealed by the 0.20m thick concrete floor slab of the St Philip's Building [1] at a top height of 16.63m OD.

7.11 **Borehole 101 (Fig. 4)**

Phase 1

7.11.1 The earliest deposit encountered during the drilling of this borehole was a firm deposit of dark bluish-grey clay with sand lenses [45], which was observed to have a thickness of 15.40m to the basal limits of drilling, having been encountered at a top height of 4.38m OD. This was overlain by a 0.25m thick layer of indurated light greyish-brown claystone [44] at a highest level of 4.63m OD. Over this was a deposit of firm mid-dark bluish-grey clay with sand lenses [43] that was 0.25m thick and recorded at a highest level of 4.88m OD. Above this was a layer of firm mid-dark bluish-grey clay [42], which was 7.05m thick and recorded at a top height of 12.03m OD. Overlying this was a further layer of indurated light greyish-brown claystone [41], observed to be 0.75m thick, and encountered at a highest level of 12.78m OD. This was overlain by a layer of firm mid-dark bluish-grey clay [40] that was observed at a top height of14.33m OD, with a thickness of 1.55m. This was sealed by a layer of firm mid yellowish-brown clay [39], which was 0.65m thick, and encountered at a highest level of 14.98m OD.

7.11.2 Overlying the sequence of clay deposits was a loose layer of mid yellowish-brown sandy small to medium sub-angular to sub-rounded gravels [38]. This layer was encountered at a highest level of 15.73m OD, and had a thickness of 0.75m. This was sealed by the final layer of the natural deposits, which was composed of soft mid yellowish-brown clay with gravels [36] that was 0.55m thick and was encountered at a top height of 16.28m OD.

Phase 3

7.11.3 The natural deposits observed were overlain by a 1.63m thick layer of concrete [35], of unknown purpose, which was encountered from a highest level of 17.91m OD. Above this was a loose layer of light greyish-yellowish-brown sandy concrete crush with gravels [32], which was encountered at a highest level of 18.98m OD, with a thickness of 0.32m. This was overlain by a 0.68m thick layer of concrete [23] that formed the outside yard surface associated with the St Philip's Building from a top height of 18.98m OD.

7.12 **Borehole 103 (Fig. 4)**

Phase 1

7.12.1 The earliest deposit encountered during the monitoring of this borehole was a layer of firm mid-dark bluish-grey clay with sand lenses [72], which was seen at the limit of observed drill depth at 4.48m OD, and as such the thickness of this deposit remains

unknown. This was overlain by an 8.90m thick layer of bluish-grey firm clay [70], which was 8.90m thick and encountered from a highest level of 13.38m OD. Above this lay a 0.60m thick layer of firm mid yellowish-brown clay [69] that was encountered from a highest level of 13.98m OD.

7.12.2 A layer of loose, mid orangey-brown, sandy, small to large sub-rounded to sub-angular gravels [68] overlay the clay deposits. This was 1.53m thick, and observed from a highest level of 15.51m OD. Above this was a layer of soft to moderately compacted clayey-gravels [34], which appeared mid orangey-brown mottled with mid bluish-grey, was 0.46m thick, and was encountered from a highest level of 16.09m OD. This was sealed by a soft layer of mid orangey-brown brickearth [33], mottled with light to mid bluish-grey, and containing occasional small to medium sub-angular flint gravels. This layer was 0.35m thick and was encountered at a height of 16.44m OD.

Phase 3

7.12.3 The concrete floor surface [1] of the existing St Philip's Building overlay the brickearth [33] and sealed the area, with a thickness of 0.19m at a highest level of 16.63m OD.

