C263 ARCHAEOLOGY LATE EAST
Interim Statement
Archaeological Evaluation
Connaught Tunnel (XSY11)

Document Number: C263-MLA-X-RGN-CR146_WS158-50001

Document History:

Revision:	Date:	Prepared by:	Checked by:	Approved by:	Reason for Issue:
1.0	26.04.12	[redacted]	[redacted]	[redacted]	Draft
2.0	03.04.13	[redacted]	[redacted]	[redacted]	incorporating CRL comment
		[redacted]	[redacted]	[redacted]	

CROSSRAIL REVIEW AND ACCEPTANCE STATUS

This decal is to be used for submitted documents requiring acceptance by CRL.

☑	Code 1.	Accepted. Work May Proceed
☐	Code 2.	Not Accepted. Revise and resubmit. Work may proceed subject to incorporation of changes indicated
☐	Code 3.	Not Accepted. Revise and resubmit. Work may not proceed
☐	Code 4.	Received for information only. Receipt is confirmed

Reviewed/Accepted by:(signature) [redacted]

Print Name: [redacted] Date: 9/4/13

Acceptance by CRL does not relieve the designer/supplier from full compliance with their contractual obligations and does not constitute CRL approval of design, details, calculations, analyses, test methods or materials developed or selected by the designer/supplier.

Contents

List of Illustrations

List of Photos

1 Introduction

This Interim Report covers an archaeological evaluation located within the surface rail alignment for the Crossrail Connaught Tunnel, by C263 Museum of London Archaeology (MOLA).

This was carried out between 09/12/11 and 19/04/12 and supervised by MOLA Senior Archaeologist Isca Howell. It was recorded under event code (sitecode) XSY11.

This document is an interim statement on the results of the fieldwork one week after the end of the fieldwork. More extensive background, results, and conclusions will be included in the Fieldwork Report which will be submitted within six weeks of the end of fieldwork.

The fieldwork was carried out in accordance with:

- A Crossrail **Site-specific Written Scheme of Investigation** (SS-WSI): *Connaught Tunnel and Surface Rail Archaeological Written Scheme of Investigation, Doc. No. C122-OVE-T1-GMS-CR146_WS158-00002 Version 5, 11-08-11*
- C263 Archaeology Late East, ***Method Statement**, Watching Briefs, Non Listed Building recording and trench evaluation, Connaught Tunnel, Doc. No. C263-MLA-X-RGN-CRG07-50023 Version 2, 29-09-11*

2 Aims and Objectives

2.1 Research Aims

The original aims and objectives were listed in the Method Statement, (*Doc. No. C263-MLA-X-RGN-CRG07-50023 Version 2*, 29.09.11, see section 3.3.1) and stated that 'The overall objectives of the trial trench evaluation is to establish the nature, extent and state of preservation of any surviving archaeological remains that will be impacted upon by the track lowering. The overall objective of the watching brief is to preserve by record any surviving archaeological and/or palaeoenvironmental remains that will be impacted upon by the enabling works, service diversions and the refurbishment of the Connaught Tunnel. A number of site specific research aims were stated in the Written Scheme of Investigation. These are;

- What is the development of the local landscape and topography of the Thames floodplain from prehistory to the medieval period?
- Are peat deposits present? If so, at what level(s) and at what date did they form?
- Is there evidence for stream channel, lakes, etc in the floodplain gravel surface?
- Is there any evidence for prehistoric activity? If prehistoric remains are present, what is their character and what can be learned about the exploitation of the floodplain by prehistoric groups? In particular, is there any evidence for Mesolithic activity at the base of the alluvium/surface of the gravels?
- Is there any evidence for timber trackways or other structures of later prehistoric date?
- Is there any evidence for Roman activity, in particular for reclamation or flood defences, and marine transgression and regression?
- Is there any evidence for the medieval manor house of Sudbury within the Connaught Tunnel West Worksite?
- What can be learned about the process of land reclamation and management of the area from the medieval period until the construction of the docks?
- What is the evidence for the development of the area in connection with the Docks during the 19th century?
- Are any features present that can be related to the initial construction of the North Woolwich Railway in the 1840s?
- What evidence is there for modifications to the Connaught Tunnel over time?
- Is there any evidence for the 19th-century vicarage, associated with St. Mark's Church, within the Connaught Tunnel East Worksite?

