# rchaeologica

# Greenwich Waterfront Transit -Phase 1



Archaeological
Watching Brief Report



September 2007

Client: Parsons Brinckerhoff Ltd.

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Date: 12th September 2007

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# Greenwich Waterfront Transit - Phase 1, London

# Archaeological Watching Brief Report

### **CONTENTS**

| Summary                                      | 1 |
|--|---|
| 1 Introduction                               |   |
| 1.1 Location and scope of work               | 1 |
| 1.2 Geology and topography                   |   |
| 1.3 Geoarchaeological background             |   |
| 1.4 Archaeological and historical background |   |
| 2 Project Aims and Methodology               |   |
| 2.1 Aims                                     |   |
| 2.2 Methodology                              |   |
| 3 Results                                    |   |
| 3.1 Description of deposits.                 |   |
| 3.2 Finds                                    | 6 |
| 3.3 Palaeo-environmental remains.            | 6 |
| 4 Discussion and Conclusions                 | 6 |
| Appendix 1 Archaeological Context Inventory  |   |
| Appendix 2 Bibliography and References       |   |
|  |   |

- Fig. 1 Site location
- Fig. 2 Trial pit location plan
- Fig. 3 Trial pits sections

### SUMMARY

Between the 30th of August and the 3rd of September 2007, Oxford Archaeology (OA) carried out an archaeological watching brief during the excavation of ten geotechnical trial pits on the proposed site of the Greenwich Waterfront Transit (GWT) Phase 1 route, from Barnham Drive to north of Western Way (NGR: TQ 4537 8048). The work was commissioned by Parsons Brinckerhoff Ltd. in advance of proposed construction of a new road in Thamesmead West. Although no definite archaeological remains were identified, 4 of the trial pits exposed undisturbed peat and some alluvial deposits consistent with the remains of buried landscapes possibly dating to the prehistoric period and later. All the trial pits revealed extensive deposits of modern made ground overlying a capping layer of clay sealing the peat.

### 1 Introduction

### 1.1 Location and scope of work

- 1.1.1 Between the 30th of August and 3rd September 2007, Oxford Archaeology (OA) carried out an archaeological watching brief during excavation of geotechnical test pits along the site of a proposed road in Thamesmead West (NGR TQ 456 803), East London, approximately 1.2 km north-east of Woolwich Arsenal. The work was commissioned by Parsons Brinckerhoff Ltd. in respect of the construction of a new road in Thamesmead West, as part of the GWT Phase 1 scheme.
- 1.1.2 As part of the works, provision was made by Parsons Brinckerhoff for an archaeological watching brief to be undertaken during excavation of the pits.

### 1.2 Geology and topography

1.1.3 The site lies on the south side of the Thames floodplain. The site originally would have been level ground at between 1 m and 2 m above OD, although tipping has raised the current level in many areas to above 6 m OD. The site occupies an area of approximately 3 hectares and the underlying geology is alluvium over Terrace Gravels.

### 1.3 Geoarchaeological background

- 1.1.4 Deposition in the Thames Valley began in the late Anglian stage (circa 500,000 yr. BP) and continued intermittently throughout the Pleistocene (Gibbard 1994; Bridgland 1994; 1995; Bridgland et al 1995). Sediments, deposited in cold climate braided stream systems, exist as wedges of sand and gravel on the valley sides, subsequently eroded by fluvial incision during periods of lowered sea level to create terraces. The most recent episodes of gravel deposition formed the Shepperton gravels in the valley bottom.
- 1.1.5 The surface of the valley bottom gravels formed the 'template' onto which alluvial

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and estuarine sedimentation occurred later, during the Holocene. In contrast to the relatively well known sequences of the Pleistocene, the nature of the Holocene sediments deposited during the last 12,000 years are not well understood and have only, with few exceptions, been described superficially (Bates 1999). The landscape during this period saw a number of changes, largely attributed to a rise in sea level caused by the continued shrinking of the polar ice caps and tectonic subsidence. The Holocene sediments form a wedge thickening downstream, from less than 2m at Tower Bridge to a maximum thickness of 35m east of the study area at Canvey Island (Marsland, 1986).