7.13 **Borehole 104 (Fig. 4)**

Phase 1

7.13.1 The earliest deposit encountered during the drilling of this borehole was a layer of firm mid-dark bluish-grey clay with sand lenses [54]. This was observed to have a thickness of 16.20m to the basal limits of excavation, and was encountered at a highest level of 3.47m OD. Above this was a deposit of indurated light brownish-grey claystone [53] which was 0.10, thick and observed at a highest level of 3.55m OD. This was overlain by a firm layer of mid-dark bluish-grey clay with sand lenses [52] that was encountered at a top height of 3.85m OD and had a thickness of 0.30m. Above this was a layer of firm dark bluish-grey clay [51] that was 7.65m thick and encountered from a highest level of 11.50m OD. A layer of light brownish-grey indurated claystone [50] was above [51], being 0.20m thick and encountered at a highest level of 11.70m OD. This was overlain by a firm deposit of mid-dark bluish-grey clay [49] that was 1.70m thick and encountered at a top height of 13.40m OD. Above this a layer of firm to moderately compacted mid yellowish-brown clay [48] was observed, with a thickness of 0.80m, which was encountered at a highest level of 14.20m OD.

7.13.2 Above the clay horizons was a layer of loose mid reddish-brown sandy small to medium sub-rounded to sub-angular gravels [47]. This layer was 1.10m thick and was encountered at a highest level of 15.30m OD. Overlying this was a soft layer of mid yellowish-brown sandy-clay with gravels [46] that was 0.45m thick and observed at a top height of 15.75m OD. This was overlain by a loose layer of mid yellowish-brown

clayey-sandy-gravels [31] which was 0.46m thick and encountered at a highest level of 16.21m OD, with some evidence of disturbance in the upper horizon associated with the overlying concrete [25].

Phase 2

7.13.3 Sealing the natural deposits was the afore mentioned layer of concrete [25]. This was observed to be 0.69m thick, was encountered at a highest level of 16.85m OD, and may possibly represent the concrete footings or foundations of an earlier structure on the site. Above this was a 0.30m thick layer of brickwork [24], being yellow shallow-frogged stock bricks, which individually measured 230mm by 110mm by 66mm, bonded by a mid brownish-red coarse sandy mortar with notable inclusions. This was encountered at a highest level of 17.15m OD, and may represent the part of an earlier masonry layer or structure of uncertain form and function. This was overlain from 17.25m OD by a 0.10m thick layer of concrete which formed the existent yard surface of associated with the St Philip's Building.

7.14 **Borehole 202(a) (Fig. 3)**

Phase 1

7.14.1 The earliest deposit encountered in this location was a loose layer of light to mid yellowish-grey sandy small to large rounded to sub-angular gravels [29]. This layer was 0.51m thick, and encountered at a highest level of 16.18m OD. Above this was a layer of friable mid yellowish-brown sand [28] with frequent very small gravel inclusions, which was 0.52m thick and encountered at a highest level of 16.69m OD.

Phase 3

7.14.2 Above the natural deposits was an indurated deposit of concrete [30], with exposed dimensions of 0.80m by 0.40m and a thickness of 0.10m to the limits of excavation. This was encountered at a highest level of 16.77m OD, and is of unknown function due to only being partly exposed - it may be associated with services running through the area. Above this was a loose deposit of made ground [27] of 20th-century date, that was composed of mid yellowish-brown clayey-sandy-gravels with frequent CBM inclusions. This layer was 0.48m thick, and encountered at a highest level of 17.14m OD. Overlying this was a hard layer of mid-dark bluish-grey concrete with clinker and frequent CBM fragments [26], which was encountered at a top height of 17.24m OD and was 0.08m thick. This formed the bedding for the overlying 0.17m (maximum) thick concrete yard surface [23] which sealed the area at a highest level of 17.32m OD.

