Archaeological Evaluation on Land Adjacent at Willow Trees, 111 High Street, Newington, Sittingbourne, Kent ME9 7FR

Site Code: NEW2-EV-23

NGR Site Centre: 586377 164748

Planning Application Number: SW/20/505059/FULL

Report for

Family Homes

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SWAT ARCHAEOLOGY

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Summary

Swale & Thames Survey Company (SWAT Archaeology) were commissioned by Mr Sunil Popat of Family Homes to undertake an archaeological evaluation on land adjacent to Willow Trees, 111 High Street, Newington, Sittingbourne in Kent. The archaeological programme was monitored by the Principal Archaeological Officer at Kent County Council.

The archaeological evaluation has been successful in identifying the presence of ditches, pits and Holloways associated with the Late Iron Age and Early Romano-British periods. At least two phases of archaeological activity have been identified. Features within the trenches are an indication of peripheral settlement rather than being the focus or centre of any domestic or industrial complex, with Holloways representing former navigable routes connecting larger settlement to the north with a Roman road directly to the south. It is likely that these routes were well used as the Watling Street provided access to land-based movement from the east Kent coast into London and beyond. The current evaluation has identified features associated with deeply stratified archaeological remains within a Romano-British 'avenue' that forms part of a larger complex network of Roman Roads, trackways and paths within north Kent.

The archaeological evaluation has therefore been successful in fulfilling the primary aims and objectives of the Specification and has assessed the archaeological potential of land intended for development. The results from this work will be used to aid and inform the Principal Archaeological Officer of any further archaeological mitigation measures that may be necessary in connection with any future development proposals.

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1 INTRODUCTION

1.1 Project Background

1.1.1 Swale & Thames Survey Company (SWAT Archaeology) were commissioned by Mr Sunil Popat of Family Homes to undertake an archaeological evaluation on land adjacent to Willow Trees, 111 High Street, Newington, Sittingbourne in Kent (Figure 1).

1.1.2 A planning application (PAN: SW/20/505059) for the retention of existing chalet bungalow with amended residential curtilage and erection of 10 dwellings (7 x three bedrooms and 3 x four bedrooms) with associated access, parking, amenity, and landscaping was submitted to Swale Borough Council (SBC) whereby Kent County Council Heritage and Conservation (KCCHC), on behalf of SBC, requested that an archaeological evaluation be undertaken in order to determine the possible impact of the development on any archaeological remains.

1.1.3 The following conditions were attached to the planning consent:

A) Prior to any development works, the applicant (or their agents or successors in title) shall secure and have reported a programme of archaeological field evaluation works, in accordance with a specification and written timetable which has been submitted to and approved by the local planning authority.

B) Following completion of archaeological evaluation works, no development shall take place until the applicant or their agents or successors in title, has secured the implementation of any safeguarding measures to ensure preservation in situ of important archaeological remains and/or further archaeological investigation and recording in accordance with a specification and timetable which has been submitted to and approved by the local planning authority.

C) Within 6 months of the completion of archaeological works a Post-Excavation Assessment Report shall be submitted to and approved in writing by the local planning authority. The Post-Excavation Assessment Report shall be in accordance with Kent County Council's requirements and include: a. a description and assessment of the results of all archaeological investigations

that have been undertaken in that part (or parts) of the development; b. an Updated Project Design outlining measures to analyse and publish the findings of the archaeological investigations, together with an implementation strategy and timetable for the same; c. a scheme detailing the arrangements for providing and maintaining an archaeological site archive and its deposition following completion. The measures outlined in the Post-Excavation Assessment Report shall be implemented in full and in accordance with the agreed timings.

Reason: To ensure appropriate assessment of the archaeological implications of any development proposals and the subsequent mitigation of adverse impacts through preservation in situ or by record.

(SW/20/505059, Condition 3, 17th August 2023)

1.1.4 The archaeological evaluation, which comprised the excavation of eight trenches (or test pits) measuring between 7m and 26m in length and 1.8m in width, was carried out over the course of eight days in October of 2023 (see Table 1 below). The evaluation was carried out in accordance with an archaeological Written Scheme of Investigation (WSI) prepared by SWAT Archaeology (2023), prior to commencement of works. Prior to the fieldwork the WSI set out 11 trenches each measuring 25m in length. In agreement with KCC this was amended due to the limited space, the need for deeper trenches, and thus the availability of space for spoil storage. Eight sperate trenches were therefore excavated.

1.2 Timetable

1.2.1 A timetable for the archaeological programme of works, to date, is provided below;

Task	***Dates***	***Personnel/Company***
Archaeological Desk-Based Assessment	October 2020	SWAT Archaeology
Submission of the Written Scheme of Investigation	26th September 2023	SWAT Archaeology
Archaeological Evaluation – Fieldwork	4th October 2023 – 12th October 2023	SWAT Archaeology
Archaeological Evaluation Report	This document	SWAT Archaeology

Table 1 *Timetable for the archaeological programme of works*

1.3 Site Description and Topography

1.3.1 The site is centred on NGR 586377 164748 within the boundary of a former orchard to the east and north of Willow Trees, west of Ellens Farm (Figure 2). The site is accessed from Watling Street immediately adjacent to the south bordered to the north by former agricultural and pastoral ground; the western extent of which has recently been developed as 'Watling Place'.

1.3.2 The full extent of the application site measures approximately 7,612sq.m, although the area of proposed development equates to approximately 6,500sq.m which allows for a new reduced garden boundary associated with 'Willow Trees'. Ground levels vary from a height of approximately 30.4m Ordnance Datum (OD) within the southern extent of the site and at approximately 26.3m OD within the northern extent of the site.

1.3.3 The Geological Survey of Great Britain shows that the site is located on Thanet Formation - Sand, silt and clay, sedimentary bedrock formed between 59.2 and 56 million years ago during the Palaeogene period. No superficial deposits are recorded although Head - Clay and silt, sedimentary superficial deposit formed between 2.588 million years ago and the present during the Quaternary period, are recorded to the west of the site.

1.4 Scope of Report

1.4.1 This report has been produced to provide initial information regarding the results of the archaeological evaluation. The results from this work will be used to aid and inform the Principal Archaeological Officer (KCC) of any further archaeological mitigation measures that may be necessary in connection with any future development.

2 ARCHAEOLOGICAL AND HISTORICAL BACKGROUND

2.1 Introduction

2.1.1 The proposed development area is located close to a number of archaeological sites which are identified on the KCCHER database. To the northeast, earthworks have been identified on Keycol Hill (TQ 86 SE 2) and just to the south a Romano-British cemetery is known (TQ 86 SE 1). To the immediate south the Watling Street was a major Romano-British thoroughfare and to the immediate north recent excavations by SWAT Archaeology have recorded the presence of a large Romano-British site, described further below.

2.2 Archaeological Desk-Based Assessment

2.2.1 In October 2020 SWAT Archaeology prepared an Archaeological Desk-Based Assessment which was submitted in support of the planning application. The assessment provided the following summary:

Newington is a village situated on the A2 between Sittingbourne and Rainham on north Kent. The KHER records are dominated by the Grade II listed medieval and post-medieval buildings of the historic core of Newington to the west, which we know from documentary evidence originated in medieval times. In addition, the KHER records refer to the significant number of Roman records for the assessment area, particularly in the area to the east and north east of the proposed development area (PDA). However, these records do not inform as to the latest archaeological record for the assessment area due to the recent large-scale excavation that took place on land behind 99 High Street now known as Watling Place by SWAT Archaeology.

This excavation has identified a significant number of finds and features for the Bronze Age, Iron Age and Roman periods, which have regional and national significance and adds to the known archaeology of these periods; not just to the area of Newington but also to the wider Iron Age and pottery industries in this part of North Kent. In the assessment area, aside from small scale evaluations on the roadside near Keycol Hill, there is not much by way of detail given that the previous finds north east of the PDA were found in antiquity. In addition, the excavation area adjacent to the north of the PDA has archaeology that extends beyond the limits of the excavation, and it appears that there are features that continued from this area into the area of the PDA.

Map regression confirms that the area of the PDA was outside of the main core of Newington and was beyond the area of the ribbon development along the A2 until the 20th century. At least from the post-medieval period or earlier, the PDA was farmland; first as an arable field and then later as an orchard. It is only in the 20th century, that the boundaries of the PDA became fixed in its present form and the south western part of the PDA built on.

The overall archaeological potential is considered high for the Iron age and Roman period, moderate for the Bronze Age and low for all other periods. The historical impact on any potential archaeology is considered to be low except for the area of the bungalow, where the historical impact is considered to be high. The development is for 10 residential units with associated road, services, and landscaping, which will result in a high impact on any potential surviving archaeology. The excavation on adjacent land behind the PDA being so rich in finds and features has since shown the importance of understanding the archaeology and use of the landscape in

Newington. The need for scale, scope, and nature of any further assessment and/or archaeological works should be agreed through consultation with the statutory authorities, but it is recommended for a programme of archaeological works to be considered.

SWAT Archaeology (2020) (Ed.)

2.3 Archaeological Excavations at Watling Place

2.3.1 Between 2018 and 2022 SWAT Archaeology carried out a series of archaeological investigations at a site to the immediate northwest of the current development area where extensive prehistoric and Romano-British occupation was recorded. A programme of post-excavation assessment and analysis is ongoing, however an Interim Statement produced by SWAT Archaeology provided the following summary:

'The archaeological excavation area comprising 3.75 hectares has recorded the presence of prehistoric agricultural activity and an extensive Late Iron Age and Roman settlement comprising rectilinear enclosures in north-west to south-east alignment containing evidence for agricultural and industrial activity. A Romano-Celtic Temple (Watling Temple) with a number of offering pits and a timber building overseeing the Roman Road were exposed in the northeastern part of the Site. Moreover, infrequent Late Iron Age inhumations and two Roman cremation cemeteries were found along the southern boundary of the Village. A prehistoric holloway overlaid by a linking trackway was found abutted to cart-loading platforms that suggest this area north of the Roman Watling Street may have had relatively extensive links to a road/track network associated with the north Kent coast along with the trade, travel and communication routes offered by the Swale and River Medway. The site itself appears to be split into two main phases of activity. The first phase of occupation BC50-250/300AD appears to be strictly industrial and relates to ironworks and pottery production. The second phase, late 3rd to 4th Century, was found to be predominantly agricultural with shallow field boundaries, numerous corn-drying kilns, and granaries. Very little evidence suggests typical domestic occupation despite the area being well known for the establishment and development of villa estates. It has been suggested that such an estate may be close and that, if not, Roman activity on the current site may be associated with relatively high-status buildings such as those at Keycol Hill and/or Boxted (near Lower Halstow) or with larger scale industrial activity such as those at Slayhills, Upchurch, and Medway pottery works.'

SWAT Archaeology (2022)

2.4 Curatorial Consultation (Kent County Council, Heritage & Conservation 2022)

2.4.1 A planning application report, which includes consultation information with the Principal Archaeological Officer at KCC, states that:

The desk-based assessment provides a good description and assessment of the archaeological potential of the area, rightly recognising the high potential in Newington for remains of Iron Age and Roman date and moderate potential for Bronze Age remains. SWAT have drawn on their experience of the excavations to the immediate north west of the present site where very significant remains of mainly Iron Age and Roman date were investigated in advance of development

The area of proposed works contains evidence of multi-period land use and activity since the prehistoric period. There are some undated cropmarks to the east which may represent pit activity and there are metal detectorists finds nearby.

(Application Report reference 20/505059/FULL, dated 26 October 2022)

3 AIMS AND OBJECTIVES

3.1 General Aims

3.1.1 The specific aims of the archaeological fieldwork were set out in a Written Scheme of Investigation (SWAT Archaeology 2023; 6) as stated below;

3.1.2 The general aims (or purpose) of the evaluation, in compliance with the CIfA *Standard and guidance for archaeological field evaluation* (CIfA 2014a), are to:

- provide information about the archaeological potential of the site; and
- inform either the scope and nature of any further archaeological work that may be required; or the formation of a mitigation strategy (to offset the impact of the development on the archaeological resource); or a management strategy.

3.2 General Objectives

3.3 General Aims

3.3.1 The specific aims of the archaeological fieldwork were set out in a Written Scheme of Investigation (SWAT Archaeology 2023; 6.1-6.2) as stated below;

3.3.2 The general aims (or purpose) of the evaluation, in compliance with the CIfA *Standard and guidance for archaeological field evaluation* (CIfA 2014a), are as follows:

- The primary objective of the archaeological evaluation is to establish or otherwise the presence of any potential archaeological features which may be impacted by the proposed development. The aims of this investigation are to determine the potential for archaeological activity and in particular the earlier prehistoric and also any Roman, early medieval, and later archaeological activity.

3.4 General Objectives

3.4.1 In order to achieve the above aims, the general objectives of the evaluation are to:

- determine the presence or absence of archaeological features, deposits, structures, artefacts, or ecofacts within the specified area;
- establish, within the constraints of the evaluation, the extent, character, date, condition, and quality of any surviving archaeological remains;
- place any identified archaeological remains within a wider historical and archaeological context in order to assess their significance; and
- make available information about the archaeological resource within the site by reporting on the results of the evaluation.

4 METHODOLOGY

4.1 Introduction

4.1.1 All fieldwork was conducted in accordance with the methodology set out in the Specification (SWAT Archaeology 2023) and carried out in compliance with the standards outlined in the Chartered Institute for Archaeologists' Standards Guidance for Archaeological Evaluations (CIfA 2014).

4.2 Fieldwork

4.2.1 A total of eight out of the planned 11 evaluation trenches were excavated (Figure 2). Each trench was initially scanned by a metal detector for surface finds prior to excavation. Excavation was carried out using a mechanical excavator fitted with a toothless ditching bucket, removing the overburden to the top of the first recognisable archaeological horizon, under the constant supervision of an experienced archaeologist.

4.2.2 Where appropriate, trenches, or specific areas of trenches, were subsequently hand-cleaned to reveal features in plan and carefully selected cross-sections through the features were excavated to enable sufficient information about form, development date, and stratigraphic relationships to be recorded without prejudice to more extensive investigations, should these prove to be necessary. All archaeological work was carried out in accordance with KCC and CIfA standards and guidance. A complete photographic record was maintained on site that included working shots; during mechanical excavation, following archaeological investigations and during back filling.

4.2.3 On completion, the trenches were made safe and left open in order to provide the opportunity for a curatorial monitoring visit. Backfilling was carried out once all recording, survey, and monitoring had been completed.

4.3 Recording

4.3.1 A complete drawn record of the evaluation trenches comprising both plans and sections, drawn to appropriate scales (1:20 for plans, 1:10 for sections) was undertaken. The plans and sections were annotated with coordinates and OD heights.

4.3.2 Photographs were taken as appropriate providing a record of excavated features and deposits, along with images of the overall trench to illustrate their location and context. The record also includes images of the site overall. The photographic record comprises digital photography and drone photography. A photographic register of all photographs taken is contained within the project archive.

4.3.3 A single context recording system was used to record the deposits. A full list is presented in Appendix 1. Layers and fills are identified in this report thus (101), whilst the cut of the feature is shown as [101]. Context numbers were assigned to all deposits for recording purposes. Each number has been attributed to a specific trench with the primary number(s) relating to specific trenches (i.e., Trench 1, 101+, Trench 2, 201+, Trench 3, 301+, etc.).

5 RESULTS

5.1 Introduction

5.1.1 All trenches were mechanically excavated under archaeological supervision. Trenches were positioned in order to cover as many areas of the site as possible as set out in the WSI. Relocation and re-orientation of the trenches was required when on site obstacles/conditions were present.

5.1.2 The site, as shown on Figure 2 and Figure 3, provides the trench layout with Figures 4 - 11 illustrating the results for each individual archaeological evaluation trench. Plates provided on the figures consist of photographs of features and selected trenches that have been provided to supplement the text.

5.1.3 Appendix 1 provides the stratigraphic sequence and contextual information for all trenches, with the location of Representative Sections provided on each Trench plan (Figures 4-11).

5.2 Stratigraphic Deposit Sequence

5.2.1 A relatively consistent, albeit complex, stratigraphic sequence was recorded across the majority of the site comprising the existing topsoil sealing layers of intact colluvium, which overlay a buried soil horizon. This buried soil layer sealed an earlier colluvial sequence which lay over the natural geological sedimentary bedrock. Archaeological features, where present, were recorded as either cutting the buried soil layer (i.e. post-dating) or being sealed by (i.e. pre-dating) the buried soil layer.

5.2.2 The topsoil generally consisted of mid to dark grey brown sandy silt, with moderately compacted clay sand silt with moderate peat content, occasional CBM and glass shards. Natural geology largely comprised firmly compacted, orange-grey or light grey sand silt with infrequent round pebbles, iron pan and tiny ferromanganese specks with very occasional chalk flecks in places.

5.3 Archaeological Narrative

Trench 1 (Figure 4)

5.3.1 Within the southern extent of the site (Figure 3), Trench 1 was initially orientated E-W across the site. However, in order to maintain access to the site it was agreed that two smaller trenches (TP1a) and TP1b) could be excavated rather than the one larger trench (Figure 4).

5.3.2 Trenches TP1a and TP1b were excavated on an NW-SE and NE-SW alignments respectively and measured a combined length of approximately 7m in length, 1.8m in width with a maximum depth of 2.6m (Figure 4).

5.3.3 Within both trenches the topsoil (101) sealed a layer of subsoil (102) which consisted of firmly compacted pale brown clay sand silt with infrequent pebbles and chalk flecks which sat atop firmly compacted dark brown clayey silt colluvium with moderate to frequent chalk flecks and occasional angular stones (120). A buried soil (121) layer was recorded in TP1b which sealed the natural geology (103a and 103b) with TP1a possessing a ‘washed out’ soils horizon (104) that sealed natural geology (103) with an upper level of 26.06m OD.

5.3.4 No archaeological finds or features were present in Trench 1.

Trench 2 (Figure 5)

5.3.5 Trench 2 was located within the southern area of the site adjacent to the western boundary (Figure 3) and was excavated on a NE-SW alignment. This trench measured 25m in length, 1.8m in width and a maximum depth of 2.46m (Figure 5). Natural geological deposits were recorded at an upper level of 25.48m OD.

5.3.6 The stratigraphic sequence was similar to Trench TP1a and TP1b where topsoil (201) sealed subsoil (202) and colluvium (220) which overlay the buried soil horizon (221) present at a depth of approximately 1.5m below the existing ground level (23.98m OD). Firmly compacted colluvium (223) was recorded below the buried soil, sloping and deepening towards the north following the naturally sloping topography of the site.