- 1.1.6 Within the inner estuary Holocene sediments consist of complex sequences of minerogenic and organic clay, silts, sands and peats, deposited in a variety of environments representing variously alder carr, fen, reedswamp, intertidal saltmarsh and mudflats. The currently adopted stratigraphic sequence for the Lower Thames is based on work undertaken by Devoy (1979, 1980). Borehole stratigraphies were integrated with biostratigraphic studies to infer successive phases of marine transgressions (Thames 1-V) represented by clay/silt units and regressions (Tilbury 1-V) represented by peat units. Devoy constructed two age-altitude curves of relative sea level movement, one for Tilbury (outer estuary) and one for Crossness, Dartford and Broadness (inner estuary). The model suggests transgressions occurred in the Palaeolithic/early Mesolithic periods, the late Mesolithic/early Neolithic periods, throughout the Bronze Age, in the middle Iron Age and at the beginning of the 4th century AD (Devoy 1980).
- 1.1.7 The 'Thames-Tilbury' model is regarded as the seminal work in this area (Haggart 1995) and has been widely applied by researchers outside the original study area in the absence of regional models. However, recent work (Haggert 1995 in Sidell et al 2000:16) has highlighted several problems, such as the need for two age/altitude curves, suggesting it cannot always be easily applied to the whole of the Thames Estuary, both in terms of lithology and age/altitude analysis. (Sidell et al 2000:16). Recent work has been aimed at constructing regional models for estuary development (Long *et al*, 2000; Bates and Whittaker, in press) which begin to address the range of factors responsible for sequence accumulation
- 1.1.8 In conclusion, former landsurfaces (peat and organic deposits) on the Thames floodplain have been buried, and protected, within a succession of alluvial deposits (minerogenic silts and top of the alluvium clays). The deposition of these sediments has occurred over a period of thousands of years. Evidence of early prehistoric activity could potentially be located at the base of the alluvium and cut into the underlying geology. Later prehistoric, Roman and medieval activity is likely to be located progressively higher up in the alluvial sequence, with possible medieval and post-medieval activity at the top of the alluvium.

### 1.4 Archaeological and historical background

- 1.1.9 The archaeological background to the site has been taken from the Thames Gateway Project Environmental Impact Report (OA, 2003) and is summarised below.
- 1.1.10 Evidence from the Palaeolithic and Mesolithic periods in the Lower Thames is largely confined to isolated find spots. In situ material is rare and assemblages largely comprise reworked artefacts deriving from the Pleistocene gravels. Evidence of later prehistoric occupation is more extensive. In the Neolithic and Bronze Ages major occupation appears to have been largely confined to the dry ground of the gravel terraces, as evidenced by the distribution of cropmarks, findspots and potential settlement sites. However, there is increasing evidence to suggest that activity extended onto the floodplain, in the form of seasonal and perhaps even semipermanent occupation in the drier periods. Timber trackways are the most common type of prehistoric site found in the former marshes and have been found on a number of sites in East London, at Silvertown (Sidell et al 2000) Beckton, Dagenham and Rainham on the north bank, and at Bramcote Green (Thomas and Rackham 1996) and Erith to the south (Sidell et al 1997, Thomas and Rackham 1996).
- 1.1.1.1 The gravel terraces of the Lower Thames are known to have been intensively settled in the later Iron Age and Roman periods (Wilkinson et al, 1988) with the development of London as a major provincial capital and the subsequent remodelling of the surrounding economies. The terrace was still the focus for occupation and it is possible that the first elements of the marshland draining process may have begun at this time. Significant changes in this period include the growth of salt-making as an important activity along the estuarine and coastal margins There is extensive evidence for Roman cemeteries and a settlement in the Barking area, and an Iron Age defended settlement at Uphall. The majority of the marshland landscape seen today was created during the later medieval period (AD1066 to 1550), when the major phases of marshland reclamation and sea defence construction seems to have begun. However it is possible that the process of reclamation had started in the early medieval period (AD410 to 1066).
- 1.1.12 Scheduled Monuments A 5 km Study Area around the footprint of the bridge contains five Scheduled Monuments, which are designated sites of national importance, none of which are located within or in close proximity to the proposed Scheme. The closest Scheduled Monument is Barking Abbey located c. 800 m to the north.
- 1.1.13 Findspots and Sites There are numerous Findspots and Sites within a 2 km Study Area, ranging from the Palaeolithic period to post-medieval period, which indicate that there has been extensive archaeological settlement patterns in the area (refer to Gazetteer in OA 2003, Environmental Impact Report for more details).

