

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

Work Undertaken For
Ashwood Homes

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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, and as such, interpreting the site is problematical. The northern part of the site, lying closest to the River Glen, was notably lower and may indicate that any such remains relating to salt-making may have been eroded by the former tidal range of the river. It has also been suggestive that the site may incorporate a small tidal lagoon, although environmental evidence suggests the dumped material was possibly from freshwater derived deposits.

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. However, the site may have lain within the wider tidal flats associated with the estuaries of both the Glen and Welland.

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 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, in an inter-tidal zone or under water. An archaeological excavation will examine and record the archaeological resource within a specified area using methods that are described in a project design that is fit for purpose' (CIfA 2023).

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 OD.

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, possibly 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 waste mound. Most of the features truncated waste 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 mound, forming an "X" at the northern half of the site where the ground level was at its highest at 4.5m OD.

The natural geology (003) was recorded as compact, rusty yellowish-brown sandy clay between 2.85m OD and 3.49m OD,

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 3.4m OD at the north-western end of Trench A. Sloping towards the centre of the trench and recorded *c.* 1.9m deep from ground surface at 2.8m OD, the natural gradually rose to 1.15m deep from ground surface at 3.21m OD, 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.* 0.8m from the ground surface at 3.45m OD, sloping to *c.* 1.9m from the ground surface at 2.8m OD in the centre of the trench, then slightly rising to *c.* 1.31m deep from the ground surface at 2.94m OD 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 OD at base), 2.7m 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 OD at base), 6.7m wide and more than 1.6m 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.* 3.2m OD at base), 3.5m 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 flecks 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 OD 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 OD at base) and 1.7m 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 OD 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 1.6m 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 OD at base continuing on), 6.65m wide and more than 1m 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 OD at base), more than 4m 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.* 1.4m 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 the 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 OD) at the northern end of the trench, *c.* 0.99m deep from ground surface (*c.* 3.2m OD) at the centre, and *c.* 0.92m deep from ground surface (*c.* 3.35m OD) at the southern end.

The earliest deposit (041) was a 0.17m thick (*c.* 3.2m OD at its deepest point), 2.68m wide and more than 1.5m 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.* 3.3m OD 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.* 3.3m OD at base), 2.72m wide and more than 1m 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 OD 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 OD 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 OD at its deepest point), 1.79m wide and more than 1m 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 OD at its deepest point), 2.44m wide and more than 1m 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 OD at base), 6.34m wide and more than 1m 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 OD 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 OD at base), 0.94m wide and more than 0.5m 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 OD at base), 1.39m wide and more than 0.5m 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 OD at its deepest point), 4.88m wide and more than 1m 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.* 4.1m OD at base), 0.77m wide and more than 0.5m 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.* 3.8m OD at its deepest point), 2.98m wide and more than 1m 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 OD), 1.44m wide and more than 1m 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 OD at its deepest point), 2.04m wide and more than 1m 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.* 4.1m OD at its deepest point), 0.87m wide and more than 1m 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 0.2m deep (*c.* 3.92m OD at its deepest point), 0.9m 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 OD at its deepest point), 0.9m 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 OD 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. 14.5m long and on average 2.5m 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 OD) at the eastern end of the trench, 0.99m deep (3.2m OD) in the centre and 1.12m deep (3.17m OD) at the western end.

The earliest deposit (071) in the trench [058] was 0.26m thick (*c.* 3.07m OD 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.* 3.2m OD 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 OD 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 OD 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 OD 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, 0.1m thick (*c.* 3.72m OD at its deepest point), more than 1.07m wide and 1.24m long, firm, dark brownish grey sandy silt 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 OD 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 OD, 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.* 3.9m OD at its deepest point), more than 1m 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 OD 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 OD 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 OD at its deepest point), more than 0.81m wide and 2m 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 OD 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 OD at its deepest point), more than 0.98m wide and 7.5m 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 OD 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.* 4m OD 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 OD at its deepest point), more than 0.83m wide and 1.1m 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 OD 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 OD at its deepest point), greater than 1.37m wide and 2.1m 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 0.1m thick (*c.* 3.48m OD 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 0.1m thick (*c.* 3.92m OD 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 OD at base), more *c.* 1m wide and 1.5m 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 OD 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 OD at its deepest point), 1.15m wide and 4.3m 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 OD 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 OD 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 silt with occasional patches of burnt silt and small charcoal flecks. It was 0.33m thick (*c.* 3.96m OD 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 OD 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 0.2m 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 0.2m wide and 1.41m long. This was overlain by a compact, 0.9m 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 OD at base), 0.92m wide and 1.1m long. The earliest of its two fills (045) was a firm, 0.15m thick, more than 0.5m wide and more than 0.9m long, yellowish-brown, fine sandy silt with occasional small, rounded lumps of baked clay. This was covered by a 0.25m thick, more than 0.5m 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 OD at base), 1.00m wide and more than 1m long. The earliest of its two fills was a firm, 0.39m thick, 0.45m wide and more than 1m 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, 0.7m wide and more than 1m 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 0.5m deep (*c.* 3.77m OD at base), 0.98m wide and more than 2.7m long. There were three deposits found here, of which the earliest (052) was a firm, 0.3m thick, 0.95m wide and more than 2.7m 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, 0.9m wide and 1.4m 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, 0.9m wide and more than 2.2m 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 OD 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 OD at its deepest point, which was 0.55m deep from ground surface. It was 1.47m wide and more than 1.2m long and contained three fills. The earliest of these was a firm, 0.23m thick, 1.16m wide and more then 1.2m 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 1.2m 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 1.2m 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 OD at the deepest point), 1.04m wide and more than 1m 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.* 9.2m long, *c.* 1.8m wide and *c.* 0.55m deep (*c.* 2.93m OD 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 OD at its base), more than 1.5m 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 OD 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.* 3m OD at its deepest point), more than 2m wide and more than 1.8m 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 OD) 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 OD 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 OD 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 OD 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 OD 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 OD 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 2.5m 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.* 3.9m OD at its deepest point), 1.56m wide and more than 1m 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 OD at its deepest point), 0.5m 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 OD at its deepest point), 0.75m wide and more than 1m 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 OD in the slot. There was a series of waste silt layers of the mound recorded here, of which the earliest was a compact, 0.4m thick (*c.* 2.95m OD at its deepest point), more than 1.2m wide and more than 2m long, yellowish-brown sandy silt (015) with occasional burnt clay fragments. It was covered by a compact, 0.48m thick (*c.* 3.3m OD at its deepest point), more than 1.62m wide and more than 2m 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 OD at its deepest point), more than 2m wide and more than 2m 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 OD at its deepest point), 0.5m 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 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 linear had four fills at the slot of which the earliest was a compact, 0.06m thick (*c.* 3.39m OD), 1.68m wide and more than 1m long, dark greyish-brown sandy silt (152). This was overlain by a compact, 0.26m thick (*c.* 3.45m OD at its base), 1.59m wide and more than 1m long, mid-greyish-yellowish-brown sandy silt (151). It was covered by a compact, 0.48m thick (*c.* 3.45m OD 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 OD at its base), 3.1m wide and more than 1m 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.

The location of the site was ideal for salt production as it is in close proximity of the former Late Saxon and medieval coastline at the confluence of the Glen and Welland estuaries.

The archaeological features were identified to be in association with a slight mound, identified by lidar, in the form of waste pits and possible freshwater ditches. All the features were found in 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 waste material from domestic activities were found at the edges of the mound.

The stratigraphy of the mound indicates periodical utilisation of the area. The earliest layers are associated with possible salt-making activities. These were layers of silt-waste possible 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 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 nearby domestic and agricultural activity, perhaps associated with a farmstead. 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 perhaps 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 on 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 century 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. Alternatively, these could represent the infilling of a former salt-lagoon located within tidal flats. 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 potential salt-lagoon on a tidal flat perhaps associated with medieval salt-making industry in the area of Surfleet.
- Exploring the relationship of a potential saltern with local farming.

However, some of the inconclusive results indicate that further definition of the Lincolnshire coastline during the Saxon and earlier medieval period may need to be undertaken in order to predict the survival of archaeological salt-making sites.

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 from possible salt-making and for domestic waste disposal. The mound suggests possible infilling of a salt-lagoon from largely domestic farmstead type activities, although was likely to have been located in tidal flats associated with the estuaries of the Welland and Glen rivers.

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

8. ACKNOWLEDGEMENTS

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access to the library and parish files maintained by Heritage Lincolnshire.

9. PERSONNEL

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CAD Illustration: Peter Tovizi
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11. ABBREVIATIONS

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

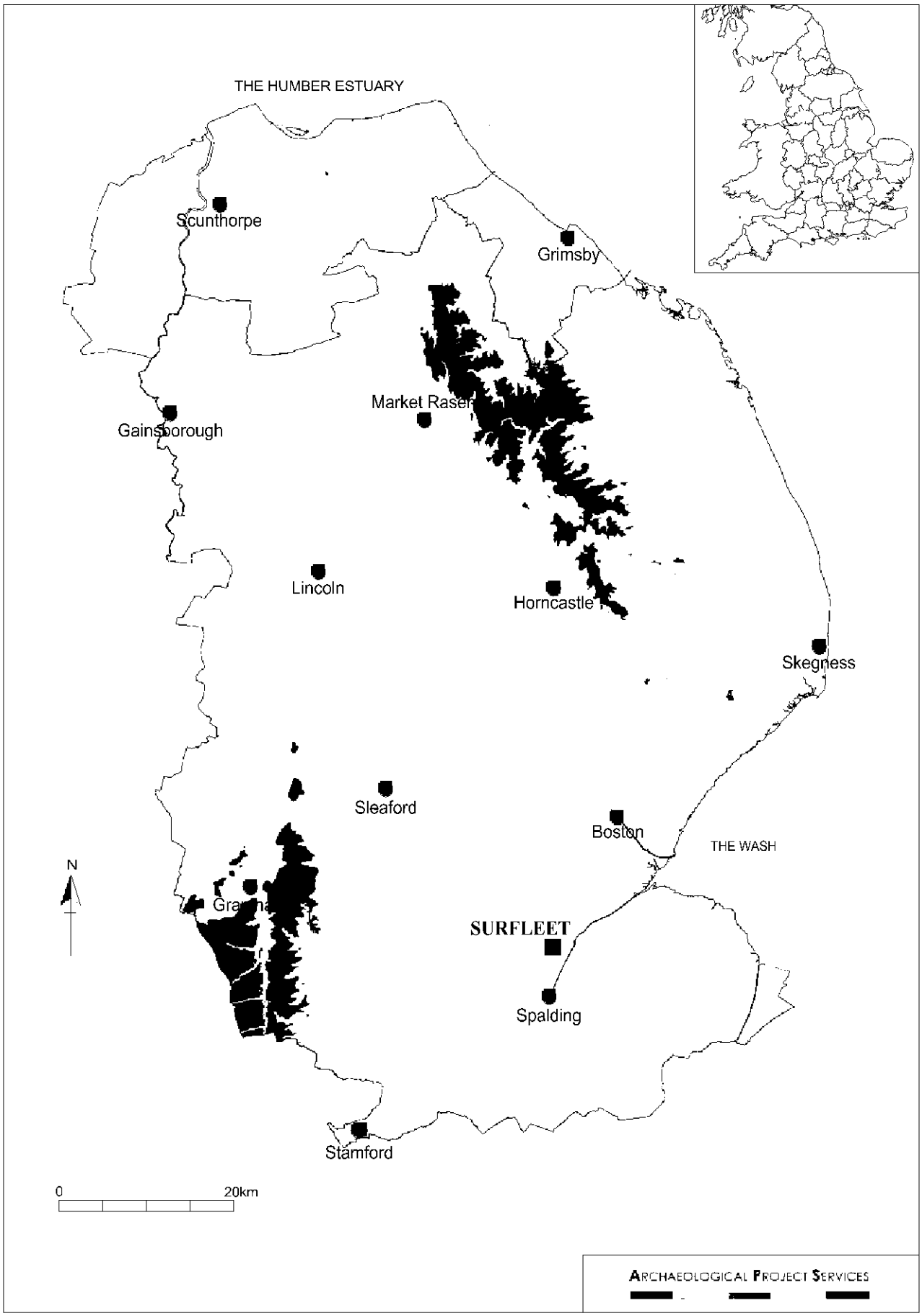


Figure 1 - General location plan

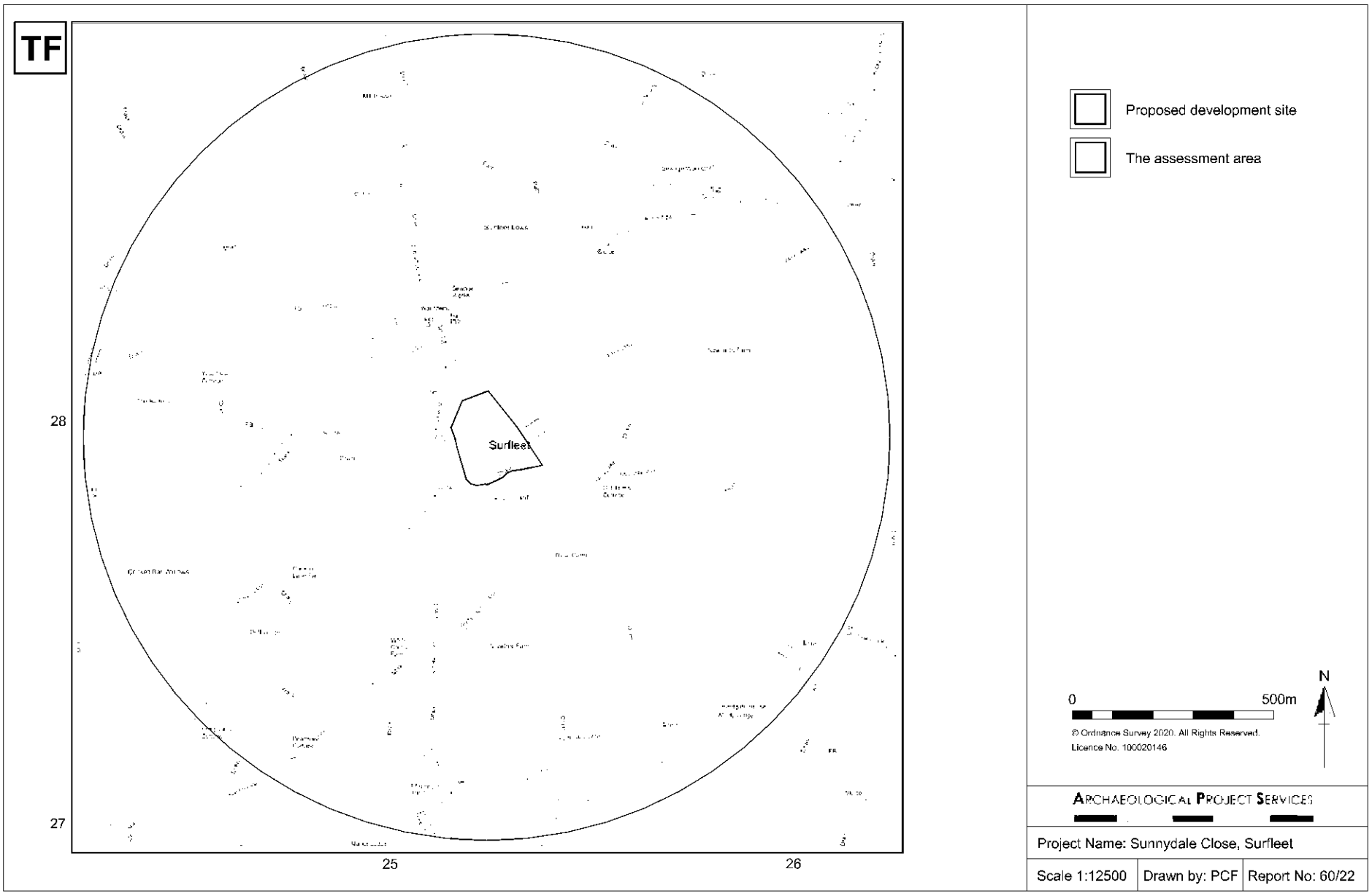


Figure 2 - The assessment area showing the proposed development site

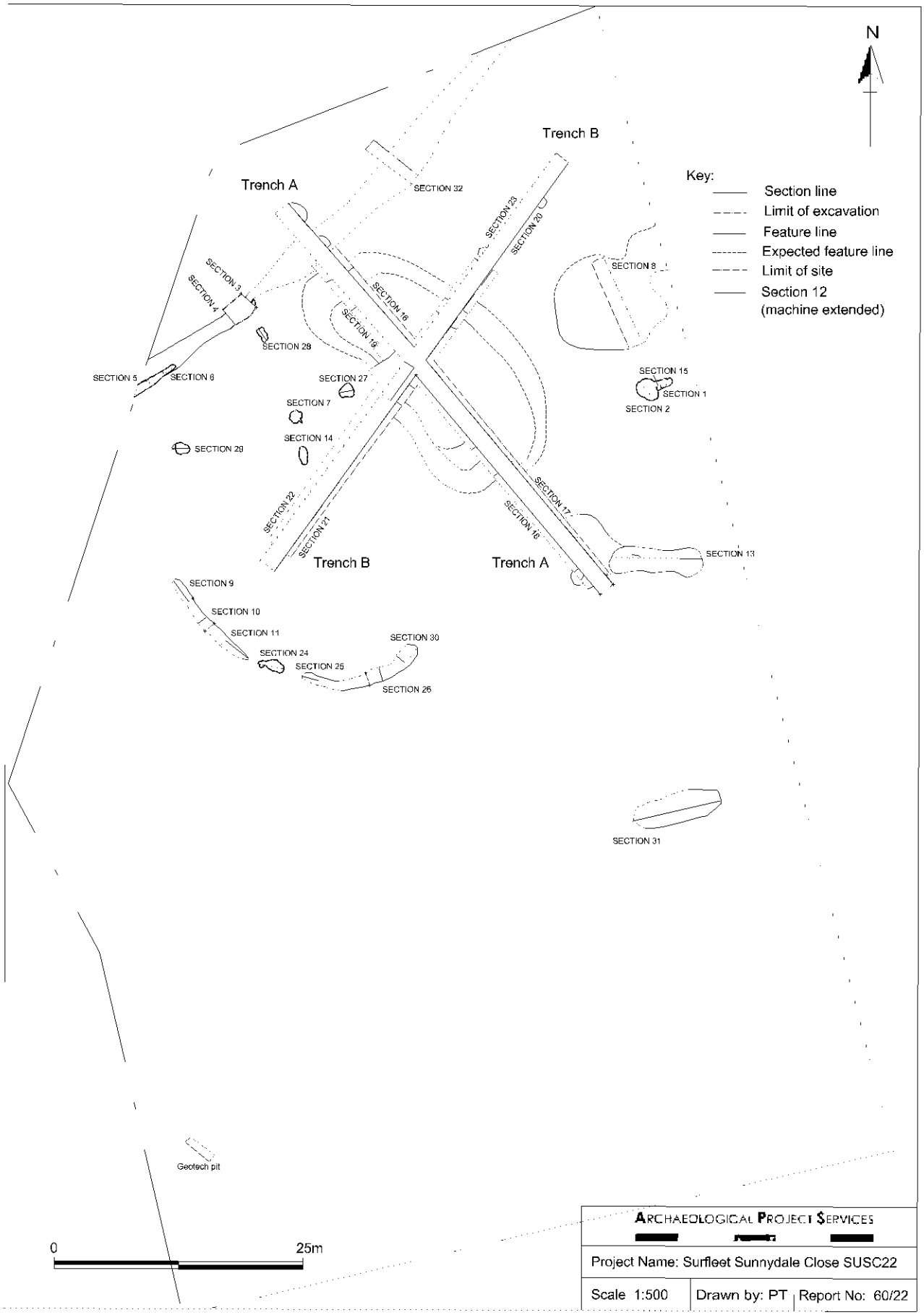


Figure 3 - Feature locations

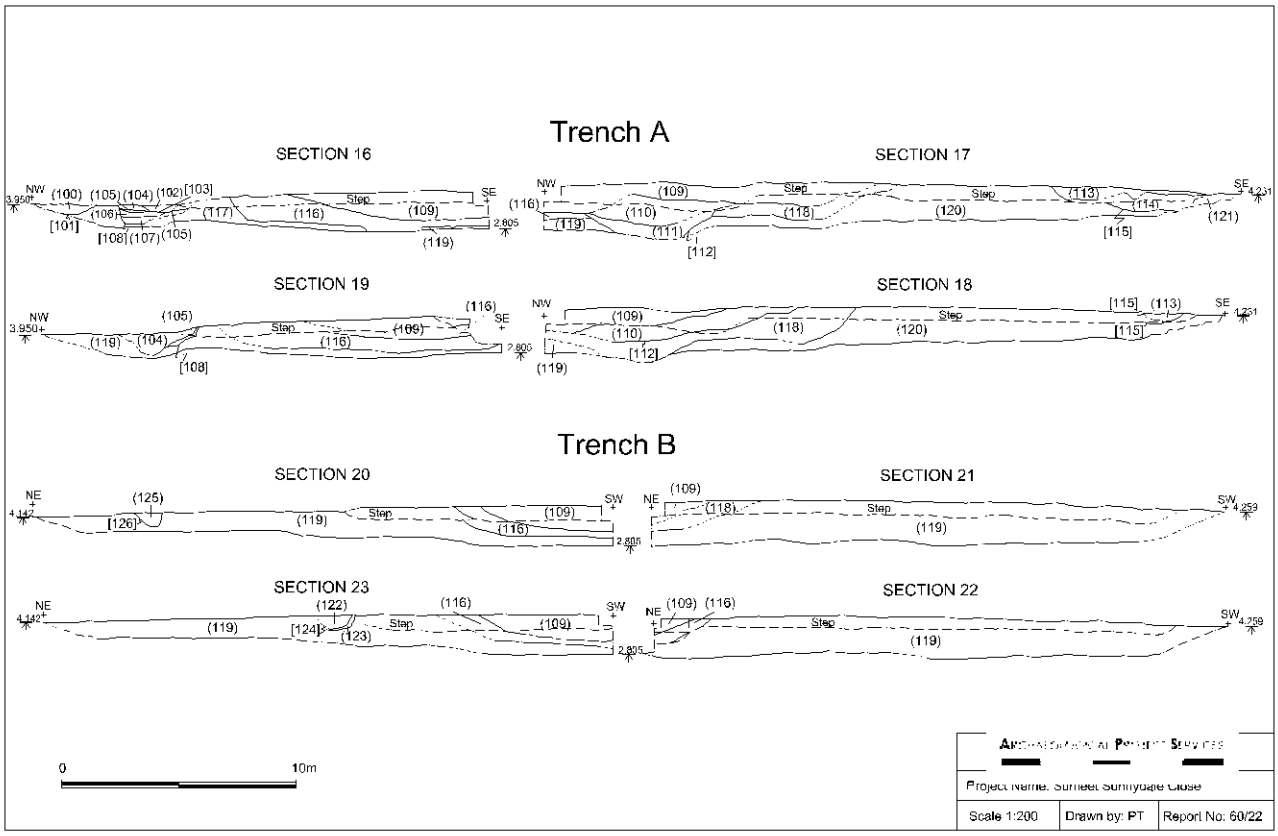


Figure 4 - Sections of Trench A & Trench B

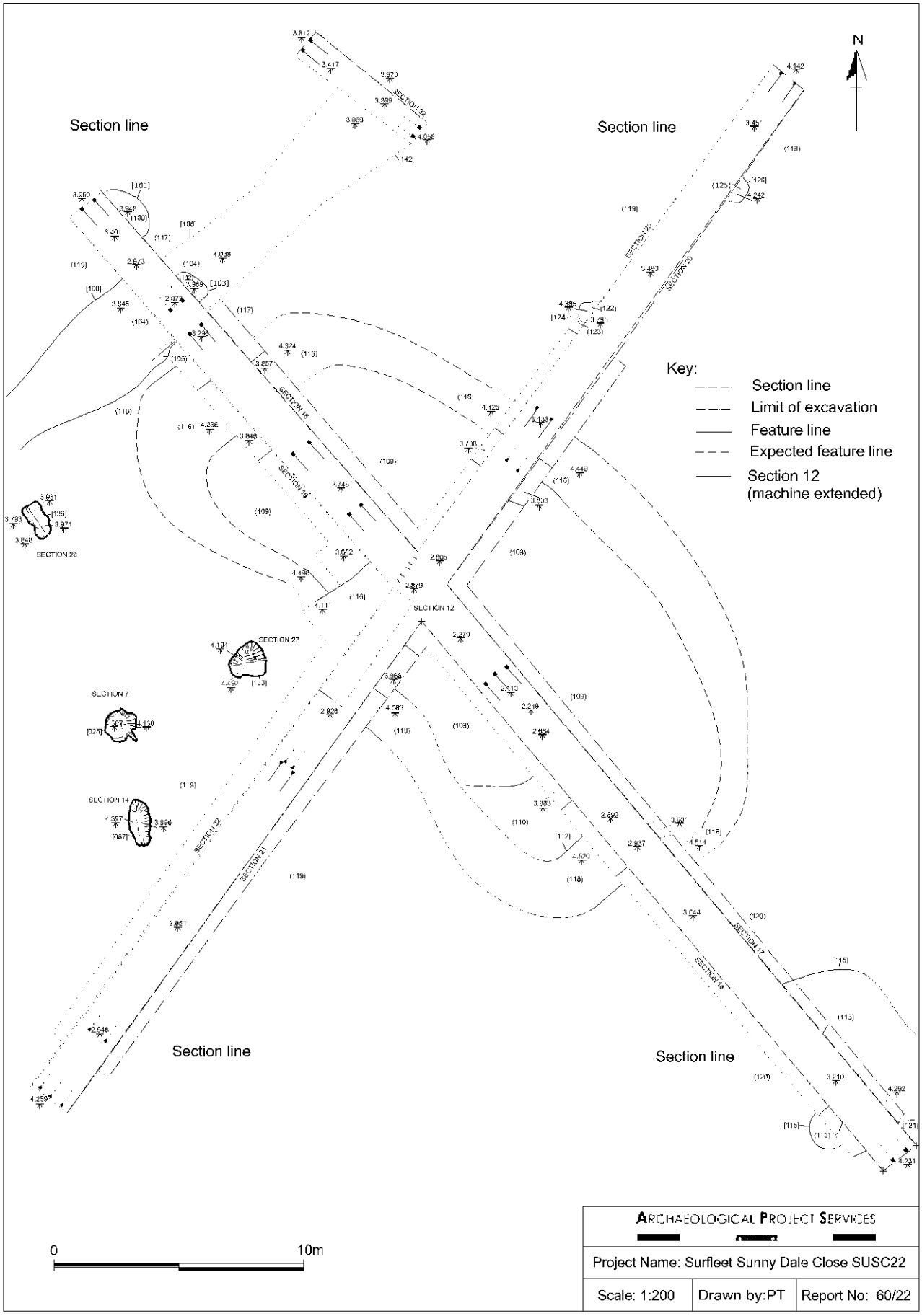


Figure 5 - Plan of Trench A & Trench B

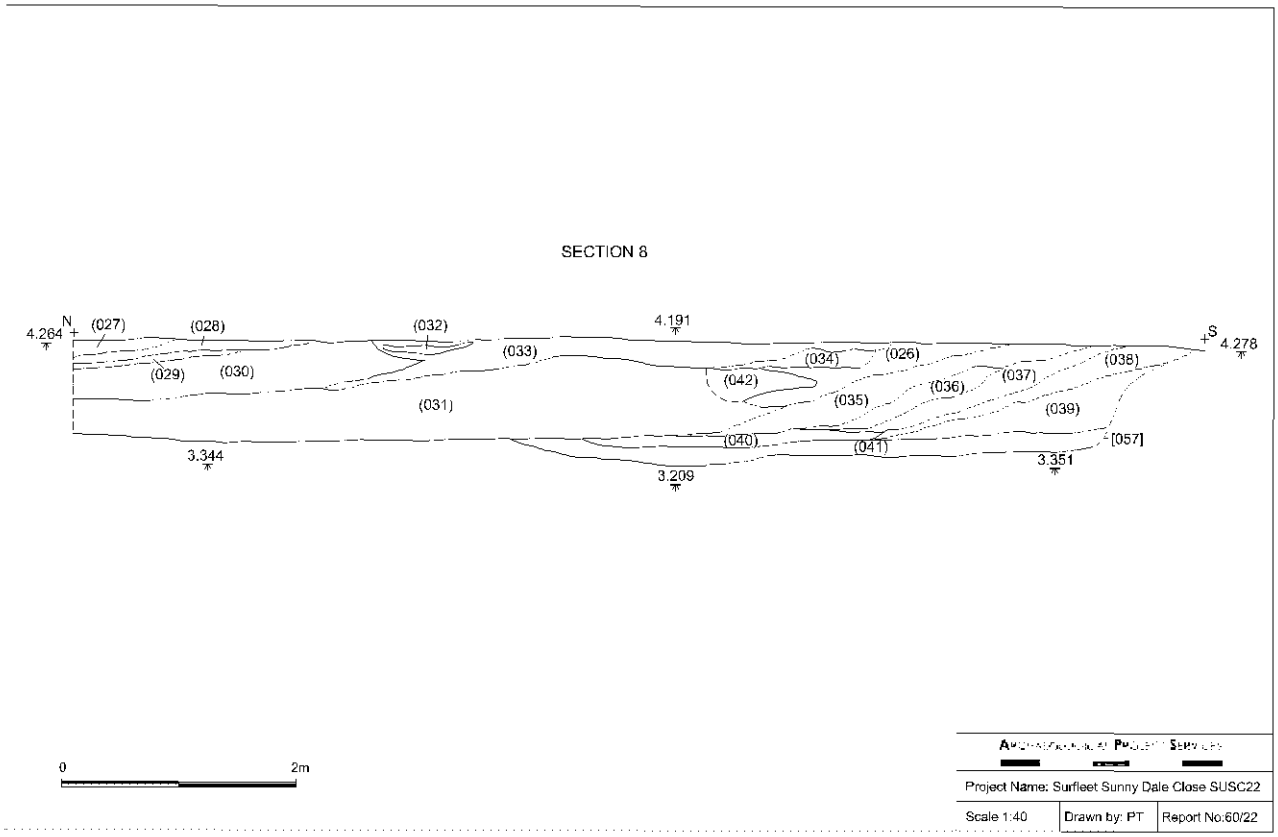


Figure 6 - W facing section of pit [057]

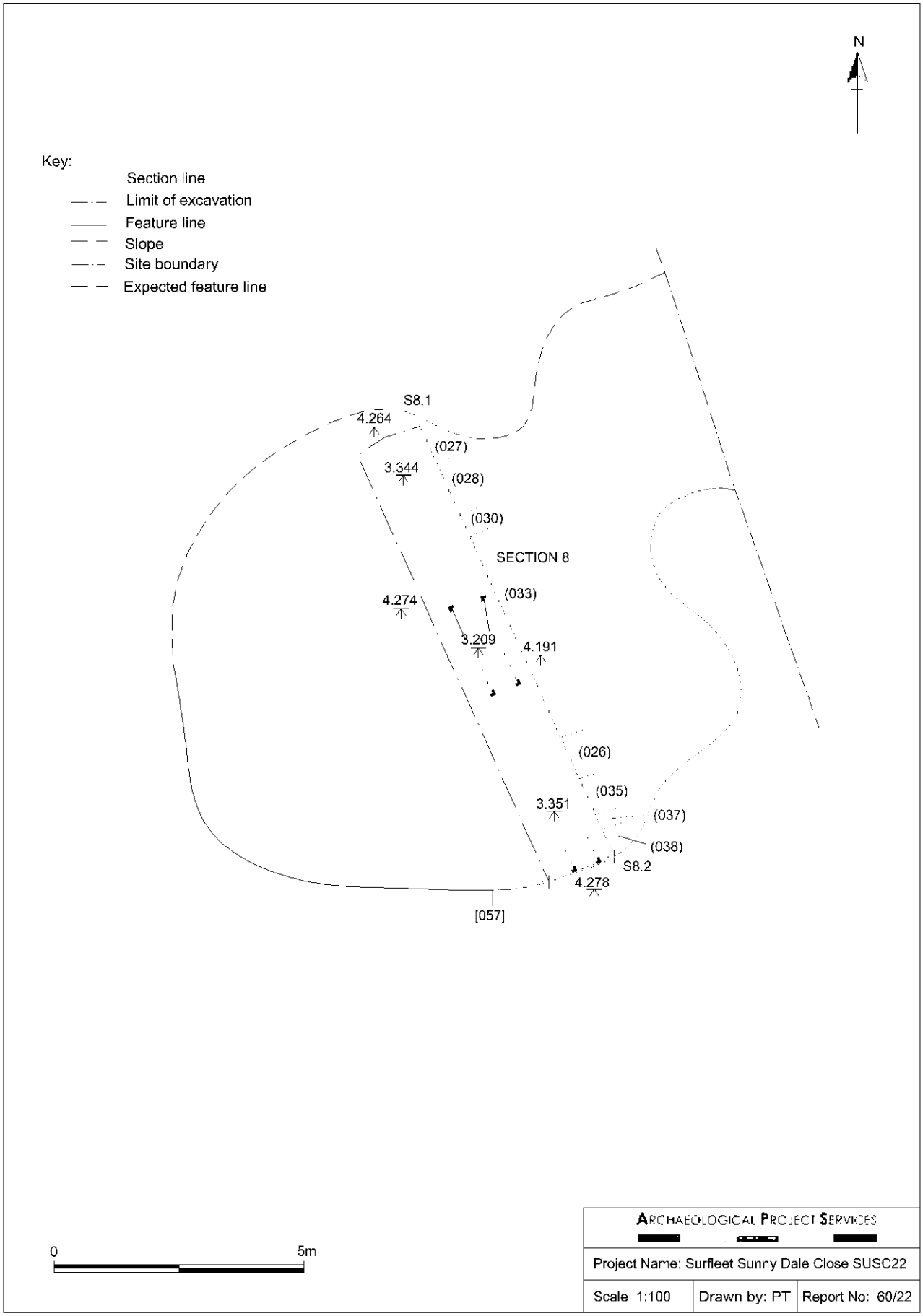


Figure 7: Plan of pit [057]

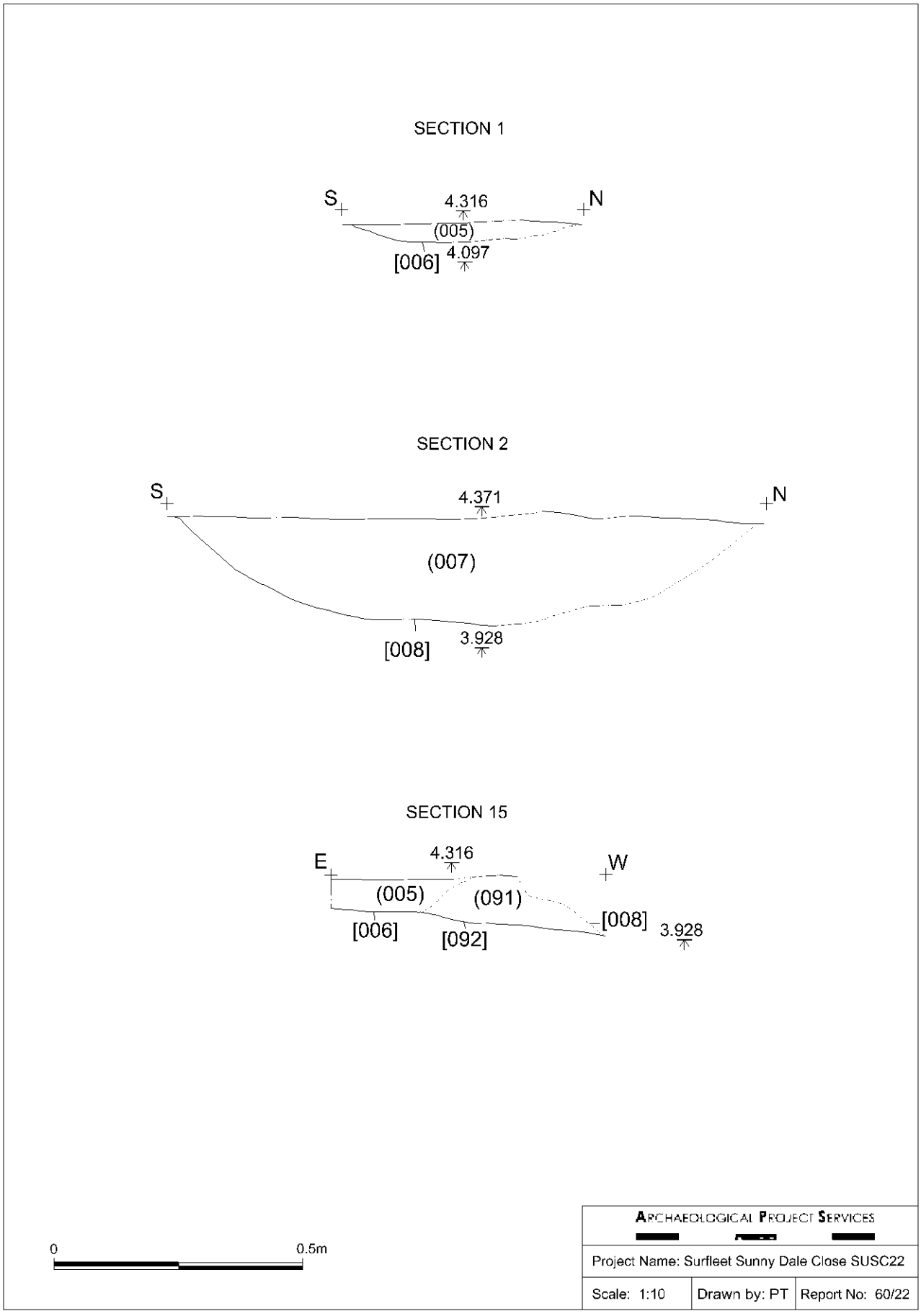


Figure 8 - Sections of pits [006], [008] and [092]