5.3.7 Below colluvium (223) and sealed by the natural geology (203) a single feature [206] measured 3.4m in width and at least 0.24m in depth and has been interpreted as a trackway or path. No dateable finds were present within this feature or the trench as a whole.

Trench 3 (Figure 6)

5.3.8 Located within the southern extent of the site adjacent to the eastern boundary (Figure 3), Trench 3 was excavated on an NE-SW alignment and measured 25m in length with a maximum depth of 1.6m. Natural geology was recorded at a level of approximately 25.1m OD.

5.3.9 The stratigraphic sequence within this trench was similar to Trenches 1 and 2 with topsoil (301) overlying subsoil (302) and colluvium (320) which sealed the buried soil layer (321). Below the buried soil a homogenous layer of mixed compact dark grey silt clay (322) contained moderate inclusions of charcoal and daub and has been interpreted as a 'trample' layer. Natural geology (303) was recorded below the trample layer.

5.3.10 Four archaeological features were recorded within this trench. Cutting through the buried soil Pit [304] was oval in plan and measured 1.3m in width with a depth of 1.4m. The steep, near vertical sides gave way to a relatively flat base that contained three fills (305), (312), and (313) that contained daub, crushed chalk, iron panning, and charcoal. No dateable material was retrieved from this feature.

5.3.11 Sealed by the buried soil Pit [306] measured 0.9m in width with a depth of 0.55m and contained two fills (307) and (314) with pottery which has been provisionally dated to AD 119-190.

5.3.12 Within the northern extent of the trench two additional pits [308] and [310] were sealed by the 'trample' layer below the buried soil horizon. Pit [308] measured 1m in width with a depth of 0.2m and contained a single fill (309) comprising compact dark brown-grey clay silt that contained five fragments of pottery dating to the 1st-2nd century AD (c. AD 70- AD 100). A similar shallow pit [310] to the immediate north measured 0.87m in width and 0.06m in depth with a fill (311) that contained no dateable finds.

Trench 4 (Figures 7-8)

5.3.13 Within the central area of the site (Figure 3), Trench 4 was excavated on an NW-SE alignment and measured approximately 25m in length with a maximum depth of 2.2m. Natural geological deposits were recorded at a level ranging between 23.52 OD and 22.24m OD (Figures 7 and 8).

5.3.14 Six archaeological features were recorded within this trench including four small pits, one large pit, and a shallow cut ditch/holloway. The stratigraphic sequence within this trench was similar to elsewhere on site with topsoil (401) sealing subsoil (402), colluvium (420) and the buried soil horizon (421). Within the western extent of the trench a machine excavated test pit revealed a series of at least layers of colluvium (426), (427), and (445) below the buried soil sealing that natural geology (403).

5.3.15 Within the eastern extent of the trench that colluvial sequence becomes a little more complicated, which may be due to the presence of cut archaeological features and the natural erosion processes (i.e. weathering, soil movement, etc.). Below the buried soil within this eastern extent of the trench the following sequence is recorded thus (Table 2):

Layer	***Features cutting***				***Description***	***Dating***
(401)					Topsoil	
(402)					Subsoil	
(420)					Colluvium	
(421)					Buried soil	AD 110– AD 190
(422)					Trample	AD 100 – AD 125
	[433]					
(423)					Colluvium	
		[435]	[437]	[440]	Pits x 4	
(424)					Colluvium	
	[442]				Ditch/holloway	BC to AD 70
(425)					Colluvium	
(426)					Colluvium	

Layer	*Features cutting*				*Description*	*Dating*
(427)					Colluvium	BC to AD 70
(428)					Colluvium	
(429)					Colluvium	AD 0 – AD 70
(430)					Colluvium	AD 70 – AD 100
	[404]				Ditch	AD 70 -AD 100
(403)					Natural	

Table 2 Simplified stratigraphic sequence of layers and cut features - Trench 4 (east)

5.3.16 The 'trample layer' within this trench in approximately 4m in width, has a depth of 0.14m and is limited to this eastern extent of the trench directly overlying colluvium (423) which seals three of the four small pits [435[, [437] and [440]. Pit [433] has no physical relationship with colluvium (423) but is certainly later than trample (421). Although no dateable finds were recorded within these pits, overlying trample and buried soil layers produced 2nd century Course Ware pottery and Samian Ware pottery respectively (AD 100 – AD 190). With regards to the character of this cluster of small pits they were all of a similar shape and size averaging approximately 0.5m in width with depths ranging from 0.18m to 0.25m (see Appendix A).

5.3.17 Stratigraphically earlier than the cluster of pits, a larger flat-based ditch/holloway [442] was also recorded within this area, filled by (431-432) and (442-443) which are clearly earlier than the aforementioned pits [433] and [435] with (432) pottery dating from the late 1st century BC to AD 70. This deposit is recorded as colluvium within Appendix 1 but clearly forms part of the fill of Holloway [442].

5.3.18 Within this eastern extent of the trench, ditch [404] measured 3.2m in width with a depth of 1.55m, and is clearly the earliest feature in the trench, being sealed by lower colluvial layers (425) – (430). This ditch contained a single fill (405) comprising compact grey-brown clay silt that contained three fragments of pottery provisionally dated to AD 70 – AD 100.

Test Pit 5 (Figure 9)

5.3.19 Within the western extent of the site (Figure 3), Trench 5 was reduced in size due to the limited availability of space. (Figure 4). This Test Pit excavated on an E-W alignment and measured a combined length of approximately 5m in length, 1.8m in width with a maximum depth of 4m (Figure 9).

5.3.20 The stratigraphic sequence comprised topsoil (501) sealing a layer of subsoil (502) consisting of firmly compacted pale brown clay sand silt with infrequent pebbles and chalk flecks which sat

atop firmly compacted dark brown clayey silt colluvium with moderate to frequent chalk flecks and occasional angular stones (520). The buried soil (521) sealed two layers of lower colluvium (523) and (524) which sealed the natural geology (503) recorded at a depth of 3.25m below the existing ground level whose height was 23.05m OD.

5.3.21 No archaeological finds or features were present in Test Pit 5.

Trench 6 (Figure 10)

5.3.22 Located within the central northern extent of the site adjacent to the northern boundary (Figure 3), Trench 6 was excavated on an NW-SE alignment and measured 25m in length with a maximum depth of 1.8m. Natural geology was recorded at a level of approximately 24.02m OD.

5.3.23 The stratigraphic sequence within this trench was similar to other trenches recorded on site with topsoil (601) overlying subsoil (602) and colluvium (620). No buried soil layers were present within this trench with colluvial layers (612), (613), and (645) overlying the natural geology (603).

5.3.24 A single archaeological feature was recorded within this trench. Cutting through the natural geology and sealed by lower colluvium (645), ditch [604] was oriented N-S and measured 1.7m in width with a depth of 0.3m. The shallow concave sides gave way to a relatively flat base that contained fills (605) – (610) inclusive that contained iron oxides and charcoal. No dateable material was retrieved from this feature.

Trench 7

5.3.25 Trench 7 was not excavated due to the lack of available space on site.

Trench 8

5.3.26 Trench 8 was not excavated due to the lack of available space on site.

Trench 9 (Figure 11)

5.3.27 Located within the northern extent of the site (Figure 3), Trench 9 was excavated on an NW-SE alignment and measured 22m in length with a maximum depth of 2.2m. Natural geology was recorded at a level of approximately 23.2m OD.

5.3.28 As with other trenches excavated on site this trench was widened and stepped in order to target lower archaeological soils deposits and archaeological features. Three archaeological features were recorded within this trench including one pit, one ditch, and a shallow cut ditch/Holloway. The stratigraphic sequence within this trench was similar to elsewhere on site with topsoil (901)

sealing subsoil (902), colluvium (920) and the buried soil horizon (921). A small undated pit [906] was recorded cutting the buried soil.

5.3.29 Below colluvium (923) within the far southeastern extent of the trench, ditch [904] measured 1.4m in width with a depth of 0.33. The concave sides and base gave way to a single fill (905) that consisted of compact pale grey clay-sand-silt with moderate manganese that produced 15 sherds of pottery dating between AD 70 - AD 200. To the immediate northwest the Holloway [908] measured 8.1m in width with a depth of 0.3m containing pottery dated between AD 70 – AD 100. Both features cut into earlier colluvial layers (914), (915), and (928).

6 FINDS

6.1 Overview

6.1.1 The finds assemblage comprised iron waste, flint, pottery, CBM, and a clay smoking pipe. A ceramic assessment is provided below (Section 6.2) with iron waste being assessed with the Small Finds Assessment (Section 6.3).

6.1.2 Find types are quantified in Table 4 and detailed further below.

Type	Number	Weight (g)
Pottery	53	471
Flint	1	5
Clay pipe	1	4
Tile	8	56
Iron waste	-	264

Table 3 Quantification of archaeological finds

6.2 Quantification and spot-dating of the pottery

Methodology

6.2.1 All of the sherds were examined in good light conditions using a x8 Flubacher hand lens with built in metric scale and a x12 hand lens for determining the nature, size, form, and frequency of added inclusions. The pottery has been quantified using the standard measures of sherd count and weight only (Orton et al., 2004) and the results were catalogued giving details of context, ware type, and date where possible. The material has been retained in the original finds bags, these give details of site code, context numbers, and trench number. Extensive use has been made of the regional study of Upchurch and Thameside Roman Pottery (Monaghan, 1987) given the proximity of the site to the Upchurch marshes.

6.2.2 A catalogue of recorded ceramic finds is provided in Appendix 2.

Trench details

6.2.3 The site evaluation comprised of five trenches and four test pits. In four of these evaluation trenches (Tr3, Tr4, Tr6, and Tr9) pottery finds of Late Iron age and early Romano-British date were discovered. A few fragments of Roman tile, medieval tile and a late post-medieval clay pipe stem, and one prehistoric flint were the only other finds made, these have also been included.

Fabrics

Coarse Late Iron Age/Roman

C1A. Glauconite-rich tempered fabric. Very pale grey surface and core. Profuse black/grey glauconite 0.1-3mm, rare flint up to 1.5mm, rare quartz pellets up to 0.7mm, very rare ironstone up to 0.6mm.

C1B. 'Aylesford-Swarling' Belgic grog tempered ware.

C1C. Flint tempered fabric from Medway valley or possibly East Kent source. Surface is Brown-dark grey which extends 1.5- 2mm into the core which is mid grey. The internal surface is light grey. Profuse ill-sorted 0.01-2.00mm protruding calcined-flint filler with occasional black grog possibly charcoal 0.02-1.4mm.

C2A. Patchgrove ware. Red-brown to brown surfaces. Light grey core. Hackly fracture and an irregular or soapy feel. Fabric can range from hard to soft**.** A handmade fabric with wiped surfaces. Abundant grains of dark grey to black grog, measuring between 0.2-0.3mm. Sparse white clay pellets 0.5-3mm, quartz 0.2-1mm, fine silver mica and organics 0.5mm.

C2B. Sand tempered grey fabric. Surface is mid to dark grey with a rough texture. Core is light grey fringed with mid brown edges that extend both sides up to 1.5mm. The fabric is fairly hard with a Hackley fracture. Surface undecorated and untreated. The forms are wheel thrown. Abundant quartz 0.1- 1.5mm, sparse magnetite up to 0.3mm, rare ironstone up to 1mm, occasional mica. Equivalent to Monaghan S1/1.

C2C. Sand tempered grey-brown fabric. Surface is dark grey to mid brown with a smooth to slightly rough texture. The fabric is fairly hard, with a Hackley fracture. Core is light grey with mid brown edges that extend both sides up to 1.2mm. Sparse quartz 0.1-0.4mm, rare magnetite 0.1-1.1mm. Occasional mica. Equivalent to Monaghan S2/1.

Fine Roman

F1A. Martres de Veyre Central Gaulish Samian. Very hard, high fired fabric with conchoidal fracture. Bright orange-red or red with satin gloss slip on all surface. Abundant very fine limestone flecks with sparser red iron ore, quartz, and a little mica.

F2A. Hoo St. Werbergh oxidised version with or without external white/cream slip. Equivalent of Monaghan fabric N4/1s and Davies et al HOO. (NB: The recovered sherds appear to be a very inferior variant of the classic Hoo fabric, which is well fired and hard, this fabric has a very soft, soapy feel and the surface is very abraded, (when handled the surface leaves traces of the fabric on the hand). The inclusions appear consistent with Hoo fabric. Flagon fragments in this poor-quality fabric have been found on the foreshore between Hoo and Kingsnorth power station.

F2B. Fine oxidised orange Upchurch fabric. Equivalent to Monaghan N4/1.

F3A. Cooling and Halstow marshes sandy ware. Light grey slipped and burnished surface with a smooth texture. Dark grey core with mid-brown edges that extend both sides by 1.5mm. Fairly hard fabric with a Hackley fracture that was wheel thrown. Equivalent to Monaghan S1/6bs.

F3B. Light greyish-brown surface with traces of grey slip and burnish. Core is a grey with greyish-brown edges that extend both sides by 1mm. Slightly traces of mica. Smooth texture, fairly hard fabric with a laminar fracture. Equivalent to Monaghan S6/6bs.

F3C. Sand tempered. Very light buff surface with a pale grey slip. Core is slightly darker grey and smooth. Very thin walled 2mm at thinnest point. Slight traces of mica. Probably an Upchurch product.

F3D. Sand tempered. Surface is light buff, the core is black with buff edges that extend both sides by 0.4mm. Smooth texture, fairly hard fabric. Equivalent to Monaghan S1/5.

CBM (Roman)

CBM-RT. Orange-brown sandy fabric. Frequent quartz pellets up to 0.3mm. Rare magnetite up to 0.1mm. Occasional mica. Texture is rough.

CBM (Medieval)

CBM-MT. White/cream clay (source unknown). Very rare flint up to 4mm. Occasional very small stones up to 0.2mm.

Late Post Medieval

CP1. White pipeclay.

6.3 Lithics

Prehistoric Flint

WF1. Worked flint.

6.4 Analysis of the Iron Working Debris

Introduction

6.4.1 An ironworking waste was discovered during archaeological evaluation on land at 111 High Street, Newington, Kent. Material was collected from Trenches 3, 4, and 9 (264g) from exposed features and colluvium deposit. Iron slag was cleaned and subjected to visual, optical-microscopic and magnetic analysis, followed by the division of the assemblage into sub-categories based on the specific properties of the material.

6.4.2 The presence of *in-situ* iron-slag is always a reliable indicator of on-site or nearby industrial activity, including iron smithing, and provides a valuable source of information about the kind of ore used, the furnace type and the type of technology implemented during the iron-smelting process.

The chemical, geological and technological background

6.4.3 Obtaining the required metal from the raw ore comprises several stages of production, during which raw iron ore is roasted and processed into metallic iron in the form of spongy lumps, followed by primary smithing, which consolidates the bloom into more dense and solid iron billets. The most common source of iron ore in antiquity was ironstone, a ferruginous sedimentary rock formed either by chemical replacement of the elements or by the direct deposition of ferruginous sediments (the latter formed as a result of the precipitation of iron compounds from solution). The ironstone consists either of oxides such as hematite, limonite and magnetite, carbonates such as siderite or silicates such as chamosite, and occur in a variety of forms, such as siderite nodules, saprolite (laterite) and ooidal ironstone. These occur as veined or interbedded deposits or as nodules, along with chert within other deposits such as sandstone, mudstone, or clays.

6.4.4 The extraction of ironstone during the Late Iron Age/ Early Roman Period was probably carried out in the local area for the most from sandstone quarries, where exposed layers of Ragstone and Bargatestone were interbedded with veined bands of mostly oolitic ironstones. Another extraction method was by excavation from oval or linear pits in clay deposits to retrieve interbedded ferruginous nodules. Following extraction, iron-bearing material was roasted and crushed, roasting being a metallurgical process in which gas-to-solid reactions at elevated temperature are achieved with the objective of purifying the metal components. The iron ore was placed in a suitable open fire pit and heated in the presence of air, causing micro-fractures in the ore and the removal of sulphur, moisture, carbon dioxide and arsenic. This process also exposed the ore to atmospheric oxygen, which is the main oxidizing agent for the reaction where ferrous oxide (*wüstite*) is oxidized to ferric oxide. In the case of carbonate or sulphide ores, the roasting process removes the unwanted carbon or sulphur, leaving an iron oxide that can be directly reduced inside a smelting furnace shaft.

6.4.5 During the roasting process it was of critical importance to roast the ore sufficiently to achieve an iron content of at least fifty-seven per cent, with the silica (SiO_2) content not exceeding 17.5 per cent. If the ore were not properly roasted and still contained too much silica the smelting process resulted in large quantities of slag being formed at the expense of the required metal; for example: if ore were inadequately roasted, resulting in fifty-five percent iron and twenty percent SiO_2, the yield of metallic iron would be nil. In other cases, where iron-rich ore was roasted to the required temperature, the result would be sixty-five per cent iron to 8.6 per cent SiO_2, and the final result of the smelting process (at least theoretically) would be over sixty-two percent iron within the ensuing bloom.

6.4.6 Following the roasting process, a smelting furnace, usually in the form of a chimney-like shaft with a basal chamber accessed by an opening, was charged with starter fuel, ignited, and preheated to the desired temperature, then fed with a mixture of crushed roasted ore and charcoal.

6.4.7 During the main smelting process carbon monoxide was produced, mostly in the upper part of the furnace shaft. This was as a result of incomplete combustion because of the limited amount of available oxygen. When the temperature eventually reached in excess of 650°C (ideally about 800°C), a reduction reaction would occur between the crushed roasted ore and the carbon monoxide. Carbon monoxide is a highly reductive agent and as a first stage it detached an oxygen atom from each molecule of ferric oxide (Fe_2O_3), reducing it to iron monoxide (FeO, also known as *wüstite*). In the second step the carbon monoxide further reduced the iron monoxide iron ($FeO + CO \rightarrow Fe + CO_2$). Another important reaction occurring in the furnace shaft was the

combining of two molecules of iron monoxide (FeO) with one of silica dioxide (SiO_2), resulting in the creation of fayalite (Fe_2SiO_4), which is the main compound of the unwanted slag. Fayalite, which has a melting point of about 1173^{o}C, attracts and absorbs other impurities from the bloom, which can therefore be removed by liquidation. Metallic iron formed in the furnace in the above-described process at about 1250^{o}C but would melt at 1538^{o}C (*Schrüfer-Kolb 2004, 7*), when it would not be in the required, workable form of spongy and porous iron bloom. It was therefore of paramount importance to maintain temperatures between those values, which would enable the impurities to melt away in the form of slag and leave usable, retrievable iron bloom within the furnace chamber.

