



HMS Ganges, Shotley Gate, Shotley, Suffolk

Archaeological Evaluation Report

January 2019

Client: Haylink Ltd

Issue No: 1

OAE Report No: 2285

NGR: TM 2476 3414

oxfordarchaeology



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Client Name: Haylink Ltd.
Client Ref No:
Document Title: HMS Ganges, Shotley Gate, Shotley, Suffolk
Document Type: Evaluation Report
Report No: 2285
Grid Reference: TM 2476 3414
Planning Reference: B/12/00500
Site Code: SLY 166
Invoice Code: XSFSGS18
Receiving Body: Suffolk County Council Archaeology Service
Accession No:
OASIS No: OXFORDAR3-333242

OA Document File Location: Y:\Suffolk\XSFSGS18_HMS Ganges_Shotley\Project Reports
OA Graphics File Location: Y:\Suffolk\XSFSGS18_HMS Ganges_Shotley\Project Data\Graphics

Issue No: 1
Date: January 2019
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HMS Ganges, Shotley Gate, Shotley, Suffolk

Archaeological Evaluation Report

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Summary

Between the 10th and 14th of December 2018, Oxford Archaeology East (OA East) undertook an archaeological trial trench evaluation on land belonging to the former HMS Ganges Royal Navy training establishment at Shotley Gate, Shotley, Suffolk (TM 2476 3414). A total of 12 trenches were excavated. Eight were located on former playing fields at the north-western end of the site with the remaining part of the field having been evaluated by Suffolk County Council in 2010. A further four trenches were excavated along the line of a proposed access road in the south-eastern part of the site, in an area of demolished dormitory blocks.

The fieldwork has identified archaeological remains in the eight trenches excavated in the north-western part of the site, with the densest areas of archaeological features in Trenches 28, 29, 30, and 35. The earliest phase of activity here relates to a possible prehistoric field system, represented by a series of ditches and gullies. These yielded very few datable finds, but are broadly aligned north-west to south-east and north-east to south-west, on an axis different to that of later field boundaries at the site.

Medieval activity was located toward the western boundary of the site, with a series of ditches yielding small groups of medieval pottery. The ditches are aligned parallel to, and perpendicular with, the line of the B1456, and may relate to former properties or plots fronting the roadside. The post-medieval ditches shared a similar alignment, one of which is which was depicted on the 1904 Ordnance Survey map of the site, and was infilled by 1928.

Features relating to Second World War activity comprised two machine-dug trenches backfilled with concrete anti-tank obstacles, and a crenellated ditch located along the northern boundary of the site. This had been previously recorded from aerial photography, and is probably an air-raid shelter (SLY 088). The purpose of the other machine-dug trenches is more difficult to interpret, though the location corresponds with a series of linear features visible on aerial photographs from 1945, and may represent some form of wartime training structure.

No archaeological remains survived in the four trenches in the south-east part of the site. These trenches revealed the demolished foundations and service trenches of six former naval training dormitory blocks and a clothing store. This area was heavily disturbed, and has low potential for archaeological survival.

Overall, however, the trenching has confirmed the presence of preserved archaeological remains in the north-western part of the proposed development site. The identified remains date from the prehistoric, medieval, and post-medieval periods, and may correlate with activity uncovered during evaluation by Suffolk County Council immediately to the south (Sommers 2010).

Acknowledgements

Oxford Archaeology would like to thank Richard Mortimer of CgMs Consulting Ltd for commissioning this project on behalf of Haylink Ltd. Thanks are also extended to Abby Antrobus who monitored the work on behalf of Suffolk County Council Archaeology Service and provided advice and guidance.

The project was managed for Oxford Archaeology by Matt Brudenell. The fieldwork was directed by Tom Lucking, who was supported by Lindsey Kemp and Francis Pitcher. Survey and digitising was carried out by Gareth Rees and Sarita Louzolo. Thank you to the teams of OA staff that cleaned and packaged the finds under the management of Natasha Dodwell, processed the environmental remains under the management of Rachel Fosberry and prepared the archive under the direction of Katherine Hamilton.

1 INTRODUCTION

1.1 Scope of work

- 1.1.1 Oxford Archaeology (OA) was commissioned by Haylink Ltd to undertake a trial trench evaluation at the site of HMS Ganges, Shotley Gate, Shotley, Suffolk .
- 1.1.2 The work was undertaken as a condition of Planning Permission by Mid Suffolk District Council in respect to Condition 7 for planning application B/12/00500. A brief was set by Abby Antrobus outlining the Local Authority's requirements for work necessary to inform the planning process. A written scheme of investigation was produced by OA detailing the methods by which OA proposed to meet the requirements of the brief (Brudenell 2018, Appendix E).

1.2 Location, topography and geology

- 1.2.1 HMS Ganges is located at the southern tip of the Shotley Peninsula, with the River Orwell to the east and the River Stour to the west (Figure 1). The Phase 1 and 2 development area (the site, c. 3.1ha) is situated in the north-west corner of the development envelope, with the access route running through Phases 1 and 2 then south (through an area already evaluated) and turning southeast off King Edward VII Drive (centred TM 2476 3414). The site is on broadly level ground across former playing fields at 22-23m OD, whereas the access route crosses the slope of peninsula point between 13-21m OD and traverses an area of former (demolished) barrack blocks.
- 1.2.2 The underlying geology of the site comprises Kesgrave Catchment Subgroup sands and gravels capped by fine-grained loess deposits, 0.3-0.4m thick (Sommers 2010). The solid geology of the peninsula point slopes comprises Thames Group clay, silts and sands.

1.3 Archaeological and historical background

- 1.3.1 The following section provides a summary of the archaeological and historical background for the area surrounding the site.

Prehistoric and Roman

- 1.3.2 A large area of cropmarks relating to prehistoric, Roman, medieval and post-medieval trackways and field systems are recorded on the outskirts of Shotley Gate on arable land to the north-west of the site (SLY 044; ARW20). Of note is a ring-ditch, located c. 280m to the north-west (SLY 051), likely to be the remains of a ploughed-out Bronze Age barrow. A Bronze Age spear head was also found in the vicinity of the ring-ditch (SLY 001).
- 1.3.3 A single sherd of possible Roman pottery was recovered from the first stage evaluation of the site (SLY 166; Sommers 2010). The sherd was unstratified.

Saxon and Medieval

- 1.3.4 The first stage evaluation of the site revealed evidence of Saxon activity (SLY 166; Sommers 2010). A series of ditches were uncovered, two of which yielded single

sherds of Early Saxon pottery, with a third ditch containing a sherd of Middle Saxon pottery. Three sherds of medieval pottery were also recovered, one from a ditch fill and two as unstratified finds from the topsoil.

- 1.3.5 An area of late medieval/ post-medieval activity was also identified on the western road frontage with a number of sherds recovered from two pits, one of which may have been a well. The neck of a medieval jar has also been found c. 400m south of the site (SLY 003)

19th century fortifications and the establishment of HMS Ganges

- 1.3.6 Two Martello Towers were constructed on the peninsula point between 1808-1812 (SLY 032; 033) as part of a system of coastal defences during the Napoleonic Wars. The southernmost tower (SLY 032; SAM ref. 1005993), known as Martello Tower 'L,' lies within the HMS Ganges development envelope and is a Grade II listed building. Martello Tower 'M' is located c. 600m to the north-east of Tower 'L' (SLY 033; SAM ref. 1194492) and is also a Grade II listed building.
- 1.3.7 Between 1862-1863, Shotley Fort/Shotley Point Battery (SLY 062; SMA ref. 1021290) was constructed to supplement the existing defensive structures of the two Martello Towers. The battery was seven sided, with an earthen rampart on the four sides which overlooked the harbour to the south, east and north-east. It was surrounded by a Carnot wall with five bastions, two of them at the gorge (rear), and four demi-bastions. The whole was surrounded by an outer ditch.
- 1.3.8 The guns of Shortly Fort were last used in 1901. In 1900 a Royal Naval Hospital with 90 beds was built within the southern area of the HMS Ganges development envelope, adjacent to Martello Tower 'L'. In 1904 construction of the Royal Navy Training Establishment (SLY 094) began (named HMS Ganges in 1927) and this became operational in 1905. The site covered c. 34ha, with buildings comprising 35 dormitories, 12 classrooms, recreation and lecture rooms, a gymnasium and laundry, with quarters for staff. Construction works resulted in the substantial levelling of the earlier Shotley Fort fortifications. An extant landmark feature of HMS Ganges is the Grade II listed ceremonial mast (ref 1036850). This was erected in 1907.

Second World War

- 1.3.9 The site lies at the centre of a series of former WWII features and installations protecting the peninsula point. At HMS Ganges itself, air photographs from the 1940s show a crenellated ditch on the northern boundary of the Phase 1 and 2 development areas (SLY 088), which are probably connected with a World War II air-raid shelter. A series of pits of unknown function also border the road along the western side of the B1456/Bristol Hill, opposite the site (SLY 089). Further west was a Heavy Anti-aircraft Artillery battery and associated structures (SLY 087), whilst to the south and east, just beyond the HMS Ganges development envelope, were two barrage balloon mooring sites (SLY 076; 082).
- 1.3.10 250m to the north of the site was an emplacement with slit trench and barbed wire (SLY 074), with a long barbed wire obstruction to the north (SLY 072). This formed part of a series of barbed wired obstructions along the Orwell and Store foreshores and

landward side of the peninsula point (SLY 070; 072; 084; 091). A command centre (SLY 093) was also located c. 350m to the north-west of the site.

Post-War usage of HMS Ganges

- 1.3.11 Following the close of the training station in 1976 the site was put to various uses including a Eurosports Village and a police training college from 1988-1999. A substantial number of buildings within the central area of the site have been demolished leaving hardstanding and rubble which have been colonised by plants and shrubs.

2 EVALUATION AIMS AND METHODOLOGY

2.1 Aims

2.1.1 This evaluation sought to establish the character, date and state of preservation of archaeological remains within the proposed development area. The scheme of works aimed to:

- establish the presence or absence of archaeological remains on the site, characterise where they are found (location, depth and extent), and establish the quality of preservation of any archaeology and environmental remains
- provide sufficient coverage to establish the character, condition, date and purpose of any archaeological deposits
- provide sufficient coverage to evaluate the likely impact of past land uses, and the possible presence of masking deposits
- set results in the local and regional archaeological context – and, in particular, its wider cultural landscape and past environmental conditions
- provide – in the event that archaeological remains are found – sufficient information to construct an archaeological mitigation strategy, dealing with preservation, the recording of archaeological deposits, working practices, timetables, and orders of cost.

2.2 Methodology

2.2.1 A total of 12 trenches were excavated in the positions shown on the plan in Figure 3. These comprised seven 30m long trenches, one 45m long L-shaped trench, and four 15m long trenches. All trenches were 1.8m wide.

2.2.2 The trenches were set out by a Leica survey-grade GPS fitted with "smartnet" technology with an accuracy of 5mm horizontal and 10mm vertical, and subsequent survey was carried out using the same equipment.

2.2.3 All trenches and spoil heaps were metal detected by an experienced metal detectorist.

2.2.4 Machine excavation took place under constant supervision of a suitably qualified and experienced archaeologist with an excavator using a 1.8m wide toothless ditching bucket.

2.2.5 A total of two environmental samples were taken to investigate the possible survival of micro- and macro- botanical remains.

2.2.6 All archaeological features were recorded using OA East's pro-forma sheets. Trench locations, plans, and sections were recorded at appropriate scales. Digital photographs were taken of all relevant features and deposits.

3 RESULTS

3.1 Introduction and presentation of results

- 3.1.1 The results of the evaluation are presented below and include a stratigraphic description of the trenches which contained archaeological remains. The full details of all trenches with dimensions and depths of all deposits form the content of Appendix A. reports of the finds and environmental remains are presented in Appendix B and C.
- 3.1.2 Context numbers run from 100 onwards in order to prevent any duplication with contexts from the Suffolk County Council evaluation on the same site. Likewise, trench numbers also begin at 28 to prevent duplication with the previous evaluation.

3.2 General soils and ground conditions

- 3.2.1 The soil sequence across all trenches on the plateau in the north-west was fairly uniform. The natural geology of sand and gravels was overlain by a subsoil of light brown sandy loess (0.2-0.37m in thickness, which in turn was overlain by a dark greyish-brown sandy topsoil (0.29-0.41m in thickness). Trenches 36 and 37 on the slope to the south-east contained no subsoil or topsoil, having only a thin band of vegetation above natural sands and gravels. Trenches 38 and 39 further down the slope had a soil sequence similar to the trenches in the north-west.
- 3.2.2 Ground conditions throughout the evaluation were generally good, and the trenches remained dry throughout. Archaeological features, where present, were easy to identify against the underlying sand and gravel geology, but were difficult to detect at the level where they cut through the loess subsoil. All features are likely to have cut through the loess but only became clear when the underlying geology was exposed. Similar problems were encountered in the adjacent 2010 evaluation (Sommers 2010).

3.3 General distribution of archaeological deposits

- 3.3.1 Archaeological features were present in Trenches 28 to 35 in the north-western part of site (Figure 4). Trenches 36 to 39 contained only modern building remains and a single tree-throw (figure 7). The location of features within trenches is described beginning from the northern or eastern end of the trench, depending on orientation, and then stratigraphically where features are intercutting.

3.4 Trench 28

- 3.4.1 Trench 28 (Figures 4 and 5) was located in the far western corner of the evaluated area and was orientated east to west. Two features were exposed in the trench but remained unexcavated due to the presence of a modern pipe trench cutting along the entire length of the trench.
- 3.4.2 Ditch **174** was exposed running north-west to south-east near the centre of the trench. It was 3m wide and two fills were visible. Fill 175 was present in the western side of the **174** and consisted of a mid-greyish-brown sandy silt. Fill 176 was present in the eastern side of the **174** and consisted of a light greyish-brown sandy silt. No artefacts were recovered from either fill. It is possible that this feature may represent two

intercutting ditches, but this could not be proven without excavation. It is also possible that this ditch is a continuation of ditches **128** and **130** in Trench 29.

- 3.4.3 Ditch **172** was exposed running north-west to south-east at the western end of the trench. It was 0.5m wide and a single fill of light brownish-grey sandy silt was exposed on the surface of the ditch. No artefacts were recovered.

3.5 Trench 29

- 3.5.1 Trench 29 (Figures 4 and 5, Plates 1 and 2) was located in the western part of the evaluated area and was orientated north to south. Six features were exposed in the trench, of which five were excavated.
- 3.5.2 Ditch **122** was exposed running east to west across the northern part of trench. It was 1m wide, 0.3m deep with gentle sides and a concave base. It contained a single fill of mid-brownish-grey sandy silt (123). No artefacts were recovered.
- 3.5.3 Pit **124** was exposed a short distance to the south of **122**. It was sub-circular, 0.6m wide and 0.08m deep with gentle sides and a concave base. It contained a single fill of mid-greyish-brown sandy silt (125). No artefacts were recovered.
- 3.5.4 An unexcavated ditch was exposed running north-east to south-west in the central part of the trench. It was 1.5m wide and was cut by linear feature **126**. It is possible that this feature may relate to ditches **128** and **130** immediately to the south, but feature **126** has cut through this relationship.
- 3.5.5 Ditch **128** was exposed running north-west to south-east across the central part of the trench and was cut by both feature **126** and ditch **130** (Figure 7, Section 111; Plate 2). It was 1.2m wide, 0.47m deep with gentle sides and a concave base. It contained a single fill of light brownish-grey sandy silt (131). No artefacts were recovered.
- 3.5.6 Ditch **130** also ran north-west to south-east and appeared to be a re-cut on the southern side of ditch **128** (Figure 7, Section 111). It was 1.71m wide and 0.3m deep with gentle sides and a flat base. It contained two fills, the lower of which was a mid-brownish-grey sandy silt (131). No artefacts were recovered from this fill and an environmental soil sample taken from this field yielded only sparse flecks of charcoal. The upper fill consisted of a mid-greyish-brown sandy silt (132), and a single struck flint flake was recovered.
- 3.5.7 Linear feature **126** was exposed running east to west and terminated on the eastern side of the trench (Figure 7, Section 110). It was 1.7m wide, had a depth greater than the 0.68m excavated with steeply sloping sides. It contained a single fill of mid-orangey brown silty sand (127), probably a mixed backfill. A large concrete block, possibly an anti-tank obstacle was exposed in section. This feature appears to be a machine-dug trench, possibly for the burial of anti-tank obstacles at the end of the Second World War. This feature cuts both ditch **128** and an unexcavated ditch to the north. No artefacts were recovered. More detailed discussion of this feature may be found in section 4.3.5.

3.6 Trench 30

- 3.6.1 Trench 30 was located on the western side of the evaluated area and was orientated east to west (Figures 4 and 5, Plates 3, 4 and 5). Eight features were exposed in the trench, seven of which were excavated.
- 3.6.2 Ditch **135** was exposed running north-west to south-east across the eastern end of the trench. It was 0.56m wide and 0.2m deep with steep sides and a concave base. It contained a single fill of dark yellowish-brown sandy silt (136) which yielded a single sherd of medieval pottery (4g).
- 3.6.3 Pit **137** was exposed on the very edge of the northern side of the trench and as such was not excavated. Only 0.2m was visible in the trench. A single fill of dark grey silt was visible in the top of the pit (138). Two sherds of pottery, one medieval (4g) and the other post-medieval (3g), were recovered from this deposit.
- 3.6.4 Ditch **139** was exposed running north-west to south-east across the central part of the trench. It was 0.85m wide and 0.39m deep with steep sides and a concave base. It contained a single fill of dark yellowish-brown sandy silt (140). No finds were recovered.
- 3.6.5 Ditch **143** was exposed running north-west to south-east across the central part of the trench (Figure 7, Section 122, and Plate 5). It was excavated to a width of 0.8m and was 0.5m deep with steep sides and a concave base. It contained a single fill of dark greyish-brown silt (144). Pottery of medieval date (seven sherds, 184g) was recovered from this feature along a fragment of tile (66g). This ditch runs parallel with ditch **170** raising the possibility that one is a re-cut of the other, but no clear relationship could be established from the limited lengths exposed in the trench.
- 3.6.6 Ditch **170** was exposed running north-west to south-east across the trench, parallel with ditch **143** (Figure 7, Section 122, and Plate 5). It was 0.7m wide and 0.26m deep with steep sides and a concave base. It contained a single fill of dark greyish-brown silt (171). A single sherd of Thetford-type ware (41g) was recovered.
- 3.6.7 Linear feature **141** was exposed running north-east to south-west across the trench and terminating just within the southern limit of the trench. It was 1.1m wide and had a depth greater than the 0.44m excavated with vertical sides (Plate 4). It contained a single fill of mid-yellowish-brown sandy silt (142). Several large concrete anti-tank obstacles were excavated from this feature (Plates 3 and 4). This appears to be a machine-dug trench, possibly for the burial of anti-tank obstacles at the end of the Second World War. This feature cuts ditches **139**, **143** and **170**. No other artefacts were recovered. Further discussion of this feature may be found in section 4.3.5.
- 3.6.8 Tree throw **145** was exposed on the southern side of the western part of the trench. It was 1.18m wide and 0.24m deep with steep sides and an irregular base. It contained a single fill of mid-brownish-grey silt (146). No artefacts were recovered.
- 3.6.9 Ditch **147** was exposed running north-east to south-west across the western end of the trench. It was 1m wide and 0.25m deep with steep sides and a concave base. It contained a single fill of dark greyish-brown silt (148). A single sherd of medieval coarse ware (1g) was recovered.

3.7 Trench 31

- 3.7.1 Trench 31 was located in the western half of the area evaluated, to the east of Trench 29, and was orientated east to west. One feature was exposed in the trench (Figures 4 and 5).
- 3.7.2 Ditch **108** was exposed running north-west to south-east across the trench. It was 2m wide and 0.63m deep with steep sides and a concave base. It contained a single fill of light blueish-grey silty sand (109). Post-medieval pottery (one sherd, 7g), brick (one fragment, 114g), and a struck flint flake were recovered.