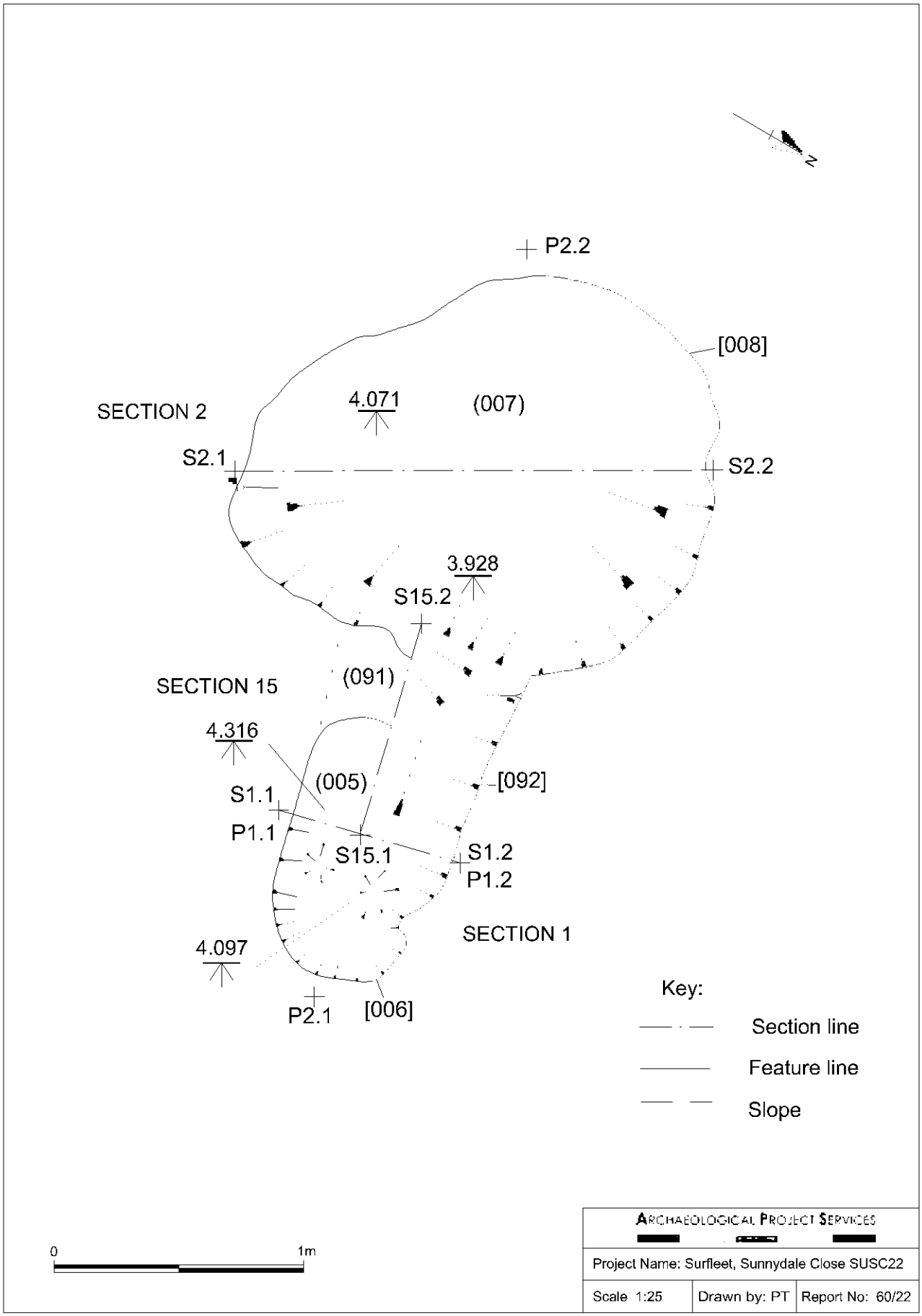


Figure 9. Plan of pits [006], [008] and [092]

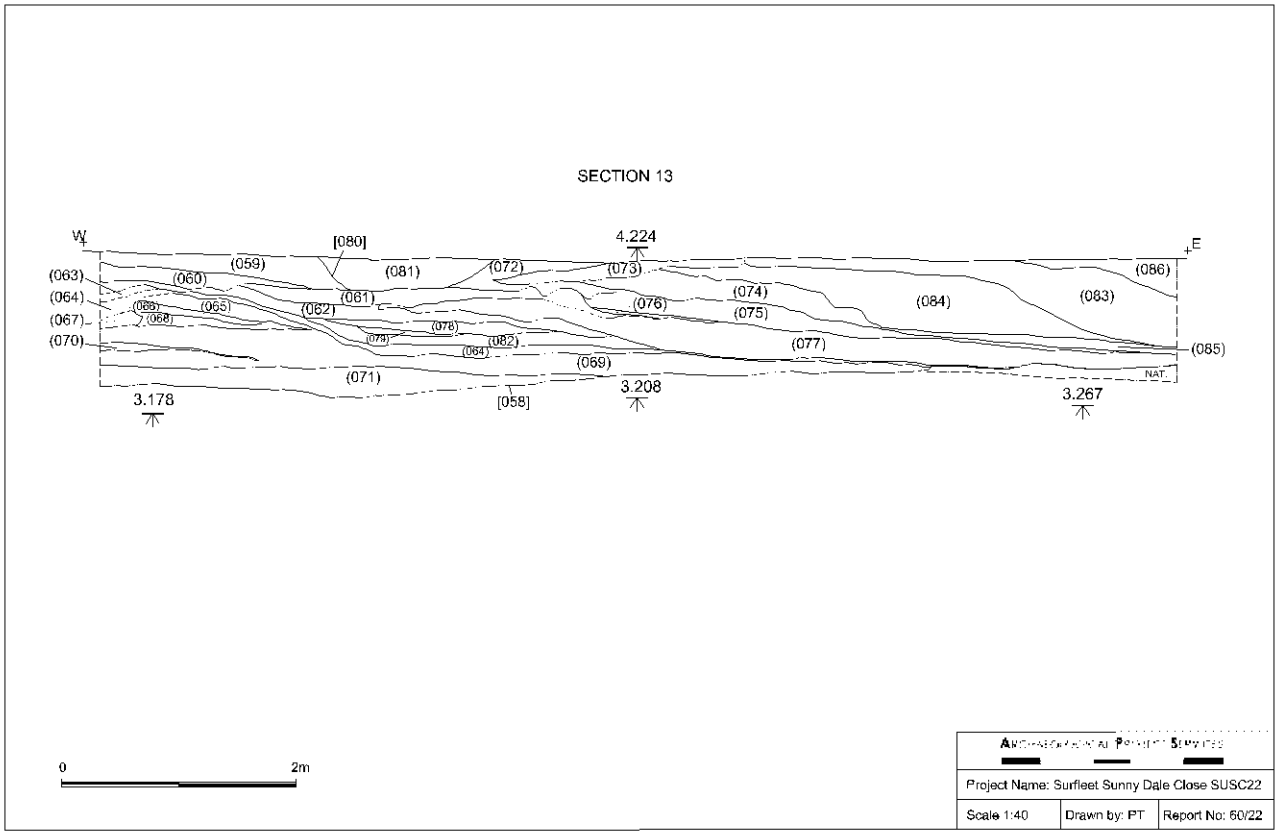


Figure 10 - S facing section of pits [058] and [080]

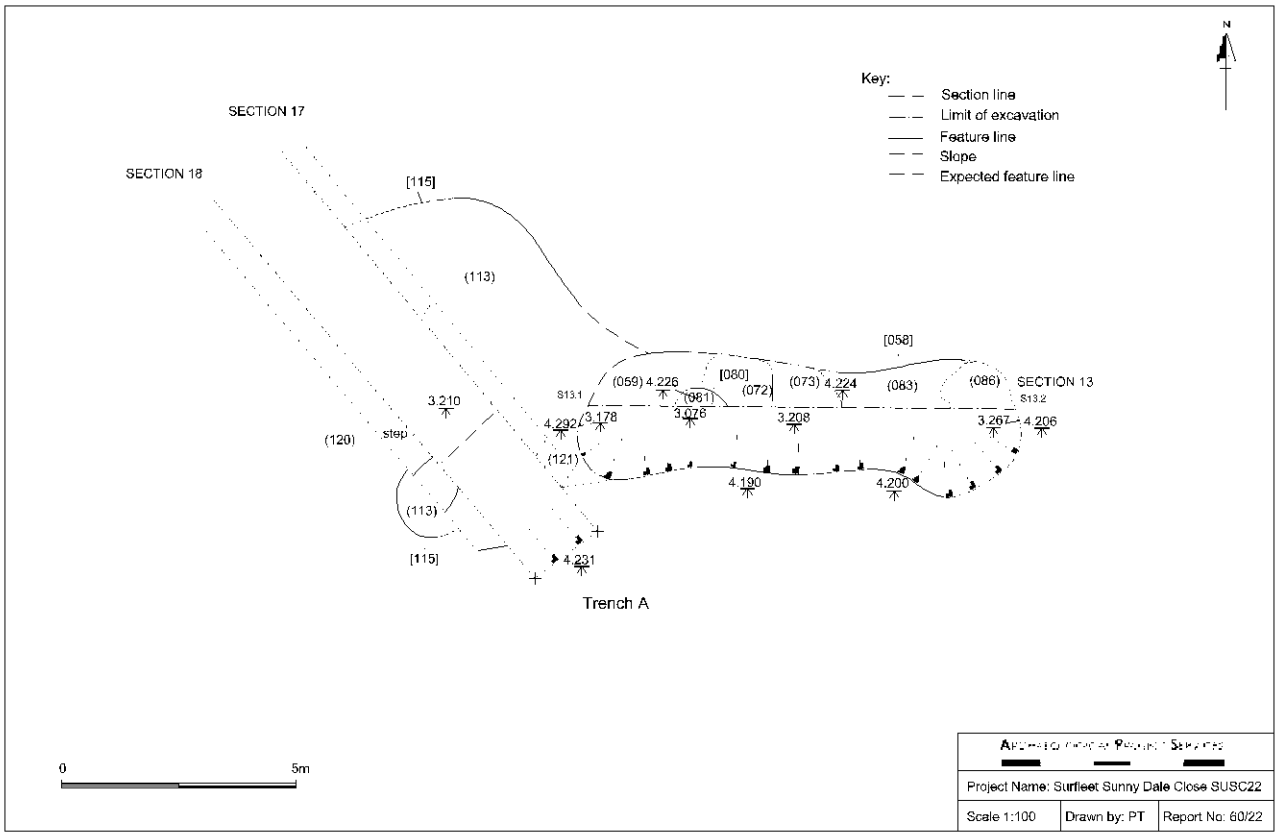


Figure 11 - Plan of pits [058] and [080]

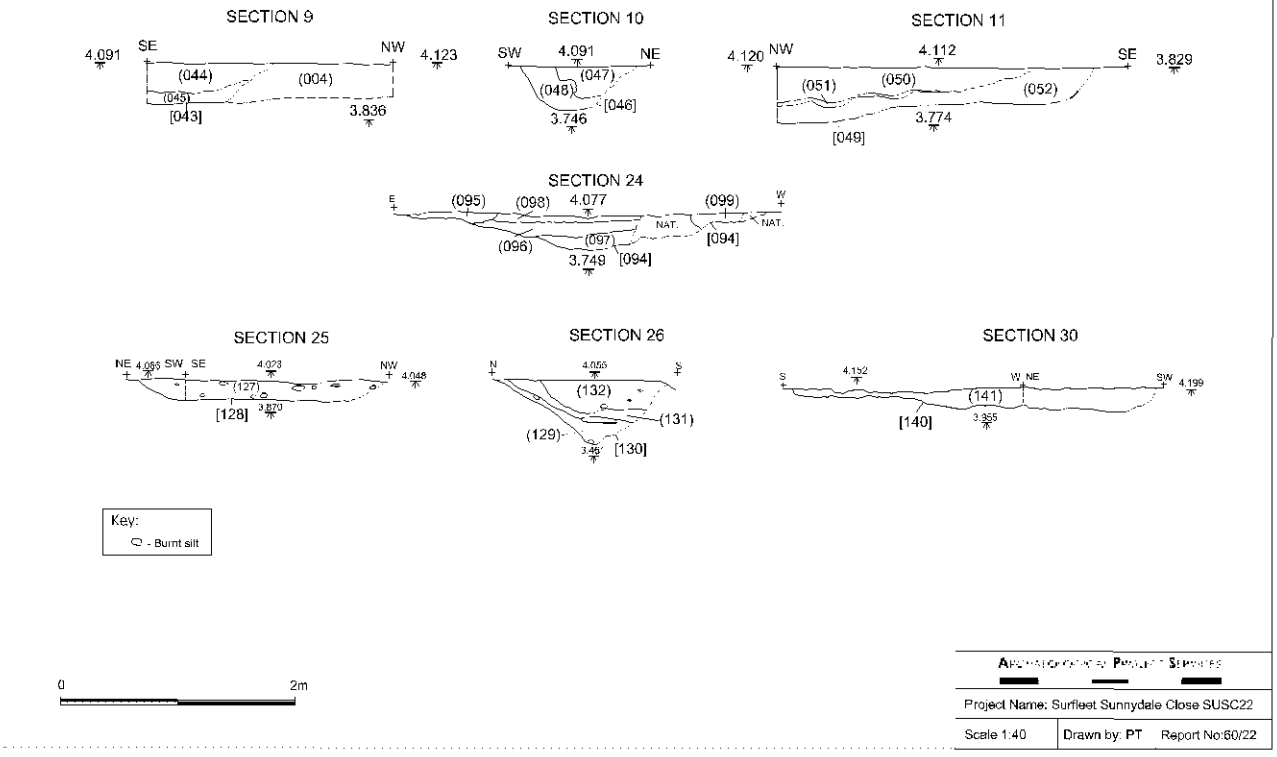


Figure 12 - Sections 9-10-11 of linear; 24 of pit and 25-26, 30 of linear

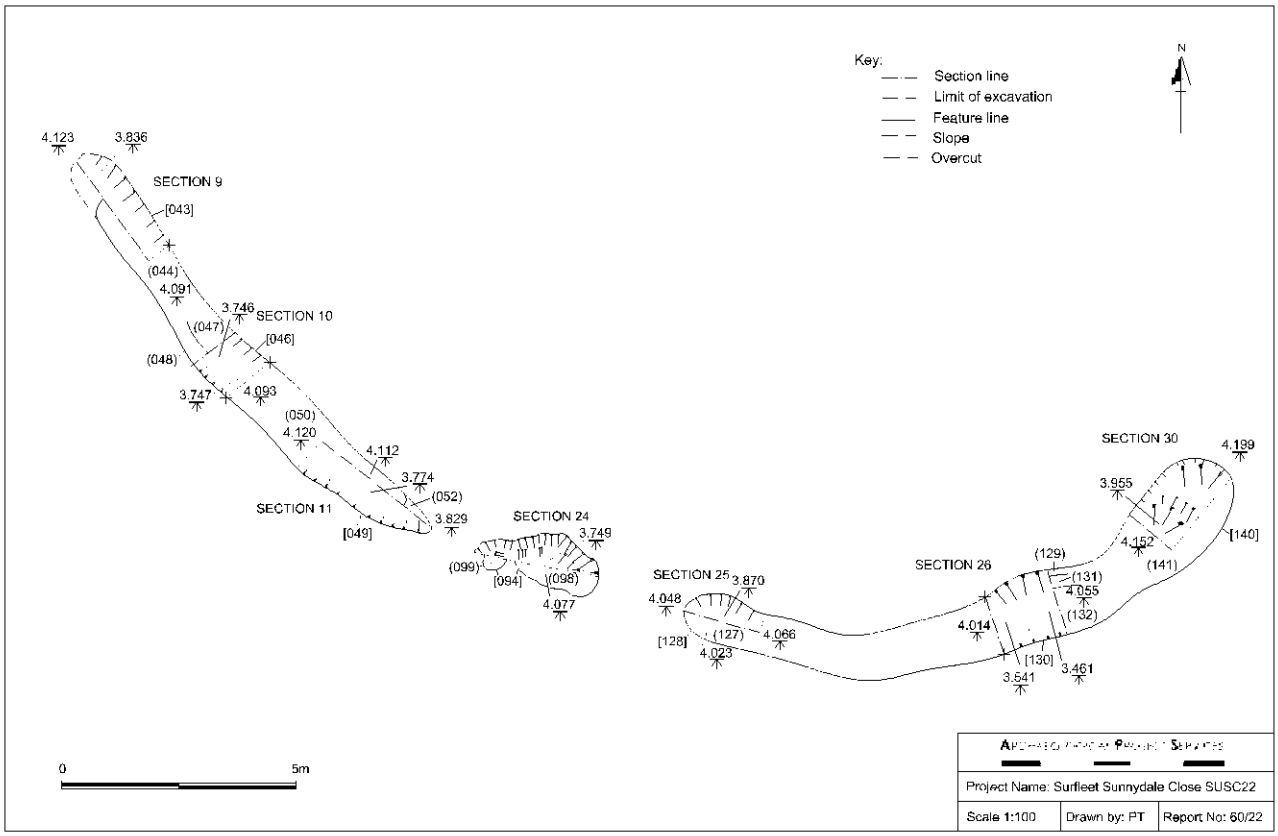


Figure 13 - Plan of lineas [043]-[046]-[049], [128]-[130]-[140] and pit [094]

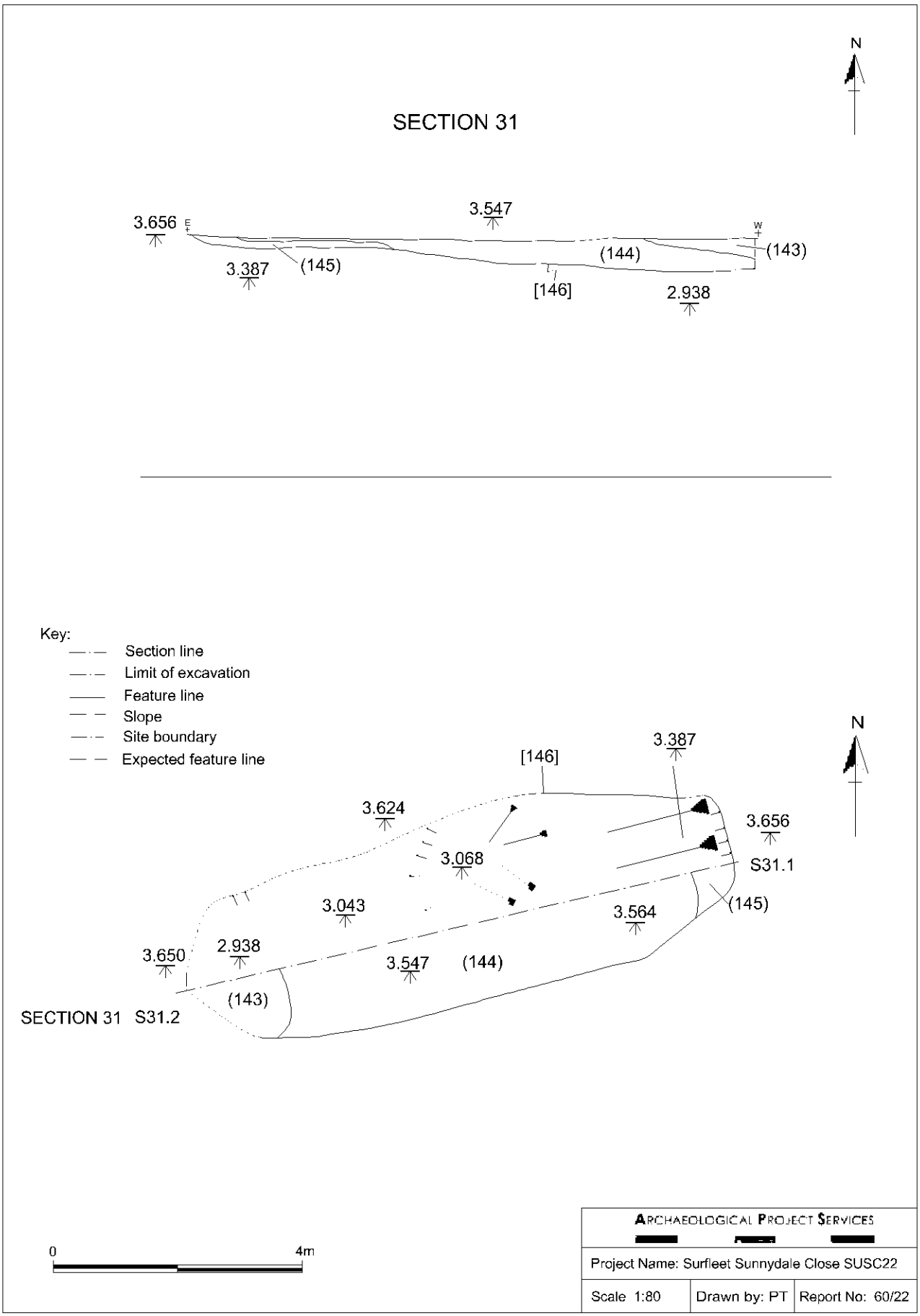


Figure 14- Section and plan of pit [146]

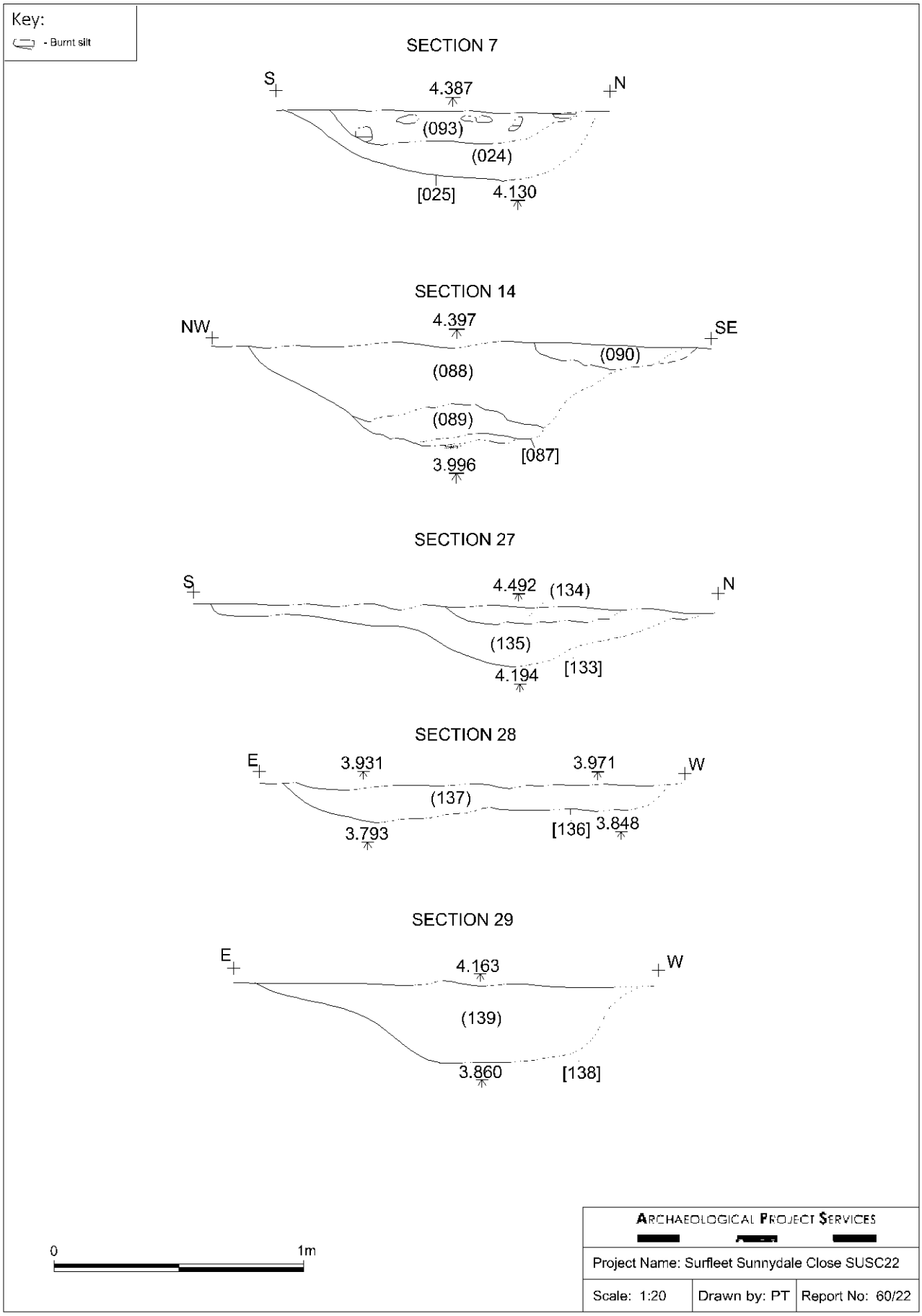


Figure 15 - Sections of pits [025], [087], [133], [136] and [138]

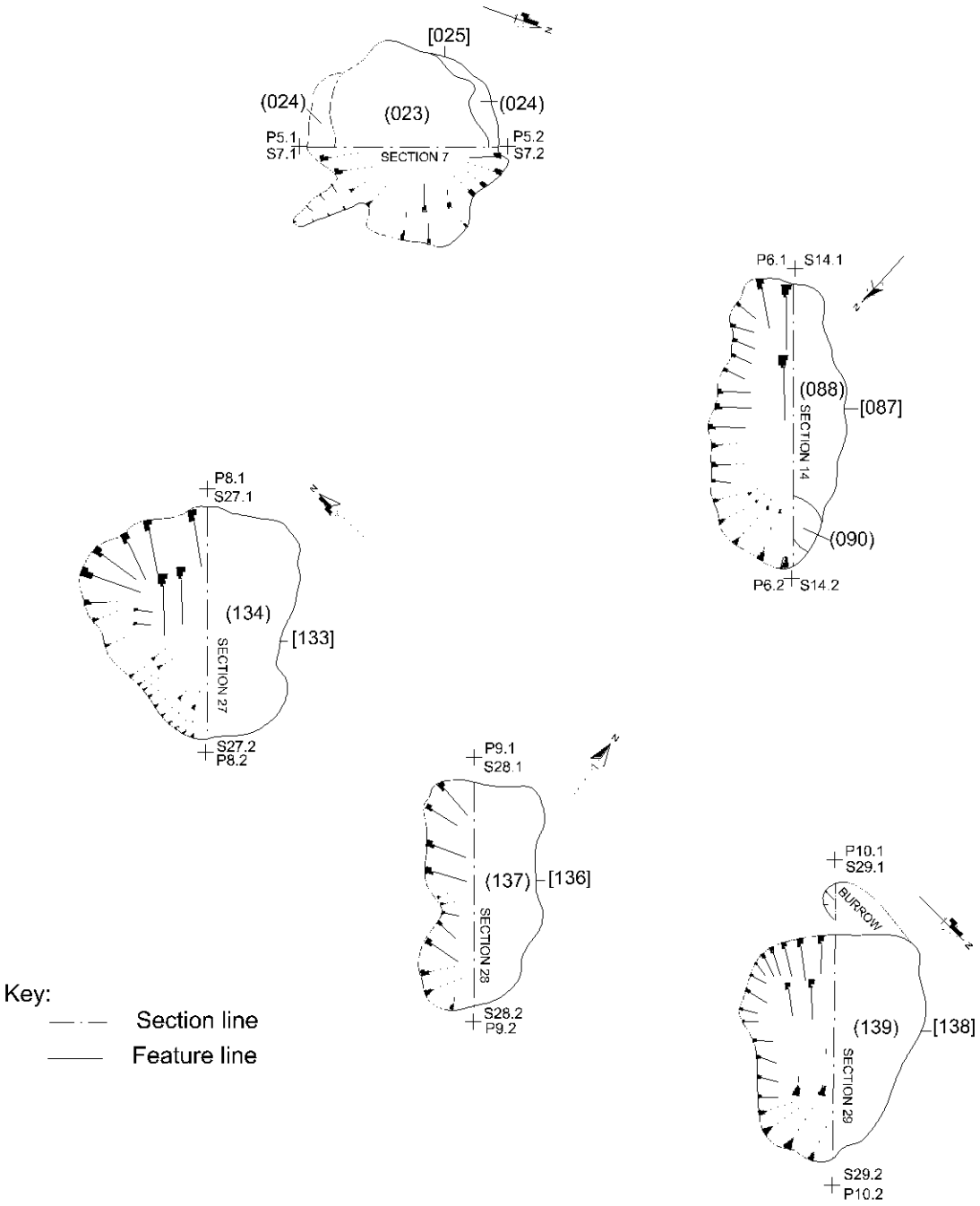


Figure 16 - Plans of pits [025], [087], [133], [136] and [138]

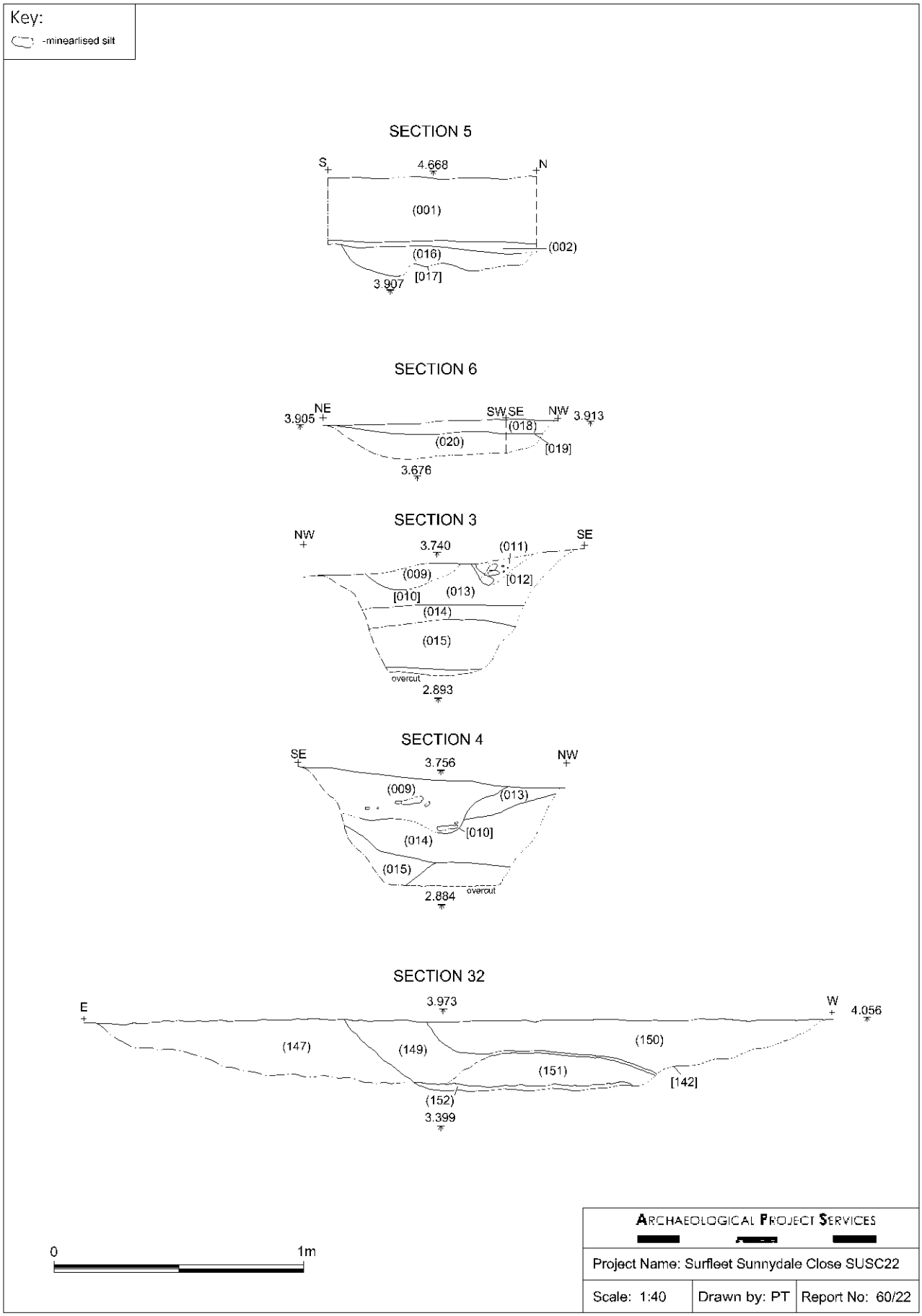


Figure 17 - Sections of gully at [017]-[019] and ditch at [010]-[142]

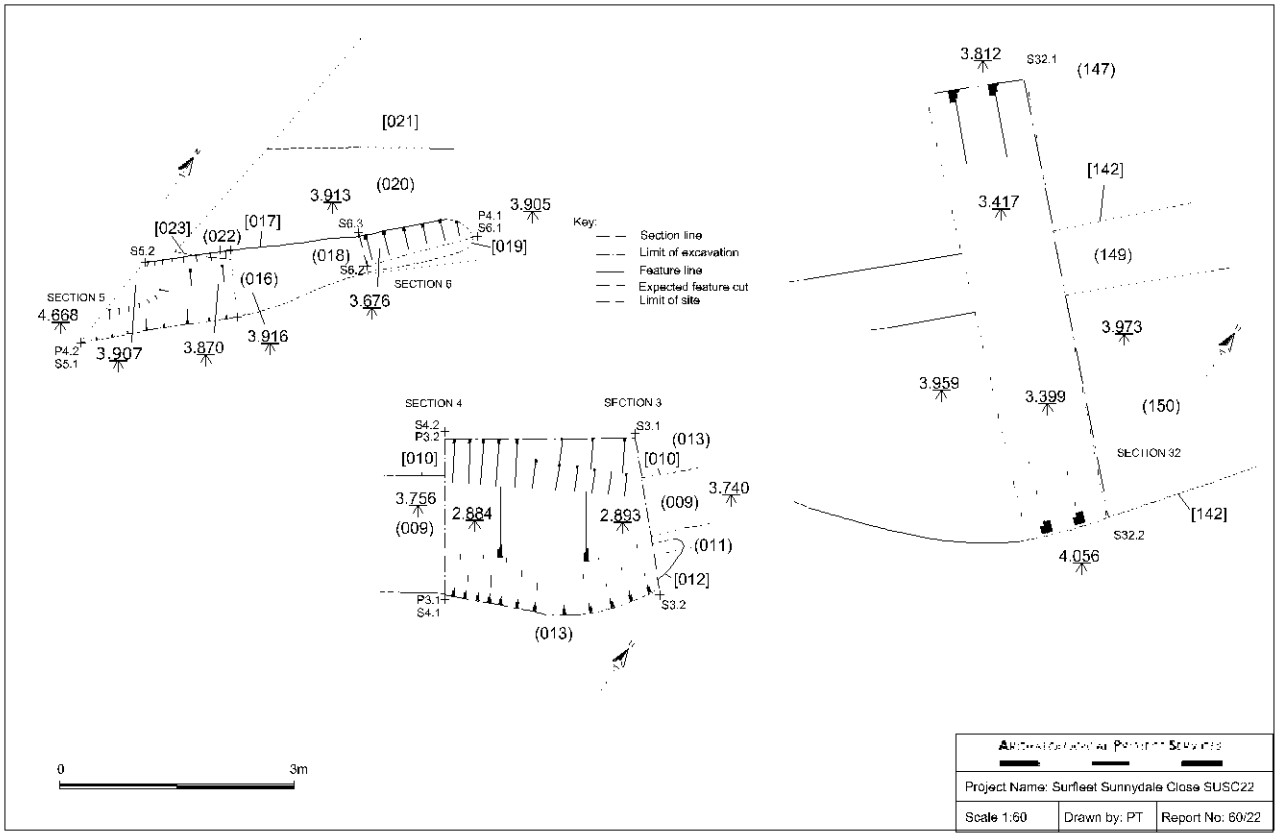


Figure 18 - Plans of gully [017]-[019] and ditch [010]-[021]-[023]-[142]

