ARCHAEOLOGICAL INVESTIGATION OF LAND OFF SUNNYDALE CLOSE, SURFLEET, LINCOLNSHIRE (SUSC22)

Work Undertaken For
Ashwood Homes

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Report Compiled by
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ARCHAEOLOGICAL PROJECT SERVICES

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1. SUMMARY

An archaeological strip, map and sample investigation was undertaken on land off Sunnydale Close, Surfleet, Lincolnshire in advance of residential development.

The works were undertaken as previous evaluation of the site identified possible salt-making dating to the medieval period.

The excavation revealed a mound of silt, possibly the by-product of medieval salt-making, which had been later utilised as a dump for domestic and industrial activities dating to the 13th-14th centuries. No features were revealed that could be directly related to salt-making, such as filtration units and hearths, though these may lie in close proximity of the site. The northern part of the site, lying closest to the River Glen, was notably lower and may indicate that any such remains may have been eroded by the former tidal range of the river.

Apart from the mound of dumped materials, features revealed include waste pits and a freshwater ditch..

The finds assemblage is largely domestic in nature with a significant amount of pottery. The earliest pottery dates to the Late Saxon and is evidenced by regionally produced Stamford wares. Much of the pottery can be dated to after the conquest, notably the 13th century with later pottery declining in amount during the latter part of the medieval period. Other finds include brick/tile, a spindle whorl. Industrial residues and post-medieval clay pipe.

2. INTRODUCTION

2.1 Definition of an Excavation

An archaeological excavation is defined as *'a programme of controlled, intrusive fieldwork with defined research objectives which examines, records and interprets archaeological deposits, features and structures and, as appropriate, retrieves artefacts, ecofacts and other remains within a specified area or site on land, inter-tidal zone or underwater. The records made and objects gathered during fieldwork are studied and the results of that study published in detail appropriate to the project design'* (CIfA 2014).

2.2 Planning Background

A planning application (H17-1187-21) was submitted to South Holland District Council for a residential development on land east of Sunnydale Close, Surfleet. A program of mitigation, prior to development, was to be implemented focused on known medieval salt-making remains identified during a previous evaluation, towards the northern part of the site.

Archaeological Project Services (APS) was commissioned by Ashwood Homes to undertake the work, which was carried out between 8th February and 13th May 2022, in accordance with the Written Scheme of Investigation prepared by Archaeological Project Services and approved by the Archaeological Advisor to South Holland District Council.

2.3 Location, Topography and Geology

Surfleet is located 5.5km north of Spalding and 17.5km southwest of Boston in the South Holland district of Lincolnshire (Fig. 1).

The proposed development site lies south of Surfleet and the River Glen, at National Grid Reference TF 2520 2794 (Fig. 2).

Local soils are of the Romney Series, typically coarse silty gleyic brown calcareous alluvial soils (Robson 1990, 26).

The site covers approximately 1.7ha on generally level ground within the fenland of south Lincolnshire. Heights are in the region of 5m AOD.

2.4 Archaeological Setting

Surfleet is first mentioned in the Domesday Survey of *c*. 1086. Referred to as *Suerefelt*, the name is derived from the Old English *sūr* and *flēot* and means 'the sour inlet or creek (Cameron 1998, 120.

The Domesday Survey of *c.* 1086 records that the land was held by Heppo the Arblaster and contained extensive arable land and 2 salt-pans (Foster and Longley 1976, 65/1).

Lidar images show pockets of higher ground, towards the northern end of the site, broadly alongside the River Glen which would have been tidal during the medieval period. Such areas of higher ground within the South Lincolnshire Fens are comparable to the waste mounds associated with medieval salt-production sites.

A geophysical survey undertaken at the site identified a possible enclosure and a ditch. An area of magnetic anomalies was interpreted as possible being associated with salt-making activities and a dendritic pattern of anomalies suggest the presence of an infilled creek (Smith 2015).

A subsequent evaluation revealed a series of dumped deposits, typically associated with salt-making waste was revealed in the northern part of the site. Two pits and a former watercourse were also revealed during this investigation. Pottery recovered, along with burnt silt and fuel ash slag, suggests the site was active between the 11th and 14th centuries (Parker 2016).

An evaluation, immediately east of the current site, revealed a dump of burnt clay, probably associated with 14th -15th century salt-making towards the north of the Site. Several ditches, probably related to water management for the salt-making, were also revealed. A significant quantity of 11th-12th century pottery indicated that late Saxon and early Medieval activity was present on the site. Several sherds of later pottery, burnt clay, animal bones and slag were also recovered (APS 2021).

3. AIMS AND OBJECTIVES

The aim of the work was to remove the overburden of the site to archaeologically significant stratigraphy, methodically plan, excavate, and record the features present, gathering sufficient information to formulate a policy for the management of the archaeological resources present on the site.

The objectives were to:

- Determine the form and function of the archaeological features encountered;
- Determine the spatial arrangement of the archaeological features encountered;
- As far as practicable, recover dating evidence from the archaeological features, and
- Establish the sequence of the archaeological remains present on the site.
- Determine how the site can contribute to the East Midlands Research Agenda (Knight *et al.* 2012) and any updates to the agenda.
    - (early medieval) Can we elucidate the production and distribution of Early Medieval

salt and glass,

- (high medieval) By what means were the extractive mineral industries controlled or organised by royal, monastic or lay lords?
- (high medieval) Can we identify, investigate and date sites associated with the region's key extractive industries?

4. METHODS

The removal of the overburden to the archaeological horizon, and the excavation of two, *c.* 50m long investigative trenches, carried out by a mechanical excavator equipped with a toothless ditching bucket, which were constantly monitored and supervised by Archaeological Project Services.

A sample of the features revealed were excavated in agreement with the Archaeological Advisor and a site plan was produced using a survey grade GPS (Fig. 3).

Sections of the features were drawn at a scale of 1:10 (1:20 in case of large and deep features) and plans at a scale of 1:20. Each deposit exposed during the investigation was allocated a unique reference number (context number) with an individual written description. A list of all contexts and their interpretations appears as Appendix 1. A photographic record was also compiled, and general site photographs were taken prior to and after the excavation of the proposed area (Plates 1, 26).

Environmental sampling was undertaken using guidelines established by English Heritage (2011). The subsequent processing of the samples is detailed in Appendix 3.

Artefacts collected during the fieldwork were bagged and labelled according to the individual deposit from which they were recovered, ready for later washing and analysis.

5. RESULTS

The results of the archaeological mitigation are discussed by features in stratigraphical order, approaching from the earliest to the latest depositions. Archaeological contexts are described below. The numbers in brackets are the context numbers assigned on the field.

The archaeological investigation revealed that the site lies on a substantial sized, medieval saltern mound. Most of the features truncated the silt deposits, therefore the natural geology was not recorded there.

Two *c.* 50m long and 1.6m wide investigative trenches (Trench A and Trench B) were opened into the suspected saltern mound, forming an "X" at the northern half of the site where the ground level was at its highest at 4.50m AOD.

The natural geology (003) was recorded as compact, rusty yellowish-brown sandy-clay between 2.85m AOD and 3.49m AOD, sloping unevenly towards West.

Trench A and Trench B (Fig. 4-5; Plates 2-5)

Two *c.* 50m long trenches aligned to northwest-southeast and northeast-southwest were opened by machine using a 1.8m wide toothless bucket, following the results of a hand excavated slot [053] which confirmed upon opening that further intervention would be necessary for a more detailed understanding of the site. Natural geology (003) was found *c.* 0.54m deep from the ground surface at 3.40m AOD at the north-western end of Trench A.

Sloping towards the centre of the trench and recorded *c.* 1.90m deep from ground surface at 2.80m AOD, the natural gradually rose to 1.15m deep from ground surface at 3.21m AOD, measured at the south-eastern end of the trench. In Trench B the natural geology (003) was recorded in the north-eastern end at *c.* 0.80m from the ground surface at 3.45m AOD, sloping to *c.* 1.90m from the ground surface at 2.80m AOD in the centre of the trench, then slightly rising to *c.* 1.31m deep from the ground surface at 2.94m AOD at the south-western end.

The earliest deposit (117-119-120-121) was hard, yellowish and orangey-brown sandy-silt backfill with occasional small fragments of clam and mollusc shells and occasional small flecks of charcoal. A small sherd of an amber glazed mid/late 13th to mid-14th century jug and five pieces of dark grey and mottled furnace slags were collected from the deposit (119). A rabbit bone was recovered from deposit (120) (Appendix 2).

The sandy-silt backfill (117-119-120-121) was cut by four pits [101], [115], [124], [126] and a northwest - southeast aligned ditch [108].

