

50–56 Fore Street, Edmonton, Enfield, London N18 2SS

Archaeological watching brief on geotechnical site investigation

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01	Simon Pratt	Project Officer	18/01//2019	James Holman

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Canterbury Archaeological Trust Limited

92a Broad Street · Canterbury · Kent · CT1 2LU
Tel +44 (0)1227 462062 · Fax +44 (0)1227 784724 · email: admin@canterburytrust.co.uk
www.canterburytrust.co.uk



Non-technical summary

In November 2018, Canterbury Archaeological Trust maintained a watching brief on geotechnical augering at the Gilpin's Bell public house, Fore Street, Edmonton N18 2SS, a little over half a kilometre north of the White Hart Lane stadium. In the late nineteenth and early twentieth centuries the site was occupied largely by terraced houses and gardens, with some commercial or light industrial activities, such as a coachworks and smithy. The core of the current structure was built as a department store in the 1930s and converted to a pub by J.D. Wetherspoon in 1998, though it later became a free house.

The highest bedrock (London Clay) was found at about 8.5m OD, dipping to the north-east. It was overlain by late Pleistocene Kempton Park/Leyton Terrace Gravels up to about 2.0–3.9m OD. These were capped by stoneless, probably windblown, brickearths at least partially overlain by head gravels. A possibly man-made gravel surface was identified near the centre of the site and what was probably a cultivated loam near the south-eastern corner. Neither these nor a thick, overlying band of mixed, undiagnostic soils could be dated but all have been recommended as targets for evaluation trenching.

Summary

This document reports upon an archaeological watching brief upon pre-acquisition due-diligence geotechnical/geoenvironmental site investigation at the Gilpin's Bell public house, 50–56 Fore Street, Edmonton, Enfield N18 2SS (NGR 534050 191910; former planning application 18/00760/FUL) in November 2018. A previous archaeological desk-based assessment concluded the principal archaeological potential of the overall site relates to its nineteenth-century development but that there is also a low to moderate possibility of medieval to post-medieval remains and a low potential for earlier material. The site is on a very low river terrace on the western side of the Lea Valley. It is within Enfield's Archaeological Priority Area 21 (Upper Edmonton), relating to the potential Anglo-Saxon and later development of the former village.

The desk-based assessment recommended post-demolition evaluation trenching on the site and, along with a separate heritage statement suggested at least a photographic survey of the main standing building, originally built as a department(?) store in the 1930s. Enfield Council's Planning Committee report for the above application recommended "(16) ...no demolition or development shall take place other than in accordance with the agreed WSI, and the programme and methodology of site evaluation... ". In discussion with Canterbury Archaeological Trust, the Greater London Archaeological Advisory Service agreed that an archaeological watching brief be maintained on this initial site investigation to inform the design of the evaluation fieldwork.

This work confirmed that the London Clay is overlain by Kempton Park/Leyton Gravels but also found that, contrary to published sources, it is here capped by brickearths of the Enfield Silts at least partially overlain by head material. These are all probably of low geoarchaeological or archaeological potential. A possible metallated surface was identified near the centre of the site and what was probably a cultivated loam near the south-eastern corner. Neither these nor an extensive, thick, overlying band of heterogenous, undiagnostic soils yielded any dating material save a single identifiable fragment of medieval or later peg-tile from the latter: pending further fieldwork, all should be considered of low to moderate archaeological potential. Various deposits which may relate to late nineteenth- to early twentieth-century industrial activity were identified over this band at a few positions and are of low to moderate industrial archaeological potential. A deep modern disturbance was identified near the site's central northern margin and what was probably disturbance near its central southern margin and south-western corner.

It is recommended that evaluation trenching be undertaken following demolition but preceding slab removal or grubbing out. On current evidence, it is suggested that four trenches, each about 1.5m wide and 15m long be cut. Principal objectives of the trenching will be to establish the date, extent and degree of preservation of industrial archaeology, the date and nature of the thick band of undiagnostic soils, the date of the underlying cultivated soil and whether it is likely to overly earlier archaeology, the date and nature of the possible metallating, and the extent of modern disturbance(s).

To further improve geoarchaeological deposit modelling and, if conducted prior to the evaluation, to better inform the latter's design, it is also recommended that a watching brief be conducted on any further intrusive geotechnical or geoenvironmental site investigation.

Contents

Non-technical summary

Summary

Contents

List of figures

- 1 General
 - 1.1 Introduction
 - 1.2 Status and previous reports
 - 1.3 Planning
 - 1.4 Scope
 - 1.5 Access
 - 2 Background
 - 2.1 Geology and early prehistory
 - 2.2 Later archaeology and history
 - 3 Methodology
 - 3.1 Objectives
 - 3.2 Fieldwork
 - 3.3 Samples and finds
 - 3.4 Impact of the site investigation
 - 3.5 Processing and analysis
 - 3.6 Confidence
 - 4 Results
 - 4.1 Phases A–B, geology and geoarchaeology
 - 4.2 Phases C–D, possible archaeology and modern
 - 5 Conclusions and recommendations
 - 5.1 Conclusions
 - 5.2 Recommendations
- References
- Appendix 1: individual position logs
- Appendix 2: group descriptions
- Appendix 3: metadata and data
- Appendix 4: OASIS summary form
- Appendix 5: proposed Written Scheme of Investigation for Stage 1 evaluation (part 1, site-specific)
- Appendix 6: proposed Written Scheme of Investigation for Stage 1 evaluation (part 2, standard provisions)
- Figures

List of figures

- Fig 1 Location maps (1:500,000 and 1:100,000).
- Fig 2 Site in relation to digital terrain and surface models (1:100,000.and.1:2,500).
- Fig 3 Transects in relation to digital surface model of site (1:200).
- Fig 4 Keys to transects.
- Fig 5 Phased stratigraphic group matrix and transect TX1 (vertical scale 1:40, ave. horizontal spacing 1:200).
- Fig 6 Transect TX2 (vertical scale 1:40, ave. horizontal spacing 1:200).
- Fig 7 Transect TX3 (vertical scale 1:40, ave. horizontal spacing 1:200).
- Fig 8 Transect TX4 (vertical scale 1:40, ave. horizontal spacing 1:200).
- Fig 9 Transect TX5 (vertical scale 1:40, ave. horizontal spacing 1:200).
- Fig 10 Transect TX6 (vertical scale 1:40, ave. horizontal spacing 1:200).
- Fig 11 Interpolated levels on upper surface of Phase A1 deposits (1:200).
- Fig 12 Interpolated levels on upper surface of Phase B1 deposits (1:200).
- Fig 13 Thickness of Phase B3 deposits in relation to interpolated levels on upper surface of Phase B2 deposits (1:200).
- Fig 14 Comparison with Lea Valley Mapping Project results (1:50,000).
- Fig 15 WS3 and WS4, selected photographs (scales in millimetres and centimetres).
- Fig 16 Evaluation trench proposals (1:500).

1 General

1.1 Introduction

1.1.1 On 13-15 November 2018, Canterbury Archaeological Trust (CAT; 92A Broad Street, Canterbury, Kent CT1 2LU; tel 01227 462062) undertook an archaeological watching brief (WB) upon pre-acquisition due-diligence geotechnical and goenvironmental site investigation (SI) of the beer garden, car park and minor buildings pertaining to the Gilpin's Bell public house, 50–56 Fore Street, Edmonton N18 2SS (NGR 534050 191910).

1.1.2 The Local Planning Authority (LPA) is the London Borough of Enfield, to whom had been submitted a planning application (18/00760/FUL) for a previous development scheme, under the Town and Country Planning Acts. The scope of the current work was agreed with the LPA's archaeological advisers, the Greater London Archaeological Advisory Service (GLAAS) of Historic England (HE).

1.1.3 The SI was undertaken by Sevenoaks Environmental Consultancy Ltd (SEC; 145a Hastings Road, Pembury, Tunbridge Wells, Kent TN2 4JU; tel 01892 822999), who also commissioned the WB on behalf of their clients.

1.1.4 The site occupies about 0.2ha of the western part of the floor of the Lea Valley (the largest tributary of the Thames within the London area), although only about 40% of that area was accessible for augering at the time of the SI.

1.1.5 A unique site code (GBL18) was provided by the London Archaeological Archive Research Centre (LAARC) for archival purposes, although a separate working code (FSE18) was already in place for CAT internal purposes.

1.2 Status and previous reports

1.2.1 The site lies within the Map 4, Terrain 3 area of the Lea Valley Mapping Project (LVMP), which assessed the overall archaeological potential of that terrain as moderate (Corcoran *et al* 2011, 105). However, apart from a single borehole about 150m north of the site, the LVMP database included no positions nearer than those used in its transects [4.]2 and [4.]3, which passed over 500m north and south of the site respectively (Fig 14).

1.2.2 The site forms part of Enfield's Upper Edmonton Archaeological Priority Area (APA 20; Enfield 2012, 13), which may yield evidence relating to the Anglo-Saxon and later development of the former village of Edmonton. Other than this, there are no designated heritage assets within or adjoining the site and, other than late nineteenth- or twentieth-century buildings, very few designated or undesignated assets in the general area.

1.2.3 A recent archaeological desk-based assessment (DBA) of the site examined HE's National Heritage List for England (NHLE), the Greater London Historic Environment Record (GLHER) and other archival, bibliographic and cartographic sources (Bradley-Lovekin 2016, 3.1.4). It concluded that the principal archaeological potential of the site relates to its nineteenth-

to twentieth-century development but that there is also a low to moderate possibility of medieval to post-medieval remains and a low potential for earlier material (*ibid*, 7.1.3–7.1.6).

1.2.4 The principal existing building was founded as a department(?) store in the 1930s but was since converted into a public house in 1998: both the DBA and a separate heritage statement (Richards 2016, 8) suggested additional recording of it.

1.3 *Planning*

1.3.1 The LPA's Planning Committee report for the previous application recommended "(16) ...no demolition or development shall take place other than in accordance with the agreed Written Scheme of Investigations [WSI], and the programme and methodology of site evaluation and the nomination of a competent person(s) or organisation to undertake the agreed works".

1.3.2 In light of a new development proposal by a potential buyer, in consultation with GLAAS (O'Gorman 2018), and subject to eventual LPA approval, the following proposals were agreed:

- A) building recording to HE Level 2;
- B) subject to a 'Stage 0' WSI (Pratt 2018), conduct a WB on the SI;
- C) informed by the WB, SI and construction design, finalize a separate Stage 1 WSI for archaeological evaluation – initially expected to be a maximum of four, 1.6m x 15m, trenches;
- D) subject to approval of the WSI, undertake demolition to slab level ONLY, then conduct the evaluation, breaking out floor slabs *etc* only where necessary for the trenching;
- E) report upon the evaluation and, if heritage assets of archaeological interest are identified, submit a Stage 2 WSI for approval by the LPA and GLAAS;
- F) subject to approval of the above, and unless more extensive archaeological investigation beforehand is called for, slab removal and other below-ground work can then be undertaken, subject to any conditions in the Stage 2 WSI or otherwise required by the LPA or GLAAS;
- G) post-excavation assessment, analysis, publication, dissemination and deposition/archiving, including the results of the building recording.

1.4 *Scope*

1.4.1 In accordance with the above proposals, the current document reports (C) upon the WB (B) and proposes that evaluation trenching be conducted as previously suggested (D), albeit to a modified plan.

1.4.2 The eventual scope of the SI (Fig 2) was one deep cable percussion borehole (CP01), two deep rotary flight auger boreholes (RH01 and RH03), four shallower direct percussion boreholes (DP01–DP04) and two small hand-dug pits (HP01–HP02), plus a starter pit dug for another rotary borehole (RH02) which was abandoned due to pressure of time.

2 Background

2.1 *Geology and early prehistory*

2.1.1 According to the British Geological Survey (BGS) and LVMP (and confirmed by the WB), the site overlies archaeologically sterile London Clay, probably dating to about 56–48 million years ago (MYA), in the Eocene Epoch of the Palaeogene Period.

2.1.2 The upper surface of the London Clay has been sculpted by Quaternary processes, including the late Pleistocene creation of various terraces of the Lea Valley and the incising of its tributary valleys since the Anglian glaciation in Marine Isotope Stages (MIS) 12, about 0.50–0.42 MYA (Corcoran *et al* 2011, 43, 104, 132).

2.1.3 According to the BGS, overlying the truncated London Clay beneath the site are the Kempton Park Gravels. However, the site is within LVMP Landscape Zone 4.12, very close to its boundary with Landscape Zone 4.3 (Fig 14). The LVMP combines these two zones into the western part of their Terrain [4.]3, described as low river terrace(s) underlain chiefly by Leyton Gravels (Corcoran *et al* 2011, 104). In either case, the gravels should belong broadly to the latter part of the Devensian and/or earlier part of the Ipswichian glacial/interglacial stages, probably equivalent to MIS 5d–4 (*ibid*, 43), perhaps about 0.12–0.08 MYA, though the start of their formation has been pushed back tens of thousands of years earlier, to MIS 6, by some sources (*eg*, Dodd and Hayden (eds) 2011, 105).

2.1.4 In any case, MIS 6–4 was a period when humans of any species seem to have been absent from Britain, but Kempton Park Gravels are known to yield residual stone tools from earlier phases of occupation (*loc cit.*). The same holds true for at least the upper (*ie*, MIS 6) parts of the slightly earlier Taplow Gravels mapped nearby by the BGS, though identified as Leytonstone Gravels by the LVMP (Corcoran *et al* 2011, 105).

2.1.5 Though the BGS shows no more recent deposits over the gravels here, they do plot partially or wholly loessic (windblown) brickearths of the Late Pleistocene Enfield Silt Member within a few hundred metres of the site. The LVMP description of Terrain [4.]3 agrees that its gravels are sometimes overlain by such material as well as by later down-slope head, usually of gravelly clays (Corcoran *et al* 2011, 104): both of these have been identified by the current WB.

2.1.6 As loess implies a very dry, very cold period, there is only a very low likelihood of *in situ* Palaeolithic artefacts or palaeoenvironmentally significant material being identified within, or at the base of, the brickearths although any such find would be of very high importance. There is a slightly higher (though still low) possibility of equally important Mesolithic material from head deposits.

2.2 *Later archaeology and history*

2.2.1 The DBA found no direct or circumstantial evidence, barring its inclusion in APA 20, for pre-modern activity on or near the site (Bradley-Lovekin 2016, 5.2–5.6). It is, however, effectively *terra incognita*, and, until proven otherwise, retains a theoretical potential to yield

archaeological evidence, particularly for the Anglo-Saxon and later development of the former village of Edmonton.

2.2.2 Cartographic and directory evidence records the gradual development of the area from a largely rural environment in the eighteenth century to an increasingly urban one in the nineteenth and twentieth (*ibid*, 5.6–5.7). In the late nineteenth and early twentieth centuries the site was utilized for commercial or light industrial activities, such as a coachworks and smithy (Richards 2016, 5), for which some physical evidence may remain.

2.2.3 In 1932 the freehold was purchased by Ernest John Heraud who, beginning as an oilman's assistant (probably aiding his father, an oilman), appears to have become an entrepreneur involved with drapery, bicycle and gramophone and wireless engineering (*loc cit*). The current main building was probably erected by him as a department(?) store in the 1930s. In 1998 it was acquired and converted by the JD Wetherspoon public house chain but is now run as a freehouse.

3 Methodology

3.1 Objectives

3.1.1 The non-research objectives for the WB were to avoid or minimize the impact of the SI on any archaeological or geoarchaeological remains, to mitigate any such impact through 'preservation by record', to provide a preliminary assessment of such remains and to inform the design of subsequent archaeological evaluation or other work.

3.1.2 The principal research objectives (pending identification of specific archaeological remains) were to contribute to the Greater London borehole database held by Museum of London Archaeology (MoLA) and to establish whether palaeoenvironmentally significant or artefact-bearing deposits could be identified within the Pleistocene geology or in later valley deposits associated with the River Lea (MoL 2002, Framework Objectives P1 and P2).

3.2 Fieldwork

3.2.1 Following removal of modern hard surfaces by lifting (of paving slabs), breaking-out or coring, 0.3m diameter starter pits were manually excavated to about 1m below ground level (BGL) at all auger (CP, WS or RH) positions. A similar procedure was employed for the hand pits, although HP2 met with concrete(?) surface at about 0.7m BGL. The augering was then monitored and logged by the writer as part of the same sequence.

3.2.2 Each deposit identified at each position, occasionally also separated by sampling type (*eg*, into an excavated and an augered portion), was assigned a unique context number (10000–10169, with gaps), using blocks of ten. As well as the depth, soil type and inclusions, an initial generic interpretation was made (*eg*, 'levelling/old ground surface' or '?loessic brickearth').

3.2.3 The approximate position of each position was taped in relative to existing walls *etc* and plotted onto an existing site plan (Fig 16). None of the pits or boreholes appeared to encounter

significant archaeological remains meriting preservation *in situ* save, perhaps, a possible metalling at the base of the starter pit for WS3.

3.3 *Samples and finds*

3.3.1 Two opportunistic soil samples (MONO<1> from natural brickearths G10123 and GBA<2> from ploughsoil(?) G10150 were taken and briefly examined by CAT's in-house palaeoenvironmental specialist (Dr E. Allison). They have not been processed but retained as the basis of the overall site assemblage, the arrangements for assessment, analysis and publication of which will be agreed with GLAAS at the soonest opportunity following completion of the overall project fieldwork.

3.3.2 No pottery or other significant finds, barring some (uncollected) modern salt-glazed sewer pipe and a heavily corroded fragment of what was probably an iron barrel hoop, were seen.

3.4 *Impact of the site investigation*

3.4.1 Whilst both hand pits and WS4 were inside subsidiary buildings, the remaining positions were all sunk within the beer garden or adjoining car park. The augered positions were, therefore, spread across about 850m² of the 1986m² site.

3.4.2 Barring the (now replaced) paving slabs, a total of about 0.71m² were removed by the hand pits and starter pits near the surface (and sometimes lessening with depth) to about 1m BGL, representing less than a tenth of a percent of 850m².

3.4.3 For deeper deposits, the maximum area disturbed by each rotary borehole and by the cable percussion borehole was, including casing, no more than 0.3m diameter, equating to a total for all these positions of about 0.21m². As the maximum external diameter of the windowless sampling head was only 0.1m, the maximum total area of deeper deposits disturbed by this rig was about 0.03m², reducing with depth. The combined deeper impact was, therefore, limited to under a quarter of a square metre, less than a thirtieth of a percent of 850m².

3.5 *Processing and analysis*

3.5.1 The plotted positions were transferred to a lidar-based, georeferenced digital terrain model from which National Grid References (NGRs) and ground levels (GLs) were estimated.

3.5.2 The archaeological logs, supplemented with clearly indicated engineer's descriptions for TP01–TP02, were transcribed into CAT's own borehole/test-pit database system (XBore). Formatted logs were generated (Appendix 1) and each context assigned a schematic colour representing probable general deposit type (Fig 4).

3.5.3 Pseudo-sections along selected transect lines (Fig 3, TX1–TX6) were drafted automatically, general interpretative groups added manually (Figs 5–8) and briefly described (Appendix 2).

3.5.4 For transparency and reinterpretability, the original field interpretations are retained in the formatted logs and group details but may be at variance with the more considered overall group interpretations. However, in no case did post-excavation analysis suggest a significantly different archaeological interpretation from that made in the field.

3.5.5 The group numbers were next added to the database, each group assigned a broad phase (A–D, perhaps more properly considered as levels of different archaeological potential) and, for B and D, a subphase: these were added to the transects and a phased stratigraphic group matrix generated (Fig 5).

3.5.6 This introductory section (1) and background (2) were prepared. A chronological summary of the phases (4) as interpreted from the results of the watching brief was produced, general conclusions drawn, and recommendations made (5). The methodology was then described and assessed (3). Individual logs (App 1), group descriptions (App 2), metadata and data (App 3), an OASIS form for submission to HE (App 4) and a revised WSI (App 5) have also been prepared. A georeferenced .dxf file containing the site boundary and SI positions has been generated for submission with the report but has not been appended due to its extreme length (74 A4 pages even when reduced to a font size of 1).

3.5.7 It is anticipated that the results of the WB on SI will be published formally along with those from subsequent stages of fieldwork. If this is not the case, an appropriate level and venue for separate publication will be agreed with GLAAS. In the meantime, a brief note has been drafted for inclusion in the 2018 fieldwork round-up for *London Archaeologist* and is duplicated at the start of this report as the non-technical summary.

3.5.8 On completion of the overall project, a site archive will be prepared in accordance with Appendix 3 of *Management of Archaeological Projects* (English Heritage 1991, MAP2). The archive will conform to the *Guidelines for the preparation of excavation archives for long term storage* (UKIC 1990), *Standards in the museum care of archaeological collections* (Museums and Galleries Commission 1992) and the *Selection, Retention and Dispersal of Archaeological Collections: guidelines for use in England, Wales and Northern Ireland* (The Society of Museum Archaeologists 1993). The paper archive for the current stage of work will, at least initially, be held by CAT, the digital archive (including scans of the field logs) will be copied to LAARC.

3.6 *Confidence*

3.6.1 Given the relatively limited number of investigated positions, the very small dimensions of the starter pits and the inherent difficulties associated with, in particular, cable-percussion and rotary flight augering, the interpretations offered here can only be tentative.

3.6.2 It must be borne in mind that the engineering and archaeological logs were made by different people with different training, experience, priorities and criteria (eg, 0.1m of soft peat within 1m of soft inorganic silt may be irrelevant to an engineer but represent the Neolithic, early Bronze Age and late Bronze Age to an archaeologist, or 3m of 'brick rubble' may include, at its

base, 1m of intact Roman hypocaust). Precise correlation between archaeological and geotechnical logs should not, therefore, be expected.

3.6.3 The overall sequence of early deposits is clear, beginning with archaeologically sterile London Clay, then fluvial gravel overlain by loessic(?) brickearths themselves overlain, at least at every windowlessly sampled position, by apparently head material. It is likely that head was also present at the other augered positions, but their arisings were too disturbed to distinguish it with any confidence.

3.6.4 As it was seen only deep within a single, narrow starter pit dug with post-holing tools (Fig 15, top left), the tile and charcoal flecking recorded in G0004 (Fig 15, top right) may be due to disturbance of, or later material being excavated with, natural gravel rather than indicating an artificial metalling. The identification of G10150 as cultivated ground is also very tentative, as is its suggested pre-modern date: although not distinguished in the field, examination of the digital photography (Fig 16, bottom) suggests it may be split into a paler and blockier upper part and a siltier lower part around 1.40m BGL (11.55m OD). Whether or not these deposits represent significant archaeology can be established only by more intensive investigation.