7.15 **Borehole 202(b) (Fig. 4)**

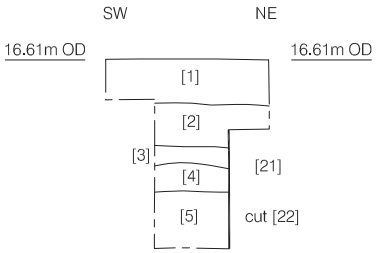
Phase 1

7.15.1 The earliest deposit encountered in this area was a firm layer of mid-dark bluish-grey clay with sand lenses [67], which was 8.50m in thickness to the basal limit of excavation, and was encountered at a highest level of -4.21m OD. This was overlain by an indurated light brownish-grey layer of claystone [66] that was 0.25m thick and encountered at a height of -3.96m OD. Above this was a firm layer of mid-dark bluish-grey clay with sand lenses [65], which was encountered at a highest level of 2.89m OD with a thickness of 6.85m. This was overlain by a light brownish-grey layer of claystone [64] that was 0.20m thick at a top height of 3.09m OD. Above this was a firm layer of mid-dark bluish-grey clay with sand lenses [63], which was 1.35m thick and encountered at a highest level of 4.44m OD. Overlying this at a highest level of 8.94m OD was a layer of firm mid bluish-grey clay [62] that was 4.50m thick, and above this was a indurated deposit of light brownish-grey claystone [61] that was 0.15m thick and encountered at a top height of 9.09m OD. This was covered by a firm layer of mid-dark bluish-grey clay [60] that was 4.60m thick and observed at a highest level of 13.69m OD. This was overlain by a layer of firm mid orangey-brown clay [71], which was 0.20m thick and encountered at a top height of 13.89m OD.

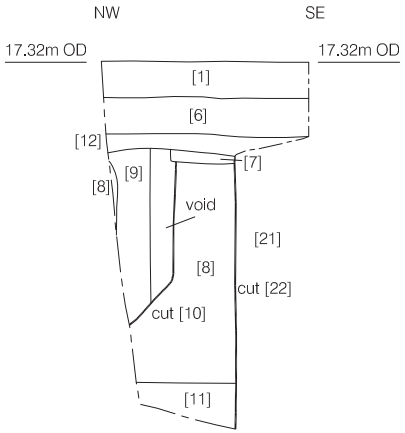
7.15.2 The clay sequence was overlain by a loose layer of mid yellowish-brown sandy-gravels [59] that was seen to be 2.35m thick at a highest level of 16.24m OD. Above this was a layer of soft mid yellowish-brown brickearth with gravels [58] that was 0.55m thick and encountered at a top height of 16.79m OD. A loose layer of mid yellowish-brown clayey-sandy small to medium sub-rounded gravels [57] was observed above this at a highest level of 16.98m OD with a thickness of 0.19m. However, this layer may have been disturbed or re-deposited by later activity.

Phase 3

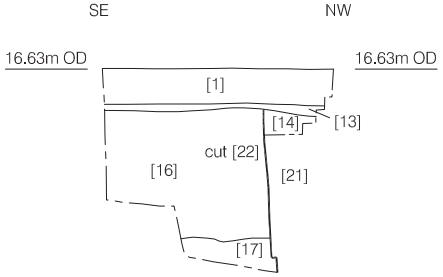
7.15.3 The sequence of natural deposits was overlain by a layer of made ground [56] that was composed of soft mid greyish-brown sandy-clay with medium to large sub-angular gravels, and occasional CBM fragments. This was 0.13m thick and encountered at a highest level of 17.11m OD. Above this was a 0.11m thick indurated mid-dark bluish-grey concrete layer [55] that was 0.11m thick and encountered at a highest level of 17.22m OD. This formed the bedding for the overlying concrete yard surface [23], which was 0.07m thick and lay at a top height of 17.29m OD.



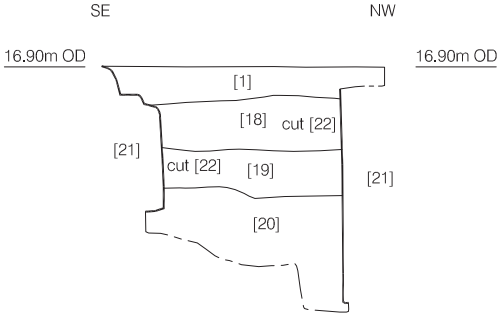
Section 1
Trial Pit 205
Southeast Facing



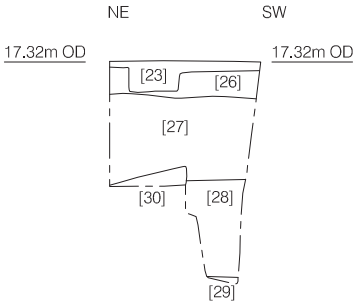
Section 2
Trial Pit 201
Southwest Facing