2.2 Fieldwork Objectives

The overall objectives of the evaluation were to establish the nature, extent and state of preservation of any surviving archaeological remains, such as prehistoric timber structures, that will be impacted upon by the development. The evaluation also aimed to examine, sample and record the floodplain deposit sequence and assess its level of potential for the reconstruction of past landscapes.

3 Evaluation methodology

The four evaluation trenches were located by the Crossrail Project Archaeologist to form an adequate sample of the parts of the site where archaeology might survive.

Modern overburden was machine excavated and removed by the Principal Contractor (Vinci Construction). Then, the underlying archaeological deposits were machine excavated, under MOLA supervision, to 4m depth; stepping the evaluation trench in 1m for every 1m of depth. This produced a virtual continuous vertical section through the deposit horizons. These horizons were then recorded by MOLA (C263) to identify their survival, extent and significance.

A MOLA Geoarchaeologist also examined each trench section. The trench sections were sampled with a continuous sequence of overlapping monolith tins, with adjacent bulk samples (c 20 litres) taken at regular intervals. Where it was not possible to excavate down to the level of the Pleistocene sands and gravels, small sondages and/or hand augers were undertaken at the base of the trench to sample and record the full Holocene sequence.

The locations of the Trenches were recorded by MOLA Geomatics by optical survey, except Trenches 3 and 4 which were partially recorded by optical and scale drawing. These results will be tied into the Ordnance Survey (OS) and the London Survey Grid (LSG). A Survey Report will be produced by MOLA Geomatics within 2 weeks of the end of the fieldwork. A professional photographic record of the site and significant finds will be produced by MOLA Photography.

4 Provisional Results

All levels in this interim report are quoted in metres Above Tunnel Datum (m ATD). Tunnel Datum is calculated as being 100m above Ordnance Datum e.g. 1m OD = 101m ATD.

4.1 Trench 1

Photo 1, Trench 1, looking north-west, sampling of transition between upper clay and lower peats.

Trench 1	
Location	West side – tunnel approach
Dimensions	15m x 10m x 4m
Modern Ground Level/top of the slab	102.57m ATD
Modern subsurface deposits	101.82m ATD
Level of base of archaeological deposits observed and/or base of trench	98.51m ATD
Natural observed not truncated	101.82m ATD
Extent of modern truncation	Probable top soil removal prior to laying ballast to consolidate rail track.
Georchaeological sequence	**Dating Evidence, Finds, and Samples**
Sand [13] at 98.73m ATD	Dating: Early Holocene/late Pleistocene Finds: none Samples: Monolith <7>, and bulk <12>

Woodland peat [12], possibly alder carr at 99.28m ATD	Dating: prehistoric Finds: none Samples: Monoliths <6> and <7>, and bulks <12> and <14>
Transitional phase [11] between woodland peat and floodplain alluvium at 99.51m ATD	Dating: prehistoric Finds: none Samples: Monoliths <5> and <6>, and bulk <15>
Alluvial overbank deposit [10] at 99.96m ATD	Dating: prehistoric Finds: none Samples: Monoliths <4>, <5> and <6>, and bulks <16>, <17> and <18>
Alluvial overbank deposit [9] at 100.17m ATD	Dating: prehistoric? Finds: none Samples: Monolith <4>, and bulk <19>
Alluvial overbank deposit [8] at 100.44m ATD	Dating: prehistoric/historic Finds: none Samples: Monoliths <3> and <4>, and bulk <20>
Alluvial overbank deposit [7] at100.64m ATD	Dating: prehistoric/historic? Finds: none Samples: Monolith <3>, and bulk <21>
Possible buried sub soil horizon [6] at 100.98m ATD	Dating: historic? Finds: none Samples: Monoliths <2> and <3>, and bulk <10>
Possible buried top soil horizon [5] at100.98m ATD, very thin (< 50mm)	Dating: historic? Finds: none Samples: none
Possible buried sub soil horizon [4] at 101.25m ATD	Dating: historic Finds: none Samples: Monolith <2>, and bulk <11>
Possible fill of stream channel [3] at 101.23m ATD, probably a localised deposit	Dating: historic Finds: none Samples: Monoliths <1> and <2>, and bulk <10>
Floodplain deposit [2] at 101.58m ATD	Dating: historic Finds: none Samples: Monoliths <1> and <2>, and bulk <9>
Floodplain deposit [1] at 101.82m ATD	Dating: historic Finds: none Samples: Monolith <1>, and bulk <8>
Interpretation and summary	
The trench has revealed a sequence of alluvial deposits from 98.51m ATD in the base of the trench to 101.82m ATD beneath c 500mm of modern made ground at the top. Gravels were recorded 20–30 cm below the base of trench having been exposed in a hand dug sondage. Above the gravels, the exposed alluvial sequence consisted of layers of silty sand, beneath woody peat, and various silty clays. No finds were recorded.	