3.8 Trench 32

- 3.8.1 Trench 32 was located in the eastern part of the area evaluated, to the east of Trench 31, and was orientated north to south. Five features were exposed in the trench (Figure 4 and 6).
- 3.8.2 Pit **118** was exposed in the northern part of Trench 32. It was sub-circular, 0.35m wide and 0.1m deep with gentle sides and a concave base. It contained a single fill of mid-greyish-brown sandy loam (119). No artefacts were recovered.
- 3.8.3 Pit **116** was exposed in the northern part of Trench 32. It was sub-circular, 0.5m wide and 0.09m deep with gentle sides and a concave base. It contained a single fill of mid-greyish-brown silty sand (117). No artefacts were recovered.
- 3.8.4 Pit **114** was exposed in the northern half of Trench 32 as part of a cluster including pits **116** and **118**. It was sub-circular, 0.5m wide and 0.11m deep with gentle sides and a concave base. It contained a single fill of mid-brownish-grey silty sand (115). No artefacts were recovered.
- 3.8.5 Gully **112** was exposed running north-east to south-west across the central part of the trench. It was 0.25m wide and 0.1m deep with steep sides and a concave base. It contained a single fill of light orangey-brown clayey sand (113). No artefacts were recovered.
- 3.8.6 Gully **110** was exposed running north-east to south-west across the southern part of the trench. It was 0.2m wide and 0.08m deep with steep sides and a concave base. It contained a single fill of light orangey-brown silty clay (111). No artefacts were recovered. This gully runs parallel with gully **112** to the north.

3.9 Trench 33

- 3.9.1 Trench 33 was located in the eastern part of the evaluated area and was orientated east to west. It contained a single-post hole (Figures 4 and 6).
- 3.9.2 Post-hole **120** was exposed in the western end of trench 33. It was sub-circular, 0.5m wide and 0.31m deep with steep sides and a concave base. It contained two fills, one of post-packing backfill and the other a post-pipe. The post-packing fill (121) consisted of a mid-orangey brown silty sand. A piece of post-medieval clay pipe stem (3g) was recovered from this fill. The post-pipe fill (103) consisted of a dark brownish-grey silty sand. No artefacts were recovered from this fill.

3.10 Trench 34

- 3.10.1 Trench 34 was an L-shaped trench in the north-eastern part of the evaluated area (Figures 4 and 6, Plate 6). Its longer section was orientated east to west, while the shorter section was orientated north to south. A modern pipe trench, possibly the same feature as exposed in Trench 28, cut through the southern part of this trench running east to west. Five archaeological features were exposed, of which one was excavated by hand, with the remaining four recorded and subsequently machine-excavated to establish their depth.
- 3.10.2 Crenellated ditch **155** was located in the northern part of the trench, a corner of which was exposed by machining (Figure 7, Section 124, and Plate 6). It was 1.48m wide and 0.45m deep with steep sides and a flat base. It contained a single fill of light grey silty sand (156). This feature appears to be the crenellated ditch recorded on the Suffolk HER (SLY 088) present on 1940s aerial photography and interpreted as an air-raid shelter. Post-holes **151** and **153** appear to be large supports, possibly for supporting shuttering against the edge of the ditch due to their positioning in the corner and side of ditch **155**, or as roof supports. The two posts appear to have been removed after the ditch had been backfilled, leaving two distinct post-holes in the edge of the ditch. After the feature was initially exposed and cleaned (Plate 10) it was decided to machine excavate the feature to the level of the natural in order to establish its total depth and the overlying soil profile. A baulk section was drawn on the western side of the trench and this is shown as Section 124 on Figure 7. The topsoil overlying this feature was found to be approximately twice as thick as elsewhere on the field, and is probably a reflection of the amount of post-war earth movement that occurred when this feature was backfilled.
- 3.10.3 Post-hole **151** was located in the northern end of the trench, cutting into the edge of crenellated ditch **155**. It was sub-rectangular, 0.38m wide and 0.2m deep with vertical sides and a flat base. It contained a single fill of mid-blueish-grey silty sand (152). No artefacts were recovered.
- 3.10.4 Posthole **153** was located in the northern part of the trench, cutting into the corner of crenellated ditch **155**. It was sub-rectangular, 0.38m wide and 0.2m deep with vertical sides and a flat base. It contained a single fill of mid-blueish-grey silty sand (154). No artefacts were recovered.
- 3.10.5 Drain gully **149** was exposed running east-west in the northern part of the trench. This feature cut through crenellated ditch **155** and subsequent excavation revealed it to contain a ceramic land drain in its base. It was 0.47m wide with steep sides. It contained a single fill of mid-orangey grey silty sand (150). No artefacts were recovered.
- 3.10.6 Ditch **133** was exposed running north-south across the trench. It was 2.1m wide and 0.42m deep with gentle sides and a concave base. It contained a single fill of mid-brownish-grey silty sand (134). Post-medieval pottery (two sherds, 55g), floor tile (one fragment, 157g) and the base of a late 19th century bottle (325g) were recovered.

3.11 Trench 35

- 3.11.1 Trench 35 was located on the eastern side of the evaluated area and was orientated north to south (Figures 4 and 6, Plates 7, 8 and 9). Five features were exposed in this trench, four of which were excavated.
- 3.11.2 Pit **163** was partially exposed at the northern end of the trench. It appeared to be sub-rectangular, 0.9m wide and 0.9m deep with vertical sides and a flat base (Figure 7, Section 121 and Plate 7). The lower 0.2m of this feature sat below the water table, creating waterlogged conditions near the base. It contained five fills and a large piece of timber (169). The lowest fill (164) was a thin band of dark brown peaty silt 0.62m wide and 0.06m thick. No artefacts were recovered, and an environmental soil sample taken of this fill yielded only fragments of wood and plant material, with no identifiable remains. The piece of timber (169) was sitting within fill (164), and was a piece of rounded wood showing signs of having been cut back before felling (see Appendix B.6). The fill above (165) consisted of a light brownish-grey silty clay 0.68m wide, 0.1m thick and appeared to be a backfill of possible riverine alluvial material. The middle fill of this feature (166) consisted of a dark orangey-grey silty clay 0.72m wide and 0.2m thick. This also appeared to be a backfill of riverine clay. The fill above (167) was a mid-orangey-grey silty clay 0.81m wide and 0.38m deep. This too had the appearance of being riverine material. The uppermost fill (168) was a mid-grey silty sand 0.9m wide and 0.24m thick. Unlike the lower fills, this had the appearance of formation through silting processes. No datable material was recovered from this feature.
- 3.11.3 An unexcavated ditch was exposed running north-west to south-east across the central part of the trench. This is the same feature as ditch **133** in Trench 34, a post-medieval ditch backfilled in the early twentieth century, and was therefore not excavated.
- 3.11.4 Ditch **157** was exposed running north-west to south-east across the central part of the trench (Figure 7 and Plate 8). It was 0.68m wide and 0.3m deep with steep sides and a concave base. It contained a single fill of light brownish-grey sandy silt (158). Three sherd of prehistoric, possibly Bronze Age, pottery was recovered (7g).
- 3.11.5 Ditch **159** was exposed running north-east to south-west into the trench from the south-western side, forming a T-junction into ditch **157**. It was 0.86m wide and 0.35m deep with steep sides and a concave base. It contained a single fill of light brownish-grey sandy silt (160). A fragment of burnt flint and a single small struck flint flake were recovered.
- 3.11.6 Ditch **161** was partially exposed in the south-west corner of the trench. The area able to be excavated was 1m wide and 0.25m deep with gentle sides and a flat base. It contained a single fill of light brownish-grey sandy silt (162). No artefacts were recovered.

3.12 Trenches 36 to 39

- 3.12.1 Trenches 36 to 39 were located along the line of a proposed access road in the south-eastern part of the site, approximately 300m from Trenches 28 to 35 in the north-west (Figures 9 and 10). There was no intact/undisturbed subsoil in the trenches, and most had only a thin covering (0.2m) of topsoil above the natural sands and gravels. These felt fairly loose in Trenches 36 and 37 and had the appearance of being truncated,

suggesting that much of the area may have been levelled for construction, and then further disturbed during demolition works.

- 3.12.2 No archaeological features were revealed in the trenches, though they did cross the demolished foundations of the former naval training dormitory blocks and clothing store, exposing a series of north-south aligned service pipe trenches with ceramic drains. The service/pipe trenches were typically spaced between 3-4m apart, and penetrated the underlying natural sands and gravels by c. 0.4m. Where exposed, the concrete foundations of the former buildings were c.1m wide and 0.7m deep. In places, the demolished remains of a brickwork footing comprising a double width course of red brick was exposed at the top of the foundation.
- 3.12.3 Trench 36 contained a tree throw **104** at the western end of the trench and three north-south aligned pipe trenches associated with former dormitory buildings (Figure 10, recorded as Blocks 3 and 5). This trench had only a thin layer of vegetation above natural sands and gravels.
- 3.12.4 Trench 37 revealed two pipe trenches at the centre and western end of the trench. An L-shaped concrete foundation with brickwork footing was partially exposed along the eastern edge of the trench and along the northern baulk. The foundation correlates with the mapped corner of the clothing store, with pipes leading north to the latrine block of the former naval college (Figure 10). This trench also only had a thin layer of vegetation above natural sands and gravels.
- 3.12.5 Trench 38 had a geology similar to the trenches in the north-west of the site. Two concentric foundations were exposed in the trenches, roughly corresponding to the mapped wall lines of former dormitory buildings (Figure 10, recorded as Blocks 11 and 13). A north-south aligned pipe trench, and two other north-east to south-west aligned service trenches were also recorded.
- 3.12.6 Trench 39 also had a geology similar to the trenches in the north-west of the site (Plate 10). Two concentric foundations were exposed in the centre of the trench, roughly corresponding to the mapped wall lines of former dormitory buildings (Figure 10, recorded as Blocks 15 and 17). Two north-south aligned pipe trenches were also located at either end of the trench, with parts of a third east-west aligned drain at the eastern end. The trench was heavily disturbed (Plate 1).

3.13 Finds summary

- 3.13.1 The limited finds assemblage from this site is mixed, with eighteen sherds (0.306kg) of pottery being recovered, ranging in date from possibly Bronze Age through to the nineteenth century. The majority of sherds are of medieval date and were recovered from features in Trench 30. Trenches 34 and 35 also contained pottery.
- 3.13.2 A total of three struck flints were recovered from features within Trenches 29, 31, and 35. All of the flint is of prehistoric date. Flakes recovered from the fills of ditches **130** and **159** may be indicative of prehistoric dating, while a flake recovered from the fill of ditch **108** is residual within a post-medieval context.
- 3.13.3 Three fragments (0.337kg) of CBM was collected from features within Trenches 31 and 34. This is all of post-medieval date.

- 3.13.4 A single fragment of post-medieval clay pipe was recovered from the fill of post-hole **120**.
- 3.13.5 The base of a glass bottle was recovered from the fill of ditch **133** in Trench 34 and is of late nineteenth- or early twentieth-century date, correlating with an early twentieth-century infill date for this ditch.
- 3.13.6 No bones or other faunal remains were recovered from anywhere on site. This may suggest that the sandy geology of the site is not conducive to the preservation of bone. Similarly, bones were only recovered from a single post-medieval feature during the adjacent 2010 evaluation (Sommers 2010, Table 2).
- 3.13.7 Two environmental samples were taken from features on the site. Sample 1 of fill 164 in pit **163** contained some plant material preserved by waterlogging, but no identifiable items. Sample 2 of fill 131 of ditch **130** contained only minimal charcoal flecks.

4 DISCUSSION

4.1 Reliability of field investigation

- 4.1.1 In the western part of the site (Trenches 28-35), archaeological features were distinguished by their mid-brown and grey fills and were clearly visible within the evaluated trenches at the point of the horizon of sand and gravel geology. It is likely that all of the excavated features in the western part of the site (Trenches 28-35) were cut through the loess subsoil at a slightly higher level but were not easily visible in this layer – a problem also encountered in the 2010 evaluation to the south (Sommers 2010). The topsoil and subsoil layers were easily set apart from the underlying orange and yellow sands and gravels. All but one of the archaeological deposits were free-draining, as were all the natural deposits, with no standing water hindering the archaeological work.
- 4.1.2 For the reasons stated above, results of the completed evaluation are considered to have a good level of reliability.

4.2 Evaluation objectives and results

- 4.2.1 The aim of this investigation was to establish the character, date and state of preservation of archaeological remains within the proposed development area, as described in the Written Scheme of Investigation (Brudenell 2018).
- 4.2.2 The trial trenching of the investigated site exposed a variety of archaeological features. In the west of the site (Trenches 28-35), many of the features are likely to have been subject to a degree of plough truncation, and may have been levelled further when the area was converted from arable land to playing fields for the naval school. However, in general, the level of feature preservation is no different to that on most other rural sites in Suffolk.
- 4.2.3 More severe levels of truncation are evident in the eastern part of the site along the proposed access road (Trenches 36-39). Here closely spaced service trenches and foundations of former naval dormitory blocks have heavily disturbed the ground. This area also appears to have been subject to levelling and possibly terracing in places, with no intact subsoils surviving.

4.3 Interpretation

- 4.3.1 The archaeological works at HMS Ganges, Shotley Gate, have revealed preserved archaeological remains across much of the northern part of the site. Cut features in the form of ditches, pits, and post-holes attest to historic agricultural or settlement activity in the vicinity, while features dating to the time of the Second World War reflect the historic military context of the site.
- 4.3.2 The earliest phase of activity relates to a possible prehistoric field system, represented by a series of ditches and gullies in Trenches 28, 29, 32, and 35. These are broadly aligned north-west to south-east and north-east to south-west orientation, on an axis different to that of later historic field boundaries at the site (Figure 8). Finds in these features were sparse, but where artefacts were recovered, such as in the fill (158) of ditch **157**, fill (160) of ditch **159**, and fill (132) of ditch **130**, these were of prehistoric

date. The fill of many of these features was also of a noticeably different character to confirmed later features on site, being a finer, often lighter-coloured silt.

- 4.3.3 An extensive prehistoric or Roman field system is recorded on the fields to the north of the site (SHER ARW 020, and Figure 2). While a sparse scatter of artefacts in features filled by silting is not definitive dating evidence, it is possible that these ditches represent an extension of this field system across the former HMS Ganges site. Some of these ditches may be continuations of features exposed during the 2010 evaluation to the south, a possible interpretation of which is shown in Figure 8.
- 4.3.4 Medieval activity was located in the western part of site, with ditches in Trench 30 producing medieval pottery. Fill (144) of ditch **143** yielded seven sherds, and medieval pottery was also found in the fills of ditches **135**, **147**, and **170**, suggesting potential nearby activity. Ditches **139**, **143** and **170** all run parallel with the road bounding the site to the west and may represent different phases of rear boundaries for plots fronting onto the road, with ditch **147** possibly being a division between two plots (Figures 5 and 8). Continuations of these ditches was not detected by trenching to the south (Sommers 2010), but this may be due to the siting of Trenches 10, 11, 20 and 21, with the ditches passing between the areas sampled (see Figure 8). A possible southwards continuation of this feature may have been detected in a 2009 magnetometry survey, but the magnetically noisy nature of this part of the field makes this difficult to confirm (Graham 2009, Figure 5).
- 4.3.5 Post-medieval activity was more widespread across the evaluated area, being detected in Trenches 31, 33, 34, and 35. In Trench 31, fill (109) of ditch **108** produced fragments of ceramic building material and a residual struck flint. This ditch also appears to run parallel with the modern road to the west, suggesting that it was a former field division infilled in the post-medieval period. In Trench 33 a single post-hole (**120**) produced a fragment of clay pipe stem, while in Trench 34 ditch **133** appeared to continue into Trench 35 to the south-east and had a fill containing a bottle base of late nineteenth- or early twentieth-century date. This ditch aligns with a ditch visible on the 1904 Ordnance Survey map of the site (1904 edition, 1:10560, Suffolk sheet LXXXIX N. E.), which has then been removed by the time the revised map is published in 1928 (1928 edition, 1:10560, Suffolk sheet LXXXIX N. E.).
- 4.3.6 Pit **163** was an anomalous feature of the site, being the only waterlogged feature and the only feature containing clay fills. Despite the lack of datable evidence, the uppermost fill and general form of the pit appears to have more in common with later features on the site and it is probably of post-medieval or later date.
- 4.3.7 Features relating to Second World War activity on site were exposed in Trenches 29, 30 and 34. In Trench 29 the terminal of what appears to be a machine-dug trench (**126**) was uncovered, containing a large concrete anti-tank obstacle in the baulk section. A similar feature (**141**) was also exposed in Trench 30 crossing the trench on a north-east to south-west alignment and containing at least four concrete anti-tank obstacles and fragments of concrete along its exposed length. Features on a similar alignment are visible on 1945 aerial photography of the site and it is possible that these represent some form of wartime training structure relating to the training college (Figure 8). Examples of buried anti-tank obstacles have been found elsewhere in East Anglia and

it appears that demolishing these structures in this way was accepted practice after the war (Liddiard and Sims 2018, 314-327). It is therefore possible that a series of similar features will exist in this part of the site.

- 4.3.8 A further Second World War structure was exposed in Trench 34, being a section of crenellated ditch **155** recorded on the HER as an air-raid shelter (SHER SLY 088, Fig. 2). The topsoil covering this feature was approximately twice as thick as found on the rest of the site, probably reflecting a degree of earth movement involved in backfilling this feature at the end of the war. Two large rectangular post-holes **151** and **153** were visible in the south-east corner and eastern edge of the ditch, presumably former supports for shuttering or roofing over the shelter. The base of this feature extended to just over a metre below the surface.
- 4.3.9 Trenches 36-39 contained no archaeological remains but did reveal the demolished foundations and service trenches of six former naval training dormitory blocks (Blocks 3, 5, 11, 13, 15 and 17) and a clothing store (Fig. 10). The service/pipe trenches were spaced between 3-4m apart, and penetrated the underlying natural sands and gravels by c. 0.4m. Where exposed, the concrete foundations of the former buildings were c. 1m wide and 0.7m deep.

4.4 Significance

- 4.4.1 The potential existence of a prehistoric field system at the former HMS Ganges site is perhaps unsurprising given the extensive systems recorded in Shotley and surrounding parishes. The results of the evaluation do, however, extend their known distribution, and suggest that these boundaries may run up to the margins of the peninsular point. The density of ditches in the north-eastern part of the site in Trench 35 and Trench 26 from the 2010 evaluation is suggestive of a slightly higher level of activity in that area. This, combined with the recovery of prehistoric artefacts in Trench 35, may hint towards a degree of occupation nearby.
- 4.4.2 The medieval activity recorded in Trench 30 suggests a potential area of settlement fronting onto the road on the western edge of site. The presence of larger fragments of unabraded pottery is suggestive of domestic rubbish tipping rather than scattered manuring waste and may hint at some form of medieval occupation in the vicinity. This may represent an earlier phase of occupation along the road frontage similar to post-medieval activity recorded in Trench 10 of the 2010 evaluation (Sommers 2010, 7-8.).
- 4.4.3 Post-medieval activity on the site appears to relate to general agricultural and enclosure activity, some of which is recorded in documentary sources, and is therefore of limited significance.
- 4.4.4 The Second World War features on site demonstrate a high level of preservation and provide proof that features visible on post-war aerial photographs have had a significant ground impact. On this basis, any further excavation in areas where these features are present on aerial photography are likely to uncover further substantial remains.
- 4.4.5 The trenches along the proposed access road (Trenches 36-39) in the east of the site revealed a series of north-south aligned foundations and service trenches, which correlate closely with mapping of six naval dormitory blocks and a clothing store. These

survived to a depth of c. 0.70m below the topsoil, and are likely to survive across the whole eastern side of the site. However, the close spacing of the services and foundations, and the strong possibility that this area of the site has been levelled and even terraced in places, suggests the potential for archaeological remains in this zone is very low.