Section 3
Trail Pit 206
Northeast Facing



Section 4
Trial Pit 203
Northeast Facing



Section 7
Borehole 202(a)
Northwest Facing

0 2m

Figure 3
Trial Pit Sections 1 - 4 & Borehole Section 7
1:40 at A4

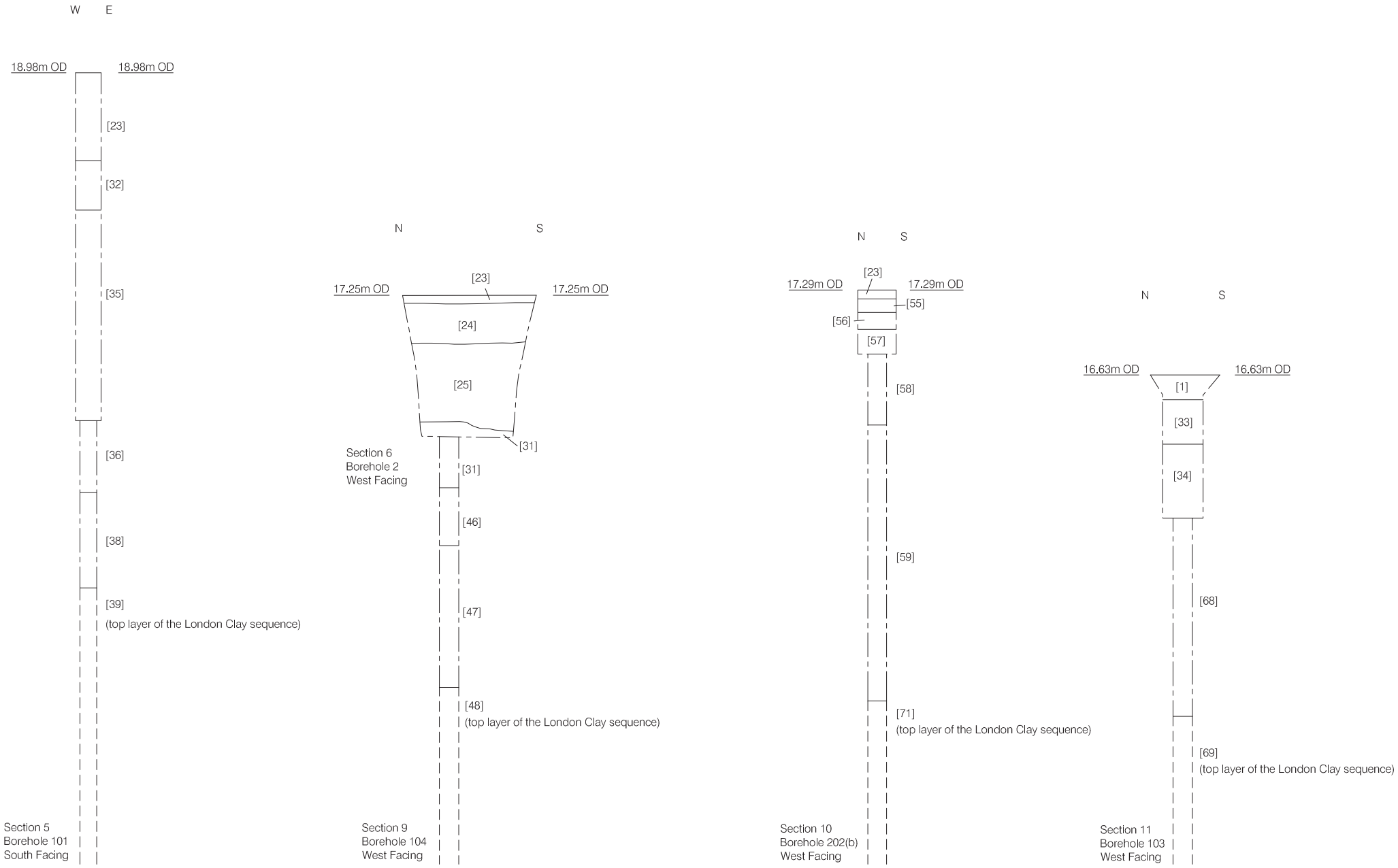


Figure 4
Borehole Sections 5 & 6 and 9 - 11
1:40 at A4

8 CONCLUSIONS

8.1 The work undertaken shows that brickearth horizons have survived below the foundations of the existing St Philip's Building in four observed locations across the site, from top heights of 16.44m OD to 16.79m OD. Whilst no archaeological features were observed in the limited areas of brickearth exposed, it does suggest that there is a potential for survival should any such features be cut into brickearth horizons elsewhere on the site.