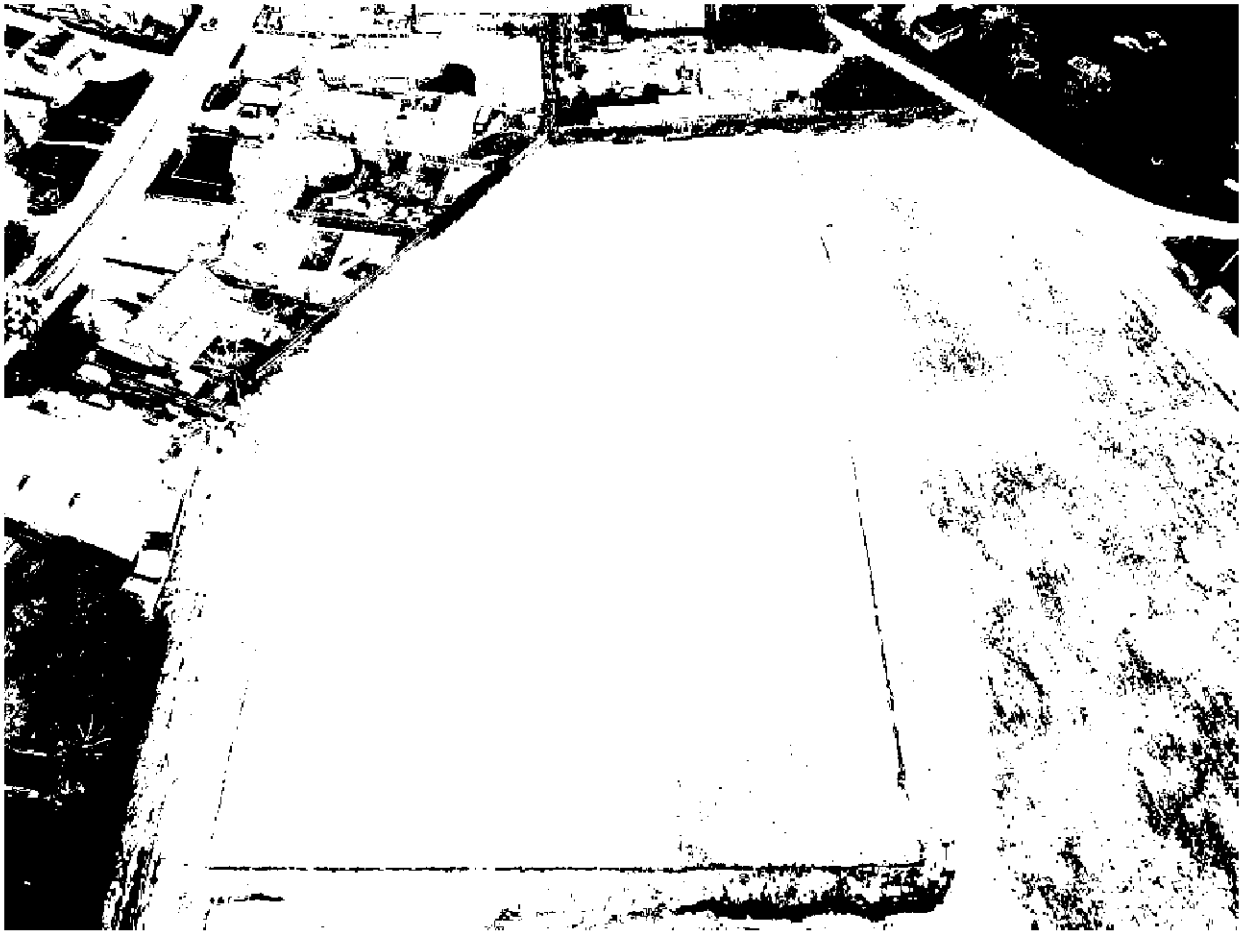


Plate 1: Pre-excavation aerial shot of the site



Plate 2: Trench A – looking SE and NW

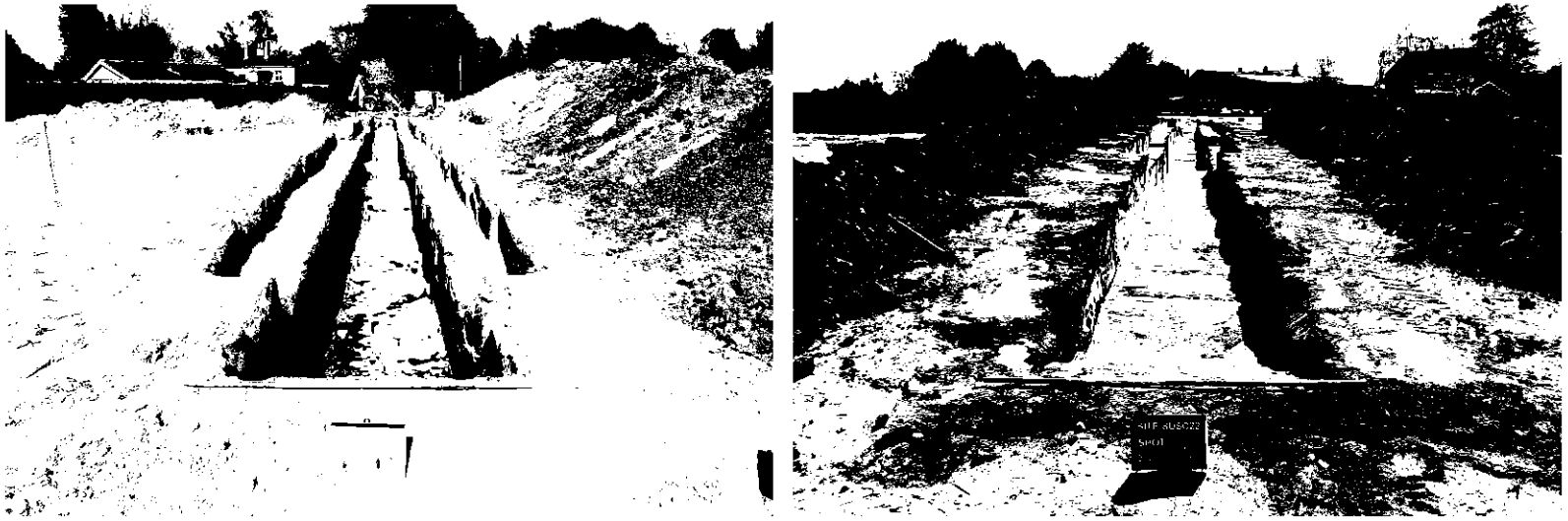


Plate 3: Trench B – looking NE and SW

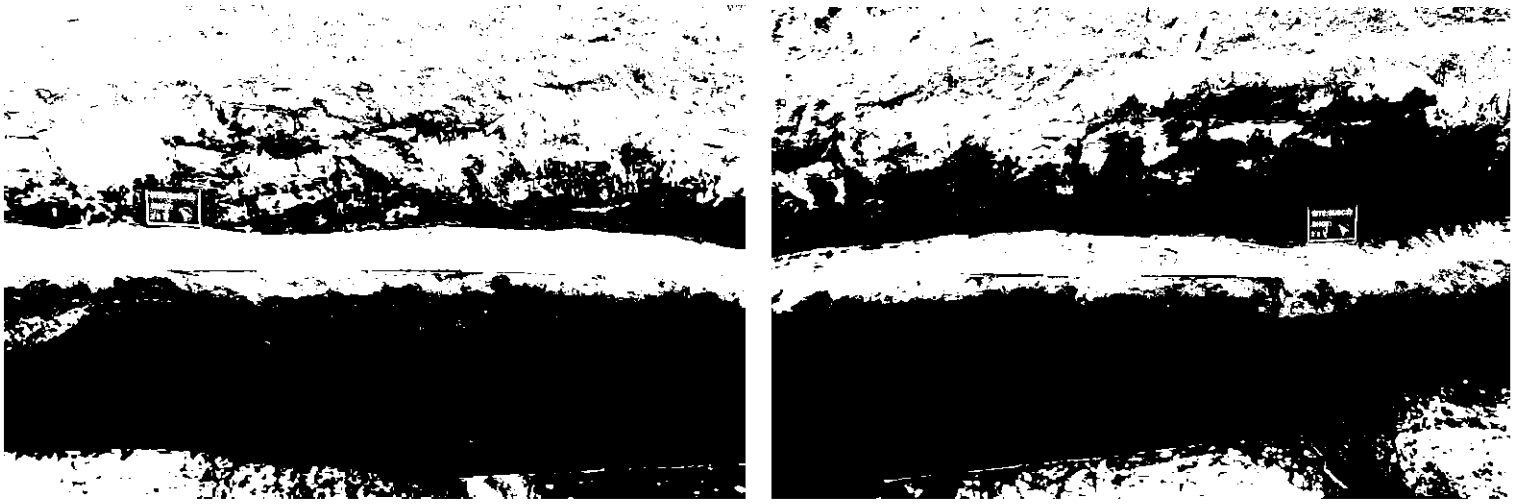


Plate 4: Cut of a well or waste pit [112] in Trench A – looking NE



Plate 5: Section of deposits (119), (116) and (109) in Trench B



Plate 6: E facing section of a possible pit feature [057]

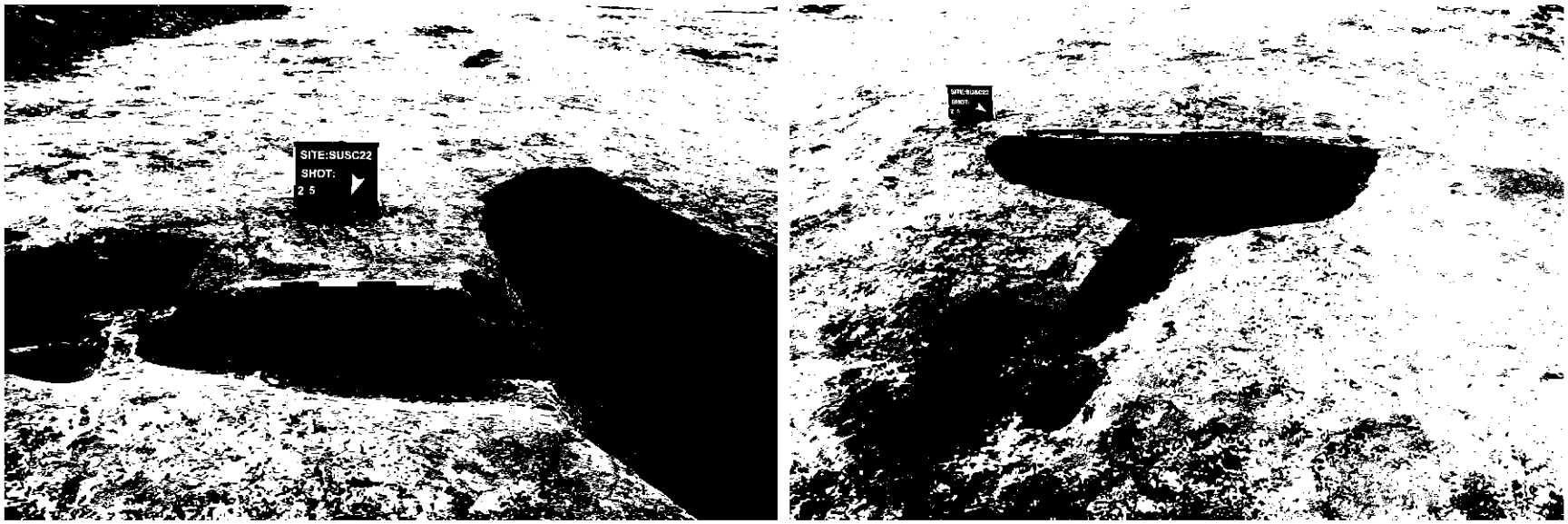


Plate 7: Relationship of pits [006], [008] and [092] from various views.



Plate 8: South facing section of pit features [058] and [080]

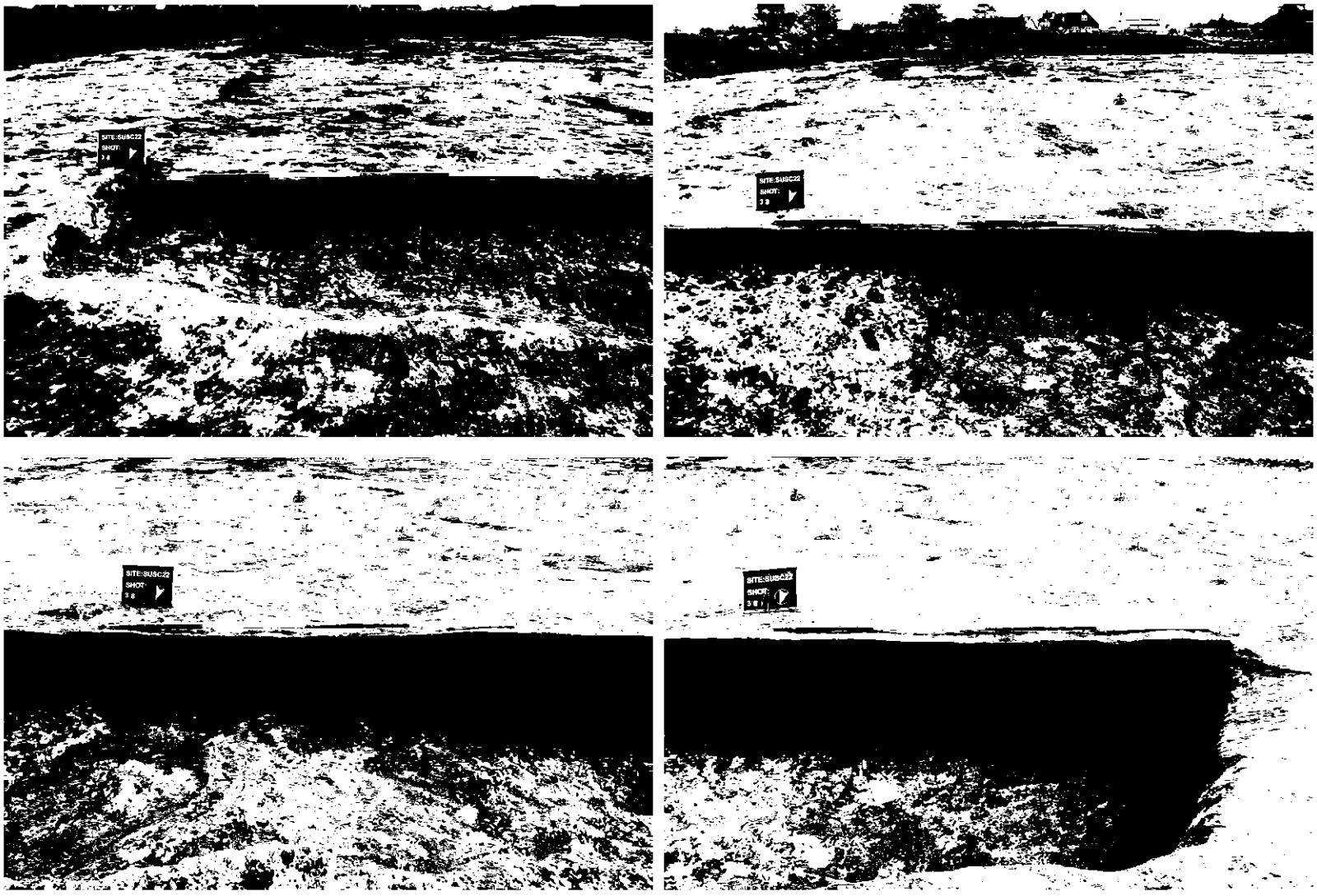


Plate 9: N facing section of pit feature [146]

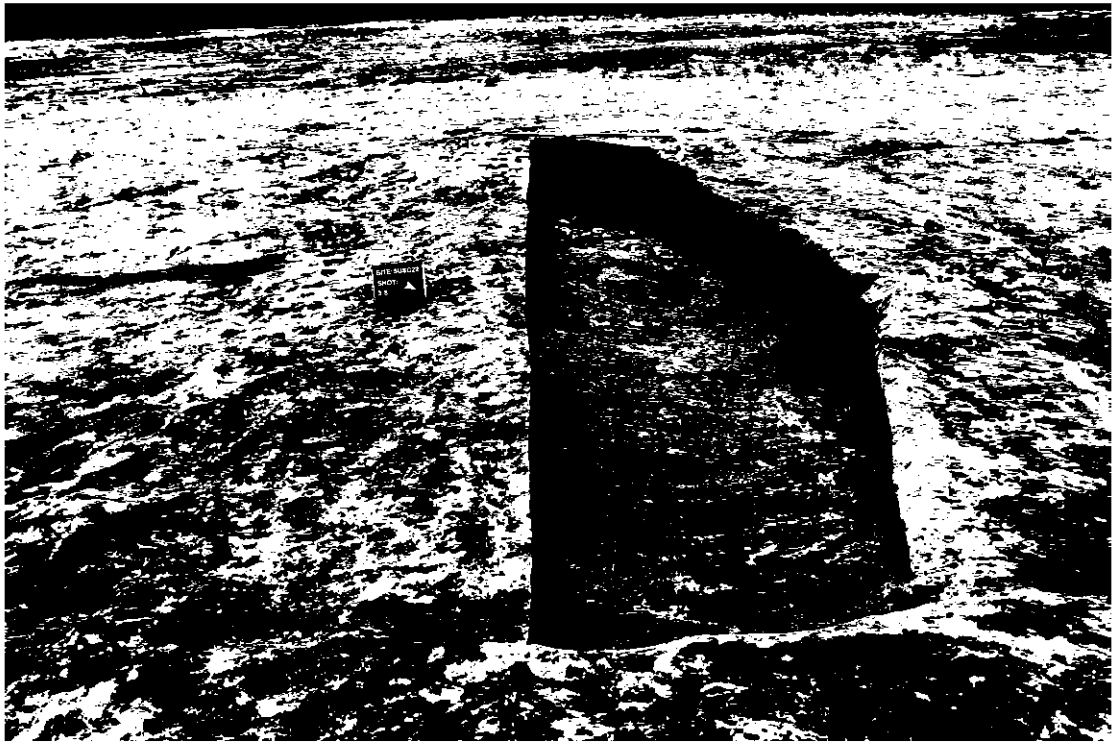


Plate 10: Plan shot of pit feature [146] – looking W



Plate 11: Sections of central linea at [049], [046] and [043] respectively at W wing



Plate 12: Plan of the western wing of the central linea at [049], [046] and [043] – looking W

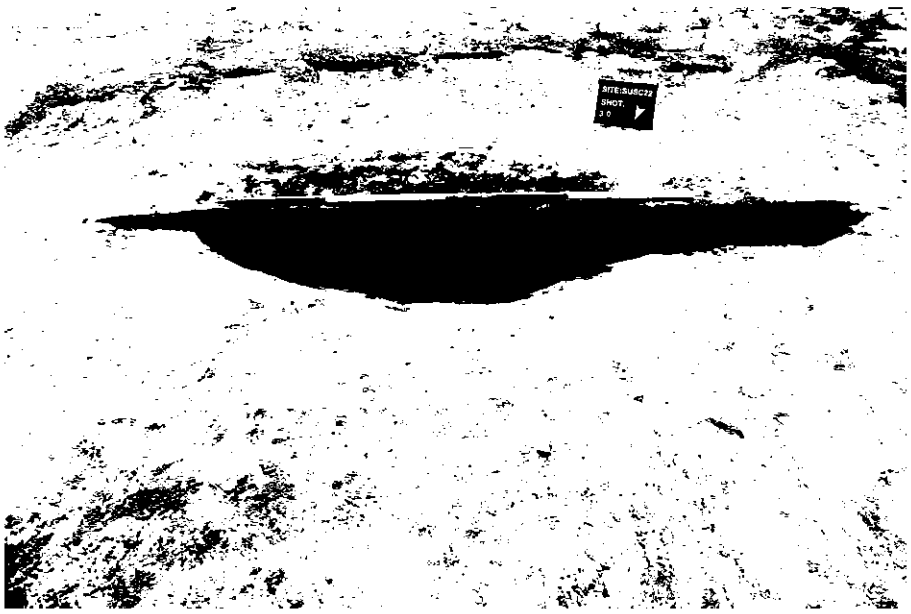


Plate 13: N facing section of pit [094] found between two lineas



Plate 14: Sections of central linea at [140], [130] and [128] respectively at E wing

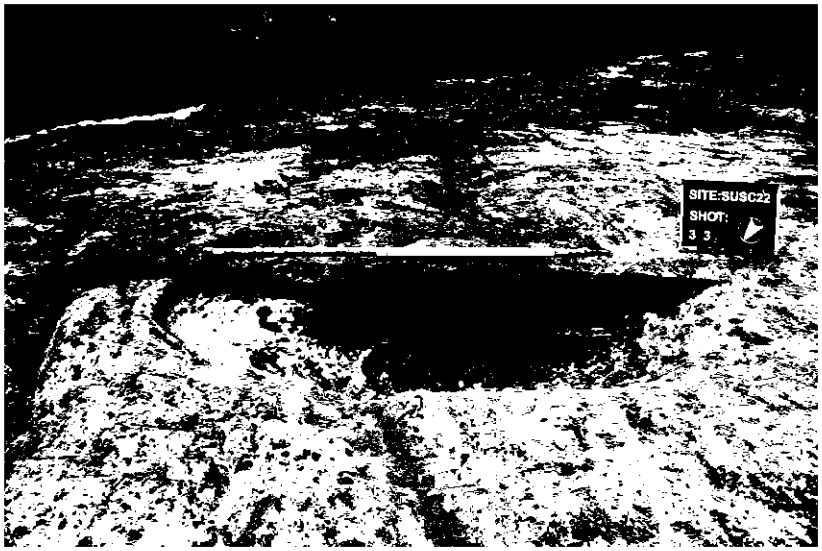


Plate 15: NNW facing section of pit [133]

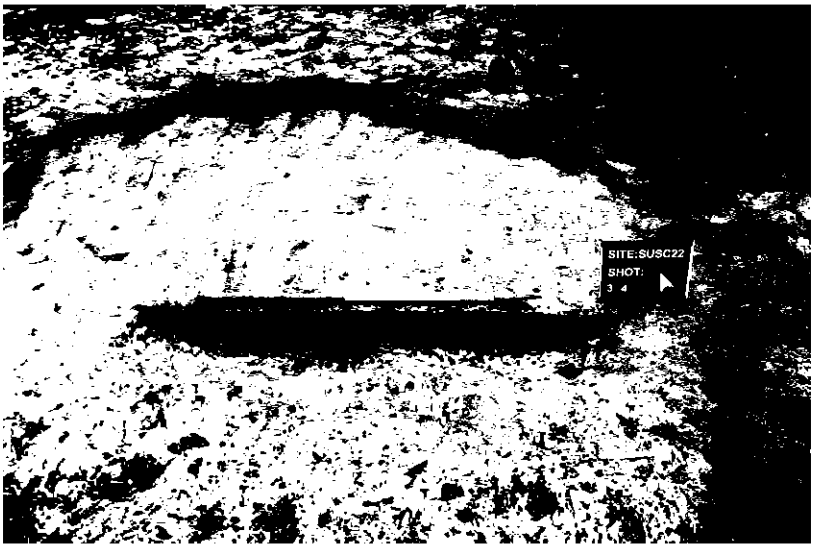


Plate 16: SW facing section of pit [136]

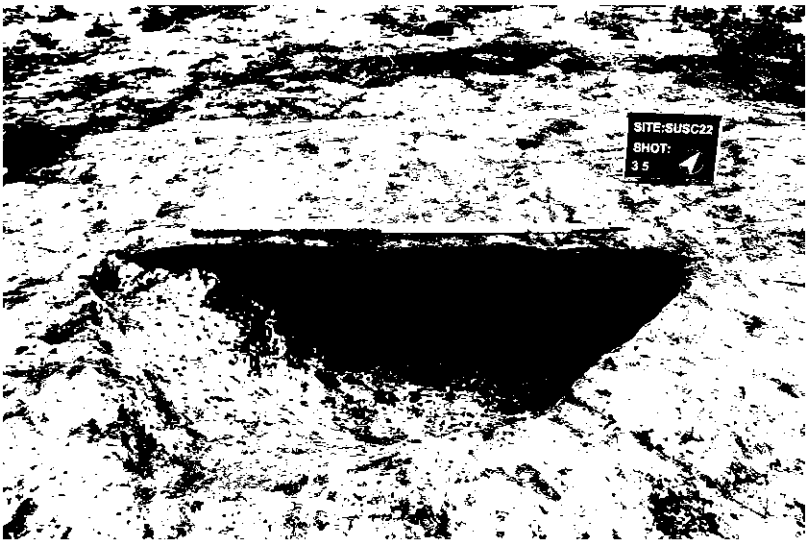


Plate 17: SE facing section of pit [138]

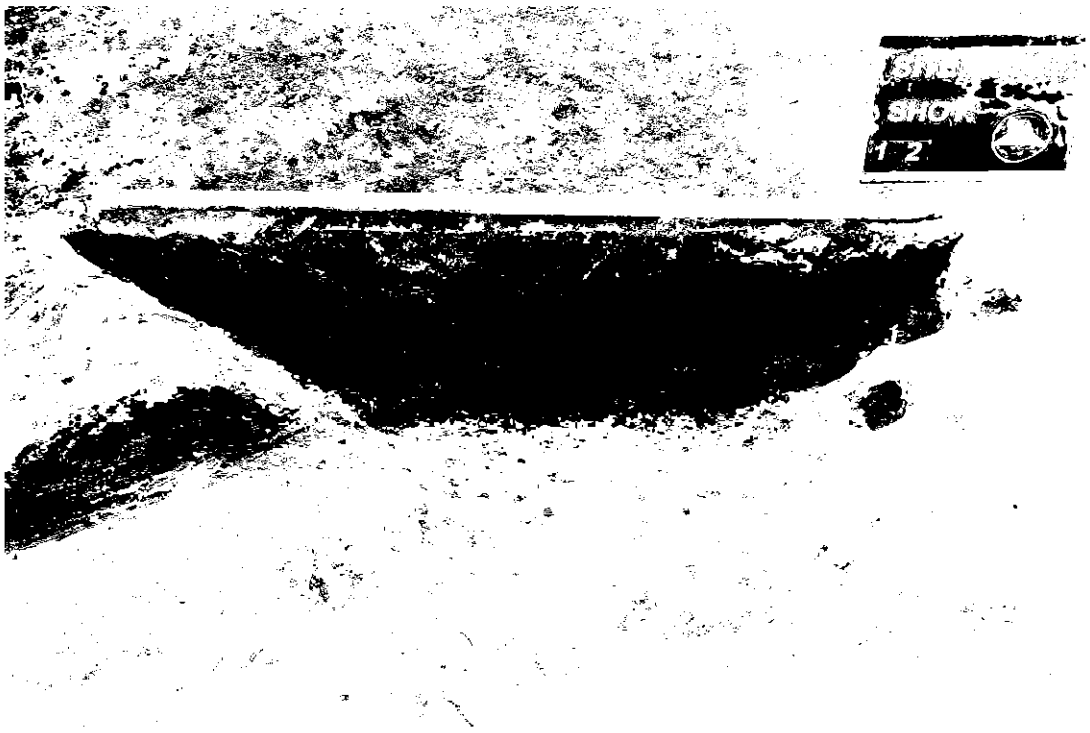


Plate 18: E facing section of pit [025]



Plate 19: NE facing section of pit [087]



Plate 20: E facing section of gully [017]

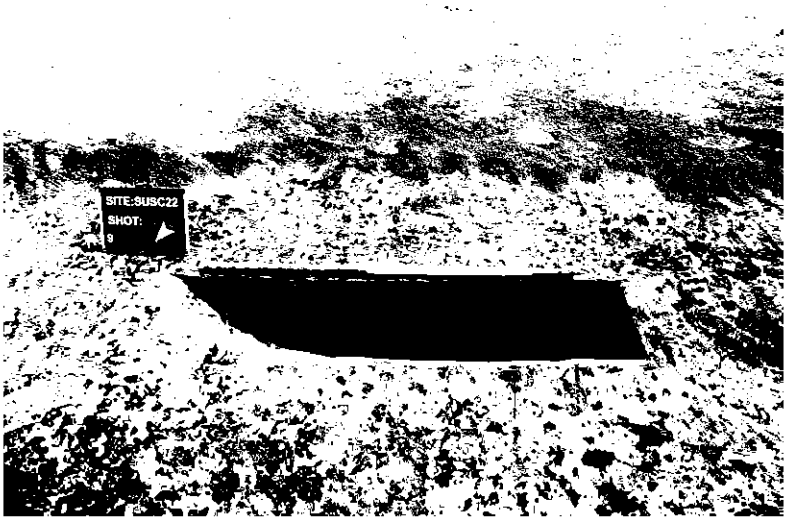


Plate 21: Folding section of gully terminus [019] – looking SE

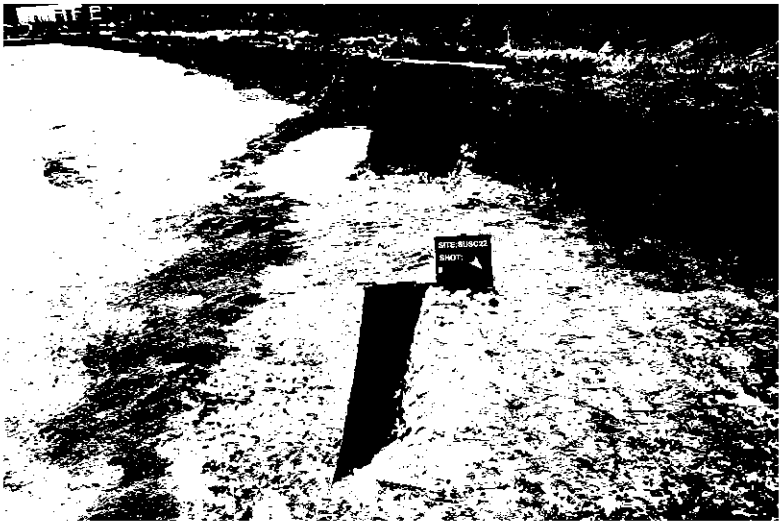


Plate 22: Plan of gully with Sections 5 and 6 – looking SW



Plate 23: SE facing section of ditch [010] and pit [012]



Plate 24: NW facing section of ditch [010]

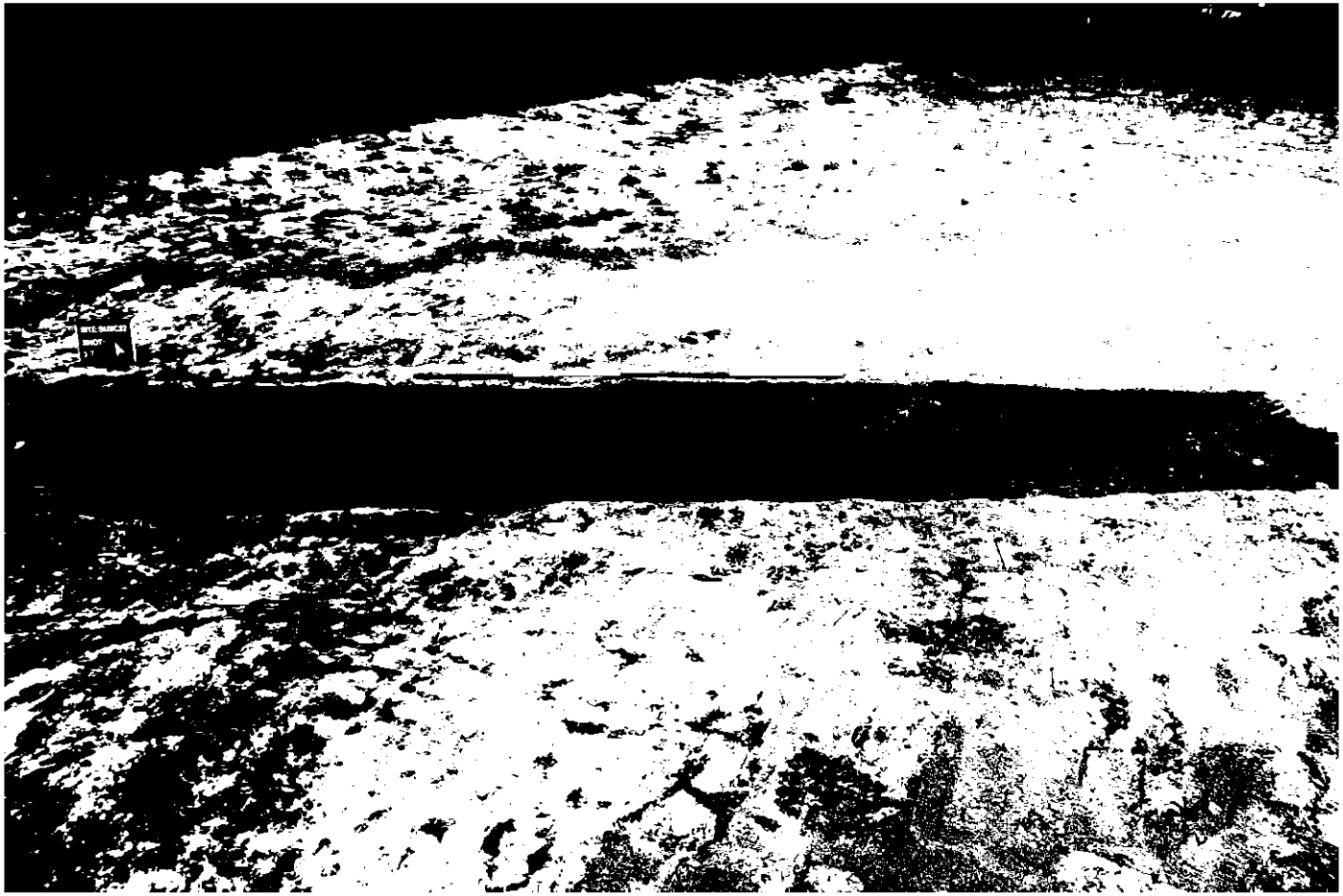


Plate 25: SW facing section of ditch [142]



Plate 26: Post-excavation shots of the site

Appendix 1

CONTEXT DESCRIPTIONS

Context	Interpretation	Description	Length (m)	Width (m)	Depth/thickness (m)
(001)	Topsoil	Hard, dark brownish-grey sandy-silt with occ. small flecks of charcoal, occ. small fragments of burnt silt, occ. small shell fragments and occ. small angular stones.	Full area.	Full area.	0.52m
(002)	Subsoil	Compact, yellowish mid-brown sandy-silt with occ. small angular stones and occ. small fragments of shells.	Full area.	Full area.	0.10m
(003)	Natural	Compact, rusty yellowish-brown sandy-clay.	Full area.	Full area.	N/A
(004)	Deliberate backfill	Compact, yellowish-brown sandy-silt backfill of the saltern mound on ground surface with shell and small stones inclusions.	N/A	N/A	N/A
(005)	Fill of pit [006]	Firm, brownish mid-grey sandy-silt with occ. burnt, small silt and occ. small charcoal flecks	1.13m	0.90m	0.07m
[006]	Cut of pit	Circular cut with gradually sloping sides, gradual break of slope at the top and base, and uneven base. Truncated by a pit [092].	1.13m	0.90m	0.07m
(007)	Fill of pit [008]	Soft, greyish-brown sandy-silt with moderate, medium size, burnt, hardened silt blocks and occ. small flecks of charcoal.	Diameter 2.32m	-	0.44m
[008]	Cut of pit	Circular cut of a pit with moderately sloping sides, sharp break of slope at the top and gentle at the base. The base is concave.	Diameter 2.32m		0.44m
(009)	Fill of ditch [010]	Friable, mixed greyish-brown sandy-silt with moderate burnt clay fragments and occasional small flecks of charcoal.	>1m	0.75m	0.16m
[010]	Cut of ditch	Linear cut of a ditch with gently sloping sides, sharp break of slope at the top and gentle at the base. The base is concave. Aligned to NE-SW.	>1m	0.75m	0.16m
(011)	Fill of a pit [012]	Friable, dark greyish-brown silty-sand with large, occasional, solidified organic silt blocks, occasional medium and small burnt clay blocks and fragments, moderate, small charcoal flecks	>0.32m	0.50m	0.18m
[012]	Cut of a pit	Oval shape cut of a waste pit with steep sides and concave base. The break of slope is sharp at the top and gentle at the base. Aligned to NE-SW.	>0.32m	0.50m	0.18m

Context	Interpretation	Description	Length (m)	Width (m)	Depth/thickness (m)
(013)	Deliberate backfill	Compact, light yellowish-brown sandy-silt with occasional small burnt silt blocks.	>2.00m	>2.01m	0.33m
(014)	Deliberate backfill	Compact, greyish mid-brown sandy-silt with occasional small flecks of charcoal and occasional small burnt silt.	>2.00m	>1.62m	0.48m
(015)	Deliberate backfill	Compact, yellowish-brown sandy-silt with occasional burnt clay fragments.	>2.00m	>1.20m	0.40m
(016)	Fill of a ditch [017]	Compact, yellowish mid-brown sandy-silt with moderate small fragments of shells	>1.00m	1.56m	0.24m
[017]	Cut of ditch	Linear ditch with steep sides, undulate base, sharp break of slope at the top, gentle at the base at its southern and sharp on its northern side. It is aligned to NE-SW.	>1m	1.56m	0.24m
(018)	Fill of a ditch [019]	Compact, yellowish-mid-brown sandy-silt with occasional small flecks of charcoal.	>1.46m	0.50m	0.11m
[019]	Cut of a ditch	Linear cut of a ditch with steep sides and flat base. Its brake of slope is sharp at the top and at the base.	>1.46m	0.50m	0.11m
(020)	Fill of a ditch [021]	Compact, yellowish-brown sandy-silt with occasional small fragments of shells.	>1.00m	>1.40m	>0.20m
[021]	Cut of a ditch	Linear cut of a ditch with steep sides, concave base, sharp break of slope at the top and gentle at its base. Aligned to NE-SW.	>1.00m	>1.40m	>0.20m
(022)	Fill of ditch [023]	Compact, yellowish-brown sandy-silt deliberate backfill with occasional small fragments of shells.	n/a	>0.10m	n/a
[023]	Cut of a ditch	Linear cut of a ditch with steep sides, flat base and sharp brake of slopes. Aligned to NE-SW. Truncated by a linear ditch [017]	n/a	>0.10m	n/a
(024)	Fill of a pit [025]	Firm, mid-brown sandy-silt without noticeable inclusions.	1.28m	1.25m	0.15m
[025]	Cut of a pit	Irregular shape pit with steep sides, concave base and gradual breaks of slope.	1.28m	1.25m	0.27m
(026)	Silt waste backfill	Firm, mid-yellowish-brown sandy-silt with occasional small flecks of charcoal and small burnt silt blocks.	>1.5m	2.28m	0.26m
(027)	Silt waste backfill	Firm, greyish-brown sandy-silt with occasional small flecks of charcoal and small, burnt silt blocks.	>1.00m	0.87m	0.11m
(028)	Organic silt backfill	Firm, brown silt with occasional, small charcoal flecks.	>1.00m	2.04m	0.06m