A 0.45m thick (*c.* 3.49m AOD at base), 2.70m wide and more than 2m long, oval shaped cut of a possible refuse pit [101] was recorded at the north-western end of Trench A. It had a sharp break of slope at its top, gentle northwest and slightly sharp southeast break at its base, moderately steep sides, and concave base. Its only fill (100) was hard, mottled greyish-brown sandy-silt with occasional small patches of burnt silt and small flecks of charcoal. No archaeological finds were found in this deposit.

Another refuse pit [115] was recorded in Trench A at its south-eastern end. It was possibly the eastern edge of a large waste pit [058], which was found to the east of the south-eastern end of Trench A (Fig. 10-11). The pit was 0.93m deep (3.36m AOD at base), 6.70m wide and more than 1.60m long. It had two fills; its earliest fill (114) was hard, greyish mid-brown sandy-silt with moderate mid-size patches of burnt silt, occasional mid-size mineralised silt blocks and small charcoal flecks. The later fill (113) was compact whitish-light grey mineralised sandy-silt with occasional small patches of burnt silt and small fragments of molluscs' shells. The pit had no finds within its fills.

The northwest – southeast aligned, 0.83m deep (*c.* 3.20m AOD at base), 3.50m wide and more than 2m long linear cut of ditch [108] was found at the north-eastern end of Trench B. It had sharp breaks of slope, steep northwest and gradual southeast sides, and concave base. The fill (107) was the earliest of the four fills found in the ditch. It was a hard, yellowish-light-brown sandy-silt with occasional small fleckss of charcoal. It was overlain by the hard, mid brown sandy-silt backfill (106) with the inclusion of moderate small flecks of charcoal. This was covered by a thin layer of friable mid to dark grey sandy-silt (105) with frequent charcoal, occasional small patches of burnt silt and small shell fragments. The ditch was capped by a hard, light mottled brown sandy-silt (104) with occasional small burnt silt patches and occasional small charcoal flecks. This was the only fill in the ditch with archaeological material, in the form of a single, thin glazed sherd of 11th-12th century pottery (Appendix 2).

The ditch [108] was truncated by a 0.35m deep (*c.* 3.63m AOD at base) and 1.55m diameter, circular cut of a refuse pit [103] with sharp breaks of slope, moderately steep sides, and flat base. Its only, friable, dark greyish-brown sandy-silt backfill (102) had abundant mussel shells, occasional small blocks of burnt silt and frequent charcoal flecks. Fragments of cattle, pig and cattle-size animal bones

were derived from the fill (Appendix 2).

A circular, 0.63m deep (*c.* 3.75m AOD at base) and 1.70m diameter possible waste pit [124] with sharp breaks of slope, steep sides and concave base was found in the north-eastern half of Trench B. The earliest of its two backfills was a compact, brownish-mid-grey sandy-clay (123) with occasional small fragments of clam or mollusc shells. Its upper fill (122) was hard, mottled light-brown sandy-silt with occasional small flecks of charcoal. No finds were found in the pit.

Another, 0.38m deep (*c.* 3.86m AOD at base) and 0.65m diameter, circular cut of a waste pit [126] was found at the north-eastern end of Trench B with sharp breaks of slope, steep northeast and nearly vertical southwest sides and concave base. Its backfill (125) was hard, yellowish-light-brown sandy-silt with occasional small clay patches and medium size charcoal flecks. It did not contain archaeological finds.

The sandy-silt fill (117-119-120-121) was overlaid by a further hard greyish-brown sandy-silt fill (116 and 118) with moderate small fragments of mollusc shells and small charcoal flecks. It measured 0.68m deep (2.74m at base), more than 10m wide and more than 1.60m long. This layer contained numerous complete and fragmented animal bones of various species such as rabbit, dog, cat, horse and cattle. Some fragmented oyster shells were also collected from here. Sherds of 13th-14th century pottery from six vessels, a small piece of ceramic building material and a piece of dark grey furnace slag were recovered from deposit (116), while two sherds of early medieval to 13th-14th century pottery were derived from deposit (118) (Appendix 2). The deposit appeared to be forming a large oval shape with northwest – southeast alignment and concave base, located at the top of the mound covering most of the area occupied by Trench A and Trench B.

The fills (116) and (118) (previously (055) and (056)) had been cut by a greater than 1.70m deep (*c.* 2.11m AOD at base continuing on), 6.65m wide and more than 1.00m long, possibly circular, or perhaps, oval shape cut of a substantial refuse pit/well [112], with gentle break of slope at its top, gradual northwest and steep southeast sides. The feature carried on deeper and could not be followed further for safety reasons. The pit/well had two visible fills, an earlier hard, dark brownish-grey sandy-silt backfill (111) with frequent charcoal and occasional small fragments of mollusc shells. The fill contained several broken pieces of red brick of late medieval to early post-medieval date, many complete and fragmented animal bones of large size species such as horse, cattle, sheep/goat, cattle-size animal and dog or fox. Several sherds of Saxo-Norman to 13th-14th century pottery and a small, pale blue bead were also recovered from the deposit (Appendix 2). This fill was covered by a hard, mid greyish-brown sandy-silt backfill (110) with occasional small fragments of clam shells, mollusc shells and charcoal flecks. Only a small sherd of medieval jar or bowl from the mid/late 13th to mid-14th century was found here (Appendix 2).

The pit/well [112] was sealed by a 1.37m thick (*c.* 3.12m AOD at base), more than 4.00m wide and long, hard, yellowish mid-brown sandy-silt backfill (109) (previously 054) with occasional small charcoal flecks, small fragments of clam shells, small patches of burnt silt and mollusc shells. The recovered finds consisted of a heavily encrusted nail, a Rhenish lava stone, a chopped and chewed pig bone, a fragmented horse bone, four medieval pottery sherds of late 13th and early/mid-14th centuries and a brick fragment of late medieval or early post-medieval date and a yellowy/light grey fuel ash slag (Appendix 2).

Features on the eastern edge of the site
(Fig. 6-7, 8-9, 10-11; Plate 6-10)

A *c.* 10m long and *c.* 1.40m wide trench [057] has been cut into a large, irregular shaped pit-like feature at the north-eastern edge of the site (Fig. 6-7). The full extent of this could not be determined accurately as it appeared to be a series of backfills on the east slope of the waste silt layers of a saltern mound. Altogether 17 layers of waste soil were identified here. The natural geology (003) was found at *c.* 0.92m deep from ground surface (*c.* 3.34m AOD) at the northern end of the trench, *c.* 0.99m deep from ground surface (*c.* 3.20m AOD) at the centre, and *c.* 0.92m deep from ground surface (*c.* 3.35m AOD) at the southern end.

The earliest deposit (041) was a 0.17m thick (*c.* 3.20m AOD at its deepest point), 2.68m wide and more than 1.50m long, compact, light-brown sandy-silt fill with occasional small flecks of charcoal and burnt silt. It contained various sherds of Saxo-Norman to medieval pottery such as small to large size jars, pitchers and bowls (Appendix 2). It was covered by a 0.43m thick (*c.* 3.30m AOD at base) firm, mid-brown silt deposit (039) which contained burnt silt patches, medieval pottery sherds of Saxo-Norman to 14th century vessels and sheep size animal bone fragments (Appendix 2). A 0.22m thick (*c.* 3.30m AOD at base), 2.72m wide and more than 1.00m long, firm, light-brown sandy-silt backfill (038) was covering the deposit of (039) with occasional small flecks of charcoal and small blocks of burnt silt. It had moderate northern slope from ground surface. It contained a sherd of medieval pottery of 11th to 12th centuries. Backfill (040) was covering the northerly end of deposit (039). It was 0.11m thick (*c.* 3.30m AOD at base), 2.58m wide and more than 1.5m long. This firm, mixed mid-orange to blue sandy-clay had no inclusions and did not contain archaeological finds. It was overlaid by a series of northerly sloping, probably contemporary deposits (037), (036) and (035). The earliest of them was (037), a 0.16m thick (*c.* 3.42m AOD at its deepest point), 2.53m wide and more than 1.00m long, mineralised, light-grey sandy-silt fill with occasional small flecks of charcoal. Medieval pottery sherds of 11th and 12th centuries and bone fragments of a sheep size animal were collected from the deposit (Appendix 2). This fill was covered by a 0.17m thick (*c.* 3.42m AOD at its deepest point), 1.79m wide and more than 1.00m long, firm, brownish-red, burnt sandy-silt backfill (036). No finds were found in this context. It was overlaid by a 0.27m thick (*c.* 3.42m AOD at its deepest point), 2.44m wide and more than 1.00m long, organic, firm, mid-brown sandy-silt backfill (035) with occasional small flecks of charcoal. There were no finds found in this fill. It was covered by one of the most prominent deposits in the trench, a horizontally laid 0.58m thick (*c.* 3.42m AOD at base), 6.34m wide and more than 1.00m long, firm, light brown sandy-silt backfill (031) with occasional small flecks of charcoal and small burnt silt blocks. Three sherds of medieval pottery from the 11th to 12th centuries were recovered from the context (Appendix 2). It was probably contemporary with a northern sloping fill (026), which covered its southern end. It was a 0.26m thick (*c.* 3.64m AOD at its deepest point), 2.28m wide and more than 1.5m long, firm, mid-yellowish-brown sandy-silt with occasional small flecks of charcoal and small burnt silt blocks. Although it had a large extent, no finds were recovered. This fill was covered by a similar deposit (042) at its southern end. The margin between the two fills was not well-defined. The horizontally laid 0.28m thick (*c.* 3.70m AOD at base), 0.94m wide and more than 0.50m long, firm, light brown sandy-silt layer had occasional small flecks of charcoal and burnt silt blocks. There were no archaeological finds. This was covered by a horizontally laid, 0.17m thick (*c.* 3.95m AOD at base), 1.39m wide and more than 0.50m long,