4.2 Trench 2

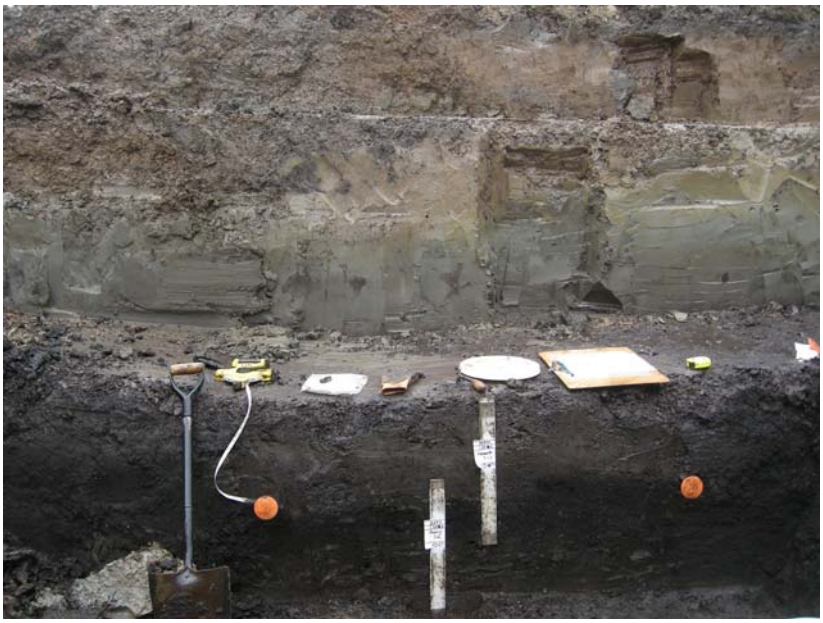

Photo 2, Looking north-east, Column samples <111> and <112> in third step.

Trench 2	
Location	East side – tunnel approach
Dimensions	8m x 8m x 4m
Modern Ground Level/top of the slab	101.18m ATD
Modern subsurface deposits	100.73m ATD
Level of base of archaeological deposits observed and/or base of trench	97.85m ATD (hand augered to 96.95m ATD)
Natural observed not truncated	100.73m ATD
Extent of modern truncation	Probable top soil removal prior to laying ballast to consolidate rail track.
Geoarchaeological remains	**Dating Evidence, Finds, and Samples**
Sand [107] at 96.9573m ATD	Dating: Early Holocene/late Pleistocene Finds: none Samples: Grab <125>
Possible silting up or alluvial overbank deposit [106] at 97.84m ATD; relationship unclear as recorded from hand auger	Dating: prehistoric Finds: none Samples: Monolith <119>, and grab <124>
Wetland alder carr peats [105] at 98.37m ATD	Dating: prehistoric Finds: none Samples: Monolith <119>, and bulks <122> and <123>

Organic clays [104] at 98.73m ATD	Dating: prehistoric Finds: none Samples: Monoliths <112> and <118>, and bulks <117>, <120> and <121>
Wetland alder carr peats [103] at 99.17m ATD	Dating: prehistoric? Finds: none Samples: Monolith <112>, and bulks <115>, <116> and <117>
Organic clays, saltmarsh [102] at 99.46m ATD	Dating: prehistoric/historic Finds: none Samples: Monoliths <104>, <111> and <112>, and bulks <113>, and <114>
Alluvial overbank deposit [101] at 99.96m ATD	Dating: historic Finds: none Samples: Monoliths <103> and <104>, and bulks <108>, <109> and <110>
Soil formation or accretionary floodplain soil [100] at 100.73m ATD	Dating: historic Finds: none Samples: Monoliths <100>, <103> and <104>, and bulks <101>, <102>, <105>, <106> and <107>
Interpretation and summary	
The trench has revealed a sequence of alluvial deposits from 96.95m ATD in the slot at base of the trench to 100.93m ATD, beneath c 300mm of modern made ground at the top. Sand was recorded at the base. Above the sand, the exposed alluvial sequence consisted of layers of woody and reed peat, sealed beneath silty clays that probably represent the seasonal flood deposits of the River Thames. No finds were recorded.	