6.4.8 The smelting process was followed by primary smithing, during which a piece of iron bloom was re-heated until it became malleable. It was then beaten, transforming a porous, spongy lump into a solid iron billet. The beating impacts carbon particles into the iron in a process called carburisation, which prevents it being brittle. The smithing process also produces slag, in this case in a very dense and magnetic form, usually with very small charcoal imprints (*B. Girbal 2013, 100*).

Methodology

6.4.9 The sampled material (total weight 264g after being washed and dried) was split into sub-groups on the basis of the particular characteristics of the iron slag. As a first stage it was necessary to separate the iron-slag from the non-iron-slag materials such as tile, scorched clay furnace lining fragments and ore. The second step was to determine which iron-slag fragments were ferromagnetic and to separate those from the non-magnetic examples. The non-magnetic examples were divided into sub-categories (tapping slag, shaped slag, and furnace cakes), the remainder (mostly small, well-weathered fragments) were categorised as non-diagnostic. Fragments categorised as magnetic were examined through magnifiers with degrees of magnification ranging from 2x to 10x, followed by microscopic examination at 100x magnification. The other groups were examined in the same way, although only the more diagnostically promising examples were examined at 100x magnification. The fragments of iron ore were also visually examined visually and tested for magnetism, followed by sub-sampling of small fragments. These were roasted using an open-flame propane burner and then gradually cooled to room temperature, when they were re-examined visually under microscope (mag. 100x), followed by final check on their ferromagnetic properties. Finally each group was then weighed and catalogued, with representative samples being photographed.

Results

6.4.10 The majority (seventy-five per cent) of the sampled material was classified as furnace cakes, this group comprises solid and amorphous furnace iron-slag fragments that had solidified *in-situ* in the 'slag-pit' at the base of the furnace shaft. This represents strong evidence that a non-tapping bloomery technique using 'shaft-type' furnaces was employed on-site or in close vicinity.

6.4.11 The other significant group comprised twenty-four per cent was a tap slag and comprised about 24% (62g) of the assemblage, with most of the fragments, some of which were well weathered, being very small, up to 20 x 40 x 11mm in size.

6.4.12 The total amount of the slag that had solidified inside the furnace comprised about seventy-five per cent of the assemblage, whereas tapping slag comprised twenty-four per cent. This represents evidence that a 'tapping' technique was implemented but probably was phased out and/or replaced by 'non-tapping' technology using 'shaft-type' furnaces following Roman conquest.

6.4.13 In contrast, tapping slag in large quantities can represent evidence for a 'tapping' technique having been implemented on the site (a 'tapping' furnace is designed to conduct molten slag away from the furnace chamber. The molten slag flows through the tapping arch and when solidified still retains its liquid appearance).

6.4.14 The other small and weathered fragments (one per cent) were classified as non-diagnostic due to the lack of diagnostic features.

Context	Tap slag	Furnace cakes solid and amorphous	Furnace shaped slag	Smithing	Ore	Non-diagnostic	CBM tiles	Lining/ vitrified	Total
(428)	-	199g	-	-	-	-	-	-	**199g**
(905) [904]	35g	-	-	-	-	-	-	-	**35g**
(311) [310]	13g	-	-	-	-	-	-	-	**13g**
(405) [404]	14g	-	-	-	-	3g	-	-	**17g**
TOTAL	62g	199g	0	0	0	3g	0	0	**264g**
	24%	75%	-	-	-	1%	-	-	**100%**

Table 4 Showing summary results of the iron-working waste analysis.

Tap slag

6.4.15 This type of slag is fayalitic (Fe2SiO4) and non-magnetic. Its upper surface resembles lava flows. Usually it forms large porous sheets with clear ripples and flow features on its upper surface. These comprised about 24% (62g) of the assemblage.

Plate 1 Tap slag from context (405) [404] in Trench 4 (left) and Tap slag from context (905) [904] in Trench 9 (right)

Furnace slag cakes

6.4.16 This type of slag was formed at the base of the furnace shaft and was once molten, having solidified *in-situ* into solid, usually quite amorphous iron-slag cakes. These comprised about 75% (199g) of the assemblage. The majority of the fragments were dense and porous. All the fragments appeared to have been deliberately broken down into smaller pieces and it seems that the people working on this site were routinely crushing large slag lumps into smaller fragments before disposing of them. However, even as fragments, they are still a valuable source of information.

The shaped slag

6.4.17 There was no shaped slag identified within this assemblage.

Smithing slag

6.4.18 There was no smithing slag identified within this assemblage.

Conclusions discussion and recommendations

6.4.19 Several iron smelting sites were found in local area on the stretch between M2 junction 5, Stockbury and Newington (Watling Place). An ironworking site at Stockbury dated around 50BC–AD50; a tap slag and non-tapped slag was found (*KAP Allen, Cichy, Girbal 2013*). At M2 Junction

5 (also 50BC – AD 50), similarly tap slag and non-tapped slag suggests implementation of both techniques (*OA excavation*). At adjacent Watling Place (*Archaeological Excavations of Land North of High Street, Newington, Kent Interim report 2022, Cichy, Dungworth et al*) preliminary slag analysis has shown that a tap slag comprised over 38% of entire assemblage and it implies that primarily tapping technique was implemented around Newington Area in early Roman times.

6.4.20 The analysis of remains of the iron-working site, including the detailed analysis of the industrial waste, even if very limited has therefore added significantly to our understanding of this industry in its Late Iron Age/ Early Roman manifestation. The discoveries described above have provided reliable evidence for iron production having been carried out with shaft-type furnaces using tapping and non-tapping technology. The latter method was probably used beyond the Roman Period.

6.4.21 It is suggested that ironworking waste retrieved during archaeological evaluation at 111 High Street, Newington highly likely derived from furnaces discovered at adjacent Watling Place. As suggested by David Dungworth a fairly modest amount of slag was retrieved at Watling Place (142Kg) despite several shaft-furnace structures being found there. It was suggested by David that metallurgical waste was cleared/ removed from the site periodically and a lot of this material may have end up in adjacent valley to the east which runs southwards and underlays land at 111 High Street. To prove or disprove this more ironworking waste needs to be collected prior and/ or during proposed construction works and subjected to further scientific analysis and comparison of material with Watling Place assemblage. Further assessment should include SEM (scanning electron microscope) and chemical composition analyses.

6.4.22 It is therefore proposed that all intrusive groundworks should be subjected to archaeological watching brief with emphasis on any ironworking waste revealed during these works.

6.4.23 It is also possible that other iron bloomery structures might be located immediately to the east either within or nearby the evaluation area as a refuse pit investigated in Trench 3 contained demolished kiln walls in its lower fill. However, no ironworking waste was revealed in mentioned feature and only 13g of tap-slag were found in another pit [310] at northern end of Trench 3.

7 EVIRONMENTAL SAMPLING

7.1 Geoarchaeology and palaeo-environmental subsampling of deeply stratified colluvial sequences

7.1.1 The evaluation site lies to the west of Sitingbourne, south of the Swale estuary and the Medway River and floodplain. It is located on the site of a former orchard to the east of Newington lying on the north site of the High Street (essentially Watling Street). The land falls sharply northwards from the High Street by 2m (from 30.5 to 27.5m aOD) over 15m. The main area of the site is broadly level at *c.* 27m aOD to 25.5m aOD with both sample points, in trench 3 and 4, being at about 26m aOD. The geology is mapped as Thanet Formation (Thanet Sand) with no superficial deposits, however, locally and immediately west beyond the site boundary Head is mapped over the Thanet Formation. To the west the geology is Lambeth Group (clay, silts and sands), and further west and north is London Clay. Locally alluvium is mapped in the small watercourse running from Newington northwards to the Medway. Generally, the area lies south of the alluvial floodplain of the Medway/Thames, and north of the clay-with-flint capped Chalk (mainly Lewes Nodular Chalk = formerly part of the Upper Chalk). The soils are mapped as typical argillic brown earths (forest soils) of the Hamble 1 Association (Allen 1983; Jarvis 1984).

Archaeological Aims

7.1.2 Extensive prehistory and Roman activity has been recorded locally (SWAT 2023, 2.3.1), and includes later prehistoric holloways overlain by trackways just north of Watling Street (SWAT 023, 2.3.1), and this evidence is associated with the prehistoric and Roman trade routes, as well as holloways and former courses of Watling Street itself. It is notable that the High Street (Watling Street) lies on defined rise forming the southern boundary of the site (Figure 1). The stated archaeological project aims were primarily to establish the presence, or otherwise, of archaeological features (SWAT 2023, 3.3.2), with no site-specific aims, nor any site-defined geoarchaeological or palaeo-environmental aims.

7.1.3 There were no specific geoarchaeological aims, however, the evaluation uniformly encountered over 2m of stratified deposits associated with archaeological finds and features, and in places over 4.5m of deposits without obviously encountering the local geology (e.g., Trench 4, Figure 8). Very deep and deeply buried possible large archaeological features were also recorded such as ditch 404 recorded to be 3.2m wide and over 1.5m deep buried beneath nearly 2m of ‘colluvium’.

7.1.4 The multi-layered stratified deposits were generally recorded as colluvium, in which a buried soil was recorded in both Trenches 3 and 4.

The recorded archaeology and deposits

7.1.5 The evaluation report (SWAT 2023) records a 1m deep modern soil profile beneath which were horizontal layers of colluvium with a buried soil sandwiched between them. In Trench 3 a colluvium (320) overlay a buried soil (321) and another colluvial layer (322). Evaluation trenching terminated at about 1.2m depth and did not encounter the geology (Figure 6). In Trench 4 a holloway (442; BC to AD70) was cut into, and sealed by, horizontal layers of colluvium. Beneath a 1m deep modern soil, the upper colluvium (420) sealed a buried soil (421) and 'trample' layer (422) beneath (Figures 6 & 7). At least two further layers of colluvium seem to be recognised (423 & 424) before the holloway (422) cuts a lower series of at least six further colluvial layers (425, 426, 427, 428 & 429) beneath which is large 'ditch' 404.

7.1.6 The buried soil is considered to be Roman-British in date (AD 110-190), and the majority of the colluvium and the Holloway itself is also Romano-British. Even ditch 404 below most of the colluvium, had finds which included slag and flagon handles and rims dating it to AD 70-100.

7.1.7 The depth/thickness of these deposits is surprising, especially in view of the very low relief, and lack of slope from which the colluvium can originate.

Geoarchaeological and palaeo-environmental aims

7.1.8 With no recorded specific geoarchaeological aims (SWAT 2023), nor any provided by the field archaeologists, the aims were defined (see below) based on the surprising depth of deposits, their unverified interpretation, and their palaeo-environmental potential.

7.1.9 The definition of the deposits as colluvium (or alluvium) was key, but this geoarchaeological identification is exceptionally difficult from the monoliths alone (see below), nevertheless this is considered a key aim by visual examination or analysis.

7.1.10 The aims were to:

i) characterise the deposits with the aim of defining their origin (ie, colluvium, alluvium, stasis/buried soil, weathered geology)

ii) confirm or refute field interpretation of the sampled deposits (by visual or analytical means), or propose an analysis programme to do so

iii) assess the potential to provide a geoarchaeological history for the development of the sediments and the integrated archaeology

iv) examine the potential to define Roman roadside land-use history

7.1.11 This was achieved in the first instance by detailed examination, description and interpretation of the undisturbed samples (monoliths) provided. To facilitate examination of the land-use history, and possibility of any watery environments, subsampling for pollen and diatoms was be undertaken to facilitate assessment for the presence, preservation and potential.

Geoarchaeology

7.1.12 Two long (163cm and 152cm) monoliths of undisturbed sediment were taken from Trenches 3 and 4 respectively as monolith MS 1 and MS 2. Both were taken through similar deposits (Figures 6 and 7) of what was interpreted by the archaeologists as colluvium containing a buried soil. Upper colluvial deposits were fine-grained with chalk fragments and the lower deposits were denser fine-grained and stone-free; the lowest being gleyed and having mottling. A localised strong, well-defined, iron pan was recorded on site (ie, Trench 6), but not present in the sampled sequences (Trench 3 and 4).

7.1.13 Addressing geoarchaeological interpretation of these deposits via the small window of 110mm provided by the monolith samples is exceptionally challenging as many of the pedological features (i.e., peds), depositional structures, and context boundaries are weak, intermittently present or preserved, and are always best observed over and along a large and weathered section (French 2003; 2015; Allen 2017). The 11cm window afforded by the monoliths makes these almost impossible to detect many of these crucial characteristics. Thus, even the differentiation between colluvial and alluvial deposits which can be difficult enough on site, is almost impossible from just visual examination of the monoliths.

7.1.14 Sampling: the more general sequence in Trench 3 (MS 1) was described and sample for pollen only to look and land-use history, that in Trench 4 (MS 2) was subsampled for pollen and diatoms, to potentially examine any alluvial aspects of the deposits sequence as well.

<u>Aims and Requirements</u>

- To provide a more formal geoarchaeological context (description and basic interpretation) of the deposits
- To subsample the sequence for palaeo-environmental proxies (pollen and diatoms)
- Facilitate the potential of providing a long land-use history via the proxy subsamples

- From the geoarchaeological record, or palaeo-environmental analysis, address questions of deposit formation history and its relevance to the prehistoric and Roman settlement activity.

Methods

7.1.15 Monoliths were carefully unwrapped, and the exposed surface cleaned, lightly brushed and lose soil hoovered away. The surface was then lightly moistened, and photographed (see sample photographs below). The profiles were described following standard terminology (Hodgson 1997) and augmented with relevant information from the archaeological context descriptions. Munsell colours were recorded on moist samples in daylight conditions. Subsampling for pollen, and diatoms where relevant, was at 10mm bandwidths and 40mm and 80mm intervals respectively. Following photography, description and subsampling, the monoliths were fully excavated in 10cm blocks not crossing context boundaries, for artefact and or ecofact recovery, following which the sediment was discarded. Full descriptions and sample locations are tabulated and the geoarchaeological comment and interpretation provided in text.

7.1.16 The site was not visited, consequently description is restricted to the 110mm-wide window provided by the monolith sample. Many pedological and sedimentological features can only be observed in the field and are larger than the narrow monolith sample width. Also, the deposits alone have been described without the full wider context obtained by geoarchaeological attendance and detailed description of the natural geology.

Geoarchaeology of the sediment sequence in evaluation Trench 3 (Monolith MS 1)

7.1.17 A 163cm-long 110mm wide monolith (sample MS 1) was taken through the northern end of Trench 3 (Figure 6), sampling the relatively simple sediment sequence of two colluvial layers (320 & 322) sandwiching a buried soil (321), see Figure 6. The natural geology was not reached in evaluation trench.

7.1.18 The upper colluvium contains rare chalk flecks (the origin of which is considered below), and lower colluvium, has clear with soil development. These sealed a clear stone-free buried soil with well-developed structure (see Monolith Sample photograph below), developed in weathered parent material (geology or a colluvial/alluvial sediment). The fact that the buried soil survived so clearly indicates the nature and speed of burial, see below. Monolith (MS 1), was 163.5cm long; 0-11cm was empty.

40 pollen samples

Depth	*Samples*	*Description*
0-15		Very dark greyish brown (looks dark grey to black) humic silt to silt loam, ?weak blocky structure, essentially stone-free rare very small cbm fragments, common fine fibrous roots, clear boundary A horizon (301)
15-40	28 32 36	Brown (10YR 4/3) silt loam, almost stone-free, rare very small cbm flecks, rare very small chalk flecks, clear boundary B horizon (colluvial brown earth) (302)
40-77	40 44 48 52 56 60 64 68 72 76	Dark yellowish brown to brown (10YR 4/3-4) moist soft silt, stone-free, with rare very small chalk flecks, weak structure in upper part, clear to abrupt boundary Upper colluvium (302)
77-104	80 84 88 92 96 100	Dark yellowish brown (10YR 4/4) soft silt with common small and very small subrounded chalk pieces, unsorted, ?weak large blocky structure, abrupt boundary Lower colluvium (320)
104-128	104 106 108 110 112 114 116 118 120 122 124 126	Brown (10YR 4/3) silt, stone-free, soft silt massive 104-107, massive, bAh (buried topsoil) 107-123, medium prismatic-columnar structure bA/B (buried soil) 123-128 dark yellowish brown silt clear boundary Buried soil (321)
128-134	128 130	Dark yellowish brown (10YR 4/4) stone-free soft silt loam, massive bB/R base of buried soil/top of weathered parent material (321)

Depth	Samples	Description
	132	
134-153+	134 136 140 144 148 152	Dark yellowish brown (10YR 4/4) slightly firmer, massive stone-free silt to silt loam Colluvium / ?occupation (322)

Table 5 Monolith MS1

Monolith Sample 1 (Trench 3), top is to the left. Image © M.J. Allen 2024

7.1.19 The buried soil was not humic, but was very well structured, indicating stasis and pedogenesis, giving rise to well-developed structure (peds), see below.

Monolith Sample 1 - Detail of monolith MS 1 showing the buried soils (321). Image © M.J. Allen 2024

7.1.20 The full profile (from the modern soil) to the base of the trench was subsampled from monolith MS 1; 40 subsamples were removed for pollen.

Geoarchaeology of the sediment sequence in evaluation trench 4 (monolith MS 2)

7.1.21 The 152cm-long 110mm wide monolith (MS 2) was taken through the eastern end of Trench 4 (Figure 7) adjacent to Holloway 422, and east of large ditch 402 beneath the sampled sequence (Figures 6 and 7). The natural geology was not reached in evaluation trench at about 1.88m depth, nor at the base of the deep ditch 404 at a total of *c.* 3.9m depth from the ground surface..

7.1.22 The profile below the present day colluvial soil (401 & 402) to the base of the trench was subsampled from monolith MS 2; a total of 61 subsamples were removed; 41 for pollen and 20

for diatoms. The deposits are essentially similar, though slightly more complex (layered) than those in Trench 3.

7.1.23 The upper colluvium (420) is dominated by chalk pieces (see photographs below), the quantity and density of these is not uncommon in hillwash on chalk downland, where the soils are strongly calcareous and dominated by chalk stones. However, here the chalk is a considerable distance to the south and the majority is capped with Clay-with-flints about 3 miles (5km) to the south. The agency moving a deposits this dense in chalk pieces is not immediately obvious, but may have been exacerbated by, or largely derived from human activity (unless there is a surface chalk outcrop supporting shallow calcareous soils in the immediate vicinity.