APPENDIX A TRENCH DESCRIPTIONS AND CONTEXT INVENTORY

Trench 28						
General description					Orientation	E-W
Trench contained two ditches (not excavated), truncated by a modern pipe trench running the length of the trench. Consists of topsoil and subsoil overlying natural geology of sand and gravel.					Length (m)	28
					Width (m)	2
					Avg. depth (m)	0.65
Context No.	Type	Width (m)	Depth (m)	Description	Finds	Date
100	Layer	-	0.29	Topsoil	-	-
101	Layer	-	0.37	Subsoil	-	-
102	Layer	-	-	Natural	-	-
172	Cut	0.5	-	Ditch	-	-
173	Fill	0.5	-	Fill of ditch 172	-	-
174	Cut	3	-	Ditch	-	-
175	Fill	1.2	-	Fill of ditch 174	-	-
176	Fill	1.8	-	Fill of ditch 174	-	-

Trench 29						
General description					Orientation	N-S
Trench contained four ditches (three excavated), a pit, and a 20th century machine-dug trench. Consists of topsoil and subsoil overlying natural geology of sand and gravel					Length (m)	30
					Width (m)	2
					Avg. depth (m)	0.76
Context No.	Type	Width (m)	Depth (m)	Description	Finds	Date
100	Layer	-	0.41	Topsoil	-	-
101	Layer	-	0.35	Subsoil	-	-
102	Layer	-	-	Natural	-	-
122	Cut	1	0.3	Ditch	-	-
123	Fill	1	0.3	Fill of ditch 122	-	-
124	Cut	0.6	0.08	Pit	-	-
125	Fill	0.6	0.08	Fill of pit 124	-	-
126	Cut	1.7	0.68	Trench	-	Modern (WWII)
127	Fill	1.7	0.68	Fill of trench 126	Concrete Block	Modern (WWII)
128	Cut	1.2	0.47	Ditch	-	Prehistoric?
129	Fill	1.2	0.47	Fill of ditch 128	-	Prehistoric?
130	Cut	1.71	0.3	Ditch	-	Prehistoric?
131	Fill	1.36	0.2	Fill of ditch 130	-	Prehistoric?
132	Fill	1.71	0.2	Fill of ditch 130	Flint flake	Prehistoric?

Trench 30						
General description					Orientation	E-W
Trench contained five ditches, a pit (not excavated), a tree throw, and a 20th century machine-dug trench. Consists of topsoil and subsoil overlying natural geology of sand and gravel.					Length (m)	30
					Width (m)	2
					Avg. depth (m)	0.6
Context No.	Type	Width (m)	Depth (m)	Description	Finds	Date
100	Layer	-	0.4	Topsoil	-	-
101	Layer	-	0.2	Subsoil	-	-
102	Layer	-	-	Natural	-	-
135	Cut	0.56	0.2	Ditch	-	Medieval?
136	Fill	0.56	0.2	Fill of ditch 135	Pottery	Medieval?
137	Cut	-	-	Pit	-	Post-Medieval
138	Fill	-	-	Fill of pit 137	Pottery	Post-medieval
139	Cut	0.85	0.39	Ditch	-	-
140	Fill	0.85	0.39	Fill of ditch 139	-	-
141	Cut	1.1	0.44	Trench	-	Modern (WWII)
142	Fill	1.1	0.44	Fill of trench 141	Concrete Blocks	Modern (WWII)
143	Cut	0.8	0.5	Ditch	-	Medieval?
144	Fill	0.8	0.5	Fill of ditch 143	Pottery	Medieval?
145	Cut	1.18	0.24	Tree throw	-	-
146	Fill	1.18	0.24	Fill of tree throw 145	-	-
147	Cut	1	0.25	Ditch	-	Medieval?
148	Fill	1	0.25	Fill of ditch 147	Pottery	Medieval?
170	Cut	0.7	0.26	Ditch	-	Medieval?
171	Fill	0.7	0.26	Fill of ditch 170	Pottery	Medieval?

Trench 31						
General description					Orientation	E-W
Trench contained a single ditch. Consists of topsoil and subsoil overlying natural geology of sand and gravel.					Length (m)	30
					Width (m)	2
					Avg. depth (m)	0.66
Context No.	Type	Width (m)	Depth (m)	Description	Finds	Date
100	Layer	-	0.38	Topsoil	-	-
101	Layer	-	0.28	Subsoil	-	-
102	Layer	-	-	Natural	-	-
108	Cut	2	0.63	Ditch	-	Post-medieval
109	Fill	2	0.63	Fill of ditch 108	CBM, struck flint.	Post-medieval

Trench 32						
General description					Orientation	N-S
Trench contained two gullies and three pits. Consists of topsoil and subsoil overlying natural geology of sand and gravel.					Length (m)	30
					Width (m)	2
					Avg. depth (m)	0.61
Context No.	Type	Width (m)	Depth (m)	Description	Finds	Date
100	Layer	-	0.33	Topsoil	-	-
101	Layer	-	0.28	Subsoil	-	-
102	Layer	-	-	Natural	-	-
110	Cut	0.2	0.08	Gully	-	Prehistoric?
111	Fill	0.2	0.08	Fill of gully 110	-	Prehistoric?
112	Cut	0.25	0.1	Gully	-	Prehistoric?
113	Fill	0.25	0.1	Fill of gully 112	-	Prehistoric?
114	Cut	0.5	0.11	Pit	-	-
115	Fill	0.5	0.11	Fill of pit 114	-	-
116	Cut	0.5	0.09	Pit	-	-
117	Fill	0.5	0.09	Fill of pit 116	-	-
118	Cut	0.35	0.1	Pit	-	-
119	Fill	0.35	0.1	Fill of pit 118	-	-

Trench 33						
General description					Orientation	E-W
Trench contained a single post-hole. Consists of topsoil and subsoil overlying natural geology of sand and gravel.					Length (m)	30
					Width (m)	2
					Avg. depth (m)	0.6
Context No.	Type	Width (m)	Depth (m)	Description	Finds	Date
100	Layer	-	0.34	Topsoil	-	-
101	Layer	-	0.36	Subsoil	-	-
102	Layer	-	-	Natural	-	-
103	Fill	0.14	0.31	Fill of post-hole 120	-	Post-medieval
120	Cut	0.5	0.31	Post-hole	-	Post-medieval
121	Fill	0.5	0.2	Fill of post-hole 120	Clay pipe	Post-medieval

Trench 34						
General description					Orientation	N-S
Trench contained a ditch, a possible crenellated ditch, and a modern pipe drain gully. Consists of topsoil and subsoil overlying natural geology of sand and gravel.					Length (m)	30
					Width (m)	2
					Avg. depth (m)	0.57
Context No.	Type	Width (m)	Depth (m)	Description	Finds	Date
100	Layer	-	0.34	Topsoil	-	-

101	Layer	-	0.23	Subsoil	-	-
102	Layer	-	-	Natural	-	-
133	Cut	2.1	0.42	Ditch	-	Modern
134	Fill	2.1	0.42	Fill of ditch 133	CBM, Glass	Modern
149	Cut	0.47	-	Gully	-	Modern
150	Fill	0.47	-	Fill of gully 149	-	Modern
151	Cut	0.38	0.2	Post-hole	-	Modern (WWII)
152	Fill	0.38	0.2	Fill of post-hole 151	-	Modern (WWII)
153	Cut	0.38	0.2	Post-hole	-	Modern (WWII)
154	Fill	0.38	0.2	Fill of post-hole 153	-	Modern (WWII)
155	Cut	1.48	0.45	Ditch	-	Modern (WWII)
156	Fill	1.48	0.45	Fill of ditch 155	-	Modern (WWII)

Trench 35						
General description					Orientation	E-W
Trench contained four ditches (three excavated) and a pit. Consists of topsoil and subsoil overlying natural geology of sand and gravel.					Length (m)	30
					Width (m)	2
					Avg. depth (m)	0.65
Context No.	Type	Width (m)	Depth (m)	Description	Finds	Date
100	Layer	-	0.32	Topsoil	-	-
101	Layer	-	0.33	Subsoil	-	-
102	Layer	-	-	Natural	-	-
157	Cut	0.68	0.3	Ditch	-	Bronze Age?
158	Fill	0.68	0.3	Fill of ditch 157	Pottery	Bronze Age?
159	Cut	0.86	0.35	Ditch	-	Prehistoric?
160	Fill	0.86	0.35	Fill of ditch 159	Struck flint	Prehistoric?
161	Cut	1	0.25	Ditch	-	Prehistoric?
162	Fill	1	0.25	Fill of ditch 161	-	Prehistoric?
163	Cut	0.9	0.9	Pit	-	-
164	Fill	0.62	0.06	Fill of pit 163	-	-
165	Fill	0.68	0.1	Fill of pit 163	-	-
166	Fill	0.72	0.2	Fill of pit 163	-	-
167	Fill	0.81	0.38	Fill of pit 163	-	-
168	Fill	0.9	0.24	Fill of pit 163	-	-
169	Timber	-	-	Timber in pit 163	-	-

Trench 36		
General description		Orientation
		E-W
		Length (m)
		10

Trench contained a single tree throw and modern truncation. Consists of a thin covering of vegetation above natural sands and gravels.					Width (m)	2
					Avg. depth (m)	0.2
Context No.	Type	Width (m)	Depth (m)	Description	Finds	Date
102	Layer	-	-	Natural	-	-
104	Cut	0.82	0.42	Tree throw	-	-
105	Fill	1.6	0.42	Fill of tree throw 104	-	-
106	Fill	0.55	0.4	Fill of tree throw 104	-	-
107	Fill	1.1	0.35	Fill of tree throw 104	-	-

Trench 37						
General description					Orientation	E-W
Trench devoid of archaeology and truncated by modern building foundations. Consists of a thin band of vegetation overlying natural sands and gravels					Length (m)	30
					Width (m)	2
					Avg. depth (m)	0.2
Context No.	Type	Width (m)	Depth (m)	Description	Finds	Date
102	Layer	-	-	Natural	-	-

Trench 38						
General description					Orientation	NE-SW
Trench devoid of archaeology and truncated by modern drains. Consists of topsoil and subsoil overlying natural geology of sand and gravel.					Length (m)	30
					Width (m)	2
					Avg. depth (m)	0.5
Context No.	Type	Width (m)	Depth (m)	Description	Finds	Date
100	Layer	-	0.3	Topsoil	-	-
101	Layer	-	0.2	Subsoil	-	-
102	Layer	-	-	Natural	-	-

Trench 39						
General description					Orientation	E-W
Trench devoid of archaeology and truncated by modern building foundations and drains. Consists of topsoil and subsoil overlying natural geology of sand and gravel.					Length (m)	30
					Width (m)	2
					Avg. depth (m)	0.7
Context No.	Type	Width (m)	Depth (m)	Description	Finds	Date
100	Layer	-	0.4	Topsoil	-	-
101	Layer	-	0.3	Subsoil	-	-
102	Layer	-	-	Natural	-	-

APPENDIX B FINDS REPORTS

B.1 Flint

By Carole Fletcher with flint identified by Lawrence Billington

Introduction and Methodology

B.1.1 A total of 0.069kg of flint was recovered from ditches, located in three separate trenches. Simplified recording only has been undertaken, with basic description and weight recorded in the text.

Assemblage and Discussion

B.1.2 Trench 29, ditch **130**, produced an undiagnostic, secondary flake struck from a cortical striking platform (weight 26g).

B.1.3 From Trench 31, ditch **108**, a hard hammer struck, secondary flake was recovered. The flake is undiagnostic and edge damage suggests it is residual (weight 18g). The flake was recovered alongside post-medieval CBM and pottery.

B.1.4 Ditch **159** in Trench 35 produced a fragment from an unworked burnt flint cobble weighing 25g.

B.1.5 The worked flint assemblage is undiagnostic and that from ditch **108** is residual in a post-medieval fill.

Retention, dispersal or display

B.1.6 The assemblage suggests a limited distribution of undiagnostic worked flint. Should further work be undertaken, more worked and/or burnt flint may be recovered. The record of the flint should be incorporated into any later archive. If no further work on the site is undertaken, this statement acts as a full record; in either case the flint may be deselected prior to archival deposition.

B.2 Glass

By Carole Fletcher

Introduction and Methodology

B.2.1 A single shard, weighing 0.325kg, was recovered from ditch **133** in Trench 34. The glass was scanned and recorded by form, colour, count and weight, dated where possible and recorded in the text.

Assemblage and Discussion

B.2.2 The fragment is a base from an olive-green glass, cylindrical, utility bottle, probably for wine, most likely of late 19th century date (0.325kg). The base shard has a rounded basal edge and a bell-shaped kick or push up with large mamelon on the tip of the push up, suggesting it is a turn-mould bottle. The base diameter is 70mm, surviving to

a height of 103mm. The bottle was probably thrown into the ditch as a casual method of disposal.

Retention, dispersal or display

- B.2.3 The fragmentary and late nature of the assemblage means it is of little significance, beyond indicating the consumption of wine and subsequent disposal of rubbish in the late 19th or possibly early 20th century.
- B.2.4 Should further work be undertaken, the glass report should be incorporated into any later archive. If no further work on the site is undertaken, this statement acts as a full record and the glass may be deselected prior to archival deposition.

B.3 Pottery

By Carole Fletcher with Prehistoric Pottery by Matt Brudenell

Introduction

- B.3.1 Archaeological works produced a small pottery assemblage of 18 sherds, weighing 0.306kg, recovered from ditches in five separate trenches, 28, 30, 31, 34 and 35. The assemblage was widely dispersed and moderately abraded, with a moderate average sherd weight of approximately 17g.

Methodology

- B.3.2 The Prehistoric Ceramics Research Group (PCRG), Study Group for Roman Pottery (SGRP), and The Medieval Pottery Research Group (MPRG), 2016 *A Standard for Pottery Studies in Archaeology* acts as a standard. Recording was carried out using OA East's in-house system, and basic fabric classification has been carried out for all sherds, although all identifications are tentative. All sherds have been counted, classified and weighed on a context-by-context basis. The assemblage is recorded in the catalogue at the end of this report. The pottery and archive are curated by Oxford Archaeology East until formal deposition or dispersal.

Assemblage

- B.3.3 A series of trenches were excavated, of which five, 28, 30, 31, 34 and 35, produced pottery from features within them.
- B.3.4 Ditch **170** in Trench 30 produced a base sherd from a Thetford-type ware jar.
- B.3.5 The bulk of the pottery was recovered from Trench 30 (11 sherds, 0.196kg), with the majority recovered from ditch **143**, which produced seven sherds (0.184kg) from a single, sooted, medieval coarse ware jar. Ditches **135**, **137** and **147** each produced only one or two sherds of pottery.
- B.3.6 Trench 31, ditch **108**, produced only a single sherd of 18th century pottery and in Trench 34, ditch **133**, two body sherds were found from a 19th century stoneware, cylindrical bottle of a type that may have held ginger beer or gin.

B.3.7 The earliest material recovered in the evaluation came from Trench 35. Three small abraded body sherds (8g) of handmade prehistoric pottery were recovered from ditch **157**. The sherds contain coarse to very coarse, poorly sorted flint (2-5mm in size), one of which (3g) appears to have a deliberate fingertip impression on it. The sherds cannot be closely dated, but the presence of coarse flint and a fingertip impression suggests they are likely to be Bronze Age.

Discussion

B.3.8 The assemblage produced abraded Bronze Age sherds, Thetford-type ware, moderately abraded medieval sherds, with medieval material being concentrated in Trench 30, and unabraded 18th and 19th century sherds, which probably became incorporated into the ditches either by manuring or ploughing. The prehistoric pottery may be residual but does indicate some Bronze Age activity in the area of Trench 35. The single sherd of Thetford-type ware from Trench 30 may indicate some Late Saxon activity in the vicinity of this trench, and Trench 30 is also the focus of medieval pottery deposition, although there is no primary deposition. The overall paucity of pottery suggests that there was little rubbish deposition occurring and the site is some distance from settlement.

Retention, dispersal or display

B.3.9 Should further work be undertaken, it is probable that more pottery would be recovered, however, the sherds are likely to be sparse and widely distributed, outside of the area around Trench 30. If no further work on the site is undertaken, this statement acts as a full record. The pre-18th century pottery should be retained, the 18th and 19th century material may be dispersed.

Pottery Catalogue

Trench	Context	Cut	Fabric	Form and Description	No. of Sherds	Weight (kg)	Pottery Date
30	171	170	Thetford-type ware	Jar base sherd (flat, obtuse). Moderately abraded	1	0.041	Mid 9th-mid 12th century
30	136	135	Medieval Coarseware	Body sherd, abraded	1	0.004	Late 12th-14th century
30	138	137	Glazed Red Earthenware	?Jar body sherd, incised. Unabraded	1	0.003	16th-18th century
30	138	137	Unprovenanced glazed	Jug body sherd, green glaze and white slip decoration. Orange surfaces (reduced below the glaze), pale grey core. Moderately abraded	1	0.004	Late 12th-14th century
30	144	143	Medieval Coarseware (micaceous)	Jar, sooted body sherds, moderately abraded	7	0.184	Late 12th-14th century
30	148	147	Medieval Coarseware (micaceous)	Body sherd, abraded	1	0.001	Late 12th-14th century
31	109	108	Drab Stoneware	Body sherd, unabraded	1	0.007	18th century

Trench	Context	Cut	Fabric	Form and Description	No. of Sherds	Weight (kg)	Pottery Date
34	134	133	Stoneware	Cylindrical jar/bottle body sherds, unabraded	2	0.055	19th century
35	158	157	Flint-tempered	Body sherds, one with fingertip-impressed decoration, abraded	3	0.007	Bronze Age
	Totals				18	0.306	

Table 1: Pottery by Trench and context

B.4 Clay Tobacco Pipe

By Carole Fletcher

Introduction and Methodology

B.4.1 During the evaluation, a single fragment of white ball clay tobacco pipe was recovered. Simplified recording only has been undertaken, with basic description and weight recorded in the text. Stem bore hole diameter recording was not undertaken, due to the limited size of this assemblage. Terminology used in this report is taken from Oswald's simplified general typology (Oswald 1975, 37–41), and Crummy and Hind (Crummy 1988, 47–66).

Assemblage and Discussion

B.4.2 From post hole **120** in Trench 33, a single piece of clay tobacco pipe stem was recovered, with a small surviving fragment of step from heel or spur. The stem fragment is 40mm long (0.003kg) and oval in section, 8 x 6.75mm. The stem is in poor condition, with damage along one side.

B.4.3 The fragment of clay tobacco pipe recovered represents what is most likely a casually discarded pipe. The fragment does little, other than to indicate the consumption of tobacco after c.1558.

Retention, dispersal or display

B.4.4 The fragmentary nature of the assemblage means it is of little significance. Should further work be undertaken, the clay tobacco pipe report should be incorporated into any later archive. If no further work on the site is undertaken, this statement acts as a full record. The clay tobacco pipe may be deselected prior to archival deposition.

B.5 Ceramic Building Material

By Carole Fletcher

Introduction and Methodology

B.5.1 A mixed assemblage of ceramic building material (CBM), consisting of brick and tile, was recovered from features in Trenches 30, 31, and 34. In total, 3 CBM fragments, weighing 0.337kg, were retrieved. All of the CBM is moderately abraded or abraded.

B.5.2 The assemblage was quantified by context, counted, weighed, and form recorded, where this was identifiable. Fabrics are noted and dating is necessarily broad. Only complete dimensions were recorded, which was most commonly thickness. Archaeological Ceramic Building Materials Group (ACBMG) *Ceramic Building Material, Minimum Standards for Recovery, Curation, Analysis and Publication* (2002) forms the basis for recording and Woodforde (1976) and McComish (2015) form the basis for identification and dating.