4.3 Trench 3

Photo 3 Looking east, sampling of upper alluvial deposits.

Trench 3	
Location	East side – tunnel approach
Dimensions	8m x 7m x 4m
Modern Ground Level/top of the slab	101.35m ATD
Modern subsurface deposits	100.55m ATD
Level of base of archaeological deposits observed and/or base of trench	96.928m ATD
Natural observed truncated	100.55m ATD
Extent of modern truncation	Probable top soil removal prior to laying ballast to consolidate rail track.
Geoarchaeological remains	**Dating Evidence, Finds, and Samples**
Sand [31] at 96.92m ATD	Dating: Early Holocene/late Pleistocene Finds: None Samples: None
Alder Carr peats [30] at 98.05	Dating: prehistoric Finds: none Samples: Monoliths <62> and ,69>, and bulks <66>, <67> and <68>
Seasonal floodplain deposit [29] at 98.34m ATD, also filling scour in [28]	Dating: prehistoric? Finds: none Samples: Monoliths <60>, <61> and <62>, and bulks <63>, <64> and <65>

Waterlogged wooded environment peats [28] at 98.90m ATD	Dating: prehistoric/historic Finds: none Samples: Monoliths <59> and <61>, and bulks <58>
Black peat, humified layer [27]at 99.10m ATD	Dating: historic? Finds: none Samples: Monolith <48> and <49>, and bulks <56> and <57>
Alluvial overbank deposit [26] at 100.14m ATD	Dating: historic Finds: none Samples: Monoliths <46>, <47> and <48>, and bulks <50>, <51>, <52>, <53>, <54> and <55>
Ephemeral topsoil [25] at 100.55m ATD	Dating: prehistoric Finds: none Samples: Monolith <45>, and bulk <47>
Interpretation and summary	
The trench has revealed a sequence of alluvial deposits from 96.92m ATD in the slot at the base of the trench to 100.55m ATD, beneath c 800mm of modern made ground at the top. Sand was recorded at the base. Above the sand, the exposed alluvial sequence consisted of layers of woody and reed peat, sealed beneath silty clays that probably represent the seasonal flood deposits of the River Thames. No finds were recorded.	

4.4 Trench 4

Photo 4, Looking east, sampling of transition between upper clay and lower peats.

Trench 4	
Location	East side – tunnel approach
Dimensions	9m x 8m x 4m
Modern Ground Level/top of the slab	101.50m ATD
Modern subsurface deposits	100.93m ATD
Level of base of archaeological deposits observed and/or base of trench	97.60m ATD
Natural observed not truncated	100.93m ATD
Extent of modern truncation	Probable top soil removal prior to laying ballast to consolidate rail track.
Geoarchaeological remains	**Dating Evidence, Finds, and Samples**
Sand [24] at 97.60m ATD	Dating: Early Holocene/late Pleistocene Finds: None Samples: Monolith <43>
Alder carr peats [23] at 98.50m ATD	Dating: prehistoric Finds: none Samples: Monolith <38>, and bulks <41>, <42> and <44>
Alder carr peats [22] at 98.80m ATD	Dating: prehistoric Finds: none Samples: Monolith <37>, and bulk <40>
Organic clays, saltmarsh? [21] at 99.00m ATD	Dating: prehistoric? Finds: none Samples: Monolith <37>, and bulk <39>
Alder Carr peats [20] at 99.20m ATD	Dating: prehistoric/historic Finds: none Samples: Monolith <29>, and bulk <36>
Organic clays, saltmarsh? [19] at 99.35m ATD	Dating: historic? Finds: none Samples: Monolith <39>, and bulk <35>
Peat [18] at 99.55m ATD	Dating: historic Finds: none Samples: Monolith <29>, and bulks <33> and <34>
Organic clays, saltmarsh? [17] at 99.85m ATD	Dating: historic Finds: none Samples: Monolith <28>, and bulks <31> and <32>
Gleyed clays, intertidal mudflats [16] at 100.45m ATD	Dating: historic Finds: none Samples: Monolith <24>, and bulk <27>
Leached sub soil horizon [15] at 100.60m ATD	Dating: historic Finds: none Samples: Monoliths <23> and <24>, and