firm, brownish-red sandy-silt backfill (034) with occasional small burnt silt blocks. There were no finds recovered from this fill. It was laid over by a widespread, 0.26m thick (*c.* 3.75m AOD at its deepest point), 4.88m wide and more than 1.00m long, firm, mid-grey organic, mineralised silt deposit (033) with occasional small inclusions of burnt silt blocks. No archaeological finds were found here. It was probably contemporary with at least two other fills, (032) and (030). The smaller of the two was a 0.07m thick (*c.* 4.10m AOD at base), 0.77m wide and more than 0.50m long, firm, light brown sandy-silt lens (032). It was found within the context of (033) and contained occasional small, burnt silt blocks. No finds were present in this fill. The other, potentially contemporary fill lying over (033) was the widespread, 0.32m thick (*c.* 3.80m AOD at its deepest point), 2.98m wide and more than 1.00m long, firm, light brown sandy-silt fill (030) with occasional small flecks of charcoal and small burnt silt blocks. It had a slight, gradual slope to North. No finds were recovered from here. It was covered by a 0.05m thick (*c.* 4.05m AOD), 1.44m wide and more than 1.00m long, north sloping, firm, mid-grey ashy-silt deposit (029) with occasional burnt silt inclusions. It was overlain by a similarly thin, 0.06m thick (c. 3.95m AOD at its deepest point), 2.04m wide and more than 1.00m long, gradually north sloping, firm, brown silt layer (028) with occasional, small charcoal flecks. The uppermost layer (027) in the stratigraphy of the trench was a 0.11m thick (*c.* 4.10m AOD at its deepest point), 0.87m wide and more than 1.00m long, firm, greyish-brown sandy-silt with occasional small flecks of charcoal and small, burnt silt blocks. Fragments of sheep and pig bones were collected from here (Appendix 2).

Three pits [006], [008] and [092] were found intercutting each other south of the investigative trench [057] (Fig. 8-9). The earliest of them was [092], an oval shaped pit with gentle breaks of slope, gentle sloping sides and concave base. It was 0.20m deep (*c.* 3.92m AOD at its deepest point), 0.90m wide and more than 0.73m long. It was aligned to east - west. Truncated by the other two pits [008] and [006], its single fill (091) was soft, mid brown sandy-silt with occasional burnt silt, small angular stones and small flecks of charcoal. No finds were recovered. It was cut by a circular pit [006] at its eastern edge, with gradually sloping sides, gradual breaks of slope, and uneven base. It measured 0.07m deep (*c.* 4.24m AOD at its deepest point), 0.90m wide and 1.13m long. It had a firm, mid brownish grey sandy-silt backfill (005) with occasional burnt, small silt and small charcoal flecks. The central pit [092] was also truncated by a large, circular pit [008] at its western edge, with moderately sloping sides, concave base, sharp break of slope at the top and gentle break at the base. It was 0.44m deep (*c.* 3.92m AOD at its deepest point) and had a 2.32m diameter. It was filled by soft, greyish-brown sandy-silt (007) with moderate, medium size, burnt, hardened silt blocks and occasional small flecks of charcoal. A small fragment of bone of a sheep sized animal was found here (Appendix 2).

An elongated, east - west aligned, irregular shaped, pit-like feature was found east from the south-eastern end of Trench A, at the eastern side of the site. It was c. 14.50m long and on average 2.50m wide. The feature did not have a well-defined outline. A 9.5m trench [058] was opened to investigate the feature (Fig. 10-11). Altogether, twenty-seven deposits and a pit were recorded here. The base of the trench was generally flat, the natural geology (003) was found 0.94m deep from ground surface (3.26m AOD) at the eastern end of the trench, 0.99m deep (3.20m AOD) in the centre and 1.12m deep (3.17m AOD) at the western end.

The earliest deposit (071) in the trench

[058] was 0.26m thick (*c.* 3.07m AOD at base), more than 0.85m wide and 4.35m long, horizontally laid, firm, light brown sandy-silt backfill with occasional small charcoal flecks. There were no finds in the fill. It was covered by a 0.33m thick (*c.* 3.20m AOD at base), more than 0.93m wide and 7.05m long, firm, light-brown sandy silt backfill (069) with occasional burnt silt. It contained sheep and other unidentifiable animal bone fragments and three sherds of 12th to 13th century pottery (Appendix 2).

A thin, contemporary layer, 0.07m thick (*c.* 3.26m AOD at its deepest point), more than 0.96m wide and 1.35m long backfill (070) into deposit (069), sloping gradually from the west. It was firm, mid-greyish-brown sandy-silt with occasional burnt silt inclusions. No finds were found in this fill. It was overlain by a gently east sloping, 0.11m thick (*c.* 3.67m AOD at its deepest point), more than 1.25m wide and 1.52m long, compact, mid-brownish-grey mineralised organic silt (068) with occasional small blocks of burnt silt/clay. There were no archaeological finds in this deposit which was partially covered at its western end by a gently west sloping, 0.12m thick (*c.* 3.67m AOD at its deepest point), more than 1.18m wide and 0.36m long, firm, mid-brownish-red, burnt silt (067) with occasional small charcoal flecks and no finds. This was sealed by a gently east sloping, 0.10m thick (*c.* 3.72m AOD at its deepest point), more than 1.07m wide and 1.24m long, firm, dark brownish grey sandy silt deliberate backfill (066) with frequent small charcoal flecks and moderate small burnt silt/clay chunks. This waste deposit had no finds and was covered by a moderately west sloping, 0.13m thick (*c.* 3.67m AOD at its deepest point), more than 1.21m wide and 1.49m long, firm, light-brown sandy-silt (065) with occasional burnt silt inclusions and no finds. It was overlain by an east sloping, widespread, 0.15m thick (*c.* 3.26m AOD, more than 1.12m wide and 5.25m long compact, mid-brownish-grey mineralised organic silt (064) with occasional burnt clay inclusion.

Two deposits covered (064), (063) in the western end of the trench and (082) at the centre. The deposit (063) was a westerly sloping, 0.07m thick (*c.* 3.90m AOD at its deepest point), more than 1.00m wide and 0.49m long, firm, brownish-red silt/burnt silt without any artefacts. Sloping gradually to the east was a 0.13m thick (*c.* 3.35m AOD at its deepest point), 0.66m wide and 3.01m long, firm, light-brown sandy-silt with occasional burnt silt (082). Three cattle bone fragments and 12th century pottery sherds were found here (Appendix 2). It was sealed by a gently east sloping layer of a 0.05m thick (*c.* 3.42m AOD at its deepest point), 0.77m wide and 0.91m long, firm, mid-brownish-red, burnt sandy-silt (079). There were no finds in this deposit which was overlain by a similarly thin deposit (078) which was 0.11m thick (*c.* 3.42m AOD at its deepest point), more than 0.81m wide and 2.00m long. It was firm, light-brown sandy-silt with occasional burnt silt/clay. It had no archaeological finds. Both layers (063) and (078) were under a gradually east sloping, 0.13m thick (*c.* 3.42m AOD at its deepest point), more than 1.28m wide and 4.35m long, compact, mid-grey, mineralised organic waste silt (062) with occasional small blocks of burnt silt/clay. This fill was recorded without archaeological finds. It was overlaid by a gently east sloping backfill (077). It was 0.31m thick (*c.* 3.26m AOD at its deepest point), more than 0.98m wide and 7.50m long, firm, light-brown sandy-silt with occasional burnt silt/clay. A partial skeleton of a rabbit and a single piece of chicken bone were collected from here with four sherds of mixed Saxo-Norman and 13th to 14th century pottery (Appendix 2).