### Earlier Archaeological Work

1.1.14 A watching brief has been carried out within the Thames Gateway Bridge site during

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the excavation of earlier geotechnical test pits (OA, 2003a), during which peat and alluvial deposits consistent with an earlier prehistoric landscape were observed sealed below modern made ground.

### 2 PROJECT AIMS AND METHODOLOGY

### 2.1 Aims

- 1.1.15 To clarify the nature and extent of any modern disturbance and intrusion on the site
- 1.1.16 To determine the presence or absence, location, extent, date, character and state of preservation of any archaeological and paleo-environmental remains within the sites.
- 1.1.17 To determine the OD height of features and deposits encountered.
- 1.1.18 To make available the results of the archaeological investigation.

### 2.2 Methodology

- 1.1.19 The work consisted of 10 trial pits of approximately 3.5 m long by 0.6 m wide, located at specific surveyed points within the footprint of the proposed route (Fig 2). Of the 17 pits located on the plan only Pits 8 through 17 were monitored during this phase of work. The trial pits were excavated using a mechanical excavator (JCB) fitted with a 0.6 m wide toothless bucket. The pits were excavated in spits to the depth required by the Project Geologist.
- 1.1.20 Due to the depth of the pits exceeding Health and Safety (H & S) limits recording was undertaken from ground level using hand tapes to measure the approximate depths of deposits. Removed overburden was examined for finds prior to the pits being backfilled. The sections were drawn at a scale of 1:20, and were photographed using colour slide and black and white print film. Recording followed procedures detailed in the OA Field Manual (OA, 1992)

### 3 RESULTS

### 3.1 **Description of deposits**

1.1.21 The majority of the deposits encountered were of modern waste tipped on the site. (See context inventory for further details) Trial pits 8, 10, 16 and 17 were the only pits to produce deposits of archaeological significance and are described below.

### Trial pit 8 (Fig. 3, section 1)

1.1.22 This was excavated to a depth of 4.5 m below the existing ground level. At the base of the pit approximately 0.6 m of brown silty peat (86) was exposed. This waterlogged deposit contained some organic matter in the form of plant stems, possibly rushes. Sealing 86 was a 0.9 m thick band of tenacious green grey clay (85), a modern deposit, probably a capping layer of clay laid to stop contaminated material from entering the water table. Overlying this was a 0.3 m deep layer of yellow-brown

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clay (84), also a layer of modern made ground. This was overlaid by a 0.4 m deep layer of black silt clay (83), which also contained a high organic content. Lying above layer 83 was a 1.7 m deep layer of grey-brown silt clay (82). This deposit contained lenses of dark grey silt clay and quantities of demolition debris such as brick and concrete suggesting a layer of modern made ground. This was sealed by a geo-textile membrane (Terram) over which a 0.6 m deep layer of dark yellow-brown clay silt (81) had been laid.

### Trial pit 10 (Fig. 3, section 2)

- 1.1.23 This trial pit was excavated to a depth of 4.6 m below ground level. At the base of the pit approximately 0.15m of brown peat (107) was encountered. This deposit also contained inclusions of blue-grey clay, possibly of alluvial origin. Overlying layer 107 was a 0.6 m deep layer of green-grey clay (106), a layer of capping clay similar to layer 85.
- 1.1.24 This was overlaid by a layer of black sand silt (105), containing fragments of brick and composed of a large percentage of clinker and ash. Overlying this was a 0.3 m deep layer of black clay silt (104), this contained fragments of brick and had a high organic content. Sealing this layer was a 1.2 m deep layer of made ground (103) composed of light grey sandy silts and modern demolition debris. Lying over this was a 0.5 m deep layer of green-grey clay (102), another layer of modern made ground. A 0.6 m deep layer of yellow-brown silt loam (101) containing lenses of grey-brown clay silt and modern demolition debris completed the stratigraphy.