Assemblage and Discussion

B.5.3 The small abraded assemblage of CBM was dispersed across three ditches. The bulk of the assemblage is not closely datable, comprising a partial brick and roof tile fragment, a single fragment was tentatively identified as a floor tile.

B.5.4 Trench 30, ditch **143**, produced a corner from a post-medieval roof tile (0.066kg), very likely a peg tile, 15-16mm thick, with sanded base and edge, drag marks on the upper surface, orange-red fabric quartz- and grog-tempered.

B.5.5 From Trench 31, ditch **108**, an irregular fragment of post-medieval brick (0.114kg) was recovered. The fragment is in a soft, dull red-orange, coarse quartz-tempered fabric with common small rounded voids, occasional rounded pebbles and angular flint.

B.5.6 Trench 34, ditch **133**, produced an irregular fragment of what has tentatively been identified as a floor tile of uncertain date possibly medieval-late medieval, in a soft, orange-red fabric quartz- and grog-tempered fabric (0.157kg, 26-22mm thick).

B.5.7 The assemblage is fragmentary and, although the CBM is indicative of structures, the paucity of CBM and levels of abrasion suggests the material is the result of manuring spreads and ploughing.

Retention, dispersal or display

B.5.8 The presence of CBM, even at low levels, suggests that, if further work is undertaken, more CBM is likely to be produced, although only at low levels and is not on the whole significant, other than to indicate the spread of CBM through ploughing. Should further work be undertaken, the CBM report should be incorporated into any later archive. If no further work is undertaken, this statement acts as a full record and the CBM may be deselected prior to archival deposition.

B.6 Waterlogged wood

By Laura James

Introduction

B.6.1 A round wood trunk (169) with two branches verging off the main trunk was recovered from context 164, pit **163**, Trench 35. The item was situated at the base of the waterlogged pit, which had a riverine clay capping helping to create the anaerobic conditions necessary for organic preservation.

Methodology

- B.6.2 This document has been produced in accordance with Historic England guidelines for the treatment of waterlogged wood (Bunning 2010) and recommendations made by the Society of Museum Archaeologists (1993) for the retention of waterlogged wood.
- B.6.3 The item has been recorded using a pro forma ‘wood recording sheet’, developed by Oxford Archaeology for the recording of waterlogged wood.
- B.6.4 Every effort was made to refit broken or fragmented items. However, due to the nature of the material, the possibility remains that some discrete yet broken items may have been processed as their constituent parts as opposed to as a whole.
- B.6.5 The metric data were measured with hand tools including rulers and tapes.
- B.6.6 The system of categorisation and interrogation developed by Taylor (1998, 2001) has been adopted within this report. Joints and fixings are described in accordance with the Museum of London archaeological site manual (Spence 1994).
- B.6.7 Items identifiable to species by morphological traits visible with a hand lens – oak (*Quercus* sp.) and ash (*Fraxinus excelsior*) – were noted. Other items were sub-sampled to allow later identification to taxa via microscopic identification as necessary.
- B.6.8 The condition scale developed by the Humber Wetlands Project (Van de Noort et al. 1995: Table 15.1) will be used throughout this report (Table 2). The condition scale is based primarily on the clarity of surface data. Material is allocated a score dependent on the types of analyses that can be carried out, given the state of preservation. The condition score reflects the possibility of a given type of analysis but does not take into account the suitability of the item for a given process. If preservation varies within a discrete item, the section that is best preserved is considered when assigning the item a condition score.

Condition of Material

- B.6.9 The condition scale developed by the Humber Wetlands Project (Van de Noort et al. 1995: Table 15.1) will be used throughout this report (Table 2).

CONDITION SCORE	MUSEUM CONSERVATION	TECHNOLOGY ANALYSIS	WOODLAND MANAGMENT	DENDRO-CRONOLOGY	SPECIES IDENTIFICATION
5 Excellent	+	+	+	+	+
4 Good	-	+	+	+	+
3 Moderate	-	+ / -	+	+	+
2 Poor	-	+ / -	+ / -	+ / -	+
1 Very Poor	-	-	-	-	+ / -
0 Non-Viable	-	-	-	-	-

Table 2: Condition Scale

- B.6.10 If preservation varies within a discrete item, the section that is best preserved is considered when assigning the item a condition score. Items that were set vertically in

the ground often display relatively better preservation lower down and relatively poorer preservation higher up.

B.6.11 Using the above condition scale (Table 2) the material scored a 3 describing an assemblage in moderate condition (Table 3).

Context Number	Species	Type	Notes	Bark/Sapwood/Heartwood	Condition Score	Wood Working	Conversion	Function	Length (mm)	Width (mm)	Thickness (mm)	Original Diameter (mm)
169	-	Roundwood	Roundwood that merges into two branches each branch shows signs of felling. The main trunk also shows that it was cut horizontally through.	S/H possible bark in some places	3	One flat plane with possible tool marks highly degraded. Each branch shows the same plane and the base was cut down.	Transverse cut at base of wood and sloping transverse/tangential cut to the branches	Felled Wood	318 - 346mm	89 - 114mm	267mm	Trunk approx 260mm, Branches 89mm and 114mm

Table 2: Material by Context

B.6.12 Material that scores 3 will have a clearly visible primary conversion and some tool facets are likely to be visible.

Interpretation

B.6.13 The item (169) was situated horizontally, orientated east-west, at the base of waterlogged pit **163**. The pit deposits were capped by what appeared to be a riverine clay, which may have helped seal the feature to create the anaerobic conditions needed for preservation.

B.6.14 The item is a round wood trunk with two branches verging off the main trunk. Each branch has been cut at the end showing one slice which is transverse/tangential across the diameter of the branch. The trunk is also cut transversely across the whole diameter. This would suggest that the living tree was cut back before being completely felled.

B.6.15 The working on each branch possibly show tool marks which are highly degraded and therefore not possible to identify, although there seems to be a sense that there are slight ridges suggesting an axe mark.

B.6.16 The identification of this species of wood was not possible by eye.

Conservation and retention

B.6.17 The wood will be kept at Oxford Archaeology’s storage facilities. Should further work be undertaken, involving the additional excavation of pit **163**, the wood could be analysed further to identify species. If not, this statement acts as a suitable record and material could be discarded. It is important to note that if conservation is carried out, the receiving museum needs to be willing to accept any conserved material.

APPENDIX C ENVIRONMENTAL REPORTS

C.1 Environmental Remains

By Rachel Fosberry

Introduction

C.1.1 Two bulk samples were taken from features within the evaluated area in order to assess the quality of preservation of plant remains and their potential to provide useful data as part of further archaeological investigations. Samples were taken from features encountered within Trenches 29 and 35 from undated deposits.

Methodology

C.1.2 The total volume (8L) of each of the samples was processed by tank flotation using modified Siraff-type equipment for the recovery of preserved plant remains, dating evidence and any other artefactual evidence that might be present. The floating component (flot) of the samples was collected in a 0.3mm nylon mesh and the residue was washed through 10mm, 5mm, 2mm and a 0.5mm sieve.

C.1.3 The dried flots were scanned using a binocular microscope at magnifications up to x 60 and an abbreviated list of the recorded remains are presented in Table 1.

Results

C.1.4 Sample 2, lower fill of ditch 130 in Trench 29 contains sparse flecks of charcoal only.

C.1.5 Sample 1, lower fill 164 of pit 163 in Trench 35 contains fragments of wood along with stems and rootlets of plant material that have been preserved by waterlogging. Identifiable items such as seeds are absent.

Sample No.	Context No.	Feature No.	Feature Type	Trench No.	Volume processed (L)	Flot Volume (ml)	Charcoal
1	164	163	pit	35	8	65	0
2	131	130	ditch	29	8	10	<1ml

Table 1: Environmental samples from SLY166

Discussion

C.1.6 The two samples taken during the evaluation of this site suggest that the potential for the preservation of plant remains is low. If further excavation is planned for this area, it is recommended that environmental sampling is carried out in accordance with Historic England guidelines (2011).

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APPENDIX E OASIS REPORT FORM

Project Details

OASIS Number	OXFORDAR3-333242		
Project Name	HMS Ganges, Shotley Gate, Shotley, Suffolk		
Start of Fieldwork	10/12/18	End of Fieldwork	14/12/18
Previous Work	No	Future Work	No

Project Reference Codes

Site Code	SLY166	Planning App. No.	B/12/00500
HER Number	SLY166	Related Numbers	

Prompt	NPPF
Development Type	Residential
Place in Planning Process	Not known/Not recorded

Techniques used (tick all that apply)

- | | | |
|--|---|---|
| <input type="checkbox"/> Aerial Photography – interpretation | <input type="checkbox"/> Grab-sampling | <input type="checkbox"/> Remote Operated Vehicle Survey |
| <input type="checkbox"/> Aerial Photography - new | <input type="checkbox"/> Gravity-core | <input checked="" type="checkbox"/> Sample Trenches |
| <input type="checkbox"/> Annotated Sketch | <input type="checkbox"/> Laser Scanning | <input type="checkbox"/> Survey/Recording of Fabric/Structure |
| <input type="checkbox"/> Augering | <input type="checkbox"/> Measured Survey | <input checked="" type="checkbox"/> Targeted Trenches |
| <input type="checkbox"/> Dendrochronological Survey | <input checked="" type="checkbox"/> Metal Detectors | <input type="checkbox"/> Test Pits |
| <input type="checkbox"/> Documentary Search | <input type="checkbox"/> Phosphate Survey | <input type="checkbox"/> Topographic Survey |
| <input checked="" type="checkbox"/> Environmental Sampling | <input type="checkbox"/> Photogrammetric Survey | <input type="checkbox"/> Vibro-core |
| <input type="checkbox"/> Fieldwalking | <input type="checkbox"/> Photographic Survey | <input type="checkbox"/> Visual Inspection (Initial Site Visit) |
| <input type="checkbox"/> Geophysical Survey | <input type="checkbox"/> Rectified Photography | |

Monument	Period
Pit	Uncertain
Ditch	Uncertain
Ditch	Medieval (1066 to 1540)
Ditch	Post Medieval (1540 to 1901)
Ditch	Modern (1901 to present)

Object	Period
Flint	Neolithic (- 4000 to - 2200)
Pottery	Bronze Age (- 2500 to - 700)
Pottery	Early Medieval (410 to 1066)
Pottery	Medieval (1066 to 1540)
Pottery	Post Medieval (1540 to 1901)
Ceramic Building Material	Post Medieval (1540 to 1901)
Clay Pipe	Post Medieval (1540 to 1901)
Glass	Post Medieval (1540 to 1901)

Project Location

County	Suffolk	Address (including Postcode) HMS Ganges, Caledonia Road, Shotley Gate, Ipswich, Suffolk, IP9 1QP.
District	Babergh	
Parish	Shotley	
HER office	Suffolk	
Size of Study Area	c. 3.1 hectares	
National Grid Ref	TM 2476 3414	

Project Originators

Organisation	Oxford Archaeology East
Project Brief Originator	Abby Antrobus
Project Design Originator	Matt Brudenell
Project Manager	Matt Brudenell
Project Supervisor	Tom Lucking

Project Archives

	Location	ID
Physical Archive (Finds)	SCCAS	SLY166
Digital Archive	SCCAS	SLY166
Paper Archive	SCCAS	SLY166

Physical Contents	Present?	Digital files associated with Finds	Paperwork associated with Finds
Animal Bones	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Ceramics	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Environmental	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Glass	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Human Remains	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Industrial	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Leather	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Metal	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Stratigraphic		<input type="checkbox"/>	<input type="checkbox"/>
Survey		<input type="checkbox"/>	<input type="checkbox"/>
Textiles	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Wood	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Worked Bone	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Worked Stone/Lithic	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
None	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Other	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Digital Media

Database	<input checked="" type="checkbox"/>
GIS	<input type="checkbox"/>
Geophysics	<input type="checkbox"/>
Images (Digital photos)	<input checked="" type="checkbox"/>
Illustrations (Figures/Plates)	<input checked="" type="checkbox"/>

Paper Media

Aerial Photos	<input type="checkbox"/>
Context Sheets	<input checked="" type="checkbox"/>
Correspondence	<input type="checkbox"/>
Diary	<input type="checkbox"/>
Drawing	<input checked="" type="checkbox"/>

Moving Image	<input type="checkbox"/>	Manuscript	<input type="checkbox"/>
Spreadsheets	<input type="checkbox"/>	Map	<input type="checkbox"/>
Survey	<input type="checkbox"/>	Matrices	<input type="checkbox"/>
Text	<input checked="" type="checkbox"/>	Microfiche	<input type="checkbox"/>
Virtual Reality	<input type="checkbox"/>	Miscellaneous	<input type="checkbox"/>
		Research/Notes	<input type="checkbox"/>
		Photos (negatives/prints/slides)	<input type="checkbox"/>
		Plans	<input type="checkbox"/>
		Report	<input checked="" type="checkbox"/>
		Sections	<input checked="" type="checkbox"/>
		Survey	<input type="checkbox"/>

Further Comments

APPENDIX F WRITTEN SCHEME OF INVESTIGATION



HMS Ganges, Shotley Gate, Shotley, Suffolk

Development Phases 1 and 2, 2nd Stage Evaluation Written Scheme of Investigation

Client: Haylink Ltd

Prepared by Matt Brudenell
Date prepared November 2018
Version 1

Planning application no. B/12/00500
Site code XSGSG18
Project number 22818
Project type Trial trench evaluation
NGR TM 2476 3414
Parish Code SLY166



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1 GENERAL BACKGROUND

- 1.1.1 This Written Scheme of Investigation (WSI) conforms to the principles identified in Historic England's guidance documents *Management of Research Projects in the Historic Environment (MoRPHE)*, specifically the *MoRPHE Project Manager's Guide (2015)* and *Project Planning Note 3: Archaeological Excavation (2008)*.
- 1.1.2 All work will be conducted in accordance with the Chartered Institute for Archaeologists *Code of Conduct (2014)* and *Standard and Guidance for Archaeological Field Evaluation (2014)*.
- 1.1.3 This WSI also incorporates the requirements of the *EAA Standards for Field Archaeology in the East of England (Gurney 2003)* and conforms to the Suffolk County Council's *Requirements for Trenched Archaeological Evaluation (2017)* document.

1.2 Circumstances of the project

- 1.2.1 Oxford Archaeology East (OA East) have been commissioned by Haylink Ltd to undertake a second stage trenched evaluation of the Phase 1 and 2 development areas on land with planning consent for mixed use development including the erection of 285 new dwellings, parking, landscaping and the construction of community amenities, at HMS Ganges, Shotley Gate, Shotley, Suffolk.
- 1.2.2 This WSI has been prepared in response to a Brief for a Trenched Archaeological Evaluation issued by Abby Antrobus of the Suffolk County Council Archaeological Service (SCCAS), dated 01/11/2018, and is required by Mid Suffolk District Council in respect to Condition 7 of planning application B/12/00500.
- 1.2.3 The work follows on from a first stage trial trench evaluation conducted in 2010 prior to determination of the application (Sommers 2010; Suffolk County Council Archaeological Service Report 2010/119).
- 1.2.4 The decision on the need for any further work/mitigation will be made by SCCAS following the combined results of the first and second stage evaluation. The scope of any further work (if required) will be specified in a separate SCCAS brief, and will require the submission and approval of a separate WSI.

1.3 The archaeological strategy

- 1.3.1 The programme of archaeological investigation will comprise:
- A suitable level of document research, drawing on appropriate information from the Suffolk Historic Environment Record (SHER)
 - A second stage trial trenched evaluation of the Phase 1 and 2 development areas. This will comprise the excavation of 12 trenches located in the north-west corner of the site and along the access route in

the south-east. This will comprise 7x 30m long trenches, 1x 45m long L-shaped trench, and 4x 15m long trenches. All trenches will be 1.8m wide.

1.4 Changes to this method statement

- 1.4.1 If changes need to be made to the methods outlined below – either before or during works on site – the SCCAS will be informed and asked to consider changes before they are made. Changes will be agreed before work on site commences, or else at the earliest available opportunity.

2 LOCATION, GEOLOGY AND TOPOGRAPHY OF THE SITE

- 2.1.1 HMS Ganges is located at the southern tip of the Shotley Peninsula, with the River Orwell to the east and the River Stour to the west. The Phase 1 and 2 development area (the site, c. 3.1ha) is situated in the north-west corner of the development envelope, with the access route running through Phases 1 and 2 then south (through an area already evaluated) and turning southeast off King Edward VII Drive (centred TM 2476 3414). The site is on broadly level ground across former playing fields at 22-23m OD, whereas the access route crosses the slope of peninsula point between 13-21m OD, and traverses an area of former (demolished) barrack blocks.
- 2.1.2 The underlying geology of the site comprises Kesgrave Catchment Subgroup sands and gravels capped by fine-grained loess deposits, 0.3-0.4m thick (Sommers 2010). The solid geology of the peninsula point slopes comprises Thames Group clay, silts and sands.
- 2.1.3 The site is currently under overgrown grass and low scrub.

3 ARCHAEOLOGICAL BACKGROUND

3.1.1 The following section provides a brief summary of the archaeological and historical background for the area surrounding the site. This draws on information obtained from the following sources:

- Breen, A. and Sommers, M., 2002, HMG Ganges, Shotley. An Assessment of the archaeological Potential of the Former HMS Ganges Royal Naval Training Establishment, Shotley, Suffolk. Suffolk County Council Archaeological Service Report 2002/6
- Sommers, M., 2006. Land at Shotley Marina King Edward Drive VII, Shortley. Suffolk. Suffolk County Council Archaeological Service Report 2006/213
- EDP, 2007, HMG Ganges, Shotley, Suffolk. Archaeological Desk-Based Assessment. EPD
- Graham, C. 2009. HMG Ganges, Shotley, Suffolk. Geophysical Survey Report.
- Sommers, M., 2010, HMS Ganges, Shotley Gate, Shotley SLY 166. Archaeological Evaluation report. Suffolk County Council Archaeological Service Report 2010/119
- The Suffolk Historic Environment Record (SHER).

3.2 Prehistoric and Roman

3.2.1 A large area of cropmarks relating to prehistoric, Roman, medieval and post-medieval trackways and field systems are recorded on the outskirts of Shortly Gate on arable land to the north-west of the site (SLY 044; ARW20). Of note is a ring-ditch, located c. 280m to the north-west (SLY 051), likely to be the remains of a ploughed-out Bronze Age barrow. A Bronze Age spear head was also found in the vicinity of the ring-ditch (SLY 001).

3.2.2 A single sherd of possible Roman pottery was recovered from the first stage evaluation of the site (SLY 166; Sommers 2010). The sherd was unstratified.

3.3 Saxon and Medieval

3.3.1 The first stage evaluation of the site revealed evidence of Saxon activity (SLY 166; Sommers 2010). A series of ditches were uncovered, two of which yielded single sherds of Early Saxon pottery, with a third ditch containing a sherd of Middle Saxon pottery. Three sherds of medieval pottery were also recovered, one from a ditch fill and two as unstratified finds from the topsoil.