8.2 Two locations with sand deposits were observed during the works, and it is possible that these may relate to channel deposits associated with the stream that is reputed from historical sources to have crossed the north-eastern area of the site.

8.3 The only feature to be observed during the investigations consisted of a possibly pre-St Philip's Building concrete structure observed in the corner of Test Pit 201. It is not clear what purpose or form this structure takes due to very limited amount exposed. A layer of probable late 19th-century brickwork was also exposed within the starter pit for Borehole 104, possibly a surface or footings of an earlier building.

8.4 The other deposits encountered during this investigation related to the period of the construction of the St Philip's Building in the early 20th century with wall footings, basement roofs, coal chutes, made ground, bedding layers, and existent floor surfaces all observed.

8.5 No archaeological finds or features pre-dating the late 19th century were identified during the investigations.

8.6 The results of the works have allowed better definition of the potential for archaeological features and deposits to survive on the site, and will provide the client and their archaeological consultants, Gifford, with information with which to pursue effective mitigation of impacts to any below-ground archaeological remains.

9 ACKNOWLEDGEMENTS

9.1 Pre-Construct Archaeology Limited would like to thank The London School of Economics and Political Sciences for commissioning the work and Andy Shelley from Gifford for monitoring the work.

9.2 The author would like to thank the staff of GEH Groundworks and Soil Consultants Ltd for their assistance and co-operations on site. Thanks also go to Tim Bradley who undertook the project management and editing, Jenny Simonson for producing the drawings, and to Kari Bower for her assistance on site.

10 BIBLIOGRAPHY

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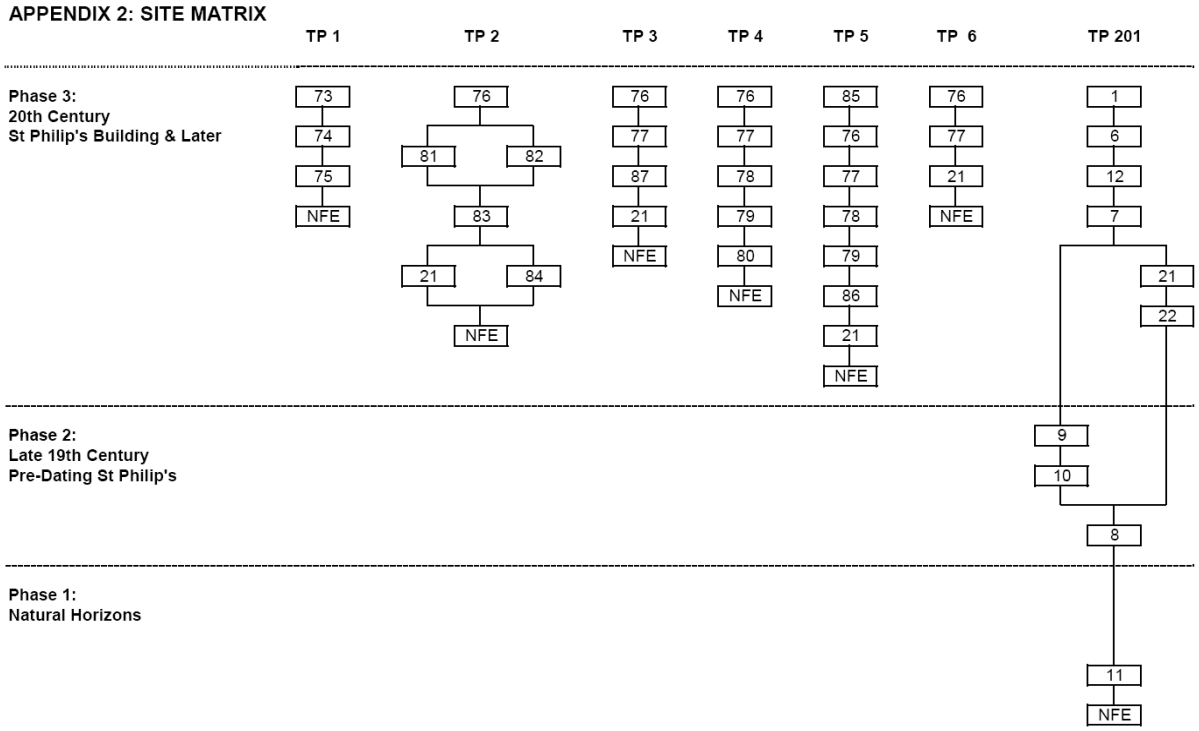
APPENDIX 1: CONTEXT DESCRIPTIONS