Context	Interpretation	Description	Length (m)	Width (m)	Depth/thickness (m)
(029)	Backfill of fuel ash	Firm, mid-grey ashy-silt with occasional burnt silt inclusion.	>1.00m	1.44m	0.05m
(030)	Silt waste backfill	Firm, light brown sandy-silt with occasional small flecks of charcoal and small burnt silt blocks.	>1.0m	2.98m	0.32m
(031)	Silt waste backfill	Firm, light brown sandy-silt backfill with occasional small flecks of charcoal and small burnt silt blocks.	>1.0m	6.34m	0.58m
(032)	Silt waste backfill	Firm, light brown sandy-silt with occasional small burnt silt blocks.	>0.50m	0.77m	0.07m
(033)	Organic silt backfill	Firm, mid-grey organic, mineralised silt wit occasional small inclusions of burnt silt blocks.	>1.00m	4.88m	0.26m
(034)	Burnt silt backfill	Firm, brownish-red sandy-silt with occasional small burnt silt blocks.	>0.50m	1.39m	0.17m
(035)	Organic silt backfill	Firm, mid-brown sandy-silt backfill with occasional small flecks of charcoal.	>1.00m	2.44m	0.27m
(036)	Burnt silt backfill	Firm, brownish-red, burnt sandy-silt.	>1.00m	1.79m	0.17m
(037)	Organic mineralised silt backfill	Firm, light-grey sandy-silt backfill with occasional small flecks of charcoal.	>1.00m	2.53m	0.16m
(038)	Silt waste backfill	Firm, light brown sandy-silt backfill with occasional small flecks of charcoal and small blocks of burnt silt.	>1.00m	2.72m	0.22m
(039)	Organic silt backfill	Firm, mid-brown silt backfill, burnt in places.	>1.00m	2.52m	0.43m
(040)	Deliberate backfill of spoil	Firm, mid-orangish-blue sandy-clay without inclusion.	>1.50m	2.58m	0.11m
(041)	Silt waste backfill	Compact, light-brown sandy-silt backfill with occasional small flecks of charcoal and burnt silt.	>1.50m	2.68m	0.17m
(042)	Silt waste backfill	Firm, light brown sandy-silt backfill with occasional small flecks of charcoal and burnt silt blocks.	>0.50m	0.94m	0.28m
[043]	Terminus of a ditch	Slightly curvilinear ditch with steep sides and flat base. It has sharp brake of slopes. Aligned to SE-NW.	>1.10m	>0.50m	0.35m
(044)	Fill of a ditch [043]	Firm, dark bluish-grey coarse sandy-silt with lumps of baked clay.	1.50m	>0.50m	0.25m
(045)	Fill of a ditch [043]	Firm, yellowish-brown fine sandy-silt with occasional small, rounded lumps of baked clay.	>0.90m	>0.50m	0.15m
[046]	Cut of a ditch	Linear, slightly curvilinear cut of a ditch with steep sides, irregular/flat base, sharp break of slope at its top and gradual at its base. Aligned to SE-NW.	>1.00m	1.00m	0.39m

Context	Interpretation	Description	Length (m)	Width (m)	Depth/thickness (m)
(047)	Fill of a ditch [046]	Firm to compact dark bluish-grey coarse sand with occasional burnt clay.	>1.00m	0.70m	0.27m
(048)	Fill of a ditch [046]	Firm, light yellowish orange-brown sandy-silt with moderate rounded baked clay, occasional pottery fragments.	>1.00m	0.71m	0.37m
[049]	Terminus of a ditch	Linear, slightly curvilinear cut of a ditch with moderately steep sides, flat base, sharp and gradual brake of slope at the top and sharp at the base. Aligned to SE-NW.	>2.70m	>0.50m	0.50m
(050)	Fill of a ditch [049]	Friable, mid-dark greyish-yellowish-brown coarse sandy-silt with fired clay lumps.	>2.20m	>0.50m	0.30m
(052)	Fill of a ditch [049]	Firm, light-yellowish-brown sandy-silt with occasional small lumps of fired clay, and frequent lumps of greyish clay.	2.71m	>0.5m	0.30m
[053]	Cut of a ditch	Linear shape cut of a ditch with vertical and steep sides, undulating base and sharp brake of slopes.	>1.00m	>1.00m	1.40m
(054)	Fill of a ditch [053]	Firm, light-yellowish-brown sandy-silt.	>3.85m	>1.00m	0.77m
(055)	Fill of a ditch [053]	Compact, mid-greyish-brown sandy-silt.	>4.30m	>1.00m	0.46m
(056)	Fill of a ditch [053]	Compact, dark-greyish-brown sandy-silt.	>4.90m	>1.00m	0.51m
[057]	Cut of investigative slot	Irregular shape investigative cut with steep southern and boxed-up northern side, flat base with a slight south slope and sharp breaks of slope. Aligned to E-W.	>1.5m	>9.55m	0.86m
[058]	Cut of investigative slot	Irregular shape investigative cut with vertical sides, flat base and sharp breaks of slope.	9.30m	>1.35m	1.17m
(059)	Silt waste backfill	Firm, light-greyish-brown sandy-silt with occasional small blocks of burnt silt.	2.10m	>1.37m	0.27m
(060)	Silt waste backfill	Firm, mid-greyish-brown sandy-silt with occasional small blocks of burnt silt.	1.77m	>1.33m	0.16m
(061)	Mineralised silt deposit	Compact, mid-grey mineralised organic silt waste with occ. small blocks of burnt silt/clay.	3.57m	>1.24m	0.16m
(062)	Mineralised silt deposit	Compact, mid-grey mineralised organic silt waste with occ. small blocks of burnt silt/clay.	4.35m	>1.28m	0.13m
(063)	Burnt silt waste deposit	Firm, brownish-red silt/burnt silt.	0.49m	>1.00m	0.07m
(064)	Mineralised silt deposit	Compact, mid-brownish-grey mineralised organic silt with occasional burnt clay inclusion.	5.25m	>1.12m	0.15m
(065)	Silt waste backfill	Firm, light-brown sandy-silt with occasional burnt silt inclusion.	1.49m	>1.21m	0.13m

Context	Interpretation	Description	Length (m)	Width (m)	Depth/thickness (m)
(066)	Deliberate backfill	Firm, brownish-dark grey sandy silt deliberate backfill with frequent small charcoal flecks and moderate small burnt silt/clay chunks.	1.24m	>1.07m	0.10m
(067)	Burnt silt backfill	Firm, mid-brownish-red burnt silt with occasional small charcoal flecks.	0.36m	>1.18m	0.12m
(068)	Mineralised silt deposit	Compact, mid-brownish-grey mineralised organic silt waste with occ. small blocks of burnt silt/clay.	1.52m	>1.15m	0.11m
(069)	Silt waste backfill	Firm, light-brown sandy silt with occasional burnt silt.	7.05m	0.93m	0.33m
(070)	Silt waste backfill	Firm, mid-greyish-brown sandy-silt with occasional burnt silt inclusion.	1.35m	0.96m	0.07m
(071)	Silt waste backfill	Firm, light brown sandy-silt with occasional small charcoal flecks.	4.35m	>0.85m	0.26m
(072)	Silt waste backfill	Firm, mid-greyish-brown sandy-silt with moderate burnt silt/clay inclusion.	1.46m	>1.31m	0.26m
(073)	Silt waste backfill	Compact mid-greyish-brown sandy-silt with occasional burnt silt/clay.	2.16m	>1.23m	0.12m
(074)	Silt waste backfill	Compact, light to mid-grey sandy-silt with occasional burnt silt/clay.	2.58m	>1.12m	0.25m
(075)	Silt waste backfill	Firm, mid-brownish-grey sandy-silt with occasional burnt silt/clay and moderate small charcoal flecks.	5.75m	>1.03m	0.19m
(076)	Silt waste backfill	Firm, mid-greyish-brown sandy-silt with occasional burnt silt.	1.10m	>0.83m	0.03m
(077)	Silt waste backfill	Firm, light-brown sandy-silt with occasional burnt silt/clay.	7.50m	>0.98m	0.31m
(078)	Silt waste backfill	Firm, light-brown sandy-silt with occasional burnt silt/clay.	2.00m	>0.81m	0.11m
(079)	Burnt silt backfill	Firm, mid-brownish-red burnt sandy-silt.	0.91m	0.77m	0.05m
[080]	Cut of a possible hearth	Oval cut of a possible hearth with steep sides, concave base and gradual breaks of slope.	1.50m	>1.00m	0.25m
(081)	Fill of a poss. hearth	Firm, mixed colours of light grey, red and black, burnt sandy-silt with frequent small flecks of charcoal.	1.50m	>1.00m	0.25m
(082)	Silt waste backfill	Firm, light-brown sandy-silt with occasional burnt silt.	3.01m	0.66m	0.13m
(083)	Silt waste backfill	Firm on the top and compact on the way down. Mixed colour of, red, brown, and grey, burnt sandy-silt.	3.67m	>1.28m	0.55m
(084)	Silt waste backfill	Firm, light-brown sandy-silt with occasional burnt silt and charcoal.	4.30m	1.15m	0.49m
(085)	Silt waste backfill	Firm, light-brown sandy-silt with occasional burnt silt/clay.	2.51m	0.87m	0.10m
(086)	Silt waste backfill	Firm, light to mid brown sandy-silt with occasional burnt silt and charcoal.	1.39m	>1.28m	0.33m

Context	Interpretation	Description	Length (m)	Width (m)	Depth/thickness (m)
[087]	Cut of pit	Sub-circular cut of a pit with gradual break of slope on the top, undulating base, and moderately steep sides.	1.97m	0.91m	0.63m
(088)	Fill of pit [087]	Compact, light yellowish-brown silty-sand.	1.32m	0.82m	0.31m
(089)	Lower fill of pit [087]	Compact, mid greyish-brown silty-sand.	0.76m	>0.20m	0.12m
(090)	Upper fill of pit [087]	Compact, mid redish-greyish-brown sandy-silt.	0.58m	>0.18m	0.09m
(091)	Fill of pit [092]	Soft, mid brown sandy-silt with occasional burnt silt, occasional small angular stones and small flecks of charcoal.	>0.73m	0.90m	0.20m
[092]	Cut of pit	Linear shape pit with gentle breaks of slope, gentle sloping sides and concave base. It is aligned to E-W. Truncated by two pits [008] and [006].	0.73m	0.90m	0.20m
(093)	Fill of pit [025]	Firm, reddish-brown sandy-silt/ burnt clay/clay mixture with frequent burnt silt/clay and occasional charcoal flecks.	0.64m	0.64m	0.12m
[094]	Cut of pit	Irregular/elongated cut of a pit with gentle breaks of slope, gently sloping sides, and undulating base.	3.30m	1.21m	0.34m
(095)	Fill of pit [094]	Compact, mid reddish-brown sandy-silt.	0.77m	0.75m	0.13m
(096)	Fill of pit [094]	Compact, mid greyish-brown sandy-silt.	1.41m	>0.20m	0.16m
(097)	Fill of pit [094]	Compact, mid greyish-brown silty-sand.	0.83m	>0.20m	0.14m
(098)	Fill of pit [094]	Compact, dark greyish-brown silty-sand.	1.18m	1.15m	0.08m
(099)	Fill of pit [094]	Compact, mid greyish-reddish-brown sandy-silt.	0.66m	0.45m	0.12m
(100)	Fill of pit [101]	Hard, mottled greyish-brown sandy-silt backfill with occasional small patches of burnt silt and small flecks of charcoal.	>2.00m	2.70m	0.45m
[101]	Cut of pit	Oval shape cut of a pit with sharp break of slope at its top, gentle NW and slightly sharp SE break at its base, moderately steep sides, and concave base.	>2.00m	2.70m	0.45m
(102)	Fill of pit [103]	Friable, dark greyish-brown sandy-silt with frequent clam shells, occasional small blocks of burnt silt and frequent charcoal flecks.	0.78m	0.77m	0.35m
[103]	Cut of pit	Circular cut of a pit with sharp breaks of slope, moderately steep sides, and flat base.	0.78m	0.77m	0.35m
(104)	Fill of ditch [108]	Hard, light mottled brown sandy-silt backfill with occasional small burnt silt patches and occasional small charcoal flecks.	0.69m	>2.00m	0.90m

Context	Interpretation	Description	Length (m)	Width (m)	Depth/thickness (m)
(105)	Fill of ditch [108]	Friable mid to dark grey sandy-silt backfill with frequent charcoal, occasional small patches of burnt silt and small shell fragments.	>1.60m	2.49m	0.20m
(106)	Fill of ditch [108]	Hard, mid brown sandy-silt backfill with moderate small flecks of charcoal.	>1.00m	1.95m	0.35m
(107)	Fill of ditch [108]	Hard, yellowish-light-brown sandy-silt backfill with occasional small flecks of charcoal.	>1.00m	2.87m	0.28m
[108]	Cut of ditch	Linear cut of a ditch with sharp breaks of slope, steep NW and gradual SE sides, and concave base. Aligned to NE-SW.	>2.00m	3.50m	0.83m
(109)	Waste deposit	Hard, yellowish mid-brown sandy-silt backfill with occasional small charcoal flecks, small fragments of clam shells, small patches of burnt silt and mollusc shells.	>4.00m	>4.00m	1.37m
(110)	Fill of pit/well [112]	Hard, greyish mid-brown sandy-silt backfill with occasional small fragments of clam shells, mollusc shells and charcoal flecks.	>2.00m	6.65m	1.25m
(111)	Fill of pit/well [112]	Hard, dark brownish-grey sandy-silt backfill with frequent charcoal and occasional small fragments of mollusc shells.	>1.00m	5.58m	0.70m
[112]	Cut of pit/well	Cut of a pit/well with gentle break of slope at its top, gradual NW and steep SE sides. No base was recorded as the feature was not fully excavated due to its depth.	>1.00m	6.65m	>1.70m
(113)	Fill of pit [115]	Compact whitish-light grey mineralised sandy-silt backfill with occasional small patches of burnt silt and small fragments of molluscs' shells.	>2.00m	6.70m	0.38m
(114)	Fill of pit [115]	Hard, greyish mid-brown sandy-silt backfill with moderate mid-size patches of burnt silt, occasional mid-size mineralised silt blocks and small charcoal flecks.	>1.00m	5.38m	0.82m
[115]	Cut of pit	Irregular shape cut of a pit with sharp breaks of slope, steep sides, and undulate base, aligned to E-W.	>1.00m	6.70m	0.93m
(116)	Waste deposit	Hard greyish-brown sandy-silt backfill with moderate small fragments of mollusc shells and small charcoal flecks.	>1.60m	>10.00m	1.18m
(117)	Waste deposit	Hard, yellowish-orangish-brown sandy-silt backfill with occasional small fragments of clam shells.	>1.60m	>12.60	1.10m
(118)	Waste deposit	Hard, greyish-brown sandy-silt backfill with moderate small fragments of mollusc and clam shells and moderate small charcoal flecks.	>1.60m	7.78m	0.68m

Context	Interpretation	Description	Length (m)	Width (m)	Depth/thickness (m)
(119)	Waste deposit	Hard, yellowish-orangish-brown sandy-silt backfill with occasional small fragments of clam shells and small fragments of mollusc shells.	>6.00m	>2.50m	1.40m
(120)	Waste deposit	Hard, yellowish-orangish-brown sandy-silt backfill with occasional small fragments of clam shells and small flecks of charcoal.	>1.60m	21.30m	1.57m
(121)	Waste deposit	Hard, yellowish-orangish-brown sandy-silt backfill with occasional small fragments of clam and mollusc shells and occasional small flecks of charcoal.	>1.60m	1.80m	0.38m
(122)	Fill of pit [124]	Hard, mottled light-brown sandy-silt with occasional small flecks of charcoal.	>1.00m	1.58m	0.55m
(123)	Fill of pit [124]	Compact, brownish-mid-grey sandy-clay backfill with occasional small fragments of clam or mollusc shells.	>1.00m	1.45m	0.19m
[124]	Cut of pit	Circular cut of a pit with sharp breaks of slope, steep sides and concave base.	0.86m	0.84m	0.63m
(125)	Fill of pit [126]	Hard, yellowish-light-brown sandy-silt with occasional small clay patches and medium size charcoal flecks.	0.33m	0.32m	0.38m
[126]	Cut of pit	Circular cut of a pit with sharp breaks of slope, steep NE and nearly vertical SW sides and concave base.	0.33m	0.32m	0.38m
(127)	Fill of terminus [128]	Firm, mid-greyish-brown sandy-silt with moderate inclusions of burnt silt.	>1.47m	0.81m	0.17m
[128]	Cut of terminus	Linear cut of a ditch terminus with gradual breaks of slope, moderately steep sides and concave base.	>1.47m	0.81m	0.17m
(129)	Fill of ditch [130]	Firm, mid-greyish-brown sandy-silt with moderate inclusion of burnt silt and occasional small flecks of charcoal.	>0.20m	1.16m	0.23m
[130]	Cut of ditch	Linear cut of a ditch with gradual breaks of slope, steep sides and concave, nearly "V" shape base. Aligned to E-W.	>0.20m	1.47m	0.55m
(131)	Fill of ditch [130]	Firm, nearly compact mid-grey sandy-mineralised silt.	>0.20m	1.17m	0.14m
(132)	Fill of ditch [130]	Firm mid-greyish-brown sandy-silt with occasional inclusion of burnt silt and charcoal.	>0.20m	1.09m	0.29m
[133]	Cut of irregular pit	Irregular shape cut of a pit with gradual break of slope at its top and gentle break at its base, gently sloping sides and undulating sides.	2.05m	1.40m	0.26m

Context	Interpretation	Description	Length (m)	Width (m)	Depth/thickness (m)
(134)	Top fill of pit [133]	Compact, dark reddish-greyish-brown sandy-silt.	>0.60m	0.69m	0.55m
(135)	Bottom fill of pit [133]	Compact, light yellowish-brown sandy-silt.	2.05m	1.40m	0.16m
[136]	Cut of irregular pit	Irregular shape cut of a pit with gentle breaks of slope, gradual sides and undulate, nearly flat base.	1.53m	0.74m	0.15m
(137)	Fill of pit [136]	Compact, mid-yellowish-brown sandy-silt.	1.53m	0.74m	0.15m
[138]	Cut of irregular pit	Irregular shape cut of a pit with sharp breaks of slope, steep sides and undulate/concave base.	1.53m	1.19m	0.34m
(139)	Fill of pit [138]	Compact, mid-yellowish-brown sandy-silt.	1.53m	1.19m	0.34m
[140]	Cut of terminus	Cut of a terminus of a ditch with gentle breaks of slope, gradually sloping side and undulate base. Aligned to N-S.	>1.00m	>1.04m	0.29m
(141)	Fill of terminus [140]	Compact, mid/dark greyish-brown sandy-silt.	>1.00m	>1.04m	0.29m
[142]	Cut of ditch	Linear shape cut of a ditch with gentle breaks of slope, steep sides and slightly undulating/flat base. Aligned to E-W.	>6.00m	1.20m	0.73m
(143)	Fill of pit [146]	Compact, mottled yellowish-brown sandy-silt with occasional small flecks of charcoal.	>1.80m	>2.00m	0.33m
(144)	Fill of pit [146]	Compact, mixed colours of dark-grey, yellow, orange and brown sandy-silt with occasional small fragments of clam shells, small patches of burnt silt and moderate small flecks of charcoal.	>8.43m	>2.80m	0.48m
(145)	Fill of pit [146]	Compact, yellowish-brown sandy-silt with occasional small charcoal flecks.	2.73m	>1.50m	0.15m
[146]	Cut of pit	Irregular shape cut of a pit with sharp brake of slope at its eastern top and vertical/sharp at its western top, gentle break at its base at its eastern and sharp at its western side. It has steep eastern and vertical western side and undulate base. Aligned to E-W.	9.16m	2.80m	0.50m
(147)	Fill of ditch [142]	Compact, mid-yellowish-brown sandy-silt.	>1.00m	2.60m	0.46m
(148)	Void	Void	Void	Void	Void
(149)	Middle fill of ditch [142]	Compact, mid-greyish-brown sandy-silt.	>1.00m	1.18m	0.48m
(150)	Upper fill of ditch [142]	Compact, mid-yellowish-brown sandy-silt.	>1.00m	3.10m	0.43m
(151)	Lower fill of ditch [142]	Compact, mid-greyish-yellowish-brown sandy-silt.	>1.00m	1.59m	0.26m
(152)	Bottom fill of ditch [142]	Compact, dark greyish-brown sandy-silt.	>1.00m	1.68m	0.06m

Appendix 2

FINDS

POST ROMAN POTTERY

By Jane Young

Introduction

Three hundred and thirty-four sherds of post-Roman pottery, representing two hundred and six vessels and weighing 4.585kgs were examined for this report. The chronologically identifiable pottery ranges in date from the Late Saxon to post-medieval periods.

The assemblage is very mixed comprising at least sixty-two fabrics grouped into thirty-six ware types including four newly defined ones. The pottery was mainly in poor condition with much of the fossil shell temper being leached from the edges (and some surfaces) of sherds and a high proportion of vessels (132 in total) having sufficient concretions over both surfaces and breaks to render visual identification impossible. The entire assemblage therefore was examined under a x20 binocular microscope using a small freshly broken edge. Every effort was made (a check with each sherd against all others in that fabric) to check for cross-deposit joins but none were found.

The fabric codenames (CNAME) of the City of Lincoln Archaeology Unit (Young et al 2005) expanded for use within the County were used for recording together with four newly defined ware types (Table 1). The assemblage was quantified by four measures: number of sherds, vessel count, weight in grams and Estimated Rim Equivalent (REVE) with the resulting archive being entered onto an Access database (Appendix 1). Recording of the assemblage was in accordance with the guidelines laid out in Slowikowski, *et al.* (2001) and a Standard for Pottery Studies in Archaeology (2016) and complies with the Lincolnshire County Council's *Archaeological Handbook* (sections 13.4 and 13.5).

Condition

The material is mainly in a slightly abraded and stable condition, although some sherds (noted in the archive) are laminating. Individual sherd size as presented varies from 1gram to 98 grams, however nine sherds have freshly broken edges with no recovered joining sherds indicating that on deposition they were of larger size. Forty-two vessels are represented by more than a single sherd. One hundred and thirty-two vessels are covered in concretions consistent with having been deposited in a waterlain environment.

The Pottery

In total three hundred and thirty-four sherds from two hundred and six vessels of Late Saxon to post-medieval type were presented for examination. The thirty-six recovered ware types are mainly from local and regional sources, but one continentally imported sherd was recovered (Table 1). These include five fabrics grouped into four newly defined ware types. The recovered vessel form types are mainly limited to a range of jugs pitchers, jars and bowls/dishes, although a footed cooking pot or pipkin and a cup also occur.

Table 1 *Pottery types from the site with total quantities by sherd count, vessel count, weight in grams and Estimated Rim Equivalent (REVE)*

Codename	Full name	Earliest date	Latest date	Total sherds	Total vessels	Total weight	REVE
BAEMWTS	Bourne Area Early Medieval Wheel-thrown Shelly	1100	1200	45	11	530	0.77
BAMWTO	Bourne Area Medieval Wheel-thrown Oolitic	1180	1350	1	1	53	0
BAMWTS	Bourne Area Medieval Wheel-thrown Shelly	1180	1350	18	8	399	0.33
BASS	Bourne Area Sparsely-shelled ware	1200	1450	5	3	131	0.37

BERTH	Brown glazed earthenware	1550	1800	5	2	234	0.07
BL	Black-glazed wares	1550	1750	1	1	6	0
BOSTTT	Boston Glazed ware - Toynton type	1230	1330	4	3	53	0
BOU	Late Medieval to Early post-medieval Bourne ware (Bourne D)	1350	1650	3	3	24	0.10
BOUA	Bourne-type medieval Fabrics A to G	1150	1400	33	28	508	0.46
CIST	Cistercian-type ware	1480	1650	1	1	4	0
DNEOT	Developed St Neots ware	1150	1250	1	1	8	9
DST	Developed Stamford ware	1150	1230	26	6	344	0
DUTR	Dutch Red Earthenware	1250	1650	1	1	34	0
ELMAS	East Lincolnshire Medieval Abundant Shelly	1180	1300	1	1	18	0
EMHM	Early Medieval Handmade ware	1100	1250	34	20	340	0.24
EST	Early Stamford ware	870	1010	1	1	6	0
GRE	Glazed Red Earthenware	1500	1650	3	3	13	0
LSW2	13th to 14th century Lincoln Glazed Ware	1200	1320	2	2	19	4
MEDX	Non Local Medieval Fabrics	1150	1450	7	4	79	0
NDST	Nottingham Developed Stamford-type	1180	1220	1	1	1	0
NOTGL	Light Bodied Nottingham Green Glazed ware	1220	1320	2	2	21	0
SLBTOX	South Lincolnshire Baston-type Oxidised	1200	1350	6	3	226	0
SLEMO	South Lincolnshire Early Medieval Oolitic	1100	1220	1	1	25	0
SLEMS	South Lincolnshire Early Medieval Shelly	1150	1230	4	4	26	0
SLIP	Unidentified slipware	1650	1750	3	3	48	0.15
SLSHCW	South Lincolnshire Shell-tempered Coarseware	1180	1400	1	1	10	0
SLOOL	South Lincolnshire Oolitic (generic)	1050	1500	2	1	22	0
SLQS	South Lincolnshire Quartz and shell (generic)	1180	1500	2	1	10	0
SLSNOL	South Lincolnshire Saxo-Norman Oolitic	1050	1200	5	5	55	0.08
SLSNQCA	South Lincolnshire Saxo-Norman Quartz and Calcareous	1050	1180	9	2	57	0.26
SNEOT	St Neots-type ware	870	1200	2	2	47	0.08
ST	Stamford Ware	970	1200	80	63	771	1.05
STAMT	Stamford-type variants	950	1150	1	1	98	0
STCRUC	Stamford-type Crucible	850	1150	1	1	2	0
TGW	Tin-glazed ware	1640	1770	1	1	29	0
TOY	Toynton Medieval Ware	1250	1450	21	14	334	0.32
Totals				**334**	**206**	**4585**	**17.28**

Late Saxon

A single sherd recovered from recovery group (004) is of late Saxon type. The thickly glazed sherd is from an Early Stamford ware vessel (EST), probably a pitcher, in Fabric A. The vessel is of 10th to early/mid-11th century date.

Saxo-Norman

Ninety-eight sherds representing seventy-four vessels in six ware types, including one newly defined one, are of 11th to 12th century Saxo-Norman type. Few vessels are closely dateable, but the majority are of post-conquest type or date. The majority of sherds (80 sherds from 63 vessels) are from Stamford ware vessels (ST and STCRUC). Stamford ware as discussed by Kilmurray was dived into eight fabrics (Kilmurray 1980), however in reality many sherds fall between these groupings (Table 2). Fabric B is of post-conquest date and Fabric C dates from the mid-12th century, otherwise Fabrics A and G span the period between the 11th and mid-12th centuries thus relying on form, glazing, rim type and manufacture to give closer dating. Table 2 shows the potential for only thirteen vessels to be of pre-conquest date (Fabrics A, A/G and G) but close examination of glazing and form

suggests that at least three of these are of post-conquest type. Most of the sherds come from small unglazed, or glazed, jars or pitchers. Fabrics A/B and B/G are of post-conquest but probable pre-mid-12th century date (8 vessels). These vessels include a collared jar or pitcher with an incised wavy line around the top of the rim (DR 01) in Fabric A/G and a small, spouted pitcher in Fabric B/G. The twenty-six vessels in post-conquest Fabric B mainly comprise a range of glazed and unglazed jars or pitchers with at least four of the vessels being of mid-12th century or earlier collared type. The ten vessels in Fabric B/C including a nice jar (DR 02) are likely to be of mid-12th century date. Six vessels in Fabric C are of mid to late 12th century date. A single near-vitrified sherd with an external fuel ash deposit is from a small hemispherical Stamford ware crucible in Fabric A (STCRUC) of 11th to mid-12th century date. A near-vitrified base from a jug or pitcher is in a fabric similar to that of Stamford Fabric A, but additionally contains common fine black iron-rich grains. The vessel which has spots of glaze externally has been classified as being of Stamford-type (STAMT) of unknown provenance or date.

Table 2 *Stamford ware fabrics arranged by approximate potential date order with vessel count*

Stamford ware Fabric	Vessels
Fabric A	8
Fabric A/G	3
Fabric G	2
Fabric A/B	1
Fabric B/G	7
Fabric B	26
Fabric B/C	10
Fabric C	6
Total	**63**

Five sherds, each representing an individual vessel, are in South Lincolnshire Saxo-Norman Oolitic fabrics (SLSNOL). This mainly reduced type is common in pre- and post-conquest deposits in Stamford and occurs as far north in the county as Lincoln (Young et al 2005). The collared rim of one small jar indicates a post-conquest 11th to mid-12th century date for the vessel. Nine sherds are from two small jars (DR 04 and DR 05) in a newly defined South Lincolnshire Saxo-Norman quartz and calcareous fabric (SLSNQCA).

South Lincolnshire Saxo-Norman Quartz and Chalk (SLSNQC)
The mainly reduced fabric of this wheel-thrown ware may have oxidised external surface patches. The fabric contains abundant rounded quartz of mainly between 0.4mm and 0.8mm size and common mostly rounded calcareous grains of mainly between 0.3mm and 0.6mm but up to 1.0mm. The manufacture and form suggest a mid-11th to mid/late 12th century date.

Two St Neots ware sherds (SNEOT) is from a large shallow sloping bowl or dish and a small jar of probable 11th century date.

Early Medieval

One hundred and seventeen sherds in ten ware groups and representing forty-seven vessels are of early medieval type. The majority of vessels are quartz, fossil shell or calcareous-tempered coarseware but a small number of glazed finewares (7 vessels) do occur. The sherd to vessel ratio is high for this ceramic period suggesting that at least some of the vessels, despite being covered in concretions, have the potential to represent primary discard. Vessels although primarily of Lincolnshire and East Anglian production do include two vessels from other regional sources (NDST and DNEOT).

Forty-five sherds represent eleven coarsely-shell-tempered vessels in two fabrics grouped into a new Bourne Area Early Medieval ware type (BAEMWTS). At least five of the vessels are large sloping shallow bowls or dishes (DR 11, DR 12 and DR 13). Two large jars (DR 15) and a medium-sized jar are identifiable but the other sherds too small to be certain of form and could come from jars or bowls.

Bourne Area Early Medieval Wheel-thrown Shelly ware (BAEMWTS)
The two recovered fabrics of this competently wheel-thrown ware are both fairly low-fired with sherds firing to a reduced core with dull oxidised surfaces. This ware is most likely to date to the 12th century.

- Fabric 1 – This fabric contains common to abundant coarse fossil shell fragments with little else visible. The four recovered vessels include two large shallow bowls or dishes and five sherds from two jars or bowls.

- Fabric 2 – This fabric contains common coarse fossil shell as found in Fabric 1 together with moderate medium-sized shell fragments, common rounded voids (possibly from burnt out or dissolves calcareous grains) and moderate to common rounded quartz grains. The seven recovered vessels in this fabric include three large shallow bowls or dishes and two large jars, of which one (DR 15) has a typical early medieval-type rim.

Five sherds, each representing an individual vessel, are in previously defined Lincolnshire-produced shell-tempered ware groups. The four South Lincolnshire Early Medieval Lincolnshire Shelly ware (SLEMS) sherds are of mid-12th to early/mid-13th century date and come from two small jars and two jars or bowls. A body sherd from a jar or bowl is in an East Lincolnshire Medieval Abundantly Shelly ware fabric (ELMAS) of probable 12th century date. Two flecks from a single South Lincolnshire Quartz and Shell-tempered jar or bowl (SLQS) are probably of similar date. A single regionally imported shell-tempered Developed St Neots ware (DNEOT) sherd is from a small jar of probable 12th century date.

Three oolitic-tempered sherds are from two vessels of probable 12th to early/mid-13th century date in South Lincolnshire Early Medieval Oolitic ware (SLEMO) and the more generic South Lincolnshire Oolitic Shelly ware (SLOOL). The two South Lincolnshire Oolitic Shelly ware sherds are from a small thin-walled handmade jar or bowl whilst the South Lincolnshire Early Medieval Oolitic ware sherd comes from a medium-sized handmade jar that exhibits internal manufacture finger-pressings.

Thirty-four sherds are from twenty Early Medieval Handmade ware (EMHM) vessels. The vessels fall into three fabric groupings the origins of which are most likely to fall within East Anglia or South Lincolnshire. Twenty-one sherds are from thirteen jars or bowls in fabrics consistent with a source in East Anglia. Similar vessels are found throughout the county and as far inland as Nottingham and Doncaster, being mainly found in 12th to early/mid-13th century groups. These vessels include an unusual miniature jar (DR 17). Ten sherds are from four vessels in similar quartz-tempered fabrics that additionally contain moderate to common rounded calcareous grains. These vessels may be of East Anglian or South Lincolnshire production. The third grouping consists of three sherds in Bourne fabric G/E. Two sherds are from jars or bowls, and one is from a large bowl with a finger-pressed rim edge. Previous vessels in Bourne-type fabrics seem to belong to the later part of the 12th century or early 13th century.

Twenty-six sherds are from six Developed Stamford ware vessels (DST) in Fabrics B, B/C and C. All but one of the vessels has a copper-speckled yellow or pale green glaze suggesting that they are early in the sequence. Three of the vessels are small jugs or jars, one is a small jug and one a medium-sized jug or jar. The only sherd with a thick copper-green glaze (in Fabric B) is from a small narrow-necked jug or bottle. The thick copper-rich glaze suggests a date between the mid/late 12th and early 13th centuries. Another sherd with a thick copper-green glaze is from a small jug of Nottingham Developed Stamford ware type (NDST).

Medieval

One hundred sherds representing sixty-nine vessels in twenty-one fabrics and belonging to eleven ware groupings, are of medieval type. It is unlikely that any of the vessels post-date the 14th century and most probable that the majority of vessels are of late 12th to 13th century date. The majority of sherds are from coarseware forms such as jars or bowls in quartz and fossil shell-tempered fabrics.

Thirty-three sherds are from twenty-three vessels in six fabric combinations (Fabrics A, A/B, A/C, B, B/C and C are of Medieval Bourne-type (BOUA). Fabric A contains finer quartz grains than Fabric B and Fabric C is oolitic-tempered. This medieval ware is thought to start in the late 12th century and has probably ceased production by the end of the 14th century. Little work has taken place on well-stratified groups to form a reliable chronological sequence, although it is generally thought that the introduction of Fabric A predates Fabric B, although both seem to be in use together in most recovered groups. The medieval Bourne industry produced both fineware jugs and coarseware forms such as jars and bowls. The eleven vessels in Fabric A include four small jars, one medium-sized jar, a small jug (DR 06) and two bowls. Two of the six vessels in Fabric A/B can be identified as jugs and two of jars. The only sherd in Fabric A/C is from a jar or bowl. Two large bowls (DR 07) and a jar are amongst the four vessels in Fabric B whilst the two sherds in Fabric B/C comprise a small jar and a small jar or bowl. All

three of the Fabric C vessels are jars. The general visual appearance and manufacture of most of the medieval Bourne-type vessels recovered from the site suggest a 13th century date.

Six sherds are from two South Lincolnshire Baston-type Oxidised jugs and a small narrow-necked jug or bottle. The only decorated sherd is from a jug in Fabric 2. This jug has a reduced glaze with curved and vertical applied iron-rich strips, possibly forming a Fleur de Lys motif, in brown. The vessels are of 13th century date.

Four sherds from two small and one medium-sized jugs are of Boston Toynton-type (BOSTT). Wasters of this type have been found in Boston but it is by no means certain that the type is made there. It first appears in fairly well-stratified groups of mid/late 13th century date and continues to be found in Boston groups until possibly as late as the mid-14th century. Two of the jugs have applied vertical iron-rich strip decoration.

Twenty-one sherds are from twelve Medieval Toynton ware jugs and two jugs or jars (TOY). None of the recovered jugs are decorated. Visual appearance, glazing and manufacture suggest that all of the recovered vessels date to between the late 13th and 14th centuries with at least three of the jugs being of pre-mid-14th century date.

Two sherds are from 13th to 14th century Lincoln Glazed ware jugs (LSW2). An in-turned rim on one of the jugs indicates an early to early/mid-13th century date but the other jug is glazed with a thick copper-rich glaze and can only be dated to between the early/mid and late 13th century. Two jug sherds also with copper-rich glazing are from Nottingham Light-bodied Glazed ware jugs (NOTGL) of 13th century date. One of the four unidentified regional medieval imports (MEDX) is an oxidised highly micaceous sherd with an amber glaze. The sherd is from a jug of 13th or 14th century date and is possibly an example of Essex Micaceous ware. Another unidentified regional quartz-tempered sherd is probably from a jar.

The remaining vessels are jars or bowls in various fossil shell or calcareous fabrics. Production sources for none of these types are known, although the inclusions in the fabrics mainly suggest a Bourne Area, or other South Lincolnshire source. Eighteen coarsely shell-tempered sherds are from eight wheel-thrown vessels in a newly defined ware group.