Monolith Sample 2 - Trench 4 showing the section prepared for monolith same MS 2. Image SWAT 2023, Figure 7

7.1.24 The buried soil (421) beneath the chalky colluvium is similar to that seen in Trench 3 (321), but the well-defined soil structure seen there (Fig. 6) could not be detected in this monolith sample. Nevertheless, presence of the soil suggests rapid burial, and deposition such that the main portion the soil was not disrupted or removed. Slow deposition would incorporate, not bury any soil surface. Once again, this questions the nature and origin of the chalky colluvium. On site the archaeologists defined a 'firmly compacted dark grey silty clay with moderate charcoal, daub

and infrequent pebbles and chalk flecks' about 70mm thick (SWAT 2023, 30). This could not, however, be recognised as a specifically separate and ditch layer in the monolith sample. Below this the archaeologists defined a series of at least 7 horizontal colluvial layers (Figure 7). Description of the monolith sample only defined 6 layers, and it is not certain that these are the same units recognised in the field. The context ascriptions in the monolithic sample are, therefore, only generic.

7.1.25 The colluvium is characterised by being fine-grained, massive (largely structureless), and stone-free, with localised weak banding. Lower down the profile the deposits are gleyed and mottled and some zones (427) are dominated by strong brown colours. These may not be depositional layers *per se*, but post-depositional ground water gleying effects on existing deposits. The lower portion (below *c.* 70cm; ie 425 and below) is a noticeably denser, firmer, silty clays; these are more reminiscent of alluviation than colluviation, which then questions the origin an nature of all the deposits. The Monolith MS 2 was 152cm long; 0-8cm empty.

41 pollen samples, and 20 diatom samples

Depth	***Samples***	***Description***
0-28	4 8D 12 16D 20 24D	Brown (10YR 5/3) silt loam, soft, with common small and very small chalk pieces, unsorted, massive, abrupt boundary Chalky colluvium (420)
28-37	28 30 32D 34 36D	Dark brown (10YR 3.3) ?humic silt loam, soft, stone-fee, massive, abrupt boundary Stabilisation/buried soil (421)
37-50	38 40D 42 44D 46 48D	Very dark greyish brown (10YR 3/2) ?humic silt loam, soft, almost stone-free, rare very small cbm, and charcoal fragments, abrupt boundary Colluvial (422/423)
50-63	52 56D 60	Brown (10YR 4/3 silt loam, stone-free, soft, massive, ?weakly banded, clear boundary Banded colluvium, possibly some surface water sorting (424)

Depth	*Samples*	*Description*
63-78	64D 68 72D 76	Yellowish brown (10YR3/4) silty loam, stone-free, massive, clear boundary but difficult to discern (425 / 426)
78-102	80D 84 88D 92 96D 100	Brown to yellowish brown (10YR 3/4- 5/4) stiff silt to silty clay, firm, stone-free, rare small strong brown mottles, clear boundary Gleyed colluvial sediments, and possible an alluvial component (426)
102-117	104D 108 112D 116	Pale brown to light yellowish brown (10YR 6/3-4) silt firm to stiff, with many medium diffuse strong brown (7.5YR 5/8) to reddish yellow (7.5YR 6/8) mottled giving the whole layer a strong brown colour, clear to abrupt boundary Mottled; ground water gley (427), colluvial and alluvial component
117-146+	120D 124 128D 132 136D 149 144D	Yellowish brown (10YR 5/6) silty clay, stiff, some medium diffuse strong brown (7.5YR 6/6) mottles, rare medium rounded flint at 124cm Unsure: weathered parent material (geology) or reworked colluvial alluvium (428/429)

Table 6 Monolith MS2

Monolith Sample MS 2 (Trench 4), top is left. Image SWAT 2023, Figure 7

7.1.26 A series of 101 subsamples were removed from the two monoliths (Table 7). Pollen subsamples were removed at 10mm bandwidth and 40mm though both monoliths, and diatoms subsamples removed at 10mm bandwidth at 80mm intervals through monolith MS 2 (Trench 4). Pollen and diatom subsamples intervals were reduced to 20mm and 40mm respectively through the buried soils (321 and 421).

Evaluation trench	*Monolith*	*Pollen*	*Diatoms*	*Total*
Trench 3	MS	40	-	40

Evaluation trench	*Monolith*	*Pollen*	*Diatoms*	*Total*
Trench 4	MS 2	41	20	61
	Total	**81**	**20**	**101**

Table 7 Subsamples taken from the two monoliths

7.1.27 Subsampling was undertaken of the full sequences in both monoliths. That in Trench 4 is clearly the better and more significant, however that in trench 3 included the base of the modern colluvial soil, (not present in monolith MS 2 from trench 4), which itself may have some antiquity.

Conclusions and Potential

7.1.28 We have seen deposits in excess of 2m across much of the site, and in general are broadly consistent between the two sequences examined in trenches 3 and 4 (monoliths MS1 and MS 2). There are several aspect that need consideration;

i) The origin and nature of the chalk colluvium (320 & 420)

ii) The presence and preservation of the buried soils (321 & 421)

iii) The nature of the upper colluvium (cause and origin), and (423 & 424), and

iv) The potential for an alluvial component in the lower deposits (425, 426, 427 & 428)

7.1.29 Detailed discussion requires further careful consideration of the descriptions, preliminary interpretations, and the results of pollen and diatom assessments analysis. Nevertheless, in summary, the following need addressing;

7.1.30 The origin of the colluvium needs further consideration. Colluvium derived from erosion of and on adjacent slopes (hillwash). The adjacent slopes here, are low and short providing limited opportunity or largescale colluviation, especially over the very short time span (the Roman-British period) to which the majority of the sequences here belong.

7.1.31 The chalk-domination of the upper colluvium is currently unexplained; the organ of the chalk is not yet defined, but the sediment could have been deposited as slurry or rainwash (cf. Allen 1998; 1991; 1992)

7.1.32 The buried soils is well-preserved and extensive, suggesting a rapid burial over a large area, but by deposition in a fashion that did not disrupt, destroy or erode the majority of the buried soil.

7.1.33 The lower deposits are dense, fine-grained and stone-free and suggest an alluvial component.

7.1.34 There are problems with both the mechanism of colluviation and alluviation for the sole deposition of deposits here. There is little contributing slope to provide a source for colluviation, and there are few local water coarse to provide alluviation by overbank floodplain flood events.

7.1.35 However the deposits are well dated and have the potential to provide good local histories of the land-use and land character via pollen and diatoms. These could significantly assist in defining the nature of the site and thus, with consideration of the geoarchaeology, of the deposits themselves.

Recommendations

7.1.36 Geoarchaeological and Palaeo-environmental record

1. Assess a suite of samples for pollen and diatoms (probably trench 4, monolith MS 2).

2. Undertake re-consideration of the geoarchaeology with a better local contextual framework. Complete an integrated geoarchaeological and palaeo-environmental report suitable for publication or dissemination.

3. Provide an integrated analytical assessment with proposals for any relevant analysis and accompanying costs.

Acknowledgements

7.1.37 Thanks are due in particular to Peter Cichy for providing the site and sample information, and Paul Wilkinson who delivered the monoliths and commissioned this work.

7.2 Archaeobotanical Assessment Report

Introduction

7.2.1 This report is an assessment of archaeobotanical remains in samples taken during an evaluation before development on a greenfield site within the boundary of a former orchards to the east and north of Willow Trees, west of Ellens Farm (SWAT 2023, 3).

7.2.2 Flot and flora from five samples, all dated as early Roman were presented for assessment (see Appendix 3).

7.2.3 The aims of this assessment are to determine the significance and potential of the plant macro-remains in the sample and to consider its use in providing information about diet, craft, medicine, crop-husbandry, feature function and environment. Recommendations will be made about any further work necessary on these samples and for future interventions at the site.

Sampling and Processing Methods

7.2.4 Samples were taken and completely processed by S.W.A.T. using a Siraf type flotation system with a 500-micron mesh used to collect the flot.

7.2.5 Five 30L samples were presented for assessment. Flot volumes ranged from 0.01 L to 0.125 L.

7.2.6 No known biases in recovery or evidence for possible contamination and residuality were reported.

Assessment Methodology

7.2.7 These samples were assessed using the standard methodology outlined in the Historic England Guidelines for Environmental Archaeology (Campbell *et al*. 2011). Each flot was fully scanned under a stereo-microscope with magnification of 10-45x.

7.2.8 At assessment level the abundance of plant macro-remains is estimated unless the number of items is few (less than ten). The diversity of plant taxon types are also estimated. Level of preservation of plant macro-remains is given as identifiable to family, genus or species. Faunal remains are noted in general terms with only abundance noted.

7.2.9 Identifications were made using uncharred reference material (author's own and the Northern European Seed Reference Collection at the Institute of Archaeology, University College London) and reference manuals (such as Beijerinck 1947; Cappers *et al.* 2006; Charles 1984; Jacomet 2006). Nomenclature for plants is taken from Stace (Stace 2010). Latin names are given once, and the common names used thereafter. Quantities were estimated in the following way: -

Codes for abundance, diversity and level of preservation as used in the tables.

Abundance

1 = 'Low' = <10

2='Moderate' = 10-100

3= 'Abundant' =>100

Diversity

1='Low'= <3 taxon types

2='Moderate' = 3 to 10 taxon types

3='High'= >10 taxon types

Preservation

1 = Identifiable to family

2 = Identifiable to genus

3 = Identifiable to species

7.2.10 At assessment level full identifications are only made of significant plant macro-remains. Where given the nomenclature for the plant macro-remains follows Stace (Stace 2010).

7.2.11 The quantity of Identifiable charred wood >4mm in diameter has been noted separately from the quantity of charred wood flecks. Fragments this size are easier to break to reveal the cross-sections and diagnostic features necessary for identification and are less likely to be blown or unintentionally moved around the site (Asouti 2006, ¶ 31; Smart and Hoffman, 1988, 178-179). Charred wood flecks <4mm diameter have been quantified but not recommended for further analysis unless twigs or roundwood fragments larger than 2mmØ were present.

Abundance, Diversity and State of Preservation of the Archaeobotanical Remains (see Table 2, Appendix)

Overview

7.2.12 The Geological Survey of Great Britain of the site is Thanet Formation- sand, silt and clay (SWAT 2023, 3). The LandIS soil description for this site is Soilscape 6 ' freely draining slightly acid loamy soils' (Hallett *et al*.2017).

7.2.13 Plant macro-remains were preserved by charring. There was no evidence for waterlogging or mineralisation in these samples. Charring of plant macrofossils occurs when plant material is heated under '…reducing conditions…' where oxygen is largely excluded (Boardman and Jones 1990, 2) leaving a carbon skeleton resistant to biological and chemical decay (Campbell *et al*. 2011,17). These conditions can occur in a charcoal clamp, the centre of a bonfire or pit or in an oven or when a building burns down with the roof excluding the oxygen from the fire (Reynolds, 1979, 57). Charred plant remains were present as charcoal and poorly preserved grains.

7.2.14 One fragment of desiccated endocarp of the ruderal plant elder (*Sambucus nigra* L.) was present in samples 6. Due to the absence of waterlogged preservation conditions and the abundance of modern rootlet fragments these seeds have been interpreted as intrusive and noted in the tables but not commented on in the report. Abundant flecks of charcoal too small to be identified were present in each sample.

Early Roman Cess pit]304], basal fill (305) <3> and turned refuse (304) <4>

7.2.15 Both samples produced small flots dominated by charcoal. Low numbers of fragments of identifiable charcoal were found in each sample. Sample <3> contained low numbers of poorly preserved wheat (*Triticum* sp.) grains.

Early Roman Refuse pit [306]. Basal fill (307) <5> and upper fill (314) <6>

7.2.16 For sample <6> there was a note to look for smithing residue. None was seen in this flot or from the basal fill (307)<5> of this feature.

7.2.17 What were present were one very poorly preserved cereal grain in sample <5>. Both samples contained low numbers of identifiable charcoal.

Pit [906](907)<7>

7.2.18 This feature produced the most abundant assemblage of charcoal at the site and no other types of plant remains.

Potential of the Archaeobotanical Remans to Contribute to Project Aims and Research Issues of Wider Significance.

7.2.19 Bulk soils samples for archaeobotanical assessment have been taken during excavations by SWAT Archaeology to the immediate northwest of this site but at the time of writing the programme of post-excavation and analysis is ongoing (SWAT 2023).

7.2.20 However, as this is the evaluation phase clearer potential and significance will be revealed during the excavation phase.

7.2.21 The samples assessed for this report were dominated by charcoal flecks (<4mm^3 in size) with most samples containing fragments of charcoal of identifiable size (>4mm^3). The low number of poorly preserve cereal grains might be indicative of more to be found during the excavation phase. These were the only charred plant macro-remains seen in the samples. They do indicate that charred plant macro-remains have survived at this site but it is not yet clear if they will be useful for interpreting the site. Full excavation will reveal this.

Recommendations for Archaeobotanical Remains Suitable for Scientific Dating if Requested

7.2.22 Each sample assessed in this report (see Table 2, Appendix) contained charcoal fragments of identifiable size. If they are needed for radiocarbon dating, they will need to be identified and suitable taxa selected for dating.

Recommendations for Future Work and Resources Required for Future Work

7.2.23 Unless the charcoal needs to be identified for analysis or radiocarbon dating then no further work is recommended on these flots.

7.2.24 If excavation is to take place these samples do indicated that charred plant macro remains are present on the site so bulk soil sampling is recommended to continue.

Acknowledgements

7.2.25 Thanks are due to Peter Cichy of Swale and Thames Archaeological Survey Company for providing background information.

8 DISCUSSION

8.1 Introduction

8.1.1 The archaeological evaluation adjacent to Willow Trees, 111 High Street, Newington, Sittingbourne in Kent has demonstrated the presence of archaeological activity within the extents of the proposed development area. Modern truncation within the trenches was limited to low impact rooting.

8.2 Archaeological Narrative

8.2.1 The archaeological evaluation has been successful in identifying the presence of ditches, pits and Holloways associated with the Late Iron Age and Early Roman-British periods. At least two phases of archaeological activity have been identified, as follows;

PHASE 1 - 'Belgic' Late Iron Age/Early Roman
PHASE 2 - Early Roman

8.2.2 Features within the trenches are an indication of peripheral settlement rather than being the focus or centre of any domestic or industrial complex, with Holloways representing former navigable routes connecting larger settlement to the north with a Roman road directly to the south. It is likely that these routes were well used as the Watling Street provided access to land-based movement from the east Kent coast into London and beyond.

8.2.3 Trade, communication, and travel were of great importance during these periods and were essential for the expansion of Roman settlement in western Europe. In north Kent, the Watling Street Roman Road would have been used in conjunction with navigable offshore sea and river routes on the north Kent coast, including the River Medway, the River Thames, and the Swale around the Isle of Sheppey. The combination of road and river created an avenue of relative dense Roman occupation in north Kent from Thanet to London with a myriad of sites already recorded. These sites include villa estates, military forts/camps, agrarian and domestic settlement, along with industrial and religious complexes which would have been accessed from the north (i.e. river) or from the south (i.e. road). The current development sites appear to be located on a relatively major thoroughfare connecting occupation at Watling Place to the north (SWAT Archaeology 2020) and the road immediately to the south, as shown on Figure 12.

8.2.4 What is interesting is that the results from the current evaluation point to two phases of use, and two phases that are over a relatively short time span. We are aware that the Watling Street was constructed early in the Roman period and, for the most part, probably followed an existing prehistoric pathway, which continued to be used throughout the Roman period and beyond still to this day. Archaeological settlement to the north at Watling Place has been provisionally phased commencing in *c*.50 BC to *c*.AD 300 with industrial relation iron works and pottery production, to the 3rd and 4th centuries when the site was predominately agricultural, i.e. field systems, corn drying kilns, and granaries. The current site is almost exclusively within that first early phase of industrial occupation, which goes some way to account for the iron waste recorded during this evaluation. The presence of the large ditch in Trench 4 adjacent to a Holloway would also suggest a relatively serious attempt at keeping the access routes well drained.

8.2.5 It is also essential to point out that while the Holloways are relatively deep, a characteristic that suggests use over a great period of time, the presence of clean colluvial deposits separating occupation horizons may point towards periods of disuse when the shifting natural hill wash would shift and fill the hollows.

8.2.6 Although the current evaluation has only targeted a small percentage of the site archaeological features examined and recorded have revealed deeply stratified archaeological remains within a Romano-British 'avenue' that forms part of a larger complex network of Roman Roads, trackways, and paths within north Kent.

8.3 Impact Assessment

8.3.1 It should be stated, that at this time, finished levels for the proposed development, i.e. road levels, drainage levels, foundation levels, etc., have not be finalised. Therefore, in the event that finished ground levels remain constant, the depth of impact associated with future development is assumed to require the excavation of material exceeding 1m in depth.

8.3.2 The archaeological evaluation has confirmed the presence of a Late Iron Age-Early Roman routeway or avenue within the proposed development area. Taking into consideration initial site clearance and levelling, plus the impact of plant movement, and the construction of compound/storage areas and in the absence of ground raising, proposed impacts to archaeological horizons throughout the site are therefore expected.

8.3.3 Table 5, below, sets out the presumed impact depth of 1m, along with the current ground levels. The level of the buried soil horizon within each trench is also provided as this represents the

upper archaeological horizon across the site. It is important to note that if development includes the raising of the external ground level, then the upper archaeological horizon would be deeper than set out below.

Trench No	Buried Soil Horizon (Mean) (A)	Natural Geological Horizon (Mean) (B)	Existing Ground Level (Mean) (C)	Current Overburden Depth to: (A)
1	26.06m OD	25.76m OD	27.34m OD	1.28m
2	25.48m OD	24.10m OD	26.56m OD	1.38m
3	25.21 OD	24.752m OD	26.69m OD	1.48m
4	24.77m OD	22.88m OD	26.17m OD	1.40m
5	25.40m OD	23.05m OD	26.30m OD	0.90m
6	Not present	24.02m OD	26.14m OD	2.12m*
9	24.40m OD	23.20m OD	25.71m OD	1.31m
* Note: buried soil horizon not present so depth to natural given * Note: That average ground levels are given across a sloping site				

Table 8 Archaeological Impact Levels

8.3.4 Development proposals are therefore considered unlikely to have a significant impact on archaeological remains, as long as the impact depth is no deeper than 1m. This does not allow for any ground raising or reduction and just considers the existing site ground level. It is also worth pointing out that average ground levels for each trench are given meaning that actual overburden depth is shallower or deeper at either end of each trench.