The deposit (077) was covered by an easterly sloping layer (061). It was a 0.16m thick (*c.* 3.38m AOD at its deepest

point), more than 1.24m wide and 3.57m long, compact, mid-grey mineralised organic rich silt backfill with occasional small blocks of burnt silt/clay and no finds. It was covered by two, east sloping backfills, (060) in the western end of the trench and (076) in the centre. The 0.16m thick (*c.* 4.00m AOD at its deepest point), more than 1.33m wide and 1.77m long, firm, mid-greyish-brown sandy-silt (060) had occasional small blocks of burnt silt, but no finds. The much thinner, 30mm thick (*c.* 3.45m AOD at its deepest point), more than 0.83m wide and 1.10m long, firm, mid-greyish-brown sandy-silt backfill (076) had occasional burnt silt. No finds were found in this context. This fill was sealed by a gently east sloping, 0.19m thick (*c.* 3.41m AOD at its deepest point), more than 1.03m wide and 5.75m long, firm, mid-brownish-grey sandy-silt (075) with occasional burnt silt/clay and moderate small charcoal flecks. Sherds of Saxo-Norman and early medieval pottery were recovered from the deposit along with fish, bones of sheep-size animal and a single bone of a red deer (Appendix 2).

The sandy-silt deposit (060) was covered by gently east sloping, 0.27m thick (*c.* 4.01m AOD at its deepest point), greater than 1.37m wide and 2.10m long, firm, light-greyish-brown sandy-silt (059) with occasional small blocks of burnt silt. This was covered by two, probably contemporary deposits, (085) and (072). The firm, light brown sandy-silt (085) was 0.10m thick (*c.* 3.48m AOD at its deepest point), 0.87m wide and 2.51m long, gently sloping towards East at the eastern end of (075). It had occasional burnt patches of silt and clay. The deposit (072) which was found covering the western end of (075) was a firm, mid greyish-brown sandy-silt with moderate inclusion of burnt silt and clay. It was 0.10m thick (*c.* 3.92m AOD at its deepest point), more than 1.31m wide and 1.46m long and it was laid horizontally with undulate base. There were no finds in either deposit.

Both layers of (059) and (072) were truncated by an oval shaped, 0.25m deep (*c.* 3.97m AOD at base), more *c.* 1.00m wide and 1.50m long cut of a hearth or pit [080], which had moderately steep sides and concave base. Its single fill (081) was firm, mixed colour (light grey, red and black) sandy-silt with frequent charcoal and burnt silt inclusions. The colour of the fill indicated the spread of heat, discolouring the fill to light grey, red and black, respectively from top to base. There were no finds recovered from here.

Deposits (072) and (085) also lay under a gently east sloping deposit (074). This was a compact, light to mid grey sandy-silt with occasional burnt blocks of silt and clay. It measured 0.25m thick (*c.* 3.41m AOD at its deepest point), more than 1.12m wide and 2.58m long. No finds were recovered and it was overlain by a layer of gently east sloping, 0.49m thick (*c.* 3.55m AOD at its deepest point), 1.15m wide and 4.30m long, firm, light brown sandy-silt (084). Cattle-size animal and sheep bone fragments, sherds of mixed Saxo-Norman to 13th-14th century pottery and a small, stone, late Saxon - early medieval spindle whorl were recovered (Appendix 2). It was covered by a moderately east sloping layer of firm, mixed colour (red, brown and grey) sandy-silt (083) with moderate, mid-size blocks of burnt silt. It was 0.55m thick (*c.* 3.55m AOD at its deepest point), more than 1.28m wide and 3.67m long with no finds. This layer sat under deposit (073) at its western and (086) at its eastern end. Deposit (073) was a westerly sloping layer encroaching into (072). It was a compact, 0.12m thick (*c.* 4.02m AOD at its deepest point), more than 1.23m wide and 2.16m long, mid greyish-brown sandy-silt backfill with occasional patches of burnt silt and clay. The deposit (086) was east sloping and consisted of firm, light to mid brown sandy-siltwith occasional patches of burnt silt and small charcoal flecks. It was

0.33m thick (*c.* 3.96m AOD at its deepest point), more than 1.28m wide and 1.39m long. No finds were retrieved from these deposits.

Features on the central area of the site
(Fig. 12-13-14; Plate 11-14)

A group of features (two linears and a pit) were found at the centre-west of the site, forming a crescent, aligned northwest-southeast. These were cut into a compact, yellowish-brown sandy-silt layer (004) of the saltern mound. The layer of (004) has been allocated to all the machine finds on the site therefore an assemblage of seventy-seven sherds from fifty-nine vessels have been associated with it. Most of the vessels were dated to the Saxo-Norman to medieval period except for a post-medieval sherd. Further finds consists of two clay pipe stems, late post-medieval iron hinge, and a Rhenish lava stone. Bone fragments of cattle, sheep, pig, dog, sheep- and cattle-size animals were also found in (004) along the northern half of the site (Appendix 2).

The irregular/elongated cut of the pit [094] was found at the centre of the crescent formation with gentle breaks of slope, gently sloping sides, and undulating base. It was 0.34m deep (*c.* 3.74m AOD at base), 1.21m wide and 3.3m long. It had four fills, the earliest of which was a compact, mid greyish-brown silty-sand (097) without any inclusions. It was 0.14m thick, more than 0.20m wide and 0.83m long. This was covered by another, compact, mid greyish-brown sandy-silt fill (096), which was 0.16m thick, more than 0.20m wide and 1.41m long. This was overlain by a compact, 0.90m thick, 1.15m wide and 1.18m long, dark greyish-brown silty-sand backfill (098) which had a single sherd of a Saxo-Norman Oolitic-tempered jar of *c.* 11th to mid-12th century, the only find recovered from the pit (Appendix 2). The upper deposit in the pit was a compact, 0.13m thick, 0.75m wide and 0.77m long mid reddish-brown sandy-silt (095).

A northwest curving linear was found next to pit [094], where three slots were excavated. Its western terminus [043] was slightly curvilinear with steep sides, flat base and sharp brakes of slope. It measured 0.35m deep (*c.* 3.83m AOD at base), 0.92m wide and 1.10m long. The earliest of its two fills (045) was a firm, 0.15m thick, more than 0.50m wide and more than 0.90m long, yellowish-brown, fine sandy-silt with occasional small, rounded lumps of baked clay. This was covered by a 0.25m thick, more than 0.50m wide and more than 1.05m long, firm, dark bluish-grey, coarse sandy-silt (044), also with lumps of baked clay. This contained a single, fragmented bone of a cattle-size animal (Appendix 2).

The central section of the linear, [046] was slightly curvilinear with steep sides, irregular/flat base, sharp break of slope at its top and gradual at its base. It measured 0.39m deep (*c.* 3.74m AOD at base), 1.00m wide and more than 1.00m long. The earliest of its two fills was a firm, 0.39m thick, 0.45m wide and more than 1.00m long, light yellowish orangish-brown sandy-silt (048) with moderate rounded baked clay, fragments of hand-made bricks and occasional pottery sherds from the Saxo-Norman period (Appendix 2). It was overlaid by a firm to compact, 0.26m thick, 0.70m wide and more than 1.00m long, dark bluish-grey coarse sand with occasional burnt clay. There were no finds recovered from this fill.

The south-eastern terminus of the linear [049], was slightly curvilinear with moderately steep sides, flat base, and sharp brake of slope at the top and base. It was 0.50m deep (*c.* 3.77m AOD at base), 0.98m wide and more than 2.70m long. There were three deposits found here, of which the earliest (052) was a firm, 0.30m thick, 0.95m wide and more than 2.70m

long, light-yellowish-brown sandy-silt with occasional small lumps of fired clay, and frequent lumps of greyish clay. Two small sherds of medieval pitchers were recovered from the fill (Appendix 2). This was overlaid by a thin layer of plastic, 0.05m thick, 0.90m wide and 1.40m long orangish-grey sandy-clay backfill (051) with occasional small, red iron patches and small, angular stones. The upper deposit of the terminus was a friable, 0.32m thick, 0.90m wide and more than 2.20m long, mid-dark greyish-yellowish-brown coarse sandy-silt backfill (050) with fired clay lumps.