Bourne Area Medieval Wheel-thrown Shelly ware (BAMWTS)

- Fabric 1 - The sherds recovered from this site have been group as Fabric 1 as further examples in the type may have variant inclusions. The ware is highly fired to a reduced core with dull oxidised surfaces. The fabric consists of abundant medium to coarse fossil shell fragments and sparse quartz grains, Six of the eight recovered vessels can be identified as jars of large (DR 18), medium, small and miniature size. One basal sherd appears to come from a large bowl with the other sherd being from a jar or a bowl. The ware most probably dates to between the late 12th and early/mid-14th centuries, but further well-stratified groups are needed to be more specific.

Three sherds, each representing an individual vessel, are of Bourne Area Sparsely-shelled ware (BASS). Two of the sherds come from large jars (DR 09 and DR 10), one of which has finger-pressed decoration around the rim edge (DR 10). The other sherd is from a squat jar with an unusually shaped rim (DR 16). The type is currently dated to between the 13th and mid-15th centuries but almost every example recovered occurs in 13th to mid-14th century groups. A basal sherd from a jar or bowl heavily covered in concretions and partially leached is probably of generic South Lincolnshire Shell-tempered Coarseware type (SLSTCW). The ware is dated to between the late 12th and 14th centuries,

A basal sherd in a reduced oolitic fabric from a large jar has been given a new ware type designation (BAMWTO),

Bourne Area Medieval Wheel-thrown Oolitic ware (BAMWTO)

This high fired, reduced ware has a thin dull oxidised external surface. The abundant inclusions are almost completely masked on the vessel surfaces. The fabric contains abundant rounded calcareous grains most of which appear to be oolite, the type most probably dates to between the late 12th and early/mid-14th centuries.

Five oxidised sherds are from two regionally imported fossil shell-tempered vessels of probable late 12th to 14th century date (MEDX). Two sherds from a jug or jar have bands of square roller-stamping around the shoulder of the vessel. The vessel may be a regional import from the Northamptonshire or Cambridgeshire areas but does not fit any known ware groups. The other sherd is from a small highly fired wheel-thrown jar with the fossil shell being masked on the vessel surfaces.

Late Medieval to Early Post- Medieval

Five sherds, each representing an individual vessel, are of late medieval to early post-medieval type. Three of the sherds from two jugs and a small jug or jar are of Late Medieval to Early Post-medieval Bourne type (BOU). The vessels can only be dated to between the mid-15th and 16th centuries. A small sherd from a Cistercian ware cup (CIST) has a fabric that may suggest a potential Bourne production. The cup is of mid/late 15th to 16th century date. The only continentally imported sherd to be recovered from the site is from a Dutch Red Earthenware (DUTR) footed cooking pot or pipkin of mid-14th to 15th century type.

Post Medieval

Thirteen sherds representing ten vessels are of post-medieval type. Three internally glazed, Glazed Red Earthenware sherds, are from jars or bowls of mid-16th to 17th century date GRE). The five recovered, Brown-glazed Earthenware sherds (BERTH) come from a large bowl of late 17th to 18th century type and a jar of mid-17th to 18th century date. The single, Black-Glazed Earthenware sherd (BL) found is from a small drinking vessel of mid-16th to mid-17th century date. The three Slipware sherds recovered from the site are all in poor condition with little, or no remaining internal glaze. The light-bodied sherds all come from large bowls and have traces of an internal white slip suggesting a yellow-glazed vessel. The bowls potentially date to between the mid-17th and 18th centuries. A single Tin-glazed Earthen ware basal sherd is probably from a small bowl of 17th or 18th century date. There are no traces of internal decoration.

The Site Sequence

The site produced three hundred and thirty-one post-Roman sherds of mixed late Saxon to post-medieval type (Table 3) representing two hundred and three vessels recovered from thirty-two contexts. Of these seventy-seven sherds from fifty-nine vessels were recovered as machine finds (context 004). This is a very mixed assemblage as would be expected for a recovered group. Most of the vessels are of Saxo-Norman to medieval date reflecting the site assemblage as a whole but the only late Saxon sherd to be found was in this group as well as all but one of the late medieval or post-medieval vessels recovered.

Table 3 *Pottery by ceramic period with total quantities by sherd count, vessel count, weight in grams and Estimated Rim Equivalent (REVE)*

Ceramic	Total	Total vessels	Total weight	REVE
Late Saxon	1	1	6	0
Saxo-Norman	96	72	1025	1.47
Early Medieval	116	46	1323	1.10
Medieval	100	69	1833	1.52
Late medieval	5	5	62	0.10
Post-medieval	13	10	330	0.22
Totals	**331**	**203**	**4579**	**4.41**

Seven ditches and two terminals produced small groups of pottery. The largest group came from ditch [053] with forty-five sherds representing twenty-five vessels being recovered from two fills (deposits (054 and 055). The groups from both fills are mixed containing pottery of Saxo-Norman to medieval type. The latest closely dateable sherds are from Medieval Toynton ware jugs of late 13th to 14th century date. Almost every sherd is covered in concretions and all but two vessels are represented by a single sherd.
Two fills (deposits 129 and 132) of ditch [130] produced a total of three sherds, each representing an individual vessel of Saxo-Norman type. The presence of a Stamford ware jar in Fabric B indicates a post-conquest date for deposition. The latest of the three sherds recovered from fill (016) of ditch [017] is the rim of a large, Brown-glazed Earthenware bowl of late 17th to 18th century date. Fill (048) of ditch [046] produced ten sherds from three vessels of Saxo-Norman type. The presence of two Stamford ware vessels in Fabric B indicates a post-conquest date for deposition. A single sherd from a small post-conquest Stamford ware jar in Fabric B was recovered from fill (104) of ditch [108]. The two Stamford ware sherds recovered from fill (147) of ditch [142] are of mid to late 12th century type.

Terminus [128] (fill 127) produced two sherds from Early Medieval Handmade jars or bowls of East Anglian type. Similar vessels usually appear in groups of late 11th to early/mid-13th century date in South Lincolnshire. A

single sherd recovered from fill (141) of terminus [140] is from a Stamford ware jar or pitcher in Fabric B of post-conquest 11th to 12th century date.

Pit [146] (fill 144) contained two sherds from Stamford ware vessels in Fabrics A and A/G. These vessels have the potential to be of pre-conquest 11th century date and certainly date to no later than the mid-12th century. Seven thin flecks from a single Bourne Area Early Medieval Wheel-thrown Shelly ware jar or bowl of probable 12th century date were recovered from lower fill (089) of pit [087]. Two fills (deposits 110 and 111) of pit or well [112] produced a total of seven sherds of pottery, each representing an individual vessel. The group is mixed with the latest sherd coming from a decorated Boston Toynton-type jug of potential mid/late 13th to mid-14th century date.

Deposit (013) produced sixteen sherds from nine Stamford ware vessels in mixed fabrics. The chronologically latest fabric (Fabric C) does not appear in groups pre-dating the mid-12th century. The three vessels in Fabric A, the jar or pitcher in Fabric A/B and the small jar or bowl in Fabric B/G are unlikely to post-date the mid-12th century. If this small group is contemporary it dates to the mid-12th century otherwise the small Fabric C jar has a potential mid to late 12th century date.

A group of forty-two sherds representing thirteen vessels was recovered from deposit (014). The group is mixed although most vessels are likely to be of 12th to early/mid-13th century date. The latest vessels in the group are probably the five Bourne Area Early Medieval Wheel-thrown Shelly ware jars and bowls and the squat Bourne Area Sparsely Shelled ware jar. These vessels are most likely to date to between the mid/late 12th and early/mid-13th centuries and may represent primary or redeposited primary, deposition.

Deposit (031) produced three sherds from a small Stamford ware pitcher of pre-conquest 11th to mid-12th century date and two sherds from a large Bourne Area Early Medieval Wheel-thrown Shelly ware shallow bowl or dish similar to those found in deposit (014).

The two sherds found in deposit (037) are of Saxo-Norman type and come from a small Stamford ware pitcher in Fabric B/G and a South Lincolnshire Saxo-Norman Oolitic ware jar or bowl. The pitcher is of post-conquest 11th to mid-12th century date whilst the jar or bowl can only be dated to between the 11th and 12th centuries.

A single handle sherd recovered from deposit (038) is from a jug or pitcher in Stamford ware Fabric B. The vessel is of post-conquest 11th to 12th century date.

Deposit (039) produced a small group of thirty sherds representing seventeen vessels of mixed early medieval and medieval type. If the group is contemporary it belongs to the period between the late 12th and early/mid-13th centuries otherwise as individual sherds the latest vessels have the potential to date into the 14th century.

Twenty-two sherds representing fifteen vessels of mixed Saxo-Norman to medieval type were recovered from deposit (041). The latest vessels are most likely to date to between the late 12th and mid-13th centuries.

Silt deposit (069) produced three sherds of Saxo-Norman type. The two Stamford ware vessels in Fabric C indicate a post-mid-12th century date, but the jar or bowl in East Lincolnshire Abundantly Shelled ware could extend into the 13th century.

Eight sherds of Saxo-Norman type and an early medieval sherd representing eight vessels in total were recovered from silt deposit (075). Eight of the vessels are Stamford ware jars, pitchers and one sherd are from a small Developed St Neots ware jar. If these vessels are contemporary, they belong to the mid-12th century otherwise the latest Stamford ware vessels have the potential to date up to the late 12th century and the St Neots ware jar into the 13th century.

Silt deposit (077) produced four sherds of mixed Saxo-Norman and medieval type, each representing an individual vessel. The latest vessel is probably a small Medieval Toynton ware jug of late 13th to 14th century type.

The seven sherds recovered from silt deposit (082) come from two Stamford ware vessels. A sherd from a small jar or bowl dates to no later than the mid-12th century whilst the jar in Fabric B/C represented by six sherds is highly unlikely to predate the mid-12th century, If the two vessels are contemporary, they belong to the mid-12th century otherwise the Fabric B/C jar could date to as late as the end of the 12th century.

Silt deposit (084) produced fourteen sherds from five vessels of mixed Saxo-Norman to medieval type. The latest sherd is from a Medieval Toynton ware jug of late 13th to 14th century type.

A single tiny sherd from a small South Lincolnshire Saxo-Norman Oolitic-tempered jar of potential 11th to mid-12th century date was recovered from fill (098) of pit (094) during sampling.

Four sherds, each representing an individual vessel of medieval type, were recovered from waste deposit (109). Two sherds from a small jar and a bowl are of 13th to 14th century Medieval Bourne type. A copper-glazed Lincoln 13th to 14th century Glazed ware jug is of early/mid to late 13th century date whilst the small Medieval Toynton ware jug is of late 13th to 14th century type. If this small group is contemporary it belongs to the period between the late 13th and early/mid-14th centuries.

Waste deposit (116) produced eleven sherds from six vessels of medieval date. The small group includes vessels of Baston (SLBTOX), Bourne (BOUA), Lincoln (LSW2) and Toynton types (BOSTTT and TOY). The small group is not entirely contemporary as the Lincoln ware jug (LSW2) dates to between the early and early/mid-13th century whilst the Toynton ware jugs (TOY) are of late 13th to 14th century type.

Two sherds were recovered from waste deposit (118). One sherd is from a small Early Medieval Handmade ware jar or bowl in Bourne Fabric G/E, and one is from a large 13th to 14th century Medieval Bourne ware bowl in Fabric B.

Waste deposit (119) produced a single sherd from a Boston Toynton-type jug of mid/late 13th to mid-14th century date.

Summary and Recommendations

This assemblage is extremely diverse encompassing more than sixty-two fabrics grouped into thirty-six ware types of late Saxon to post-medieval date. The nature of deposition and lack of availability of a detailed site report for the assessment of this assemblage renders detailed discussion of individual chronological phases of activity on the site impossible. The recovered material however does suggest that most of the activity in the vicinity of the site took place between the mid-12th and mid-14th centuries. The pottery suggests that although most vessels in use in the local area were supplied by fairly local production centres such as Baston, Bourne and Stamford, regional imports from Cambridgeshire, East Anglia (most probably Norfolk), Lincoln and Nottingham were readily available.

Thirteen sherds have been removed to the County Fabric Type Series otherwise this important assemblage should be retained for future study. Eighteen vessels are suitable for future illustration of potential post-conquest to 13th century types to be found in the local area.

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CERAMIC BUILDING MATERIAL
By Jane Young

Introduction

Twenty-seven fragments of ceramic building material comprising handmade structural brick, hand-formed brick or slab, pantile and fired clay, weighing 4.071kgs in total, were submitted for examination. The chronologically identifiable material is of late medieval to early modern date.

The fragments were examined at x 20 binocular magnification using a binocular microscope. The fired clay, handmade and hand-formed bricks were divided into five site-based fabrics based on microscopic examination. Descriptions of these site-based fabrics based on x20 binocular magnification are given below. The assemblage was recorded using ceramic codenames (Table 4) and the resulting archive was entered in an Access database (Appendix 1). Recording complies with the guidelines laid out in Slowikowski, *et al.* (2001), the Archaeological Ceramic Building Materials Group guidelines (2001) and the Lincolnshire County Council's *Archaeological Handbook* (sections 13.4 and 13.5).

Condition

The material recovered is mainly in a very abraded to abraded condition. The hand-formed bricks are in poor and friable condition and will need careful packaging for deposition in a museum store, Individual fragment size ranges from 1 gram to 603grams.

The Ceramic Building Material

A limited range of ceramic building material, mainly late medieval to post-medieval handmade brick, or hand-formed brick or slab associated with salt making was examined. The assemblage also includes a limited amount of fired clay and two early modern pantile.

Table 4: *Ceramic building material codenames and total quantities by fragment count and weight in grams*

Codename	full name	Total fragments	Total weight
BRK	Brick	9	2100
FIRED CLAY	fired clay	4	195
HFBRK	Hand-formed brick	12	1690
PANT	Pantile	2	86
Totals		**27**	**4071**

The Late Medieval to Late Post-medieval Brick

Nine fragments of handmade brick from seven bricks in two site-based fabrics were presented for examination. The bricks are of late medieval to early post-medieval type with six of the examples from the site being recovered from deposits that produced also pottery of late 13th to early/mid, mid or late 14th century date. Two brick types were identified in the assemblage, each being in similar almost inclusion-free micaceous fabrics (Site Fabrics 1 and 2).

- Site Brick Type 1

The six bricks of this type are in site-based Fabric 1. This oxidised fabric ranges in hue from orange through orange-red to red with the fabric becoming redder the higher fired the brick. There is some cream marbling to a

few pieces. The micaceous fabric is almost inclusion-free but has occasional clay pellets up to 5mm in size and variable patches of fine rounded calcareous grains and round to subround quartz grains. Abundant fine round to subround quartz grains are used for the bedding and moulding sand. The recovered fragments suggest that these bricks have been produced using a mould dipped diagonally into sand after dipping into water thus giving two adjoining sides (an end and a stretcher) that are sand-moulded and two that are slop-moulded. No complete measurements are available, but the single width recovered is 130mm and the thickness varies between 58mm and 60mm. The upper surface of the brick may be slightly sunken, and one example has a sunken end margin. The surfaces of the bricks are variably vegetal marked, probably due to stacking during drying on grass when still sufficient wet to cause an impression.

- Site Brick Type 2

A single fragment in site-based Fabric 2 represents this brick type. The brick is fairly highly fired to a red hue and has yellow salt-surfacing to the upper surface. The fabric is similar to that of Fabric 1 but contains more common calcareous grains and sparse to moderate very variable iron-rich grains. The bedding consists of common fine calcareous inclusions and abundant round to sub-round quartz grains of mainly 0.3mm to 0.4mm size. The recovered fragment has evidence for slop-moulding, however as only part of one side was recovered this brick type as with Type 1 may have been manufactured using the part slop-moulding and part sand-moulding method, The recovered brick is 60mm thick and has a stacking scar on the side.

The Pantile

Two fragments of early modern pantile in a fine red sandy fabric were recovered. The tiles are of late 19th to 20th century type.

The Hand – formed Brick or Slab

Twelve fragments in a very poor condition appear to be from nine non-structural hand-formed bricks or slabs and an uncertain but probably similar adapted form. None of the recovered pieces are complete in thickness but the larger fragments where measurable vary between 53 and 78mm in size. Several edge flecks with two unevenly flattened surfaces and one corner piece with three surfaces each at roughly 90 degrees are present in the group. One of the fragments in Site Fabric 3 has been adapted before firing with a purposely shaped arch cut into one side. The purpose of this object is unclear, but it may have been designed to fit around a rounded object. It is most probable that these bricks or slabs were associated with salt-making, however only two pieces have sufficient remaining of the original surfaces to detect any of the yellow salt-blushing typically associated with this activity.

- Site Fabric 3

The fragments in this fabric are of a dull orange to orange-brown hue. The micaceous fabric contains few inclusions other than the fine compact quartz sand of below 0.1mm that forms the basis of the fabric, although common rounded organic voids of between 0.3mm and 1.0mm are readily visible by eye. These voids give the impressions of being formed by decayed roots possibly suggesting that the 'clay' was merely used as dug.

- Site Fabric 5

A single very abraded lump with a small patch of original flattened surface is in a fabric similar to that of Fabric 3 but also containing abundant iron-rich inclusions and patches of pre-dried or fired clay.

The Fired Clay

Four pieces of fired clay from two objects were recovered from the site. Three fragments in a fairly fresh condition form a thin hand-pressed wedge of clay. The wedge is in Fabric 3 and varies in thickness from 3.0mm to 35.0mm. There are multiple finger and thumb-pressings on both the upper and lower surfaces formed by the squeezing of a clay lump into a suitable shape for use. It is probable that these wedges were deliberately manufactured for a specific one-off use to stabilise various components associated with salt production. An abraded 30mm thick flake in Site Fabric 4 is difficult to interpret. The flake has an upper flattened surface into which a diagonal rounded profiled groove pointing downwards has been impressed before firing.

- Site Fabric 4

A single abraded flake in this fabric is fired to a red hue. The calcareous fabric contains abundant fine calcareous grains of mainly below 0.1mm size/

The Site Sequence

The recovered material was found in eight deposits across the site and as machine finds (context 004). A single large fragment from a handmade brick in Fabric 1 was recovered from fill (016) of ditch [017]. This is the only Type 1 brick to have a partially reduced core possibly suggesting cracking during firing. Ditch [046] (fill 048) produced four very abraded fragments from three handmade bricks or slabs. One of these pieces is the only one to be found in Fabric 5. A large fragment from a handmade brick or slab was recovered from fill (050) of ditch [049]. Two fills (deposits 054 and 055) of ditch [053] produced a mixed group of three fragments. One edge flake is identifiable as coming from a handmade site Type 1 brick whilst the other two pieces are more difficult to be certain of their original form or purpose. A very abraded corner flake in Site Fabric 3 with a purposely shaped arch cut inside may be from an adapted hand-formed brick or slab whilst the other flake (the only piece in Fabric 4) has also been adapted but may be from a structural or salt-working associated brick.

Well or pit [112] (fill 111) produced five fragments from three handmade site Type 1 late medieval to early post-medieval bricks. Three of the pieces join to form a 130mm wide brick of 58mm thickness.

The only fragment of late medieval to early post-medieval site Brick Type 2 was recovered from waste deposit (119). Waste deposit (116) produced a very small edge flake from a Type 1 brick.

The remaining assemblage was recovered as machine finds (context 004). This group comprises two early modern pantiles, five hand-formed bricks or slabs and three pieces from a single hand squeezed wodge of clay in a fairly fresh condition.

Summary and Recommendations

A narrow range of ceramic building material, mainly consisting of late medieval to early post-medieval brick of probable 14th to 15th century date and hand-formed bricks or slabs probably associated with salt production. Salt-production related ceramic finds from the immediate area of the site are discussed by Lane (2020) together with a history of salt production in the area. The earliest use of the early structural brick found on the site is difficult to determine. Three of the deposits producing brick also contain groups of late 13^{ths} to 14th century pottery (the earliest group of probable late 13th to early/mid-14th century date comes from fill (055) of ditch [053] possibly suggesting a very early date for the bricks, however due to the nature of the site and the small groups recovered the pottery could be entirely residual in deposition. The brick may not have been used in a building as much early brick is used for structures such as drains, well or cess pits.

The two fragments of early modern pantile have been discarded. The other material should be retained but the hand-formed bricks/slabs and the fired clay will need careful packaging.

CLAY PIPE
By Denise Buckley

Introduction

Two clay pipes, together weighing 13.5g, were recovered during archaeological investigations at Sunnydale Close, Surfleet, Lincolnshire. The material was recorded in August 2022.

Analysis of the clay pipes followed the guidance published by Davey (1981) and the material is detailed in the accompanying table. Dating was taken from the bore size using the Harrington scale.

Condition

The clay pipes are in stable condition.

Results

Table 5 Clay Pipes

Context no.	Bore diameter /64"					NoF	W(g)	Comments	Date
	8	7	6	5	4				
004		2				2	13.5	Plain stems.	1650-1680
Totals		2				2	13.5		

Summary and Recommendations

Two plain stems dating to the second half of the seventeenth century were recovered during the initial machine stripping of the site. Apart from dating evidence they are of no further potential and can be discarded.

IRON SLAG

By Charles Simpson BSc (Hons), MA

Introduction

Seven items listed as slag were recovered from three contexts (054), (116) and (119) during archaeological investigations at Sunnydale Close, Surfleet, Lincolnshire, and were submitted for analysis and reporting. There was no provisional dating evidence available at the time of writing from ceramics evidence. The material was recorded in September 2022.

Methodology

The fragments were cleaned of surface debris, measured, weighed and macroscopically examined to identify diagnostic material and features. Exceptionally encrusted fragments were washed and dried in line with recommendations from Dungworth (pers.comm.) to reveal diagnostic surface features if present.

Full reference was made to published slag and crucible guides (Crew, 1995 & 1996; Dungworth et. al., 2012a, b & c; Historic England, 2015 & 2018; HMS, 2009; Tylecote, 1990) and reference material.

Results

A summary of the assemblage is recorded below in ***Table 6*** below.

Context No.	Material	Date	No. Pieces	Mass (g)	Comments
054	fas	?	1	17	Low density, vesicular, non-magnetic, yellowy / light grey fuel ash slag.
116	furn	?	1	292	Dense, non-vesicular, non-magnetic, dark grey furnace slag. Possible pcb frag.
119	furn	?	5	1914	Dense, non-vesicular, non-magnetic, dark grey and mottled furnace slag. Possible pcb frag.

furn = furnace slag (undiag.) pio = possible iron object tap = tap slag fas = fuel ash slag
shb = smithing hearth bottom pcb = plano-convex bottom blm = bloomery slag lin = furnace lining
(f_a) = fractured into multiple pieces irnb = iron bloom ore = metal working ore cru = crucible
Rm = Roman (RB = Romano British) med = medieval pm = post medieval mod = modern

Discussion

The main assemblage was small in terms of overall numbers of fragments (7).

The fragment from context (054) was the smallest of the slag fragments recovered at 17g in mass. The single fragment is of low density, non-magnetic, vesicular and a yellowy / light grey in colour. Whilst this could be a

fuel ash slag, its light colouring, low mass and bubbly vesicular form suggest this material is more likely a low mass siliceous slag deriving from the heating of silica rich materials present in the areas surround fires used in the production of salt.

The next fragment was recovered from context (116) and was uniformly dense, non-magnetic, non-vesicular and dark grey in colour. This fragment has a moderately smooth edge to one side forming an arc. This fragment may be part of the slag that collects in the vase of a non-tapping furnace called a plano-convex bottom (pcb).

The final five fragments where the largest in physical size and mass and were recovered from context (119). The smallest of these five was dark grey in colour, dense, non-vesicular and non-magnetic. With a clearly identifiable top and bottom, this fragment also had features suggestive of a pcb that has been broken up.

The other four fragments from context (119) were dark brown / dark grey with mottled veins of a lighter material and orange crumbly oxidised patches. There was some evidence to orient a couple of the pieces but nothing to suggest further pcbs. The other couple of fragments also contained fragments of the charge jumbled in with the slag. This material represents undiagnostic furnace slag resulting from iron working. Even on the largest fragment, there was no evidence of flow on the slag.

The shape and lack of visible abrasion on the slag fragments recovered suggests they have not travelled far once deposition occurred.

Tapping furnaces were most common in British late Iron Age and the Roman period and fell into decline in favour of non-tapping furnaces until around the 9th-10th century when they rose in favour once more (Historic England, 2018).

Given the likely presence of pcbs and the lack of any visible flow, this collection of slag may have originated in non-tapping furnaces. Whilst this does fit into the earliest part of the current date range for the site and locale, it could be a localised difference in iron working technology carried this forward into the early medieval period.

This conclusion may be further supported by the ceramics evidence and more accurate dating of the fragments could be ascertained via further supplementary investigation (such as sectioning and via XRD / XRF analysis).

Recommendations

No further work is recommended at this stage. The two fragments of pcb from (116) and (119) (located in separate bags) should be retained as part of the archive and should pose no problems for long term storage. The rest of the material forming this assemblage may be discarded.

Any environmental samples taken from the features or deposits that produced slags, should be scanned for small fragments of metalworking debris such as hammerscale or other slag residues, which may indicate any associated industrial activity in the vicinity and provide further details of casting or smithing occurring in the vicinity.

Should further investigations be undertaken at any of the monitored locations, it would be advisable to seek appropriate advice on any sampling strategies.

OTHER FINDS

By Denise Buckley and Paul Cope-Faulkner

Introduction

Twelve other finds, together weighing 1138.2g, were recovered during archaeological investigations at Sunnydale Close, Surfleet. The material was recorded in August 2022.

Condition

The other finds are in stable condition, although the iron heavily encrusted.

Results

***Table** 7 Other Materials*

Cxt	Material	Description	NoF	W (g)	Date
004	Iron	Hinge. 125mm long, 4mm thick	1	113.1	Late Post Medieval
	Stone	Rhenish lava stone.	1	123.8	
016	Iron	Handle.	2	12.9	Late Post Medieval
052	Stone	Coarse grained sandstone; burnt. Natural. Discard.	1	713	LPM
084 /1\	Stone	Biconical heat affected chalk spindle whorl. Some horizontal and vertical cracks on surface; 38mm diameter, 28mm high, central perforation 10mm.	1	47.8	Lsax / Emed
109	Iron	Probable nail. Heavily encrusted.	1	14	Late Post Medieval
	Stone	Rhenish lava stone; pieces link.	4	80.8	
111	Glass	Glass – pale blue bead	1	<1	Medieval
141	Iron	Hinge strap	1	32.8	Late Post Medieval
Total			12	1138.2	

Range

The other finds were recovered from (004) machining finds, (014) deliberate backfill of silt-waste, (016) the fill of ditch [017], (052) the fill of ditch [049], (054) the fill of ditch [053], (084) silt-waste backfill, (109) silt-waste deposit, (141) the fill of ditch terminus [140] and comprise of iron and stone items.

Machining layer (004) and waste deposit (109) both produced fragments of Rhenish lava stone. Although the raw material was imported to manufacture items such as quern stones, there are no worked faces on these pieces to suggest that these are querns.
Fill (052) of ditch [049] produced a natural piece of coarse-grained sandstone which has been burnt.

Silt waste backfill (084) produced a stone spindle whorl (small find /1\). It has a characteristic late Saxon/early Medieval form. Pottery from this period was also recovered from this deposit. Similarly shaped examples found in Lincoln were from 10th to 12th century deposits, and in 11th to 14th century levels at Kings Lynn *(Clark and carter 1977, 315-16, no's 11 & 14)* and from a deposit containing mid-12th to mid-13th pottery at Huntingdon, Cambridgeshire *(Taylor, G., APS report 72/09)*.



Small find /1\, Stone spindle whorl from deposit (084)

Several iron items of late post medieval date were recovered – a hinge from machining layer (004), what is most likely a hinge strap from fill (141) of ditch terminus [140], a small drawer or cupboard handle from fill (016) of ditch [017] and what is most likely a nail, from waste deposit (109).

Summary and Recommendations

Several stone and iron items dating from the late Saxon/early Medieval period to the late Post Medieval period were recovered from machining, ditch fills and waste deposits. The items indicate domestic presence in the late Saxon/early Medieval and late post Medieval periods.

The iron items should be x-rayed to aid further identification. The stone from (052) can be discarded. The other stone and iron items should be retained as part of the site archive.

Abbreviations

ACBMG	Archaeological Ceramic Building Materials Group
BS	Body sherd
CBM	Ceramic Building Material
CXT	Context
LHJ	Lower Handle Join
NoF	Number of Fragments
NoS	Number of sherds
NoV	Number of vessels
PCRG	Prehistoric Ceramic Research Group
TR	Trench
UHJ	Upper Handle Join
W (g)	Weight (grams)

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Archive Catalogues

Archive catalogue 1, Post Roman Pottery

ext	cname	sub fabric	form type	No. S	No. V	W (g)	decoration	part	ref no	description	rim diam	rim EVE
004	BAMWTS	Fabric 1	small jar ?	1	1	15		base		fully oxidised; untrimmed base; concretions incl breaks	0	0
004	BASS		large jar	1	1	60	long pressed rim edge	rim	DR 10	lid seated everted rim; ID; concretions incl. breaks	16	18
004	BERTII	coarse orange	jar ?	4	1	152		base		mid-17th to 18th; fairly fresh condition; int mid brown glaze with fe flecks; wear around under vasal edge; bead base; ext. purple/red slip; concretions incl. breaks	0	0
004	BL	GRE	small drinking vessel	1	1	6		BS		mid-16th to mid-17th; int & ext. glaze	0	0
004	BOU	fine OX/R/OX	jug	1	1	10		rim			13	10
004	BOU	OX fine sandy	small jug	1	1	6		BS		yellow/brown glaze	0	0
004	BOU	OX fine sandy	small jug / jar	1	1	8		BS			0	0
004	BOUA	Fabric A	large bowl	1	1	16		rim		int glaze; wear around inner rim ledge; int glaze; ext. soot; concretions incl. breaks	20	8
004	BOUA	Fabric A	large jar / bowl	2	1	72		BS		fairly fresh condition; ridged body; fresh break no joining sherds: part concretions incl. breaks	0	0

ext	ename	sub fabric	form type	No. S	No. V	W (g)	decoration	part	ref no	description	rim diam	rim EVE
004	BOUA	Fabric A	small jar	1	1	12		rim		concretions incl. breaks	12	12
004	BOUA	Fabric A	small jug	3	1	31		rim & neck	DR 06	grooved neck; glaze; concretions incl. breaks	14	14
004	BOUA	Fabric A	small jug / jar	1	1	5		BS		concretions incl. breaks	0	0
004	BOUA	Fabric A/B	jar	1	1	17		BS		thick int glaze; concretions incl. breaks	0	0
004	BOUA	Fabric A/B	Jug / jar	1	1	18		BS		glaze; concretions incl. breaks	0	0
004	BOUA	Fabric A/B	Jug / jar	1	1	7		BS		internal deposit; concretions incl. breaks	0	0
004	BOUA	Fabric A/B	large jug	1	1	60		handle		grooved oval strap handle; concretions incl. breaks	0	0
004	BOUA	Fabric A/B	small jar	1	1	6		BS		concretions incl. breaks	0	0
004	BOUA	Fabric A/B	small jug	2	1	30		BS		unmatured glaze; concretions incl. breaks	0	0
004	BOUA	Fabric B	jar	1	1	37		base		int misfired glaze with patches abundant sand stuck in; concretions incl. breaks	0	0
004	BOUA	Fabric B	Jug / jar	1	1	8		BS		not a Bourne product; concretions incl. breaks	0	0
004	BOUA	Fabric B	large bowl	1	1	9		rim		fresh break no joining sherds; concretions incl. breaks	24	5
004	BOUA	Fabric B/C	small jar	1	1	5		BS		ridged shoulder; concretions incl. breaks	0	0
004	BOUA	Fabric B/C	small jar / bowl	1	1	13		BS		int glaze; abraded; concretions incl. breaks	0	0
004	BOUA	Fabric C	jar ?	1	1	11		BS		concretions incl. breaks	0	0
004	BOUA	Fabric C	small jar	2	1	5		BS		misfired glaze; concretions incl. breaks	0	0
004	CIST		cup	1	1	4		BS		Ext. & part int brown glaze; Bourne; fabric incl. odd ca. County Fabric Type Series	0	0
004	DST	Fabric B	small narrow neck jug / bottle	1	1	4		neck		tall, ridged neck; spalling cu glaze	0	0
004	DUTR		footed cooking pot / pipkin	1	1	34		foot		almost claw foot	0	0
004	EMHM	+ ca; East Anglia ?	small jar	4	1	76		BS		moderate ca; ext soot; fresh breaks no joining sherds; concretions incl breaks	0	0
004	EMHM	Bourne Fabric G/E	large bowl	1	1	44	pressed rim top	rim		square rim; ? ID; concretions incl. breaks	32	7
004	EST	Fabric A	pitcher?	1	1	6		BS		thick green glaze; incised shoulder groove	0	0

ext	ename	sub fabric	form type	No. S	No. V	W (g)	decoration	part	ref no	description	rim diam	rim EVE
004	GRE		Jar / bowl	1	1	4		BS		int mid brown glaze	0	0
004	GRE		Jar / bowl	1	1	8		BS		int mid brown glaze	0	0
004	GRE		Jar / bowl?	1	1	1		BS		int mid brown glaze; fresh break no joining sherds	0	0
004	NDST		small jug	1	1	1		BS		? ID; thick cu glaze CFTS	0	0
004	NOTGL		jug	1	1	18		BS		cu glaze	0	0
004	SLBTOX	Fabric 2	jug	1	1	62	applied curved & vertical strips - ? Fleur de lys	BS		misfired/burnt reduced/amber glaze; ? ID; reduced core; concretions incl. breaks CFTS	0	0
004	SLIP	dull light orange	large bowl	1	1	16		rim		mid-17th to 18th; spalled int glaze; ext. orange slip; concretions incl. breaks	32	7
004	SLIP	light orange	large bowl	1	1	10		BS		mid-17th to 18th; spalled int glaze over white slip; ext. orange slip; concretions incl. breaks	0	0
004	SLIP	light orange	large bowl	1	1	22		rim		mid-17th to 18th; int spalling yellow glaze over white slip; ext. orange slip; wear mark around ext. rim edge; concretions incl. breaks	30	8
004	ST	Fabric A	Jar / bowl	1	1	2		BS			0	0
004	ST	Fabric A	small jar / pitcher	1	1	2		BS		thin glaze	0	0
004	ST	Fabric B	collared jar / pitcher	1	1	8		rim			15	13
004	ST	Fabric B	Jar / pitcher	2	1	5		BS		thin glaze	0	0
004	ST	Fabric B	miniature jar / cup	1	1	1		BS			0	0
004	ST	Fabric B	small jar / bowl	1	1	7		BS		Ext. soot; concretions incl. breaks	0	0
004	ST	Fabric B/C	Jar / bowl	1	1	17		BS		Ext. soot; knife trimmed body; concretions incl. breaks	0	0
004	ST	Fabric B/C	Jar / pitcher	1	1	14		BS		patchy thin glaze; concretions incl. breaks	0	0
004	ST	Fabric B/G	small jar / pitcher	1	1	19		base		orange-yellow glaze	0	0
004	ST	Fabric C	small jar / jug	1	1	3		BS		thin glaze	0	0
004	ST	Fabric G	small jar / pitcher	1	1	8		BS		orange-yellow glaze	0	0

ext	ename	sub fabric	form type	No. S	No. V	W (g)	decoration	part	ref no	description	rim diam	rim EVE
004	STAMT		Jug / pitcher ?	1	1	98		BS		near vitrified firing; fabric as ST Fabric A + comm fine fe; sharp basal angle & edge; ext. spots glaze; ext. soot patch;? Id; concretions incl. breaks CFTS	0	0
004	TGW		small bowl ?	1	1	29		base		footring base with wear around; plain	0	0
004	TOY		jug	1	1	29		rim		rounded cuff rim; concretions incl. breaks	11	20
004	TOY		jug	1	1	26		base		'internal deposit; concretions incl. breaks	0	0
004	TOY		jug	7	1	106		BS		concretions incl. breaks	0	0
004	TOY		Jug / jar	1	1	6		BS		concretions incl. breaks	0	0
004	TOY		large jug / jar	1	1	13		BS		concretions incl. breaks	0	0
004	TOY	+ ca	jug	1	1	5		BS		unmatured glaze; concretions incl. breaks	0	0
013	ST	Fabric A	small jar	1	1	26		base		soot ext. & breaks; thin green glaze	0	0
013	ST	Fabric A	small jar/pitcher	2	1	8		BS		thin yellow green glaze	0	0
013	ST	Fabric A	small jar/pitcher	4	1	17		BS		thick light green glaze	0	0
013	ST	Fabric A/B	jar/pitcher	2	1	29		BS		thin orange-green glaze	0	0
013	ST	Fabric B	small jar/bowl	1	1	2		BS		Ext. soot	0	0
013	ST	Fabric B	small jar/pitcher	2	1	8		BS			0	0
013	ST	Fabric B	small jar/pitcher	1	1	2		BS		thin orange-green glaze	0	0
013	ST	Fabric B/G	small jar/bowl	1	1	8		BS		Ext. soot; trails int glaze	0	0
013	ST	Fabric C	small jar	2	1	14		base & BS		soot ext. walls & underbase; knife trimmed ext. above basal angle	0	0
014	BAEMWTS	Fabric 1	jar/bowl	4	1	10		BS		3x flecks; int & ext. soot; concretions incl. breaks	0	0
014	BAEMWTS	Fabric 1	large shallow bowl / dish	7	1	105		rim & BS	DR 12	Ext. carbonised deposit & soot; rounded rim with ext. bead; leached surfaces; concretions incl. breaks X1 sherd to CFTS	24	17
014	BAEMWTS	Fabric 2	large jar	1	1	7		rim		lid seated everted rim; ext. soot; fresh break no joining sherds; concretions incl. breaks CFTS	0	3