### Trial pit 16 (Fig. 3, section 3)

1.1.25 This was excavated to a depth of 3.9 m below the current ground level. A layer of brown peat (165) containing fragments of small branches (possibly roots?) was encountered at a depth of 3.2 m below ground level. This was sealed by a 0.6 m deep layer of dark grey clay (164), a capping layer similar to 85 and 106 and which was encountered across the site. Overlying this was a 1.0 m deep layer of dark green-grey clay silt (163), a deposit of modern made ground. This was overlaid by a 1.0 m deep layer of dark grey-brown silt clay (162) which contained modern demolition debris. Lying over layer 162 was a 0.6 m deep layer of grey-brown clay silt (161) which contained a large percentage of crushed demolition material (known in the construction industry as Type 1).

# Trial pit 17 (Fig. 3, section 4)

- 1.1.26 This was excavated to a total depth of 4.4 m below the current ground level. A layer of fine brown peat was encountered at a depth of 3.7 m below the current ground level. This deposit contained many fragments of small branches and twigs. These inclusions are probably the result of the fragmentation of a fallen tree and drift debris, there is however, the possibility that they may represent a possible brushwood trackway, although no evident tool marks were visible on the ends of the material.
- 1.1.27 This was sealed by a 0.8 m deep layer of green-grey clay (176), the capping layer

observed elsewhere on the site. Overlying this was a 0.7 m deep layer of dark grey-brown silt clay (175) which produced fragments of brick. This was overlaid by a 0.6 m deep layer of orange-brown sandy clay (174) which contained lenses of grey-brown silt clay and small fragments of brick. Deposited above this layer was a 0.5 m deep layer of green-grey sand (173), a layer of made ground. Overlying this was a 0.5 m deep layer of grey-brown clay silt (172). This deposit produced many fragments of brick and concrete. Laid over this deposit was a 0.3 m deep layer of crushed building material (171) forming a site roadway.

### **3.2 Finds**

1.1.28 Finds were recovered by hand from the excavated spoil during the trial pitting. All the finds recovered were late 19<sup>th</sup> or 20<sup>th</sup> century in date and would have been brought in during the various phases of landfill and waste tipping. Finds were recorded but not retained.

### 3.3 Palaeo-environmental remains

1.1.29 Deposits 86, 107, 165 and 177 have potential for survival of paleo-environmental remains. Samples of these deposits were not taken due to the risks from potential contamination.

### 4 DISCUSSION AND CONCLUSIONS

1.1.30 This section reviews the success of the watching brief in addressing the original fieldwork aims, and the potential for further fieldwork and analysis to provide additional information

Aim 1: To clarify the nature and extent of any modern disturbance and intrusion on the site.

- 1.1.31 Substantial deposits of made ground exist across the site. At six out of the ten trial pit locations the base of made ground was not penetrated and no deposits predating the post-medieval activity were exposed.
  - Aim 2: To determine the presence or absence, location, extent, date, character and state of preservation of any archaeological and palaeoenvironmental remains within the sites.
- 1.1.32 No definite archaeological remains were identified during the watching brief, although there is the possibility that the wood observed within layer 177 may be part of a brush wood causeway. However due to the limited extent and depth of the excavations, the watching brief is not considered to be wholly reliable. In addition, the method of excavation, together with limited access due to safety restrictions, greatly inhibited visibility of the deposits. There is a possibility that archaeological remains may still survive deeply buried beneath deposits of made ground.
- 1.1.33 Marginal locations, for example the edge the gravel terrace, marshy ground or the

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edge of a channel, are considered to be a focus for past human activity due to the abundance of natural resources. Many of the prehistoric remains identified on the Thames marshes in the past take the form of wooden structures or trackways, preserved in waterlogged conditions, leading from the higher dry ground of the gravel terrace onto the floodplain. Although these discoveries are by no means commonplace they often occur on the surface or within peat deposits possibly connecting islands of higher drier ground within the floodplain. Such islands may now lie deeply buried by later deposition of alluvial deposits or deposits of made ground. The waterlogged condition of the peat and alluvial deposits recorded during the watching brief offers the potential for good survival of palaeoenvironmental evidence in the form of plant remains, insects and pollen. Clearly the potential of this evidence would be greatly enhanced if sampled in association with archaeological remains.