8.3.5 It is therefore recommended that further archaeological mitigation considers preservation in-situ of archaeological horizons in addition for possible area of archaeological monitoring, depending on finalised development levels. The nature and scope of any further archaeological mitigation will need to be determined in consultation with the Principal Archaeological Advisor at Kent County Council.

9 ARCHIVE

9.1 General

9.1.1 The Site archive, which will include paper records, photographic records, graphics, and digital data, will be prepared following nationally recommended guidelines (SMA 1995; CIfA 2009; Brown 2011; ADS 2013).

9.1.2 All archive elements will be marked with the site/accession code, and a full index will be prepared. The physical archive comprises 1 file/document case of paper records and A4 graphics. The Site Archive will be retained at SWAT Archaeology offices until such time it can be transferred to a Kent Museum.

10 ACKNOWLEDGMENTS

10.1.1 SWAT Archaeology would like to thank Mr Sunil Popat of Family Homes for commissioning the project. Thanks are also extended to Simon Mason, Principal Archaeological Officer at Kent County Council, for his continued advice and assistance.

10.1.2 Peter Cichy supervised the archaeological fieldwork, supported by Django Rayner and Scott Skinner. David Britchfield BA (Hons) MCIfA produced the draft text for this report with the illustrations provided by Bartek Cichy. Specialist support was provided by Peter Cichy (Analysis of the Iron Working Debris) and David Applegate BA (Hons) (Ceramics).

10.1.3 The Project Manager for the project was Dr Paul Wilkinson MCIfA, FRSA of SWAT Archaeology.

11 REFERENCES

ADS 2013. Caring for Digital Data in Archaeology: a guide to good practice, Archaeology Data Service & Digital Antiquity Guides to Good Practice

Allen, M.J. 1988. Archaeological and environmental aspects of colluviation in South-East England, in Groenmann-van Waateringe, W. & Robinson, M. (eds), *Man-Made Soils*, 69-92. Oxford: British Archaeological Reports, Int. Series 410

Allen, M.J. 1991. Analysing the landscape: a geographical approach to archaeological problems, in Schofield, A.J. (ed.), *Interpreting Artefact Scatters; contributions to ploughzone archaeology* 39-57. Oxford: Oxbow Monograph 4

Allen, M.J. 1992. Products of erosion and the prehistoric land-use of the Wessex chalk, in Bell, M.G. & Boardman, J. (eds), *Past and Present Soil Erosion: archaeological and geographical perspectives*, 37-52. Oxford: Oxbow Books

Allen, M.J. 2017. The geoarchaeology of context, in Allen, M.J. (ed.), *Molluscs in Archaeology*, 30-47. Studying Scientific Archaeology 3. Oxford: Oxbow Books

Allen, R.H., Fordham, S.J., Hazelden, J., Moffat, A.J. & Sturdy, R.G. 1983. *Soils of England and Wales; sheet 6: South East England, 1:250,000*. Soil Survey of England and Wales

Brown, D.H., 2011. Archaeological archives; a guide to best practice in creation, compilation, transfer and curation, Archaeological Archives Forum (revised edition)

Chartered Institute for Archaeologists, 2009, Standard and Guidance for the creation, compilation, transfer and deposition of archaeological archives, Institute for Archaeologists

Chartered Institute for Archaeologists, 2014, *Standard and guidance: for field evaluation.*

Chartered Institute for Archaeologists, 2014, *Standard and guidance for the creation, compilation, transfer, and deposition of archaeological archives*.

Department of the Environment, 2010, *Planning for the Historic Environment*, Planning (PPS 5) HMSO.

English Heritage 2002. Environmental Archaeology; a guide to theory and practice of methods, from sampling and recovery to post-excavation, Swindon, Centre for Archaeology Guidelines

English Heritage, 2006, *Management of Research Projects in the Historic Environment* (MoRPHE).

French, C. 2003. *Geoarchaeology in Action.* London: Routledge

French, C. 2015. *A handbook of geoarchaeological approaches for investing landscape and settlement sites.* Studying Scientific Archeology 1. Oxford: Oxbow Books

Hodgson, J.M. 1997. *Soil Survey Field Handbook.* Silsoe: Soil Survey and Land Research Centre

Jarvis, M.G., Allen, R.H., Fordham, S.J., Hazelden, J., Moffat, A.J. & Sturdy, R.G. 1984. *Soils and their use in South East England.* Harpenden: Soil Survey of England and Wales, Bulletin No. 15

SMA 1993. Selection, Retention and Dispersal of Archaeological Collections, Society of Museum Archaeologists

SMA 1995. *Towards an Accessible Archaeological Archive*, Society of Museum Archaeologists

SWAT Archaeology (2022) *Archaeological Excavations of Land North of the High Street, Newington, Kent ME9 7JJ, Interim Report v2.* SWAT Archaeology Document Reference: NEW03

SWAT Archaeology (2023) *Written Scheme of Investigation for an Archaeological Evaluation on Land adjacent to Willow Trees, 111 High Street, Newington, Sittingbourne in Kent*

12 APPENDIX 1 – TRENCH TABLES

Prepared by Bartek Cichy

Trench: 1
Dimensions: 7m by 1.8m Depth: 2.6m
Trench alignment: NW-SE
Ground level at NW: 0 m OD Ground level at SE: 0 m OD

Context Number	***Interpretation***	***Description***	***Dimensions***
101	Topsoil	Firmly compacted pale grey clay-silt with moderate manganese.	Thickness: 0.3m Depth: 0.3m
102	Subsoil	Firmly compacted pale brown clay sand silt with infrequent pebbles and chalk flecks	Thickness: 0.4m Depth: 0.4m
103	Natural	Firmly compacted orange grey clay sand silt (Brickearth) with infrequent round pebbles	
104	colluvium	Firmly compacted mid brown clay sand silt with infrequent chalk flecks angular stones and pebbles	
120	colluvium	Firmly compacted dark brown clayey silt with moderate to frequent chalk flecks and occasional angular stones	Thickness: 0.2m
121	Buried topsoil	Firmly compacted dark brown clay sand silt with infrequent chalk flecks angular stones and pebbles	Thickness: 0.28m

Trench: 2
Dimensions: 25m by 1.8m Depth: 2.3m
Trench alignment: NNW-SSE
Ground level at NNW: 0 m OD Ground level at SSE: 0 m OD

Context Number	***Interpretation***	***Description***	***Dimensions***
201	Topsoil	Firmly compacted brown clay sand silt with infrequent angular stones and CBM. Moderate peat content	Depth: 0.3m
202	Subsoil	Firmly compacted pale brown clay sand silt with infrequent pebbles and chalk flecks	Depth: 0.9m
203	Natural	Firmly compacted orange grey clay sand silt (Brickearth) with infrequent round pebbles	
206	footpath	WNW-ESE aligned linear cut with shallow sides and uneven base.	Width: 3.4m Depth: 0.21m
207	Fill	Firmly compacted pale orange grey clay-silt with infrequent pebbles.	Width: 3.4m Depth: 0.21m
220	colluvium	Firmly compacted dark brown clayey silt with moderate to frequent chalk flecks and occasional angular stones	Thickness: 0.18m
221	Buried topsoil	Firmly compacted dark brown clay sand silt with infrequent chalk flecks angular stones and pebbles	Thickness: 0.3m
223	colluvium	Firmly compacted pale grey brown silty clay with infrequent chalk flecks and tiny manganese specs	Thickness: 1m

Trench: 3
Dimensions: 25m by 1.8m Depth: 1.6m
Trench alignment: NNE-SSW
Ground level at NNE: 0 m OD Ground level at SSW: 0 m OD

Context Number	***Interpretation***	***Description***	***Dimensions***
301	Topsoil	Moderately compacted clay sand silt with moderate peat content, occasional CBM and glass shards	Depth: 0.3m
302	Subsoil	Firmly compacted, pale orange brown clay sand silt with infrequent angular stones and moderate chalk flecks occurring in patches. Colluvium	Depth: 0.9m
303	Natural	Firmly compacted, orange-brown clay sand silt (Brickearth) with infrequent round pebbles, iron pan and tiny ferromanganese specs. Very occasional chalk flecks in places.	
304	Pit	Sub-circular in plan with steep sides and flat base	Width: 1.3m Depth: 1.4m
305	Fill	Firmly compacted green-grey silty sand with visible cess mineralisation	Width: 1.28m Depth: 1.18m
306	Pit	Sub-circular in plan with steep/ vertical sides and mainly flat base.	Width: 0.9m Depth: 0.55m
307	Fill	Firmly compacted dark-grey with orange spots clay-sand-silt with infrequent to moderate charcoal, kiln wall frags and angular stones	Width: 0.87m Depth: 0.16m
308	Pit	Irregular shape in plan with moderately sloping sides and concave base	Width: 1m Depth: 0.2m
309	Fill	Firmly compacted dark brown clay sand silt with infrequent chalk flecks angular stones and pebbles	Width: 1m Depth: 0.2m
310	Pit	Circular in plan with shallow sides and flat/ uneven base, slightly convex	Width: 0.87m Depth: 0.06m
311	Fill	Firmly compacted dark brown clay sand silt with infrequent chalk flecks angular stones and pebbles	Width: 0.87m Depth: 0.06m
312	Fill	Firmly compacted dark-grey clay-silt with moderate charcoal powder and possibly ash	Thickness: 0.1m Width: 0.92m
313	Fill	Firmly compacted grey-brown clay-sand-silt with moderate iron pan, charcoal flecks, daub or kiln lining and infrequent chalk flecks and angular stones.	Width: 1.3m Depth: 1.1m
314	Fill	Firmly compacted dark-grey clay-sand-silt with moderate daub flecks, infrequent charcoal, and angular stones	Width: 0.9m Depth: 0.49m
320	colluvium	Firmly compacted dark brown clayey silt with moderate to frequent chalk flecks and occasional angular stones	Thickness: 0.28m
321	buried topsoil	Firmly compacted dark brown clay sand silt with infrequent chalk flecks angular stones and pebbles	Thickness: 0.2m
322	trample	Firmly compacted dark grey silty clay with moderate charcoal daub and infrequent pebbles and chalk flecks	Thickness: 0.23m

Trench: 4
Dimensions: 0m by 1.8m Depth: 2.2m
Trench alignment: E-W
Ground level at E: 0 m OD Ground level at W: 0 m OD

Context Number	*Interpretation*	*Description*	*Dimensions*
401	Topsoil	Moderately compacted clay sand silt with moderate peat content, occasional CBM and glass shards	Depth: 0.3m
402	Subsoil	Firmly compacted, pale orange brown clay sand silt with infrequent angular stones and moderate chalk flecks occurring in patches. Colluvium	Depth: 0.9m
403	Natural	Firmly compacted, orange-brown clay sand silt (Brickearth) with infrequent round pebbles, iron pan and tiny ferromanganese specs. Very occasional chalk flecks in places.	
404	Ditch	NE-SW aligned linear cut with steep sides and flat, slightly concave base	Width: 3.2m Depth: 1.55m
405	Fill	Firmly compacted grey brown clay sand silt with infrequent chalk flecks angular stones and pebbles	Width: 3.2m Depth: 1.55m
420	colluvium	Firmly compacted dark brown clayey silt with moderate to frequent chalk flecks and occasional angular stones	Thickness: 0.2m
421	Buried topsoil	Firmly compacted dark brown clay sand silt with infrequent chalk flecks angular stones and pebbles	Thickness: 0.14m
422	trample	Firmly compacted dark grey silty clay with moderate charcoal daub and infrequent pebbles and chalk flecks	Thickness: 0.07m
423	colluvium	Firmly compacted pale grey brown silty clay with infrequent chalk flecks and tiny manganese specs	Thickness: 0.1m
424	colluvium	Firmly compacted orange brown grey silty clay with moderate iron pan (mottling) very occasional tiny manganese specs, charcoal, small ang stones and chalk flecks)	Thickness: 0.2m
425	colluvium	Firmly compacted brown grey silty clay with moderate tiny specs of manganese and very infrequent small angular stones	Thickness: 0.13m
426	colluvium	Firmly compacted orange brown silty clay with occasional iron pan and tiny manganese specs	Thickness: 0.21m
427	colluvium	Firmly compacted grey orange silty sand clay with very occasional iron pan and tiny manganese flecks	Thickness: 0.08m
428	colluvium	Firmly compacted orange mottled grey silty clay no inclusions looks very like natural clay	Thickness: 0.12m
429	colluvium	Firmly compacted brown grey silty clay with moderate to frequent tiny manganese flecks, very infrequent iron pan and lenses of orange clay	Thickness: 0.1m
430	colluvium	Firmly compacted brownish grey silty clay with occasional iron pan and manganese flecks	Thickness: 0.2m
431	colluvium	Firmly compacted greyish brown silty clay with occasional to moderate iron pan and tiny manganese specs	Thickness: 0.1m
432	colluvium	Firmly compacted brownish grey silty clay with infrequent microscopic chalk flecks and manganese	Thickness: 0.3m
433	Pit	Not revealed in plan cut with moderately sloping sides and convex base	Width: 0.45m Depth: 0.25m
434	Fill	Firmly compacted brown-grey clay-sand-silt with infrequent charcoal flecks, chalk, and small angular stones	Width: 0.45m

			Depth: 0.25m
435	Pit	Not revealed in plan cut with moderately sloping sides and flat base	Width: 0.5m Depth: 0.18m
436	Fill	Firmly compacted grey brown clay sand silt with infrequent chalk flecks angular stones and pebbles	Width: 0.5m Depth: 0.18m
437	Pit	Not revealed in plan with moderately sloping sides and convex base	Width: 0.5m Depth: 0.25m

Trench: 5
Dimensions: 0m by 1.8m Depth: 4m
Trench alignment: NW-SE
Ground level at NW: 0 m OD Ground level at SE: 0 m OD

Context Number	***Interpretation***	***Description***	***Dimensions***
501	Topsoil	Moderately compacted clay sand silt with moderate peat content, occasional CBM and glass shards	Depth: 0.3m
502	Subsoil	Firmly compacted, pale orange brown clay sand silt with infrequent angular stones and moderate chalk flecks occurring in patches. Colluvium	Depth: 0.4m
503	Natural	Firmly compacted, orange-brown clay sand silt (Brickearth) with infrequent round pebbles, iron pan and tiny ferromanganese specs. Very occasional chalk flecks in places.	
520	colluvium	Firmly compacted dark brown clayey silt with moderate to frequent chalk flecks and occasional angular stones	Thickness: 0.2m
521	Buried topsoil	Firmly compacted dark brown clay sand silt with infrequent chalk flecks angular stones and pebbles	Thickness: 0.26m
523	colluvium	Firmly compacted pale grey brown silty clay with infrequent chalk flecks and tiny manganese specs	Thickness: 0.2m
524	colluvium	Firmly compacted orange brown grey silty clay with moderate iron pan (mottling) very occasional tiny manganese specs, charcoal, small ang stones and chalk flecks	Thickness: 1.6m

Trench: 6
Dimensions: 26m by 1.8m Depth: 1.8m
Trench alignment: WNW-ESE
Ground level at WNW: 0 m OD Ground level at ESE: 0 m OD

Context Number	***Interpretation***	***Description***	***Dimensions***
601	Topsoil	Moderately compacted clay sand silt with moderate peat content, occasional CBM and glass shards	Depth: 0.3m
602	Subsoil	Firmly compacted, pale orange brown clay sand silt with infrequent angular stones and moderate chalk flecks occurring in patches. Colluvium	Depth: 0.4m
603	Natural	Firmly compacted, orange-grey or light grey sand silt with infrequent round pebbles, iron pan and tiny ferromanganese specs. Very occasional chalk flecks in places.	
604	Ditch	NNE-SSW aligned linear cut with moderately sloping sides bit convex but mainly flat base	Width: 1.7m Depth: 0.3m

605	Fill	Firmly compacted brown-grey sand-silt with infrequent pebbles and charcoal flecks	Width: 1.5m Depth: 0.15m
606	Fill	Firmly compacted, grey sand silt with infrequent gravel	Width: 1.7m Depth: 0.17m
607	Fill	Firmly compacted thin band of grey silt-sand	Thickness: 0.06m
608	Fill	Firmly compacted thin band of orange silt-sand with frequent iron oxide	Thickness: 0.04m
609	Fill	Firmly compacted thin band of grey sand-silt	Thickness: 0.03m
610	Fill	Firmly compacted thin band of red-orange silt-sand with frequent iron oxide	Thickness: 0.03m
612	colluvium	Firmly compacted pale brown sand silt with infrequent chalk flecks angular stones and pebbles	Thickness: 0.1m
613	colluvium	Firmly compacted light grey brown sand silt with infrequent chalk flecks angular stones, manganese, and pebbles	Thickness: 0.47m
620	colluvium	Firmly compacted dark brown sandy silt with moderate to frequent chalk flecks and occasional angular stones	Thickness: 0.2m
645	colluvium	Firmly compacted grey brown sand silt with infrequent charcoal flecks, angular stones, and pebbles.	Thickness: 0.3m

Trench: 7
Dimensions: 0m by 1.8m Depth: 0m
Trench alignment: -
Ground level at : 0 m OD Ground level at : 0 m OD

Trench: 8
Dimensions: 0m by 1.8m Depth: 0m
Trench alignment: -
Ground level at : 0 m OD Ground level at : 0 m OD

Trench: 9
Dimensions: 0m by 1.8m Depth: 2.2m
Trench alignment: NW-SE
Ground level at NW: 0 m OD Ground level at SE: 0 m OD

Context Number	***Interpretation***	***Description***	***Dimensions***
901	Topsoil	Moderately compacted clay sand silt with moderate peat content, occasional CBM and glass shards	Depth: 0.3m
902	Subsoil	Firmly compacted, pale orange brown clay sand silt with infrequent angular stones and moderate chalk flecks occurring in patches. Colluvium	Depth: 0.4m
903	Natural	Firmly compacted, orange-brown clay sand silt (Brickearth) with infrequent round pebbles, iron pan and tiny ferromanganese specs. Very occasional chalk flecks in places.	
904	Ditch	N-S aligned linear cut with moderately sloping sides and flat, slightly concave base	Width: 1.4m Depth: 0.33m
905	Fill	Firmly compacted pale grey clay-sand-silt with moderate manganese.	Width: 1.4m Depth: 0.3m
906	Pit	Sub-oval in plan with shallow sides and uneven slightly concave base	Length: 0.55m Width: 0.45m Depth: 0.09m