ext	cname	sub fabric	form type	No. S	No. V	W (g)	decoration	part	ref no	description	rim diam	rim EVE
014	BAEMWTS	Fabric 2	large jar	14	1	169		rim & BS	DR 15	early medieval type rim; ext. soot; part leached; concretions incl. breaks	26	18
014	BAEMWTS	Fabric 2	large shallow bowl / dish	6	1	102		rim & BS	DR 13	simple upright rim; ext. soot; leached surfaces; concretions incl. breaks X1 sherd to CFTS	28	20
014	BASS		squat jar	1	1	9		rim	DR 16	unusual flat topped wedge rim;? ID; ext. soot; concretions incl. breaks	19	7
014	EMHM	East Anglia	small jar/bowl	2	1	7		BS		Ext. soot; concretions incl. breaks	0	0
014	SLEMS		small jar	1	1	2		BS		Ext. soot; concretions incl. breaks	0	0
014	SLQS		jar/bowl	2	1	10		BS		Ext. soot; flake; concretions incl. breaks	0	0
014	SLSNOL		small jar	1	1	8		BS		Ext. soot; concretions incl. breaks; concretions incl. breaks	0	0
014	SLSNOL		small jar/bowl	1	1	26		base		int & ext. soot; concretions incl. breaks	0	0
014	SLSNQCA		small jar	1	1	9	shallow finger pressings around rim edge	rim	DR 05	concretions incl. breaks	13	11
014	STCRUC	Fabric A	small hemispherical crucible ?	1	1	2		BS		Ext. fuel ash slag; concretions incl. breaks	0	0
016	BERTH	coarse light orange	large bowl	1	1	82		rim		late 17th to 18th; int red slip under int dark glaze; ext. orange slip; square bifid rim; wear around ext. lower rim edge	28	7
016	DST	Fabric B/C	small jug/jar	1	1	3		BS		thick cu speckled yellow glaze; concretions incl. breaks	0	0
016	ST	Fabric A	small jar/bowl	1	1	2		BS		soot int ext & breaks	0	0
031	BAEMWTS	Fabric 2	large shallow bowl/dish	2	1	27		rim & BS		upright rim; ext soot; concretions incl breaks	29	4
031	ST	Fabric B	small pitcher ?	1	1	3		neck			0	0
037	SLSNOL		jar/bowl	1	1	13		BS		ext soot; concretions incl breaks	0	0
037	ST	Fabric B/G	small pitcher ?	1	1	16		neck		thin glaze patch; burnt ?;ext soot; concretions incl breaks	0	0
038	ST	Fabric B	jug/pitcher	1	1	89		handle		strap handle; concretions incl breaks	0	0

ext	ename	sub fabric	form type	No. S	No. V	W (g)	decoration	part	ref no	description	rim diam	rim EVE
039	BAEMWTS	Fabric 1	large shallow bowl/dish	1	1	57		rim	DR 11	ext carbonised deposit & soot; rounded rim with ext bead; leached surfaces; concretions incl breaks	24	7
039	BAMWTS	Fabric 1	jar/bowl	1	1	2		BS		ext soot; concretions incl breaks	0	0
039	BAMWTS	Fabric 1	large jar	1	1	59		rim	DR 18	everted rim; ext soot; concretions incl breaks	18	13
039	BAMWTS	Fabric 1	large jar	4	1	113		rim		everted rim; ext soot patch; concretions incl breaks X1 sherd to CFTS	20	20
039	BOUA	Fabric A	jar/bowl	1	1	3		BS		ext soot; concretions incl breaks	0	0
039	DST	Fabric B/C	small jug/jar	2	1	27		base		pale green cu speckled glaze; soot patch centre int base & ext walls & base	0	0
039	DST	Fabric C	small jug ?	2	1	71		base & BS		pale green cu speckled glaze; knife trimmed band above base; concretions incl breaks	0	0
039	EMIIM	+ ca;East Anglia ?	large jar	2	1	44		rim	DR 08	moderate to common ca; concretions incl breaks	19	17
039	EMHM	+ ca;East Anglia ?	small jar	3	1	22		base		ext soot; carbonised deposit int on walls; moderate fine ca; concretions incl breaks	0	0
039	EMIIM	East Anglia	small jar	1	1	7		BS		int & ext soot; concretions incl breaks	0	0
039	EMIIM	East Anglia	small jar	1	1	5		neck		concretions incl breaks	0	0
039	EMHM	East Anglia	small jar/bowl	2	1	7		base & BS		ext soot; concretions incl breaks	0	0
039	MEDX	OX fine-medium shelly	small jar	3	1	30		BS		wheelthrown; high fired; shell masked on surface; comm fine-med shell; concretions incl breaks	0	0
039	MEDX	OX med shelly	small jug/jar	2	1	10	several (2+) rows square roller stamping on shoulder	BS		STANLEY FABRIC A or CAMBS ?;common medium shell; ext soot; concretions incl breaks	0	0
039	SLEMS		jar/bowl	1	1	3		BS		ext soot;? ID; concretions incl breaks	0	0
039	SLEMS		small jar	1	1	14		BS		wheelthrown;? ID; ext soot; concretions incl breaks	0	0
039	SLOOL		small jar/bowl	2	1	22		base		handmade; thin walled; early medieval; ext soot; concretions incl breaks	0	0
041	BAEMWTS	Fabric 2	large shallow bowl/dish	1	1	21		rim		upright rim; ext soot; concretions incl breaks	26	4
041	BAMWTO		large jar	1	1	53		base		soot ext on walls & centre underbase; wear around basal edge; concretions incl breaks CFTS	0	0

ext	ename	sub fabric	form type	No. S	No. V	W (g)	decoration	part	ref no	description	rim diam	rim EVE
041	BAMWTS	Fabric 1	jar	2	1	26		BS		ext soot; concretions incl breaks	0	0
041	BAMWTS	Fabric 1	large bowl ?	1	1	44		base		ext soot; concretions incl breaks	0	0
041	BAMWTS	Fabric 1	large jar	7	1	133		BS		ext soot; concretions incl breaks	0	0
041	BAMWTS	Fabric 1	miniature jar ?	1	1	7		base		concretions incl breaks	0	0
041	EMHM	East Anglia	jar/bowl	1	1	10		BS		ext soot; concretions incl breaks	0	0
041	MEDX	dull OX/light R/dull OX medium sandy	jar ?	1	1	28		BS		comm round to subround quartz most 0.2-0.4mm moderate to comm fine fe; ext soot; concretions incl breaks	0	0
041	SLEMO		jar	1	1	25		BS		thin walled; int manufacture finger pressings; ext soot; concretions incl breaks	0	0
041	ST	Fabric B	jug	1	1	9		rim		thin glaze	14	6
041	ST	Fabric B	jug/pitcher	1	1	3		handle		lower handle join; thin glaze; concretions incl breaks	0	0
041	ST	Fabric B	small jar/pitcher	1	1	2		BS		thin glaze	0	0
041	ST	Fabric B/C	small jar/pitcher	1	1	3		BS		orange-yellow glaze	0	0
041	ST	Fabric B/C	small jug/jar	1	1	3		neck		concretions incl breaks	0	0
041	ST	Fabric B/G	jar ?	1	1	5		neck			0	0
048	SLSNQCA		small jar	8	1	48		rim & BS	DR 04	patchy reduced/oxidised ext; ext soot patches; concretions incl breaks X2 sherds to CFTS	15	15
048	ST	Fabric B	pitcher	1	1	26		handle		lower handle join with 2 pressings; thick yellow/light green glaze; ext soot patch	0	0
048	ST	Fabric B	small jar/pitcher	1	1	8		BS		yellow glaze; int soot	0	0
052	ST	Fabric B	small collared jar/pitcher	1	1	25		BS		ext soot; concretions incl breaks	0	0
052	ST	Fabric B	small jar/pitcher	1	1	11		base		glaze; concretions incl breaks	0	0
054	DST	Fabric B	small jug/jar	19	1	238		base & BS		cu speckled yellow glaze; soot & carbonised deposit ext underbase & lower walls and soot patch int centre base; concretions incl breaks	0	0
054	EMHM	East Anglia	small jar/bowl	1	1	3		BS		concretions incl breaks	0	0

ext	ename	sub fabric	form type	No. S	No. V	W (g)	decoration	part	ref no	description	rim diam	rim EVE
054	MEDX	orange-red fine micaceous sandy	jug	1	1	11		BS		Essex micaceous ?;amber glaze; ridged body; concretions incl breaks	0	0
054	SLBTOX	Fabric 1	small narrow necked jug/bottle	1	1	9		neck		thin walled; reduced core; thin ext glaze; slightly ridged neck with shallow grooves below; concretions incl breaks CFTS	0	0
054	SLSNOL		small collared jar	1	1	7		rim		wedge rim; soot int & ext; concretions incl breaks	12	8
054	ST	Fabric B	collared jar/pitcher	1	1	7		rim		thin glaze patch	11	6
054	ST	Fabric B	small vessel	1	1	1		BS		thin walled; ext soot	0	0
054	TOY		jug	1	1	31		BS		early; upper shoulder cordon; concretions incl breaks	0	0
055	BAEMWTS	Fabric 1	jar/bowl	1	1	6		base		ext soot; concretions incl breaks	0	0
055	BAEMWTS	Fabric 2	jar	1	1	13		BS		abraded; concretions incl breaks	0	4
055	BASS		large jar	3	1	62		rim & BS	DR 09	part ext soot on rim edge; lid seated everted rim;? ID; concretions incl breaks	25	12
055	BOUA	Fabric A	small jar	1	1	5		BS		thin walled; ext soot;int glaze spots: oce shell in fabric; base pressed out; concretions incl breaks	0	0
055	BOUA	Fabric A	small jug/jar	1	1	6		BS		concretions incl breaks	0	0
055	BOUA	Fabric C	small jar	1	1	18		base		ext soot; sharp angled base; fresh break no joining sherds; concretions incl breaks	0	0
055	EMHM	Bourne Fabric G/E	jar/bowl	1	1	6		BS		abraded; concretions incl breaks	0	0
055	EMHM	East Anglia	jar/bowl	1	1	6		BS		ext soot; concretions incl breaks	0	0
055	EMHM	East Anglia	small jar/bowl	1	1	2		BS		ext soot; concretions incl breaks	0	0
055	NOTGL		small jug	1	1	3		BS		light cu glaze	0	0
055	ST	Fabric B	small collared jar/pitcher	1	1	6		rim			8	12
055	ST	Fabric B	small jar/pitcher	1	1	9		base		thin yellow glaze; weararound basal edge	0	0
055	ST	Fabric B	small jar/pitcher	1	1	7		base		ext soot	0	0
055	ST	Fabric B/C	small jar/pitcher	1	1	5		BS		thin yellow glaze	0	0

ext	ename	sub fabric	form type	No. S	No. V	W (g)	decoration	part	ref no	description	rim diam	rim EVE
055	ST	Fabric B/G	small jar	1	1	3		BS		ext soot	0	0
055	TOY		small jug	1	1	4		BS			0	0
055	TOY		small jug	1	1	15		rim		rounded cuff rim; unmatured glaze	8	12
069	ELMAS		jar/bowl	1	1	18		BS		ext & part int soot; concretions incl breaks	0	0
069	ST	Fabric C	jar/bowl/ pitcher	1	1	6		base		thin glaze; concretions incl breaks	0	0
069	ST	Fabric C	small jar/bowl	1	1	1		BS		thin walled; soot int ext & breaks	0	0
075	DNEOT		small jar	1	1	8		rim		slightly everted rim; ext soot patch; punctate brachiopod; concretions incl breaks	12	9
075	ST	Fabric B	jar ?	1	1	6		BS		int soot; concretions incl breaks	0	0
075	ST	Fabric B	small jar	1	1	6		BS		thin walled; Int soot	0	0
075	ST	Fabric B/C	jar/pitcher	1	1	4		neck			0	0
075	ST	Fabric B/C	small jar/pitcher	1	1	19		BS		ext soot: fe deposits incl breaks	0	0
075	ST	Fabric B/G	small jar/pitcher	1	1	13		BS		thin yellow glaze; concretions incl breaks	0	0
075	ST	Fabric G	jar/pitcher	2	1	8		neck		yellow glaze; ext soot	0	0
075	ST	Fabric G/B	small pitcher	1	1	39		rim with spout	DR 03	ext yellow glaze; soot patch ext	10	13
077	BOUA	Fabric A	jar	1	1	23		BS		ext soot; fabric incl moderate to comm fe; concretions incl breaks	0	0
077	ST	Fabric A/G	miniature jar/bowl	1	1	2		base		burnt ?;ext soot	0	0
077	ST	Fabric B/C	small jar/bowl	1	1	11		base		knife trimmed ext	0	0
077	TOY		small jug	1	1	10		BS		ext soot patch; concretions incl breaks	0	0
082	ST	Fabric A	small jar/bowl	1	1	3		base		soot ext	0	0
082	ST	Fabric B/C	jar	6	1	10 1		rim & BS	DR 02	ext soot	12	40
084	EMHM	East Anglia	miniature jar	7	1	66		BS	DR 17	neck downwards; unusual shape; laminating; burnt;ext soot & int patches;;very thin walled; concretions incl breaks	0	0
084	SLEMS		small jar/bowl	1	1	7		BS		internal deposit; ext soot; fresh break no joining sherds; concretions incl breaks	0	0

ext	cname	sub fabric	form type	No. S	No. V	W (g)	decoration	part	ref no	description	rim diam	rim EVE
084	ST	Fabric B/C	small jar	1	1	5		BS		concretions incl breaks	0	0
084	ST	Fabric C	jug	4	1	52		BS		thin glaze ;concretions incl breaks	0	0
084	TOY		jug	1	1	3		BS			0	0
089	BAEMWTS	Fabric 2	jar/bowl	7	1	13		BS		mainly thin flecks; ext soot; concretions incl breaks	0	0
104	ST	Fabric B	small jar ?	1	1	1		BS		thin glaze	0	0
109	BOUA	Fabric A	bowl ?	1	1	37		base		untrimmed basal edge; concretions incl breaks	0	0
109	BOUA	Fabric A	small jar	1	1	2		BS		concretions incl breaks	0	0
109	LSW2		jug	1	1	6		BS		cu glaze; concretions incl breaks	0	0
109	TOY		small jug	1	1	18		BS		concretions incl breaks	0	0
110	BOUA	Fabric A/C	jar/bowl	1	1	1		BS		concretions incl breaks	0	0
111	BOSTTT		small jug	1	1	8	applied vertical round profiled fe strips	neck		lower neck cordon; thick reduced suspension glaze: concretions incl breaks	0	0
111	EMHM	+ ca;East Anglia ?	jar/bowl	1	1	7		BS		ext soot; concretions incl breaks	0	0
111	EMIIM	East Anglia	jar/bowl	1	1	2		BS		concretions incl breaks	0	0
111	SLSHCW		jar/bowl	1	1	10		base		ext soot;? ID; concretions incl breaks; part leached	0	0
116	BOSTTT		small jug	2	1	27	applied vertical round profiled fe strips	BS		thick reduced suspension glaze; concretions incl breaks	0	0
116	BOUA	Fabric A	small jar	1	1	8		BS		ext soot: concretions incl breaks	0	0
116	LSW2		jug	1	1	13		rim		interned rim; early pocked suspension glaze	10	4
116	SLBTOX	Fabric 1	large jug	4	1	155		BS		fairly fresh condition; ridged body; runs reduced suspension glaze: internal deposit; fresh breaks no joining sherds; concretions incl breaks x1 sherd to CFTS	0	0
116	TOY		jug	2	1	34		BS		fresh break no joining sherds	0	0
116	TOY		small jug	1	1	34		base		part worn ext basal edge; concretions incl breaks	0	0

ext	cname	sub fabric	form type	No. S	No. V	W (g)	decoration	part	ref no	description	rim diam	rim EVE
118	BOUA	Fabric B	large bowl	1	1	43		rim	DR 07	sloping rim; concretions incl breaks	28	7
118	EMHM	Bourne Fabric G/E	small jar/bowl	1	1	21		BS		ext soot;? ID; concretions incl breaks	0	0
119	BOSTTT		jug	1	1	18		BS		amber glaze: fresh break no joining sherds; concretions incl breaks	0	0
127	EMHM	East Anglia	jar/bowl	1	1	2		BS		concretions incl breaks	0	0
127	EMHM	East Anglia	small jar/bowl	1	1	2		BS		ext soot; concretions incl breaks	0	0
129	ST	Fabric B	small jar	1	1	2		BS		concretions incl breaks	0	0
132	SNEOT		large shallow bowl/dish	1	1	43		rim	DR 14	sloping rim; ext soot; leached;? ID; punctate brachiopod; concretions incl breaks	24	8
132	ST	Fabric A/G	collared jar/pitcher	1	1	22	incised wavy line dec on rim top	rim	DR 01	concretions incl breaks	15	15
141	ST	Fabric B	jar/pitcher	1	1	10		BS		glaze; concretions incl breaks	0	0
144	ST	Fabric A	small jar	1	1	9		BS		int & ext part soot; concretions incl breaks	0	0
144	ST	Fabric A/G	small jar/pitcher	1	1	3		BS		glaze	0	0
147	DST	Fabric B	jug/jar	1	1	1		BS		cu speckled yellow glaze	0	0
147	ST	Fabric C	small jar/jug	1	1	5		BS		thin yellow glaze	0	0

Archive catalogue 2, Ceramic Building Material

context	cname	fabric	sub type	frags	weight	description	date	width	thickness
004	FIRED CLAY	Site Fabric 3; orange	wedge	3	117	same object; fairly fresh condition; hand pressed wedge varying from 3mm to 35mm in thickness; multi finger & thumb pressing to upper & lower surfaces	-	0	0
004	HFBRK	Site Fabric 3; orange	brick/slab	1	174	very abraded; lump with small part ext flat surface ?;53=mm thick; patch salt surfacing	-	0	0
004	HFBRK	Site Fabric 3;orange	brick/slab	2	485	very abraded; joining frags; large flecks;1x edge flake; roughly flattened upper;52+mm thick;165+mm width/length	-	0	0
004	HFBRK	Site Fabric 3;orange	brick/slab ?	1	76	very abraded; inner core flake; concretions incl breaks	-	0	0
004	HFBRK	Site Fabric 3;orange	brick/slab ?	1	69	very abraded; edge flake; flattened upper	-	0	0

context	ename	fabric	sub type	frags	weight	description	date	width	thickness
004	HFBRK	Site Fabric 3;orange	brick/slab ?	1	61	very abraded; inner core lump; concretions incl breaks	-	0	0
004	PANT	fine red sandy		1	78	Mortar. Discarded.	late 19th to 20th	0	18
004	PANT	fine red sandy		1	8	mortar; flake. Discarded.	late 19th to 20th	0	0
016	BRK	Site Fabric 1; orange-red	Site Brick Type 1	1	216	edge flake; handmade brick; sand moulded stretcher; higher fired: sunken upper; veg marked; part reduced core;45+mm thick	late medieval to early post-medieval	0	0
048	HFBRK	Site Fabric 3;orange	brick/slab	2	253	same object; very abraded;1x flake; very roughly flattened upper/lower surface;62+mm;concretions incl breaks	-	0	0
048	HFBRK	Site Fabric 3;orange	brick/slab	1	208	very abraded; small part of a finger smoothed surface;78+mm thick; very uneven finger/thumb edge pressings	-	0	0
048	HFBRK	Site Fabric 5;red	brick/slab ?	1	101	very abraded; lump; small part flattened surface; concretions incl breaks	-	0	0
050	HFBRK	Site Fabric 3;orange	brick/slab	1	236	abraded; edge flake;2x roughly flattened surfaces at 95 degrees; yellow salt blush to original surfaces; side is part veg marked:57+mm thick	-	0	0
054	HFBRK	Site Fabric 3;orange	?	1	27	very abraded; corner flake;24+mm;purposely shaped with arch cut in side	-	0	0
055	BRK	Site Fabric 1;red	Site Brick Type 1	1	55	edge flake; handmade brick; slop mould; high fired; very rough underside surface - poss bedded on small pebbles; veg marked sides; high fired	late medieval to early post-medieval	0	0
055	FIRED CLAY	Site Fabric 4;orange-red	?	1	78	abraded; flake; flattened upper with diagonal groove with round profile into body; high fired;30+mm;concretions incl breaks	-	0	0
109	BRK	Site Fabric 2;red	Site Brick Type 2	1	229	handmade; slop moulded; high fired; bedding incl comm fine ea & abundant round to subround quartz grains of 0.3-0.4mm;salt surfaced upper; part stacking scar on stretcher	late medieval to early post-medieval	0	60
111	BRK	Site Fabric 1;orange	Site Brick Type 1	3	708	joining pieces;handmade;end;2x slop moulded sides & 1x sand moulded; sunken end margin; smoothed upper surface; some veg marking; unevenly bedded with abundant fine round to subround quartz	late medieval to early post-medieval	130	58
111	BRK	Site Fabric 1;orange-red	Site Brick Type 1	1	603	handmade; corner; higher fired: slightly concave upper; veg marked	late medieval to early post-medieval	0	60
111	BRK	Site Fabric 1;red	Site Brick Type 1	1	282	handmade; corner; slop moulded; part salt surfaced high fired; slightly sunken upper	late medieval to early post-medieval	0	0

context	cname	fabric	sub type	frags	weight	description	date	width	thickness
116	BRK	Site Fabric 1;red	Site Brick Type 1	1	7	edge flake; handmade brick; slop mould; high fired	late medieval to early post-medieval	0	0

Appendix 3

ENVIRONMENTAL ARCHAEOLOGY ASSESSMENT

By James Rackham, John Giorgi and Alison Locker

Introduction

Archaeological excavations conducted by Archaeological Project Services were undertaken at Sunnydale Close, Surfleet, Lincolnshire. Five environmental bulk soil samples were collected during the excavations (see Fig. 1) for the recovery of biological remains and other archaeological debris. The samples were taken from the bottom fill of a well or deep pit, two other pits, a hearth 'rake out' in a pit and some large, concreted deposits (Table 1) in another pit and provide evidence of the human activities on site. The samples are provisionally dated to the Saxo-Norman and Medieval periods. The samples were submitted to the Environmental Archaeology Consultancy for processing, assessment and subsequent analysis, in addition the hand collected animal bone and marine shell has been identified and analysed. Two samples taken during the evaluation in 2015 are also reproduced here (see Table 1, Rackham 2016).

The site lies on former tidal flat deposits (http://mapapps.bgs.ac.uk/geologyofbritain/ home.html) with loamy and clayey soils of coastal flats and naturally high groundwater (http://www.landis.org.uk/soilscapes/) previously used for arable and grassland. A mound on the site (see mound cut by excavation Trenches A and B in Fig. 1) was believed to be a typical saltern mound of the medieval period. Trench 2 of the evaluation of the site that was carried out in 2015 (Archaeological Project Services 2016) cut across this mound and two environmental samples were taken at that time from the 'mound' deposits but produced little evidence to confirm the character of the mound (Rackham 2016).

Table 1: Sunnydale Close, Surfleet, Lincolnshire – SUSC15 (evaluation) and SUSC22. Samples submitted for environmental assessment.

sample no.	context no.	sample volume (l)	sample weight kg.	feature	provisional date
1 (evl)	210	3	5	Deposits on saltern mound	Medieval
2 (evl)	214	6	8	Deposits on saltern mound	Medieval
1	111	29	37	Bottom fill of possible well or deep pit 112	1200-1400/ poss. L. Med.-E. Pm.
2	098	28	35	Charcoal rich fill of pit 094	Saxo-Norm?
3	134	3	5	Burnt silt, top fill of pit 133	?L. Med.-E. Pm.
4	144	22	27	Fill of pit 146, charcoal rich fill of raked out hearths?	920-1200
5	037	not recorded	10	Vitrified sands and silts – large pieces	11th-14th C.

Methods

The soil samples were processed in the following manner. Sample volume and weight were measured prior to processing. The samples were washed in a 'Siraf' tank (Williams 1973) using a flotation sieve with a 0.5mm mesh and an internal wet sieve of 1mm mesh for the residue. Both residue and flot were dried and the residues subsequently re-floated to ensure the efficient recovery of charred material. The dry volume of the flots was measured and the volume and weight of the residues recorded. Sample 5 from the excavation phase of work is a heavily concreted deposit which failed to soften in water or break down in acetic acid. A sub-sample was therefore broken up mechanically into smaller fragments and then washed. This will have inevitably been destructive of material within the concreted sample but allowed the assessment of the sub-sample which was deemed sufficient for its interpretation.

The residues were sorted by eye, and environmental and archaeological finds picked out, noted on the assessment sheets and bagged independently. A magnet was run through each residue in order to recover magnetised material such as hammerscale and prill and a count made of the number of flakes or spheroids of hammerscale where present. The residue was then discarded. The flot of each sample was studied using x30

magnifications and the presence of environmental finds (i.e. snails, charcoal, carbonised seeds, bones etc.) was noted and their abundance and species diversity recorded on the assessment sheet. The flots were then bagged and along with the finds from the sorted residue, constitute the material archive of the samples.

The individual components of the samples were then preliminarily identified with selected elements being taken to full post-excavation analysis. The bones and shells were identified and catalogued following the procedures of the Environmental Archaeology Consultancy and the archive catalogue is presented in the Appendix. The results from the samples and hand collected material are summarised below in Tables 2-8.

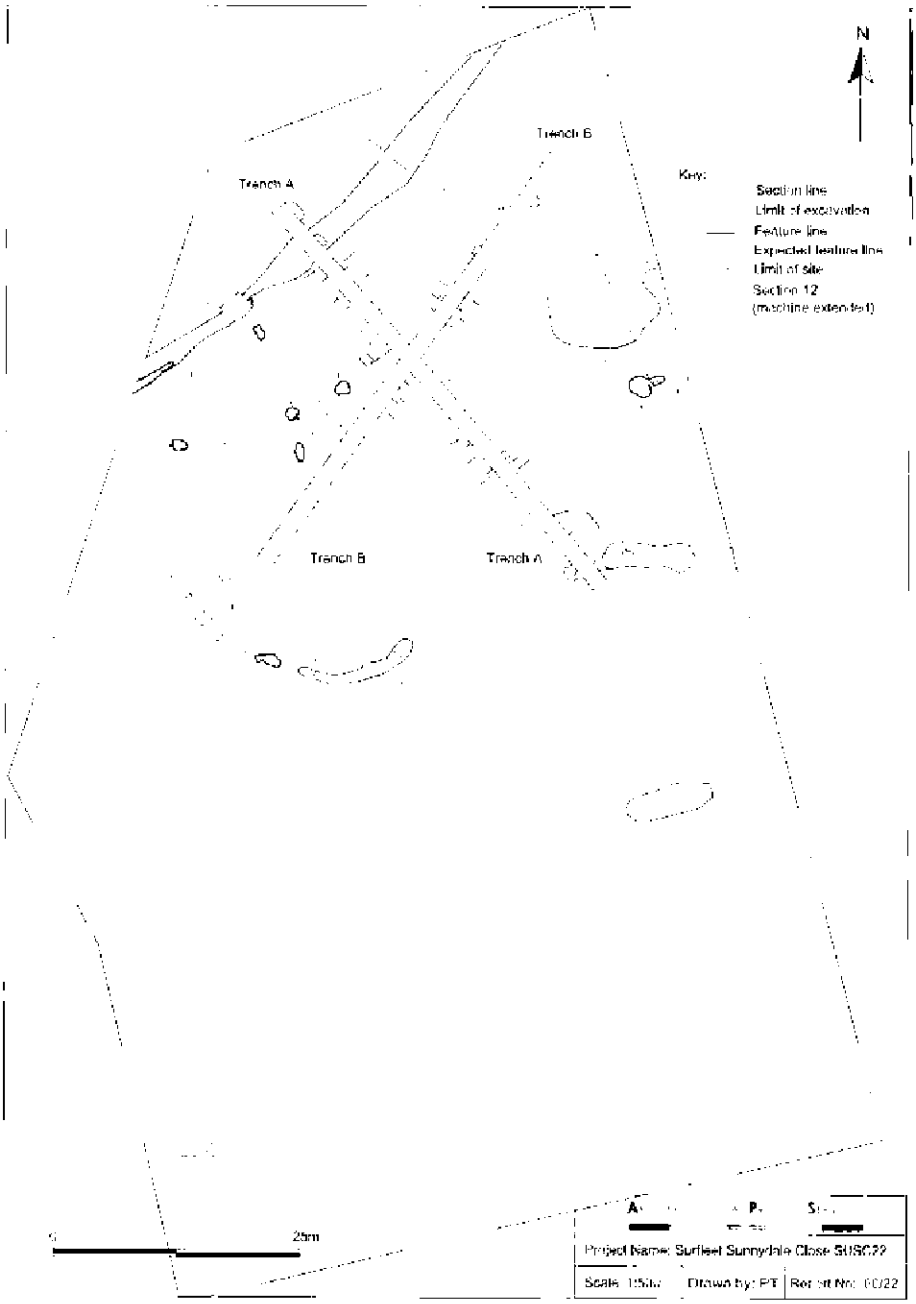


Fig. 1. Location of samples marked in red. Trenches A and B were laid across the waste mound. The two richest bone deposits are marked in green.

Results

The samples washed down to a residue of concreted silty clay sediment, fired earth, root pseudomorphs and archaeological debris, including probable 'concreted ash' in some samples. The archaeological finds include pottery, fired earth, animal bone, 'ash', hammerscale and a glass bead. In general, archaeological debris is

relatively limited but individual samples produced an abundance of different categories of material. A low level of flake and spheroidal hammerscale would suggest contemporary iron smithing nearby, although the densities are not high and could possibly derive from more recent activity with the small flakes and spheroids moving down through the soil through natural processes such as worm activity. This site was well outside the village in the 19th century so unless this hammerscale was introduced with manure it is likely to be contemporary with the medieval deposits. Sample 5 is full of what appears to be concreted 'ash' and after mechanical breakup and washing has produced a residue almost entirely composed of 'vitrified fuel ash' a small white or blackish glassy slag produced when silts and sands are heated sufficiently to vitrify. Sample 1 has an abundance of charred cereal remains, the residue of sample 3 is almost entirely fired earth and sample 4 has an abundance of charred weed seeds but very little charred cereal grain so these samples clearly reflect local activities and dumping. Sample 2 contains over 0.9kg of concreted silts and fine sands. This material appears to include crystalline material and may be concreted by high concentrations of 'salts' derived from organic waste or urine, perhaps indicating something like a cess pit or animal waste. Sample 1 of the evaluation produced very little residue (Table 2) indicating that the sample comprised largely clays, silts and fine sands that passed through the sieve (mesh size 0.5mm), while sample 2 from the evaluation produced 4.5 kilogrammes of residue, much larger than any of the other samples, composed largely of fine sand concretions suggesting the post-depositional accumulation of iron salts leading to concretion of the silts and fine sands in the deposit.

The silicaceous slags present in several of the samples, and particularly samples 4 and 5, suggests along with the charred plant remains identified in sample 4 (see below), that these deposits derive from the burning of mineral rich peats or turves. In sample 5 this vitrified silicaceous material had built up into thick hard concreted deposits that failed to breakdown in water or acetic acid and may reflect the build-up in situ of vitrified peat/turve ash the heat of the fire creating some 'fusion' between successive fire deposits. If these deposits were to be directly related to saltern activity, then it suggests that the fuel for the salt production was being obtained from local 'turbaries' but it is suggested here (see below) that this site was not a saltern. There is very little wood charcoal in any of the samples, and very small (twigs and stems) where present (see below), so wood or charcoal is evidently not the main fuel used on the site.

The environmental evidence includes as well as the animal bone, charred cereal grain and chaff, culm nodes and possible charred 'straw', charred weed seeds, charcoal, uncharred seeds and snail shells (Table 3). There is little 'domestic animal bone waste' with a single fragment of sheep sized bone in sample 2, 3 burnt bone fragments in sample 1 and none in the other samples, although several bone fragments probably from the same skeleton of a dog are present in sample 1. Small vertebrate bones from the samples include rodent, field vole, shrew, frog/toad, bird, stickleback, other small fish and possible herring (see below). The fish (other than stickleback) are likely to be food remains, but they occur at low densities or are absent from the samples. The charred remains include barley, wheat and rye grains, the barley apparently the most abundant (see below), cereal chaff, and an abundance of charred weed seeds in samples 1 and 4, although in sample 4 these are unassociated with cereals and composed largely of wild sedges and grasses and probably derive from peat/turves collected from local turbaries. The flot from sample 1 is dominated by small herbaceous stem charcoal fragments, possibly debris from burnt straw, with small twig and very small roundwood charcoal. A similar charcoal assemblage, accompanied by possible straw and weed seeds is present in sample 4, but in this sample the stems are likely to be sedge and wild grasses and the small woody twigs and stems from woody shrubs incorporated into the peats or growing in the turbaries. There is an absence of any substantial charcoal in any of the samples, so the fuels on site clearly derive from small wood or peats, suggesting fuel selection or a lack of substantial trees that could be harvested for wood.

No marine shell was recorded in the samples, unexpected on a near the sea fenland site, perhaps reinforcing the lack of domestic food rubbish in the samples, although a few shells were hand collected during excavation. The charred cereal remains probably derive from a mix of agricultural processing, crop cleaning by-products and cleaned grain activity but accidental burning during food production/consumption may be only a minor component (see below). A number of uncharred seeds were present in all four processed samples, but these are normally assumed to be fairly recent.

Environmental finds reflecting aspects of the local environment were recorded in samples 1-4 and the evaluation samples. These included terrestrial and aquatic snails, ostracods, occasional Daphnia ephippia (the resting stage of a small freshwater crustacean), and the small vertebrates noted above.

Table 2: Sunnydale Close, Surfleet – SUSC15 and SUSC22. Archaeological finds from the processed samples

sample no.	cont.	sample vol. l.	residue vol. (ml)	pot no/wt g	fired earth wt. g.	magnetic wt.g.	hammer-scale flk/sph no.	marine shell wt g.	bone wt.g.	
1 (eval)	210	3	50						0.4	
2 (eval)	214	6	4500		193	0.2	2/1		0.2	
1	111	29	90	2/5		<1	27fl 1sph		24	Glass – pale blue bead;
2	098	28	900	1/<1		<1	12fl		<1	933g concreted silts and fine sands
3	134	3	400		495	-	-			Fired earth -concreted (& fired?) silts & fine sands; ashy debris in flot;
4	144	22	95		4?	<1	4fl 1sph		<1	Fired earth- concreted-possibly burnt?; lots small silicaceous ash in flot
5	037	1.3	1000							All partially vitrified and vitrified concreted ash deposits.

fl- flakes of hammerscale; sph- spheroids of hammerscale;

Table 3: Surfleet – SUSC22. Environmental finds from the processed samples

sample no.	cont. no	sample vol. l.	flot vol. (ml)	char-coal $	charred grain *	chaff *	charred seed *	un-charred seed *	snails *	comments
1 (eval)	210	3	5	1/2	1		2		2	Indet grain x1; indet burnt bone; snails-*Cecilioides acicula, Hydrobia ventrosa, Carychium sp., Pupilla muscorum,* Succinideae, *Planorbis contortus, Vertigo antivertigo, V. moulinsiana*
2 (eval)	214	6	7	1/2	1		2	1	2	Indet grain, charred *Polygonum* sp, *Lithospermum arvense*; indet. burnt bone; bird eggshell-cf chicken (some burnt); snails – *Cecilioides acicula, Hydrobia ventrosa,* Succinideae, *Vertigo antivertigo* (burnt), *Vertigo* sp.
1	111	29	1250	5/5	5+	4	5+	3	2	Charred barley, wheat and rye grain, chaff, weed seeds, 'straw', culm nodes, herbaceous stems; charcoal – abundant 'straw', twigs, small roundwood; uncharred seeds – incl. *Polygonum* sp., *Rumex* sp., *Chenopodium* sp., *Urtica* sp.; wood – uncharred roundwood; bone – 31 fragments (3 burnt), several bones from one dog skeleton?, rodent, shrew, frog/toad, bird, stickleback; snails – *Helix aspersa, Cochlicopa lubricella, Trochulus hispidus, Vertigo pygmaea, Vallonia costata, Carychium minimum, Galba truncatula*; ostracods;
2	098	28	7	1/3	1		2	2	4	Charred barley and wheat grain (poorly preserved), small legumes, *Anthemis cotula*, small seeds, culm node; charcoal – small twigs, herbaceous stems, very little comminuted large wood; uncharred – *Urtica* sp., *Sambucus* sp., *Chenopodium* sp, Asteraceae, *Persicaria* sp., Polygonaceae; bone – 1 unburnt fragment, sheep size, field vole, flat fish x1; snails – see Table 6; *Daphnia* sp.
3	134	3	1	1/1	1		1	1	2	Indet charred grain, weed seeds; charcoal – very little, comminuted; uncharred – couple seeds; snails *C. acicula*++, *Hydrobia* sp. (1);
4	144	22	51	2/5	1		5+	2	5	Charred barley? grain, lots small seeds, culm nodes, small legumes, pea/bean, grasses, *Rumex* sp., *Eleocharis, Schoenoplectus*, straw/grass stems; charcoal very small roundwood, twigs, reeds, no substantial wood charcoal only small twigs/stems; uncharred *Rumex* sp., Asteraceae, *Chenopodium* sp., others; bone – no large bone, frog/toad (burnt), bird, small gadid, herring?; snails see Table 6.
5	037	1.3	11	2/3			1	1	1	Mineralsed seed (1), charcoal – lots very small, tiny fragments- herbaceous? Snails – *Vertigo* sp. (1), Zonitoides (1): *Daphnia* sp.; flot almost all ash and fine vitirifed silicaceous material;

*frequency 1=1-10; 2=11-50; 3=51-150; 4=151-250; 5=>250; + present.
$ - frequency of >2mm/<2mm fragments of charcoal

The terrestrial snails include taxa of 'catholic' habit and those found in open grassland habitats and marsh (Table 6), but the most abundant shell is *Cecilioides acicula*, a small blind burrowing species which is almost certainly intrusive in these deposits. One or two shells of freshwater aquatic taxa are present, and sample 4 includes shells typical of estuarine and brackish water environments (*Hydrobia ulva* and *Hydrobia ventrosa*) suggesting the presence of tidal deposits or saltmarsh sediments (see below).