3.6.5 The extensive band of undiagnostic soils assigned to G10044 appears to lack internal stratification or tip-lines, suggesting it probably does not represent complex archaeology but, again, only more intensive investigation could confirm this.

3.6.6 A reasonably convincing floor probably associated with the relatively modern industrial history of the site was identified only in WS2, although some rough, unmortared bricks elsewhere may also have represented contemporary flooring. Only more extensive exposure could clarify the extent and degree of preservation of the industrial archaeology.

3.6.7 Overall, the WB was very successful in achieving its non-research objectives (3.1.1) and reasonably so with regard to the (necessarily limited at this stage) research objectives (3.1.2). Damage to any surviving archaeology was kept to a minimum (3.4.2–3.4.3). Some specific areas and strata, and questions about them, were identified as particular targets for evaluation (A5.5.4–A5.5.5). A start has been made to modelling Quaternary deposits in an area previously almost devoid of suitable data (1.2.1) whilst palaeoenvironmentally significant or artefact-bearing deposits appeared to be absent within the augered area.

3.6.8 The archaeological logs must not be relied upon to assess the presence, absence or nature of any contaminated material, nor any issues regarding ground strength or stability: the geotechnical report(s) should be consulted instead.

4 Results

4.1 *Phases A–B, geology and geoarchaeology*

4.1.1 Archaeologically sterile Phase A (pre-Quaternary) is represented by London Clay (G10112). It was encountered at around 8.4–8.5m OD in the southern part of the augered area but dipped to about 6.8m OD in the north-eastern.

4.1.2 The upper surface of the London Clay was undoubtedly sculpted by the formation of the Lea Valley in the late Pleistocene. It was then overlain in Phase B1 (late Pleistocene) by about 2-4m of sandy gravels (G10105), pertaining to the Kempton Park (according to the BGS) or Leyton River Terrace Gravels (according to the LVMP). Their uppermost surface lay at about 11.1–11.3m OD in the central and northern parts of the augered area, dipping gently to the south and more steeply to east and west, suggestive of channels within a braided river system.

4.1.3 In Phase B2 (final Pleistocene) these gravels were overlain by brickearths (G10123) with little or no flint. Their highest point, at 12.15m OD also lay near the centre of the augered area, dipping gently to north-east and more steeply to south-west. They were probably loessic (windblown) brickearths of the Enfield Silt Member. Although the uppermost surface conforms broadly with that of the gravels, this may be due, at least in part, to subsequent fluvial activity redefining the earlier channels.

4.1.4 Mostly overlying the brickearths, but directly over the fluvial gravels in the south-eastern corner of the site, were about 0.2–0.5m of sometimes slightly clayey, sandy gravels (G10120) including at least one clay lens and perhaps discontinuous across the area. Assigned to Phase B3 (early Holocene), these were probably head gravels.

4.2 *Phases C–D, possible archaeology and modern*

4.2.1 The earliest later Holocene deposits which may be of archaeological significance have been assigned to Phase C1 (potential archaeology, lower). They consist of a (possibly tile and charcoal flecked) sandy clay gravel (G10004) encountered at 0.87m BGL near the centre of the site and a sandy clay (G10150) at 1.13m BGL in the south-eastern corner. The former may be a man-made metalling, but may be no more than head gravel with a little intrusive material. The latter was clearly not natural and seems most likely to be a ploughsoil, though it may have represented natural colluvium or a deliberate fill or levelling deposit and, in any case, might date as late as the early twentieth century.

4.2.2 Sealing the B2, B3 or C1 deposits in most positions, at about 0.3-1.0m BGL, were various undiagnostic grey to brown, generally clayey soils (G10044), usually with rare anthropogenic inclusions, assigned very tentatively to Phase C2 (potential archaeology, upper). These were probably of mixed origin, some or all perhaps nineteenth- to mid twentieth-century garden soils *etc*, though it is just possible that some were disturbed head material or archaeologically significant material.

4.2.3 Over these undiagnostic soils in WS2 was a dump of peg-tile, mortar and brick fragments (G10015) capped by what was probably a scorched brick floor (G10014), perhaps pertaining to the smithy shown on the 1914 Ordnance Survey. Some coal-flecked deposits to the north-east, perhaps old ground surfaces or levelling material have also been assigned to the latter group and both groups, along with a possibly cultivated horizon (G10072) in WS4 to Phase D1 (probably nineteenth- to early twentieth-century, including potential industrial archaeology).

4.2.4 Impenetrable concrete or cemented brick rubble surfaces (G10084) were encountered at the bases of HP1 and HP2. These were probably late nineteenth- to mid twentieth-century floor or yard surfaces, although that in HP2 might be either a buried service or sunken garden feature. In HP1 the hard surface was overlain by a fine, perhaps imported, loam (G10083) sealed by brick rubble (G10082) containing a heavily corroded iron fragment, probably from a barrel hoop. In HP2 the hard surface was overlain by what was probably a fill or levelling deposit (G10093) capped by garden soil (G10092). All these have also been assigned to Phase D1.

4.2.5 Compact brick rubble (G10043), capped the C2 deposits in RH2 and RH3 and the earlier D1 deposits in HP1 and WS4. Although it was almost certainly a 1930s or later construction surface or bedding layer, it too has been assigned to Phase D1 in case it represents a slightly earlier rough floor or yard surface.

4.2.6 All deposits and structures clearly dating to the 1930s or later (G10000) have been assigned to Phase D2 (modern). Usually these totalled less than 0.4m in thickness but, in WS1, reached 1.28m BGL, probably within a sewer trench as fragments of salt-glazed pipe were seen down to that depth.

5 Conclusions and recommendations

5.1 Conclusions

5.1.1 As expected, natural London Clay (at about 6.8–8.5m OD) was overlain by late Pleistocene fluvial gravels (up to about 2.0–3.9m OD). Contrary to the BGS mapping, these were capped by probably loessic brickearths at least partially overlain by early Holocene head material.

5.1.2 A possibly man-made gravel surface was identified near the centre of the site and what was probably a cultivated loam near the south-eastern corner. Neither these nor a thick, overlying band of mixed, undiagnostic soils could be dated although one member of this band yielded a fragment of medieval or later peg-tile.

5.1.3 A scorched brick floor near the centre of the site probably represents its industrial archaeology, as may various other deposits, but it does not currently appear that such remains are likely to be well or extensively preserved.

5.2 Recommendations

5.2.1 It is recommended that evaluation trenching be undertaken following demolition but preceding slab removal or grubbing out. On current evidence, it is suggested that four trenches, each about 1.6m wide and 15m–20m long be cut. Principal objectives of the trenching will be to establish the date, extent and degree of preservation of industrial archaeology, the date and nature of the thick band of undiagnostic soils, the date of the underlying cultivated soil and whether it is likely to overly earlier archaeology, the date and nature of the possible metallurgy, and the extent of modern disturbance(s).

5.2.2 To improve geoarchaeological deposit modelling and, if conducted prior to the evaluation, to better inform its design, it is also recommended that a watching brief be conducted on any further intrusive geotechnical or geoenvironmental site investigation.

5.2.3 If the evaluation identifies significant archaeology that may be impacted upon by the development, a further programme of archaeological investigation and/or mitigation will be agreed with the Client, LPA and GLAAS and implemented.

5.2.4 If the evaluation or any subsequent work identifies significant archaeology, the level and outlet for publication and dissemination of results, and whether the results of the WB(s) on SI need be included, will be agreed with the LPA.

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Archaeology client report FOST16/01

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Compiled by Simon Pratt, Canterbury Archaeological Trust, 92a Broad Street, Canterbury, Kent CT1 2LU, January 2019.

Appendix 1: individual logs

A1.1 Conventions

In the following logs, depths (below contemporary groundlevel) and elevations (above Ordnance Datum) are given in metres. U70 and U80 refer to windowless-samples of the indicated nominal diameter (in mm), FA200 to rotary flight augering with an exterior diameter of about 200mm, SPT and CPT to standard (spoon) and cone penetration testing. Cored or broken-out hard surfaces etc are labelled accordingly, manually excavated deposits as 'Dug', disturbed samples from shell-and-auger drilling as 'Bulk'. Soil descriptions use the following frequency and size codes for inclusions: V = Very, R = Rare, C = Common, A = Abundant, S = Small (<10mm in each dimension), M = Medium, L = Large (>100mm in any dimension).

A1.2 CP1 (NGR 534067.3E 191908.9N)

Depth (m)	Elevation (m OD)	Con- text	(Group) Description & interpretation	Sample type
0.00-0.02	12.85-12.83	10030	(G10000) Tarmacadam. Modern car park surface.	Cored
0.02-0.18	12.83-12.67	10031	(G10000) Very compact concrete. Bedding/levelling.	Cored
0.18-0.25	12.67-12.60	10032	(G10000) Very compact hardcore. Bedding/levelling.	Dug
0.25-0.70	12.60-12.15	10033	(G10014) Fairly compact fairly dark grey ?ashy clay silt, RM flint, RML brick, RS charcoal. Old ground ?surface/fill/levelling.	
0.70-1.00	12.15-11.85	10034	(G10123) Compact orange brown slightly sandy clay with fairly pale grey clay silt mottle. ?Disturbed ?head brickearth or ?fill/levelling.	Dug
1.00-1.30	11.85-11.55		Void.	SPT
1.30-1.42	11.55-11.43	10160	(G10160) Fairly loose slightly greyish fairly pale grey clay silt, RS flint, RS charcoal. Remix or old ground ?surface/fill.	
1.42-1.45	11.43-11.40	10161	(G10123) Compact slightly greyish orange brown sandy clay with brownish orange flecks, CVS flint. ?Floor/bedding/levelling or ?head.	SPT
1.45-1.60	11.40-11.25		Unobserved/unrecorded.	Bulk
1.60-3.00	11.25-9.85	10162	(G10105) Very compact slightly yellowish orange brown slightly clayey sandy gravel, ASCMRL subangular to well rounded flint, RM ?quartzite cobble. ?Fluvial gravel.	
3.00-5.10	9.85-7.75	10163	(G10105) Very compact orange brown sandy gravel, ASMRL subangular to well rounded flint, RM ?quartz pebble, RM ?Tertiary pebble. Fluvial gravel.	
5.10+	7.75>	10164	(G10112) Very compact fairly pale grey silty clay. London Clay.	Bulk

A1.3 HP1 (NGR 534051.1E 191890.2N)

Depth (m)	Elevation (m OD)	Con- text	(Group) Description & interpretation	Sample type
0.00-0.12	12.95-12.83	10080	(G10000) Very compact concrete. Modern storeroom floor.	Cored Cored
0.12-0.20	12.83-12.75	10081	(G10043) Compact brick ?rubble. Bedding or rough floor.	Broken Broken
0.20-0.65	12.75-12.30	10082	(G10082) Fairly loose yellowish grey sandy loam, CSMAL brick, RL heavily rusted iron band. Demolition fill/levelling.	Dug
0.65-0.90	12.30-12.05	10083	(G10083) Fairly compact yellowish grey slightly clayey silty fine loam. ?Abandonment silt or ?cultivated old ground ?surface.	
0.90-1.00	12.05-11.95	10084	(G10084) ?Broken bricks in a pale yellow sandy mortar. ?Rough ?floor.	Dug

A1.4 HP2 (NGR 534027.0E 191899.0N)

Depth (m)	Elevation (m OD)	Con- text	(Group) Description & interpretation	Sample type
0.00-0.20	12.80-12.60	10090	(G10000) Very compact concrete. Modern shop floor.	Cored Cored
0.20-0.25	12.60-12.55	10091	(G10000) Hardcore. Bedding.	Dug
0.25-0.50	12.55-12.30	10092	(G10092) Fairly compact brownish grey slightly clayey silty loam, RM oyster. Old ground ?surface.	
0.50-0.70	12.30-12.10	10093	(G10093) Compact slightly yellowish greyish brown slightly sandy clay. ?Levelling/fill.	
0.70-0.77	12.10-12.03	10094	(G10084) Very compact ?concrete. ?Floor/wall/foundation/service.	Dug

A1.5 RH1 (NGR 534072.0E 191917.0N)

Depth (m)	Elevation (m OD)	Con- text	(Group) Description & interpretation	Sample type
0.00-0.10	12.90-12.80	10050	(G10000) Tarmacadam. Modern car park surface.	Broken Broken
0.10-0.35	12.80-12.55	10051	(G10000) Laminated fairly compact dark grey ?ashy clay silts, RSM flint, RS tile, CS ?coal. Tread/ bedding.	Dug
0.35-0.60	12.55-12.30	10052	(G10014) Fairly compact greyish yellowish brown clay loam, RM flint, RS ?coal. ?Fill/levelling.	
0.60-0.80	12.30-12.10	10053	(G10014) Fairly compact fairly pale greyish brown loamy clay, RS tile, RS coal. ?Fill/levelling.	
0.80-1.00	12.10-11.90	10054	(G10044) Fairly compact mottled orange brown sandy clay and fairly pale greyish brown loamy clay, RS flint, RS tile, RS charcoal. ?Fill/ levelling.	Dug

1.00-2.10	11.90-10.80	10130	(G10123) Compact slightly yellowish greyish brown sandy clay, RSM flint. Mixed ?fill/levelling/head.	FA200
2.10-6.10	10.80-6.80	10131	(G10105) Compact ?banded yellowish brown and fairly pale grey slightly clayey sandy gravels, CSM subangular to well rounded flint. Fluvial gravels.	
6.10+	6.80>	10132	(G10112) Very compact fairly pale grey silty clay. London Clay.	FA200

A1.6 RH2 (NGR 534080.2E 191911.6N)

Depth (m)	Elevation (m OD)	Con- text	(Group) Description & interpretation	Sample type
0.00-0.03	12.90-12.87	10040	(G10000) Tarmacadam. Modern car park surface.	Cored
0.03-0.21	12.87-12.69	10041	(G10000) Very compact concrete. Bedding/levelling.	Cored
0.21-0.26	12.69-12.64	10042	(G10000) Very compact concrete. Bedding/levelling.	Broken
0.26-0.40	12.64-12.50	10043	(G10043) Red and yellow brick rubble. Bedding or rough floor.	Dug
0.40-1.00	12.50-11.90	10044	(G10044) Fairly compact grey brown very clayey loam, RSM flint, RS mortar, RSM peg-tile, RS charcoal. Old ground ?surface/fill/levelling.	Dug

A1.7 RH3 (NGR 534075.4E 191901.0N)

Depth (m)	Elevation (m OD)	Con- text	(Group) Description & interpretation	Sample type
0.00-0.02	12.85-12.83	10060	(G10000) Tarmacadam. Modern car park surface.	Cored
0.02-0.12	12.83-12.73	10061	(G10000) Very compact concrete. Bedding/levelling.	Cored
0.12-0.23	12.73-12.62	10062	(G10000) Compact hardcore. Bedding.	Dug
0.23-0.30	12.62-12.55	10063	(G10043) Compact red and yellow brick ?rubble. Bedding/levelling or ?rough floor.	
0.30-0.35	12.55-12.50	10064	(G10043) Fairly compact brownish grey clay silt. ?Bedding.	
0.35-1.00	12.50-11.85	10065	(G10044) Fairly compact fairly pale grey clay silt with orange brown sandy clay mottle, RM flint, RSM tile, RS charcoal. Old ground ?surface/fill/levelling.	Dug
1.00-3.00	11.85-9.85	10110	(G10123) Compact slightly yellowish greyish brown sandy clay. Mixed ?fill/levelling/head.	FA200
3.00-5.10	9.85-7.75	10111	(G10105) Compact ?banded yellowish brown and fairly pale grey slightly clayey sandy gravels. Fluvial gravels.	
5.10+	7.75>	10112	(G10112) Very compact fairly pale grey silty clay. London Clay.	FA200

A1.8 WS1 (NGR 534061.2E 191919.9N)

Depth (m)	Elevation (m OD)	Con- text	(Group) Description & interpretation	Sample type
0.00-0.05	12.90-12.85	10020	(G10000) Very compact concrete slabs. Modern beer garden paving.	Dug
0.05-0.15	12.85-12.75	10021	(G10000) Fairly loose slightly brownish yellow sand. Bedding.	Dug
0.15-0.40	12.75-12.50	10022	(G10000) Very compact gravel-rich concrete with rebar at 0.35m BGL. Bedding/levelling.	Broken
0.40-1.00	12.50-11.90	10023	(G10000) Fairly compact orange brown slightly sandy clay with fairly pale grey clay silt mottle, RSM flint, RS mortar, RSML brick, RS charcoal, RL salt-glazed sewer pipe. ?Fill/levelling.	Broken
1.00-1.26	11.90-11.64		Void.	Dug
1.26-1.32	11.64-11.58	10100	(G10000) Fairly loose fairly pale yellowish brown sandy clay, RS flint. ?Remix/fallen in or ?fill/levelling.	U80
1.32-1.47	11.58-11.43	10101	(G10000) Fairly compact fairly pale yellowish brown sandy clay, RSM flint. ?Fill/levelling.	
1.47-1.54	11.43-11.36	10102	(G10000) Fairly loose dark grey clay silt, RM flint, RSM mortar, RM salt-glazed sewer pipe, RS daub/burnt clay. ?Tread/occupation/fill.	
1.54-1.67	11.36-11.23	10103	(G10120) Fairly compact fairly pale slightly orangey yellowish brown fairly sandy clay, RSM subangular to rounded flint. ?Fill/levelling, disturbed/weathered metalling/head/fluvial gravel.	
1.67-1.77	11.23-11.13	10104	(G10120) Compact pale slightly orangey yellowish brown sandy clay with fairly pale grey clay silt mottle, CSM subangular to rounded flint. Metalling, head gravel or disturbed/weathered fluvial gravel.	
1.77-2.00	11.13-10.90	10105	(G10105) Very compact orange brown slightly sandy gravel, ASCM subangular to rounded flint. Fluvial gravel.	U80
2.00-5.40	10.90-7.50	10106	(G10105) Very compact gravels (based on CPT readings). Fluvial gravels.	CPT
5.40+	7.50>	10107	(G10112) Very compact clays (based on CPT readings). London Clay.	CPT

A1.9 WS2 (NGR 534052.3E 191913.4N)

Depth (m)	Elevation (m OD)	Con- text	(Group) Description & interpretation	Sample type
0.00-0.05	12.85-12.80	10010	(G10000) Very compact concrete slabs. Modern beer garden paving.	Dug

0.05-0.09	12.80-12.76	10011	(G10000) Fairly loose slightly brownish yellow sand. Bedding.	Dug
0.09-0.20	12.76-12.65	10012	(G10000) Very compact concrete. Bedding/levelling.	Broken
0.20-0.33	12.65-12.52	10013	(G10000) Fairly loose concrete rubble, CL brick. ?Demolition levelling.	Broken
0.33-0.40	12.52-12.45	10014	(G10014) Roughly laid single course of unmortared, heavily fired red bricks (70mm x 110mm). Scorched ?floor.	Dug
0.40-0.80	12.45-12.05	10015	(G10015) Fairly compact slightly reddish yellowish brown slightly sandy clay, CS ?mortar, ASCMRL peg-tile, RM brick. Demolition ?levelling.	
0.80-1.00	12.05-11.85	10016	(G10044) Fairly compact yellowish brown slightly sandy clay. Old ground ?surface/fill/levelling.	Dug
1.00-1.15	11.85-11.70		Void.	U80
1.15-1.29	11.70-11.56	10120	(G10120) Fairly compact yellowish brown slightly clayey sandy gravel, ASCM subangular to rounded flint. ?Head gravel.	
1.29-1.47	11.56-11.38	10121	(G10120) Compact fairly pale orangey brown slightly sandy clay, RM subrounded to rounded flint. ?Head brickearth.	
1.47-1.66	11.38-11.19	10122	(G10120) Compact fairly pale yellowish brown slightly clayey sandy gravel. ?Head gravel.	
1.66-2.00	11.19-10.85	10123	(G10123) Very compact orange brown slightly silty clay, RM rounded flint in top, presumably pushed in from above. ?Loessic/lacustrine brickearth, MONO<1> taken 1.88-1.20m BGL.	U80
2.00-2.14	10.85-10.71		Void.	U70
2.14-2.34	10.71-10.51	10124	(G10123) Very compact orange brown slightly silty clay. ?Loessic/lacustrine brickearth, MONO<1> taken 1.88-1.20m BGL.	
2.34-2.42	10.51-10.43	10125	(G10123) Very compact pale grey slightly silty clay with orange brown mottles. Gleyed ?loessic/lacustrine brickearth.	
2.42-2.81	10.43-10.04	10126	(G10105) Compact pale yellowish brown slightly clayey sandy gravel, ASCM subrounded to rounded flint. ?Head gravel.	
2.81-3.00	10.04-9.85	10127	(G10105) Very compact orange brown clayey sandy gravel, ASCM subrounded to rounded flint. Head/fluvial gravel.	U70
3.00-5.00	9.85-7.85	10128	(G10105) Very compact gravels (based on CPT readings). Fluvial gravels.	CPT

5.00+ 7.85> 10129 (G10112) Very compact clays (based on CPT readings). London Clay. | CPT

A1.10 WS3 (NGR 534063.3E 191900.5N)