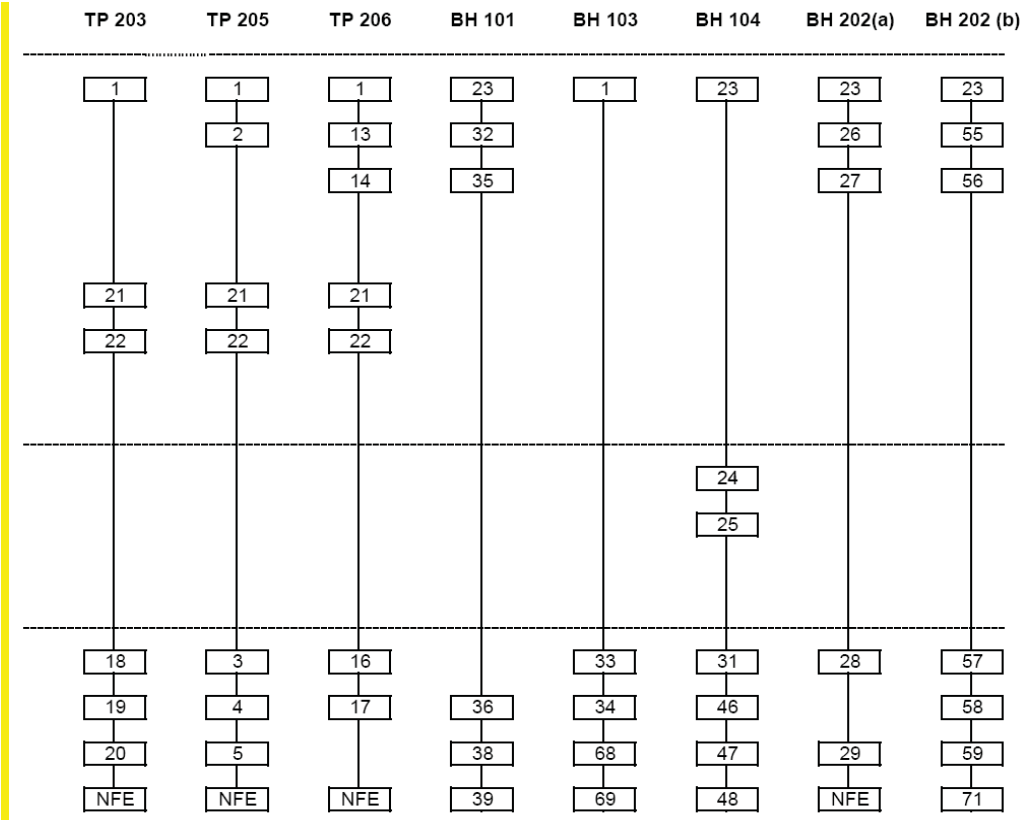
Context	Type	Trench	Description	Date
1	Deposit	TP 201 TP 203 TP 205 TP 206 BH 103	Concrete Floorslab	20th-century
2	Deposit	TP 205	Made Ground - Re-Deposited Natural	20th-century
3	Deposit	TP 205	Natural - Sand	-
4	Deposit	TP 205	Natural - Gravelly-Sand	-
5	Deposit	TP 205	Natural - Sandy-Gravels	-
6	Deposit	TP 201	Made Ground	20th-century
7	Deposit	TP 201	Concrete	20th-century
8	Deposit	TP 201	Made Ground	Post-Medieval
9	Masonry	TP 201	Concrete Structure	late 19th-century
10	Cut	TP 201	Construction Cut for [9]	late 19th-century
11	Deposit	TP 201	Natural - Sandy-Gravels	-
12	Deposit	TP 201	Concrete Layer	20th-century
13	Deposit	TP 206	Bedding Layer for Concrete Floor	20th-century
14	Fill	TP 206	Backfill of [22]	20th-century
15	-	-	VOID	-
16	Deposit	TP 206	Natural - Brickearth	-
17	Deposit	TP 206	Natural - Clayey-Gravels	-
18	Deposit	TP 203	Natural - Brickearth	-
19	Deposit	TP 203	Natural - Clayey-Gravels	-
20	Deposit	TP 203	Natural - Sandy-Gravels	-
21	Masonry	TP 2 TP 3 TP 5 TP 6 TP 201 TP 203 TP 205 TP 206	Foundations for Existing Building	20th-century
22	Cut	TP 201	Construction Cut for [21]	20th-century