3.3.2 An area of late medieval/ post-medieval activity was also identified on the western road frontage with a number of sherds recovered from two pits, one of which may have been a well. The neck of a medieval jar has also been found c. 400m south of the site (SLY 003)

3.4 19th century fortifications and the establishment of HMS Ganges

- 3.4.1 Two Martello Towers were constructed on the peninsula point between 1808-1812 (SLY 032; 033) as part of a system of coastal defences during the Napoleonic Wars. The southernmost tower (SLY 032; SAM ref. 1005993), known as Martello Tower 'L,' lies within the HMS Ganges development envelope and is a Grade II listed building. Martello Tower 'M' is located c. 600m to the north-east of Tower 'L' (SLY 033; SAM ref. 1194492) and is also a Grade II listed building.
- 3.4.2 Between 1862-1863, Shotley Fort/Shotley Point Battery (SLY 062; SMA ref. 1021290) was constructed to supplement the existing defensive structures of the two Martello Towers. The battery was seven sided, with an earthen rampart on the four sides which overlooked the harbour to the south, east and north-east. It was surrounded by a Carnot wall with five bastions, two of them at the gorge (rear), and four demi-bastions. The whole was surrounded by an outer ditch.
- 3.4.3 The guns of Shortly Fort were last used in 1901. In 1900 a Royal Naval Hospital with 90 beds was built within the southern area of the HMS Ganges development envelope, adjacent to Martello Tower 'L'. In 1904 construction of the Royal Navy Training Establishment (SLY 094) began (named HMS Ganges in 1927) and this became operational in 1905. The site covered c. 34ha, with buildings comprising 35 dormitories, 12 classrooms, recreation and lecture rooms, a gymnasium and laundry, with quarters for staff. Construction works resulted in the substantial levelling of the earlier Shotley Fort fortifications. An extant landmark feature of HMS Ganges is the Grade II listed ceremonial mast (ref 1036850). This was erected in 1907.

3.5 Second World War

- 3.5.1 The site lies at the centre of a series of former WWII features and installations protecting the peninsula point. At HMS Granges itself, air photographs from the 1940s show a crenelated ditch on the northern boundary of the Phase 1 and 2 development areas (SLY 088), which are probably connected with a World War II air-raid shelter. A series of pits of unknown function also border the road along the western side of the B1456/Bristol Hill, opposite the site (SLY 089). Furth west was a Heavy Anti-aircraft Artillery battery and associated structures (SLY 087), whilst to the south and east, just beyond the HMS Ganges development envelope, were two barrage balloon mooring sites (SLY 076; 082).
- 3.5.2 250m to the north of the site was an emplacement with slit trench and barbed wire (SLY 074), with a long barbed wire obstruction to the north (SLY 072). This formed part of a series of barbed wired obstructions along the Orwell and Store foreshores and landward side of the peninsula point (SLY 070; 072; 084; 091). A command centre (SLY 093) was also located c. 350m to the north-west of the site.

3.6 Post-War usage of HMS Ganges

- 3.6.1 Following the close of the training station in 1976 the site was put to various uses including a Eurosports Village and a police training college from 1988-1999. A substantial number of buildings within the central area of the site have been demolished leaving hardstanding and rubble which have been colonised by plants and shrubs.

AIMS AND OBJECTIVES

3.7 Aims of the evaluation

- 3.7.1 This evaluation will seek to establish the character, date and state of preservation of archaeological remains within the proposed development area. The scheme of works detailed below aims to:
- establish the presence or absence of archaeological remains on the site, characterise where they are found (location, depth and extent), and establish the quality of preservation of any archaeology and environmental remains
 - provide sufficient coverage to establish the character, condition, date and purpose of any archaeological deposits
 - provide sufficient coverage to evaluate the likely impact of past land uses, and the possible presence of masking deposits
 - set results in the local and regional archaeological context – and, in particular, its wider cultural landscape and past environmental conditions
 - provide – in the event that archaeological remains are found – sufficient information to construct an archaeological mitigation strategy, dealing with preservation, the recording of archaeological deposits, working practices, timetables, and orders of cost.

3.8 Research frameworks

- 3.8.1 This excavation takes place within, and will contribute to the goals of Regional Research Frameworks relevant to this area:
- Glazebrook J. (1997). *Research and Archaeology: A Framework for the Eastern counties: 1. Resource Assessment*. East Anglian Archaeology Occasional Papers 3.
 - Brown, N. & Glazebrook, J. (2000). *Research and Archaeology: A Framework for the Eastern counties: 2. Research Agenda and Strategy*. East Anglian Archaeology Occasional Papers 8.
 - Medlycott, M. (2011). *Research and Archaeology Revisited: A Revised Framework for the East of England*. East Anglian Archaeology Occasional Papers 24.

4 METHODS

4.1 Background research

- 4.1.1 A suitable level of background research will be undertaken before work on site commences. This research will draw on information in the County Historic Environment Record and County Records Office, and will include historical sources, maps, previous archaeological finds, and past archaeological investigations in the vicinity. The results will not be presented separately, but will be incorporated into the final evaluation report.

4.2 Parish code, site code and OASIS number

- 4.2.1 The parish code SLY 166 has been obtained from the Suffolk HER, and a unique site code assigned to the project (XSFGSG18). Trench numbers will follow on from the 2010 evaluation, beginning at Trench 28. The OASIS number for the project is oxfordar3-333242.

4.3 Trial Trenching

Excavation standards

- 4.3.1 The proposed archaeological evaluation and analysis will be conducted in accordance with current best archaeological practice and the appropriate national and regional standards and guidelines.
- 4.3.2 All work will be conducted in accordance with the Chartered Institute for Archaeologists' *Code of Conduct and Standard and Guidance for Archaeological Field Evaluations*.
- 4.3.3 All fieldwork will be undertaken in accordance with the requirements of the OA Field Manual (ed. D Wilkinson 1992), and the revised OA fieldwork manual (publication forthcoming). Further guidance is provided to all excavators in the form of the OA *Fieldwork Crib Sheets – a companion guide to the Fieldwork Manual*. These have been issued ahead of formal publication of the revised Fieldwork Manual.

Pre-commencement

- 4.3.4 Before work on site commences, service plans will be checked to ensure that access and groundworks can be conducted safely. Before trenching, the footprint of each trench will be scanned by a qualified and experienced operator using a CAT and Genny with a valid calibration certificate.
- 4.3.5 In order to minimise damage to the site and disruption to site users, Oxford Archaeology will agree the following with the client/landowner before work on site commences:
- the location of entrance ways
 - sites for welfare units
 - soil storage areas

- refuelling points for plant (if necessary), and the extent of any bunding required around fuel dumps
- access routes for plant and vehicles across the site

4.3.6 Access routes to, from and between trenches will be agreed on site at the start of works. Where possible, access routes will use tramlines in the crop, in order to reduce crop damage.

Excavation methods

4.3.7 A total of 12 trenches will be excavated in the positions shown on the plan attached to this WSI. These will comprise 7x30m long trenches, 1x 45m long L-shaped trench, and 4x 15m long trenches. All trenches will be 1.8m wide.

4.3.8 The trenches will set out by a Leica survey-grade GPS fitted with "smartnet" technology with an accuracy of 5mm horizontal and 10mm vertical. Crop-permitting, the footprint of the trenches will also be metal detected prior to machining (see Section 5.7).

4.3.9 All trenches will be excavated by a mechanical excavator to the depth of geological horizons, or to the upper interface of archaeological features or deposits, whichever is encountered first. Overburden will be excavated in spits. A toothless ditching bucket with a bucket size of 1.8m will be used to excavate the trenches.

4.3.10 Topsoil, subsoil, and archaeological deposits will be kept separate during excavation, to allow for sequential backfilling of excavations. The trenches will not be backfilled without the approval of the SCCAS.

4.3.11 All machine excavation will take place under constant supervision of a suitably qualified and experienced archaeologist. The top of the first archaeological deposit will be cleared by machine, but will then be cleaned off by hand. Any archaeological deposits present will then be excavated by context to the level of the geological horizon where safe to do so. Trench spoil will be scanned visually and with a metal detector to aid recovery of artefacts.

4.4 Excavation of archaeological features and deposits

4.4.1 Excavation of all archaeological deposits will be done by hand unless otherwise agreed by the SCCAS. Significant archaeological features (e.g. solid or bonded structural remains, building slots or post-holes) will be preserved intact, even if fills are sampled.

4.4.2 Exposed surfaces will be cleaned by trowel and hoe as necessary in order to clarify features and deposits. Unless otherwise agreed by the SCCAS all features will be investigated and recorded to provide an accurate evaluation of archaeological potential, whilst at the same time minimising disturbance to archaeological structures, features and deposits.

4.4.3 There will be sufficient excavation to give clear evidence for the period, depth, and nature of any archaeological deposit. Investigation slots through all linear features will be a least 1m in width. Discrete features will be half-sectioned or excavated in quadrants where they are large or found to be

deep. In necessary, an auger will be used to gain information from deep deposits below 1m in depth.

4.5 Recording of archaeological deposits and features

4.5.1 Records will comprise survey, drawn, written, and photographic data.

Survey

4.5.2 Surveying will be done using a survey-grade differential GPS (Leica CS10/GS08 or Leica 1200) fitted with "smartnet" technology with an accuracy of 5mm horizontal and 10mm vertical.

4.5.3 The site grid will be accurately tied into the Ordnance Survey National Grid and located on the 1:2500 or 1:1250 map of the area. Elevations will be levelled to the Ordnance Datum.

Written records

4.5.4 A register of all trenches, features, photographs, survey levels, small finds, and human remains will be kept.

4.5.5 All features, layers and deposits will be issued with unique context numbers. Each feature will be individually documented on context sheets, and hand-drawn in section and plan. Written descriptions will be recorded on pro-forma sheets comprising factual data and interpretative elements.

4.5.6 Where stratified deposits are encountered, a Harris Matrix will be compiled during the course of the excavation.

Plans and sections

4.5.7 Site plans will normally be drawn at 1:50, but on deeply-stratified sites a scale of 1:20 will be used. Detailed plans of individual features or groups will be at an appropriate scale (1:10 or 1:20).

4.5.8 Long sections showing layers will be drawn at 1:50. Sections of features or short lengths of trenches will be drawn at 1:20. All section levels will be tied in to Ordnance Datum.

4.5.9 All site drawings will include the following information: site name, site code, scale, plan or section number, relevant context or feature numbers, orientation, date and the name or initials of the archaeologist who prepared the drawing.

Photogrammetric recording

4.5.10 Plans and sections may be supplemented with photogrammetric recording of the excavation areas. Photogrammetric models will be based on high-resolution digital photographs with a minimum file size of 5 MB. Photogrammetric processing will be conducted using the Agisoft Photosoft (Professional Edition) software, and will incorporate reference points taken by GPS-based survey equipment.

Photographs

- 4.5.11 The photographic record will comprise high resolution digital photographs.
- 4.5.12 Photographs will include both general site shots and photographs of specific features. Every feature will be photographed at least once. Photographs will include a scale, north arrow, site code, and feature number (where relevant), unless they are to be used in publications. The photograph register will record these details, and photograph numbers will be listed on corresponding context sheets.

4.6 Exceptional remains, including human remains

Significant archaeological features

- 4.6.1 If exceptional or unexpected features are uncovered, the SCC Archaeology Service will be informed, and their advice sought on further excavation or preservation.
- 4.6.2 Significant archaeological features (e.g. solid or bonded structural remains, building slots or post-holes) will be preserved intact, even if fills are sampled. The following features will normally be cleaned, recorded and preserved for future excavation, unless directed to by the SCC Archaeology Service:
- layers relating to domestic, craft or industrial activity (e.g. floor, middens)
 - discrete features relating to domestic or industrial activity (e.g. kilns, ovens, hearths)
 - artefact scatters (e.g. flint, metal-working debris).
- 4.6.3 If preservation *in situ* is required by the SCC Archaeology Service, all exposed surfaces will be cleaned and prepared for reburial beneath construction materials. If appropriate, the areas will be protected with geotextile or other buffering materials.

Human remains

- 4.6.4 If human remains are encountered, the Client, Suffolk Coroner, and the SCC Archaeology Service will be informed immediately.
- 4.6.5 Unless directed otherwise by the SCC Archaeology Service, human remains will be left in situ (covered and protected), until a full programme of excavation is agreed by the SCC Archaeology Service and Client. No further excavation will then take place in the vicinity of the remains until removal becomes necessary. If the remains are under imminent threat, or if the SCC Archaeology Service requires information on date and preservation, we will excavate and remove them.
- 4.6.6 Human remains will be excavated in accordance with all appropriate legislation and Environmental Health regulations. Excavation will only take place after Oxford Archaeology has obtained a Ministry of Justice exhumation licence.

4.7 Metal detecting and the Treasure Act

- 4.7.1 Metal detector searches will take place at all stages of the excavation by an experienced metal detector user (Tom Lucking). Excavated areas will be detected immediately before and after mechanical stripping. Both excavated areas and spoil heaps will be checked. To prevent losses from night-hawking, features will be metal detected immediately after stripping.
- 4.7.2 Metal detectors will not be set to discriminate against iron.
- 4.7.3 Artefacts will be removed and given a small find number. Labels will be placed on the location of each 'small find' and surveyed in with a GPS.
- 4.7.4 If finds are made that might constitute 'Treasure' under the definition of the Treasure Act (1996), they will, if possible, be excavated and removed to a safe place. Should it not be possible to remove the finds on the day they are found, suitable security will be arranged. Finds that are 'Treasure' will be reported to the landowner and Suffolk Coroner within 14 days, in accordance with the Act. The County Finds Liaison Officer from the Portable Antiquities Scheme will also be informed.

4.8 Post-excavation processing

- 4.8.1 Processing will take place in tandem with excavation, and advice will be sought from relevant specialists on key artefact types. The Project Manager and fieldwork project officer will be given feedback to enable them to develop excavation strategies during fieldwork.
- 4.8.2 Any finds requiring specialist treatment and conservation will be sent for appropriate treatment.
- 4.8.3 Finds will be marked with context numbers, site code or accession number, as detailed in the requirements of the Suffolk County Council Stores.

4.9 Finds recovery and processing

Standards for finds handling

- 4.9.1 Finds will be exposed, lifted, cleaned, conserved, marked, bagged, and boxed in line with the standards in:
- United Kingdom Institute for Conservators (2012) *Conservation Guidelines No. 2*
 - Watkinson & Neal (1988) *First Aid for Finds*
 - Chartered Institute for Archaeologists (2014) *Standard and Guidance for the Collection, Documentation, Conservation and Research of Archaeological Materials*
 - English Heritage (1995) *A Strategy for the Care and Investigation of Finds*.
- 4.9.2 Where finds require conservation, this will be done in accordance with the guidelines of the Institute for Conservation (ICON),

Procedures for finds handling

- 4.9.3 At the start of work, a finds supervisor will be appointed to oversee the collection, processing, cataloguing, and specialist advice on all artefacts collected.
- 4.9.4 Artefacts will be collected by hand, sieving, and metal detector. Excavation areas and spoil will be scanned visually and with a metal detector to aid recovery of artefacts. All finds will be bagged and labelled according to the individual deposit from which they were recovered, ready for later cleaning and analysis. 'Special/small finds' may be located more accurately by GPS if appropriate.
- 4.9.5 Processing will take place in tandem with excavation, and advice will be sought from relevant specialists on key artefact types. (See the Appendix for a list of specialists.)
- 4.9.6 All artefacts recovered from excavated features will be retained for post-excavation processing and assessment, except:
- those which are obviously modern in date
 - where very large volumes are recovered (typically ceramic building material)
 - where directed to discard on site by the SCC Archaeology Service.
- 4.9.7 Where artefacts are not removed from site, a strategy will be employed to ensure a sufficient sample is retained, in order to characterise the date and function of the features they were excavated from. A record will be kept of the quantity and nature of artefacts which are not removed from site.

4.10 Sampling for environmental remains and small artefact retrieval

Standard methodology

- 4.10.1 Sampling methods will follow guidelines produced by Historic England and Oxford Archaeology. The project team will consult Historic England's Scientific Advisor on environmental sampling and dating where necessary. Where possible an environmental specialist(s) will visit the site to advise on sampling strategies which will be reviewed periodically during the length of the excavation. Specialists will be consulted where non-standard sampling is required (e.g. TL, OSL or archaeomagnetic dating) and if appropriate will be invited to visit the site and take the samples.

Standards for environmental sampling and processing

Paleoenvironmental remains will be sampled and processed in accordance to the OA Sampling Policy (2005) with reference to the relevant guidelines produced by Historic England:

- Oxford Archaeology 2005. *Environmental Sampling Guidelines*, 2nd ed.
- Historic England 2011. *Environmental Archaeology. A guide to the theory and practice of methods, from sampling and recovery to post excavation*, (2nd ed)
- Historic England 2008. *Guidelines for the Curation of Waterlogged Macroscopic Plant and Invertebrate Remains*.

- Historic England 2010. *Waterlogged Wood: Guidelines on the recording, sampling, conservation and curation of waterlogged wood.*
- Historic England 2012. *Waterlogged organic artefacts. Guidelines on their recovery, analysis and conservation.*
- Historic England 2008. *Investigative conservation. Guidance on how detailed examination of artefacts from archaeological sites can shed light on their manufacture and use.*
- Historic England 2014. *Animal Bones and Archaeology. Guidelines for Best Practice.*
- Historic England 2004. *Dendrochronology: Guidelines on Producing and Interpreting Dendrochronological Dates.*
- Historic England 2006. *Archaeomagnetic Dating. Guidelines for Producing and Interpreting Archaeomagnetic Dates.*
- Historic England 2008. *Luminescence Dating. Guidelines on Using Luminescence Dating in Archaeology.*
- Historic England 2015. *Archaeometallurgy. Guidelines for Best Practice.*
- Historic England 2015. *Geoarchaeology. Using Earth Sciences to Understand the Archaeological Record.*

Procedures for sampling and processing

- 4.10.2 Environmental samples (up to 40 litres or 100% of context if less is available) will be taken from a range of potentially datable features and well-stratified deposits to target the recovery of plant remains, fish, bird, small mammal and amphibian bone and small artefacts. Samples will be labelled with the site code, context number, and sample number and a register will be kept.
- 4.10.3 Larger soil samples (up to 100L) may be taken for the complete recovery of animal bones, marine shell and small artefacts from appropriate contexts. Smaller bulk samples (general biological samples) of 20 litres will be taken from any waterlogged deposits present for the recovery of macroscopic plant remains and insects. Series of incremental 2L samples may be taken through buried soils and deep feature fills for the recovery of snails and/or waterlogged plant remains, depending on the nature of the stratigraphy and of the soils and sediments.
- 4.10.4 Columns will be taken from buried soils, peats and waterlogged feature fills for pollen and/or phytoliths, diatoms, ostracods if appropriate. Soil samples will be taken for soil investigations (particle size, organic matter, bulk chemistry, soil micromorphology etc.) in consultation with the appropriate specialists. Where features containing very small artefacts such as micro-debitage and hammerscale are identified, 1L grid sampling may be employed.
- 4.10.5 Early feedback on selected samples taken during the excavation will result in a dynamic sampling strategy according the results of rapid assessment of typically 10L sub-samples.
- 4.10.6 Typically, 20 litres of each bulk sample will be processed standard water flotation using a modified Siraf-style machine and meshes of 0.3mm (flot) and 0.5 or 1mm depending on sediment type and like modes of preservation (residue). The remaining soil from a sample will be subsequently processed if appropriate based on the results of an initial assessment. Normally, early

prehistoric samples will be fully processed and samples containing human remains will always be fully processed. Heavy residues will be wet sieved, air dried and selectively sorted. Samples taken exclusively for the recovery of bones, marine shell or artefacts will be wet sieved to 2mm. Waterlogged samples will have a sub-sample (approximately 10L) processed as above and the flots will be assessed whilst wet and again once dried. Snail samples (2L) will be processed by hand flotation with flots and residues collected to 0.5mm; these flots and residues will be sorted by the specialist.

- 4.10.7 Where practical, waterlogged wood specimens will be recorded in detail on site, in situ. When removed, they will be cleaned and photographed, and stored in wet cool conditions for assessment by a suitably qualified specialist (see the Appendix).

5 REPORTING

5.1 Evaluation Report

- 5.1.1 Post-excavation analysis and reporting will follow guidance in Historic England's *Management of Research Projects in the Historic Environment* (2015).