Depth (m)	Elevation (m OD)	Con- text	(Group) Description & interpretation	Sample type
0.00-0.02	12.90-12.88	10000	(G10000) Tarmacadam. Modern car park surface.	Cored
0.02-0.23	12.88-12.67	10001	(G10000) Very compact concrete. Bedding/levelling.	Cored
0.23-0.28	12.67-12.62	10002	(G10000) Hardcore. Bedding.	Dug
0.28-0.87	12.62-12.03	10003	(G10044) Fairly compact slightly yellowish greyish brown clay loam, RSM flint, RS tile, RS charcoal. Old ground ?surface/fill/levelling.	
0.87-0.99	12.03-11.91	10004	(G10004) Compact slightly yellowish grey silty sandy clay, RS tile, RS charcoal, CSM subangular to well rounded flint. ?Metalling or disturbed ?head gravel.	Dug
0.99-1.20	11.91-11.70		Void.	U80
1.20-1.23	11.70-11.67	10140	(G10120) Compact fairly pale brownish grey slightly sandy clayey gravel, ASCM subangular to rounded flint. Metalling or disturbed/ weathered ?head gravel.	
1.23-1.31	11.67-11.59	10141	(G10120) Compact fairly pale brownish grey slightly sandy clay, CSM subangular to rounded flint. ?Bedding/levelling or disturbed/ weathered ?head gravel.	
1.31-1.66	11.59-11.24	10142	(G10120) Very compact greyish brown clayey sandy gravel, ASCM subangular to rounded flint. Metalling or ?head gravel.	
1.66-2.00	11.24-10.90	10143	(G10123) Very compact orange brown slightly silty clay. ?Loessic/ lacustrine brickearth.	U80
2.00-2.17	10.90-10.73	10144	(G10123) Very compact orange brown slightly silty clay. ?Loessic/ lacustrine brickearth.	SPT
2.17-2.45	10.73-10.45	10145	(G10105) Very compact orange brown slightly clayey sandy gravel, ASCM subangular to rounded flint. Fluvial gravel.	SPT
2.45-2.50	10.45-10.40		Void.	CPT
2.50-4.40	10.40-8.50	10146	(G10105) Very compact gravels (based on CPT readings). Fluvial gravels.	
4.40+	8.50>	10147	(G10112) Very compact clays (based on CPT readings). London Clay.	CPT

A1.11 WS4 (NGR 534066.0E 191886.4N)

Depth (m)	Elevation (m OD)	Con- text	(Group) Description & interpretation	Sample type
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0.00-0.14	12.95-12.81	10070	(G10000) Very compact concrete. Modern storeroom floor.	Cored Cored
0.14-0.20	12.81-12.75	10071	(G10043) Compact brick ?rubble. Bedding or rough floor.	Broken Broken
0.20-0.30	12.75-12.65	10072	(G10072) Fairly compact dark grey clay silt, RSM flint, RS tile, RS charcoal. ?Cultivated old ground ?surface.	Dug
0.30-1.03	12.65-11.92	10073	(G10044) Fairly compact fairly pale yellowish grey slightly clayey sandy silt. Old ground ?surface/ fill/levelling.	Dug
1.03-1.13	11.92-11.82		Void.	U80
1.13-1.57	11.82-11.38	10150	(G10150) Compact slightly yellowish brownish grey sandy clay, RSM flint, RS tile, RS charcoal, RM burnt flint, RS ?daub/burnt clay. Probably ploughsoil, possibly old ground surface/levelling/fill/ colluvium, GBA<2> 1.3-1.5m BGL.	
1.57-2.00	11.38-10.95	10151	(G10120) Compact orange brown very slightly clayey sandy gravel, ASCM subangular to well rounded flint. Metalling or head/fluvial gravel.	U80
2.00-2.02	10.95-10.93		Void.	U70
2.02-2.04	10.93-10.91	10152	(G10120) Fairly compact orange brown very slightly clayey sandy gravel, ASRM subangular to rounded flint. Metalling, head/fluvial gravel or fallen in.	
2.04-2.35	10.91-10.60	10153	(G10123) Compact pale slightly greyish brown slightly sandy silty clay, RSM subangular to rounded flint. Old ground ?surface, levelling or ?head clay.	
2.35-2.50	10.60-10.45	10154	(G10105) Compact yellow brown sandy gravel, ASCM subangular to rounded flint. Fluvial gravel.	U70
2.50-4.60	10.45-8.35	10155	(G10105) Very compact gravel (based on CPT readings), perhaps with sand lens(es) towards base, which may otherwise be up to 0.5m higher than shown here. Fluvial gravels.	CPT
4.60+	8.35>	10156	(G10112) Very compact clays (based on CPT readings). London Clay.	CPT

Appendix 2: group descriptions

A2.1 Conventions

Soil descriptions use the following frequency and size codes for inclusions: V = Very, R = Rare, C = Common, A = Abundant, S = Small (<10mm in every dimension), M = Medium, L = Large (>100mm in any dimension). Groups are listed in numerical order. Individual context details are omitted for modern material G10000, for which see the relevant position logs (App 1).

A2.2 Group G10000

Phase D2

General number for all certainly modern surfaces, beddings, levellings *etc.*

Transects: TX01, TX02, TX03, TX04, TX05, TX06

Positions: CP1, HP1, HP2, RH1, RH2, RH3, WS1, WS2, WS3, WS4

Contexts: 10000, 10001, 10002, 10010, 10011, 10012, 10013, 10020, 10021, 10022, 10023, 10030, 10031, 10032, 10040, 10041, 10042, 10050, 10051, 10060, 10061, 10062, 10070, 10080, 10090, 10091, 10100, 10101, 10102

A2.3 Group G10004

Phase C1

Compact slightly yellowish grey silty sandy clay gravel with rare tile and charcoal flecking. Identified only at base of starter pit in WS3, beneath made-ground G10044.

Probably either a man-made metalling or disturbed (perhaps bioturbated) upper portion of ?head gravel G10120.

Transects: TX02, TX05

Position: WS3

Context: 10004

Details:

Position Con Description & initial interpretation

WS3 10004 Compact slightly yellowish grey silty sandy clay, RS tile, RS charcoal, CSM subangular to well rounded flint. ?Metalling or disturbed ?head gravel.

A2.4 Group G10014

Phase D1

Roughly laid single course of unmortared, heavily fired red bricks in the starter pit for WS2, 0.45m of fairly dark grey ?ashy clay silt with charcoal flecking and brickbats in that for CP1, and two bands of coal-flecked, greyish brown clay loam over loamy clay in that for RH1.

Probably scorched floor and old ground surfaces or levelling associated with the smithy shown in the north-eastern part of the site in the Ordnance Survey of 1914.

Transects: TX01, TX02, TX04, TX05
Positions: CP1, RH1, WS2
Contexts: 10014, 10033, 10052, 10053

Details:

Position	Con	Description & initial interpretation
CP1	10033	Fairly compact fairly dark grey ?ashy clay silt, RM flint, RML brick, RS charcoal. Old ground ?surface/fill/levelling.
RH1	10052	Fairly compact greyish yellowish brown clay loam, RM flint, RS ?coal. ?Fill/levelling.
RH1	10053	Fairly compact fairly pale greyish brown loamy clay, RS tile, RS coal. ?Fill/levelling.
WS2	10014	Roughly laid single course of unmortared, heavily fired red bricks (70mm x 110mm). Scorched ?floor.

A2.5 Group G10015

Phase D1

Slightly reddish yellowish brown slightly sandy clay with abundant peg-tile fragments, common mortar and a few well-fired, unfroged brick fragments (70mm x 110mm). Over clean deposits G10044, beneath ?smithy floor 10014 in WS2.

Probably a nineteenth- or early twentieth-century levelling deposit using demolition material, chiefly from a roof.

Transects: TX01, TX05
Position: WS2
Context: 10015

Details:

Position	Con	Description & initial interpretation
WS2	10015	Fairly compact slightly reddish yellowish brown slightly sandy clay, CS ?mortar, ASCMRL peg-tile, RM brick. Demolition ?levelling.

A2.6 Group G10043

Phase D1

Compact red or red and yellow brick rubble beneath modern deposits G10000 along the southern and eastern margins of the site. In RH3, 0.05m a brownish grey clay silt underlying the rubble is included in this group.

Almost certainly a modern (1930s or later) construction surface or bedding layer, but perhaps a nineteenth- or early twentieth-century rough floor or yard surface.

Transects: TX02, TX03, TX04, TX05, TX06
Positions: HP1, RH2, RH3, WS4
Contexts: 10043, 10063, 10064, 10071, 10081

Details:

Position	Con	Description & initial interpretation
HP1	10081	Compact brick ?rubble. Bedding or rough floor.

- RH2 10043 Red and yellow brick rubble. Bedding or rough floor.
- RH3 10063 Compact red and yellow brick ?rubble. Bedding/levelling or ?rough floor.
- RH3 10064 Fairly compact brownish grey clay silt. ?Bedding.
- WS4 10071 Compact brick ?rubble. Bedding or rough floor.

A2.7 Group G10044

Phase C2

Heterogenous group of undiagnostic grey to brown, generally clayey soils, usually with rare anthropogenic inclusions. Identified within the roughly 0.3-1.0m BGL range at all positions save CP1, WS1, HP1 and HP2 (where it may have been removed by later disturbances).

Made ground, probably of mixed origin, some at least perhaps cultivated, probably nineteenth- to early twentieth-century garden soils *etc.*

Transects: TX01, TX02, TX03, TX04, TX05, TX06
 Positions: RH1, RH2, RH3, WS2, WS3, WS4
 Contexts: 10003, 10016, 10044, 10054, 10065, 10073
 Details:

Position	Con	Description & initial interpretation
RH1	10054	Fairly compact mottled orange brown sandy clay and fairly pale greyish brown loamy clay, RS flint, RS tile, RS charcoal. ?Fill/levelling.
RH2	10044	Fairly compact grey brown very clayey loam, RSM flint, RS mortar, RSM peg-tile, RS charcoal. Old ground ?surface/fill/levelling.
RH3	10065	Fairly compact fairly pale grey clay silt with orange brown sandy clay mottle, RM flint, RSM tile, RS charcoal. Old ground ?surface/fill/levelling.
WS2	10016	Fairly compact yellowish brown slightly sandy clay. Old ground ?surface/fill/levelling.
WS3	10003	Fairly compact slightly yellowish greyish brown clay loam, RSM flint, RS tile, RS charcoal. Old ground ?surface/fill/levelling.
WS4	10073	Fairly compact fairly pale yellowish grey slightly clayey sandy silt. Old ground ?surface/fill/levelling.

A2.8 Group G10072

Phase D1

Fairly compact dark grey clay silt in WS4, over clean deposits G10044, under brick rubble or surface G10043.

Possibly cultivated horizon, perhaps construction tread for G10043. Probably of nineteenth- to twentieth-century date.

Transects: TX03, TX06
 Position: WS4
 Context: 10072
 Details:

Position	Con	Description & initial interpretation
----------	-----	--------------------------------------

WS4 10072 Fairly compact dark grey clay silt, RSM flint, RS tile, RS charcoal.
?Cultivated old ground ?surface.

A2.9 Group G10082

Phase D1

Fairly loose brick rubble in a yellowish grey sandy loam, including a fragment of a heavily rusted iron ?band. Bricks are well fired, unfrogged and measure 70mm by 110mm, similar to the red bricks in G10043. Over loam G10083, under ?surface G10043 in WS4.

Probably demolition material used as a fill or levelling deposit.

Transects: TX02, TX06

Position: HP1

Context: 10082

Details:

Position Con Description & initial interpretation

HP1 10082 Fairly loose yellowish grey sandy loam, CSMAL brick, RL heavily rusted iron band. Demolition fill/levelling.

A2.10 Group G10083

Phase D1

Fairly compact yellowish grey slightly clayey, silty fine loam in HP1. Over ?floor G10084, under demolition material G10082.

Probably an abandonment silt or cultivated horizon, perhaps using imported soil.

Transects: TX02, TX06

Position: HP1

Context: 10083

Details:

Position Con Description & initial interpretation

HP1 10083 Fairly compact yellowish grey slightly clayey silty fine loam.
?Abandonment silt or ?cultivated old ground ?surface.

A2.11 Group G10084

Phase D1

?Broken bricks in a pale yellow sandy mortar at base of HP1 (12.05m OD) and ?concrete at base of HP2, with upper surfaces at 12.05 and 12.10m OD respectively.

Probably ?late nineteenth- to ?mid twentieth-century floor or yard surface(s), although that in HP2 might be either a buried service or sunken garden feature.

Transects: TX01, TX02, TX06

Positions: HP1, HP2

Contexts: 10084, 10094

Details:

	Position	Con	Description & initial interpretation
	HP1	10084	?Broken bricks in a pale yellow sandy mortar. ?Rough ?floor.
	HP2	10094	Very compact ?concrete. ?Floor/wall/foundation/service.

A2.12 Group G10092

Phase D1

Fairly compact brownish grey slightly clayey silty loam over fill/levelling G10093 and under modern deposits G10000 in HP2.

Probably (front) garden soil associated with buildings shown on nineteenth-century maps but perhaps upper fill or levelling contemporary with G10093 and/or G10000.

Transects: TX01, TX06

Position: HP2

Context: 10092

Details:

	Position	Con	Description & initial interpretation
--	----------	-----	--------------------------------------

	HP2	10092	Fairly compact brownish grey slightly clayey silty loam, RM oyster. Old ground ?surface.
--	-----	-------	--

A2.13 Group G10093

Phase D1

Compact, slightly yellowish greyish brown slightly sandy clay over surface/structure G10084, under ?garden loam G10092 in HP2.

Probably levelling preparatory for G10093.

Transects: TX01, TX06

Position: HP2

Context: 10093

Details:

	Position	Con	Description & initial interpretation
--	----------	-----	--------------------------------------

	HP2	10093	Compact slightly yellowish greyish brown slightly sandy clay. ?Levelling/ fill.
--	-----	-------	---

A2.14 Group G10105

Phase B1

About 2-4m of generally very compact orange brown sandy gravels, overwhelmingly of small to medium subangular to well-rounded flint, though with some larger clasts and a very few quartz or quartzite pebbles. Uppermost surface at about 11.1-11.3m OD in central and northern part of augered area. The surface then dips gently to south (10.6m OD) and more steeply to east (9.9m OD) and west (10.4m OD). Overlies London Clay G10122 and overlain by natural clays G10123 save at its highest point (in WS1, where it is overlain directly by even later, slightly clayier gravels G10120).

Late Pleistocene Kempton Park Gravels, upper surface probably resulting from a braided river system. Elsewhere known to yield (probably residual) Palaeolithic artefacts.

Transects: TX01, TX02, TX03, TX04, TX05, TX06

Positions: CP1, RH1, RH3, WS1, WS2, WS3, WS4

Contexts: 10105, 10106, 10111, 10126, 10127, 10128, 10131, 10145, 10146,
10154, 10155, 10162, 10163

Details:

Position Con Description & initial interpretation

CP1	10162	Very compact slightly yellowish orange brown slightly clayey sandy gravel, ASCMRL subangular to well rounded flint, RM ?quartzite cobble. ?Fluvial gravel.
CP1	10163	Very compact orange brown sandy gravel, ASMRL subangular to well rounded flint, RM ?quartz pebble, RM ?Tertiary pebble. Fluvial gravel.
RH1	10131	Compact ?banded yellowish brown and fairly pale grey slightly clayey sandy gravels, CSM subangular to well rounded flint. Fluvial gravels.
RH3	10111	Compact ?banded yellowish brown and fairly pale grey slightly clayey sandy gravels. Fluvial gravels.
WS1	10105	Very compact orange brown slightly sandy gravel, ASCM subangular to rounded flint. Fluvial gravel.
WS1	10106	Very compact gravels (based on CPT readings). Fluvial gravels.
WS2	10126	Compact pale yellowish brown slightly clayey sandy gravel, ASCM subrounded to rounded flint. ?Head gravel.
WS2	10127	Very compact orange brown clayey sandy gravel, ASCM subrounded to rounded flint. Head/fluvial gravel.
WS2	10128	Very compact gravels (based on CPT readings). Fluvial gravels.
WS3	10145	Very compact orange brown slightly clayey sandy gravel, ASCM subangular to rounded flint. Fluvial gravel.
WS3	10146	Very compact gravels (based on CPT readings). Fluvial gravels.
WS4	10154	Compact yellow brown sandy gravel, ASCM subangular to rounded flint. Fluvial gravel.
WS4	10155	Very compact gravel (based on CPT readings), perhaps with sand lens(es) towards base, which may otherwise be up to 0.5m higher than shown here. Fluvial gravels.

A2.15 Group G10112

Phase A

Very compact fairly pale grey silty clay seen in arisings in CP1, RH1 and RH3, deduced from CPT results in WS1-WS4. Uppermost surviving surface at around 8.4-8.5m OD in southern part of augered area, dipping to about 6.8m OD in the north-eastern.

Palaeogene London Clay. Deep marine deposits formed 56-48 MYA and thus archaeologically sterile. Upper surface presumably sculpted by formation of the Lea Valley in the Pleistocene.

Transects: TX02, TX03, TX04, TX05

Positions: CP1, RH1, RH3, WS1, WS2, WS3, WS4

Contexts: 10107, 10112, 10129, 10132, 10147, 10156, 10164

Details:

Position Con Description & initial interpretation

CP1 10164 Very compact fairly pale grey silty clay. London Clay.
RH1 10132 Very compact fairly pale grey silty clay. London Clay.
RH3 10112 Very compact fairly pale grey silty clay. London Clay.
WS1 10107 Very compact clays (based on CPT readings). London Clay.
WS2 10129 Very compact clays (based on CPT readings). London Clay.
WS3 10147 Very compact clays (based on CPT readings). London Clay.
WS4 10156 Very compact clays (based on CPT readings). London Clay.

A2.16 Group G10120

Phase B3

Generally yellowish to orange brown, sometimes slightly clayey, sandy gravels but including at least one clay lens (in WS2). Mostly overlying brickearths G10123 but directly over fluvial gravels G10105 in WS4. Not observed in either of the rotary flight auger boreholes, but this may simply be due to the very disturbed nature of the arisings. On the other hand, presumably actually absent from CP1 as the starter pit bottomed within (disturbed?) G10123. About 0.5m thick in the south-western part of the augered area, but less than half that to the north, in WS1.

Probably Holocene head (but perhaps minor fluvial) gravels forming in north-west to south-east palaeochannel in surface of G10123. The mottled appearance of the lower member (10104) in WS1 might perhaps relate instead to soil formation within the exposed upper portion of fluvial gravels G10105.

Transects: TX01, TX02, TX03, TX04, TX05, TX06

Positions: WS1, WS2, WS3, WS4

Contexts: 10103, 10104, 10120, 10121, 10122, 10140, 10141, 10142, 10151,
10152

Details:

Position Con Description & initial interpretation

WS1 10103 Fairly compact fairly pale slightly orangey yellowish brown fairly sandy clay, RSM subangular to rounded flint. ?Fill/levelling, disturbed/weathered metalling/head/fluvial gravel.
WS1 10104 Compact pale slightly orangey yellowish brown sandy clay with fairly pale grey clay silt mottle, CSM subangular to rounded flint. Metalling, head gravel or disturbed/weathered fluvial gravel.
WS2 10120 Fairly compact yellowish brown slightly clayey sandy gravel, ASCM subangular to rounded flint. ?Head gravel.
WS2 10121 Compact fairly pale orangey brown slightly sandy clay, RM subrounded to rounded flint. ?Head brickearth.
WS2 10122 Compact fairly pale yellowish brown slightly clayey sandy gravel. ?Head gravel.
WS3 10140 Compact fairly pale brownish grey slightly sandy clayey gravel, ASCM subangular to rounded flint. Metalling or disturbed/weathered ?head gravel.

- WS3 10141 Compact fairly pale brownish grey slightly sandy clay, CSM subangular to rounded flint. ?Bedding/levelling or disturbed/weathered ?head gravel.
- WS3 10142 Very compact greyish brown clayey sandy gravel, ASCM subangular to rounded flint. Metalling or ?head gravel.
- WS4 10151 Compact orange brown very slightly clayey sandy gravel, ASCM subangular to well rounded flint. Metalling or head/fluvial gravel.
- WS4 10152 Fairly compact orange brown very slightly clayey sandy gravel, ASRM subangular to rounded flint. Metalling, head/fluvial gravel or fallen in.

A2.17 Group G10123

Phase B2

Compact to very compact, generally orange brown slightly silty, sometimes sandy, clay with little (probably intrusive) or no flint. Over fluvial gravels G10105, under ?head gravels G10120. Highest point on uppermost surface (12.15m OD) near centre of augered area, dipping gently to north-east (to about 11.9m OD and more steeply to south-west (to about 10.9-11.2m OD).

Probably loessic brickearths, with possible disturbance of the uppermost elements in places, pertaining to the Enfield Silt Member, but perhaps lacustrine in origin. Small monolith sample <1> taken for potential micromorphological analysis to clarify this. Although the uppermost surface conforms broadly with that of the underlying G10105, this may be due, at least in part, to subsequent fluvial activity redefining the earlier channels to the south-west and, perhaps, north-east. Absence from WS1 probably due to such erosion.

Transects: TX01, TX02, TX03, TX04, TX05, TX06

Positions: CP1, RH1, RH3, WS2, WS3, WS4

Contexts: 10034, 10110, 10123, 10124, 10125, 10130, 10143, 10144, 10153, 10161

Details:

Position Con Description & initial interpretation

- CP1 10034 Compact orange brown slightly sandy clay with fairly pale grey clay silt mottle. ?Disturbed ?head brickearth or ?fill/levelling.
- CP1 10161 Compact slightly greyish orange brown sandy clay with brownish orange flecks, CVS flint. ?Floor/bedding/levelling or ?head.
- RH1 10130 Compact slightly yellowish greyish brown sandy clay, RSM flint. Mixed ?fill/levelling/head.
- RH3 10110 Compact slightly yellowish greyish brown sandy clay. Mixed ?fill/levelling/head.
- WS2 10123 Very compact orange brown slightly silty clay, RM rounded flint in top, presumably pushed in from above. ?Loessic/lacustrine brickearth, MONO<1> taken 1.88-1.20m BGL.
- WS2 10124 Very compact orange brown slightly silty clay. ?Loessic/lacustrine brickearth, MONO<1> taken 1.88-1.20m BGL.
- WS2 10125 Very compact pale grey slightly silty clay with orange brown mottles. Gleyed ?loessic/lacustrine brickearth.

- WS3 10143 Very compact orange brown slightly silty clay. ?Loessic/lacustrine
brickearth.
- WS3 10144 Very compact orange brown slightly silty clay. ?Loessic/lacustrine
brickearth.
- WS4 10153 Compact pale slightly greyish brown slightly sandy silty clay, RSM
subangular to rounded flint. Old ground ?surface, levelling or
?head clay.

A2.18 Group G10150

Phase C1

At least 0.44m of compact, slightly yellowish brownish grey sandy clay with few but varied anthropogenic inclusions. Over head gravel G10120 and beneath ?nineteenth- to twentieth-century soils G10044 in WS4. Small disturbed sample GBA<2> taken for future potential analysis.

Probably cultivated, possibly old ground surface/levelling/fill/colluvium. May be of nineteenth- to twentieth-century date, but depth and absence of clearly modern inclusions suggest it is earlier.