907	Fill	Moderately compacted very dark grey clay-sand-silt with infrequent charcoal flecks and powder	Length: 0.55m Width: 0.45m Depth: 0.09m
908	holloway	N-S aligned linear cut with moderately sloping sides and flat, slightly convex base	Width: 8.1m Depth: 0.3m
909	Fill	Firmly compacted mid grey clay-sand-silt with infrequent pebbles, daub, and charcoal flecks	Width: 8.1m Depth: 0.3m
914	colluvium	Firmly compacted light grey brown sand silt with infrequent chalk flecks angular stones, manganese, and pebbles	Thickness: 0.14m
920	colluvium	Firmly compacted dark brown clayey silt with moderate to frequent chalk flecks and occasional angular stones	Thickness: 0.26m
921	Buried topsoil	Firmly compacted dark brown clay sand silt with infrequent chalk flecks angular stones and pebbles	Thickness: 0.28m
922	trample	Firmly compacted dark grey silty clay with moderate charcoal daub and infrequent pebbles and chalk flecks	Thickness: 0.3m
923	colluvium	Firmly compacted pale grey brown silty clay with infrequent chalk flecks and tiny manganese specs	Thickness: 0.12m
928	colluvium	Firmly compacted orange mottled grey silty clay no inclusions looks very like natural clay	Thickness: 0.1m

13 APPENDIX 2 – CERAMIC CATALOGUE

Context	Fabric	Form	Date-range	No of sherds	Weight in gm.	Comments
TRENCH 3						
Trench 3 [304] Cut of pit. (313) Fill of pit.	F2B. Fine orange Upchurch fabric.	Body sherd. Form unknown.	c. AD. 70-100	1	6	Oxidised orange-brown surface with reddish orange core. Abraded.
[304] (313) Pit			c. AD. 70-100	Total: 1	Total: 6g	
Trench 3 [306] Cut of pit. (314) Fill of pit.	C2B. Coarse sandy greyware.	Greyware cooking jar?	c.AD. 110-190	1	9	
[306] (314) Pit			c. AD 110-190	Total: 1	Total: 9g	
Trench 3 [308] Cut of pit. (309) Fill of pit.	F2B. Fine orange Upchurch fabric.	Body sherds. Forms unknown.	c. A.D 70-100	2	8	Oxidised vibrant orange surface, light grey core. Abraded.
Trench 3 [308] Cut of pit. (309) Fill of pit.	F2B. Fine orange Upchurch fabric.	Body sherd. Form unknown.	c. AD. 70-100	1	3	Oxidised orange-brown surface, light orange core. Abraded.
Trench 3 [308] Cut of pit. (309) Fill of pit.	F3C.	Possibly from a fine beaker? as it is a very thin-walled form.	1st -2nd century AD.	1	1	
Trench 3 [308] Cut of pit. (309) Fill of pit.	F3D.	Form unknown. Tiny fragment.	1st -2nd century AD.	1	1	
[308] (309) Pit			C. AD. 70-200	Total: 5	Total: 13g	
Overall totals for Trench 3.			Overall date range: AD.70-200	Overall total finds: 7	Overall total weight 28g	
Context	Fabric	Form	Date-range	No of sherds / tile	Weight in gm.	Comments
TRENCH 4						
Trench 4 (432) Colluvium	C1A.	Form unknown. Possibly a jar?	Late first century BC to early first century AD.	1	12	Residual.
(432) Colluvium.				Total: 1	Total: 12g	
Trench 4 (427) Colluvium.	C1B. Aylesford-Swarling Belgic	Furrowed jar.	c. Late first century BC to AD.70	1	6	Residual.
(472) Colluvium.				Total: 1	Total: 6g	
Trench 4 (429) Colluvium.	C1C Flint tempered Medway Valley.	Form unknown. Possibly a jar?	Late Iron Age - Belgic and Gallo Belgic. c.0-70 AD.	1	15	Residual.
(429) Colluvium.				Total: 1	Total: 15g	
Trench 4 [404] Ditch Cut. (405) Ditch Fill.	F2A. Hoo ware variant.	Two ribbed flagon handle fragment.	c.AD. 70-100	1	25	Oxidised reddish-brown surface with mid grey core. Traces of cream slip (Applegate 2015, 42, fig 20). Abraded.
Trench 4 [404] Ditch Cut. (405) Ditch Fill.	F2A. Hoo ware variant.	Two ribbed flagon handle fragment.	c.AD. 70-100	1	7	Oxidised orange surface with light grey core (Applegate 2015,

						42, fig 20). Abraded.
Trench 4 [404] Ditch Cut. (405) Ditch Fill.	F2A. Hoo ware variant.	Single handled ring neck flagon rim sherd.	c. AD. 70-100	1	15	Continues> Vibrant orange surface with mid grey core. Traces of cream slip (Marsh and Tyers 1978, Type 1B2), (Monaghan 1987, Type 1E). Abraded.
[404] (405) Ditch.			c.AD. 70-100	Total: 3	Total: 47g	
Trench 4 (430) Colluvium.	F2A. Hoo ware variant.	Single handled flagon body sherd Showing where 2 ribbed handle joined.	c.AD. 70-100	1	15	Oxidised orange surface with mid grey core. Traces of cream slip (Marsh and Tyers 1978, Type 1B2), (Monaghan 1987, Type 1E). Abraded.
Trench 4 (430) Colluvium.	F2A. Hoo ware variant.	Single handled ring neck flagon rim sherd.	c.AD. 70-100	1	22	Oxidised orange-brown surface with mid grey core. Traces of cream slip (Marsh and Tyers 1978, Type 1B2), (Monaghan 1987, Type 1E). Abraded.
Trench 4 (430) Colluvium.	F2A. Hoo ware variant.	Two ribbed flagon handle fragment.	c.AD. 70-100	1	6	Oxidised orange-brown surface with light grey core. Traces of cream slip (Applegate 2015, 42, fig 20). Abraded.
Trench 4 (430) Colluvium.	F2A. Hoo ware variant.	Small fragment probably forming one of the rings of a ring neck flagon.	c.AD. 70-100	1	2	Oxidised orange surface with light grey core (Marsh and Tyers 1978, Type 1B2), (Monaghan 1987, Type 1E). Abraded.
(430) Colluvium.			c. AD. 70-100	Total: 4	Total: 45g	
Trench 4 (422) Trample Deposit.	F1A. Samian ware.	Dr37 or Dr30 bowl rim sherd?	c. AD. 100-125	1	9	3 sherds join up. Very abraded, very faint traces of slip remain.
(422) Trample.			c. AD. 100-25	1	9g	
Trench 4 (421) Buried topsoil.	C2B. Coarse sandy greyware.	Greyware cooking jar?	C.AD. 110-190	1	6	Abraded.
(421) Buried topsoil.			c. AD. 110-190	Total: 1	Total: 6g	
Trench 4 (424) Colluvium.	CBM-RT	Small fragment of Roman *Tegulae* tile.	1st to 3rd century AD.	1	104	Brown staining on the surface of the tile. Part of the flange remains.
(424) Colluvium.			Residual.	Total: 1	Total: 104g	
Overall totals for Trench 4.			Overall date range: Late 1st cent BC to 3rd cent AD.	Overall total finds: 13	Overall total weight: 244g	
Context	Fabric	Form	Date-range	No of sherds / tile	Weight in gm.	Comments

TRENCH 6						
Trench 6 [604] Ditch cut. (605) Ditch fill.	F3A.	Jar base?	1st - 2nd century AD	1	4	Abraded.
Trench 6 [604] Ditch cut. (605) Ditch fill.	F3B.	Forms unknown? Possibly from jars?	1st - 2nd century AD.	2	3	
Trench 6 [604] Ditch cut. (605) Ditch fill.	CBM-RT.	Small fragment of Roman *Tegulae* tile.	1st - 3rd century AD.	1	44	
[604] (605) Ditch.			1st -3rd century AD.	Total: 4	Total: 51g	
Overall totals for Trench 6.			Overall date range: 1st-3rd century AD.	Overall total finds: 4	Overall total weight:51g	
Context	Fabric	Form	Date-range	No of sherds	Weight in gm.	Comments
TRENCH 9						
Trench 9 [904] cut of ditch. (905) fill of ditch.	C2B. Coarse sandy greyware.	Very small body sherds from an unknown form type.	c. AD. 110-190	4	4	Black surfaces with dark grey cores.
Trench 9 [904] Cut of ditch. (905) Fill of ditch.	C2B. Coarse sandy greywares	Very small body sherds from unknown form types.	1st-2nd century AD.	6	6	Dark grey surfaces with dark reddish-brown cores.
Trench 9 [904] Cut of ditch. (905) fill of ditch.	F2A. Hoo ware variant.	Body sherds. Forms unknown.	c.AD. 70-100	5	7	Oxidised orange surface with mid grey core. Abraded.
[904] (905) Ditch.			c. AD 70-200	Total: 15	Total: 17g	
Trench 9 [908] Holloway cut. (909) Fill.	F2A. Hoo ware variant.	Two ribbed flagon handle fragment.	c.AD. 70-100	1	15	Oxidised orange-brown surface with mid grey core. Traces of cream slip (Applegate 2015, 42, fig 20). Abraded.
Trench 9 [908] Holloway cut. (909) Fill.	F2A. Hoo ware variant.	Two ribbed handle fragment.	c.AD. 70-100	1	9	Oxidised orange surface with light grey core (Applegate 2015, 42, fig 20). Abraded.
Trench 9 [908] Holloway cut. (909) Fill.	F2A. Hoo ware variant.	Flagon body sherds.	c.AD. 70-100	4	16	Oxidised orange surface with mid grey core. Abraded.
Trench 9 [908] Holloway cut. (909) Fill.	F2A. Hoo ware variant.	Flagon body sherd.	c.AD. 70-100	1	7	Reddish-brown surface and core. Slight traces of burning. Abraded.
Trench 9 [908] Holloway cut. (909) Fill.	F2A. Hoo ware variant.	Flagon body sherd fragments where handle joins.	c.AD. 70-100	2	12	Oxidised orange surface with mid grey core. Traces of cream slip on one of the sherds. Both abraded.
Trench 9 [908] Holloway cut. (909) Fill.	F2A. Hoo ware variant.	Single handled ring neck flagon rim sherd.	c.AD. 70-100	1	20	Oxidised vibrant orange-brown surface with mid grey core. Traces of cream slip. Abraded.
						Continues>

Trench 9 [908] Holloway cut. (909) Fill.	F2A. Hoo ware variant.	Single handled ring neck flagon rim sherd.	c.AD. 70-100	1	35	Oxidised vibrant orange surface with mid grey core. Traces of cream slip. Abraded.
Trench 9 [908] Holloway cut. (909) Fill.	F2A. Hoo ware variant.	Single handled ring neck flagon rim sherd.	c.AD. 70-100	1	12	Oxidised orange-brown surface with dark grey core. Traces of cream slip. Abraded.
Trench 9 [908] Holloway cut. (909) Fill.	F2B. Fine orange Upchurch fabric.	Body sherd from an unidentifiable vessel type. However, the thin wall is suggestive of a beaker?	c.AD. 70-110	1	1	Oxidised orange surface and core.
Trench 9 [908] Holloway cut. (909) Fill	C2C Sandy grey-brown fabric.	Rim sherd from an S-profile Bowl?	c. AD. 70-120/150	1	4	Produced on the North Kent marshes.
[908] (909) Holloway.				Total: 14	Total: 131g	
Overall totals for Trench 9.			Overall date range: 1st -2nd century AD.	Overall total finds: 29	Overall total weight: 148g	
Overall totals for Iron Age/Roman pottery and tile from Trenches 3, 4, 6, 9.			**Late first century BC to 3rd century AD.**	**Overall total: 53**	**Overall total weight: 471g**	
LATER FINDS FROM TRENCHES 3 AND 4.						
TRENCH 3 Late Post Medieval						
Trench 3 (302) Subsoil just above (320) Colluvium.	CP1.	Clay pipe stem fragment.	c. AD. 1750-1900.	1	4	
(302) Subsoil.				Total: 1	Total: 4g	
TRENCH 4 CBM Late Medieval						
Trench 4 (420) Colluvium.	CBM-MT	Medieval tile fragments.	c. AD.1375-1525	8 (pieces) Counted as 1	56	All from same tile. Some of the fragments join up. Residual.
(420) Colluvium.				Total: 1 tile	Total: 56g	
TRENCH 4 Prehistoric Flint						
Trench 4 (430) Colluvium.	WF1.	Prehistoric flint Neolithic / Bronze age?	BC. 3,500-1,300 ?	1	5	Debitage. Residual.
(430) Colluvium.				Total: 1	Total 5g	

14 APPENDIX 3 – ENVIRONMENTAL DATA

Sample No.	*Cut*	*abundance*	*diversity*	*preservation*	*abundance*	*abundance*	*abundance*	*diversity*	*preservation*	*Yes/No*	*Yes/No*	*Yes/No/Maybe*	
3	305	1	1	2	1	2	-	-	-	Yes	No	Maybe	CHD: poorly preserved *Triticum* sp. Grains
4	312	-	-	-	1	1	-	-	-	Yes	No	Maybe	-
5	307	1	1	3	1	1	-	-	-	Yes	No	Maybe	CHD: very poorly preserved grain
6	314	-	-	-	1	1	1	1	3	Yes	No	Maybe	DES: One *Sambucus nigra* fragment
7	907	-	-	-	3	1	-	-	-	Yes	No	Maybe	-

Abundance
1 = 'Low' = <10
2='Moderate' = 10-100
3= 'Abundant' =>100
Diversity
1='Low'= <3 taxa types
2='Moderate' = 3 to 10 taxa types
3='High'= >10 taxa types
Preservation
1 = Identifiable to family
2 = Identifiable to genus
3 = Identifiable to species
CHD = Charred
DES = Desiccated

15 APPENDIX 4 – HER FORM

Site Name: Land adjacent to Willow Trees, 111 High Street, Newington, Sittingbourne in Kent **SWAT Site Code:** NEW2-EV-23

Site Address: As above

Summary. *Swale & Thames Survey Company (SWAT Archaeology) were commissioned by Mr Sunil Popat of Family Homes to undertake an archaeological evaluation on land adjacent to Willow Trees, 111 High Street, Newington, Sittingbourne in Kent. The archaeological programme was monitored by the Principal Archaeological Officer at Kent County Council.*

The archaeological evaluation has been successful in identifying the presence of ditches, pits and Holloways associated with the Late Iron Age and Early Roman-British periods. At least two phases of archaeological activity have been identified. Features within the trenches are an indication of peripheral settlement rather than being the focus or centre of any domestic or industrial complex, with Holloways representing former navigable routes connecting larger settlement to the north with a Roman road directly to the south. It is likely that these routes were well used as the Watling Street provided access to land-based movement from the east Kent coast into London and beyond. The current evaluation has identified features associated with deeply stratified archaeological remains within a Romano-British 'avenue' that forms part of a larger complex network of Roman Roads, trackways, and paths within north Kent.

The results from this work will be used to aid and inform the Principal Archaeological Officer of any further archaeological mitigation measures that may be necessary in connection with any future development proposals.

District/Unitary: Swale Borough Council & Kent County Council

Period(s): prehistoric, LIA, ER

NGR (centre of site to eight figures) NGR 586377 164748

Type of Archaeological work: Archaeological Evaluation

Date of recording: October 2023

Unit undertaking recording: Swale and Thames Survey Company (SWAT Archaeology)

Geology: Thanet Formation - Sand, silt and clay

Title and author of accompanying report: D Britchfield (2023) Archaeological Evaluation on Land adjacent to Willow Trees, 111 High Street, Newington, Sittingbourne in Kent. SWAT Archaeology Ref. NEW2-EV-2023

Location of archive/finds: SWAT. Archaeology. Graveney Rd, Faversham, Kent. ME13 8UP