		TP 203 TP 205 TP 206		
23	Masonry	BH 101 BH 104 BH 202(a) BH 202(b)	External Surface Associated with Existing Building	20th-century
24	Masonry	BH 104	Yellow Brick Structure	late 19th-century
25	Masonry	BH 104	Concrete	late 19th-century
26	Deposit	BH 202(a)	Bedding for Concrete [23]	20th-century
27	Deposit	BH 202(a)	Made Ground	20th-century
28	Deposit	BH 202(a)	Natural - Sand	-
29	Deposit	BH 202(a)	Natural - Sandy-Gravels	-
30	Deposit	BH 202(a)	Concrete	-
31	Deposit	BH 104	Natural - Clayey-Sandy-Gravels	-
32	Deposit	BH 101	Made Ground	20th-century
33	Deposit	BH 103	Natural - Brickearth	-
34	Deposit	BH 103	Natural - Clayey-Gravels	-
35	Masonry	BH 101	Concrete	Probable 20th-century
36	Deposit	BH 101	Natural - Clayey-Gravels	-
37	-	-	VOID	-
38	Deposit	BH 101	Natural - Sandy-Gravels	-
39	Deposit	BH 101	Natural - Clay	-
40	Deposit	BH 101	Natural - Clay	-
41	Deposit	BH 101	Natural - Claystone	-
42	Deposit	BH 101	Natural - Clay	-
43	Deposit	BH 101	Natural - Clay with Sand lenses	-
44	Deposit	BH 101	Natural - Claystone	-
45	Deposit	BH 101	Natural - Clay with Sand lenses	-
46	Deposit	BH 104	Natural - Sandy- Clay with Gravels	-
47	Deposit	BH 104	Natural - Sandy-Gravels	-
48	Deposit	BH 104	Natural - Clay	-
49	Deposit	BH 104	Natural - Clay	-
50	Deposit	BH 104	Natural - Claystone	-
51	Deposit	BH 104	Natural - Clay	-
52	Deposit	BH 104	Natural - Clay with Sand lenses	-
53	Deposit	BH 104	Natural - Claystone	-