Transects: TX03, TX06

Position: WS4

Context: 10150

Details:

Position Con Description & initial interpretation

WS4 10150 Compact slightly yellowish brownish grey sandy clay, RSM flint, RS tile, RS charcoal, RM burnt flint, RS ?daub/burnt clay. Probably ploughsoil, possibly old ground surface/levelling/fill/colluvium, GBA<2> 1.3-1.5m BGL.

A2.19 Group G10160

Phase D2

Fairly loose grey clay silt from upper part of CP1 SPT sunk from base of infilled starter pit.

Probably remixed material, ignored in transect drawings and stratigraphic matrix.

Transects: TX02, TX05

Position: CP1

Context: 10160

Details:

Position Con Description & initial interpretation

CP1 10160 Fairly loose slightly greyish fairly pale grey clay silt, RS flint, RS charcoal. Remix or old ground ?surface/fill.

Appendix 3: metadata and digital data

A3.1 Introduction

The archaeological logs for this project used in CAT's in-house borehole database system (XBore) are included below in two formats, which may readily be copied and pasted into other documents and thence into other databases. A very small font size has been adopted as they are not intended to be human-readable (though they can be made so by adjusting the font size). All non-blank project entries have been exported to a single flat-file (*flt.csv) in comma separated variables format, which most generic database or spreadsheet programs should be able to import (with or without the first line). The field order may then need altering and/or the data be split into component parts for use in specific databases. The data have also been exported as a set of three files (*LOC.csv, *STR.csv and *LIT.csv, covering location, stratigraphy and lithology), which can be imported to the system employed by Museum of London Archaeology (MoLA) for their Greater London borehole database *etc.* Please contact CAT if problems are encountered or other formats are desired. Note that XBore and the *flt.csv format allow overlapping depths for deposits if there is a stepped/articulated boundary or if there are different deposits at the same level (*eg*, a wall-face in one half of the borehole and demolition material in the other). In the first case, only the uppermost level is exported into the MoLA format. In the second case, manual removal/editing of individual entries may be required to avoid error messages *etc.*

A3.2 Note on importing to Excel

If importing from a file with a .csv extension, any field of a form which possibly could be mistaken as a date (*eg*, 01/01 as 1 January) will be so mistaken by many or all versions of Microsoft Excel. This can be a particular problem with the CATref and OldRef fields. However, it can be remedied by giving the file a .txt extension instead of .csv, opening it in Excel and selecting the following options (which may vary from version to version) as they appear:

data type delimited;
start import at row 1 or 2 (as desired);
data has headers;
comma as delimiter (deselect any other delimiter options);
double quote as text qualifier;
scroll right, highlight columns with CATref and OldRef in first row and select text data format;
deselect trailing minus for negative numbers (in Advanced Settings, irrelevant if no GL, Easting or Northing is below zero).

A3.3 Flat-file metadata

The first row comprises column names, every remaining row represents a single context. XBore fields map to the exported data thus:

<i>XBore</i>	<i>Exported</i>	<i>Note</i>
(None)	ProjName	Project information, input during export

SITE	SiteCode	Included if multisite option chosen
JOB	Job	Distinguishes separate fieldwork campaigns <i>etc</i>
CATREF	CATref	Unique position name
OLDREF	OldRef	Alternative position name, if any, may not be unique (<i>eg</i> , if separate SIs have a BH1)
NGRE or site grid EASTING	Easting	National or site grid E, in metres
NGRN or site grid NORTHING	Northing	National or site grid N, in metres
GL	GL	Ground level, in metres above OD or site datum
MAXDEP	HoleDepth	Maximum depth logged archaeologically, may be less than maximum depth augered
ST	HoleTypeID	Two character abbreviation, expanded in next field
(Modified) ST	HoleType	Purpose (archaeological or engineering) and type of position (excavation, shell-and-auger, window, windowless, flight auger, hand auger or pile arisings)
CON	Context	Unique (for given SITE) context identifier, new number usually given with each change in CORETYPE (usually ignoring standard penetration tests), no decimals or alphabetic suffixes permitted
TOP	Top	Depth in metres below GL of context top
BOT	Bot	Depth in metres below GL of context base (if recorded)
TOP2	Top2	Secondary depth (<i>eg</i> , if surface stepped or sloping) in metres below GL of context top
BOT2	Bot2	Secondary depth (as above) of context base
DESCRIPT	Descript	Context description, expanded automatically from abbreviated input field DESC
Inclusions + OTHER	Inclusions	Compiled automatically from individual inclusion code fields plus free-text OTHER
COMMENTS	Interpret	Context interpretation <i>etc</i> , expanded automatically from abbreviated input field COMMENT
PXINTERP	PXinterp	Post-excavation interpretation if significantly different from that in COMMENTS
SPOTDATE	Spotdate	Dating evidence
CHARTCOL	ClassID	One or two character code indicating interpretative colour used by XBore in automatically drafted transects, matrices and plans
(Modified) CHARTCOL	Class	Usual general meaning of above code, may not apply to all sites

(Optionally modified) PHASE	Phase	Stored as numeric with one decimal point but integer part may be alphabetized in exported data
GRP	Group	General interpretative group, taking the number of one of its component contexts
SET	Set	Interpretative subgroup (if assigned), taking the number of one of its component contexts
RIGTYPE	RigType	General type of equipment employed, ignoring tools <i>etc</i> for starter pits unless abandoned without augering
CORETYPE	SampType	Type of sample (Bulk, Dug, U100, W100 <i>etc</i>)
DATAUG	DatAug	Date of start of augering (per sheet of 10 contexts, new sheet usually begun at each new position)
DATREC	DatRec	Date of start of recording (as above)
RECBY	RecBy	Initials of recorder(s)

A3.4 *MoLA format metadata*

The first rows of each data file comprises column names, each other row represents a single context. XBore fields map to the exported data thus:

<i>XBore</i>	<i>MoLA location file (*LOC.csv)</i>
CATREF	Bore
(Blank)	Range
(User input)	Township
(Blank)	Section
("Data from Cant. Arch. Trust")	Legal
(Blank)	Longitude
(Blank)	Latitude
NGRE	Easting
NGRN	Northing
GL	Elevation
MAXDEP	TD
("14")	Symbol
("0")	Color
(Blank)	GEIcon
(Modified) ST	Comments
("TRUE")	Enabled
(Blank)	CollarOffset
(Blank)	Meridian
(Blank)	API
 <i>XBore</i>	 <i>MoLA stratigraphy file (*STR.csv)</i>
CATREF	Bore

TOP	Depth1
BOT	Depth2
COMMENTS+PXINTERP	Stratigraphy
(Modified) CHARTCOL	Class (non-MoLA field, added by CAT)
(Optionally modified) PHASE	Phase (non-MoLA field, added by CAT)
GRP	Group (non-MoLA field, added by CAT)
CON	Context (non-MoLA field, added by CAT)

<i>XBore</i>	<i>MoLA lithology file (*LIT.csv)</i>
CATREF	Bore
TOP	Depth1
BOT	Depth2
DESCRIPT	Lithology
Inclusions + OTHER	Comment

A3.5 Flat-file format data

This image shows a large, dense grid of data points, likely representing a flat-file format. The data is organized into a regular grid pattern, with each cell containing a small amount of text or numerical information. The overall appearance is that of a high-resolution data visualization or a detailed table of values.

A3.6 MoLA format location file data

This image shows a small, dense grid of data points, likely representing MoLA format location file data. The data is organized into a regular grid pattern, with each cell containing a small amount of text or numerical information. The overall appearance is that of a high-resolution data visualization or a detailed table of values.

A3.7 MoLA format stratigraphy file data

This image shows a small, dense grid of data points, likely representing MoLA format stratigraphy file data. The data is organized into a regular grid pattern, with each cell containing a small amount of text or numerical information. The overall appearance is that of a high-resolution data visualization or a detailed table of values.

A3.8 MoLA format lithology file data

This image shows a small, dense grid of data points, likely representing MoLA format lithology file data. The data is organized into a regular grid pattern, with each cell containing a small amount of text or numerical information. The overall appearance is that of a high-resolution data visualization or a detailed table of values.

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OASIS ID: canterbu3-337662

Project details

Project name	Gilpins Bell, Fore Street, Enfield
Short description of the project	Watching brief on geotechnical site investigation
Project dates	Start: 13-11-2018 End: 15-11-2018
Previous/future work	Yes / Yes
Any associated project reference codes	GBL18 - Museum accession ID
Any associated project reference codes	WB FSE 18 - Contracting Unit No.
Any associated project reference codes	18/00760/FUL - Planning Application No.
Type of project	Recording project
Site status	Local Authority Designated Archaeological Area
Current Land use	Industry and Commerce 3 - Retailing
Monument type	PALAEOCHANNEL Upper Palaeolithic
Monument type	BLACKSMITHS WORKSHOP Modern
Significant Finds	NONE None
Investigation type	""Watching Brief""
Prompt	Planning condition

Project location

Country	England
Site location	GREATER LONDON ENFIELD EDMONTON Gilpins Bell, Fore Street
Postcode	N18 2SS
Study area	1986 Square metres
Site coordinates	TQ 534037 191930 50.951154300267 0.184212627729 50 57 04 N 000 11 03 E Polygon
Site coordinates	TQ 534087 191922 50.951145776367 0.184283426976 50 57 04 N 000 11 03 E Polygon
Site coordinates	

	TQ 534069 191881 50.951109410962 0.184256090056 50 57 03 N 000 11 03 E Polygon
Site coordinates	TQ 534023 191898 50.951125916198 0.184191361032 50 57 04 N 000 11 03 E Polygon
Height OD / Depth	Min: 11.36m Max: 12.15m

Project creators

Name of Organisation	Canterbury Archaeological Trust
Project brief originator	Contractor (design and execute)
Project design originator	Canterbury Archaeological Trust
Project director/manager	James Holman
Project supervisor	Simon Pratt
Type of sponsor/funding body	Geoenvironmental consultant to developer
Type of sponsor/funding body	Developer
Name of sponsor/funding body	Sevenoaks Environmental Consultancy

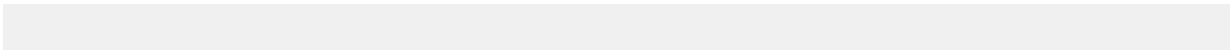
Project archives

Physical Archive Exists?	No
Digital Archive recipient	LAARC
Digital Archive ID	GBL18
Digital Contents	"Stratigraphic"
Digital Media available	"Database", "GIS", "Images raster / digital photography", "Images vector", "Text"
Digital Archive notes	Report includes formatted logs, metadata and digitaly copiable data
Paper Archive recipient	Canterbury Archaeological Trust
Paper Archive ID	GBL18
Paper Contents	"Stratigraphic"
Paper Media available	"Context sheet"
Paper Archive notes	Borehole log sheets, up to 10 contexts per sheet

Project bibliography 1

Publication type	Grey literature (unpublished document/manuscript)
Title	50-56 Fore Street, Edmonton, Enfield, London N18 2SS: archaeological watching brief on geotechnical site investigation
Author(s)/Editor(s)	Pratt, S.
Other bibliographic details	CAT Client Report 2018/196
Date	2019
Issuer or publisher	Canterbury Archaeological Trust
Place of issue or publication	Canterbury
Description	A4 and A3 pdf, hardcopy supplied as A4 and folded A3

Entered by Simon Pratt (simon.pratt@canterburytrust.co.uk)
Entered on 29 December 2018



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Appendix 5: proposed Written Scheme of Investigation for Stage 1 evaluation (part 1, site-specific)

Contents

- A5.1 General
- A5.2 Archaeology and history
- A5.3 Construction and contamination
- A5.4 Timetable, personnel, monitoring and access
- A5.5 Trench constraints, objectives and positioning
- A5.6 Target depths
- A5.7 Excavation procedures and safety
- A5.8 Recording and post-excavation work
- A5.9 Statements

A5.1 General

A5.1.1 Preparations are underway for the redevelopment of the Gilpin's Bell public house, 50–56 Fore Street, Edmonton, Enfield N18 2SS (NGR 534050 191910). Enfield Council's Planning Committee report for a Planning Application (18/00760/FUL) made in early 2018 recommended, *inter alia*, that a Written Scheme of Investigation (WSI) for archaeological evaluation trenching be submitted and agreed prior to demolition. The site has since changed hands and a new planning application is being prepared for an entirely different design.

A5.1.2 Prior to the recent acquisition, and partly to inform the potential buyer's financial assessment, a 'due-diligence' geotechnical and geoenvironmental site investigation (SI) was conducted. With the approval of GLAAS and to better inform the evaluation design and safety provisions, an archaeological watching brief (WB) was maintained upon it. The results of that work, along with a brief summary of a previous desk-based assessment (DBA; Bradley Lovekin 2016) and heritage statement (Richards 2016), are presented in the document to which these site-specific elements for a WSI for evaluation are appended and are also outlined below. The 2016 DBA included, *inter alia*, the results of a site-centred 500m radius search of the GLHER. The current draft of standard WSI provisions for such work by CAT within Greater London are also appended (App 6) and should be read in conjunction with this appendix. In cases of conflict, this appendix takes precedence. Throughout, both texts have been prepared on the assumption that the archaeological work described will be undertaken by CAT or their subcontractors, though this is yet to be confirmed.

A5.1.3 In accordance with GLAAS and Museum of London requirements, a unique archive code (GBL18) was acquired from LAARC for the WB on SI. Before the start of evaluation fieldwork, they will be asked whether that should be adopted or adapted for the evaluation work, with or without charge, or an entirely new code purchased.

A5.2 Archaeology and history

A5.2.1 The site is within the council's designated Archaeological Priority Area 20 (Upper Edmonton), within which there may be surviving evidence for the early

village of Edmonton. The DBA concluded that, in the absence of any known archaeological remains on or near the site, its principal archaeological potential relates to its nineteenth-century development, but that there is also a low to moderate possibility of medieval to post-medieval remains and a low potential for earlier material. This is also in line with the general findings of the Lea Valley Mapping Project (Corcoran *et al* 2011).

A5.2.2 The WB on SI found that London Clay (at about 6.8–8.5m OD) was overlain by late Pleistocene fluvial gravels (up to about 2.0–3.9m OD) and that these were capped by probably loessic brickearths at least partially overlain by early Holocene head material. A possibly man-made gravel surface (G10004) was identified near the centre of the site and what was probably a cultivated loam (G10150) near the south-eastern corner. Neither these nor a thick, overlying band of mixed but undiagnostic soils (G10044) could be dated and so, for now, must be regarded as of potential archaeological significance even though no pre-modern pottery *etc* was seen anywhere on the site. A scorched brick floor near the centre of the site probably represented its industrial archaeology, but it does not appear that such remains are likely to be either well or extensively preserved.

A5.3 *Construction and contamination*

A5.3.1 The new design will concentrate the new build in the western part of the site, but the type and design of its foundations, and buried services (with the possible inclusion of a soakaway) are yet to be decided upon. It is therefore recommended that the entire site be included in the area for sample evaluation trenching unless evidence is found for modern cellars *etc* beforehand.

A5.3.2 Preliminary results from the SI suggest that, though there is a low asbestos fibre count in recent deposits in the south-eastern corner, the investigated area (roughly speaking, the eastern 40% of the site) is otherwise clear of contaminants in the levels to which evaluation trenching would be taken.

A5.4 *Timetable, personnel, monitoring and access*

A5.4.1 A timetable for the overall development programme and, thus, for the evaluation is not yet available but will be notified to the LPA and GLAAS as soon as it is known. The timing of the evaluation is also subject to approval of this WSI and the availability of a suitable mechanical excavator and personnel (all of whom will be suitably experienced and qualified). It is intended that evaluation take place following demolition to, but not beyond, the top of slab level. Depending on what is encountered, evaluation fieldwork is currently expected to take no more than a week and require only a 2–3 person team plus machine operator and, perhaps, a geoenvironmental engineer and/or UXO engineer.

A5.4.2 Jon Rady MCifA will act as overall Project Manager for CAT. The LPA and GLAAS may monitor works at any stage. If any significant archaeology is identified, the LPA and GLAAS will be notified at the earliest opportunity and, if appropriate, work will be halted until they have had the opportunity to inspect the site.

A5.4.3 Existing (*ie*, pre-demolition) direct public access to the main building is from the corner of Fore Street and Claremont Street, which bound it to west and north. The adjoining car park is entered from Claremont Street and has pedestrian access to the main building via a beer garden and direct to minor buildings, including a former shop, now used as storerooms. Clive Street forms the eastern and part of the site's southern boundary, the remainder of the latter being private commercial and residential premises and their rear gardens.

A5.4.4 General ground level in the area is about 12.5m OD, with level access at all points save a low step within the storerooms along the southern margin. These storerooms are separated by normal width doorways although the most easterly one has a large garage-type entrance and the beer-store to its north-west a wide single-leaf door. Access to the main building from the beer garden is by wide, double-leaf doors although there is only a pedestrian gateway to the latter from the car park.

A5.4.5 It is expected that, at the time of evaluation, the site will be fully enclosed by standing buildings, walls and hoarding or Heras-type fencing, with appropriate signage, accessed via the existing car park entrance off Claremont Road and that the whole area will be at current ground/floor levels. If necessary, a small amount of clean rubble (not from potentially asbestos-contaminated Tr.3) may be used to create ramps to overcome remaining steps.

A5.5 Trench constraints, objectives and positioning

A5.5.1 It is assumed that all on-site services will be cut-off at the time of evaluation, but this is to be confirmed prior to setting-out. Adequate stand-offs are to be left against public street frontages, party walls and boreholes with monitoring or sampling equipment installed.

A5.5.2 Subject to any other on-site constraints at the time, and to the findings of any putative further SI being undertaken beforehand, it is proposed that four trenches (Fig 16, Tr.1–Tr.4) be cut following demolition but preceding removal of the ground slab *etc* or any 'grubbing-out'. Tr.3 should measure 1.6m x 20m, the remainder 1.6m x 15m. Together these would represent 104m², about 5.24% of the site's 1986m².

A5.5.3 The evaluation is intended to augment the 2016 DBA and the report upon the 2018 watching brief and to provide sufficient information for all parties concerned, particularly the LPA, to devise appropriate mitigation strategies. This WSI takes account of the methods and approaches that are considered most applicable for an archaeological evaluation on sites in Greater London. The methodology is defined in accordance with *Guidelines for Archaeological Projects in Greater London* (GLAAS 2015) where appropriate and research priorities established in *A research framework for London Archaeology* (MoL 2002). In addition to the more specific objectives described in following paragraphs, the site is considered to have the potential to contribute to the following general objectives from the latter document:

- make comprehensive use of predictive digital terrain models based on borehole and other geophysical data, and opportunistically examine known sites and exposures (Framework Objective P1);

- develop an understanding of the natural landscape prior to any development (Framework objective TL1) and of its development over time (Framework Objective TD2);
- evidence for prehistoric, Roman, Anglo-Saxon or medieval activity within the site, and if present, analyse how such activity relates to settlement or more transient occupation of the area and the relation between London and its hinterland (Framework Objective TD2);
- if later prehistoric remains are found, add to the distribution and characterisation of occupation in the Greater London area in that period (Framework Objectives P4–P6);
- if remains of Roman date are encountered, add to the data relating to *Londinium* and its hinterland (Framework Objectives R1–R2);
- if Anglo-Saxon activity is identified, contribute towards better dating (Framework Objective S1) and characterisation of rural settlement (Framework Objective S3);
- medieval activity is likely to have been restricted to farming but if evidence for settlement or other exploitation is found, contribute towards our understanding of rural organisation close to the capital (Framework Objectives M5–M6);
- identify any surviving evidence of post-medieval structures, features or deposits (Framework Objectives L2 and L7);
- identify the industries that especially represented London (the conurbation, different neighbourhoods or areas and the region as a whole) and, through the ability of the documentary record to trace back to individuals, consider the role of those industries in developing the character of Londoners in different areas (Framework Objective L9).

A5.5.4 Tr.1 will target the site's north-western quadrant and the Claremont Street frontage, Tr.2 the north-eastern quadrant, the Clive Avenue frontage and the potential smithy *etc* thought to be represented by G10014 and G10043, Tr.3 the south-eastern quadrant, southern margin, possible metalling G10004 and possible early ploughsoil G10150, Tr.4 the south-western quadrant and Fore Street frontage.

A5.5.5 In addition, all the trenches will seek to identify the extent, nature and degree of preservation of any industrial archaeology (Phase D1), though this will probably be concentrated in the area of Tr.2 (*eg*, G10014 and G10043), the archaeological nature or otherwise of the Phase C1 (G10004 and G 10150) and C2 (G10044) deposits, and the nature, depth and extent of such natural subsoil(s) as may be reached.

A5.5.6 If remediation or development groundworks involve a significant exposure of Pleistocene or early Holocene deposits, the opportunity may be taken (in consultation with GLAAS and/or HE's Regional Science Adviser) for them to be inspected and, perhaps, sampled by a geoarchaeological, palaeoenvironmental, Palaeolithic and/or Mesolithic specialist(s) as appropriate. Otherwise however, as no such deposits likely to contain significant palaeoenvironmental, ecofactual or artefactual evidence have been identified, it is recommended that geoarchaeological work be limited to deposit-modelling data from current and putative future boreholes *etc* and providing that data in an acceptable format to the Greater London borehole database maintained by MoLA. At the evaluation stage, therefore, geoarchaeological matters need be addressed only by identifying the location, depth, lithology and any variations in the

natural subsoils (where reached) and incorporating these, with appropriate comment, with the deposit model already produced for the WB on SI.

A5.6 *Target depths*

A5.6.1 Assuming no extensive industrial or other archaeology meriting at least temporary preservation *in situ* is encountered at a shallower level, the maximum depth of Tr.2 is expected to be about 1.0m BGL, that of Tr.3 0.9m BGL at its north-western end, potentially dropping to 1.6m at its south-eastern, though this may only need to be reached in a smaller sondage.

A5.6.2 There are no known cellars beneath the western part of the site, so it is expected that Tr.1 and Tr.4 will probably not be required to reach more than 1.2m in depth (1.0m being a more likely depth). However, if there is a deeper infilled cellar or other modern disturbance present, it will be attempted to establish its depth and nature by machining a sondage, but this will not be entered by any personnel and will be infilled before the end of the working day.

A5.7 *Excavation procedures and safety*

A5.7.1 Following scanning for buried services and marking-out, existing hard surfaces *etc* will be broken out by machine-mounted breaker over the footprint of each trench. In the case of Tr.3, an additional 1m width on either side of its south-western half will also be broken out in case it must be taken below 1.2m depth. Due to the (low) asbestos fibre count from WS4, dust-suppression and such other measures as may be required will be adopted for this work at Tr.3 and, if so advised by SEC, at the other trenches.