	bulk <26>
Soil [14] at 100.93m ATD	Dating: historic Finds: none Samples: Monolith <23>, and bulk <25>
Interpretation and summary	
The trench has revealed a sequence of alluvial deposits from 97.60m ATD in the slot at base of the trench to 100.93m ATD beneath c 600mm of modern made ground at the top. Sand was recorded at the base. Above the sand, the exposed alluvial sequence consisted of layers of woody and clayey peat, sealed beneath silty clays that probably represent the former Thames mudflats. No finds were recorded.	

5 Significance of Results (*provisional*)

5.1 Summary of Fieldwork Results

Preliminary findings suggest a common but not identical sequence throughout the trenches. The sequence is typified by basal sands grading up from the underlying gravels, overlain by peats and sealed by alluvial clays. The peat deposits contained discrete bands of organic clays; the thickness, position and number of which varied between the trenches and indicates different landscape positions or hydrology. The top of the upper alluvial clays were likely to have been truncated in the past within some of the trenches and the thickness of the overlying made ground varied between the trenches. Trenches 1, 3 and 4 appeared to have been truncated but showed later possibly medieval to historic soil development before the addition of made ground.

The alluvial clay in Trench 2 appears to have been least truncated with the survival of upper weathered alluvial deposits and very little made ground (less than 0.5m). Initially, survey data suggests that the surface of the Pleistocene / Early Holocene sands to the base of the sequence lie at c. 98.70m ATD to the west (in Trench 1) and 97.70m ATD to the east (in Trench 4) but lowers significantly to c. 97m ATD within Trenches 2 and 3. The higher sands in Trenches 1 and 4 are likely to be on the margins of discrete landscape features such as floodplain islands previously indicated around Custom House and one previously suggested around London City Airport.

5.2 Importance of Resources

Detailed deposit sequences of the type recorded in the four evaluation trenches along the Connaught Tunnel route will provide valuable palaeoenvironmental and geomorphological information. From the records and samples future work will be able to infer differing environmental configurations across the landscape and investigate how such environmental variables would have influenced past populations utilising the Thames River and the adjacent floodplain.

Such work will yield a greater understanding on the development of the floodplain environment and how autogenic and allogenic factors influenced the evolution of the floodplain sequence. Evidence for past human activity can be placed in a context of changing landscape conditions, and how the evolution of the floodplain landscape influenced human behaviour, settlement patterns and the exploitation of this landscape.

5.3 Provisional conclusions for future work

- The evaluation has demonstrated the survival of an overall similar deposit sequence across the site. However, the deposit sequence does demonstrate slight differences that may be attributable to localised changes in hydrology and environmental conditions.
- The sequences represent the transition from the alder carr floodplain woodland of the Bronze Age, through to the intertidal mudflats and salt marsh of the Iron Age to historic periods. Evidence of stabilised soil horizons developing on the surface

of the alluvial clays may be attributable to Post-Medieval drainage and land reclamation

- The palaeoenvironmental evidence preserved within the deposit sequences can be utilised to investigate the relationship between human activity and landscape change.
- The evidence for localised changes in environment, hydrology and geomorphology can be used to revise and update currently accepted models for the Holocene evolution of the Thames floodplain.
- A programme of radiocarbon dating would refine the chronology and understanding of the deposit sequence.
- The peat and alluvial deposits will preserve a range of palaeoenvironmental proxy indicators such as pollen, ostracods, diatoms, foraminifera, molluscs and plant macro fossils that can be utilised to refine the intepretation of the mode of deposition

6 Future Deliverables

The remaining deliverables for the site, and their delivery dates as specified by the Site-specific Written Scheme of Investigation (SS-WSI): *Connaught Tunnel and Surface Rail Archaeological Written Scheme of Investigation* (*Doc. No. C122-OVE-T1-GMS-CR146_WS158-00002 Version 5, 11-08-11) are;*