Charred plant remains *(John Giorgi)*
Identifiable charred plant remains were present in four of the five samples from the excavation phase with a few unidentifiable grains and a small number of weed seeds also recovered during the evaluation phase. The charred plant remains were sorted and identified from the flots using a binocular microscope (with a magnification of up to x40) together with modern and charred reference material and reference manuals (Cappers *et al* 2006; Jacomet 2006). All the charred remains were counted with the exception of charcoal, small unidentifiable and unquantifiable cereal grain fragments (less than 2*mm*) and herbaceous stem fragments which were scored using the following rating system: + =1-10; ++=11-50; +++=51-150; ++++=151-250; +++++=250+ items. The results are shown in Table 4, taxonomic order for the wild plants following Stace (2005) which was also used for ecological data together with Hanf (1983) and Wilson and King (2003).

There were also small to modest assemblages of uncharred seeds in the four samples mainly representing similar species of mostly disturbed/waste ground habitats; these remains are probably intrusive but, in any event, would not have any significant bearing on the interpretation of the charred plant assemblages in the samples.

The charred plant remains in the four samples consisted mostly of wild plant/weed seeds (53% of the quantified remains) followed by cereal grains (38%) and smaller amounts (9%) of cereal chaff; virtually all this material was recovered in almost equal amounts (48% and 49%) from pit/well fill (111) (sample <1>), which contained mostly cereal debris, and pit fill (144) (sample <4>), which consisted almost entirely of wild plant/weed seeds. The results from these two samples form the basis of the following discussion on the charred plant remains.

Cereals
Cereal grains were present in all four samples and as noted above mostly in sampled pit/well fill (111) with only occasional or small numbers of grains in the other three. Preservation was variable with *c* 45% of the quantified grains not identifiable. Barley (*Hordeum vulgare*) was the dominant grain accounting for over half (53%) of all identifiable grains, the better-preserved ones being hulled and including a large number of straight but also some twisted grains which suggests that six row but possibly also two row hulled barley may be represented. This cereal was also represented by a few barley rachis fragments. Rye (*Secale cereale*) was the second-best represented grain (27% of identifiable grains) and was also identified on the basis of large numbers of rachis fragments which made up over three-quarters of the quantified chaff from the samples. Wheat (*Triticum*) was represented by smaller numbers (15%) of the identifiable grains, the better-preserved ones identified as free-threshing wheat (*Triticum aestivum/turgidum*) and with a small number of rachis fragments showing the presence of both hexaploid bread wheat (*Triticum aestivum*) and tetraploid rivet wheat (*Triticum turgidum*). There were only traces of oat (*Avena*) grains, but this did include a cultivated oat (*Avena sativa*) floret. The large number of large round ribbed hollow culm node fragments in sample <1> from pit/well fill (111) which probably belong to cereals given the large amounts of grains and chaff fragments in this sample; a smaller number of possible cereal and/or wild grass stem fragments were also recorded in pit fill (144) (sample <4>).

Current archaeobotanical evidence shows that all four cereals represented in the samples, six-row hulled barley, rye, free-threshing wheats and oats, were the main crops cultivated and used during the Saxo-Norman and medieval period (Greig 1991, 315, 321; Carruthers and Hunter Dowse 2019, 105, 124), both bread wheat and rivet wheat found from the late Saxon period onwards (ibid., 105). The dominance of barley was also noted in late Saxon and early medieval deposits from excavations at High Road, Weston, a short distance to the south-east on the other side of the River Welland and also on former tidal flat deposits (Rackham & Giorgi 2024) and at several middle to late Anglo-Saxon rural sites in the northern silt fens (Carruthers and Hunter Dowse 2019, 105) as well as in late Saxon deposits at St Nicholas School, Boston, *c* 12 miles to the north-east (Giorgi and Rackham 1996). At these sites the dominance of barley is probably because of its high salt tolerance which makes it best suited for cultivation on the silt fens where residual salinity as well as occasional flooding would have been potential problems. The large amount of rye chaff suggests that this cereal may have also been cultivated locally; it is more difficult to comment on the smaller number of free-threshing wheat and oat grains.

All four cereals, however, may have been used for food, drink and fodder including for bread, gruel or porridge, or in cereal pottage during the Saxon and medieval periods (Campbell *et al* 1993, 25, 27; Hagen 1994, 60; Wilson 1991, 197). There were no sprouted grains to suggest that either barley or any of the other cereals were being used for brewing. Barley may have also been used for animal fodder. Good amounts of grass culm node and internode fragments in the samples probably represent cereal straw burnt as fuel along with other herbaceous vegetation given the relative dearth of wood charcoal in the samples although straw may have also been used for thatching, flooring, animal bedding and fuel. Tall rye straw would have been particularly good for thatching with the large amount of rye chaff suggesting that this cereal may have been imported onto the site where it was threshed. The chaff may have also been used for fuel/kindling.

Other foodstuffs

Other food remains were represented by occasional and small number of legume seeds including broad bean (*Vicia faba*) in two samples and a pea (*Pisum sativum*) in one, with several other large seeds also possibly cultivated pulses (pea, bean, vetch).

Both pea and broad bean have been identified in Saxon and medieval deposits from sites in southern England (Greig 1991, 317, 323; Carruthers and Hunter Dowse 2019, 106, 125) including in late Saxon and early medieval deposits from excavations close-by at Weston (Rackham & Giorgi 2024). Pulses would have been a very important source of protein, peas and beans used for human consumption, being mixed with cereals to produce flour for bread particularly in times of famine (Hagen 1994, 108 Wilson 1991, 201-2) and used in soups/broths and pottage (Hammond 1995, 32), as well as being used for fodder. Legumes could also have been dried after harvest and stored for long-term use and may have been sown as a means of restoring nitrogen to the soil as part of crop rotations (Campbell *et al* 1993, 134).

Flax (*Linum usitatissimum*) was also represented by a small number of seeds in pit/well fill (111) (sample <1>); the seeds of this plant may have been added to enrich cereal based pottage (Hagen 1994, 59) and used in bread and stews (Greig 1988, 122) and oil extracted from the seeds for cooking/lighting although the main use of this plant was probably for the fibres for the production of cloth.

It is also possible that the traces of haws (*Crateagus monogyna*) and elder (*Sambucus nigra*) seeds in single samples may represent food remains gathered from scrub/hedge/woodland habitats close-by.

Wild plant remains

There was a good range of species represented by charred wild plant/weed seeds which were virtually all recovered from two samples, the remains of wetland and bankside/marshland plants dominant in pit fill (144) (sample <4>), and a range of disturbed/waste ground weeds, probably from cereal weeds, mostly recovered from pit/well fill (111) (sample <1>).

The potential arable weeds included occasional seeds of *Galium aparine* (cleaver), a weed found in loams and clay soils and *Anthemis cotula* (stinking chamomile), also indicative of waterlogged loams and clays and usually on calcareous soils, and *Agrostemma githago* (corncokle) and *Raphanus raphanistrum* (wild radish), two weeds frequently found on sandy loams which may suggest the cultivation of both sandy and heavier soils, the local soils in the area consisting of loamy and clayey soils. *Agrostemma githago* is often found in rye crops, a cereal often grown in sandy soils. The presence of both *Raphanus raphanistrum* and *Galium aparine* may tentatively point to the spring and winter sowing of crops, barley sown at both times and rye and free-threshing wheat usually in the winter. The presence of good amounts of charred straw suggest that the cereals may have been harvested fairly low on the stems.

A good range of wetland species (including aquatic, semi-terrestrial and bankside/marshland plants) were represented, mostly in pit fill (144) (sample <4>), particularly *Carex* (sedges) and also *Oenanthe* (water dropwort), *Eleocharis* (spike rush), Bolboschoenus *maritimus* (sea club rush), *Schoenoplectus lacustris/tabernaemontani* (club-rush) and *Sparganium erectum* (branched bur-reed). These plants are indicative of the fenland vegetation around the site, with saline conditions indicated by several species including *Bolboschoenus maritimus, Schoenoplectus tabernaemontani* and *Eleocharis uniglumis*. The sedges may have been collected from the surrounding fenland for use as fuel on site and may be represented along with some of these other plants by the good amounts of herbaceous stem fragments in samples 1 and 4. Sedges may have also been gathered for use as thatching and flooring materials.

Table 4: Surfleet (SUSC22): The Charred Plant Remains

	Period	LMED-EPM	SAXO-NORMAN	920-1200	1200-1400	
	Feature	PIT	PIT	PIT	PIT/WELL	
	Feature number	133	94	146	112	
	Context number	134	98	144	111	
	Sample number	3	2	4	1	
	vol sample (l)	3	28	22	29	
	vol flot (ml)	1	7	51	1250	
	% of flot sorted				12.5%	
	% of flot scanned					87.5%
LATIN_NAME	ENGLISH					
Cereal grains						
Triticum aestivum/turgidum type	free-threshing wheat				5	++
T. cf. *aestivum/turgidum* type	?free-threshing wheat		1		6	
Triticum spp.	wheat				5	+
cf. *Triticum* spp.	?wheat				2	
Secale cereale L.	rye				17	++++
cf. *S.. cereale*	?rye		1		20	
Triticum/Secale cereale L.	Wheat/rye				14	
Hordeum vulgare L.	barley, hulled twisted				9	+–+++
H. vulgare L.	barley, hulled straight				11	
H. vulgare L.	barley, hulled indet.			1	13	
H. vulgare L.	barley, indet twisted		1		4	
H. vulgare L.	barley, indet straight				2	
H. vulgare L.	barley, indet			2	36	
cf. *H. vulgare*	?barley	1		2	8	
Avena sativa L.	cultivated oat floret					+–
Avena spp.	oat				2	
cf. *Avena* sp.	?oat				2	
Cerealia indet.	indet. cereal (estimate)	1	5	5	125	+–+++
Cerealia indet.	indet cereal fragments <2mm			+	++	
Cereal chaff						
Triticum aestivum type	hexaploid free-threshing wheat rachides				8	+
T.turgidum type	tetraploid free-threshing wheat rachides					+
Triticum aestivum/turgidum type	free-threshing wheat rachides				3	+
Secale cereale L	rye rachis			1	54	+–+++
Hordeum vulgare L.	barley rachis				3	+–
Cerealia indet.	indet cereal rachis fragments				3	+
Other plant/weed seeds						
Urtica dioica L.	common nettle			1		
Chenopodium spp.	goosefoot etc					+
Atriplex spp.	orache				2	
Agrostemma githago L.	corncockle				2	+–
Persicaria spp.	knotweeds				3	+–
Polygonum aviculare L.	knotgrass				1	+
Rumex spp.	dock			12	5	+–
Malva sp.	mallow				1	
Raphanus raphanistrum L.	wld radish				1	+
Crateagus monogyna Jacq.	hawthorn			1		
Vicia faba L.	broad bean					+
cf. *V. faba*	?broad bean			1		
	Context number	134	98	144	111	
	Sample number	3	2	4	1	
Vicia spp.	vetches					+

Pisum sativum L.	pea				1	
Vicia/Pisum sp.	bean/pea 2mm-4mm			1		
Vicia/Lathyrus/Pisum sp(p).	vetch/tare/vetchling/pea (>2mm-<4mm)		1	6	1	+
Medicago/Trifolium sp(p).	medicks/clovers			5	1	1
Fabaceae indet.	large legumes (frags >4mm)			2		
Fabaceae indet.	large legumes (frags >2mm-<4mm)			1	1	
Fabaceae indet.	small round legumes <2mm		1			+
Fabaceae indet.	small legumes & fragments <2mm					+
Linum usitatissimum L.	flax				3	+–
Oenanthe spp..	water-dropwort			7		
Mentha sp.	mints			1		
Plantago lanceolata L.	ribwort plantain			4		+
Euphrasia/Odontites sp.	eyebrights/bartsias			1		
Galium aparine L.	cleaver				1	+
Sambucus nigra L..	elder					1
Centaurea spp.	knapweeds			1		
Anthemis cotula L.	stinking chamomile		2			+
Asteraceae indet.				2		
Eleocharis palustris/uniglumis	spike-rush			69		
Bolboschoenus maritimus (L.) Palla.	sea club-rush			14	2	+
Schoenoplectus lacustris/ tabernaemontani	club rush			5		+
Carex spp.	sedge	2		177		+
Cyperaceae indet.	sedges etc			58	2	+
Lolium/Festuca sp.	rye-grass/fescue			1		
Avena/Poaceae indet	oat/wild grasses (large seeds)					+–
Poaceae indet.	wild grasses (long thin seeds >2mm)	1			6	+–
Poaceae indet.	wild grasses (seeds <2mm)	1	1	14	1	+
Poaceae indet.	cereal/wild grasses culm frags		+	++ (30)	+– (47)	++++
Sparganium erectum L.	branched bur-reed			2		
indet.	ribbed herbaceous stem fragments			+++ (54)	+–+	–++
indet.	thin round herbaceous stem fragments		+	+	++	–++
indet.	tuber & rhizome fragments					+
indet	Small twig fragments		+			
charcoal	charcoal >/<2mm fragments	+/+	+/+++	++/+++++	+++++/++++++	
Total of quantified charred items		**6**	**13**	**395**	**386**	
charred items (per litre of processed soil)		*2*	*0.5*	*17.9*	*106.4e*	

The composition of the individual charred plant assemblages and spatial distribution

Two of the four samples produced only very small, charred plant assemblages from pit fills (098) (sample<2>) and (134) (sample <3>) in the north-western area of the site consisting of just a few grains and wild plant/weed seeds on the basis of which no further comment may be made. The other two samples, however, produced larger and significantly different charred pant assemblages.

Sample <1> from the basal fill (111) of Pit/Well [112] produced a very rich charred plant assemblage with an estimated item density of 106.4 per litre of processed soil, only a small fraction (12.5%) of the flot being sorted and quantified with the remaining fraction (87.5%) scanned for additional information. Charred cereal grains (mainly barley and then rye) were the dominant component making up 73% of the quantified remains; the grains may have been accidentally burnt while being dried before storage or milling and/or as a result of cooking accidents; cereal chaff, predominantly rye, made up 18% of the quantified remains and was probably used as fuel/kindling following threshing; the wild plant/weed seeds made up 9% and would have been separated as a by-product of fine-sieving of the grains in the later stages of processing although the larger grain-sized weed seeds would have persisted as impurities in the crop unless extracted by hand. These weed seeds too may have been used as fuel along with the good amounts of potential straw in this sample. The charred remains in this sample represent crop-processing debris, by-products from the earlier stages of cleaning (straw and chaff fragments) as well as the later ones (weed seeds)

together with accidentally burnt grain, the mixed debris including hearth debris then dumped into the pit from different activities that may have been taking place close-by in the central northern part of the site.

The other rich charred plant assemblage from pit fill (144) sample <4> in the south-eastern area of the site consisted mostly of wild plant seeds (mainly from wetland plants, particularly sedges) which made up virtually all (97%) of the quantified remains from this sample together with just a few grains (2.5%) and one chaff fragment (less than 0.5% of the quantified material) and with an item density of 17.9. There was a large amount of herbaceous stem fragments that are probably mostly from the wetland plants represented in this sample. These charred remains likely represent spent fuel from hearths raked out and dumped into this pit.

The fish assemblage *(Alison Locker)*
Fish were identified from three sampled contexts and three hand collected examples.
The three samples were Saxo-Norman or medieval in date.

The base deposits of well/pit 111 only produced one three-spined stickleback spine (*Gasterosteus aculeatus*). The charcoal rich fill of pit 094 (context 098) had only one identifiable bone, a flatfish vertebra close to the tail, likely plaice/flounder (*Pleuronectes platessa/Platichthys flesus*) and some very small indeterminate fragmented material. Context 144, fill of pit 146 and also charcoal rich, comprised two small vertebral fragments tentatively attributed to clupeid (herring family) and small gadid (such as whiting, *Merlangius merlangus*).

Table 5. SUSC22. Identified fish remains from the samples and hand excavations.

Feature type	**` well/pit**	**pit**	**pit**	**excavated**
Context	*111*	*098*	*144*	
Sample	1	2	4	
Clupeid (herring family)	0	0	2	
Cod				1
Large gadid (cod family)				+
Small gadid	0	0	1	
Stickleback	1	0	0	
Flatfish	0	1	0	

+ - present

Additionally, hand collected during the excavation from backfill 075 (dated AD 970-1200) there were several fragmented bones likely large gadid (such as cod *Gadus morhua* or haddock *Melanogrammus aeglefinus*). A second back fill deposit 013 (AD 970-1200) contained a large cod post-temporal from a fish over 100 cm in length and in good condition with no evidence of knife cuts or other butchery. The fill of ditch 132 (AD 870-1200) produced one fragment, likely from a large gadid rib judged on size as it had no specific features.

This small assemblage is typical of the marine fish found in this region; the site lies on tidal deposits. The ubiquitous stickleback, so common in many local deposits, is unlikely to be a food fish. The cod bone, a post-temporal, is probably from a fresh fish as this bone is normally removed in processing for storage, as in stockfish. A large individual, mature cod do move close inshore in the winter in the more southern part of the North Sea, so could have been caught on a line without fishing far offshore in deep waters.

Snails *(James Rackham)*
The snail assemblages include species of terrestrial, freshwater and 'marine' habitats. Numbers are fairly low, except for the shells of *Cecilioides acicula*, a small blind burrowing species which is almost certainly a relatively recent intruder into the sampled deposits, suggested by the presence of many small calcareous snail 'eggshells', probably of this species.

The terrestrial elements of the fauna are species of catholic or grassland habitat suggesting the terrestrial environment across the site was largely one of open grassland. There are no species that are typical of shaded or woodland environments among those identified (Table 6).

There is a significant marsh or fen component (Table 6) in several samples, but only one sample, context 144, includes a significant freshwater element. The marine or coastal saline conditions are reflected in just two species, *Hydrobia ulva* and *Hydrobia ventrosa*, both species typically associated with estuarine and saltmarsh conditions and

frequently washed up along the tideline in enormous numbers. These taxa occur in five samples but are only abundant in context 144 (Table 6).

A number of the shells of marsh and freshwater habitats have been burnt, and these have been identified in one of the evaluation samples (2) from the so called saltern mound and particularly in the sample from context 144, a hearth rake-out. Burnt shells implies an association with material that was put on the fires (i.e. the fuel) and while marsh vegetation might have been collected and used as a fuel, this is less obvious for aquatic species unless they remained attached to aquatic vegetation that was pulled up. Sample 4, context 144, 'a hearth rake-out', appears to have snail assemblages from four different habitats suggesting that perhaps these come from different sources. The grassland fauna is consistent with the probable contemporary fauna across the site, while the marine species could derive from the marine sediments upon which the site lies, potentially one of the reasons why a couple of *Hydrobia ulva* shells were burnt or be associated with driftwood collected for fuel. Some could have an origin associated with saltern activity, but it is suggested below that this site is probably not a saltern.

Table 6. Surfleet – SUSC15 and SUSC22. Molluscan and other invertebrate taxa from the samples.

	Sample	**1 (eval)**	**2 (eval)**	**1**	**2**	**3**	**4**	**4**	**5**
	% of sample studied							burnt	
	Context			111	098	134	144	144	037
	Feature type								
Habitat	*Frequency*	2	2	2	4	2	5		1
	Cecilioides acicula	++	++		++++	++	++++		
catholic	*Trochulus hispidus*			+			2		
	Cochlicopa lubricella			+					
	Helix aspersa			+					
grassland	*Pupilla muscorum*	+			2		13		+
	Vertigo pygmaea			+				1	
	Vertigo sp. small				1		2		+
	Vallonia costata			+					
	Vallonia excentrica				2		9		
	Vallonia sp.				5		11		
	Zonitoides *sp.*								1
marsh/fen	*Vallonia pulchella*						2		
	Vertigo angustior							1	
	Vertigo antivertigo	+	+ (b)				6	2	
	Vertigo moulinsiana	+							
	Vertigo sp. large		+				13	4	
	Carychium minimum			+	1		6	3	
	Carychium sp.	+							
	Succinidae	+	+					10	
	Succiniea putris						8		
	Succinea sp. *cf putris*						20		
	Galba truncatula			+			3		
	? Galba truncatula –						3		
freshwater	*Anisus leucostoma*						1	1	
	Planorbis crista						4	4	
	Planorbis corneus								
	Planorbis contortus	+							
	Planorbis planorbis				1		1		
	Valvata cristata						7	2	
marine/coastal	*Hydrobia ulva*					1	46	2	
	Hydrobia ventrosa	+	+				10		
	Daphnia sp.				+		+		+
	Ostracoda			+			+	+	

* frequency of items: *=1-10; **= 11-50; ***=51-150; ****=151-250; *****= >250;
+ - present in the sample, but not quantified.

The marsh element as noted above could derive from hand gathered vegetation possibly also the freshwater taxa. However, the abundance of vitrified siliceous material in sample 4 shows a substantial vitrified mineral element implying that the fuel included this mineral element. The high sedge and wild grass seed count in this sample, with the high vitrified siliceous matter and the marsh and freshwater snails might better be seen as the use of dried freshwater aquatic organic sediments, and sedge and reed peats (themselves likely to include both a mineral element and marshland snails) as a fuel in the hearth.

Whether these were cut as 'ancient' peats or the turbaries were used to grow wild grasses, sedges and reeds that remained largely waterlogged and could be harvested as turves and dried for fuel after a few years is speculative, but the high 'vitrified fuel ash' component clearly indicates mineral rich deposits being burnt, while the freshwater and marsh elements in the snails and charred plants indicate aquatic, littoral and marginal wetland zones. Ancient peats are unlikely to retain snails which will corrode in the acid deposits particularly if these acidify as they degrade and dry out, but organic silts and reed peats formed at the margin of wetlands often retain their snail shell assemblages. Sample 5 is something of an anomaly. The retained residue (>1mm) is almost entirely siliceous 'vitrified fuel ash' with very few snails, very few charred seeds and although a significant component of small charcoal – largely fine herbaceous material possibly with grass/sedge stems and 'sedge/reed' leaves - is present the burning has removed the bulk of the organic component in the fuel. This is perhaps more typical of a humified fenland peat in which the mineral component has become concentrated, the calcareous elements have been lost through corrosion, and the organic components have been humified to such an extent that very little identifiable charred material survives the burning.

Hand collected animal bone and marine shell *(James Rackham)*

A small collection of 130 fragments and three partial skeletons of animal bone, weighing 7084 grammes, and six marine shells (38g.) were collected by hand during the excavations. The finds were recovered from twenty-seven contexts including ditch fills, pit fills, backfill deposits, waste deposits and cleaning deposits. The bulk of the deposits are dated to the late Saxon and medieval periods (11th-13th century – see Table 8) but the ceramics indicates some contexts include material of later medieval (14-16th century) and post-medieval date. The bones are summarised as a total assemblage and within the broad dates indicated by the pottery contained in the individual contexts that produced bone and marine shell (Table 8). Identified finds include bones and/or teeth of horse, cattle, sheep/goat, sheep, pig, dog, dog or fox, cat, red deer, rabbit, chicken, fish, common mussel and oyster (Table 7). Two of the horse bones derive from a small adult animal of the size of a donkey or small pony. A metacarpus is the same length but more robust than the donkey reference skeleton, while a humerus matches the donkey. Identification using the criteria established by Hanot and Bochaton (2018) based on a series of 107 modern skeletons indicates that these bones do not derive from donkey, although the hybrid mule cannot be ruled out. Calculation of the wither's height in metres from five of the bones (using Onar *et al* 2018 and May 1985) where the greatest length and smallest diameter could be measured gave figures of 1.206m (mc), 1.078 (mc) and for the greatest length only gave figures of 1.21 (mc), 1.06 (mc), 1.41 (mt), 1.31 (mt) and 1.31 (tib). The largest of these is about 14 hands and the smallest 10.2 hands. The latter small size was not recorded in any British Roman and post-Roman archaeological samples studied by Ameen *et al* (2021) although modern animals with this stature are recorded in their paper for donkey and pony. All these animals would be described as ponies using modern standards, none of their modern mules (op cit.) were smaller than 11 hands and their modern 'light riding horses' all exceeded 13 hands (1.3m). The smallest animal at Surfleet is equivalent to just below the maximum allowable height (1.11m) for a modern Shetland pony to get into the breed stud book.

Table 7. Sunnydale Close, Surfleet – SUSC22. Hand collected animal bone and marine shell.

Species	No. of fragments	Weight in g.
Horse	33	4027
Small pony/mule?	2	338
Cattle	28	1719
Cattle size	17	155
Sheep/goat	16	312
Sheep	3	51
Sheep size	9	22
Pig	4	113

Species	No. of fragments	Weight in g.
Dog	6 (+1*)	273
Dog or fox	2	11
Cat	1*	44
Red deer	1	7
Rabbit	2 (+1*)	33
Chicken	2	3
Fish	3	4
Unidentified	2	11
Common mussel	3	8
Oyster	3	30
Total	136 + 3*	7122

* Partial skeleton

Horse bones are the most abundant with contexts 111 (well/pit fill) and 116 (waste deposit) producing the most fragments from at least three individuals one of which is the small pony or perhaps mule. Many of these bones may be derived from disturbed burials. This is suggested by their relative intact character (see Appendix), the fragmentation index for the horse bones and teeth from contexts 111 and 116 is 2.85 zones/fragment in contrast to the cattle bones from the whole site where this index is just 1.18 zones/fragment. Cattle fragments are the next most abundant, followed by sheep/goat (and sheep), with pig the other major domestic food species relatively uncommon (Table 7). The dog bones are also concentrated in contexts 111 and 116, with a partial skeleton in context 116 and parts of a skeleton in the bulk sample from 111 (Table 3). The partial skeleton in 116 is a large dog, still juvenile, while a much smaller canid provisionally assigned to 'dog or fox' is also present. The two bones in this category are similar in proportion to a large fox or a 'well' proportioned small dog. At least two animals of this size are present. The partial skeleton of a cat was also present in context 116. With several of the horse bones in context 116 potentially deriving from the same skeleton, and partial skeletons of dog and cat this 'waste deposit' appears to be reworked burials or a dumping ground for occasional carcasses. The red deer is represented by a single third phalanx, indicating the presence of bones (rather than antler) on the site, and therefore either skins or meat being used. Rabbit bones were present in three contexts with one of these, 77, containing a partial skeleton. It is possible that all these bones are intrusive, but a 11-15th century date for the rabbit from context 055 could easily represent a contemporary bone. Only two chicken bones have been recovered in this hand collected assemblage, three fish bones (from cod and probable large gadids), in contrast to the samples where the bones were from small fishes (see above). Six shells of common mussel and oyster were also recovered (see Tables 7 and 8, and Appendix).

Table 8. Sunnydale Close, Surfleet SUSC22. Hand collected bone and marine shell grouped by ceramic dating.

Spot dating	9-12th C.	12-13th C.	12-14th C.	12-15/16th C.	Post-med.	undated
Species						
Horse		1	13	16	1	2
Small pony/mule?				2		
Cattle	5	4	5	9	1	4
Cattle size		1	3	5	1	7
Sheep/goat	2	1	3		5	5
Sheep		1	1		1	
Sheep size		3		3		3
Pig				1	1	2
Dog			2	2 (+1*)	1	1
Dog or fox			2			
Cat				1*		
Red deer		1				

Spot dating	9-12th C.	12-13th C.	12-14th C.	12-15/16th C.	Post-med.	undated
Rabbit			1*	1		1
Chicken	1		1			
Cod		1				
Fish – large gadid?	1	1				
Unidentified bone		1		1		
Mussel						3
Oyster				3		

When considered within the ceramic spot dating groups (Table 8) the bulk of the assemblage falls within the medieval period (12-16th century), and many of the bones from undated contexts are also likely to fall within this period. These groups are just too small to allow any inferences upon relative species abundance or slaughter patterns, and the dominance of horse may merely reflect the disturbance of two or three burials. The average fragment weight of the hand collected material excluding the identified skeletons is 52.2 grammes, which contrasts markedly with the bone finds sorted from the 2mm residue sieve of the samples with an average fragment weight of 0.78g. Even if some of the horse bones derive from the same skeleton the average hand collected bone fragment weight will far exceed that from the samples. Many of the fragments from the samples are not visually identifiable to a species but this difference in recovery would suggest that identifiable bones and teeth of the smaller domesticates and any small wild mammals, birds or fish will be under-represented in the hand collected assemblage.

Clearly the richer bone deposits such as ditch fill 056, well or pit fill 111 and waste deposit 116 would all have benefited from a programme of sieving to ensure the unbiased recovery of the main domestic species and economically important game species. The smaller bones of fishes are best recovered through the programme of bulk sampling which should also be applied to all deposits sieved for smaller bones to act as a recovery/sampling control. The average number of zones per bone fragment recovered in the hand collected assemblage (excluding identified skeletons) is 1.6, a relatively low level of fragmentation (typically less than 1), potentially also a reflection of the poorer recovery of fragmented bones with no anatomical zones present, but also the presence of burials and the probability that some of the intact horse bones derive from burials (see above).

The assemblage shows some evidence for dog scavenging, a number of bones carry butchery marks and a few fragments are burnt, indicating discard into a fire. Just one bone, one of the horse metatarsi, carries pathological features – pitting of the proximal articular surface and exostosis around the periphery of this facet.

A number of the fragments carry evidence for the age at death of the animals, either post cranial epiphyseal fusion or dental eruption and wear (see Appendix). The cattle include juvenile, immature and adult animals, the horse bones are primarily from adult animals with one or two immature animals and one foal represented. The sheep include juvenile, immature and adult animals and the pigs juvenile and sub-adult. A fairly large number of the bones also allowed measurements to be taken (27% of fragments - see Appendix) which should allow comparison with other sites and some internal analysis and consideration of the size of the farm stock.

Discussion

Salterns

Just east of the A16 into Spalding lies a large area of Saltern mounds rising to above 5m OD in height that mark the edge of the estuary of the Welland River some 1.3 kilometres upstream from the junction with the River Glen. These are traditionally dated to the 12th-13th centuries and would mark the tidal edge in the Welland Estuary at this time. The site at Sunnydale Close lies some 3km upstream of the modern outfall of the Glen into the Welland and the Glen's modern course cuts across the northern edge of these saltern mounds marking the northern extent of this area of medieval salt production along the Welland estuary. The stone church at Surfleet on the northern bank of the present river lies some 250m north of Sunnydale Close and has evidence showing its foundation as early as the early Norman period (1066-1130AD). With the village already established on the north bank of the River Glen in the early Norman period and Saxo-Norman pottery recovered from the excavations at Sunnydale Close (SUSC22) it seems very unlikely, not to say improbable, that the Sunnydale Close location could have a 13th-14th century salt production site, the date suggested by the ceramics within the deposits of the mound.



Fig. 2 The mound has produced no clear surface topography visible on the Lidar plot of the development site.



Fig. 3. Google Earth image of the site showing a potential saltern mound indicated by a pale area at the northern end of the ploughed field. The soil mark across the southern half delineates an underground electrical service.

The River Glen must have been tidal at this time but at Surfleet in the 12th century was surely not estuarine. With salt water heavier than freshwater and the mixing of the incoming tide and the outgoing river waters the concentrations of salt are likely to be too low or unreliable to warrant trying to collect them in lagoons along the south bank of the channel at Surfleet. There are suggestions in the landscape of a former course of the river south of the present course and there are indications of a possible sea wall beneath Cuckoo Lane, Woods Lane, Green Lane and Newland Lane perhaps reflecting a time when the Glen was still estuarine. The low mound originally interpreted as a potential saltern mound during its excavation does not show on the Lidar (Fig. 2) but may just be represented by a pale area at the northern end of the ploughed field (Fig. 3). It is very small, both in height and extent when compared with the major medieval saltern mounds visible east of the A16 on the former Welland estuary (Fig. 4) just a kilometre away.

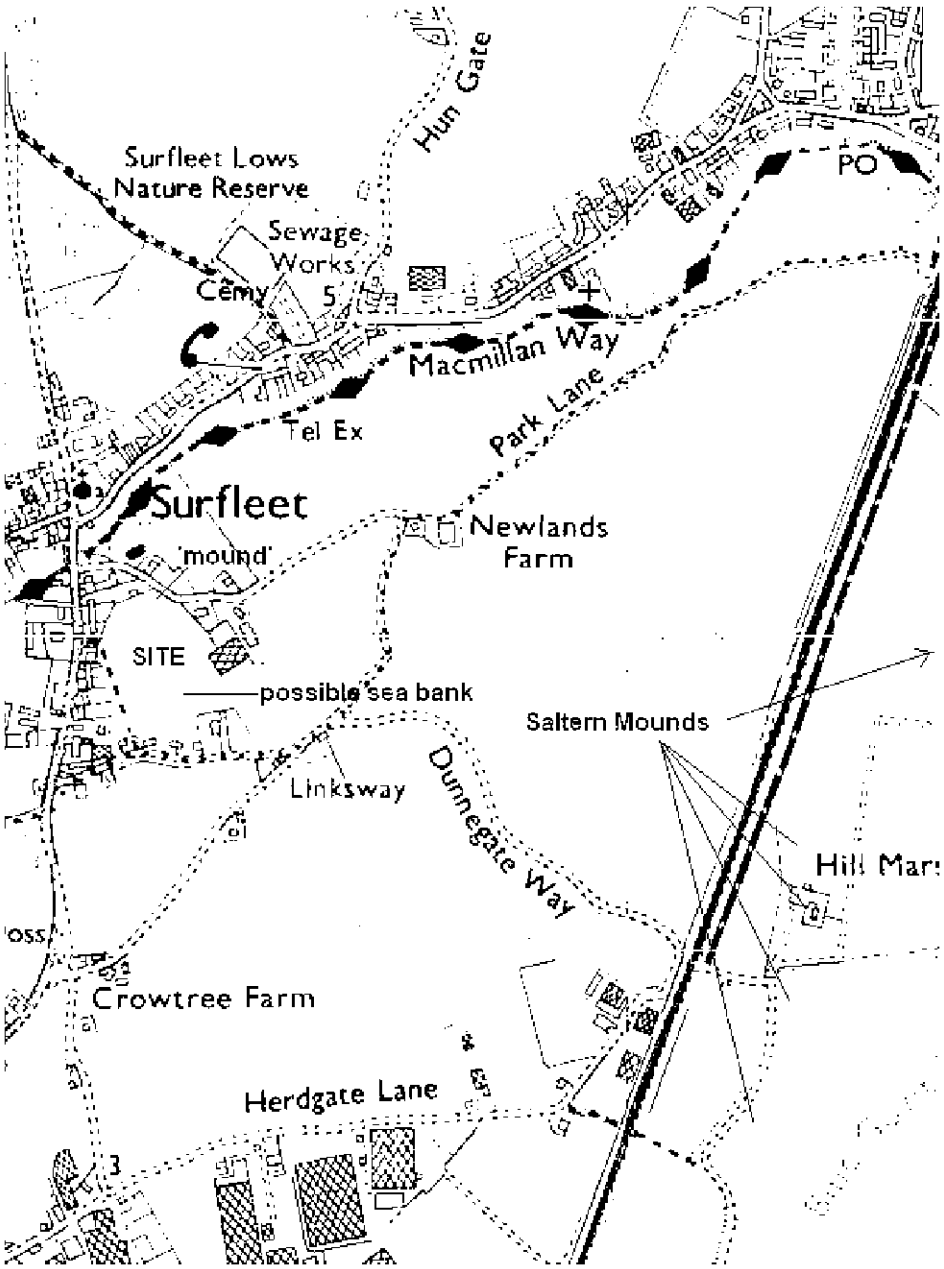


Fig. 4. Map showing the location of the site, approximate location of the mound and possible sea bank on the site, and some of the saltern mounds along the edge of the former Welland estuary. (Crown Copyright)

It seems very unlikely that this feature can be a medieval saltern mound. It does not correspond to the major visible earthworks derived from such activity, for instance along the coast at Wainfleet, along the Welland just east of the A16 (Fig. 4) and along the edge of the Nene estuary north of Wisbech. Apart from a few fragments of fired clay from the evaluation that might derive from saltern activity, nothing from the 2022 excavation categorically points to a saltern. If as appears likely it lies seaward of a sea bank, salt production could have occurred contemporary with the sea bank when this area was an 'estuary', but by the mid-13th to mid-14th centuries (the date of the pottery in the 'mound' deposits), particularly with earlier evidence of Saxon-Norman activity on the site precluding it as an intertidal zone in the 13th and 14th centuries, a saltern mound appears very unlikely. Surfleet is likely to be the local village for the workers producing salt at the salterns on the Welland estuary just 1.2km away, or 1km from the Sunnydale Close site, so occasional debris that might be related to salt production perhaps should not be a surprise.

The section through the 'mound' suggests that the basal 'archaeological' deposit lies in a depression of over a metre in depth (see below) so it is possible that this reflects a former channel or 'tidal lagoon' that left a wet hollow when the land was reclaimed and led to active dumping to raise the surface, finally raising it above the surrounding area. Any such reclamation must therefore date at least as early as the Saxon-Norman period on the basis of the ceramic evidence.