A5.7.2 The resultant rubble and other Phase D2 material will be machined out from the broken areas (including the wider portion at Tr.3, under archaeological supervision, using a toothless bucket mounted on the back-actor arm of a tracked or wheeled mechanical excavator and, as far as feasible, unidirectionally and (once the rubble is removed) in spits of no more than 200mm. It is not expected to be necessary but, if the machine has to re-enter the trench at this or any other stage, care will be taken to ensure that it does not damage underlying remains.

A5.7.3 If Phase D1 industrial or other significant structures are exposed, they will be swiftly cleaned and recorded and a decision made (if necessary in consultation with GLAAS) whether they should be left *in situ*, at least for the time being. If they should be so left, adequate provision will be made for their protection during further excavation and backfilling.

A5.7.4 Where D1 deposits can be removed (or are not encountered), machining will continue downwards, as above, until significant archaeology, natural subsoil or a safe excavation limit is encountered. Particular attention will be paid to the uppermost surfaces of the Phase B2, or B3 and of the C1 and C2 deposits and the more specific of the objectives mentioned above (5.5.3–5.5.5).

A5.7.5 If it is necessary to excavate below a safe operating depth in the south-eastern half of Tr.3 to reach significant archaeology or natural subsoil, and subject to no

industrial or other archaeology or other obstructions impeding the work, the sides will be similarly machined down to about 0.5m BGL before the trench is taken down any further. Elsewhere (and, if deemed preferable here too) individual sondages may be cut below a safe operating depth to reach significant archaeology or natural subsoil, but will not be entered by any personnel and will be infilled before the end of the working day.

The machine will not be used reach natural deposits or other early deposits to the detriment of any significant overlying archaeology.

A5.7.6 Appropriate rapid cleaning, recording and sampling of the various deposits encountered will be undertaken following the completion of machining and, if necessary, at intermediate stages.

A5.7.7 In the event of well-preserved and extensive Phase D1 industrial archaeological remains being encountered, the Client, the LPA and GLAAS will be notified at the earliest opportunity. They will be similarly notified if any earlier deposits prove to be archaeologically significant.

A5.7.8 Subject to approval by the SEC (particularly with regard to Tr.3), each trench will be backfilled with the spoil generated from it and reinstated by covering with the broken-out surface material.

A5.7.9 Unless directed otherwise by the LPA or GLAAS, no artefacts or ecofacts other than oyster shell from post-Roman deposits, clearly modern material (excluding those pertinent to industrial archaeology) or undatable fragments of tiles, bricks or clay tobacco-pipe stems will be discarded without the prior approval of the LPA or GLAAS. Such finds will, in any case, be noted in the site records and, in some cases, it may be appropriate to collect and then weigh, measure and/or count them before discard. All other finds seen will be collected unless it is unsafe to do so (*eg*, from a deep sondage) and retained.

A5.7.10 On the basis of the WB on SI, it is not expected that deposits particularly rich in palaeoenvironmental remains will be found. However, one small disturbed sample of charcoal-flecked soil has already been recovered from a possible cultivation horizon and a small monolith sample (for micromorphological analysis) from what is thought to be loessic brickearth. Tr.3 is designed to target the former soil and, unless it can be shown to be of post-medieval or modern date, a larger bulk sample (ideally 10–20 litres) will be taken for wet sieving, general biological assessment and, potentially, further analysis and radiocarbon dating. Other deposits of apparent palaeoenvironmental potential may be similarly sampled. All samples will be rapidly assessed by visual inspection by an appropriate specialist. However, unless there is some over-riding reason, agreed with GLAAS, to the contrary, samples will not be processed until the overall project assemblage has been formally assessed for further work in consultation with HE's Regional Science Advisor.

A5.7.11 As well as standard PPE (hard helmet, hi-visibility clothing and safety boots), any PPE and other safety measures deemed necessary by SEC will also be employed as appropriate.

A5.7.12 All relevant health and safety, professional and statutory requirements will be met (A6.12).

A5.8 *Recording and post-excavation work*

A5.8.1 Field recording will follow the standard provisions for such work (A6.7), as will the treatment of any finds or samples (A6.8). Context numbers will be assigned uniserially, beginning with 0 (reserved for any completely unstratified finds which cannot be assigned even to a given trench). As the WB on SI began context numbering at 10000, it is improbable that there will be any overlap but, for CAT purposes at least, the site code will include 'EV' as a prefix or suffix.

A5.8.2 Following machine clearance, all faces of the trench that require examination or recording will be cleaned using appropriate hand tools. All investigation of archaeological levels will be by hand, with cleaning, examination and recording both in plan and section. In this archaeological evaluation the objective is to define remains rather than totally remove them. However, where Phase C2 deposits cannot be shown to be pre-medieval ploughsoils, or post-medieval or earlier levelling, or otherwise archaeologically significant, they can be fully removed. Within significant levels, partial excavation, half-sectioning, the recovery of dating evidence, sampling and the cleaning and recording of structures will be preferable to full excavation and (barring the above exception) total removal should first be agreed with GLAAS.

A5.8.3 A full digital photographic record of the investigations will be maintained. This will include photographs illustrating in both detail and general context the principal features, artefacts and ecofacts discovered. It will also include as close to orthogonal as feasible views of each side and base of each trench following final cleaning, following any further excavation (*eg*, machined sondages), and at such intermediate stages as are appropriate. Such photographs will include a north-point, scale and identification board. The photographic record will also include 'working shots' to illustrate more generally the progress of the archaeological investigation. It will be considered reasonable, from time to time, for the LPA to request selected copies of these photographs in order to raise the profile of its archaeological heritage at local level. Non-digital photography or video recording may be appropriate in some circumstances but is not currently envisaged. A full catalogue of the site photography will be included with the site archive.

A5.8.3 A technical 'grey' report on the evaluation, including a completed OASIS form and all appropriate illustrations, will be drafted and passed to GLAAS for comment as soon as possible, and in no circumstances more than one month, after the completion of the evaluation fieldwork. It will then be finalized in accordance with their comments (perhaps in more than one iteration) and passed to the Client for formal submission to the LPA along with georeferenced shape or dwg/dxf files of the evaluation trench locations and plans. The report will contain sufficient information to allow an informed decision to be made on the need for further study, fieldwork and/or mitigatory measures. It will include a short non-technical summary suitable for inclusion in the annual fieldwork round-up of the *London Archaeologist* as well as the other elements specified in *Guidelines for Archaeological Projects in Greater London* (GLAAS 2015)

A5.8.4 Unless no further archaeological or geoarchaeological fieldwork (including watching briefs) or scientific analysis of finds or samples is deemed necessary, any further formal publication of the evaluation will be included with that on the overall archaeological project.

A5.9 Statements

A5.9.1 The above site-specific portion of the text was prepared by CAT and last revised by Simon Pratt on 18 January 2019.

A5.9.2 The generic evaluation WSI appended below has been prepared by CAT and last revised by Simon Pratt on 18 January 2019.

Appendix 6: proposed Written Scheme of Investigation for Stage 1 evaluation (part 2, standard provisions)

Prepared by: Canterbury Archaeological Trust, 92A Broad Street, Canterbury CT1 2LU.
Revision: Simon Pratt, 18 January 2018.

Contents

- A6.1 Introduction
- A6.2 Scope
- A6.3 Generic evaluation objectives
- A6.4 Fieldwork policy
- A6.5 Fieldwork procedures
- A6.6 Preservation *in situ*, human remains, treasure and geoarchaeology
- A6.7 Recording
- A6.8 Finds and samples
- A6.9 Archiving
- A6.10 Reporting, publication and publicity
- A6.11 Access and monitoring
- A6.12 Health, safety and insurance
- A6.13 Contingencies
- References

A6.1 Introduction

A6.1.1 This appendix contains standard provisions for archaeological evaluation trenching conducted by Canterbury Archaeological Trust Ltd (CAT) within Greater London. It should be read in conjunction with the site-specific matters also appended to (or forming) the main document. In case of conflict, the site-specific provisions, objectives *etc* take precedence.

A6.1.2 Together, this and the site-specific provisions, including any accompanying illustrations, comprise a WSI for such an evaluation, providing a programme and methodology for undertaking the works, setting out the objectives, the standards to be attained and the procedures for analysis and reporting through to publication and/or other dissemination.

A6.1.3 Both texts have been produced taking into account requirements outlined in Historic England's *Guidelines for Archaeological Projects in Greater London* (GLAAS 2015), research priorities established in the Museum of London's *A research framework for London Archaeology* (MoL 2002), and the relevant *Guidelines, Standards and Code of Practice* laid down by the Chartered Institute for Archaeologists (CifA 2014), especially those for archaeological evaluation). Evaluation procedures will also take account of local and regional planning authority archaeological guidance and other Historic England *Guidelines* as appropriate. The evaluation will adhere to all the above guidance and standards and to others listed in the relevant sections below.

A6.1.4 The revised *National Planning Policy Framework* (NPPF 2018) sets out a series of core principles designed to underpin decision-taking within the planning system. It states (para 189) that 'where a site on which development is proposed includes, or has the potential to include, heritage assets with archaeological interest, local planning authorities should require developers to submit an appropriate desk-based assessment and, where necessary, [the results of] a field evaluation'.

A6.1.5 The July 2018 draft of the *London Plan* (LP 2018), echoing earlier iterations, states (para 7.1.11) that 'Developments will be expected to avoid or minimize harm to significant archaeological assets. In some cases, remains can be incorporated into and/or interpreted in new development. The physical assets should, where possible, be made available to the public on-site and opportunities taken to actively present the site's archaeology. Where the archaeological asset cannot be preserved or managed on-site, appropriate provision must be made for the investigation, understanding, recording, dissemination and archiving of that asset, and must be undertaken by suitably-qualified individuals or organizations'.

A6.1.6 In Southwark and the City of London, for 'GLAAS' read 'the archaeological adviser to the LPA' where appropriate. Where this document is adopted but CAT or its subcontractor does not undertake the work described, for 'CAT' read 'the archaeological contractor' where appropriate.

A6.2 *Scope*

A6.2.1 A written scheme of investigation for all archaeological recording will always include the stated research objectives for the proposed work as defined in discussion with the archaeological adviser for the LPA (in the case of most London boroughs, GLAAS) or be developed from the brief set by that adviser after full consultation of the GLHER (1 Waterhouse Square, 138–142 Holborn Place, London EC1N 2ST) and, if appropriate, other local resources. Details will be specified for all expected methodologies, levels of expertise and resources estimated for fieldwork, analysis and publication/dissemination. All these matters are addressed in the accompanying site-specific documentation, along with the site location, geological, archaeological, historical and planning background and any relevant impact assessment.

A6.2.2 Following the fieldwork, an evaluation report will be produced, which will also contain or be accompanied by an impact assessment (or revision thereof) where possible, based upon remediation, demolition, construction, buried service (including soakaway) and any other groundworks proposals as then provided to CAT. Where up-to-date versions of these are not provided, or significant changes are made to the proposals, the LPA may require a separate impact assessment or assessments.

A6.2.3 As with all evaluations carried out in support of a Planning Application, the applicant should be aware that this is only an initial stage of investigation, to enable an informed decision on the nature of the archaeological resource and the likely impact of

development on it. The evaluation will initially seek to define and characterize any archaeological remains on site through sample excavation, possibly augmented by a watching brief on other pre-commencement works. Depending upon the results, and the expected impact of the proposed development, the LPA may require further archaeological fieldwork, detailed analysis of existing finds, samples or data, possibly followed by formal publication in addition to the standard 'grey' report(s), and/or redesign of one or more elements of the proposals to mitigate their archaeological impact.

A6.2.4 The material, documentary and digital archive from the work will be lodged with a suitable recipient, a copy of the digital archive retained by CAT.

A6.3 Generic evaluation objectives

A6.3.1 The overall purpose of an archaeological field evaluation as defined by Cifa (2014) is to 'determine, as far as is reasonably possible, the nature of the archaeological resource within a specified area using appropriate methods and practices. These will satisfy the stated aims of the project and comply with the code of conduct and other relevant regulations of Cifa'.

A6.3.2 Evaluation is further explained by Cifa as 'a limited programme of non-intrusive and/or intrusive fieldwork which determines the presence or absence of archaeological features, structures, deposits, artefacts or ecofacts within a specified area or site on land, inter-tidal zone or underwater. If such archaeological remains are present field evaluation defines their character, extent, quality and preservation, and enables an assessment of their significance in a local, regional, national or international context as appropriate'.

A6.3.3 The evaluation report will augment any previous desk-based assessment, heritage statement, impact assessment or watching brief report and should provide sufficient information for all parties concerned, particularly the LPA, to devise appropriate mitigation strategies. As noted above, evaluation may therefore result in the need for an agreed mitigation strategy and/or the implementation of further archaeological works, potentially with a further WSI(s) required to fulfil planning conditions.

A6.3.4 Current site-specific research and non-research objectives are addressed in the accompanying text, although these may vary as the project progresses and more data are gathered or ground-working designs altered.

A6.4 Fieldwork policy

A6.4.1 The archaeological evaluation methodology will conform to best professional practice as summarized in *Standards and guidance for archaeological field evaluation* (Cifa 2014) and HE's *Guidelines for Archaeological Projects in Greater London* (GLAAS 2015, esp pt 3).

A6.4.2 The LPA and GLAAS will be informed (usually by email) at least one week in advance of commencement of evaluation fieldwork. All members of the archaeological team (including external specialists) will have read and understood the WSI and relevant guidance papers on standards and practices before fieldwork begins.

A6.4.3 Prior to commencement of fieldwork, a layout of the evaluation trenches will be provided to GLAAS, this layout being designed to address the initial objectives outlined in the accompanying site-specific text. In some cases, a secondary phase of trenching may be implemented if deemed necessary by GLAAS. The number, size and location of such additional trenches will be decided in consultation with GLAAS.

A6.4.4 At the evaluation stage, it is important that a sufficient sample is studied to allow the resolution, as far as is feasible, of the principal objectives given outlined in the site-specific WSI. However, the investigation will not be at the expense of any structures, features or finds which might reasonably be considered to merit preservation *in situ* (nor be in any way prejudicial to the protection of such remains) and where the mitigation strategy, potentially providing for their preservation, is yet to be finalized.

A6.4.5 If the machine must re-enter a trench at any time, care will be taken to ensure that it does not damage underlying remains. All machine work must be done under archaeological supervision and should cease immediately when archaeological evidence is revealed or suspected. This also applies to enabling works for the evaluation, such as 'grubbing out' or pits for temporary shoring or hoarding *etc*, any of which will be described in the site-specific documentation. The machine will not be used to cut arbitrary sondages or trenches down to natural deposits without regard to archaeological stratification or structures.

A6.5 *Fieldwork procedures*

A6.5.1 Following scanning for buried services (and, on some sites, UXO), the trench footprints will be marked out and such hard surfaces or other obstructions as require removal broken-out, usually by a machine-mounted breaker although relatively soft surfaces such as tarmac may require only a hand-held breaker or a machine-mounted toothed bucket, possibly after defining the outline with a disc-cutter (or turf-cutter, fork or spade for grassed surfaces). On some sites a 'permit to dig' or 'permit to work' may be required and, if so, must first be obtained.

A6.5.2 Subject to site-specific provisions, all undifferentiated topsoil, modern buried ploughsoils or other overburden of recent/modern origin will be removed down to the first significant archaeological horizon (if present), except where a focused soil-sampling strategy is in operation to record and collect data from reworked soil contexts above recognizable stratified archaeological contexts. If a mechanical excavator is to be employed in the removal of topsoil or other overburden, this should normally remove spits of no more than 200mm depth, moving unidirectionally along the length of the trench and, usually, using a toothless bucket of a width as close to the intended width of the trench as is feasible. A narrower, preferably toothless, bucket may be used to dig out

rubble or very hard-packed modern deposits, sondages, service trenches *etc* or to continue the trench where an obstruction constricts its width. In very constricted spaces, subject to safety considerations, manual excavation of overburden may be required.

A6.5.3 Successive spits will be similarly removed until the first archaeological horizon, natural subsoil, irremovable modern obstruction or a safe working depth is reached, whichever is the shallower. In the first two cases that level will be cleaned in plan using a wide blade, ditching bucket or similar, with no teeth. In the third case, a decision will be made, taking into-account any site-specific provisions and in consultation with the LPA adviser where appropriate, whether to break the obstruction out or to deviate, enlarge, relocate or cease excavating the trench. In the fourth case, a decision will be made, with the same caveats, whether to widen and bench or batter, shutter, or cease excavating the trench or, after any cleaning, recording and sampling as may be appropriate, to continue deepening it without further entry by any personnel and with any other safety measures as may be necessary.

A6.5.4 Following machine clearance, all faces of the trench that require examination or recording will be cleaned using appropriate hand tools. All investigation of archaeological levels will be by hand, with cleaning, examination and recording both in plan and section. In archaeological evaluation the objective is to define remains rather than totally remove them. Full excavation will therefore be confined to those deposits which have been agreed with GLAAS through a project design, site meeting or other communication. Within significant levels, partial excavation, half-sectioning, the recovery of dating evidence, sampling and the cleaning and recording of structures will be preferable to full excavation.

A6.5.5 Some limited manual excavation (sufficient to establish the date, character and, on occasion, thickness of selected archaeological deposits) may be undertaken but only within a safe working depth. If bulk deposits of little or no archaeological or palaeoenvironmental require removal; this may be done mechanically if so approved in consultation with GLAAS or in accordance with previously agreed site-specific WSI provisions.

A6.5.6 Subject to site-specific provisions, if Holocene head deposits are thought to be present in any trench, and if no later archaeology meriting preservation *in situ* or other obstructions intervene, at least one deeper sondage will normally be machined into or through the head in each trench. The position of the sondages will be determined by an attending geoarchaeologist if present. In any case, if unusually significant geoarchaeological, Mesolithic or Palaeolithic deposits are identified, HE's Regional Science Adviser will be consulted and, in consultation with GLAAS and the project specialist(s) determine if additional work is required.

A6.5.7 In addition to the the above, some assessment of other naturally deposited levels may be necessary. Pleistocene and Holocene horizons may contain artefactual, faunal and environmental remains of Palaeolithic or Mesolithic date whilst the deposits themselves could provide significant information concerning the climate and

environment under which they were deposited and within which humans were locally active. After any later archaeology has been dealt with, and subject to any requirements for the *in situ* preservation of such, deeper sondages may be cut, usually by machine, into deposits of potential geoarchaeological interest. In particular, if no later archaeology meriting preservation *in situ* or other obstructions intervene, at least one deeper sondage will normally be machined in each trench where it is suspected that it has bottomed on Holocene head, colluvial or alluvial material. Pleistocene deposits will be recorded but not usually cut into unless so required by the site-specific WSI or to confirm that they are not of later date.

A6.5.8 In the above and some other cases, but only after appropriate cleaning, recording and sampling of the upper levels, it may be necessary to excavate trenches or sondages deeper than a safe operating depth (typically no more than 1.2m below the trench margins). Subject to site-specific policy, either the deeper levels will be cut by machine and recorded from above and from inspection of the spoil, which will also be the source of such sampling as may be necessary, or the excavation will be made safe to enter through benching, battering or shuttering of its sides (and, where appropriate, ends) and provision of an adequate means of entrance and egress, followed by manual or mechanical excavation as appropriate.

A6.5.9 Spoil will be stockpiled as appropriate, ensuring an adequate safety margin between it and the trenches and attempting to keep any hardcore/tarmac, topsoil, other clean and contaminated soils separate. Existing trees, hedgerows, services and structures to be retained, at least for the time being, should be respected. Any live (or presumed live) services should be avoided, as should any relevant stand-offs from party walls, services, infrastructure *etc.* No trench or sondage will be entered unless it is safe to do so and, if site rules so require, a 'permit to enter' or 'permit to work' has been obtained.

A6.5.10 Usually, and only after any necessary protective measures have been taken, each trench will be backfilled with the spoil generated from it unless otherwise directed by the Client, their authorized representative, the LPA or GLAAS. The fill(s) will usually be compacted by pressing down with the jib of the mechanical excavator and by tracking over. CAT will not usually undertake reinstatement of hard surfaces although rubble, topsoil and other soils may be backfilled and compacted in the appropriate sequence. Unless specifically agreed otherwise (*eg.* to de-turf and re-turf manually), grassed surfaces will normally be reinstated only by attempting to keep the sods and superficial topsoil to one side whilst machining and re-laying them by machine over the infilled trench.

A6.5.11 If, for any reason, it is necessary to discontinue or suspend fieldwork during the evaluation, suitable arrangements will be made for the temporary protection and/or support of exposed archaeology until a long-term preservation strategy is implemented or fieldwork in the relevant trench(es) resumed.

A6.6 *Preservation in situ, human remains, treasure and geoarchaeology*

A6.6.1 Where archaeological remains are to be preserved *in situ* a specification agreed with the LPA will be drawn up to adequately protect them from deterioration (eg, from changes in groundwater levels). Advice on the appropriate level of protection will be provided by HE's Regional Science Adviser.

A6.6.2 Any unexpected finds of human remains will be left *in situ*, covered, protected and reported to GLAAS and the Coroner or police. Expected human remains will be dealt with according to site-specific provisions. Expected or otherwise, if removal is required it can only take place under appropriate Faculty jurisdiction, Ministry of Justice license, environmental health regulations, Coroner's permission and, where appropriate, in compliance with the *Disused Burial Grounds (Amendment) Act* (1981) or other local *Act* in the case of metropolitan cemeteries. It will be necessary to ensure that adequate security is provided in cases where human remains are to be left overnight and adequate screening where they may otherwise be seen by the public.

A6.6.3 All finds deemed to fall under the terms of the *Treasure Act* (1996, revised 2001) will be recorded, removed to a safe place and reported to the local Coroner and Finds Liaison Officer, according to the procedures relating to the *Act*. Where removal cannot be effected on the same working day as the discovery, suitable security measures will be taken to protect the finds from theft.