The linear recorded southeast from the pit [094] had a slot taken at its north-western terminus [128]. This had gradual breaks of slope, moderately steep sides, and concave base. It measured 0.17m deep (*c.* 3.87m AOD at base), 0.81m wide and more than 1.47m long. Its only deposit (127) was firm, mid-greyish-brown sandy-silt backfill with moderate inclusions of burnt silt and occasional small flecks of charcoal. Two sherds of early medieval pottery and a fragment of a bone of a sheep size animal were found here (Appendix 2). The middle section of the linear, at cut [130], had gradual breaks of slope, steep sides and concave, nearly "V" shape base. The base was measured at 3.46m AOD at its deepest point, which was 0.55m deep from ground surface. It was 1.47m wide and more than 1.20m long and contained three fills. The earliest of these was a firm, 0.23m thick, 1.16m wide and more then 1.20m long mid-greyish-brown sandy-silt (129) with moderate inclusions of burnt silt and occasional small flecks of charcoal. There was a small sherd of a Saxo-Norman jar recovered from this fill. This was overlaid by a firm, 0.14m thick, 1.17m wide and more than 1.20m long, nearly compact mid-grey sandy mineralised silt deposit (131), which had no finds. The upper deposit in the section was a firm, 0.29m thick, 1.09m wide and more than 1.20m long, mid-greyish-brown sandy-silt backfill (132) with occasional burnt silt and charcoal inclusion. The recovered finds consisted of fragmented bones of chicken, fish, and sheep-size animals; also, sherds of a large, shallow bowl or dish and a collard jar or pitcher, both dated to the Saxo-Norman period (Appendix 2).

The south-eastern terminus of the linear [140], had gentle breaks of slope, gradually sloping sides and undulating base. It was 0.29m deep (*c.* 3.95m AOD at the deepest point), 1.04m wide and more than 1.00m long. Its only deposit (141) was compact, mid/dark greyish-brown sandy-silt backfill with a single, glazed, 11th to 12th century pottery sherd and an intrusive, post-medieval iron hinge strap (Appendix 2).

A series of west sloping deposits was found at the centre-east of the site where a *c.* 9.20m long, *c.* 1.80m wide and *c.* 0.55m deep (*c.* 2.93m AOD at the deepest point) slot [146] has been opened for investigation (Fig. 14). Three deposits were recorded here, of which the earliest was a compact, 0.15m thick (*c.* 3.38m AOD at its base), more than 1.50m wide and 2.73m long, yellowish-brown sandy-silt (145) with occasional small charcoal flecks. It was covered by a compact, 0.48m thick (*c.* 2.93m AOD at its deepest point), mixed colours of dark-grey, yellow, orange and brown sandy-silt (144) with occasional small fragments of clam shells, small patches of burnt silt and moderate, small flecks of charcoal. This was the only deposit in the slot with archaeological finds in the form of small sherds of 11th-12th century pottery and two fragmented cattle bones (Appendix 2). This deposit was overlaid by a compact, 0.33m thick (*c.* 3.00m AOD at its deepest point), more than 2m wide and more than 1.80m long, mottled yellowish-brown sandy-silt (143) with occasional small flecks of charcoal.

Features on the north-western edge of the site (Fig. 15-16; Plate 15-19)

A group of five pits/possible hearths [025], [087], [133], [136] and [138] was found at the north-western edge of the site. This was the area in close proximity to the highest point (*c.* 4.49m AOD) of the saltern mound.

The irregular cut of a pit [138] with sharp breaks of slope, steep sides and undulate/concave base was recorded close to the western edge of the site. It was 0.34m deep (*c.* 3.86m AOD at base), 1.19m wide and 1.53m long. Its compact, mid-yellowish-brown sandy-silt backfill (139) had no archaeological finds.

An irregular shaped, 0.15m deep (*c.* 3.79m AOD at its deepest point), 0.74m wide and 1.53m long cut of a pit [136] with gentle breaks of slope, gradually sloping sides and undulating but nearly flat base, was found northeast of the pit [138]. Its backfill (137) had no archaeological finds within. It was recorded as a compact, mid-yellowish-brown sandy-silt.

The remaining three pits were found closer together than the previous two. The sub-circular pit [087] had gradual breaks of slope, undulating base, and moderately steep sides. It was 0.63m deep (*c.* 3.99m AOD at its deepest point), 0.91m wide and 1.97m long. There were three deposits recorded here, of which the earliest (089) was a compact, mid greyish-brown silty-sand backfill with sherds of 12th century wheel-thrown jar or bowl. This was the only deposit in the pit with finds (Appendix 2). It was covered by a compact, light yellowish-brown silty-sand (088) which was sealed by the upper deposit of the pit, a compact, mid reddish-greyish-brown sandy-silt (090).

Immediately north of pit [087] was the irregular shaped pit [025] with steep sides, concave base and gradual breaks of slope. It was 0.27m deep (*c.* 4.13m AOD at its deepest point), 1.25m wide and 1.28m long. The earliest of its two deposits was firm, mid-brown sandy-silt (024) without noticeable inclusions. The latest was firm, reddish-brown sandy-silt (093) with frequent burnt silt and clay and occasional charcoal flecks. None of the fills contained finds.

The more central pit [133] had an irregular shape with gradual break of slope at its top and gentle break at its base, gently sloping sides and undulating base. It measured 0.26m deep (*c.* 4.19m AOD at its deepest point), 1.4m wide and 2.05m long. It contained two deposits, of which the earliest was compact, light yellowish-brown sandy-silt (135); the latest was a compact, dark reddish and greyish-brown sandy-silt backfill (134). None of the fills contained finds.

Features in the northwest corner of the site (Fig. 17-18; Plate 20-25)

A linear ditch, c. 52m long and 2.50m wide ([023], [021], [010], [108] and [142]) was recorded in the north-western corner of the site, entering to the site at its eastern edge and exiting at its northern limit, aligned to southwest - northeast. (Fig 17-18)

A small, 0.24m deep (*c.* 3.90m AOD at its deepest point), 1.56m wide and more than 1.00m long, linear gully [017] was truncating the steep sided, flat based ditch [023] at its southwestern end. Two slots had been excavated and a cross section at the terminus. At the former, the gully had steep sides, undulating base, sharp breaks of slope at the top and gentle breaks of slope at the base. It was aligned northeast - southwest. There was only one deposit found here, which was compact, yellowish mid-brown sandy-silt backfill (016) with moderate small fragments of shells. Bone fragments of cattle and sheep/goat, sherds of a brown-glazed bowl of late 17th-18th

century and two pieces of late post-medieval iron handle were found here (Appendix 2).

The gully had steep sides and flat base at its terminus [019], truncating the linear ditch [021] at its southern limit. Its brake of slope was sharp at the top and at the base. It was 0.11m deep (*c.* 3.67m AOD at its deepest point), 0.50m wide and more than 1.46m long. Its fill (018) was compact, mid yellowish brown sandy-silt with occasional small flecks of charcoal. No finds were recovered from the terminus.

To the northeast of the terminus a slot across the ditch [010] was 0.16m deep (*c.* 3.58m AOD at its deepest point), 0.75m wide and more than 1.00m long, with gently sloping sides, concave base, sharp break of slope at the top and gentle break at the base. Its single fill was friable, mixed greyish-brown sandy-silt with moderate burnt clay fragments and occasional small flecks of charcoal. No finds were recovered from this deposit.

The natural (003) was found 0.87m deep from the ground surface at *c.* 2.88m AOD in the slot. There was a series of waste silt layers of the saltern mound recorded here, of which the earliest was a compact, 0.40m thick (*c.* 2.95m AOD at its deepest point), more than 1.20m wide and more than 2.00m long, yellowish-brown sandy-silt (015) with occasional burnt clay fragments. It was covered by a compact, 0.48m thick (*c.* 3.30m AOD at its deepest point), more than 1.62m wide and more than 2.00m long, greyish mid-brown sandy-silt (014) with occasional small flecks of charcoal and occasional small burnt silt. Several, mid/late 12th and early/mid-13th centuries sherds of thirteen vessels and fragments of cattle and cattle-size animal bones were recovered from this deposit. It was overlain by a compact, 0.33m thick (*c.* 3.41m AOD at its deepest point), more than 2.00m wide and more than 2.00m long, light yellowish-brown sandy-silt (013) with occasional small burnt silt blocks. Sixteen sherds of mid to late 12th century pottery, cattle and cattle-size animal bone fragments were found in the deposit (Appendix 2).