Aim 3:To determine the OD height of features and deposits encountered.

1.1.34 Unfortunately no OD levels were taken by the geotechnical engineer during the fieldwork.

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# **APPENDICES**

# APPENDIX 1 ARCHAEOLOGICAL CONTEXT INVENTORY

| Trial<br>Pit | Contex<br>t | Туре  | Depth    | Comments                            | Finds                                  |
|--------------|-------------|-------|----------|-------------------------------------|--|
| 8            | 81          | Layer | 0.6 m    | Made ground                         | Brick, tile, concrete, stone           |
|              | 82          | Layer | 1.7 m    | Made ground                         | Brick, tile, concrete                  |
|              | 83          | Layer | 0.4 m    | Made ground                         | -                                      |
|              | 84          | Layer | 0.3 m    | Made ground                         | -                                      |
|              | 85          | Layer | 0.9 m    | Made ground, capping layer          | -                                      |
|              | 86          | Layer | > 0.6 m  | Peat                                | -                                      |
| 9            | 91          | Layer | 0.6 m    | Made ground                         | Brick, tile, glass, stone, metal       |
|              | 92          | Layer | 0.8 m    | Made ground                         | Brick, tile, concrete                  |
|              | 93          | Layer | 1.0 m    | Made ground                         | -                                      |
|              | 94          | Layer | 1.0 m    | Made ground                         | Brick, tile                            |
|              | 95          | Layer | 0.7 m    | Made ground                         | -                                      |
|              | 96          | Layer | > 0.4 m  | Made ground, capping layer          | -                                      |
| 10           | 101         | Layer | 0.6 m    | Made ground                         | Brick, tile, glass, stone, metal       |
|              | 102         | Layer | 0.5 m    | Made ground                         | Brick, tile                            |
|              | 103         | Layer | 1.2 m    | Made ground                         | -                                      |
|              | 104         | Layer | 0.3 m    | Made ground                         | -                                      |
|              | 105         | Layer | 1.0 m    | Made ground                         | Brick, tile, clinker                   |
|              | 106         | Layer | 0.6 m    | Made ground, capping layer          | -                                      |
|              | 107         | Layer | > 0.15 m | Brown peat                          | -                                      |
| 11           | 111         | Layer | 1.0 m    | Made ground                         | Brick, tile, stone, wood, glass        |
|              | 112         | Layer | 0.8 m    | Made ground                         | Brick, tile, concrete                  |
|              | 113         | Layer | 0.3 m    | Made ground                         | -                                      |
|              | 114         | Layer | 0.7 m    | Made ground                         | -                                      |
|              | 115         | Layer | 0.3 m    | Made ground                         | Brick, tile                            |
|              | 116         | Layer | > 0.7 m  | Made ground, possible capping layer | -                                      |
| 12           | 121         | Layer | 1.8 m    | Made ground                         | Brick, tile, stone, wood, glass, metal |
|              | 122         | Layer | 0.6m     | Made ground                         | Brick, tile, nylon rope                |