A6.6.4 Where it is intended to cut sondages into Pleistocene (and sometimes early Holocene) deposits, and subject to site-specific provisions, suitable deposits will be bulk sampled and either dry-sieved on site (predominantly for artefacts and relatively large vertebrate remains) or wet- or dry-sieved off-site, as appropriate. Other samples may be taken for specialist analysis such as optically stimulated luminescence or radiocarbon dating, micro- or macro-palaeoenvironmental assessment, micromorphology, snails, or small vertebrate remains. Where there is a geoarchaeological, palaeoenvironmental, Palaeolithic or Mesolithic specialist in attendance, they will determine the level and nature of sampling on a case-by-case basis but, where sufficient material is available, it is expected that dry-sieved bulk samples will be a minimum of 100 litres for each sampled deposit in each trench or sondage.

A6.7 *Recording*

A6.7.1 A unique site code will be agreed with LAARC before fieldwork begins and included with the site-specific details of the WSI.

A6.7.2 A full photographic, written and drawn record of the geoarchaeological, archaeological and later deposits, features and structures will be made to accepted professional standards. Plans will detail the outline of any feature and any major deposits within them. Overhead photography capable of rectification and tracing onto these outlines will be used where appropriate. At least two fixed points within or adjoining each trench and clearly marked on each plan will be tied to the Ordnance Survey (OS)

through National Grid References (NGR), preferably by the use of Global Positioning System or other electronic survey equipment.

A6.7.3 The recording systems adopted during the investigations will be fully compatible with those systems which have been in use the longest and most extensively across London, *ie* those developed out of the Department of Urban Archaeology *Site Manual* (MoLAS 1994). No alternative recording system will be adopted without the prior agreement of GLAAS.

A6.7.4 The site archive will be so organized as to be compatible with other archaeological archives produced in the LPA area. Individual descriptions of all archaeological strata and features excavated or exposed will be entered onto prepared pro-forma recording sheets which include the same fields of entry as are found on MoLA recording sheets. Sample recording sheets, sample registers, finds recording sheets, accession catalogues, and photograph record cards will also follow the MoLA equivalents. This requirement for archival compatibility extends to the use of computerized databases.

A6.7.5 A site location plan will be prepared, indicating site north and based on the current 1:1250 OS map (reproduced with the permission of the Controller of HMSO). This will be supplemented by a suitably scaled trench location plan (at 1:100 or 1:200), which will show the location of the areas investigated in relation to the investigation area and at least two NGR points. All sections should be located on a plan with NGR points and, either on-site or during report-preparation, tied to OD. The locations of the OS bench marks used, and location and OD value of any temporary benchmark used, will also be indicated. Tying site grids to standing buildings identified on OS maps is, generally, insufficiently accurate. This data should be submitted in digital form to the GLHER along with the completed OASIS form.

A6.7.6 A record of the full extent in plan of all archaeological deposits as revealed in the investigation will be made. Single context planning should be used on deeply stratified sites where simple trench plans are inadequate. Field drawings should be on polyester-based drawing film and be at a scale of 1:10 or 1:20 unless otherwise agreed with the LPA or GLAAS. Field plans should be unequivocally related to the site or National Grid and field sections or elevations to a temporary benchmark or OD. Where a temporary benchmark is used and its OD value not known at the time, this must be clearly added to the field drawing subsequently. It is expected that the information should be digitized for eventual CAD applications and that all digitized plans, sections and elevations will be related to the NGR and OD as appropriate. The GLHER will be provided with shape files or .dxf/.dwg format files showing the site's extent and location of major features along with the completed OASIS form.

A6.7.7 Upon completion of each evaluation trench at least one long section (or representative part thereof is so agreed with GLAAS) will be drawn, including a profile of the top of natural deposits (interpolated from cut features *etc* if the trench has not

bottomed on them along its length). Other sections, including half-sections of individual layers or features, will be drawn to 1:10 or 1:20 as appropriate.

A6.7.8 The OD height of all principal strata and features will be calculated and indicated on the appropriate plans and sections in the archive and report.

A6.7.9 A Harris-type matrix stratification diagram will be employed to record stratigraphic relationships (Harris 1993). This record will be compiled and fully checked during the course of the evaluation. Relevant dating evidence should be added to this diagram but definitive spot-dating will not usually be available until the finds have been washed, marked and examined by the relevant specialist(s).

A6.7.10 A full, catalogued, photographic record of the investigations will be prepared to a specified photographic policy which will be included in the site-specific provisions of the WSI submitted to the LPA for approval. This will include digital photographs, illustrating in both detail and general context the principal features and finds discovered along with the sides and bases of each trench or sondage. Such photographs should include a north-point, scale and identification board. The photographic record will also include 'working shots' to illustrate more generally the progress of the archaeological investigation. It will be considered reasonable, from time to time, for the LPA to request selected copies of these photographs in order to raise the profile of its archaeological heritage at local level. Non-digital photography and video recording may be appropriate in some circumstances. Digital photography will be undertaken using equipment that at least matches the quality of a 35mm SLR film camera.

6.8 *Finds and samples*

6.8.1 Different sampling strategies may be employed according to established research targets and the perceived importance of the strata under investigation. A site-specific sampling strategy should be agreed in the case of any unusual or significant deposits being encountered. Close attention will be given to sampling for date, structure and environment. Sample size should take into account the frequency with which material is likely to occur. Bulk sieving should be employed both for recovery of environmental evidence and to ensure that complete samples of artefactual evidence are collected for significant deposits.

6.8.2 Where necessary, a site-specific strategy for sampling archaeological and environmental deposits and structures (which can include soils, timbers, pollen, diatoms, animal bone, human bone *etc*) will be developed in consultation with the Regional Science Advisor. Subsequent on-site work and analysis of the processed samples and remains will be undertaken by the contractor's environmental archaeologist.

6.8.3 It is possible that significant remains susceptible to scientific dating and analysis will be encountered in any evaluation. In the event of a feature or deposit producing significant remains (such as carbonized material or organic remains), unless an appropriate site-specific one is already in place, a sampling strategy will be discussed with the Regional Science Advisor of HE and carried out under their guidance.

6.8.4 Usually, unless there is some over-riding reason, agreed with GLAAS, to the contrary, at the evaluation stage samples will not be processed or analysed, though they may be rapidly assessed through visual inspection by an appropriate specialist. They will instead be added to the overall project assemblage, to be formally assessed at a later stage in consultation with HE's Regional Science Advisor.

6.8.5 The finds retrieval policies of the appropriate recipient museum will be adopted. All identified artefacts or ecofacts will be retained according to a stated selection retention and retrieval policy appropriate to the material type and date. Typically this will be, unless directed otherwise by the LPA or GLAAS, that no artefacts or ecofacts other than oyster shell from post-Roman deposits, modern material (excluding those pertinent to industrial archaeology) or undatable fragments of tiles, bricks or clay tobacco-pipe stems will be discarded without the prior approval of the LPA or GLAAS. Such finds must, in any case, be noted in the site records even if not collected: in some cases it may be appropriate to collect and then weigh, measure and/or count finds before discard. All other finds seen will be collected unless it is unsafe to do so (*eg*, in a deep sondage) and retained.

6.8.6 All finds and samples will be treated in a proper manner and to standards agreed in advance with the approved recipient museum. They will be exposed, lifted, cleaned, conserved, marked, bagged and boxed in accordance with the guidelines set out in *First Aid for Finds* (Watkinson and Neal 1998), *Packaging and Storage of Freshly Excavated Artefacts from Archaeological Sites* (UKIC 1983) and, where appropriate, the relevant section of *General standards for the preparation of archaeological archives deposited with the Museum of London* (MoL 2009). All metal objects will be x-rayed and then selected for conservation (except in those cases where the nominated representative of the LPA has agreed that this will not be necessary).

6.8.7 Ceramic (pottery, clay tobacco-pipe, building material fabric and brick form) reference collections, housed at the Museum of London, will be referred to for descriptive and analytical purposes in order to ensure that terminology is consistent across the region. The British Museum and other local museums may also hold important comparative collections of material and these too will be consulted as appropriate.

6.8.8 CAT will ensure that contracts are in place with internal and external specialists to cover all necessary processing, conservation and specialist analysis through the assessment and analysis stages of the project.

A6.9 Archiving

A6.9.1 The finds and records from London excavations provide an immensely valuable public resource. The owners of finds and records will be urged to donate these to the appropriate museum as a matter of best practice in the public interest: in most cases this

will be the Museum of London. Preliminary arrangements for the curation of the archive should be agreed with the anticipated recipient museum prior to starting fieldwork.

A6.9.2 On completion of the overall archaeological project, the archaeological contractor will arrange for the transfer, subject to the landowner's (and/or other client's) consent, of the documentary, photographic and material archive to the appropriate museum. It will also ensure that the appropriate level of resources for cataloguing, boxing and long-term storage are available, usually by payment of a fee payable upon deposition and varying with the recipient and with the size and nature of the archive.

A6.9.3 Finds and records will be curated by a single organization and be available for consultation in a site archive compatible with other archaeological archives in the LAARC. It will also adhere to standards set out in the following:

- *Archaeological Archives: a guide to best practice in creation, compilation, transfer and curation* (AAF 2011)
- *General standards for the preparation of archaeological archives deposited with the Museum of London* (MoL 2009)
- *Standards in Museum Care of Archaeological Collections* (MGC 992)
- *Selection, Retention and Dispersal of Archaeological Collections* (SMA 1993)
- *Guidelines for the preparation of excavation archives for long term storage* (United Kingdom Institute for Conservation 1990)

A6.9.4 The archaeological organization will have the resources required for the temporary storage of collections prior to their transfer to an appropriate recipient museum. Normally this will be for the duration of all fieldwork (including down-time between stages), post-excavation analysis, reporting and publication.

A6.9.5 The minimum acceptable standard for the site archive will be as defined in the *Management of Research Projects in the Historic Environment PPN 3: Archaeological Excavation* (EH 2008). It will include all materials recovered (or the comprehensive record of such materials, see below) and all written, drawn and photographic records, including a copy of all reports (desk-based, evaluation, survey work or other), relating directly to the investigations undertaken. It will be quantified, ordered, indexed and internally consistent before transfer to the recipient museum. It will also contain a site matrix, a site summary and stratigraphic, artefactual and environmental assessment and analysis reports as appropriate. Copyright will be clearly identified at the time of transfer. Relevant guidance set out by the Museums and Galleries Commission, the Society of Museum Archaeologists and the recipient museum will be followed in all circumstances.

A6.9.6 The recipient museum's guidance on the needs of digital storage, archival compatibility and security copying will be sought and followed. Unless directed otherwise, and pending HE *Guidelines* (due 2019) regarding National Security Copying, security copying will be in line with the recommendations of the Archaeology Data

Service (<http://archaeologydataservice.ac.uk/advice/Downloads.xhtml>), accessed 29 December 2018).

A6.9.7 Pursuant to these agreements the archive will be presented to the archive officer or appropriate curator of the recipient museum for accessioning within 12 months of the completion of fieldwork (unless alternative arrangements have been agreed in writing with the LPA). Access to finds and records from archaeological investigations will be given, at the request of the LPA, to their agents or designated archaeological organizations at any time, before they have been accessioned by the appropriate recipient museum if this is considered to be necessary to enhance the understanding or interpretation of the archaeology of the locality.

A6.9.8 Where different stages of archaeological fieldwork have been undertaken by different organizations it is considered reasonable for the LPA to require that access to all material and written, drawn, photographic and other records be transferred to one of these. This may be done either freely or upon payment of a suitable fee.

A6.9.9 If the archive is not to be donated to an appropriate museum, arrangements will be made for a comprehensive record of all materials (including detailed drawings, photographs and descriptions of individual finds) to be deposited *in lieu* of the actual archive at an appropriate Museum.

A6.10 Reporting, publication and publicity

A6.10.1 A technical 'grey' report will be drafted and, subject to Client agreement, passed to GLAAS for comment. After making such changes as GLAAS requires (and, perhaps, resubmitting the draft for further comment), it will be passed to the Client for formal submission to the LPA and the GLHER along with a completed OASIS report form as soon as possible after the completion of archaeological works. Normally this will comprise the full technical report but, if the archaeological or geoarchaeological findings have been unexpectedly complex or important (in which case both the Client and GLAAS should already have been consulted), it may be in the form of an assessment report recommending further fieldwork, analysis and/or publication.

A6.10.2 The 'grey' technical report will include a short non-technical summary (suitable for inclusion in the annual fieldwork round-up of the *London Archaeologist*) of the results of the work, even if negative. The non-technical summary should also enable the LPA or GLAAS to inform local societies, newspapers and broad sheets about the results of the archaeological investigation. A longer, technical summary should also be included where appropriate. Relevant archaeological report forms should be appended and guidance followed for the delivery of digital data.

A6.10.2 Other minimum requirements for public dissemination will meet the 'minimum requirements' set out in *Reporting, dissemination and publication* (GLAAS 2009, 26–27) There is a need to format reports so that the details of the proposed development impact can be separated from the archaeological information and enable all archaeological

information to be made available to the GLHER within 6 months of the completion of fieldwork. A copy of the client report should be sent to the LPA's designated Local History and Archives Library for the appropriate area.

A6.10.3 Within the constraints of an evaluation excavation, in line with Greater London LPAs' implementation of (formerly) the *London Unitary Development Plan* and (latterly) the *London Plan* (LP 2018) and local development documents pursuant to the *Planning and Compulsory Purchase Act* (2004), and according to the *CiFA Code of Conduct*, every effort should be made to bring the circumstances, results and analysis of archaeological work to the general public. Publicity at local and national media level and subsequently in the form of accessible illustrated digests of the results of archaeological investigations are important.

A6.10.4 Any publicity about the finds during this evaluation must have the prior approval of the landowner and the LPA's advisor. The copyright of any press release or other means of the dissemination of information would be vested in CAT and the Client or landowner.

A6.10.4 The level and outlet for publication and dissemination of results will be agreed with the LPA and GLAAS. Should significant archaeology be encountered and excavation required, contingency arrangements (such as an agreed percentage of the field costs) to provide for this possible element of the work will be made before fieldwork commences, including the costs of page tariffs for certain journals. Site works will not commence until the local planning authority has expressed itself satisfied that suitable arrangements have been made.

A6.11 Access and monitoring

A6.11.1 Reasonable access to the site and archives will be granted to the representatives of the LPA and GLAAS who wish to be satisfied, through site inspections, that the archaeological works are being conducted to proper professional standards and in accordance with the agreements made, or for other administrative, informative or research purposes.

A6.11.2 The LPA and GLAAS may monitor works at any stage but, to facilitate this and especially for projects of long duration, monitoring points, performance indicators and written progress reports at agreed intervals may be included in the overall timetable for on-site and off-site work in the written scheme of investigation. The LPA will usually require two weeks' notice to arrange monitoring visits.

A6.12 Health, safety and insurance

A6.12.1 All relevant health and safety legislation, CDM, COSHH regulations and codes of practice will be respected. It is the responsibility of CAT to ensure that their own Health and Safety Policy is up-to-date with current legislation (FAME 2010). Risk assessments should be drawn up for all activities, including making arrangements for the

site to be monitored as necessary. This requirement constitutes one of the non-archaeological constraints on the fieldwork design as health and safety concerns, including public health and environmental protection, must take precedence over archaeological concerns.

A6.12.2 There is a duty of care for the Client or their authorized representative to provide the archaeological contractor with all information reasonably obtainable on UXO, contamination, the location of live services and any other constraints (such as stand-offs from party walls, services, infrastructure *etc*) before fieldwork commences. As much as possible of this information should be supplied in time to be taken into consideration whilst preparing the evaluation trench plan for submission to GLAAS for approval.

A6.12.3 Where there is reason to believe that the ground or adjacent buildings may be contaminated or unsafe the applicant must have made arrangements for and paid for appropriate sampling, testing and analysis before archaeological work on sites can take place (as per guidance received from the Environmental Health Authority). Where necessary, a strategy for the sampling and recording of archaeological deposits and structures will be designed in agreement with the Environmental Health Authority, the LPA's Environmental Health Officer and GLAAS.

A6.12.4 CAT personnel will, at all times, abide by the CAT's own general safety policy which has been drawn up with advice from Construction Safety (South East) Ltd (46 College Road, Maidstone, Kent ME15 6YF; tel 01622 681487).

A6.12.5 All field staff will wear suitable personal protective clothing (PPE). At minimum this will comprise safety helmets complying with BS5240/1967, high visibility coat or vest, and protective work boots. Additional PPE (*eg*, disposable or non-disposable overalls, gloves, leggings, overshoes, masks or respirators, harnesses or safety glasses/goggles) may be required for specific sites or tasks and will be carried and worn as appropriate. Gas and/or UXO monitoring may also be required, as may arrangements for dust-suppression, fume-extraction *etc*.

A6.12.6 Trench positions will be checked with a cable-detector (and, on some sites, by a UXO engineer) prior to cutting and all services thus located marked on the ground. Services encountered during machining will be similarly checked to see if they are electrically live and all due precautions taken.

A6.12.7 Other than the supervising archaeologist or geoarchaeologist, who will act as banksman and will be suitably experienced, no personnel will enter the operating zone of the mechanical excavator during machining. That person will enter that zone only after establishing that the operator is aware of their intention and that the machine is at rest.

A6.12.8 CAT is currently covered, via Townergate Risk Solutions, Fareham, Hampshire, by: Employer's and Public Liability Insurance, AVIVA Policy 24765101CHC/000188; and Professional Indemnity Insurance, Hiscox Underwriting Ltd Policy 944029.

A6.13 Contingencies

A6.13.1 In the case that the sampling of a feature or deposit as part of the evaluation process recovers unusual deposits worthy of scientific study and not otherwise covered by site-specific provisions of the WSI, HE's Regional Science Advisor will be informed and a relevant programme of sampling, assessment and analysis arranged.

A6.13.2 If the discovery of unforeseen or unusually rich archaeological remains presents difficulties of meeting timetable and financial targets or are considered to be of national importance a site meeting will be called immediately with the Client, the LPA, GLAAS and the Inspector of Ancient Monuments (if necessary) where a forward strategy for preservation *in situ* or excavation will be discussed, followed by negotiations with funding agencies if necessary to fulfill the agreed strategy.

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**50-56 Fore Street,
Edmonton,
Enfield N18 2SS**

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3541/B2012/R0-GIO/EEA.55055 with funding by the European Union.

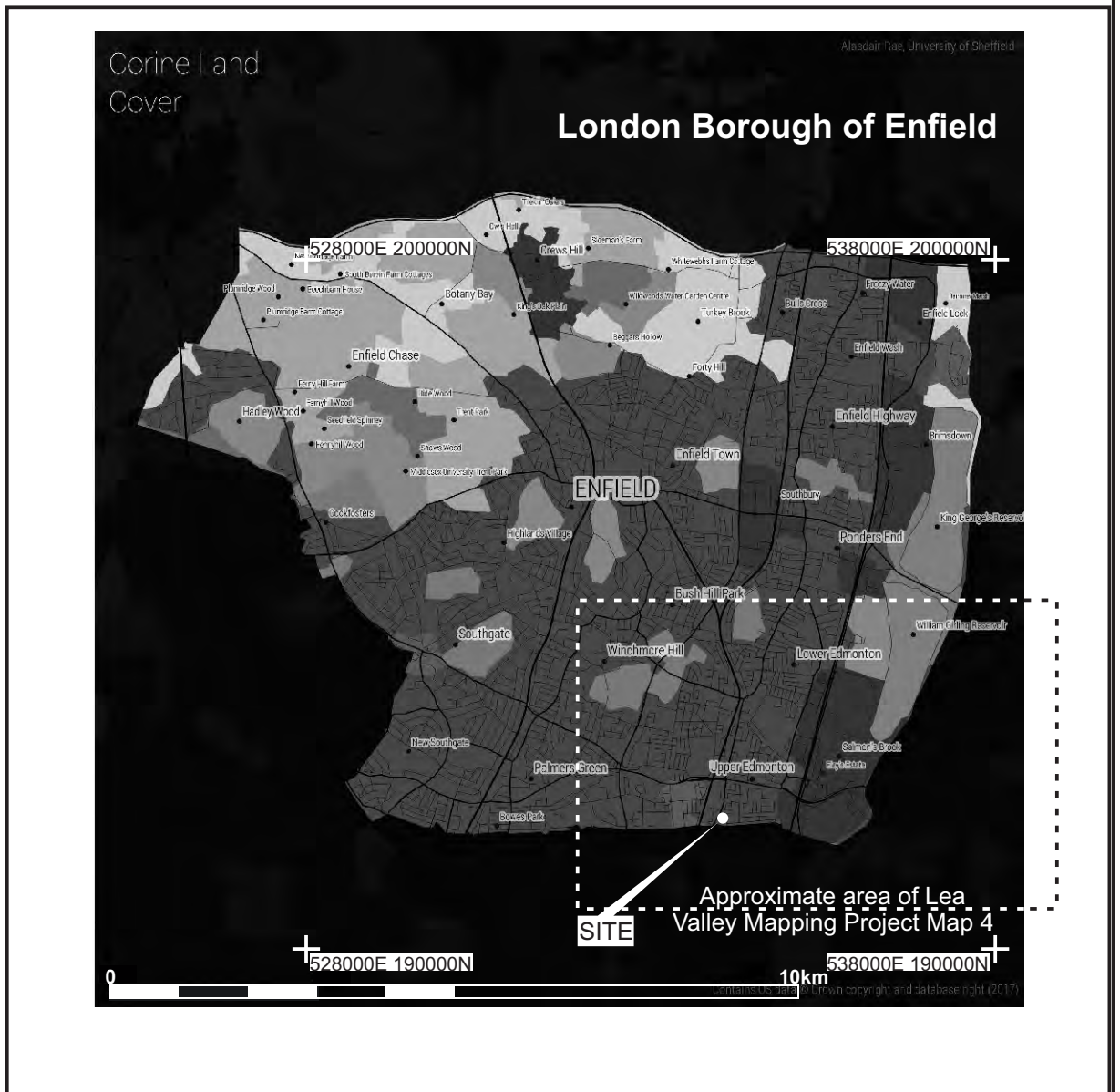


Fig 1 Location maps (1:500,000 and 1:100,000).

Digital terrain (DTM) and surface (DSM) models based upon lidar data collected for DEFRA on a 0.5m or finer grid. Contains public sector information licensed under the Open Government Licence v3.0 (<<http://www.nationalarchives.gov.uk/doc/open-government-licence/version/3/>>).