54	Deposit	BH 104	Natural - Clay with Sand lenses	-
55	Deposit	BH 202(b)	Concrete Bedding for [23]	20th-century
56	Deposit	BH 202(b)	Made Ground	Probable Post-Medieval
57	Deposit	BH 202(b)	Natural - Sandy-Gravels	-
58	Deposit	BH 202(b)	Natural - Brickearth with Gravels	-
59	Deposit	BH 202(b)	Natural - Clay	-
60	Deposit	BH 202(b)	Natural - Clay	-
61	Deposit	BH 202(b)	Natural - Claystone	-
62	Deposit	BH 202(b)	Natural - Clay	-
63	Deposit	BH 202(b)	Natural - Clay with Sand lenses	-
64	Deposit	BH 202(b)	Natural - Claystone	-
65	Deposit	BH 202(b)	Natural - Clay with Sand lenses	-
66	Deposit	BH 202(b)	Natural - Claystone	-
67	Deposit	BH 202(b)	Natural - Clay with Sand lenses	-
68	Deposit	BH 103	Natural - Sandy-Gravels	-
69	Deposit	BH 103	Natural - Clay	-
70	Deposit	BH 103	Natural - Clay	-
71	Deposit	BH 202(b)	Natural - Clay	-
72	Deposit	BH 103	Natural - Clay with Sand lenses	-
73	Masonry	TP 1	Cobbles of driveway	20th-century
74	Masonry	TP 1	Concrete bedding for [73]	20th-century
75	Deposit	TP 1	Made Ground	Probable Post-Medieval
76	Masonry	TP 2-6	Existent Footpath	20th-century
77	Deposit	TP 3-6	Sand Bedding Layer	20th-century
78	Masonry	TP 4-5	Concrete foundations for [76]	20th-century
79	Deposit	TP 4-5	Sand Bedding Layer	20th-century
80	Deposit	TP 4	Made Ground	Post-Medieval
81	Deposit	TP 2	Bedding Sand for [76]	20th-century
82	Deposit	TP 2	Bedding Sand for [76]	20th-century
83	Deposit	TP 2	Made Ground	20th-century
84	Masonry	TP 2	Cole Chute for St Philip's Bldg	20th-century
85	Deposit	TP 5	Tarmac assoc with Light-well	20th-century
86	Deposit	TP 5	Made Ground	20th-century
87	Deposit	TP 3	Made Ground	20th-century

APPENDIX 2: MATRIX





APPENDIX 3: OASIS FORM

OASIS ID: preconst1-72747

Project details

Project name	St Philip's Building, London School of Economics, Sheffield St, London, WC2
Short description of the project	An archaeological watching brief was conducted during geotechnical investigations in the St Philip's Building of the London School of Economics between 5th of January to the 17th of February 2010, in advance of the proposed re-development of the site. The investigations found evidence for natural deposits, significantly brickearth, but also including sands, and gravel mixed with either sand or clay. Layers, such as made ground or bedding horizons, and features associated with the existent St Philip's Building were observed to be overlying or cutting the natural horizons. The only potential archaeological features observed were evidence of possible earlier structures in two locations, though little could be ascertained regarding these due to the limited area exposed during works.
Project dates	Start: 05-01-2010 End: 17-02-2010
Previous/future work	No / Not known
Any associated project reference codes	SSI 10 - Sitecode
Type of project	Recording project

Site status	Local Authority Designated Archaeological Area
Site status	Conservation Area
Current Land use	Other 2 - In use as a building
Monument type	EXISTENT BUILDING Post Medieval
Significant Finds	NONE None
Investigation type	'Watching Brief'

Project location

Country	England
Site location	GREATER LONDON CITY OF WESTMINSTER WESTMINSTER St Philip's Building, LSE, Sheffield Street
Postcode	WC2
Study area	1271.24 Square metres
Site coordinates	TQ 53072 18122 50.9416178448 0.179043191594 50 56 29 N 000 10 44 E Point
Height OD / Depth	Min: 15.62m Max: 16.98m

Project creators

Name of Organisation	Pre-Construct Archaeology Ltd
Project brief originator	Gifford
Project design originator	Andy Shelley
Project director/manager	Tim Bradley
Project supervisor	Sarah Barrowman
Type of sponsor/funding body	Consultancy
Name of sponsor/funding body	London School of Economics

Project archives

Physical Archive recipient	LAARC
Physical Archive ID	SSI 10
Physical Contents	'Ceramics'

Digital Archive recipient	LAARC
Digital Archive ID	SSI 10
Digital Contents	'none'
Digital Media available	'Images raster / digital photography','Spreadsheets','Text'
Paper Archive recipient	LAARC
Paper Archive ID	SSI 10
Paper Contents	'none'
Paper Media available	'Context sheet','Diary','Map','Matrices','Plan','Report','Section'

Project bibliography 1

Publication type	Grey literature (unpublished document/manuscript)
Title	An Archaeological Watching Brief of Geotechnical Works at the St Philip's Buildings, London School of Economics, Sheffield Street, City of Westminster, WC2
Author(s)/Editor(s)	Barrowman, S.

Date	2010
Issuer or publisher	Pre-Construct Archaeology Ltd
Place of issue or publication	London
Description	A4 Bound Document
Entered by	Sarah Barrowman (sbarrowman@pre-construct.com)
Entered on	19 February 2010

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