| Trial<br>pit | Contex<br>t | Туре  | Depth   | Comments                   | Finds                                    |
|--------------|-------------|-------|---------|----------------------------|--|
| 12           | 123         | Layer | 1.4 m   | Made ground                | Brick, tile, clinker                     |
|              | 124         | Layer | > 0.6 m | Made ground, capping layer | -  |
| 13           | 131         | Layer | 0.6 m   | Made ground                | Brick, tile, stone, wood, glass, metal   |
|              | 132         | Layer | 3.0 m   | Made ground                | Brick, tile, stone, wood, glass, metal   |
|              | 133         | Layer | > 0.5 m | Made ground                | Brick, tile, stone, plastic sheeting     |
| 14           | 141         | Layer | 0.8 m   | Made ground                | -  |
|              | 142         | Layer | 1.7 m   | Made ground                | Brick, tile, stone, glass, concrete      |
|              | 143         | Layer | > 2.0 m | Made ground                | Brick, tile                              |
| 15           | 151         | Layer | 0.5 m   | Made ground                | -  |
|              | 152         | Layer | 0.4 m   | Made ground                | Brick, tile                              |
|              | 153         | Layer | 1.2 m   | Made ground                | Brick, tile, plastic                     |
|              | 154         | Layer | 1.0 m   | Made ground                | -  |
|              | 155         | Layer | > 1.4 m | Made ground                | -  |
| 16           | 161         | Layer | 0.6 m   | Made ground                | Brick, tile, stone, glass, concrete      |
|              | 162         | Layer | 1.0 m   | Made ground                | Brick, tile, stone, glass, concrete      |
|              | 163         | Layer | 1.0 m   | Made ground                | -  |
|              | 164         | Layer | 0.6 m   | Made ground, capping layer | -  |
|              | 165         | Layer | > 0.7 m | Brown peat                 | Some small branches                      |
| 17           | 171         | Layer | 0.3 m   | Modern trackway            | Brick, tile, concrete                    |
|              | 172         | Layer | 0.5 m   | Made ground                | Brick, tile                              |
|              | 173         | Layer | 0.5 m   | Made ground                | -  |
|              | 174         | Layer | 0.6 m   | Made ground                | -  |
|              | 175         | Layer | 0.7 m   | Made ground                | Brick, tile, concrete                    |
|              | 176         | Layer | 0.8 m   | Made ground, capping layer | -  |
|              | 177         | Layer | > 0.8 m | Brown peat                 | Many small fragments of twigs and branch |

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### Appendix 3 GLSMR/RCHME NMR Archaeological Report Form

### 1) TYPE OF RECORDING

Evaluation, Excavation, <u>Watching Brief</u>, Building Recording, Survey, Geoarchaeological Evaluation, Fieldwalking, Other

### 2) LOCATION

Borough: Newham

Site Address: Land west of Barnham Drive, Thamesmead Central
Site Name: Woolwich Waterfront
Site Code: GWF 07

Nat. grid Refs: centre of site: TQ 4570 8010 Limits of site: N TQ 4570 8040 S TQ 4570 7980

E TQ 4590 8010 W TQ 4550 8010

### 3) ORGANISATION

Name of archaeological unit/company/society: Oxford Archaeology

Address: Janus House, Osney Mead, Oxford OX2 OES

Site director/supervisor: Mike Sims Project manager: Dan Dodds

Funded by:

### 4) DURATION

Date fieldwork started 30<sup>th</sup> August 2007 Date finished: 3<sup>rd</sup> September 2007

Fieldwork previously notified?

Fieldwork will continue?

# 5) PERIODS REPRESENTED

<u>Palaeolithic</u>, Mesolithic, Neolithic, Bronze Age, Iron Age, Roman, Saxon (pre-AD 1066), Medieval (AD 1066-1485), Post-Medieval, <u>Unknown</u>

6) PERIOD SUMMARIES Deposits consistent with buried landscapes were found. Lack of dating evidence makes period assignment subjective.

### 7) NATURAL

Type: Mixed blue grey and yellow brown alluvial clay

Height above Ordnance datum: Between 2 m and 8 m depending on depth of made ground.