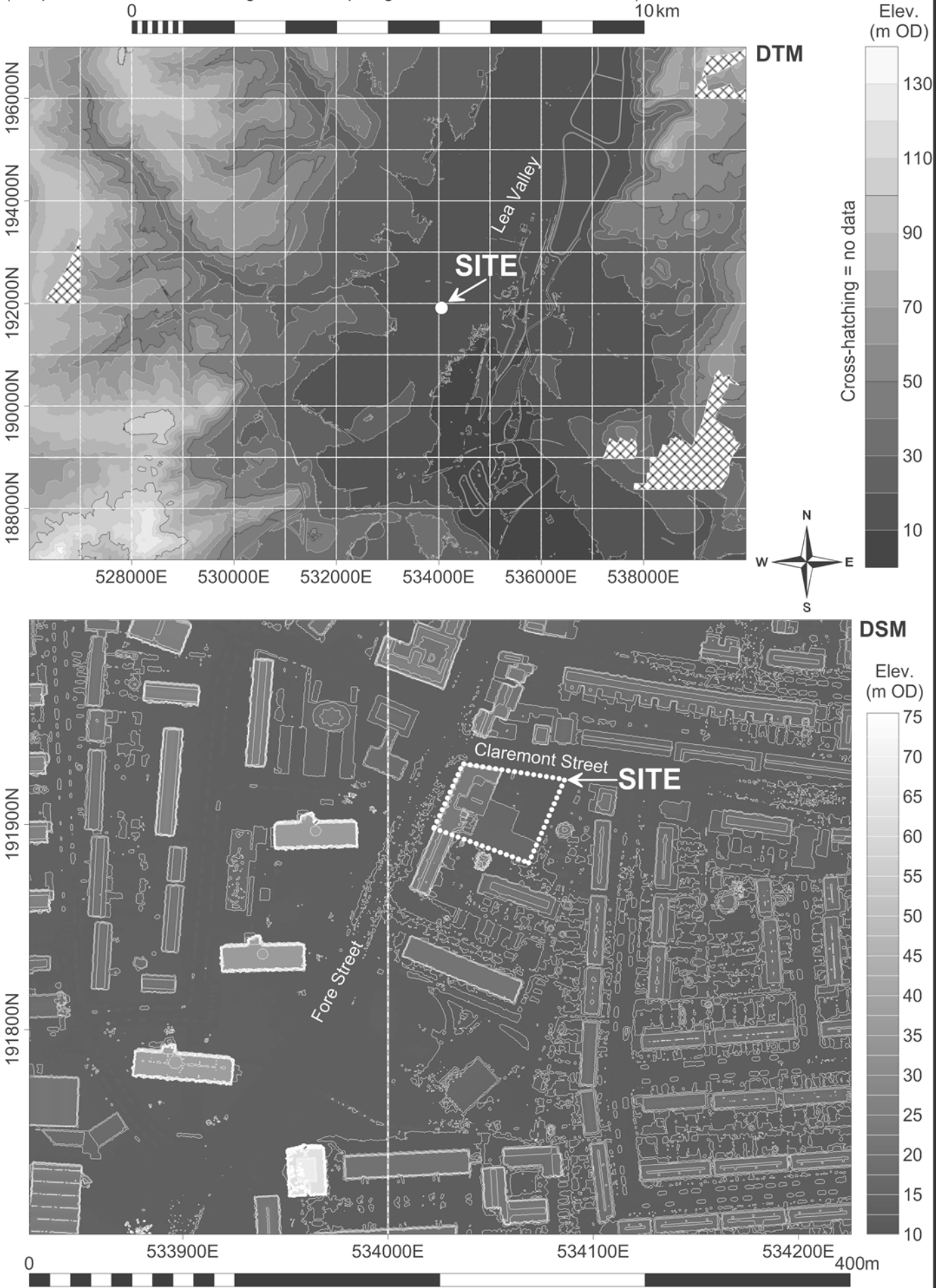
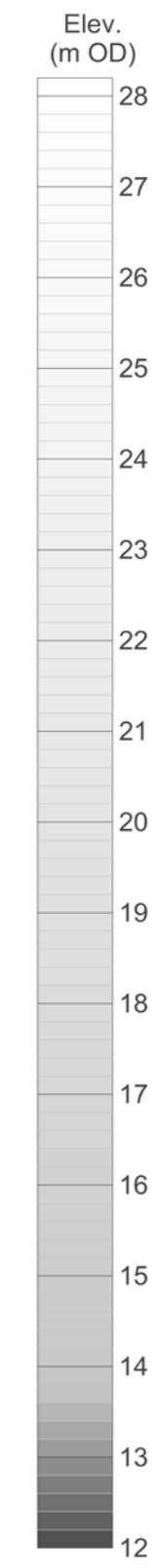


Fig 2 Site in relation to digital terrain and surface models (1:100,000 and 1:2,500).

Digital surface model (DSM) based upon lidar data collected for DEFRA on a 0.5m or finer grid. Contains public sector information licensed under the Open Government Licence v3.0 (<<http://www.nationalarchives.gov.uk/doc/open-government-licence/version/3/>>).



Minor contours at 0.2m intervals above Ordnance Datum

Fig 3 Transects in relation to digital surface model of site (1:200).

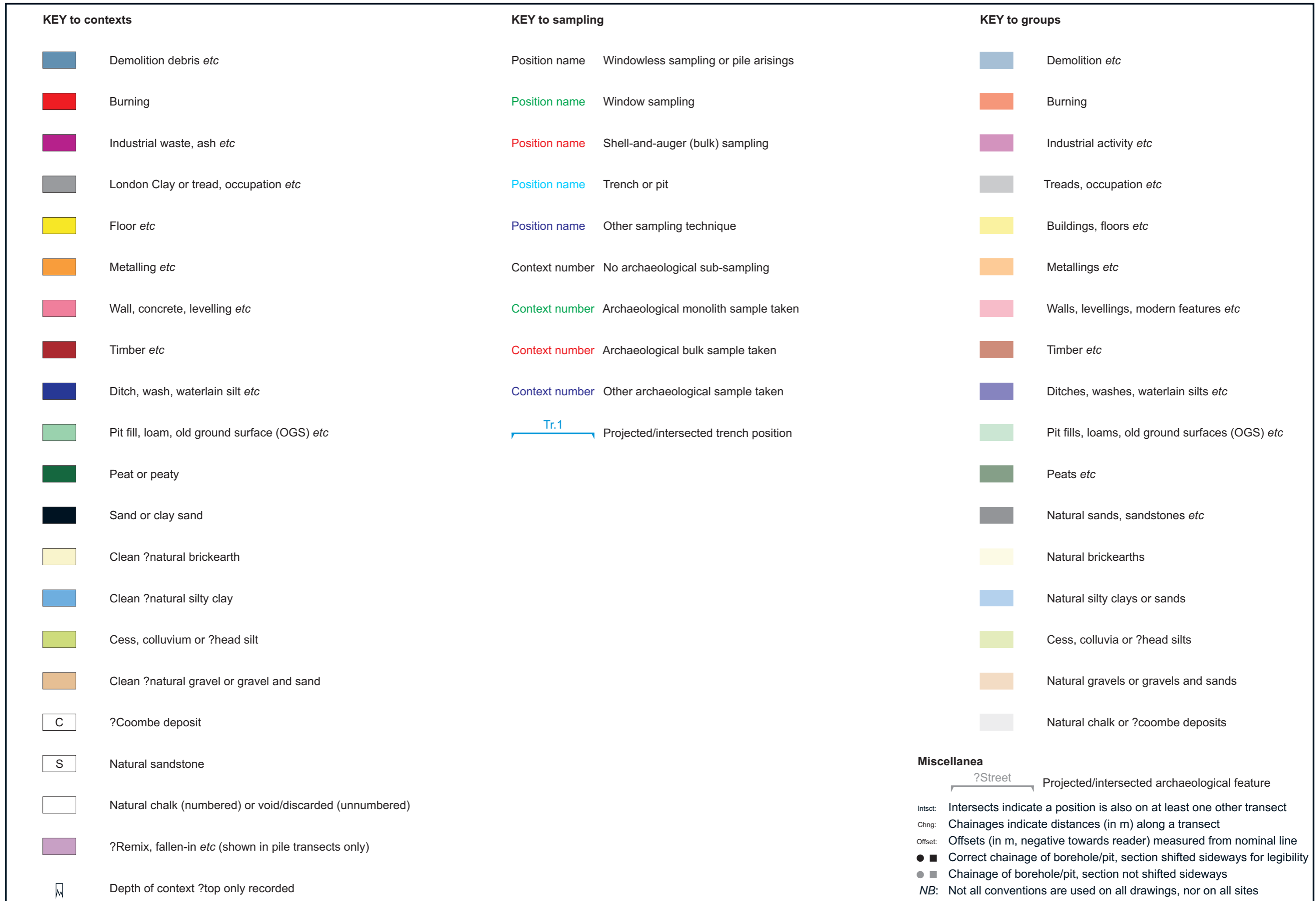
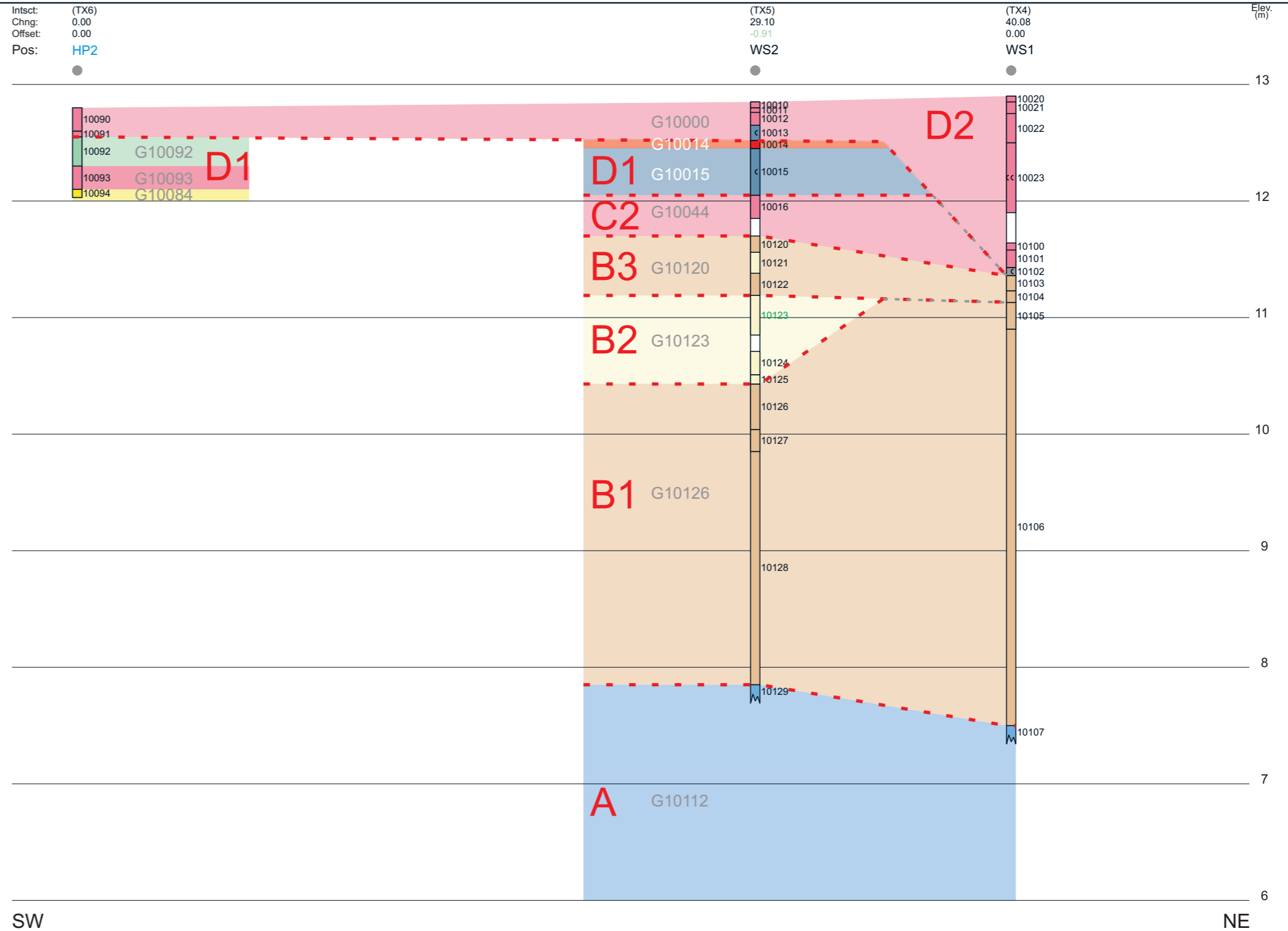


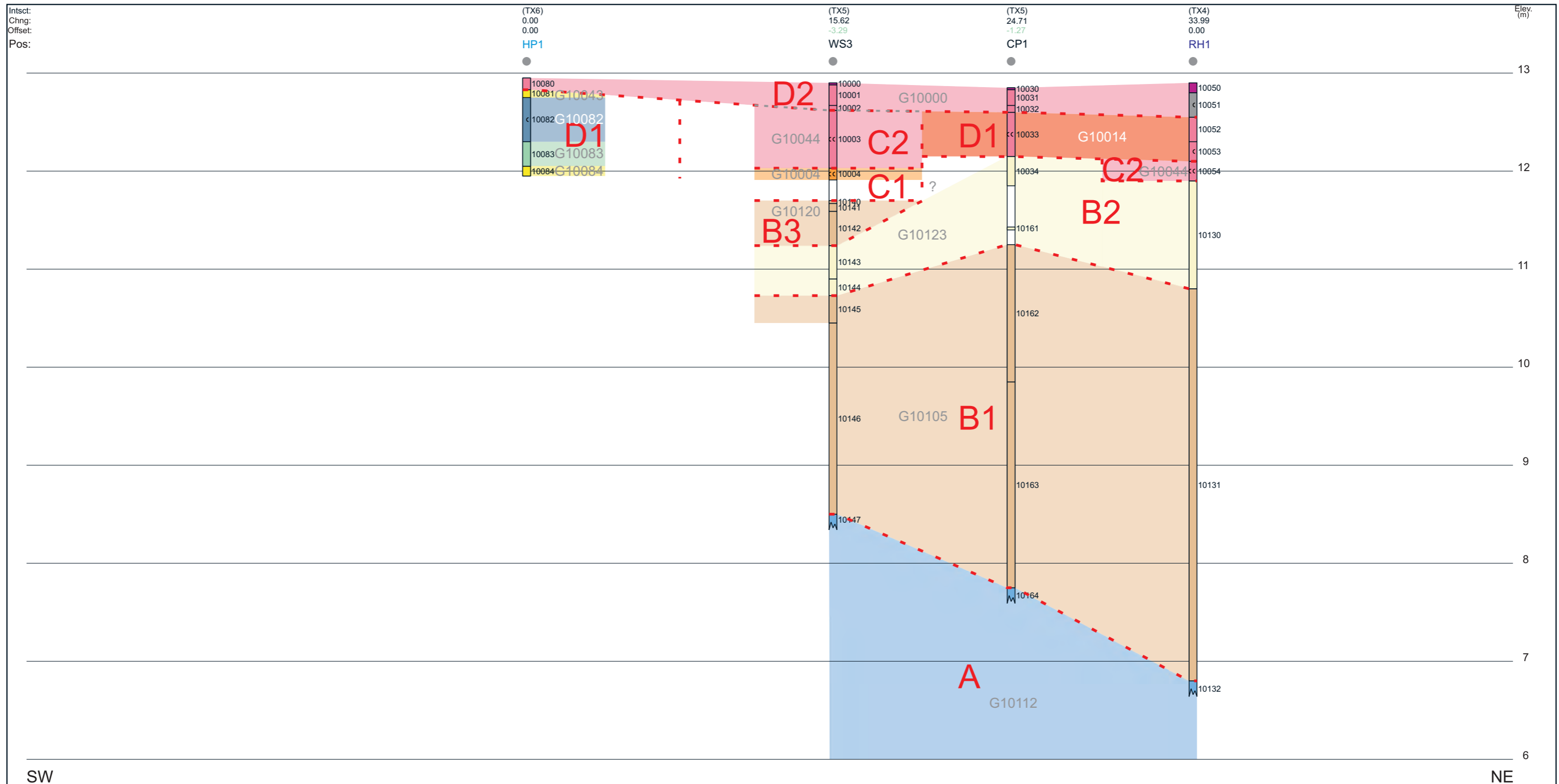
Fig 4 Keys to transects.



- D2 = 1930s and later, no archaeological potential
- D1 = ?Late 19th to early 20th century, low to moderate industrial archaeological potential
- C2 = Mixed, largely undiagnostic, soils, low to moderate archaeological potential
- C1 = Possible metalling and early ?ploughsoil, moderate archaeological potential
- B3 = Mixed ?head deposits, low geoarchaeological potential
- B2 = ?Loessic/lacustrine clays, low to moderate geoarchaeological potential
- B1 = Fluvial gravels, low geoarchaeological potential
- A = London Clay, no archaeological potential

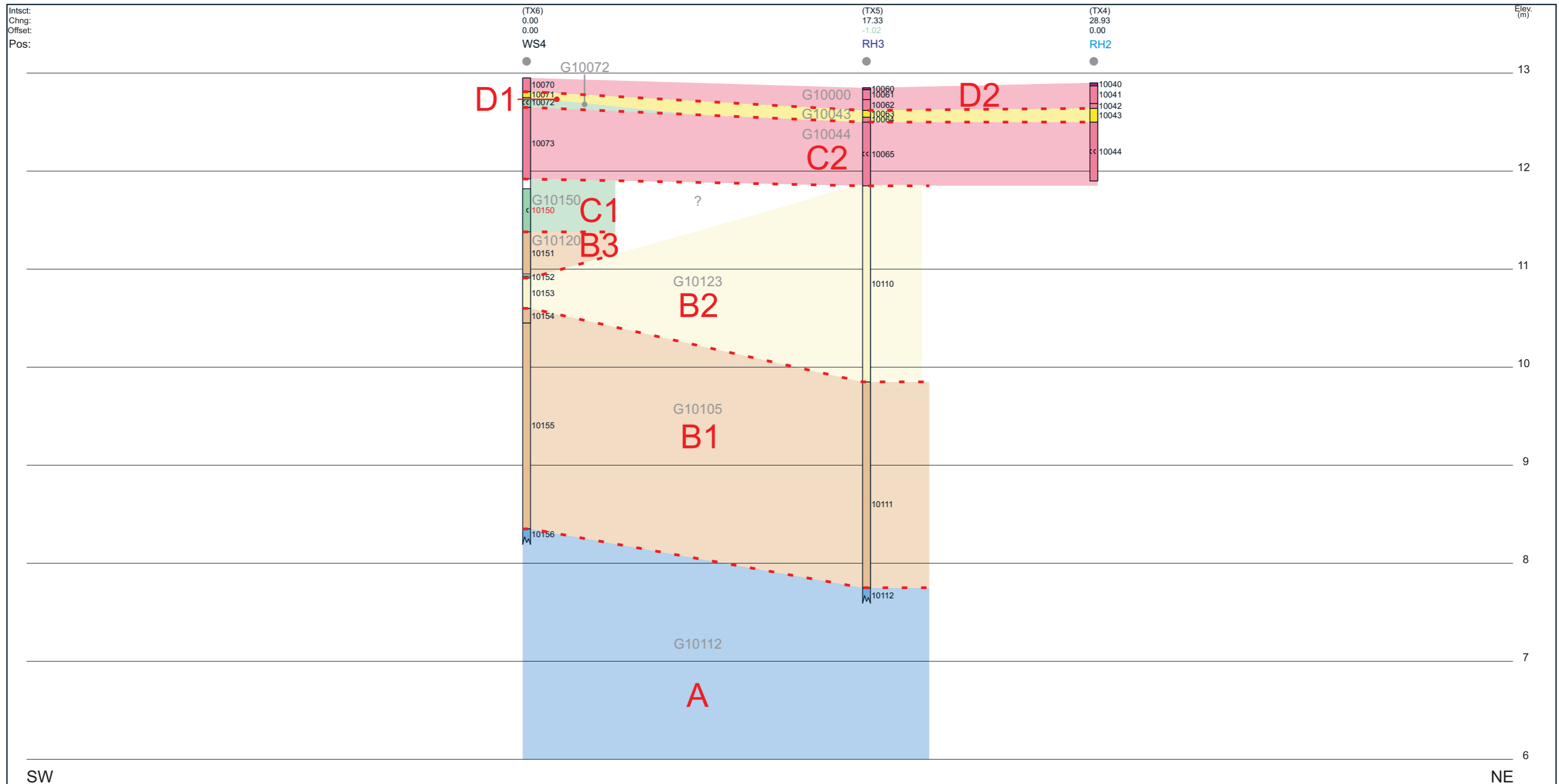
Vertical scale exaggerated by 5, see Fig 4 for conventions.

Fig 5 Phased stratigraphic group matrix and transect TX1 (vertical scale 1:40, ave. horizontal spacing 1:200).



Vertical scale exaggerated by 5, see Fig 4 for conventions.