Also cutting (013) was an oval shaped waste pit [012] with steep sides and concave base. Its break of slope was sharp at the top and gentle at the base. It was 0.18m deep (*c.* 3.58m AOD at its deepest point), 0.50m wide and more than 0.32m long. It was aligned to southwest - northeast and contained a friable, dark greyish-brown silty-sand fill (011) with large, occasional, solidified organic silt blocks, occasional medium and small burnt clay blocks and moderate, small charcoal flecks.

Cutting into deposit (147) which contained which contained two 12th century pottery sherds and horse, cattle and sheep bone fragments, another slot was excavated at the central part of the linear at [142]. The The linear had four fills at the slot of which the earliest was a compact, 0.06m thick (*c.* 3.39m AOD), 1.68m wide and more than 1.00m long, dark greyish-brown sandy-silt (152). This was overlain by a compact, 0.26m thick (*c.* 3.45m AOD at its base), 1.59m wide and more than 1.00m long mid-greyish-yellowish-brown sandy-silt (151). It was covered by a compact, 0.48m thick (*c.* 3.45m AOD at its base), 1.18m wide and more than 1m long mid-greyish-brown sandy-silt (149). The upper fill of the linear was a compact, 0.43m thick (*c.* 3.58m AOD at its base), 3.10m wide and more than 1.00m long mid-yellowish-brown sandy-silt (150). None of the fills of the linear at [142] produced archaeological finds.

6. DISCUSSION

The natural deposit was compact, rusty yellowish-brown sandy-clay which was

overlain on the northern half of the site by a compact, yellowish-brown sandy-silt deposit of a medieval saltern mound.

The location of the site was ideal for salt production as it is in close proximity of the once tidal River Glen.

The archaeological features were identified to be in association with the saltern mound in the form of waste pits and possible freshwater ditches supplying filtration units of the saltern. All the features were found at the northern half of the site.

There were two categories of waste; the main body of the mound, centralised to the tip of the mound was built up by fine sandy-silt, while layers of raked-out waste material of hearths were found laid on waste silt at the edges of the mound.

The stratigraphy of the mound indicates periodical utilisation of the area. The earliest layers are associated with salt-making activities. These were layers of silt-waste derived from filtration units with occasional fragmented finds of domestic ware such as jars, bowls, or pitchers of 13-14th century date. A large piece of furnace slag fragment called plano-convex bottom derived from the base of a non-tapping furnace, fuel ash slag and fragments of large undiagnostic furnace slags were also recovered from the deposits, suggesting local ironworking (Appendix 2).

The silt-waste layers were covered by a thick layer of waste which was abundant in archaeological finds. The collection of remains consisted of a modest group of 13th-14th century sherds of domestic ware such as jugs, jars and bowls in various sizes and a fragment of a plano-convex bottom (pcb) derived from a non-tapping furnace. The most conspicuous was the amount of animal bones recovered from here. A large assemblage of bones of large-sized animals such as horse and cattle were found, but small-sized animals like sheep or goat, dog and cat were also present in the layer. Although the number of bone fragments was high compared to other deposits, the number of individual specimens recovered was low. The presence of various domestic species in the layer suggests animal husbandry in the area.

The layer was truncated by a well or large sized refuse pit at its centre with two fills which produced a small assemblage of 13th-14th century pottery sherds. The results of the environmental sampling indicated an abundance of charred cereal remains such as barley, wheat and probable rye, and a lack of domestic animal remains. The results suggest waste derived from agricultural activity. The fills contained a small group of late-medieval/early post-medieval brick fragments which were probably intrusive.

The upper layer of the mound was another silt-waste with occasional charcoal flecks and clam shells. Only a single pig bone was collected from here. This layer suggests a return to the salt-making activities in the area.

Several shallow, small pits with heat-affected spoil were found truncating the mound close to its highest point, suggesting small-scale activities at the later stage of the mound. The pits had heat affected fills which suggest in-situ fire in them or dumped hearth floor material.

Four potential areas of dumped raked-out hearth flooring and associated silt-waste layers could be established on site. These were located at the outskirts of the mound and consisted of several layers of spoil deposits. It suggests an orderly disposal of waste on targeted locations rather than random spreading along the site.

The main body of archaeological finds across the site consisted of 10th to 14th centuries pottery sherds in different sizes

and with various functions, but nearly all associated with domestic use. A small amount of late medieval/early post-medieval finds were also recovered from the site.

The species of animals present on site had a wide range, from remains of amphibians to large domestic animals. The bones of a few wild species include rabbit, red deer and possibly fox. The largest assemblage of bones derived from horse, followed by cattle and cattle-size animals, sheep/goat and sheep-size animals.

The environmental samples taken from the waste layers surrounding the mound found concreted silts and fine sands deposits with high concentration of salts which could point towards salt-making activities, although it could also indicate cess pit or animal waste in the area. Further samples identified concreted ash, burnt weed seeds and fired earth which could be derived from the hearth floors during the salt-extraction process.

The archaeological remains contribute to the East Midlands research agenda (Knight *et al*, 2012) by:

- Identifying a silt-waste mound of the salt-making industry in the area of Surfleet.
- Dating the industry here to the 13th – 14th centuries, based on pottery sherds derived from silt-waste layers associated to salt-making.
- Exploring the relationship of the saltern with local farming.
- Observing periodical extraction of salt in Surfleet.

7. CONCLUSIONS

An archaeological strip, map and sample style investigation was undertaken on the land off Sunnydale Close, Surfleet, Lincolnshire as the site lies in an archaeologically sensitive area in the vicinity of discoveries of medieval date.

The excavation revealed a large waste mound of 13th-14th century date, used periodically for dumping silt-waste of salt-extraction, and for domestic waste disposal. The mound presumes further remains such as filtration units and hearths may be discovered in close proximity.

The recovered finds, such as sherds of domestic vessels were dated to the 9th-14th centuries onwards to the 18th century.

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The work was coordinated by Paul Cope-Faulkner, who edited this report along with Neil Parker. Greg Pickup kindly allowed access to the library and parish files maintained by Heritage Lincolnshire.

9. PERSONNEL

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11. ABBREVIATIONS

AOD	Above Ordnance Datum
APS	Archaeological Project Services
CIfA	Chartered Institute for Archaeologists
GSGB	Geological Survey of Great Britain
LHER	Lincolnshire Historic Environment Records