5.2 Contents of the evaluation report

- 5.2.1 The report will include:
- a title page detailing site address, site code and accession number, NGR, author/originating body, client's name and address
 - full list of contents
 - a non-technical summary of the findings
 - the aims of the evaluation
 - a description of the geology and topography of the area
 - a description of the methodologies used
 - a description of the findings
 - tables summarising features and artefacts
 - site and trench location plans, and plans of each area excavated showing the archaeological features found
 - sections of excavated features
 - interpretation of the archaeological features found
 - specialist reports on artefacts and environmental finds
 - relevant colour photographs of features and the site
 - a predictive model of surviving archaeological remains, where affected by development proposals, and assessment of their importance at local, and regional level.
 - a discussion of the relationship between findings on the site and other archaeological information held in the Suffolk Historic Environment Record
 - a mitigation strategy for future work
 - a bibliography of all reference material
 - the OASIS reference and summary form.

5.3 Draft and final reports

- 5.3.1 A draft copy of the report will be supplied to the SCC Archaeology Service for comment.
- 5.3.2 Following approval of the report, one printed copy and one digital copy (PDF) will be presented to the SCCAS for deposition with the Suffolk Historic Environment Record.
- 5.3.3 Where positive results are drawn from the evaluation, a summary statement will be provided to the SCCAS suitable for inclusion in the *Proceedings of the Suffolk Institute of Archaeology and History* annual round up.

5.4 OASIS

- 5.4.1 A digital copy of the approved report will be uploaded to the OASIS database.
- 5.4.2 A copy of the OASIS Data Collection Form will be included in the report.

6 ARCHIVING

Archive standards

- 6.1.1 The site archive will conform to the requirements of Appendix 1 of the Historic England's (2015) *Management of Research Projects in the Historic Environment* (MoRPHE) and *the Archaeological Archives in Suffolk, Guidelines for preparation and deposition* (Suffolk County Council Archaeological Service 2017).
- 6.1.2 The preparation of the archive will follow the guidelines contained in *Guidelines for the Preparation of Excavation Archives for Long Term Storage* (United Kingdom Institute for Conservation, 1990), *Standards in the Museum care of Archaeological Collections* (Museums and Galleries Commission 1992), and *Archaeological Archives: A guide to best practice in creation, compilation, transfer and curation* (Brown 2007).

Archive contents

- 6.1.3 The archive will be quantified, ordered, and indexed. It will include:
- artefacts
 - ecofacts
 - project documentation – including plans, section drawings, context sheets, registers, and specialist reports
 - photographs (digital photographs will be stored on CD-ROM, and colour printouts made of key features)
 - an archive-standard CD-ROM with electronic documentation (such as GIS and CAD files)
 - a printed copy of the Written Brief
 - a printed copy of the WSI
 - a printed copy of the final report
 - a printed copy of the OASIS form.
- 6.1.4 It is Oxford Archaeology Ltd's policy, in line with accepted practice, to keep site archives (paper and artefactual) together wherever possible.

Transfer of ownership

- 6.1.5 The archaeological material and paper archive produced from this investigation will be held in storage by OA East who will seek to transfer the complete project archive to the Suffolk County Council Stores, in order to facilitate future study and ensure long-term public access to the archive. To do so will require a transfer of title to the repository in line with the county's guidance on deposition of archaeological archives. Where the landowner wishes to retain items recovered during excavation, all selected artefacts will be fully drawn and photographed, identified, analysed, documented and conserved in order to create a comprehensive catalogue of items to be kept by the landowner before the remainder of the archive can be deposited in the Suffolk County Council Stores.
- 6.1.6 A written transfer of ownership document will be forwarded to the SCC Archaeology Service before the archive is deposited.

- 6.1.7 In the unlikely event that artefacts of significant monetary value are discovered, and if they are not subject to Treasure Act legislation, separate ownership arrangements may be negotiated following the creation of a comprehensive illustrated catalogue, as described above.

7 TIMETABLE

- 7.1.1 Trial trenching is expected to take approximately 3-4 working days to complete, based on a five-day week, working Monday to Friday. This does not allow for delays caused by bad weather, but it does include time for site set-up and final backfilling of trenches.
- 7.1.2 Post-excavation processing and assessment tasks will commence shortly after excavation commences, to inform the excavation strategy, and minimise time required to prepare the final report after excavation is completed.
- 7.1.3 Post-excavation tasks and report writing will take a maximum of four weeks following the end of fieldwork, unless there are exceptional discoveries requiring lengthier analysis.
- 7.1.4 The project archive will be deposited within six months of delivering the final report, unless the SCC Archaeology Service requires further excavation on the site.

8 STAFFING AND SUPPORT

8.1 Fieldwork

- 8.1.1 The fieldwork team will be made up of the following staff:
- 1 x Project Manager (supervisory only, not based on site)
 - 1 x Project Officer/Supervisor (full-time)
 - 2 x Site Assistants (as required)
 - 1 x Archaeological Surveyor
 - 1 x Finds Assistant (part-time, as required)
 - 1 x Environmental Assistant (part-time, as required)
- 8.1.2 The Project Manager will be Matt Brudenell. Site work will be directed by one of OAE's Project Officers or Supervisors.
- 8.1.3 All Site Assistants will be drawn from a pool of qualified and experienced staff. Oxford Archaeology East will not employ volunteer, amateur, or student staff, whether paid or unpaid, except as an addition to the team stated above.

8.2 Post-excavation processing

- 8.2.1 We anticipate that the site may produce later prehistoric to medieval remains. Environmental remains will also be sampled.
- 8.2.2 Pottery will be assessed by Matt Brudenell (prehistoric), Alice Lyons (Roman) and Carole Fletcher (Anglo-Saxon and medieval).
- 8.2.3 Environmental analysis will be carried out by OA East staff, in consultation with the OA Environmental Department in Oxford. The results will be reported to Historic England's Regional Scientific Advisor. Environmental analysis will be undertaken by Rachel Fosberry (charred plant macrofossils, plant macrofossils), Liz Stafford (land molluscs), and Denise Druce and Mairead Rutherford (pollen analysis).
- 8.2.4 Faunal remains will be examined by Hayley Foster.
- 8.2.5 Conservation will be undertaken by Ipswich and Colchester Museums / Karen Barker (Antiquities Conservator), and will be undertaken in accordance with guidelines issued by the Institute for Conservation (ICON).
- 8.2.6 In the event that OA's in-house specialists are unable to undertake the work within the time constraints of the project, or if other remains are found, specialists from the list in the Appendix will be approached to carry out analysis.

9 OTHER MATTERS

9.1 Monitoring

- 9.1.1 The SCC Archaeology Service will be informed appropriately of dates and arrangements to allow for adequate monitoring of the works.
- 9.1.2 During the excavation, representatives of Oxford Archaeology East (Matt Brudenell), Haylink Ltd (Richard Mortimer, CgMs) and the SCC Archaeology Service (Abby Antrobus) will meet on site to monitor the excavations, discuss progress and findings to date, and excavation strategies to be followed.

9.2 Insurance

- 9.2.1 OA East is covered by Public and Employer's Liability Insurance. The underwriting company is Lloyds Underwriters, policy number CC004337. Details of the policy can be supplied on request to the Oxford Archaeology East office.

9.3 Chartered Institute for Archaeologists

- 9.3.1 Oxford Archaeology is a Registered Organisation with the Chartered Institute for Archaeologists (CIfA), and is bound by CIfA By-Laws, Standards, and Policy.

9.4 Services, Public Rights of Way, Tree Preservation Orders etc.

- 9.4.1 The client will inform the project manager of any live or disused cables, gas pipes, water pipes or other services that may be affected by the proposed excavations before the commencement of fieldwork. Hidden cables/services should be clearly identified and marked where necessary. If there are overhead cables on the site or in the approachways, a survey must be completed by the relevant authority before plant is taken onto site.
- 9.4.2 The client will likewise inform the project manager of any public rights of way or permissive paths on or near the land which might affect or be affected by the work.
- 9.4.3 The client will inform the Project Manager if the site is a Scheduled Ancient Monument, Site of Special Scientific Interest (SSSI), or any other type of designated site. The client will also inform the project manager of any trees subject to Tree Preservation Orders, protected hedgerows, protected wildlife, nesting birds, or areas of ecological significance within the site or on its boundaries.

9.5 Site Security

- 9.5.1 Unless previously agreed with the Project Manager in writing, this specification and any associated statement of costs is based on the assumption that the site will be sufficiently secure for archaeological work to

commence. All security requirements, including fencing, padlocks for gates etc. are the responsibility of the client.

9.6 Access

- 9.6.1 The client will secure access to the site for archaeological personnel and plant, and obtain the necessary permissions from owners and tenants to place a mobile office and portable toilet on or near to the site. Any costs incurred to secure access, or incurred as a result of withholding of access will not be Oxford Archaeology's responsibility. The costs of any delays as a result of withheld access will be passed on to the client in addition to the project costs already specified.

9.7 Site Preparation

- 9.7.1 The client is responsible for clearing the site and preparing it so as to allow archaeological work to take place without further preparatory works, and any cost statement accompanying or associated with this specification is offered on this basis. Unless previously agreed in writing, the costs of any preparatory work required, including tree felling and removal, scrub or undergrowth clearance, removal of concrete or hard standing, demolition of buildings or sheds, or removal of excessive overburden, refuse or dumped material, will be charged to the client, in addition to any costs for archaeological evaluation already agreed.

9.8 Site offices and welfare

- 9.8.1 All site facilities – including welfare facilities, tool stores, mess huts, and site offices – will be positioned to minimise disruption to other site users, and to minimise impact on the environment (including buried archaeology).

9.9 Backfilling/Reinstatement

- 9.9.1 Backfilling – but not specialist reinstatement – of trenches is included in the cost unless otherwise agreed with the client. Backfilling will only take place with the approval of the SCC Archaeology Service.

9.10 Health and Safety, Risk Assessments

- 9.10.1 A risk assessment and method statement (RAMS) covering all activities to be carried out during the lifetime of the project will be prepared before work commences, and sent to the SCC Archaeology Service.
- 9.10.2 The risk assessment will conform to the requirements of health and safety legislation and regulations, and will draw on OA East's activity-specific risk assessment literature.
- 9.10.3 All aspects of the project, both in the field and in the office will be conducted according to OA East's Health and Safety Policy, Oxford Archaeology Ltd's Health and Safety Policy, and Health and Safety in Field

Archaeology (J.L. Allen and A. St John-Holt, 1997). A copy of OA East's Health and Safety Policy can be supplied on request.

10 APPENDIX: CONSULTANT SPECIALISTS

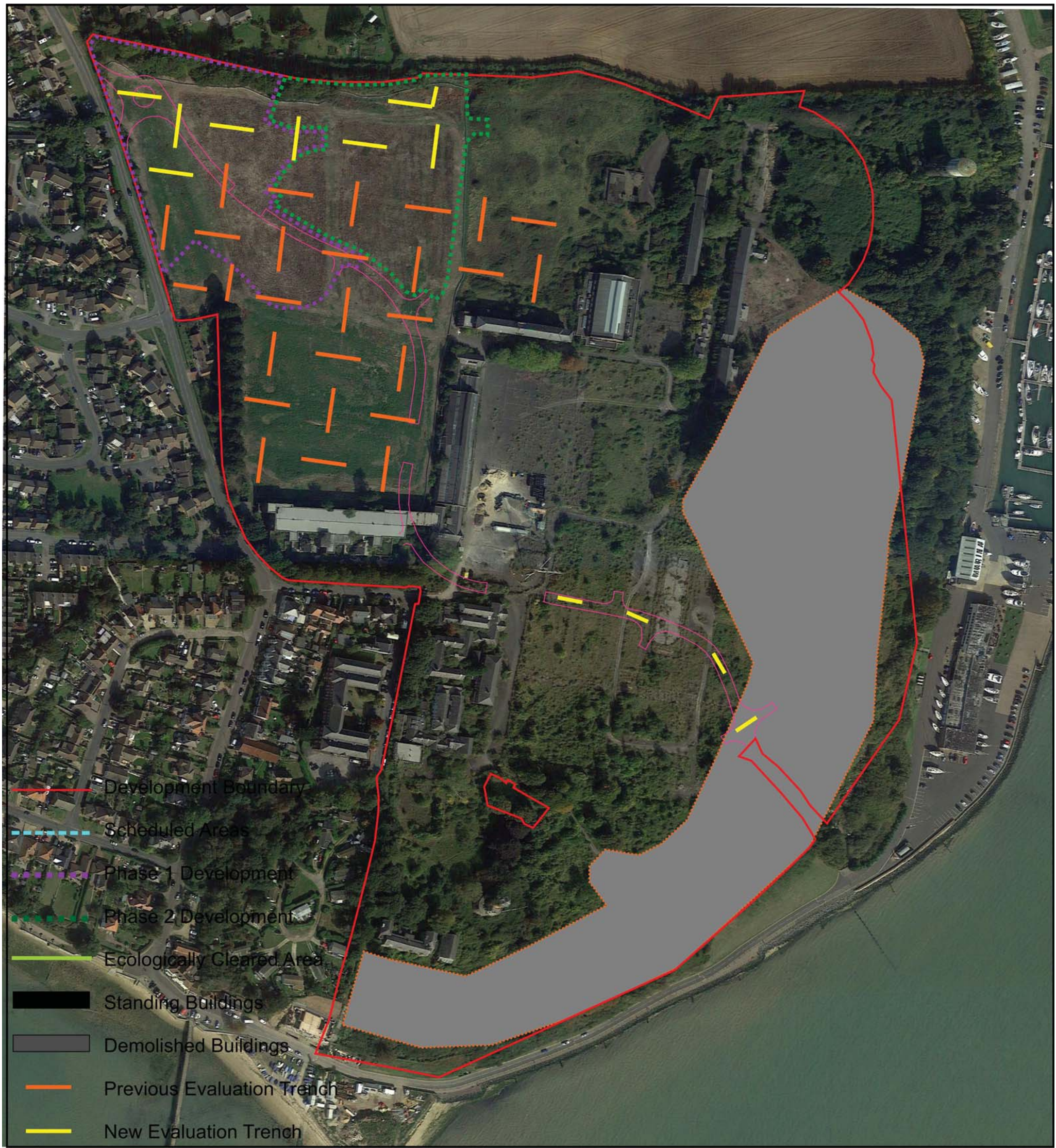
NAME	SPECIALISM	ORGANISATION
Allen, Leigh	Worked bone, CBM, medieval metalwork	Oxford Archaeology
Allen, Martin	Medieval coins	Fitzwilliam Museum
Allen, Martyn	Zooarchaeology	Oxford Archaeology
Anderson, Katie	Roman pottery	Freelance
Anderson, Sue	Medieval & post-medieval pottery (specifically from Norfolk & Suffolk), CBM and human remains	Freelance
Bamforth, Mike	Woodworking	York University
Barker, Karen	Small find conservation & X-Ray	Freelance
Bayliss, Alex	C14 advice	Historic England
Biddulph, Edward	Roman pottery	Oxford Archaeology
Billington, Lawrence	Lithics	Oxford Archaeology
Bishop, Barry	Lithics	Freelance
Blinkhorn, Paul	Iron Age, Anglo-Saxon and medieval pottery	Freelance
Booth, Paul	Roman pottery and coins	Oxford Archaeology
Boreham, Steve	Pollen and soils/ geology	Cambridge University
Broderick, Lee	Zooarchaeology	Oxford Archaeology
Brown, Lisa	Prehistoric pottery	Oxford Archaeology
Brudenell, Matt	Prehistoric pottery	Oxford Archaeology
Cane, Jon	Display & reconstruction artist	Freelance
Champness, Carl	Molluscs, geoarchaeology	Oxford Archaeology
Cotter, John	Medieval/post-medieval finds, pottery, CBM	Oxford Archaeology
Crummy, Nina	Small finds	Freelance
Cowgill, Jane	Slag/metalworking residues	Freelance
Dickson, Anthony	Worked Flint	Oxford Archaeology
Dodwell, Natasha	Osteology, including cremations	Oxford Archaeologist
Donnelly, Mike	Lithics	Oxford Archaeology
Doonan, Roger	Slags, metallurgy	Freelance
Druce, Denise	Pollen, charred plants, charcoal/wood identification, sediment coring and interpretation	Oxford Archaeology
Drury, Paul	CBM (specialised)	Freelance
Fletcher, Carole	Medieval & post-medieval pottery, glass, shell & small finds	Oxford Archaeology
Fosberry, Rachel	Charred waterlogged and mineralised plant remains	Oxford Archaeology
Foster, Hayley	Zooarchaeologist	Oxford Archaeology
Fryer, Val	Molluscs/environmental	Freelance
Mark Gibson	Osteology	Oxford Archaeology

NAME	SPECIALISM	ORGANISATION
Gleed-Owen, Chris	Herpetologist (amphibians & reptiles)	CGO Ecology Ltd
Goffin, Richenda	Post-Roman pottery, building materials, painted wall plaster	Suffolk CC
Howard-Davis, Chris	Small finds, Mesolithic flint, leather, wooden objects and wood technology	Freelance
Locker, Alison	Fish bone	Freelance
Loe, Louise	Osteology	Oxford Archaeology
Lyons, Alice	Late Iron Age/Roman pottery	Oxford Archaeology
Martin, Toby	Anglo-Saxon metalwork and artefacts	Oxford University
Masters, Pete	Geophysics	Cranfield University
McIntyre, Lauren	Osteology	Oxford Archaeology
Middleton, Paul	Phosphates/garden history	Peterborough Regional College
Mould, Quita	Ironwork, leather	freelance
Nicholson, Rebecca	Fish and small mammal and bird bones, shell	Oxford Archaeology
Palmer, Rog	Aerial photographs	Air Photo Services
Percival, Sarah	Prehistoric pottery, quern stones	Freelance
Poole, Cynthia	Multi-period finds, CBM, fired clay	Oxford Archaeology
Popescu, Adrian	Roman and later coins	Fitzwilliam Museum
Quinn, Patrick	Pottery thin section, ceramic petrology	UCL
Riddler, Ian	Worked bone objects & related artefact types	Freelance
Robinson, Mark	Insects	Oxford University
Rowland, Steve	Zooarchaeology & osteology	Oxford Archaeology
Rutherford, Mairead	Pollen, diatoms, etc	Oxford Archaeology
Samuels, Mark	Architectural stonework	Freelance
Scott, Ian	Roman, medieval, post-medieval finds, metalwork, glass	Oxford Archaeology
Shaffrey, Ruth	Worked stone and Roman CBM	Oxford Archaeology
Smith, David	Insects	University of Birmingham
Smith, Ian	Zooarchaeology	Oxford Archaeology
Spoerry, Paul	Medieval pottery	Oxford Archaeology
Stafford, Liz	Molluscs and geoarchaeology	Oxford Archaeology
Timberlake, Simon	Archaeometallurgy & geoarchaeology	Freelance
Tyers, Ian	Dendrochronology	Sheffield University
Ui Choileain, Zoe	Osteology & zooarchaeology	Oxford Archaeology
Vickers, Kim	Insects	Sheffield University
Wadson, Stephen	Samian pottery, Roman glass	Oxford Archaeology
Walker, Helen	Medieval pottery (Essex)	Essex CC
Way, Twigs	Medieval landscape and garden history	Freelance