Contact at Unit: Paul Wilkinson

Date: 24/06/2024

Figure 1: Site location

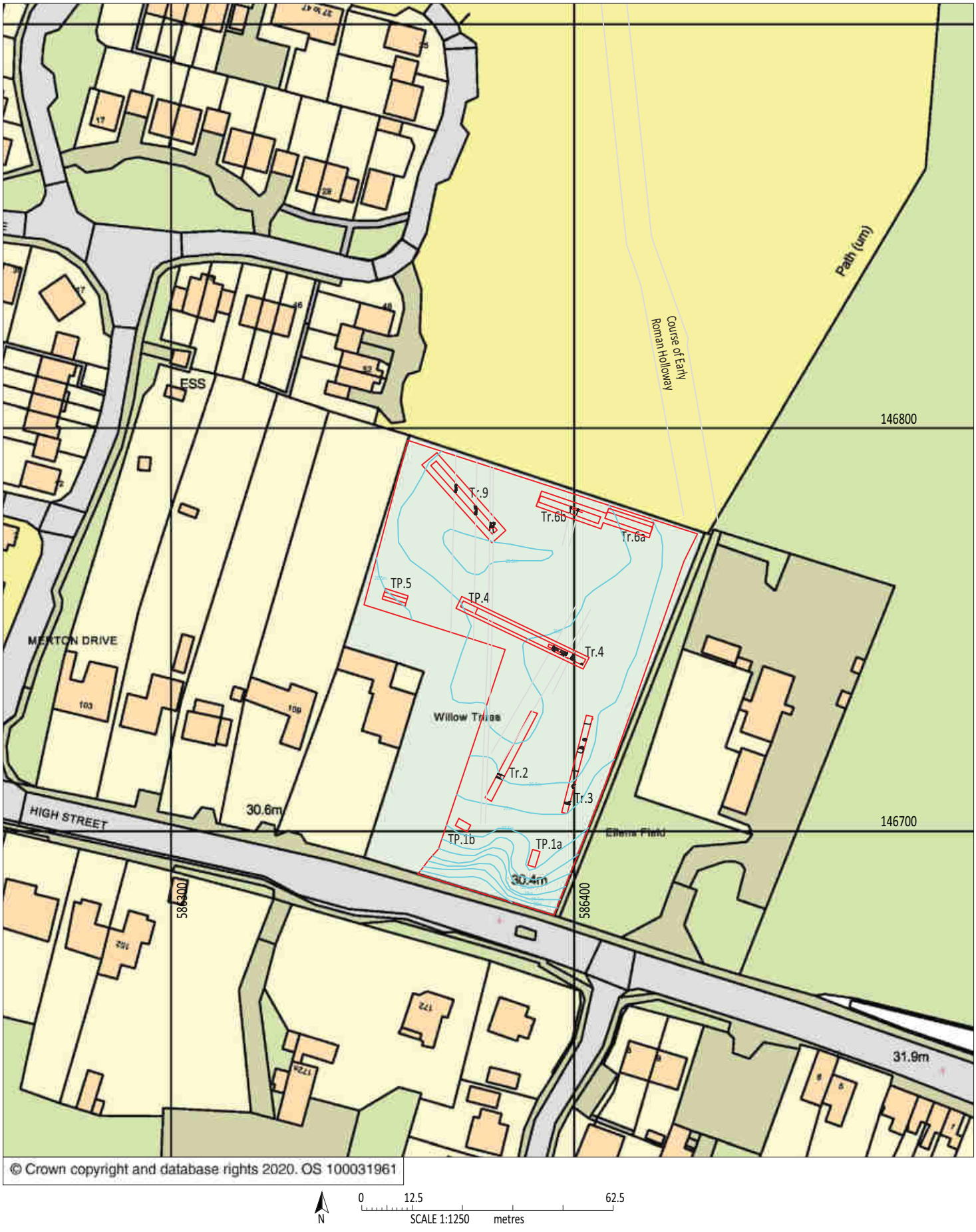


Figure 2: Trench location in relation to OS map

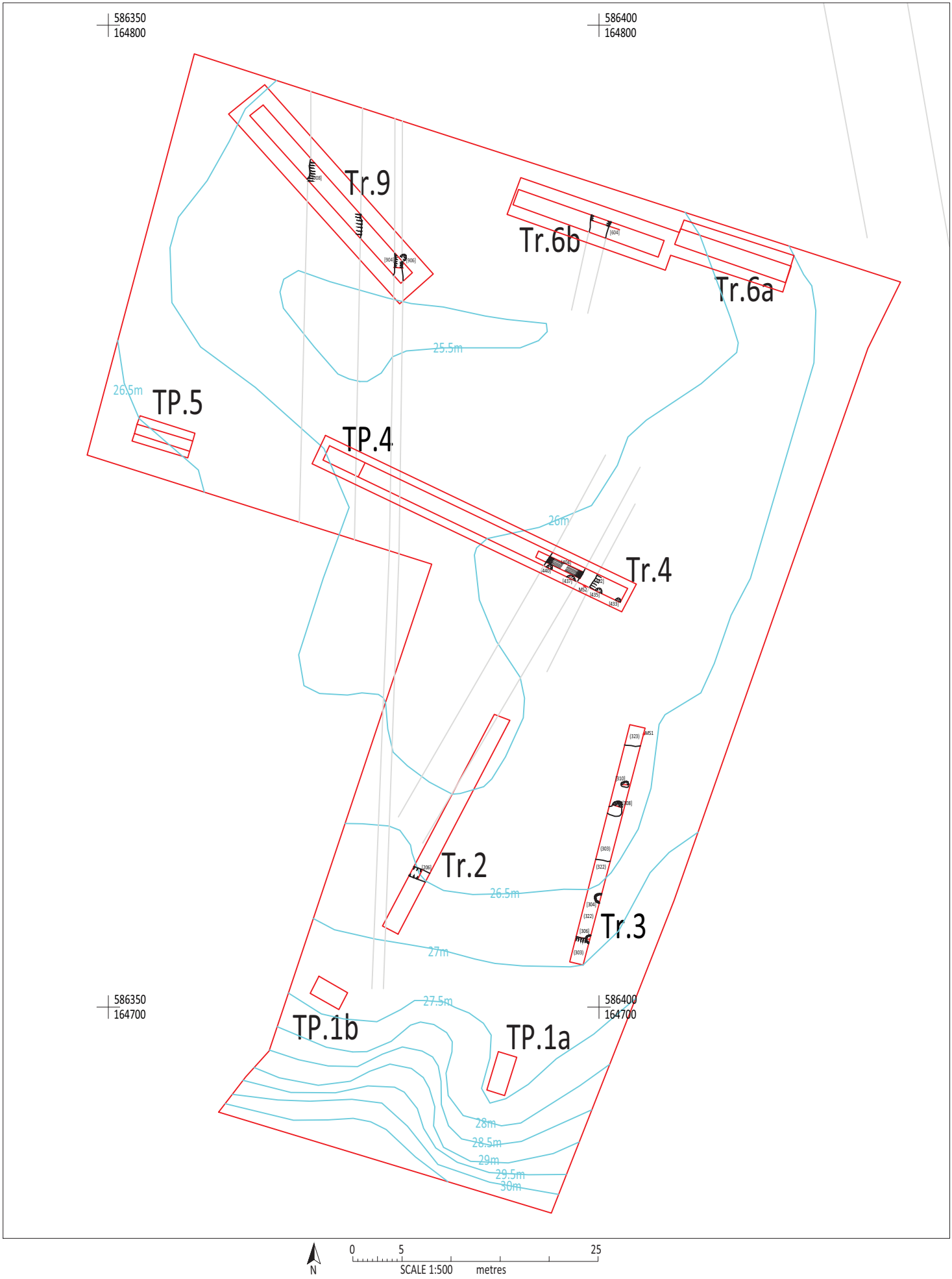
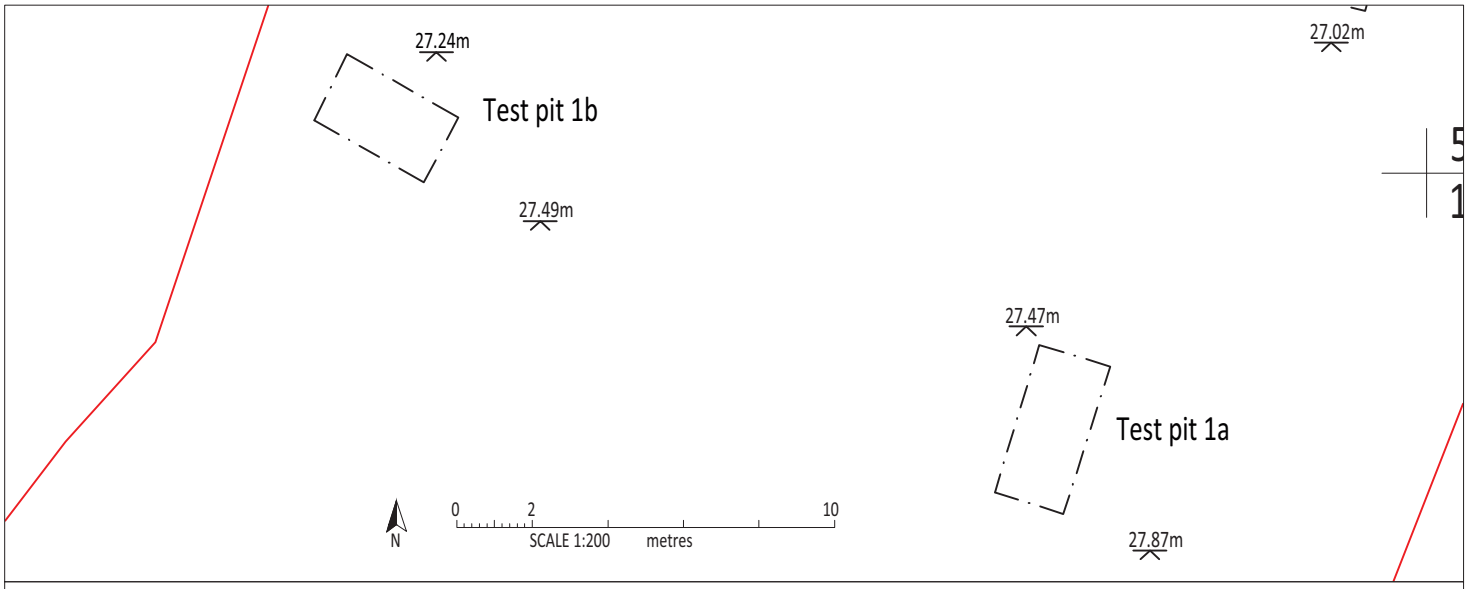
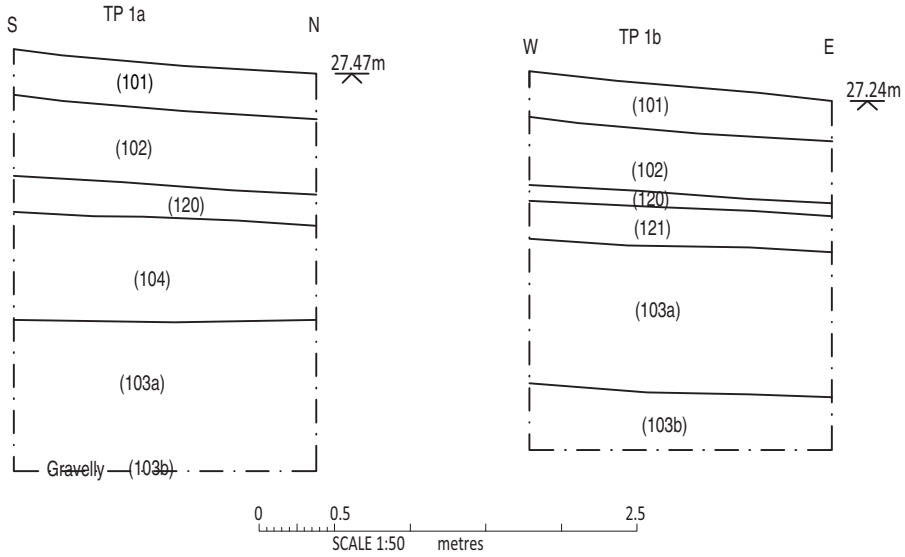


Figure 3: Trench location





Looking north west at test pit 1a

Looking north at test pit 1b

Figure 4: Test pit 1a and 1b

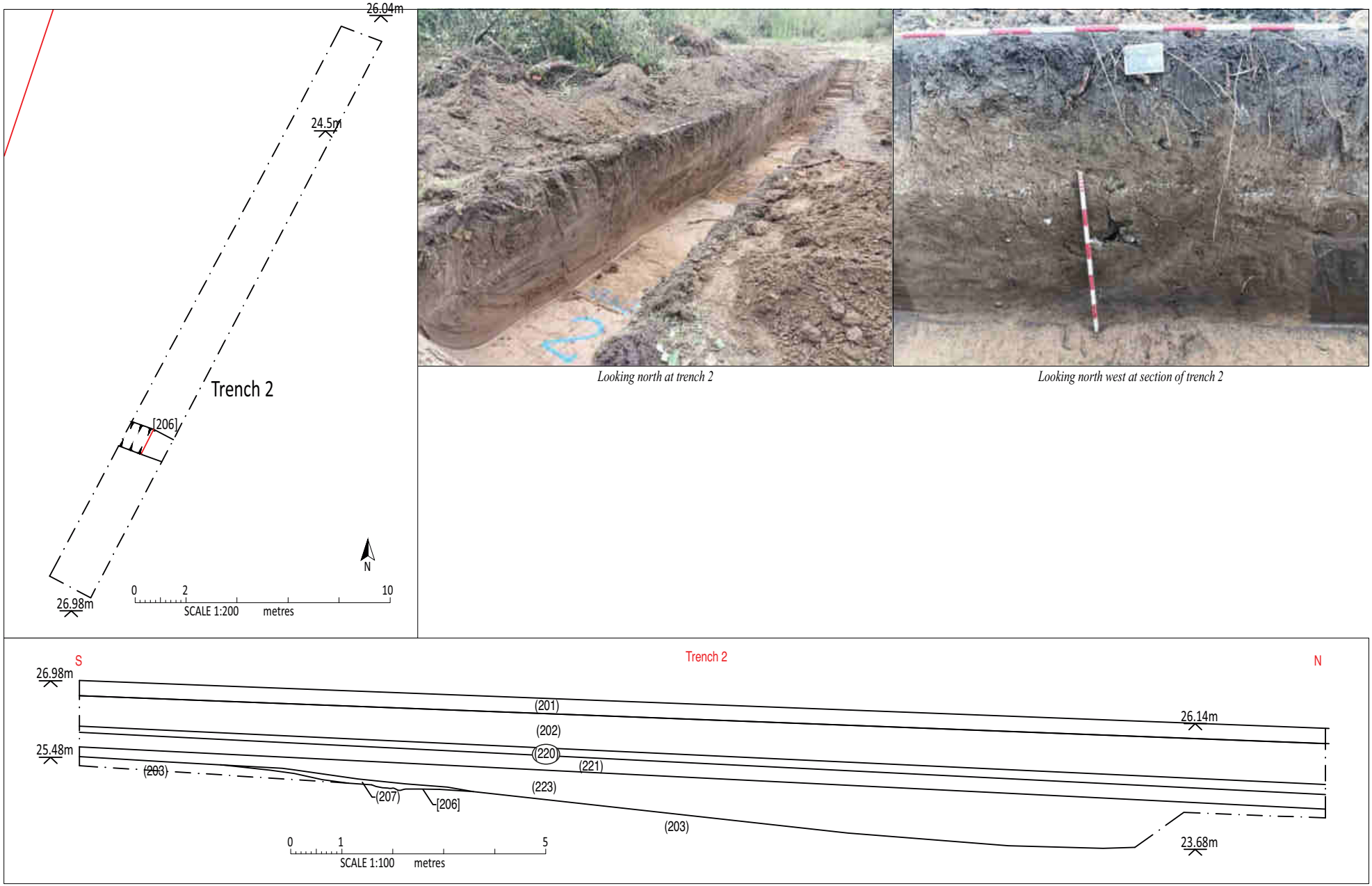
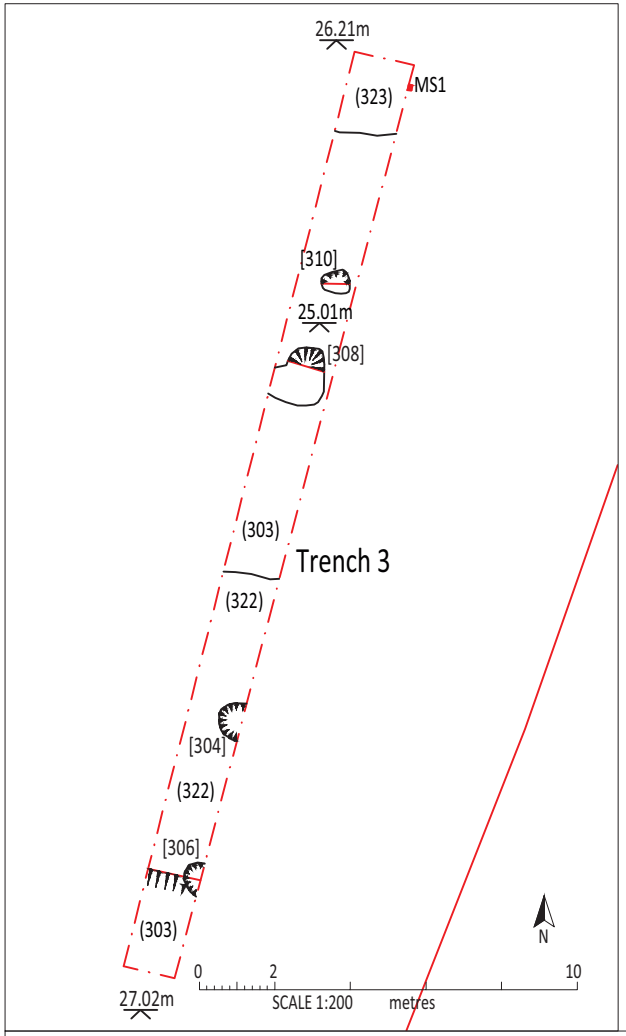


Figure 5: Trench 2



Looking east at pit 304

Looking east at pit 306

Looking south at pit 308

Looking south at pit 310

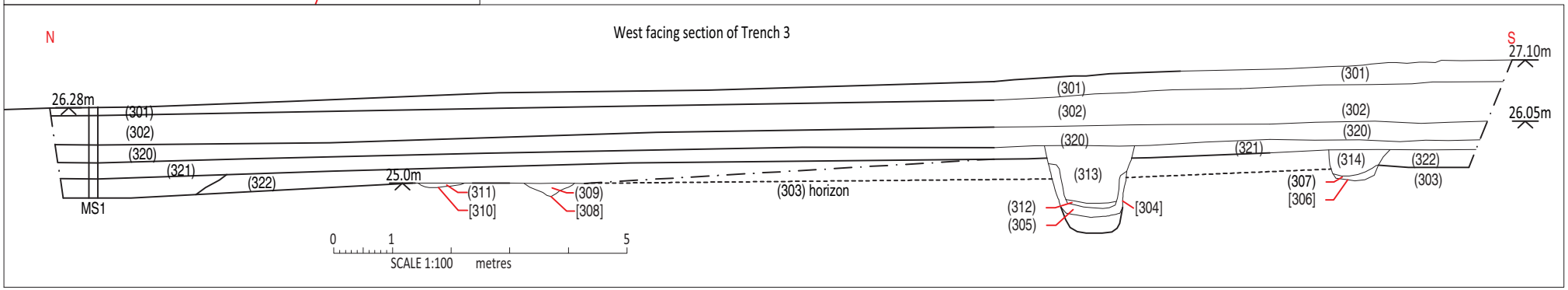
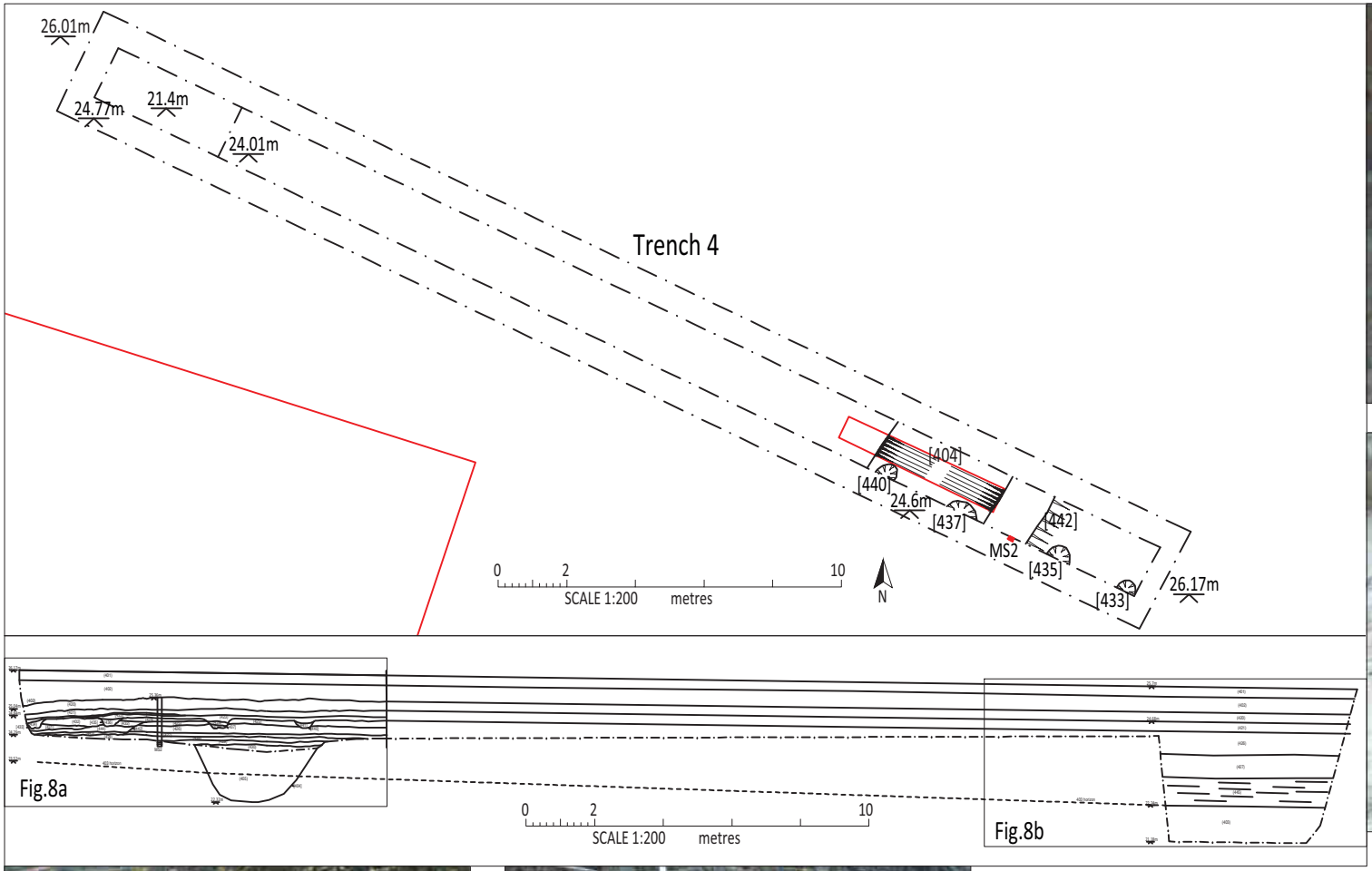