# 8) LOCATION OF ARCHIVES

a) Please provide an estimate of the quantity of material in your possession for the following categories:

NOtes 50 x A4 PLans 4 x A3 PHotos Ngtives 36

SLides 36 COrrespondence MScripts (unpub reports, etc)

BUlk finds 0 SMall finds 0 SOil samples 0

OTher, sections x 10

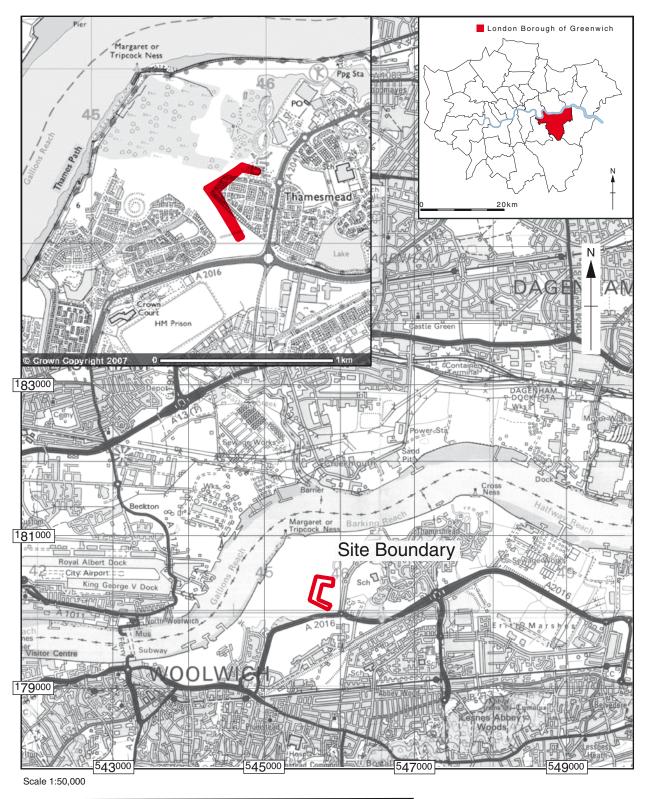
- b) The archive has been prepared and stored in accordance with MGC standards and will be deposited in the following location: TBC
- c) Has a security copy of the archive been made?:

### 10) BIBLIOGRAPHY

See Appendix 2 Bibliography and References

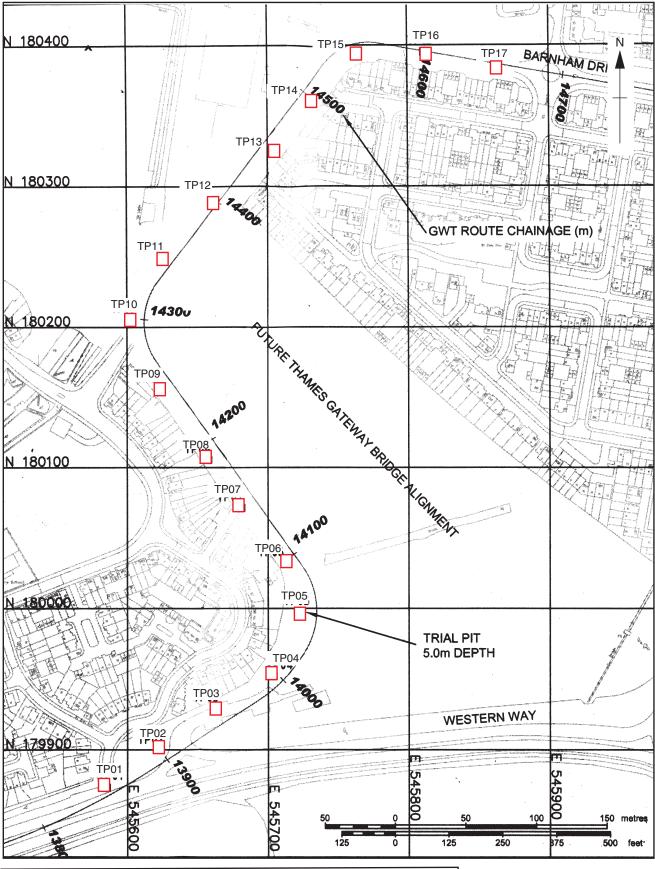
SIGNED: DATE:

NAME:



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Figure 1: Site location



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Figure 2: Trial pit location plan

1:50

Figure 3: Sections