- **Survey Report** by 3rd May
- **Fieldwork Report** (including HER Summary Sheet) by 31st May
- **Summary Report** by 12th July

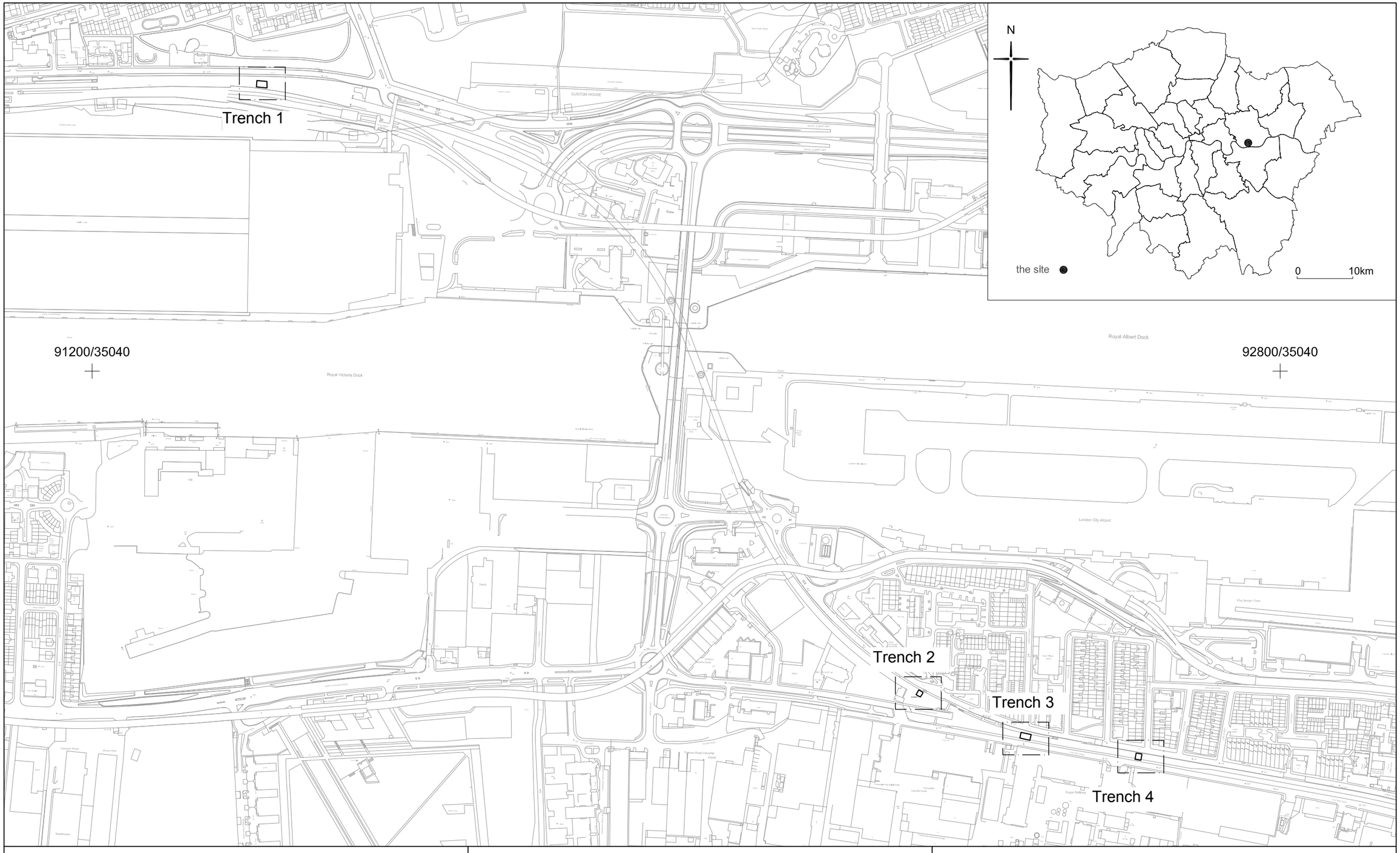

Fig 1 Site location

Trench edge

Location of additional figures

1:5000 @ A3

0 250m