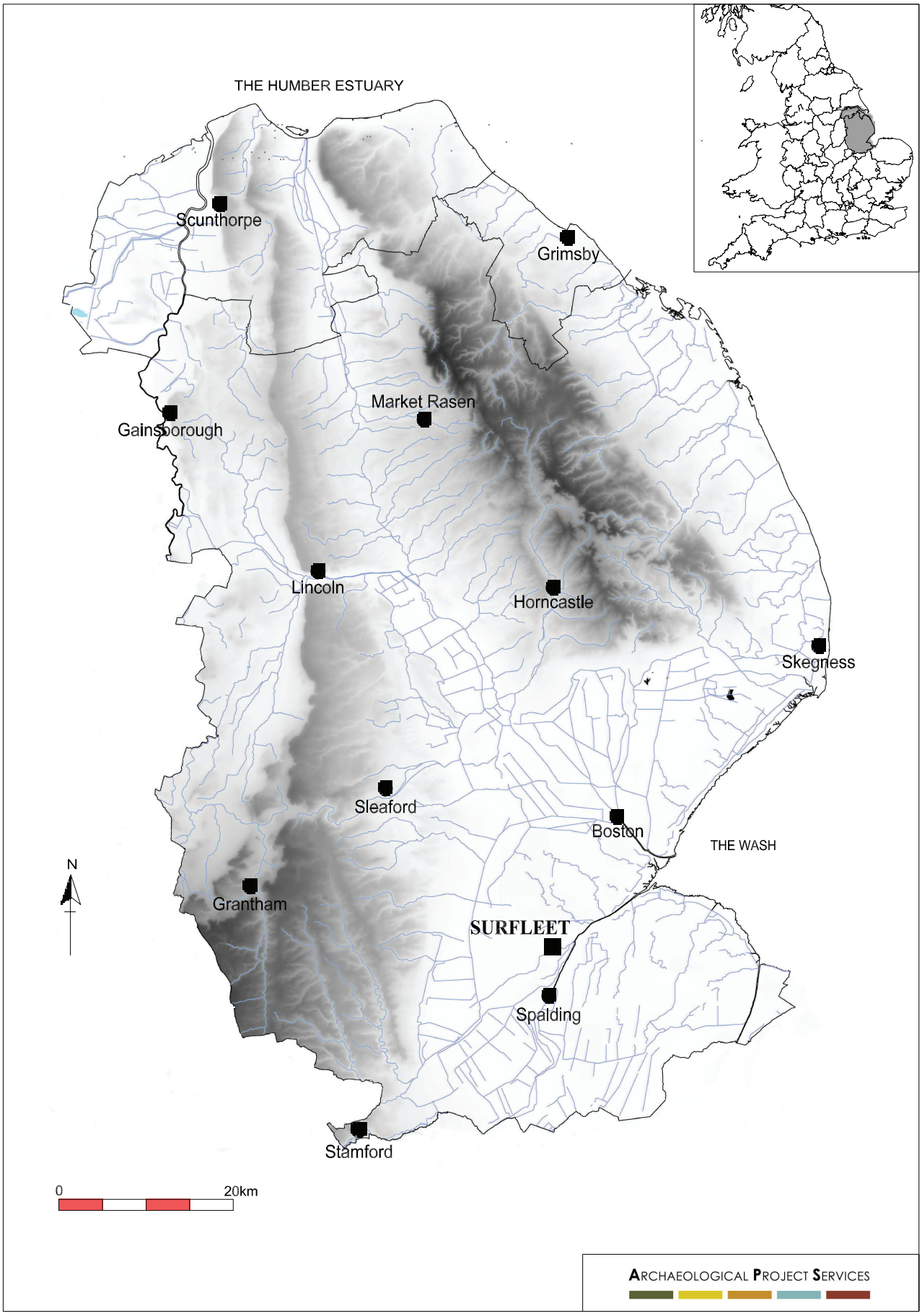


Figure 1 - General location plan

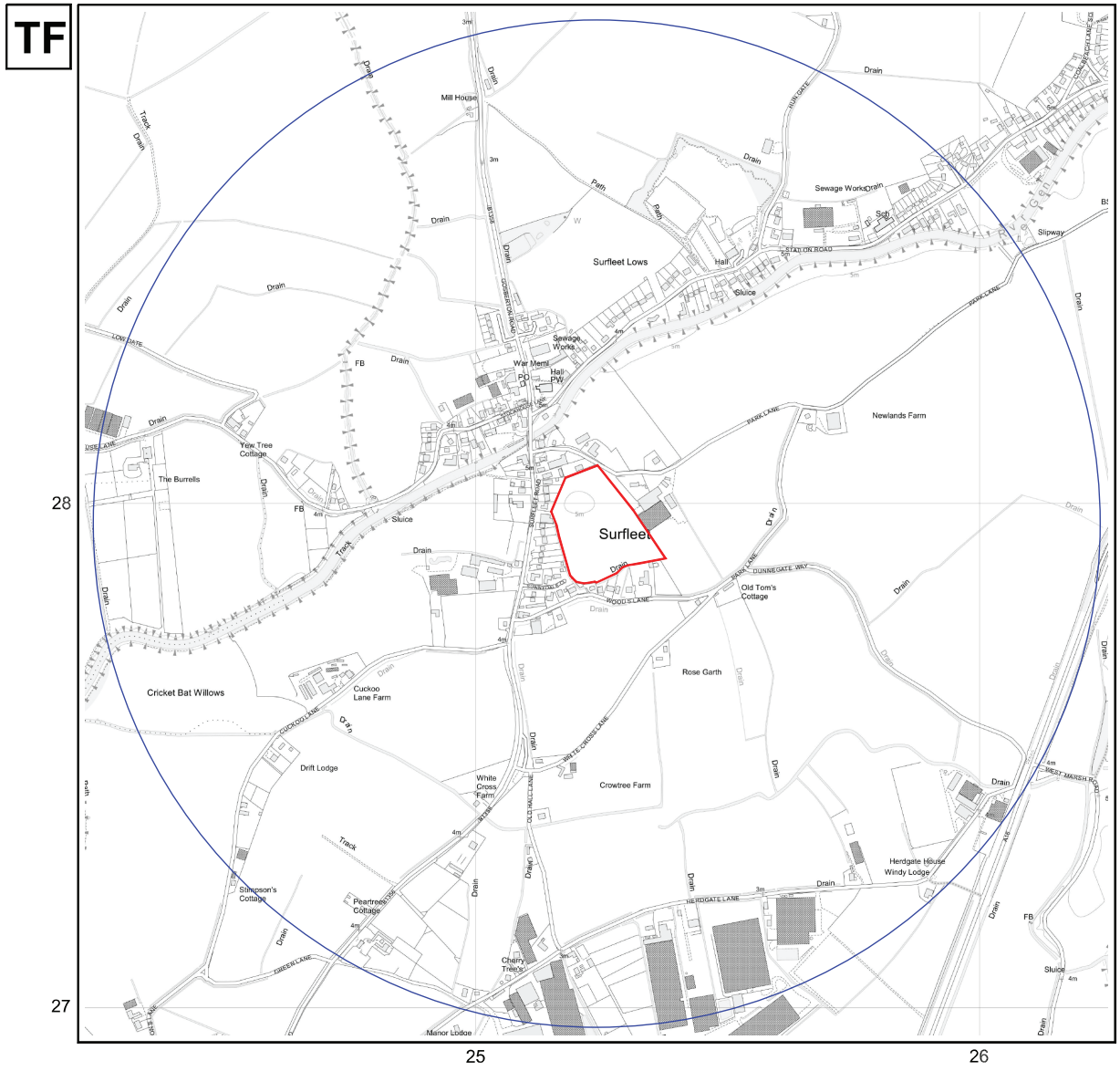


Figure 2 - The assessment area showing the proposed development site

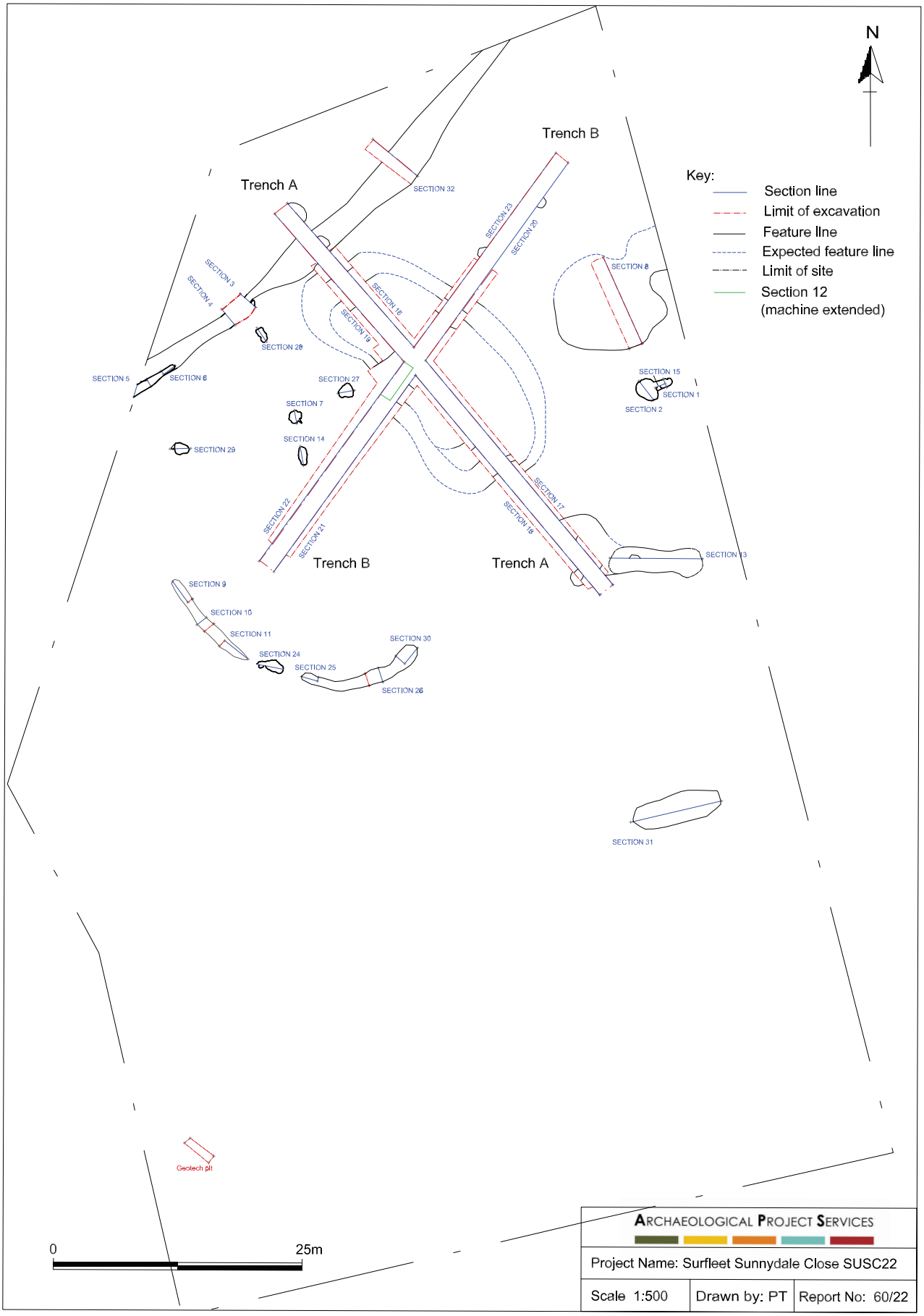