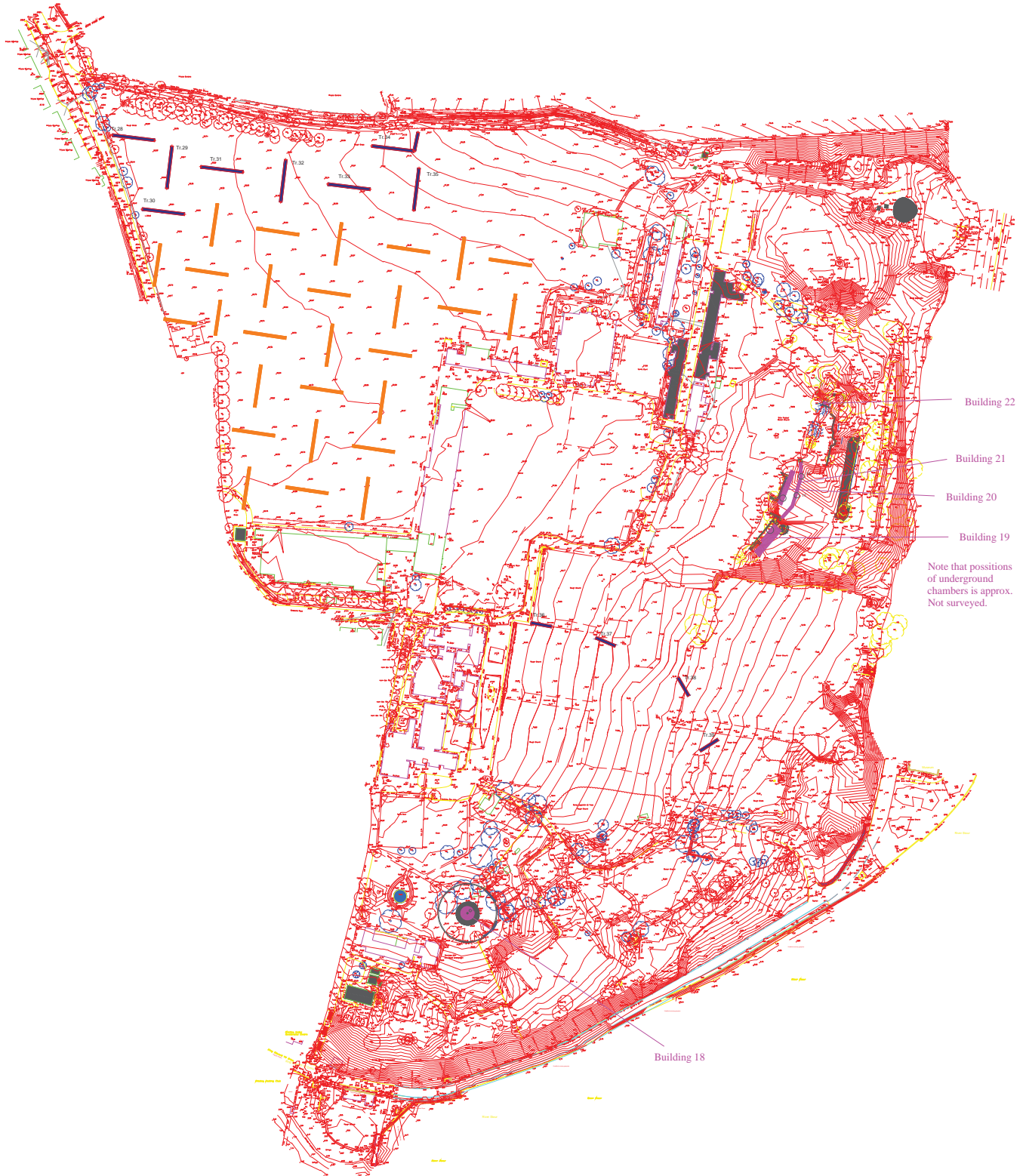
NAME	SPECIALISM	ORGANISATION
Webb, Helen	Osteology	Oxford Archaeology
Young, Jane	Medieval Pottery (Lincolnshire)	Freelance
Zant, John	Roman coins	Oxford Archaeology

Radiocarbon dating is normally undertaken for Oxford Archaeology East by SUERC and by the Oxford University Accelerator Laboratory.

Geophysical prospection is normally undertaken by Magnitude Surveys Ltd.



Trench Plan: XSFGSG18





Building 22
Building 21
Building 20
Building 19

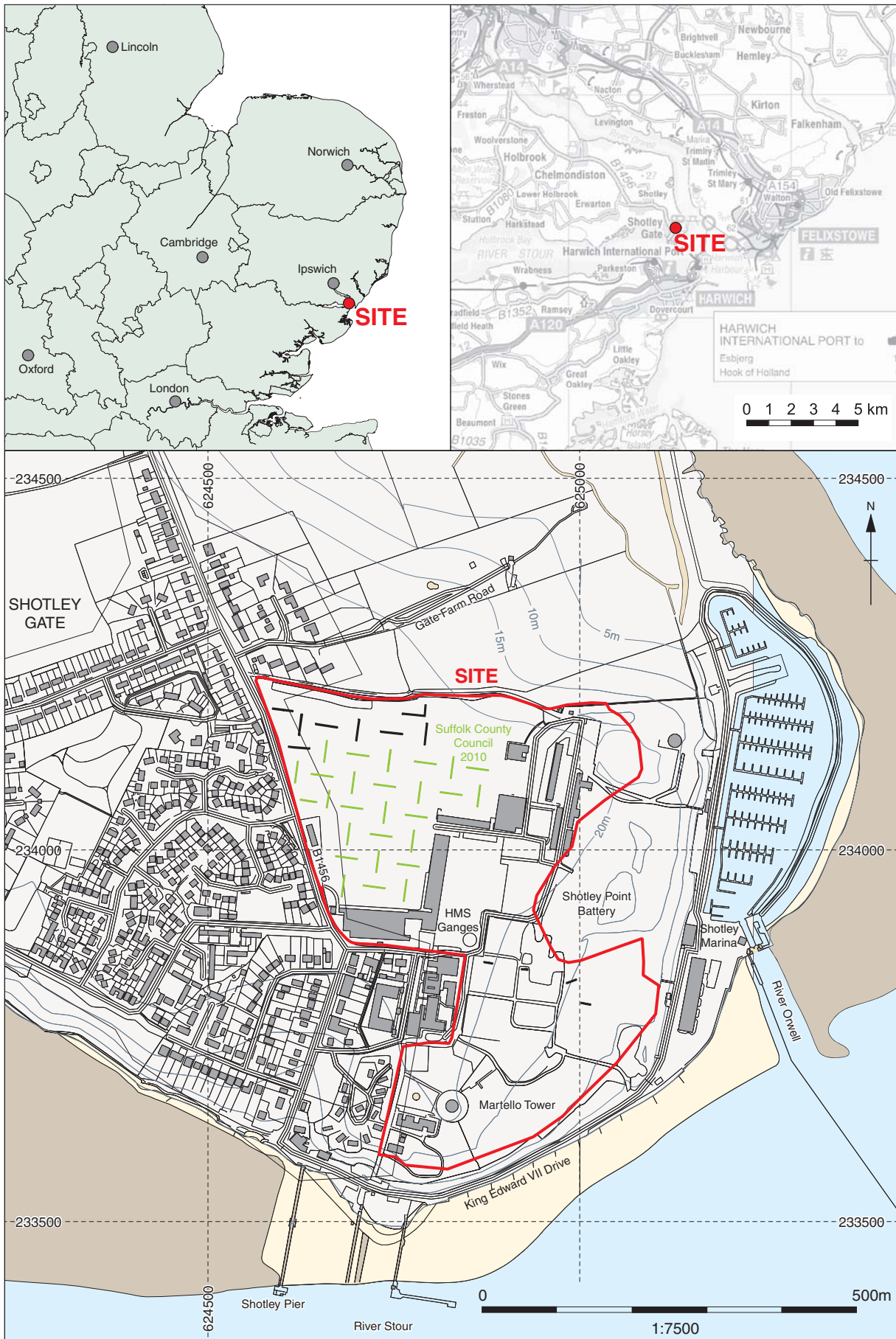
Building 18

Note that positions of underground chambers is approx. Not surveyed.



-  New Evaluation Trench
-  SCC Evaluation Trench





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Figure 1: Site location showing archaeological trenches (black) in development area (red)

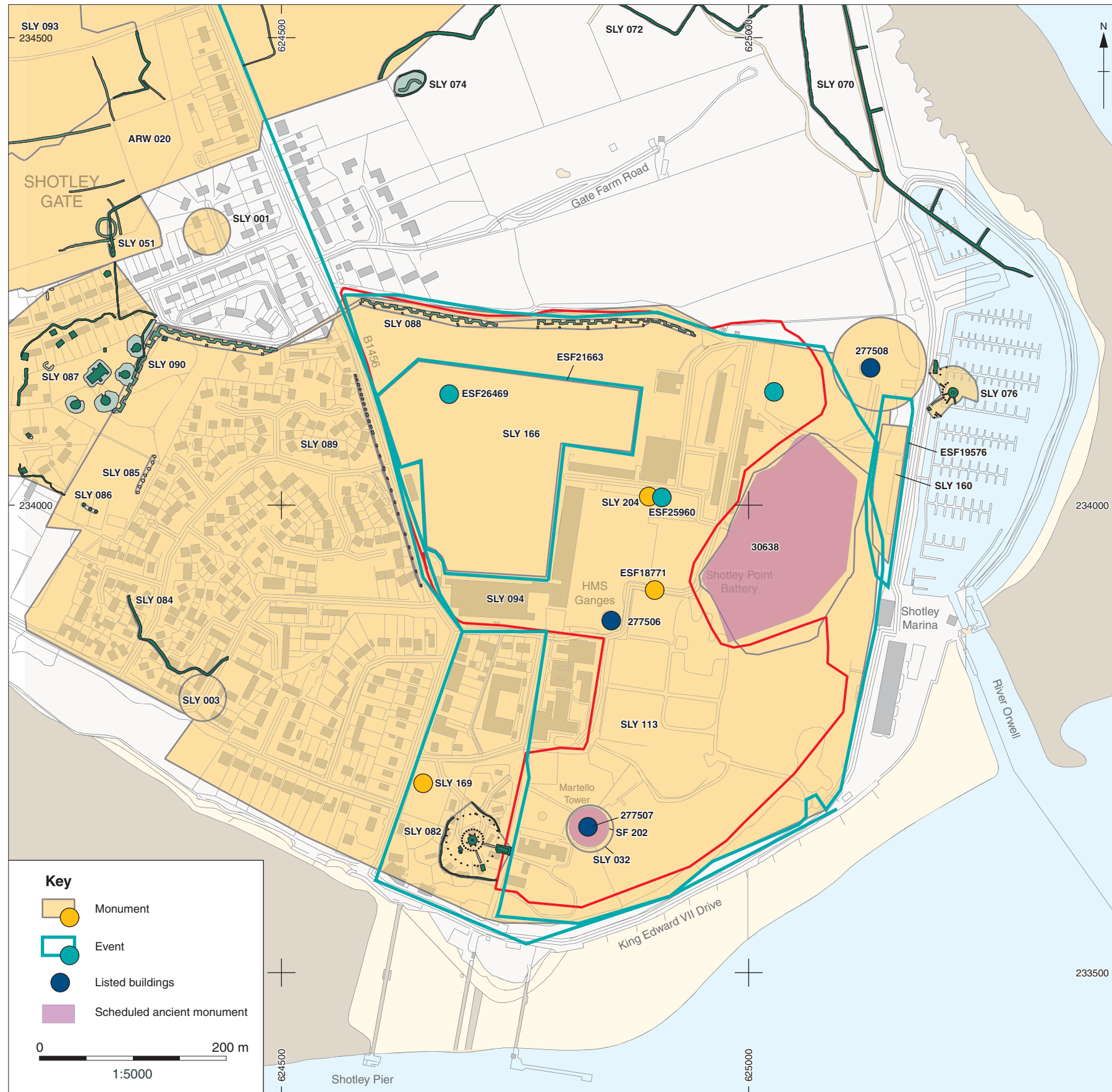


Figure 2: Map showing location of Suffolk HER events and monuments.

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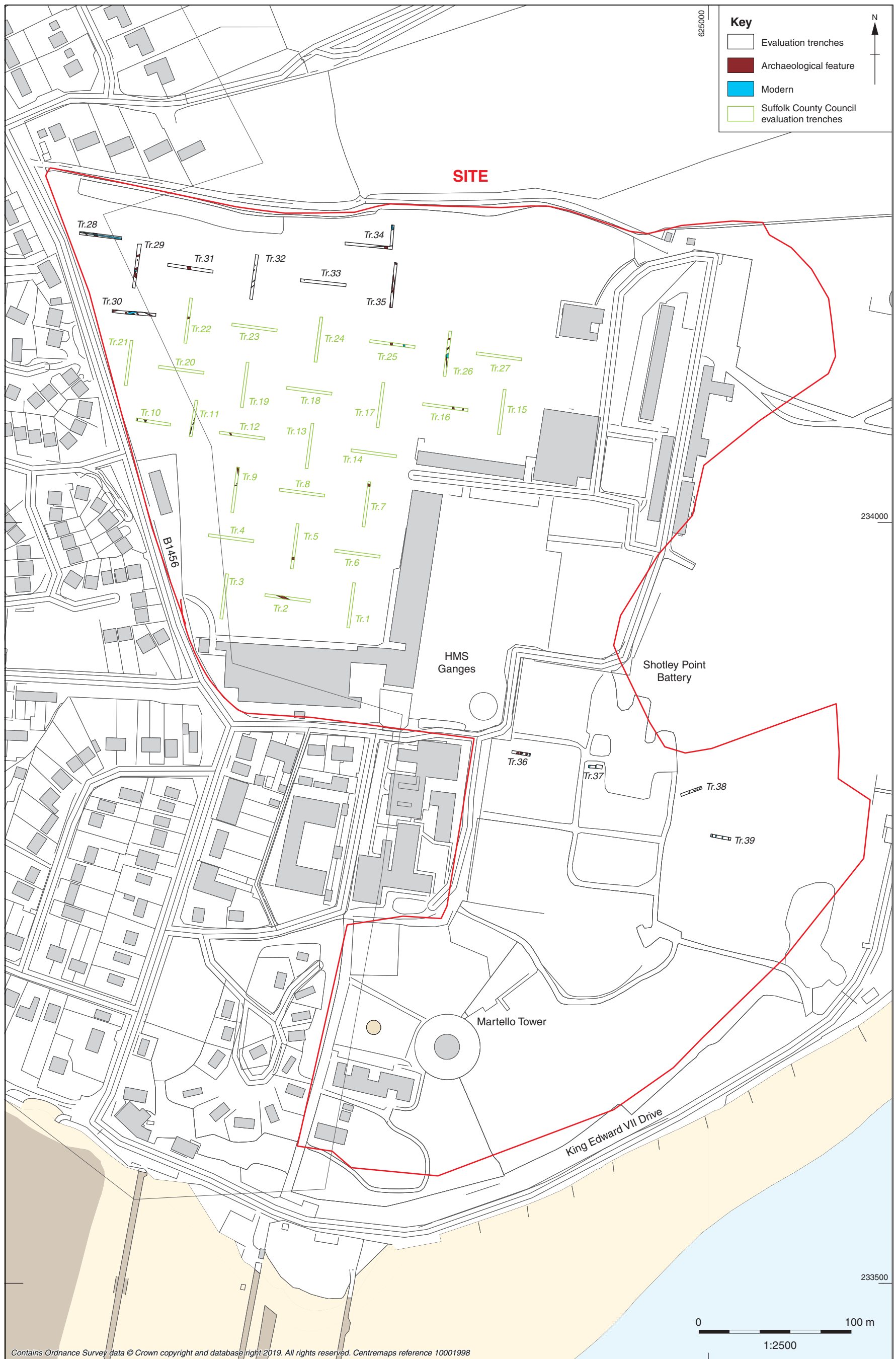


Figure 3: Map showing trenches in relation to Suffolk County Council trenches.

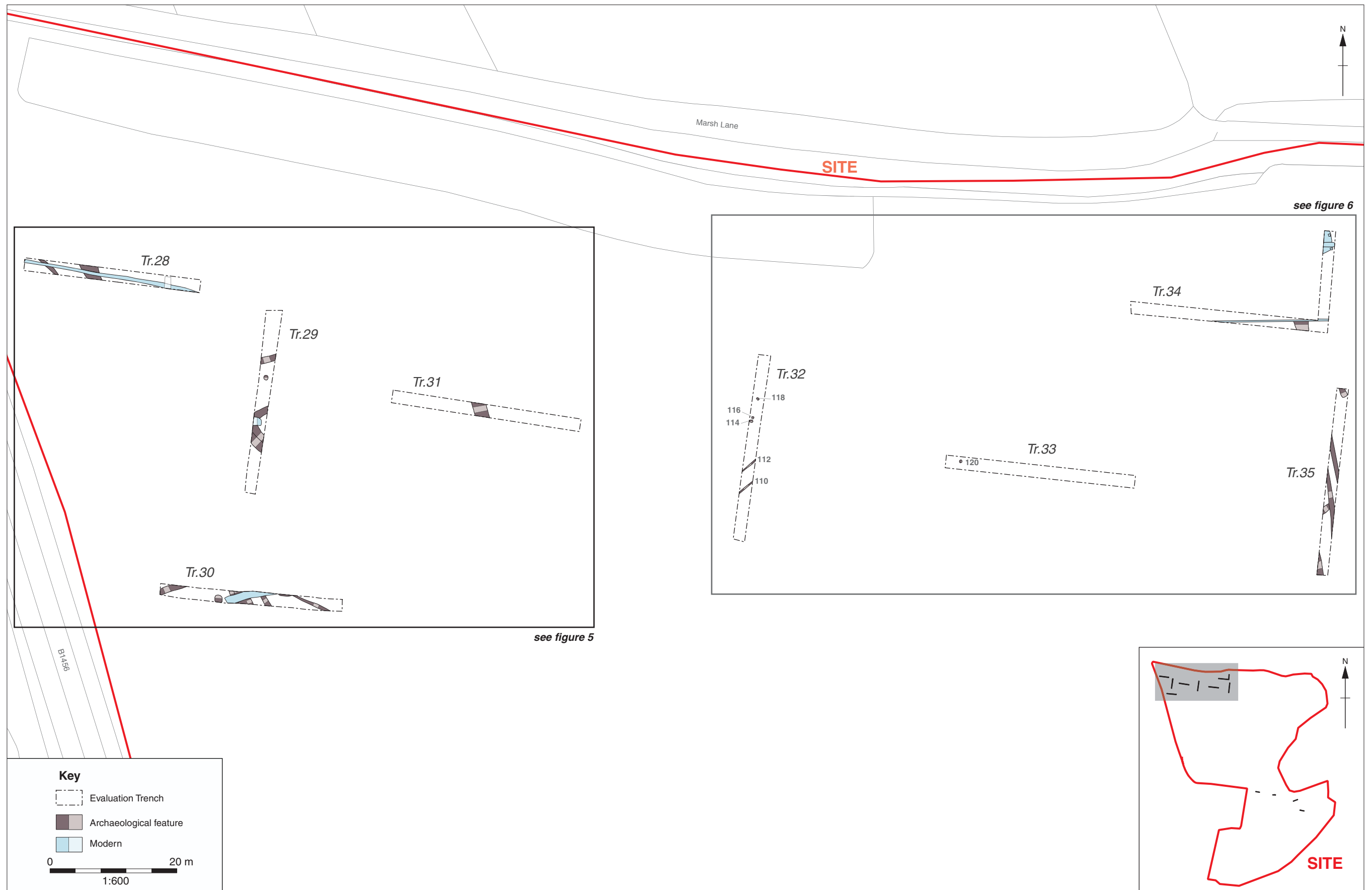


Figure 4: Plan of Trenches 28-35 in northern part of site.