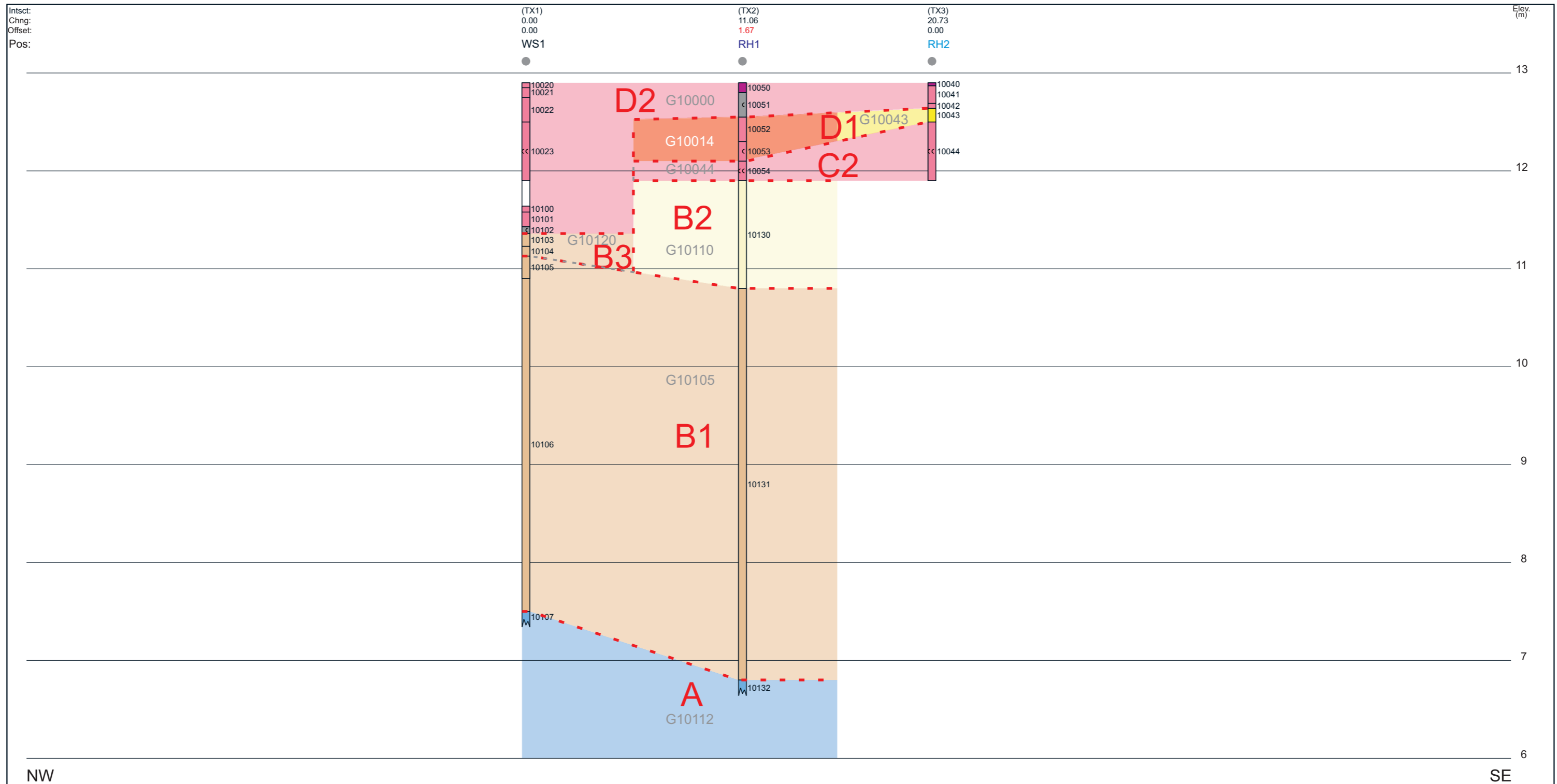
Fig 6 Transect TX2 (vertical scale 1:40, ave. horizontal spacing 1:200).



- D2 = 1930s and later, no archaeological potential
- D1 = ?Late 19th to early 20th century, low to moderate industrial archaeological potential
- C2 = Mixed, largely undiagnostic, soils, low to moderate archaeological potential
- C1 = Possible metalling and early ?ploughsoil, moderate archaeological potential
- B3 = Mixed ?head deposits, low geoarchaeological potential
- B2 = ?Loessic/lacustrine clays, low to moderate geoarchaeological potential
- B1 = Fluvial gravels, low geoarchaeological potential
- A = London Clay, no archaeological potential

Vertical scale exaggerated by 5, see Fig 4 for conventions.

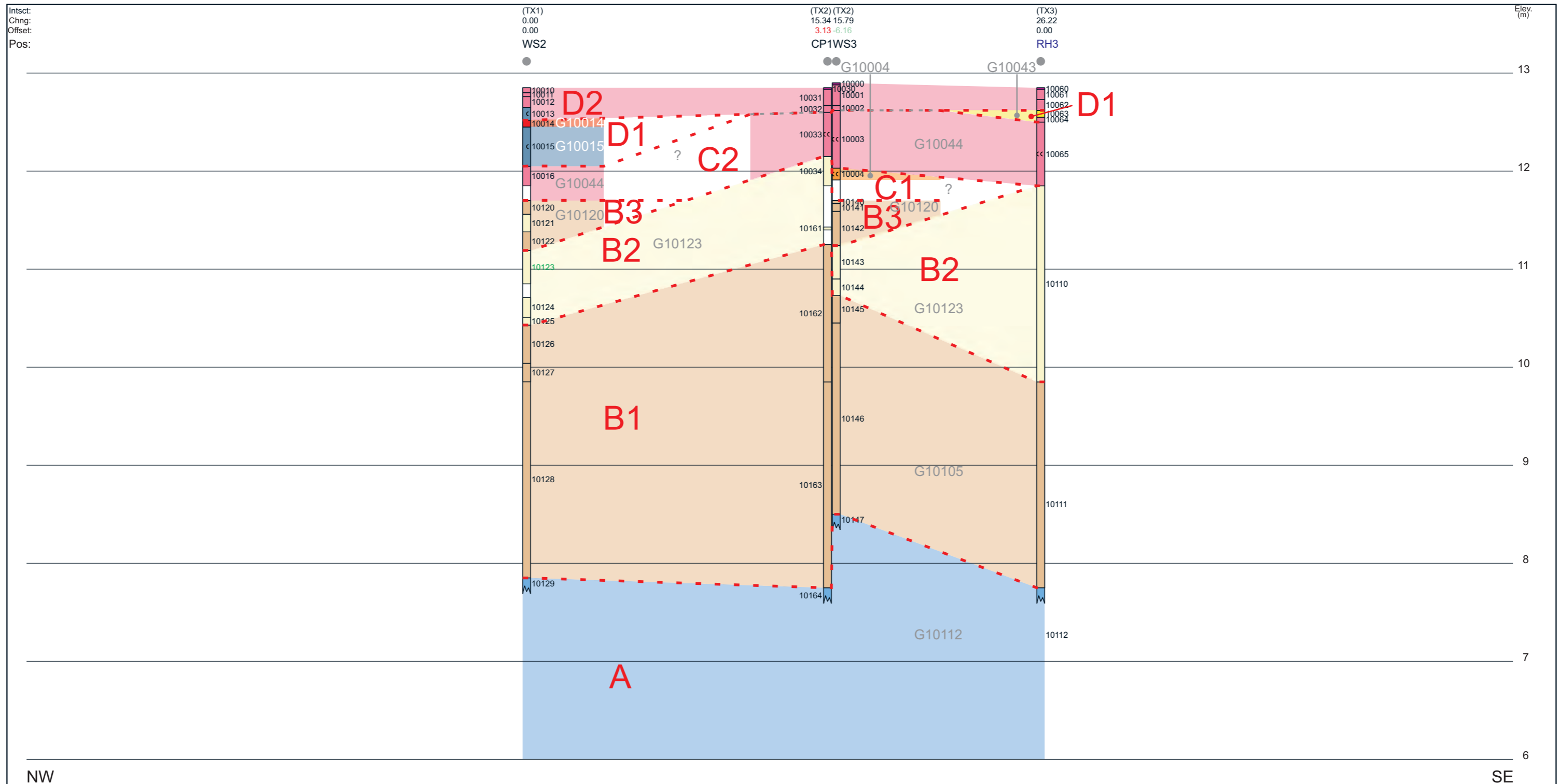
Fig 7 Transect TX3 (vertical scale 1:40, ave. horizontal spacing 1:200).



- D2** = 1930s and later, no archaeological potential
- D1** = ?Late 19th to early 20th century, low to moderate industrial archaeological potential
- C2** = Mixed, largely undiagnostic, soils, low to moderate archaeological potential
- C1** = Possible metalling and early ?ploughsoil, moderate archaeological potential
- B3** = Mixed ?head deposits, low geoarchaeological potential
- B2** = ?Loessic/lacustrine clays, low to moderate geoarchaeological potential
- B1** = Fluvial gravels, low geoarchaeological potential
- A** = London Clay, no archaeological potential

Vertical scale exaggerated by 5, see Fig 4 for conventions.

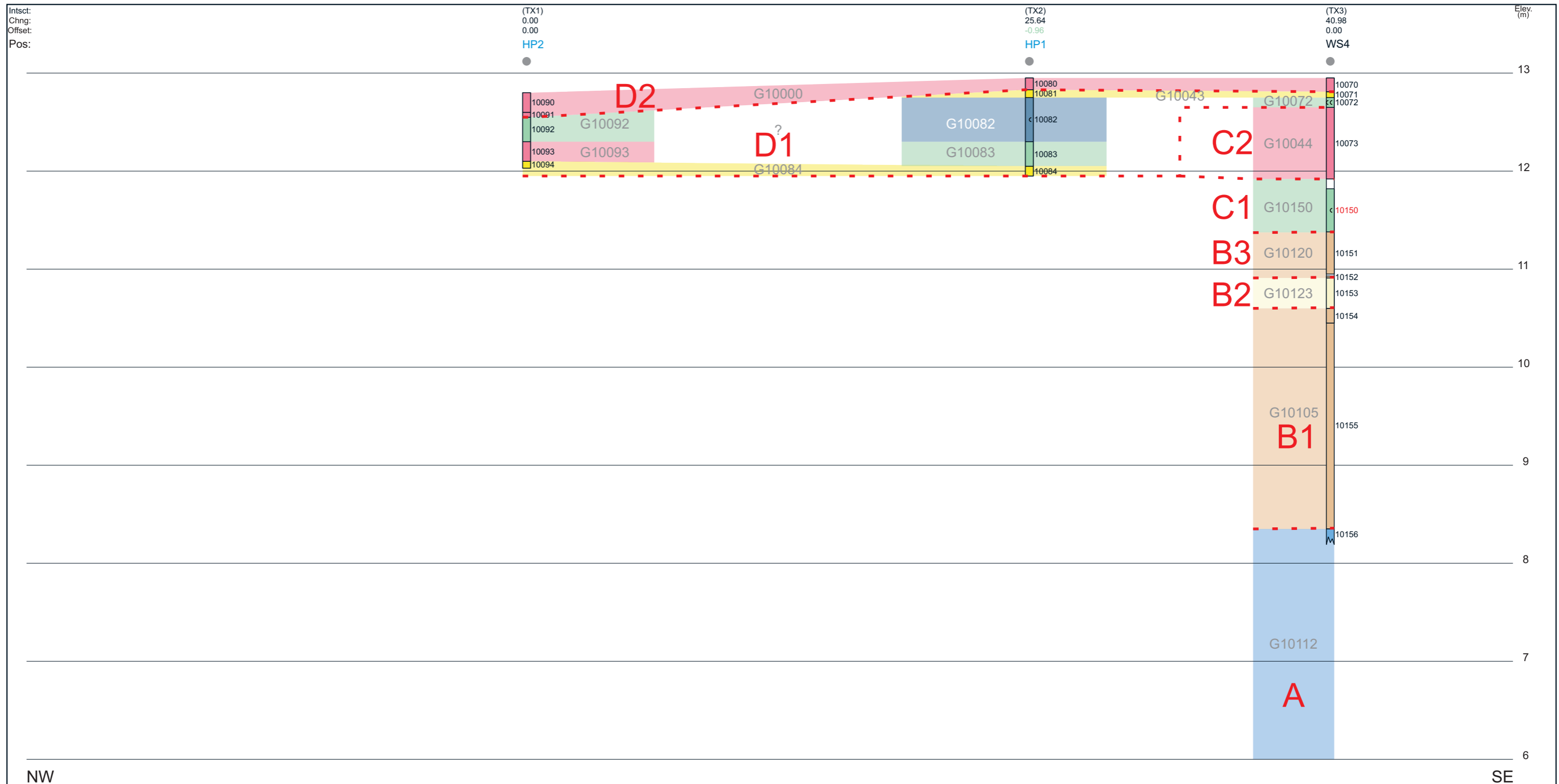
Fig 8 Transect TX4 (vertical scale 1:40, ave. horizontal spacing 1:200).



- D2** = 1930s and later, no archaeological potential
- D1** = ?Late 19th to early 20th century, low to moderate industrial archaeological potential
- C2** = Mixed, largely undiagnostic, soils, low to moderate archaeological potential
- C1** = Possible metalling and early ?ploughsoil, moderate archaeological potential
- B3** = Mixed ?head deposits, low geoarchaeological potential
- B2** = ?Loessic/lacustrine clays, low to moderate geoarchaeological potential
- B1** = Fluvial gravels, low geoarchaeological potential
- A** = London Clay, no archaeological potential

Vertical scale exaggerated by 5, see Fig 4 for conventions.

Fig 9 Transect TX5 (vertical scale 1:40, ave. horizontal spacing 1:200).

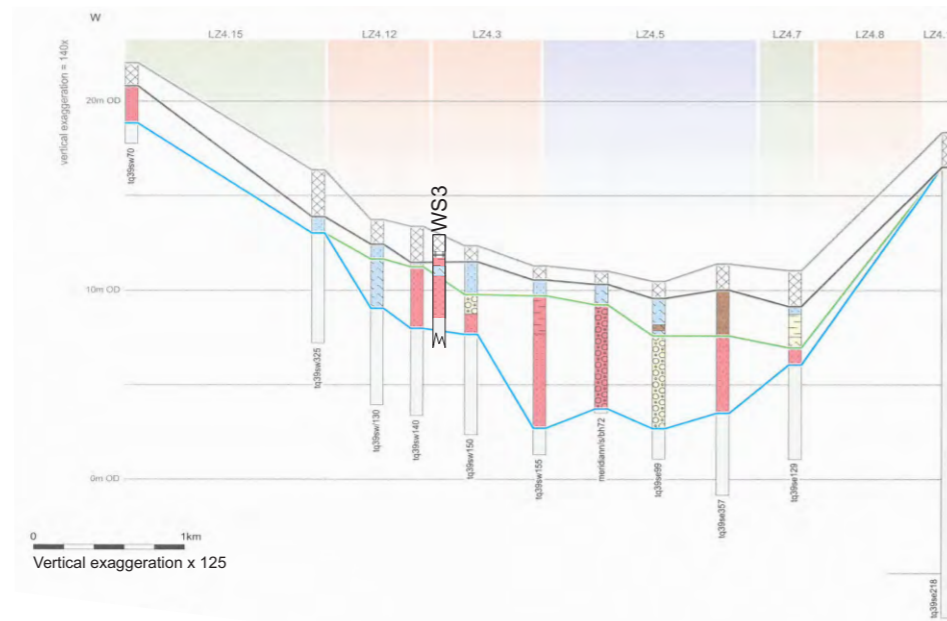


- D2** = 1930s and later, no archaeological potential
- D1** = ?Late 19th to early 20th century, low to moderate industrial archaeological potential
- C2** = Mixed, largely undiagnostic, soils, low to moderate archaeological potential
- C1** = Possible metalling and early ?ploughsoil, moderate archaeological potential
- B3** = Mixed ?head deposits, low to moderate geoarchaeological potential
- B2** = ?Loessic/lacustrine clays, low to moderate geoarchaeological potential
- B1** = Fluvial gravels, low geoarchaeological potential
- A** = London Clay, no archaeological potential

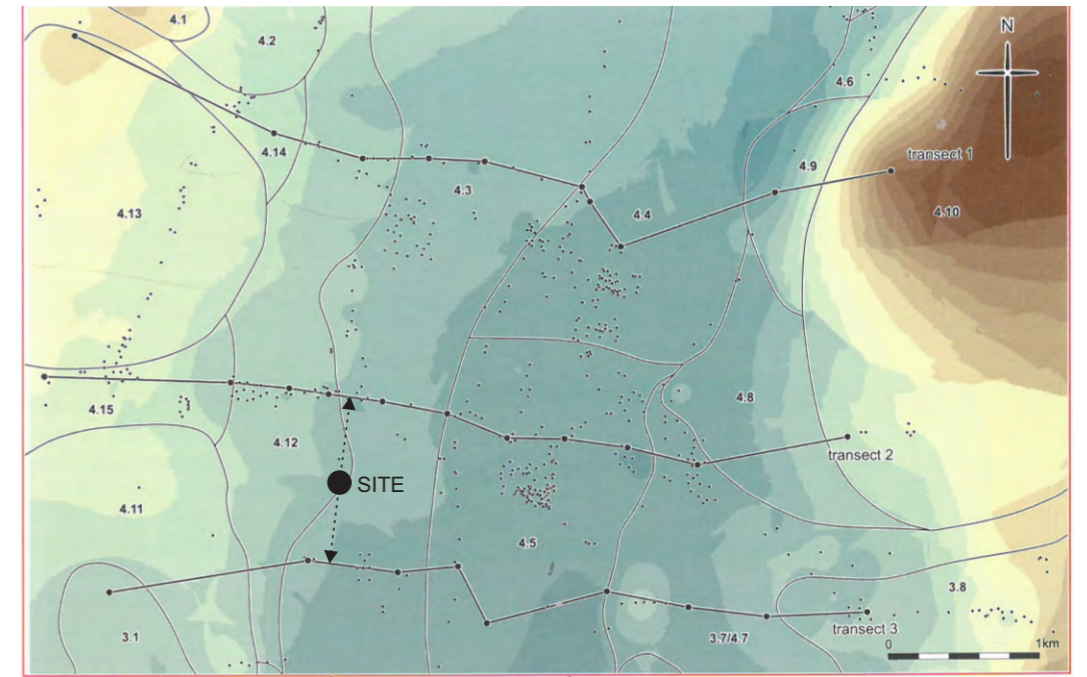
Vertical scale exaggerated by 5, see Fig 4 for conventions.

Fig 10 Transect TX6 (vertical scale 1:40, ave. horizontal spacing 1:200).

- made ground
- excavated archaeology
- peat
- humic mud / organic clay
- organic silt
- sandy peat
- gravelly peat
- bedded organics, sands, clay/silt (mainly organic)
- organics with artefact etc inclusions
- clay
- clay with organics
- silty clay
- sandy clay
- gravelly clay
- bedded clay, silt, gravel
- clay with artefact etc inclusions
- silt
- organic silt
- clayey silt
- sandy silt
- gravelly silt
- bedded sands and silts + organics (mainly minerogenic)
- silt with artefact etc inclusions
- sand
- peaty/organic sand
- clayey sand
- silty sand
- gravelly sand
- bedded sand, clay + silt
- sand with artefact etc inclusions
- gravel
- gravel and organics
- clayey gravel
- silty gravel
- sandy gravel
- gravel with chalk clasts
- clayey gravel with chalk clasts
- gravel with artefact clasts
- bedrock (sands)
- bedrock (stiff clays)
- bedrock (chalk)

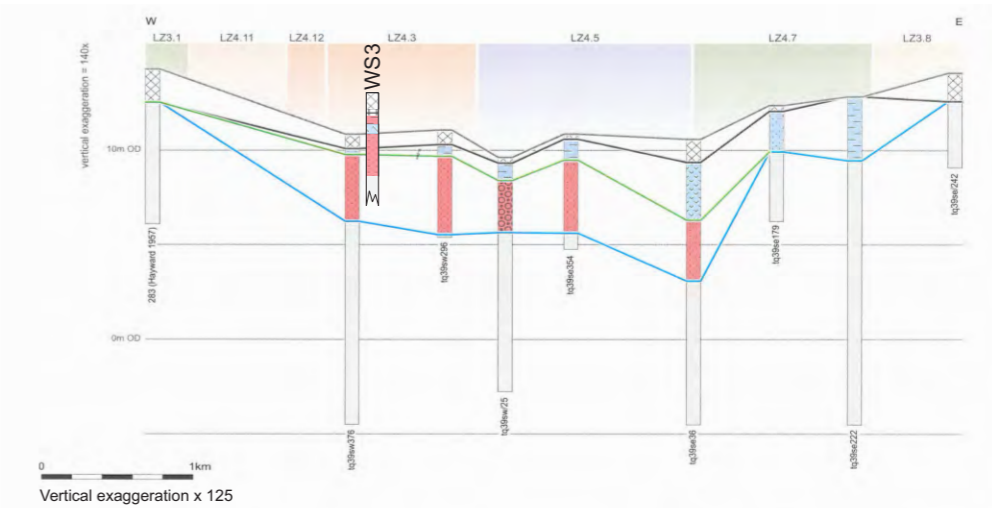


LVMP fig 68: transect and schematic section 4.2 with Fore Street WS3 overlain and converted to MoLA conventions (rescaled to 1:50,000 horizontal, 1:400 vertical)



Early Holocene topography
 high ground c 52m OD
 low ground c 5m OD
 LVMP fig 63: early Holocene topography in Map 4 area with Landscape Zones, borehole distribution and transect lines (rescaled to 1:50,000)

Fore Street
 WS3 using
 MoLA & CAT
 conventions



LVMP fig 69: transect and schematic section 4.3 with Fore Street WS3 overlain and converted to MoLA conventions (rescaled to 1:50,000 horizontal, 1:400 vertical)

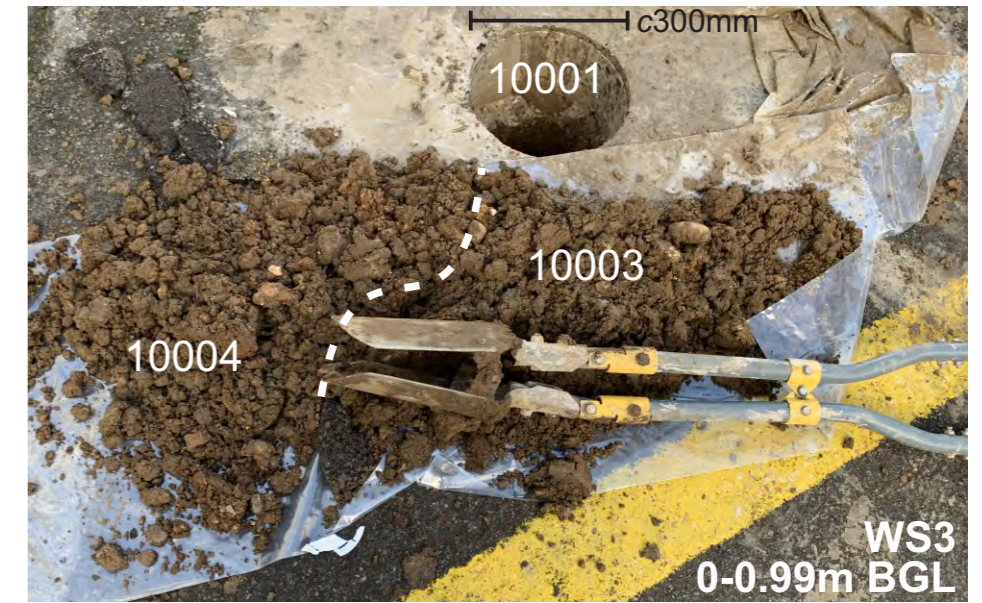


Fig 15 WS3 and WS4, selected photographs (scales in millimetres and centimetres)..