Figure 6: Trench 3



Lookingwest at ditch 404

Looking south east at test pit 4

Looking south east at test pit 4

Looking west at section of trench with monolith sample 2

Figure 7: Trench 4

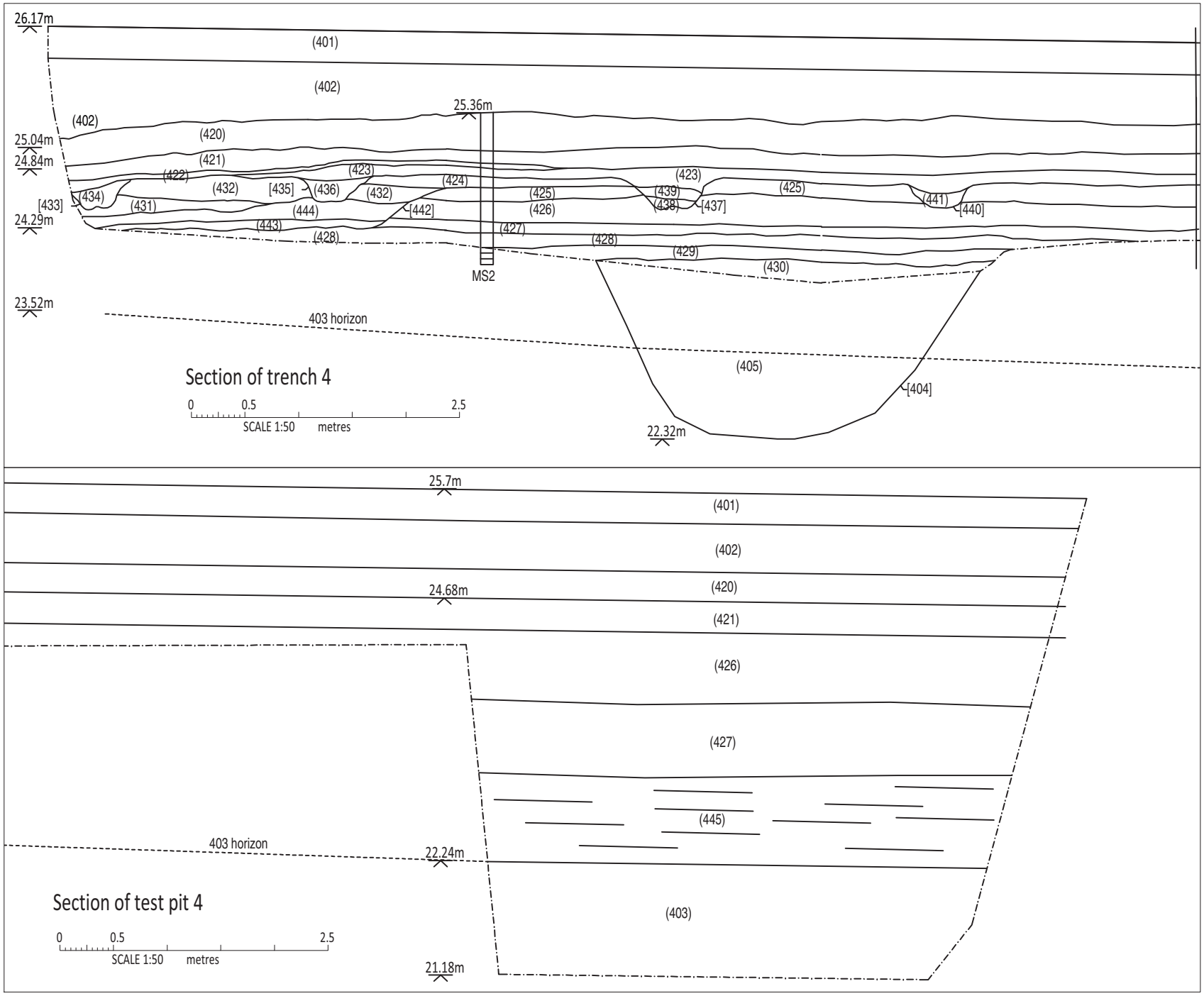
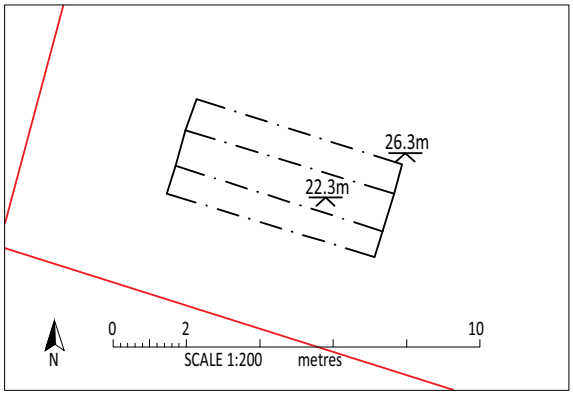
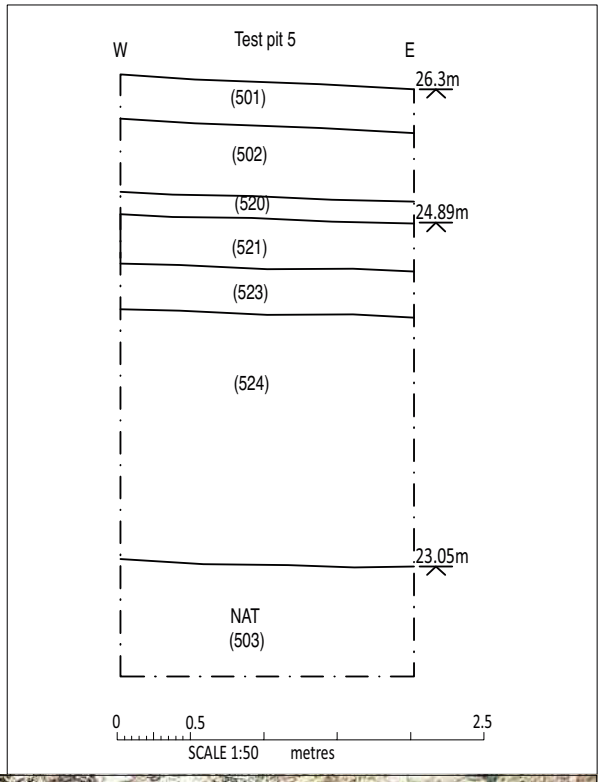


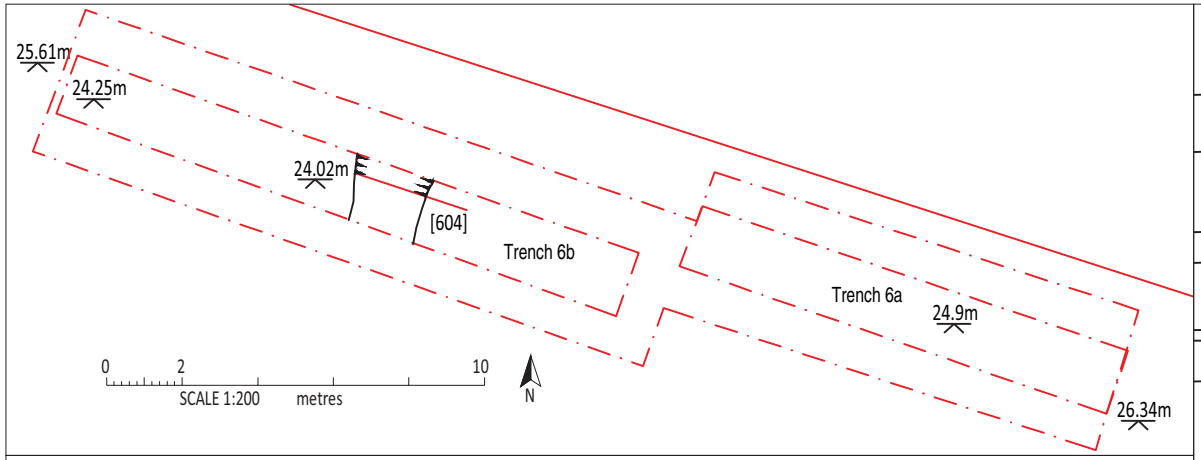
Figure 8: Trench 4

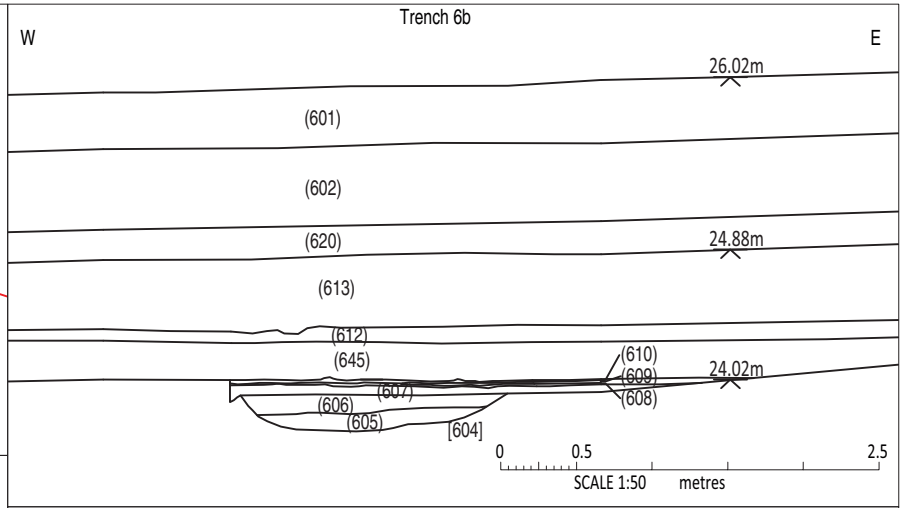


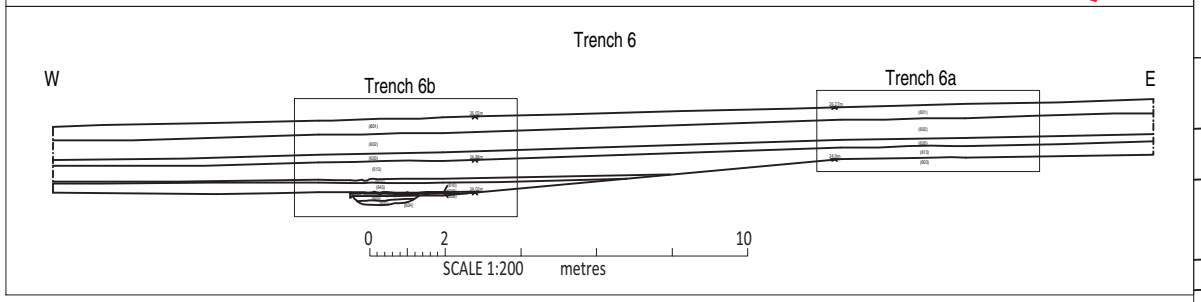


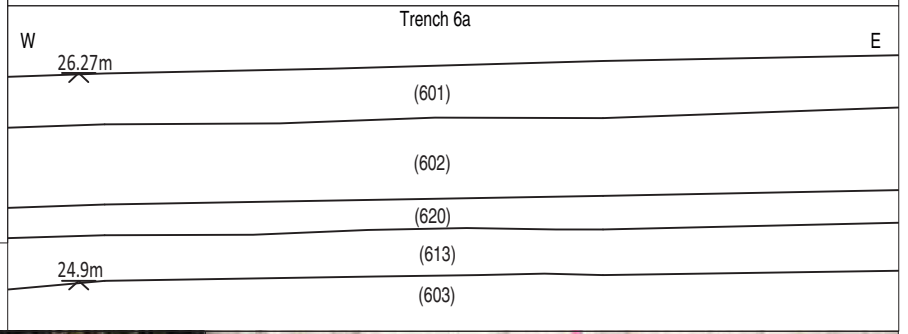
Looking north west at test pit 5

Figure 9: Test pit 5







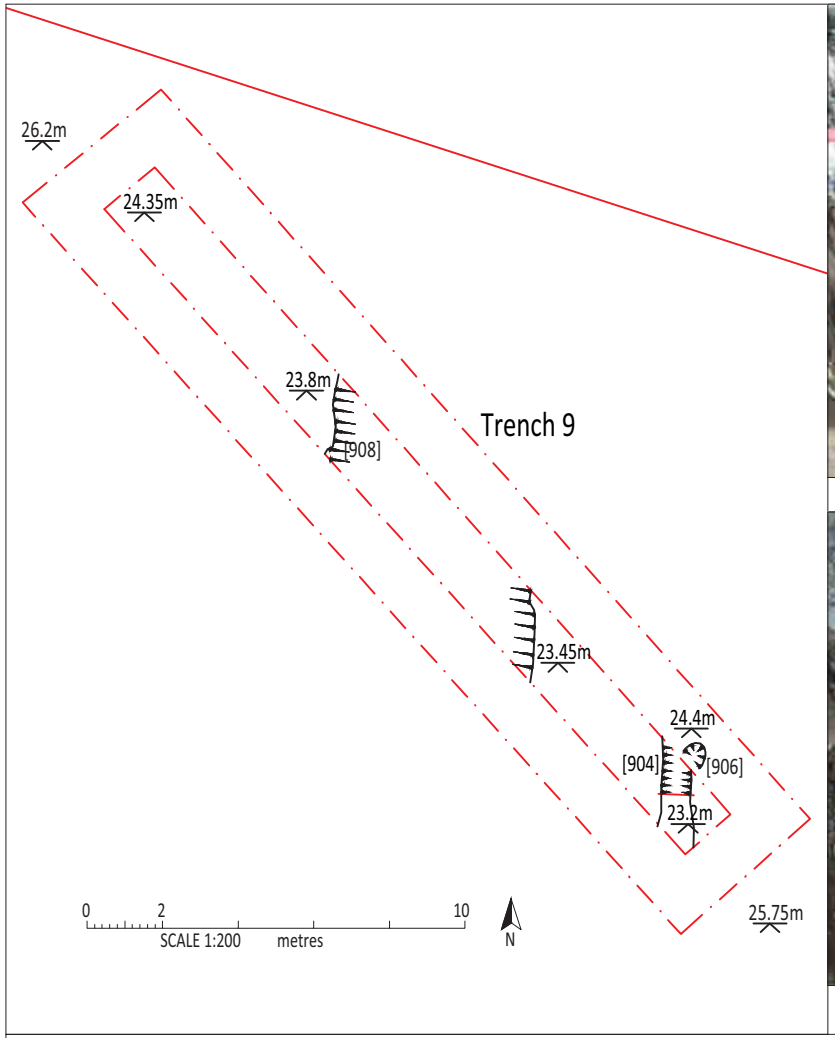


Looking west at trench 6

Looking north at section of the trench 6

Looking north at section of the ditch 604

Figure 10: Trench 6



Looking north east at section of the ditch 904 and pit 906

Looking east at section of the holloway 908

Looking northwest at trench 9

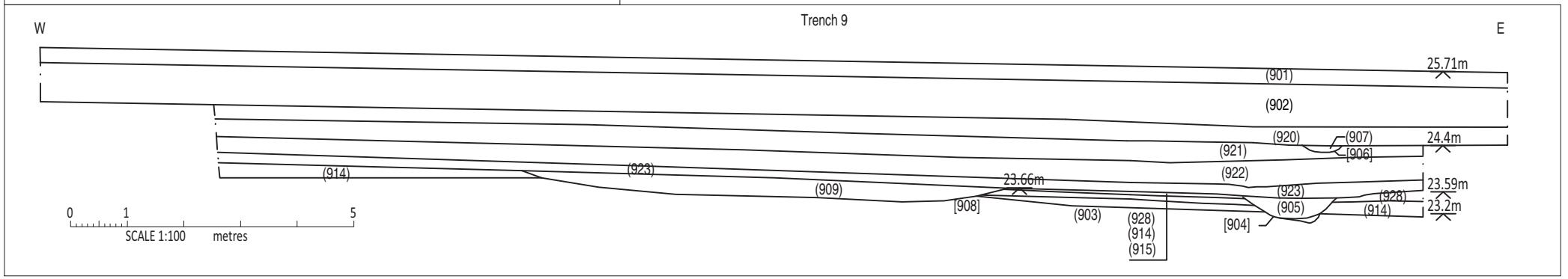


Figure 11: Trench 9

Figure 12: The site in relation to archaeology revealed at Watling Place.