Figure 3 - Feature locations

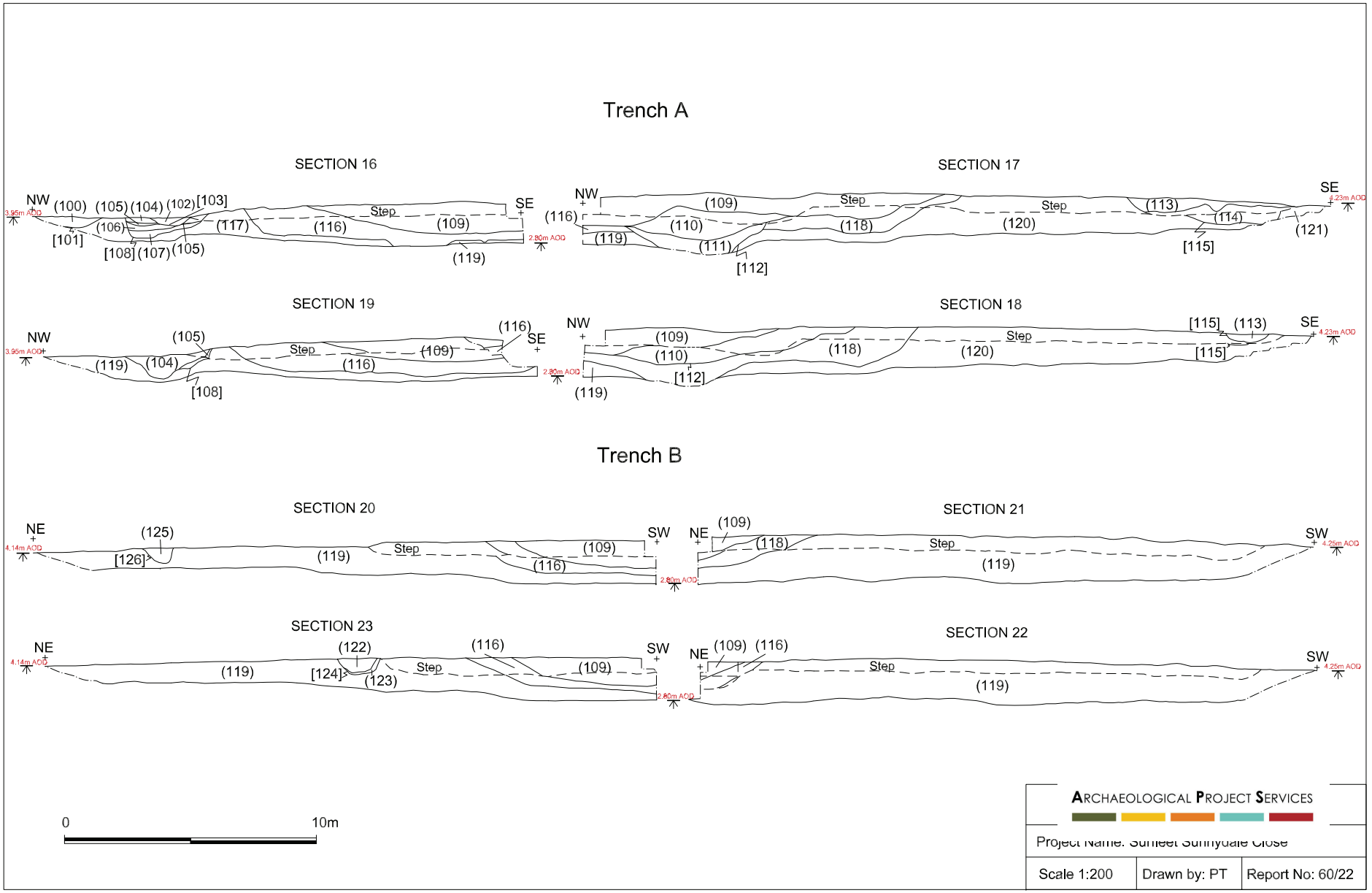


Figure 4 - Sections of Trench A & Trench B

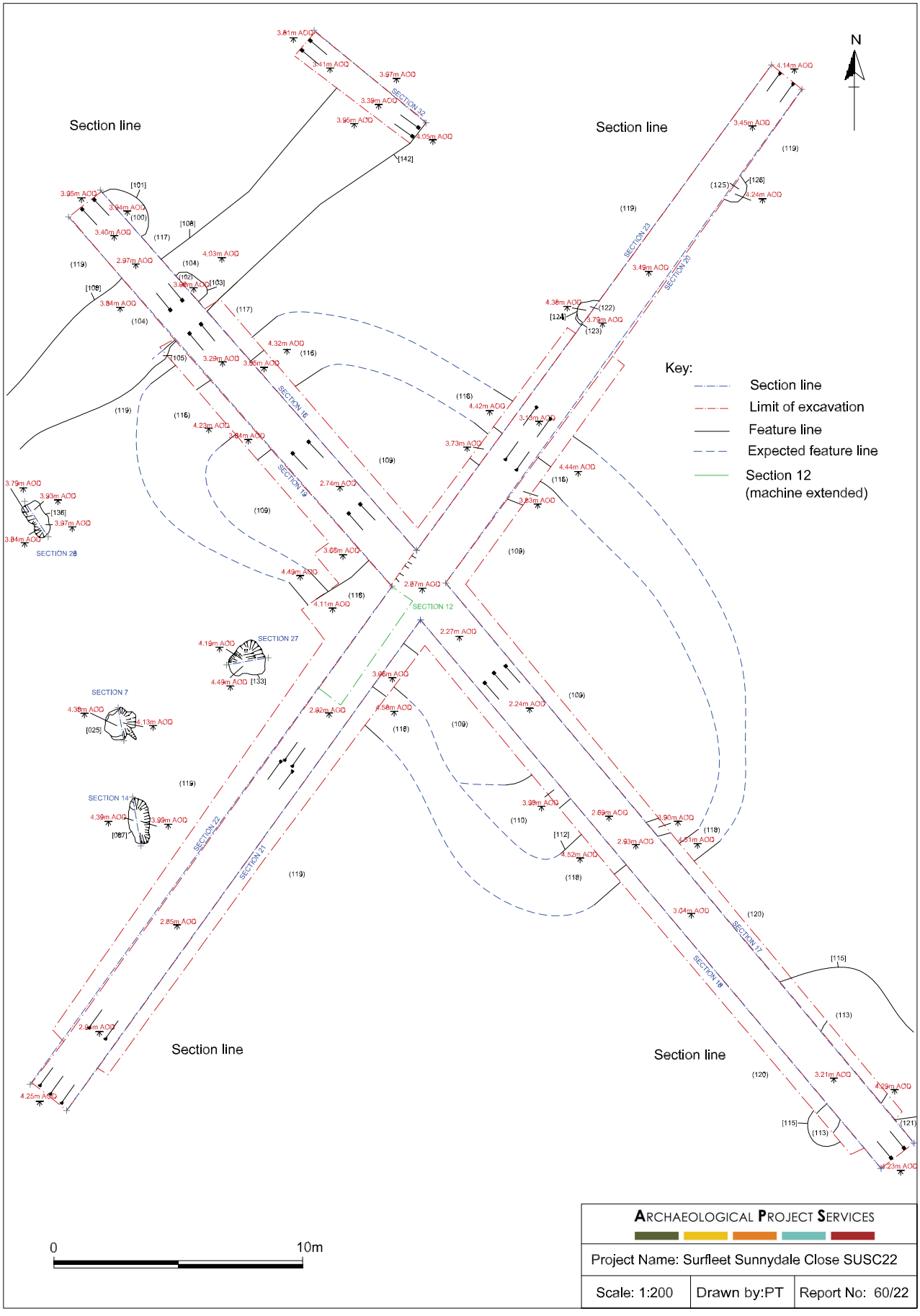


Figure 5 - Plan of Trench A & Trench B