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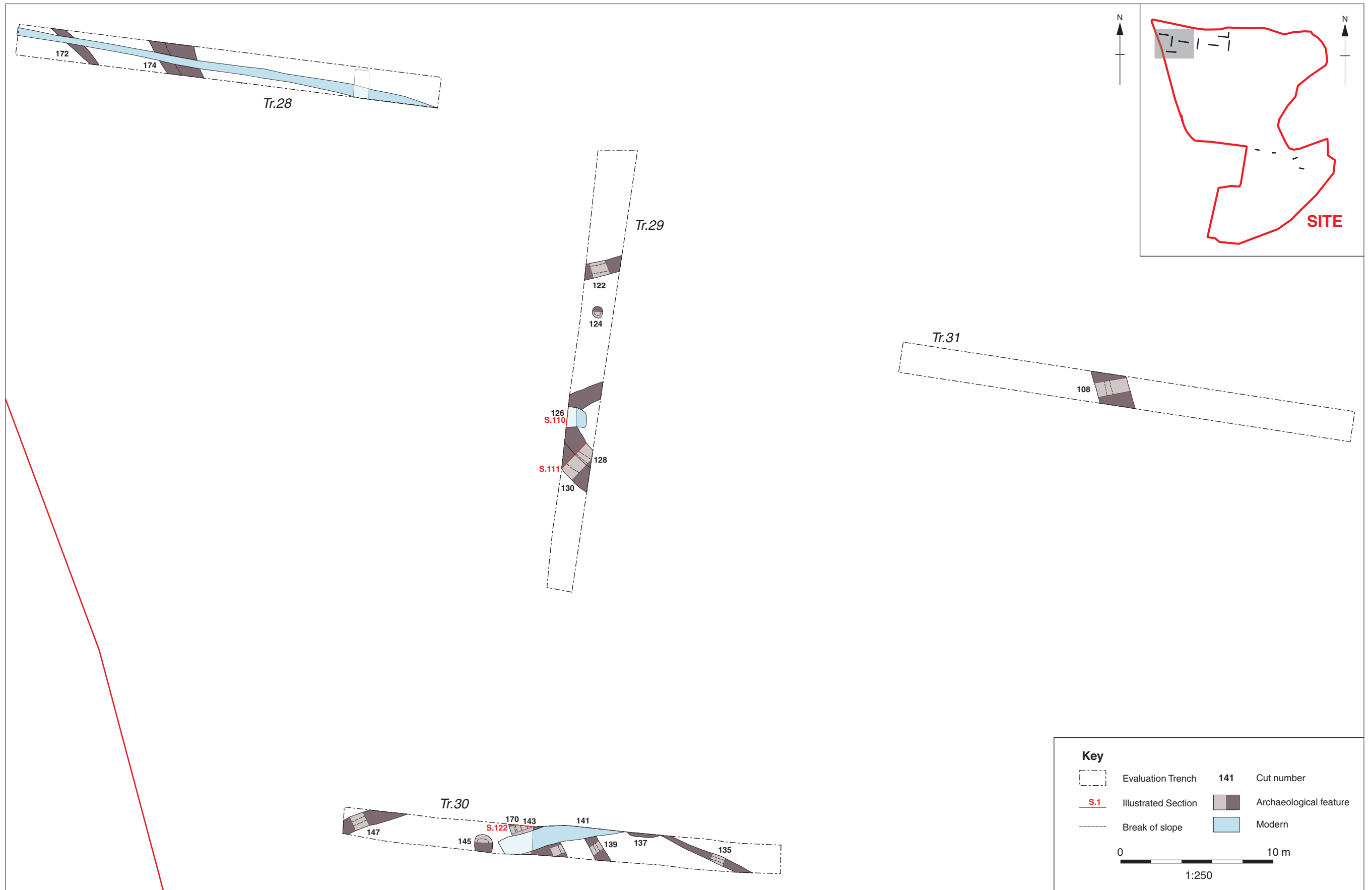


Figure 5: Detail of Trenches 28-31

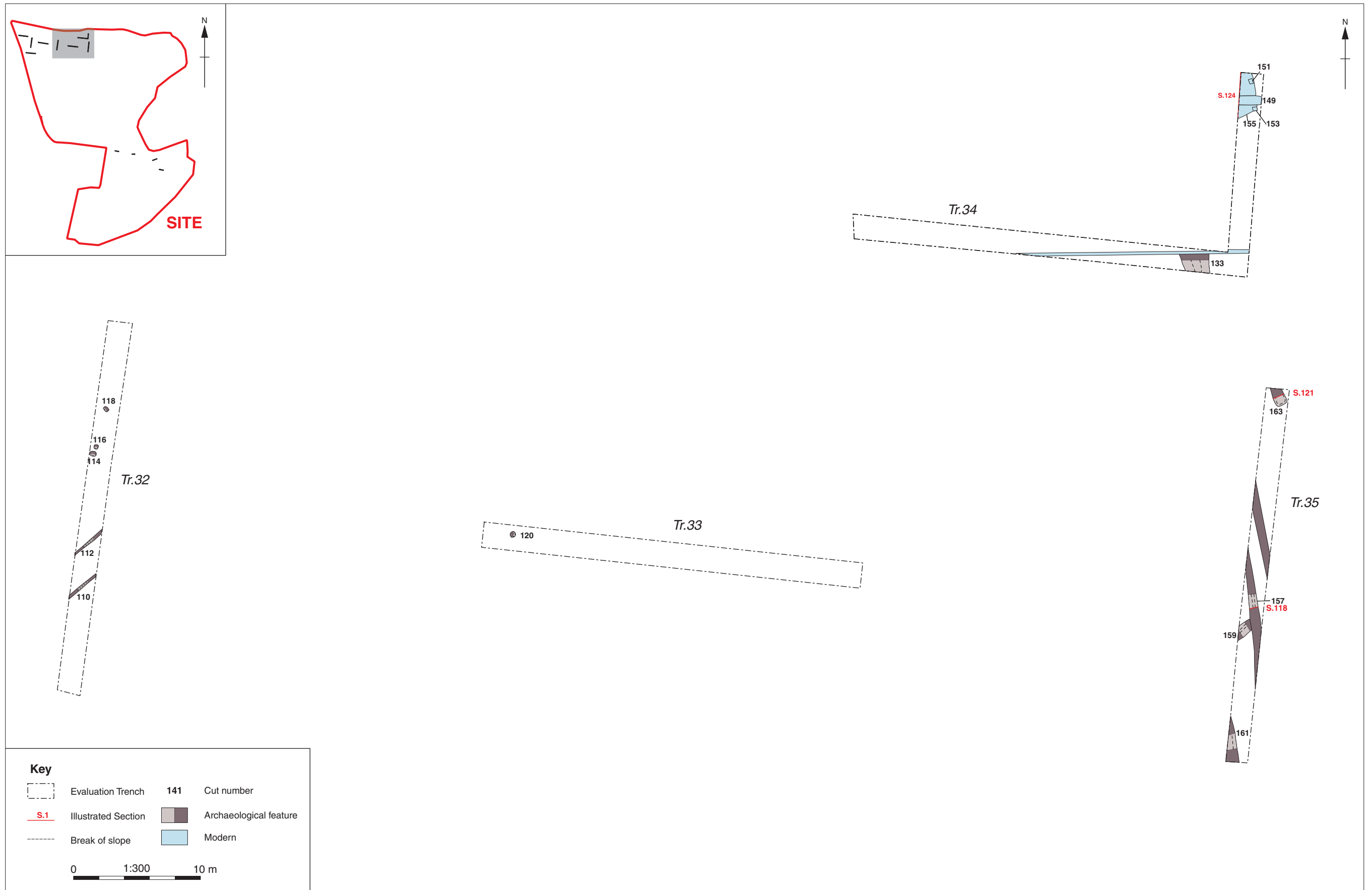
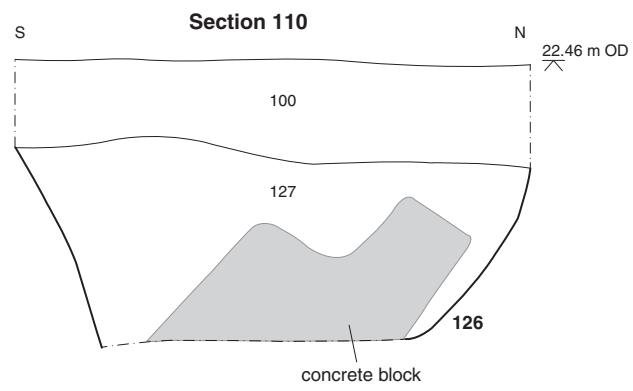
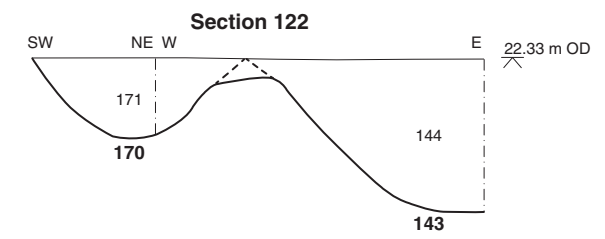


Figure 6: Detail of Trenches 32-34

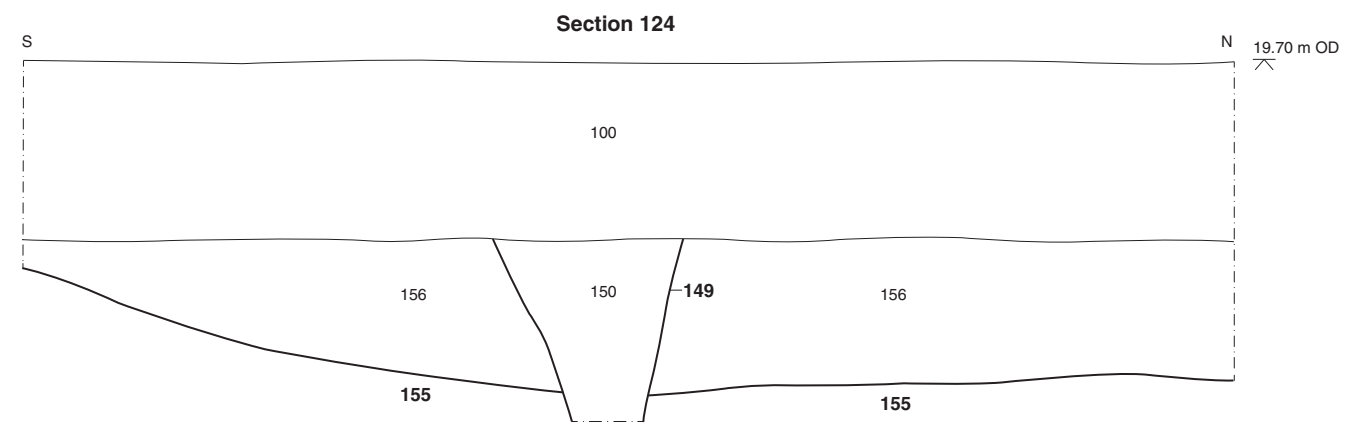
Trench 29



Trench 30



Trench 34



Trench 35

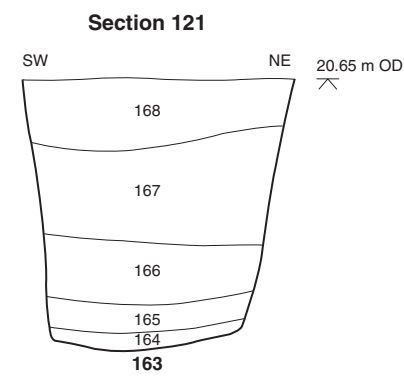
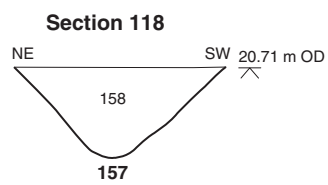


Figure 7: Selected sections

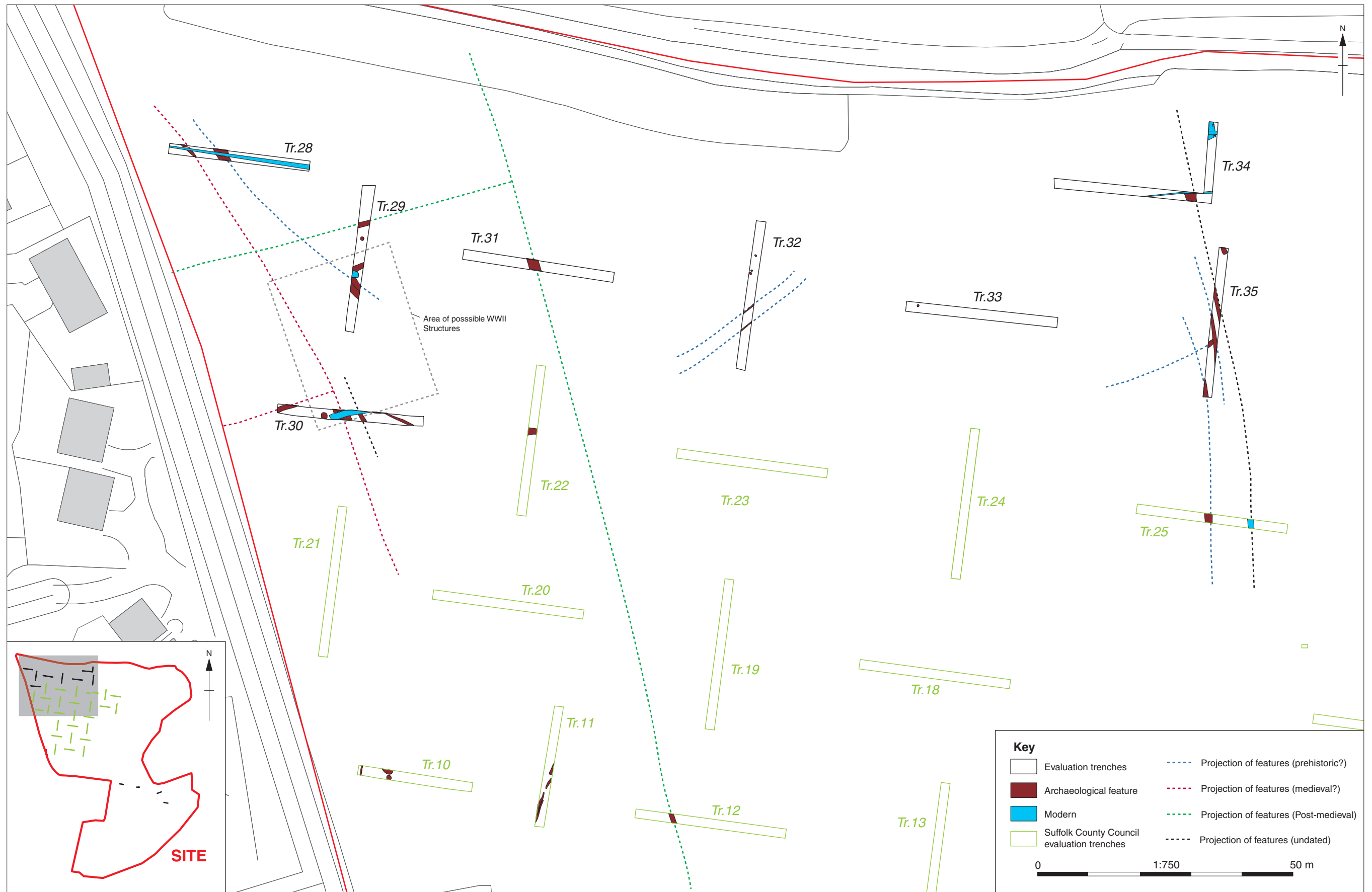


Figure 8: Interpretation of features with Suffolk County Council evaluation results.

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Figure 9: Plan of Trenches 36-39 in south-east of site.

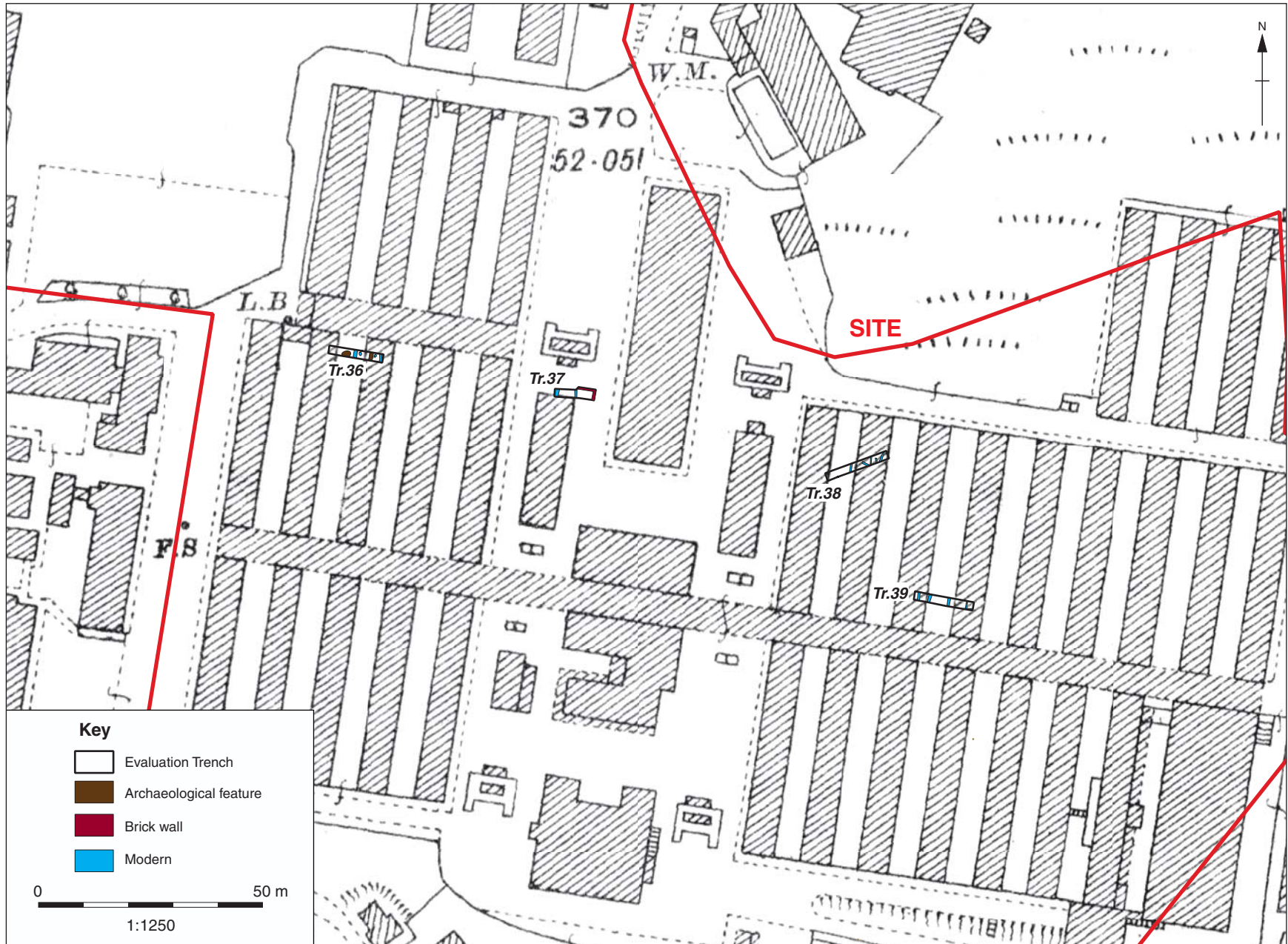


Figure 10: Trenches 36-39 overlain on 1926 Ordnance Survey map.

Reproduced from the 3rd edition Ordnance Survey map 1926 © Crown copyright and database right 2019. All rights reserved.



Plate 1: : Trench 29 looking north. Ditches 122, 126, 128 and 130. Pit 124.



Plate 2: Trench 29. Ditch 128 with re-cut 130 looking north-west.



Plate 3: Trench 30 looking east, showing anti-tank obstacle in trench 141.



Plate 4: Trench 30. Close-up of feature 141 looking east with anti-tank obstacle in section.



Plate 5: Trench 30. Ditches **143** and **170** looking north.



Plate 6: Trench 34: Crenellated ditch **155** with postholes **151** and **153** and drain gully **149** looking north.



Plate 7: Trench 35 looking south. Ditches **157**, **159** and **161**. Pit **163**.



Plate 8: Trench 35. Preserved timber (169) in the base of pit **163** looking south-east.



Plate 9: Trench 35: Ditch 157 looking south-east.



Plate 10: Trench 39 looking east showing modern building truncation.



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