Individual samples

Sample 1, context 111. Taken from the fill of a well or pit cut into the mound deposits this sample produced very little residue indicating that the silt and fine sand marine sediments that form the soils of the site were completely washed through the 1mm mesh sieve leaving just 0.3% of the original sample (90ml) as a residue. With the flot of charred material comprising 1.25 litres it is clear that the charred fraction is the most important archaeological element of the sample. This charred material is full of stems and culm nodes (probable straw), cereal grain, cereal chaff and weeds seeds reflecting a burnt and charred assemblage of crop processing waste, crop cleaning byproducts and processed grain suggesting material of mixed origin being burnt.

The latest pot in this pit is dated to the mid-late 13th- mid-14th century (although a few fragments of late or post-medieval building material in the deposits have been treated as intrusive) and the inclusion of crop processing debris, including straw and chaff, implies the site has an agricultural function at this date. The stratigraphy of this so called pit/well indicates it cut into the 'mound' (Fig. 5) therefore post-dating the activity that generated the mound, although the ceramics from the deposits the pit cuts through are also dated to the mid/late 13-mid-14th century suggesting the build-up and pit digging all took place within about a century or perhaps the ceramic building material dates the pit and the pottery is residual from the deposits the pit cut? Three conjoining brick fragments of late medieval to early post-medieval date making an object of 130x58mm appears unlikely to be intrusive and may be a more reliable indication of the date of the feature than the medieval pottery. It appears unlikely that the mound would be chosen as the site for a well rather than the lower ground around the mound, but the levels show the central area of Trench A appears to lie in a slight (0.4m) depression. Pit 112 was not bottomed during the excavation so how deep it cut into the underlying undisturbed marine sediments is not known. The infilling sediments appear to lie within a hollow in the marine sediments approximately 1.2m deep, perhaps a former saltwater lagoon or tidal feature/channel, later infilled with the deposits initially interpreted as waste from medieval salt production.

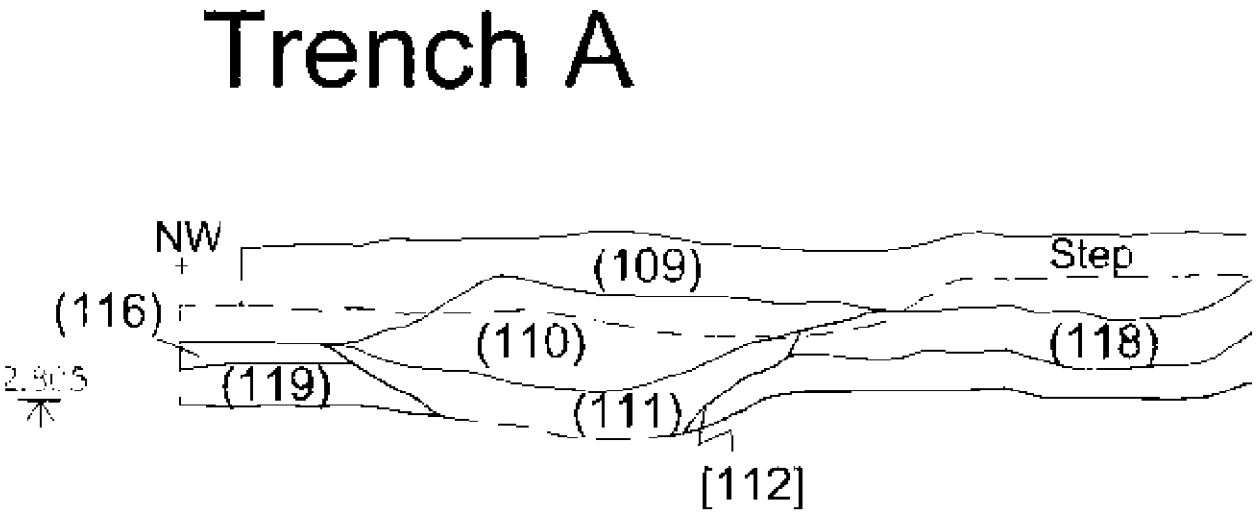


Fig. 5. Area of Section 17 showing pit 112.

Sample 2, context 098, pit 094. This pit was described as being cut into the 'saltern' mound in the archaeological account. There is nearly a kilogramme of concreted silts in this sample, possibly reflecting post-depositional changes to the deposit or perhaps reflecting inclusion of something that caused the concretion. Material rich in 'salts' such as manure, cess or urine could lead to concretion of the deposits. No 'vitrified fuel ash' was noted in this sample. Only a small amount of archaeological debris is present and the deposit is dated to the Saxon-Norman period. The snail assemblage although very limited points to a grassland area. A Saxo-Norman feature cutting into a 'mound' which is described elsewhere as containing mid-13th to mid-14th century pottery is inconsistent.

Sample 3, context 134, pit 133. This deposit was relatively lacking in archaeological debris. The sample contained nearly half a kilogramme of concreted, possibly fired, silts and fine sands, a single indeterminate charred grain with a few charred weed seeds, very little charcoal and a little 'ashy' debris in the flot. The deposits in the pit produced no finds, so remain undated, but since they occur near the highest point of the mound the inference is that the sampled deposit post-dates the mound which elsewhere has produced mid-13th to mid-14th century ceramics.

Sample 4, context 144, pit 146. This fill of pit 146 was described on the sample sheet as 'the rake out from a hearth'. The feature is relatively shallow in relation to its size and appears to have clear 'tip' lines or spreads (Fig. 6) of material. The most significant aspect of the sample results is that they suggest the presence of fire debris derived from the burning of turves or peats. The presence of silicaceous vitrified fuel ash in the sample combined with the abundance of charred sedge seeds, grasses, probable reed leaves, herbaceous stems and burnt and unburnt shells of aquatic snails points to wetland reed and sedge peats or turves, water edge organic sediments and/or waterlain organic sediments with a significant mineral component being cut, dried and used for fuel. The few small woody charcoal stems and twigs could easily derive from woody shrubs growing in such habitats. There is no evidence for larger wood charcoal in the sample.



Fig. 6. Section of the deposits in pit 146. The deposit immediately below the ranging pole is 143 and the whole of the deposit below the top sloping lens is 144.

Whether the fires responsible for the debris in the sample were *in situ* in pit 146 or represent dumps from elsewhere is uncertain, but the presence of charred grain, small gadid and clupeid (herring?) bones, burnt bird bone, and a couple of cattle rib bones appears to suggest some domestic rubbish in the deposit along with the fire debris, while the few flakes of hammerscale, although potentially intrusive would be consistent with other evidence for iron smithing taking place somewhere in the vicinity.

Sample 5, context 037, fill of a large negative feature, possible pit 057. This large feature lies to the east of the 'mound' (see Fig. 1) and was investigated in a small trench. Although the sample produced no archaeological finds, pottery of 11th-12th century date was recovered from the layer and deposits above and below and the feature produced ceramics dated from the Saxo-Norman period to the 14th century. The contents of this deposit are very specific. The fill is composed almost entirely of concreted silicaceous vitrified fuel ash built up apparently as hearth material, possibly *in situ*, with consecutive 'fires' leading to their fusion and vitrification such that a significant thickness of 'fused' ash survived. Even the finest fraction of the residue recovered (150-250 microns) showed partial vitrification. Apart from a small component of fine carbonised material consistent with herbaceous matter rather than wood the deposit is fairly barren. As discussed above this deposit suggests the use of mineral rich peat or turves for fuel. Whether the 'ash' is *in situ* or redeposited is not known but the presence of large blocks representing a considerable build-up might point to *in situ*, although the stratigraphy suggests a tip deposit (Fig. 6. Section 8 of the archaeological report). The functional role of the fire that created this deposit is not known but a sufficient temperature was reached to vitrify or partially vitrify the mineral elements - sand and silt. Although silica (silicon dioxide) has a high melting point (1400-1600 degrees C) this is lowered when contaminated with other minerals and much of the material in the sample is only partially vitrified. No hammerscale was recovered from the sub-sample processed and with the proposal above that the mound is not a medieval saltern mound no industrial function is apparent. A sample of the ash and burnt mineral residue from a very hot burning garden fire was studied for evidence of vitrification. While it produced similar white and grey plant 'ash' material there was very little evidence for any vitrification of the mineral components (sand and silts), which at a simplistic level suggests the temperature needed to vitrify the mineral component at Sunnydale was very much higher than a hot 'bonfire'. Such temperatures would not be required for something like corn-drying so the functional role of the 'hot' fires that produced the vitrified elements in samples 4 and 5 remains unknown.

Conclusions

A quick review of the topographic and geographic location of the site along with the ceramic dating and the historical foundation of the settlement at Surfleet suggests that the mound is unlikely to be a medieval saltern mound, but may be more likely to be deposits infilling, and subsequently mounding up, over a former channel or tidal lagoon

feature after reclamation of the land by at least the Saxon-Norman period. There is perhaps a possibility that Roman or even Saxon salt production might have occurred in the Glen estuary at Surfleet, but the establishment of a settlement and church on the north bank of the River Glen by the 11th-12th century and the narrow character of any tidal river at this time would imply conditions unsuitable for salt production. The Saltern mounds 1km to the SE of the site lie on the edge of an estuary perhaps two kilometres wide whereas the tidal River Glen just north of the site at Sunnydale was probably less, perhaps much less, than 100m wide and the concentrations of salt in the water are unlikely to have warranted salt production. The two sampled Saxo-Norman features to the south of the mound also imply 'dry' occupation perhaps as much as a century before the mound deposits built up so it is difficult to see this feature as a 13th-14th century saltern mound.

By the Saxo-Norman period there is evidence for domestic activity on the site, with possibly high temperature fires fed with turves or peats suggesting some unknown 'industrial' activity. This activity indicates that the site, formerly an area of tidal estuary had already been 'reclaimed'. By the 12th-14th centuries animals appear to be being buried on the site and a pastoral landscape with 'wet hollows' being infilled to improve the pasture is suggested. The animal burials suggest a peripheral agricultural area to the medieval settlement but the vitrified ash deposits in sample 5 suggest some activity requiring high temperatures at this time, again apparently fueled by turves or peats. Sample 1 may be a little later on the basis of the ceramic building material from the deposit and shows that barley and rye are probably being cultivated on site or nearby and processed on site. What was probably initially a seasonally damp pastoral landscape had become dry enough to cultivate for cereal crops, the rye suggesting quite dry conditions in the summer.

The type and quantity of animal bone from the excavations and the limited amounts of 'food' waste coming out of the samples although indicative of 'domestic' activity does not suggest significant settlement on the site. The richest sample, sample 1, from a 'pit' dug into the mound contains a charred assemblage of mixed origin suggesting crop processing activities, while the horse bones indicate burials, so the site may be associated with a medieval farmstead on the southern side of the village. The small Shetland pony sized beast is likely to have had a carriage function and might possibly have been used for the transportation of salt from the salterns along the Welland or for carrying turves/peat from the turbaries. It is unusually small for a medieval pony but may have been more suitable for working in areas of soft ground. The fuel supply appears to be peats or turves presumably cut from a local turbary, and the vitrification of the mineral elements of this fuel also seems to indicate some high temperature processes on the site. A low-density scatter of hammerscale in most of the samples probably indicates contemporary iron smithing but contamination cannot be ruled out. Smithing hearths could account for the vitrification if turves/peats were used as fuel, but an absence of any smithing slags associated with the samples rich in fuel ash slags would contradict this.

Given the proximity to the coast of the site there is a relative dearth of marine resources such as shellfish and sea fish, but this is true for other food items, and probably reflects the overall lack of domestic rubbish in the samples and across the site.

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Key to codes used in the cataloguing of animal bones and marine shells

SPECIES:

SPECIES CODE			SPECIES CODE	
MAN	human		DOVE	Dove species
EQU	Horse		FER	Feral dove
EQSZ	Horse size		PART	Partridge
BOS	Cattle		SWAN?	Swan?
BOSL	Cattle-large		WOOD	Woodcock
CSZ	cattle size		CURL	Curlew
SUS	Pig		WADE	wader
OVCA	sheep or goat		CROK	Crow or rook
OVI	Sheep		CORV	Crow or rook
CRA	Goat		JACK	Jackdaw
SSZ	sheep size		OWL	Owl indet.
FEL	Cat		BUZZ	Buzzard
CAN	Dog		GULL	Gull sp.
AUR	Aurochs			
AUR?	Aurochs?		TURD	Turdidae
CER	red deer		BIRD	Identifiable but not id'd
DAM	Fallow deer		PASS	Passerine
CLS	roe deer		LBIRD	Large bird
LEP	Hare		UNIB	Bird indet
ORC	Rabbit			
LAG	Lagomorph		FROG	Frog
CARN	Carnivore		FRTO	Frog or toad
FOX	Fox			
POLE	Polecat/ferret			
WEA	weasel		GAD	Gadid, cod family
BADG	Badger		LING	Ling
SEAL	seal		HADD	Haddock
SQU?	Squirrel?		RAY	ray
BEAV	Beaver		FISH	Fish
ROD	Rodent		UNIF	Fish indet
RAT	Rat			
AGR	Field vole		OYS	oyster
ARV	Water vole		COK	Cockle
MUS	House mouse		MUSS	Common Mussel
SORA	Common shrew		WHELK	Common whelk
MOLE	Mole		HEL	Helix aspersa
SMA	Small mammal		HELIX	Helix sp.
UNI	Unknown		HELN	Helix nemoralis
			SNAIL	snail
CHIK	Chicken			
CHKZ	Chicken size		FOSS	Fossil bone
GOOS	Goose, dom			
GOOS?	Goose, dom.?			
GSSZ	Goose size			
GSSP	Goose species			
GOSZ	Goose, poss. Wild			
DUCK	Duck, domestic sp.			
DUCK?	Duck?			
DKSP	Duck species			
DSP	Duck species indet			
MALL	Duck, dom.			
TURK	Turkey			

BONE ELEMENT:

BONE CODE		BONE CODE	
SKEL	skeleton	SCP	scapula
SKL	skull	HUM	humerus
ANT	antler	RAD	radius
ANT?	antler?	ULN	ulna
ATT	antler tine	RUL	radius and ulna
HC	horn core	C/T	carpus/tarsus
TEMP	temporal	C23	carpus 2|3
FRNT	frontal	CAR	carpus
PET	petrous	CPA	accessory carpal
PAR	parietal	CPI	intermediate carpal
OCIP	occipital	CPR	radial carpal
ZYG	zygomatic	CPU	ulnal carpal
NAS	nasal	MTC	metacarpus
PMX	premaxilla	MC1-5	metacarpus 1-5
MAN	mandible	MTP	metapodial
MNT	mandibular tooth	MPL	lateral metapodial
DLI	deciduous lower incisor	INN	innominate
DLPM1-4	deciduous lower premolar 1-4	ILM	ilium
LI	lower incisor (and 1-3)	PUB	pubis
LC	lower canine	ISH	ischium
LPM1-LPM4	lower premolar 1-4	FEM	femur
LM1-LM3	lower molar 1 - molar 3	PAT	patella
MAX	maxilla	TIB	tibia
DUI	deciduous upper incisor	FIB	fibula
UI	upper incisor (1-3)	LML	lateral malleolus
UC	upper canine	AST	astragalus
DUPM	deciduous upper premolar	CAL	calcaneum
DUPM1-4	deciduous upper premolar 1-4	CQ	centroquartal
UPM1-UPM4	upper premolar 1-4	TAR3	tarsus 3
UM1-UM3	upper molar 1 - molar 3	T4	tarsus 4
MXT	maxillary tooth	TAR	tarsus
TTH	indeterminate tooth	MTT	metatarsus
INC	incisor	MT1-5	metatarsus 1-5
HYD	hyoid	MTL	lateral metatarsus
ATL	atlas	SES	sesamoid
AXI	axis	PH1	1st phalanx
CEV	cervical vertebra (and 3-7)	PH2	2nd phalanx
TRV	thoracic vertebra (and 1-13)	PH3	3rd phalanx
LMV	lumbar vertebra	PHL	lateral phalanx
SAC	sacrum	LBF	long bone
CDV	caudal vertebra	UNI	unidentified
VER	vertebra		
STN	sternum	CLV	clavicle
CC	costal cartilage	COR	coracoid
RIB1	first rib (2 etc)	CMP	carpo-metacarpus
RIB	rib	CMC	carpo-metacarpus
		WPH1-3	wing phalanges 1-3
URO	urostyle	WPH	wing phalanx
		LSA	lumbosacrale
DENT	dentary		
CLEI	cleithrum		
RAY	fin ray		
SHELL	shell		
UV	upper valve		
VAL	valve		

NUMBER: number of fragments in the entry

SIDE: W - whole L - left side R - right side F - fragment

FUSION: records the fused/unfused condition of the epiphyses
P - proximal; D - distal; E - acetabulum; N - unfused; F - fused; C - cranial; A - posterior

ZONES: records the part of the bone present.
The key to each zone on each bone is on page 4

BUTCHERY: records whether a bone has been chopped (CH), cut (KN), worked (W), burnt (C)

GNAWING: records if a bone has been gnawed by dogs (DG), cats (FEL) or rodents (RG)

TOOTH WEAR - Codes are those used in Grant, A. 1982 The use of tooth wear as a guide to the age of domestic animals, in B. Wilson, C. Grigson and S. Payne (eds) *Ageing and sexing animal bones from Archaeological sites*, 91-108.

Teeth are labelled as follows in the tooth wear column:

Deciduous	Permanent
f ldpm2/dupm2	F lpm2/upm2
g ldpm3/dupm3	G lpm3/upm4
h ldpm4/dupm4	H lpm4/upm4
	I lm1/um1
	J lm2/um2
	K lm3/um3

MEASUREMENTS: Any measurements are those listed in A. von den Driesch (1976*) A Guide to the Measurement of Animal Bones from Archaeological Sites*, Peabody Museum Bulletin 1, Peabody Museum, Harvard, USA
Some measurements have been taken on juveniles. Measurements marked L1 are the greatest length of long bones lacking one unfused epiphysis the measurement being taken from the epiphyseal junction. Measurements marked L2 are the greatest length of the long bones between epiphyseal junctions when both epiphyses are unfused.

PATHOLOGICAL: A 'P' indicates that the bone fragment carries a pathology

COMMENTS: This may include a short description of the fragments, any pathologies, butchery or gnawing evidence

PRESERVATION: records the condition of the bone in the following manner

1- enamel only surviving
2- bone very severely pitted and thinned, tending to break up; teeth with surface erosion and loss of cementum and dentine
3- surface pitting and erosion of bone, some loss of cementum and dentine on teeth
4- surface of bone intact, loss of organic component, material chalky, calcined or burnt
5- bone in good condition, probably with some organic component

ZONES - codes used to define the zones on each bone

SKULL	1. paraoccipital process	METACARPUS	1. medial facet of proximal articulation, MC3
	2. occipal condyle		2. lateral facet of proximal articulation, MC4
	3. intercornual protuberance		3. medial distal condyle, MC3
	4. external acoustic meatus		4. lateral distal condyle, MC4
	5. frontal sinus		5. anterior distal groove and foramen
	6. ectorbitale		6. medial or lateral distal condyle
	7. entorbitale		
	8. temporal articular facet	FIRST PHALANX	1. proximal epiphysis
	9. facial tuber		2. distal articular facet
	0. infraorbital foramen		
		INNOMINATE	1. tuber coxae
MANDIBLE	1. Symphyseal surface		2. tuber sacrale + scar
	2. diastema		3. body of illium with dorso-medial foramen
	3. lateral diastemal foramen		4. iliopubic eminence
	4. coronoid process		5. acetabular fossa
	5. condylar process		6. symphyseal branch of pubis
	6. angle		7. body of ischium
	7. anterior dorsal acsending ramus posterior M3		8. ischial tuberosity
	8. mandibular foramen		9. depression for medial tendon of rectus femoris
VERTEBRA	1. spine	FEMUR	1. head
	2. anterior central epiphysis		2. trochanter major
	3. posterior central epiphysis		3. trochanter minor
	4. centrum		4. supracondyloid fossa
	5. neural arch		5. distal medial condyle
			6. lateral distal condyle
SCAPULA	1. supraglenoid tubercle		7. distal trochlea
	2. glenoid cavity		8. trochanter tertius
	3. origin of the distal spine		
	4. tuber of spine	TIBIA	1. proximal medial condyle
	5. posterior of neck with foramen		2. proximal lateral condyle
	6. cranial angle of blade		3. intercondylar eminence
	7. caudal angle of blade		4. proximal posterior nutrient foramen
			5. medial malleolus
HUMERUS	1. head		6. lateral aspect of distal articulation
	2. greater tubercle		7. distal pre-epiphyseal portion of the diaphysis
	3. lesser tubercle		
	4. intertuberal groove	CALCANEUM	1. calcaneal tuber
	5. deltoid tuberosity		2. sustentaculum tali
	6. dorsal angle of olecranon fossa		3. processus anterior
	7. capitulum		
	8. trochlea	METATARSUS	1. medial facet of proximal articulation, MT3.
	9. coronoid fossa		2. lateral facet of proximal articulation, MT4
	0. teres tubercle		3. medial distal condyle, MT3
RADIUS	1. medial half of proximal epiphysis		4. lateral distal condyle, MT4
	2. lateral half of proximal epiphysis		5. anterior distal groove and foramen
	3. posterior proximal ulna scar and foramen		6. medial or lateral distal condyle
	4. medial half of distal epiphysis		
	5. lateral half of distal epiphysis		
	6. distal shaft immediately above distal epiphysis		
ULNA	1. olecranon tuberosity		
	2. trochlear notch- semilunaris		
	3. lateral coronoid process		
	4. distal epiphysis		

Archive catalogue of hand collected animal bone and marine shell from Surfleet – SUSC22

site	context	species	bone	no.	side	fusion	zone	butchery	gnawing	toothwear	measurement	path.	comment	preserv-ation
SUSC22	004	BOS	INN	1	L		7						ISCHIAL SHAFT	4
SUSC22	004	CAN	RAD	1	R								MIDSHAFT	4
SUSC22	004	CSZ	LBF	1	F								INDET SHAFT FRAGMENT	4
SUSC22	004	OVCA	CAL	1	L	PF	123				GL-60 Pb-14.8 Dp-17.1 Dd-23.6		COMPLETE	4
SUSC22	004	OVCA	MAN	1	L					d11 I7J4			HORI RAMUS FRAG WITH DP4 AND M1-M2 LOST BUT ERUPTING	4
SUSC22	004	OVCA	TIB	1	L		4				SD-15.4		PROX AND MIDSHAFT	4
SUSC22	004	OVCA	TIB	1	R								DISTAL MIDSHAFT-SL POROUS	4
SUSC22	004	OVI	MTC	1	R	DF	12345	CH			GL-124 Bp-23.3 Dp-15.4 SD-12.2 Bd-25.3 Dd-15.8		COMPLETE-HIGH WAISTED - GRACILE	4
SUSC22	004	SUS	LC	1	R								MALE CANINE-VERY LITTLE WEAR	4
SUSC22	007	SSZ	CEV	1	F								ANT ZYGAPOPHYSIS	4
SUSC22	013	BOS	MTT	1	L				DG		SD-20.9		MOST OF SHAFT-BOTH ENDS CHEWED	4
SUSC22	013	FISH	TOID	1	F								TO IDENTIFY	4
SUSC22	014	BOS	HUM	1	R		69	CH			SD-25.4		DISTAL THIRD SHAFT-DISTAL CHEWED OFF-SHAFT CHOPPED	4
SUSC22	014	BOS	PH2	1	R	PF	12						COMPLETE	4
SUSC22	014	CSZ	RIB	1	L			CH					MID-DISTAL SHAFT-DISTAL END CHOPPED MEDIALLY	4
SUSC22	016	EQU	FEM	1	L	PF	1						MOST OF CAPUT	4
SUSC22	016	OVCA	RAD	1	R	PF	123	CH			Bp-33.6 Dp-17.5		PROX HALF-DISTAL SHAFT CHOPPED	4
SUSC22	027	SSZ	RIB	1	L			C					CALCINED PROX SHAFT	4
SUSC22	027	SUS	MAN	1	R		7			I7J4			POST TOOTH ROW-M1 AND 2-M3 UNERUPTED-POROUS	4
SUSC22	037	SSZ	RIB	1	F								VERY POROUS-RIB SHAFT-COSTAL CARTILAGE?	4
SUSC22	039	SSZ	LMV	1	F	CFAF	2345	C					FOUR FRAGMENTS-BURNT-SHEEP/GOAT	4
SUSC22	039	SSZ	RIB	1	F								MIDSHAFT	4
SUSC22	044	CSZ	RIB	1	F								SHAFT FRAGMENT	4

site	context	species	bone	no.	side	fusion	zone	butchery	gnawing	toothwear	measurement	path.	comment	preserv-ation
SUSC22	054	EQU	MAN	1	F								ANT FRAG HORI RAMUS WITH 2 INCISORS-WELL WORN-3 PIECES	4
SUSC22	055	BOS	MTT	1	R			C			SD-15.5		MIDSHAFT-SMALL-POROUS-JUV-MIDSHAFT CHOPPED	4
SUSC22	055	CSZ	FEM	1	R	DN							PART ZONE 7	4
SUSC22	055	CSZ	RIB	1	F								PROX SHAFT- 4 PIECES	4
SUSC22	055	ORC	FEM	1	L	PNDN							SHAFT ONLY	4
SUSC22	056	BOS	AST	1	R		1						POROUS-JUV-SAME LIMB AS CAL	4
SUSC22	056	BOS	CAL	1	R	PN	23						COMPLETE EXCEPT FOR PROX EPI-SMALL-POROUS-JUV	4
SUSC22	056	BOS	TIB	1	R								LATERAL MIDSHAFT FRAGMENT	4
SUSC22	056	CAN	LMV	1	W	CFAF	12345						ONLY SLIGHT DAMAGE	4
SUSC22	056	CSZ	FEM	1	F								SHAFT FRAGMENT-SMALL-POROUS-JUV-ERODED	3
SUSC22	056	CSZ	RIB	1	F								SHAFT FRAGMENT	4
SUSC22	056	CSZ	RIB	1	F								DISTAL SHAFT FRAGMENT	4
SUSC22	056	CSZ	UNI	1	F								INDET-SL ERODED	3
SUSC22	056	CSZ	UNI	1	F								POSS FRAGMENT PROX TIB-FUSED	4
SUSC22	056	EQU	MAN	1	L		1237			GHIJK			FRAGMENTED - 16 FRAGMENTS-TEETH ME-WELL WORN	4
SUSC22	056	EQU	RIB	1	R	PF	1						PROX END	4
SUSC22	056	OVCA	HC	1	L								DISTAL HALF-LARGESOMEWHAT OVOID-LOOKS BIT LIKE BOS	4
SUSC22	056	OVCA	LMV	1	R	CF		CH					RIGHT SIDE CENTRUM+ANT ZYGA-CHOPPED DOWN MIDDLE	4
SUSC22	056	OVCA	MAN	1	L		678			J15K12			POST HORI RAMUS AND VENTRAL HALF ASC-WITH M2 AND M3	4
SUSC22	056	OVCA	MAN	1	R		7			K10			POST HORI RAMUS WITH LM3 AND Z7	4
SUSC22	056	OVCA	RIB	1	R	PN	1						PROX THIRD	4
SUSC22	056	SSZ	RIB	1	R								MID AND DISTAL SHAFT	4
SUSC22	069	OVCA	TIB	1	R	PN	2						FRAG UNFUSED PROX EPI	4
SUSC22	069	UNI	SKL	1	F								DORSAL FRAG-FRONTAL/FACIAL	4
SUSC22	075	CER	PH3	1	L		1				GL-49.3 HT-27.3		COMPLETE	4

site	context	species	bone	no.	side	fusion	zone	butchery	gnawing	toothwear	measurement	path.	comment	preserv-ation
SUSC22	075	SSZ	RIB	1	F			CH					PROX MIDSHAFT-BOTH ENDS CHOPPED-POROUS-JUV	4
SUSC22	075	FISH	UNI	1	F								INDET LARGE FISH RAY	4
SUSC22	077	CHIK	SCP	1	F								SCAULA BLADE	4
SUSC22	077	ORC	SKEL	1	P								37 FRAGMENTS-FEM-TIB-HUM-RIB-VERT-SKL-MTP-INN-SAC-ETC-ADULT	4
SUSC22	082	BOS	CEV	1	F		15	CH					NEURAL ARCH AND SPINE-CHOPPED MED-LAT THRU CANAL	4
SUSC22	082	BOS	FEM	1	L		4						DISTAL SHAFT-Z4	4
SUSC22	082	BOS	RIB	1	R			CH					ANT RIB-PROX SHAFT-DISTAL END CHOPPED	4
SUSC22	084	CSZ	LBF	1	F			C					INDET CHARRED SHAFT FRAGMENT	4
SUSC22	084	SSZ	LBF	1	F								INDET SHAFT FRAGMENT	4
SUSC22	102	BOS	MAN	1	R		2			fgh14 I9			ANT HORI RAMUS WITH DP2-M1-3 PIECES	4
SUSC22	102	CSZ	UNI	1	F								INDET FRAGMENT	4
SUSC22	102	MUSS	VALV	3	E								PARTS OF 3 VAL; VES	4
SUSC22	102	SUS	TIB	1	L	DF	567				SD-18.6 Bd-25.9 Dd-23.6		DISTAL END AND 2 THIRDS SHAFT- Z4 NOT PRESENT	4
SUSC22	109	SUS	TIB	1	R		4	CH	DG		SD-18.6		MIDSHAFT-PROX END CHEWED-DISTAL END CHOPPED-POROUS-JUV/IMM	4
SUSC22	111	BOS	HUM	1	L		0	CH	DG				PROX SHAFT-PROX END CHEWED-MIDSHAFTCHOPPED- SL POROUS	4
SUSC22	111	BOS	HUM	1	R		690	CH			SD-29.3		MOST OF SHAFT-DISTAL END CHOPPED	4
SUSC22	111	BOS	SCP	1	F								FRAGM.EMNT OF CAUDAL MARGIN	4
SUSC22	111	BOS	TIB	1	R		4				SD-.23.2		MOST OF SHAFT-SMALL-JUV-FLAKING	3
SUSC22	111	BOS	TRV	1	L	CNAN		CH					LEFT SIDE CENTRUM-CHOPPED DOWN MIDDLE	4
SUSC22	111	CAN	LMV	1	W	CFAF	12345						COMPLETE EXCEPT FOR TRANS PROCESSES	4
SUSC22	111	CAN	TIB	1	L	DF	4567				SD-15.2 Bd-29 Dd-20.6		DISTAL END AND MOST OF SHAFT	4
SUSC22	111	CSZ	HUM	1	L	DF	8						FRAGMENT OF DISTAL LATERAL ARTIC-HORSE/	4
SUSC22	111	CSZ	LMV	1	R	AN							POST FRAGMENT OF CENTRUM	4
SUSC22	111	CSZ	UNI	1	F								INDET	4
SUSC22	111	DOF	ULN	1	R	PF	123						PROX END AND SHAFT-SMALL WELL-	4

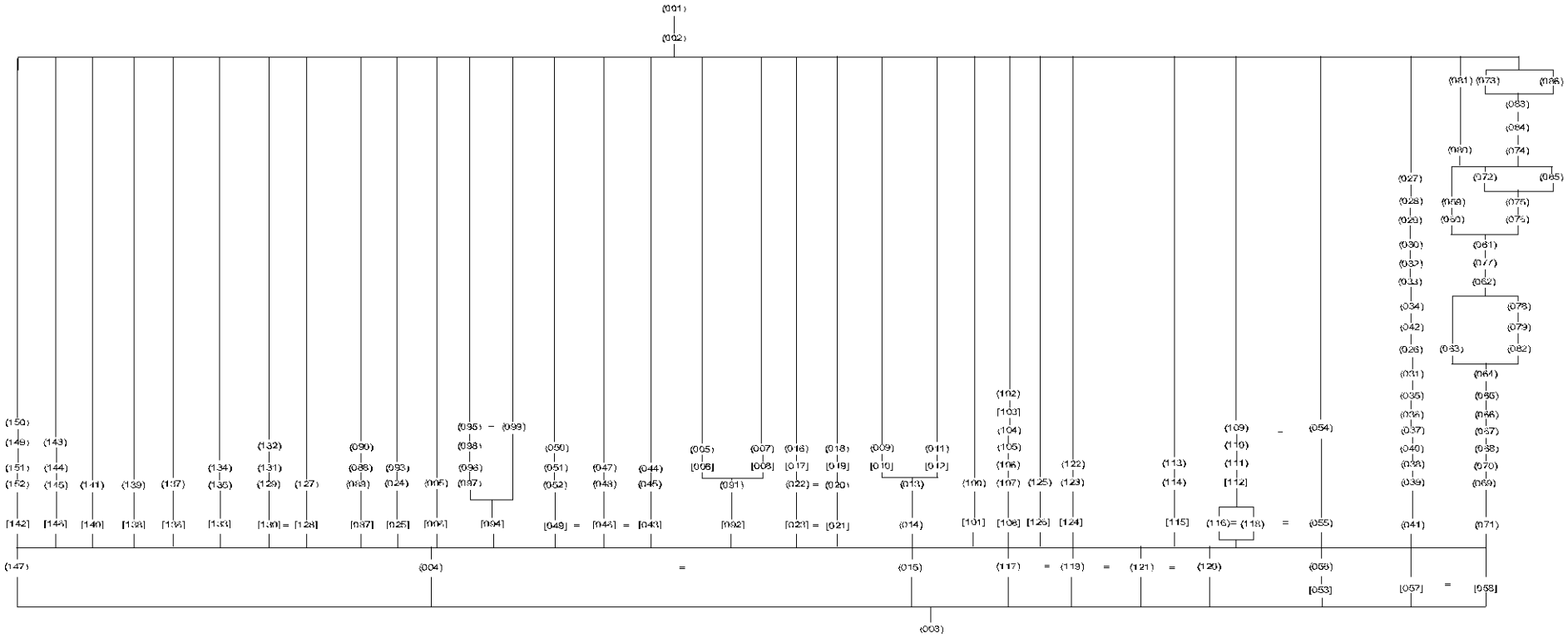
site	context	species	bone	no.	side	fusion	zone	butchery	gnawing	toothwear	measurement	path.	comment	preserv-ation
													PROPORTIONED DOG OF FOX	
SUSC22	111	DOF	ULN	1	R	PF	123						PROX END AND SHAFT-LARGE FOX OR SMALL WELL-PROPORTIONED FOX-BIGGER THAN ABOVE	4
SUSC22	111	EQU	FEM	1	L	PCD	1348		DG		DC-52 SD-35.6		PROX END AND SHAFT-DISTAL CHEWED-PROX SUT VIS	4
SUSC22	111	EQU	LC	2	W								LEFT AND RIGHT CANINES	4
SUSC22	111	EQU	LM	1	W								MED WEAR	4
SUSC22	111	EQU	MAN	1	F		123123						SYMPHYSIS WITH CANINE ALVEOLI AND PM2 ON LEFT SIDE	4
SUSC22	111	EQU	MTC	1	L		1						PROX THIRD	4
SUSC22	111	EQU	MTT	1	L	DF	12345				GL-270 SD-27 Bd-44.8 Dd-34.8	P	COMPLETE-EXOSTOSIS AROUND PROX ARTIC AND SURFACE POF ARTIC	4
SUSC22	111	EQU	RIB	3	L	PF	1						PROX THIRD	4
SUSC22	111	EQU	TIB	1	L	PFDF	1234567				GL-333 Bp-88.4 Dp-77.3 SD-36 Bd-67 Dd-41		COMPLETE	4
SUSC22	111	EQU	TRV	1	F	CFAF	12345						PERIPHERAL DAMAGE AND DISTAL SPINE BROKEN	4
SUSC22	111	OVCA	HUM	1	L	DF	67890				SD-14.7 BT-31.7 HT-20.1		DISTAL END AND SHAFT	4
SUSC22	111	OVCA	MAN	1	L					K12			HORI RAMUS FRAG WITH M3 AND P4-M2 ALVEOLI-2 PIECES	4
SUSC22	111	OVI	HC	1	F								FRAGMENT OF MALE HC	4
SUSC22	116	BOS	FEM	1	L	PF	123	CH			DC-46		DAMAGED PROX END-CHOPPED FROM SHAFT	4
SUSC22	116	BOS	FEM	1	L		4	CH	DG				DISTAL SHAFT FRAG WITH Z4-SHAFT END CHOPPED-DISTAL CHEWED	4
SUSC22	116	BOS	HUM	1	L	DF	789	CH			BT-77.9 HT-40.6		DISTAL CONDYLE AND PART ANT DISTAL SHAFT-CHOPPED THRU DISTAL SHAFT	4
SUSC22	116	BOS	INN	1	R	EF	59	CH					POST FRAG ILIUM WITH PART ACETAB-CHOPPED THRU ACETAB	4
SUSC22	116	BOS	MAN	1	L		678		DG	K10			CHEWED ANGLE WITH M3 AND Z7	4
SUSC22	116	BOS	RAD	1	R	DN	45						DISTAL EPIPHYSIS	4
SUSC22	116	BOS	SKL	1	F								FRAGMENTED SKULL-18 PIECES-MAXILLA FRAG-BASI-OCCIP, FAC FRAGS	4

site	context	species	bone	no.	side	fusion	zone	butchery	gnawing	toothwear	measurement	path.	comment	preserv-ation
SUSC22	116	BOS	TIB	1	L	DN	7						DISTal shaft-epi unfused- 2 pieces	4
SUSC22	116	CAN	MT3	1	R	DF	123				GL-57.2		COMPLETE	4
SUSC22	116	CAN	SKEL	1	P						MT5-GL-88.1 MT5-Bd-11.2 MT4-GL-102.1		MAN, FEM, TIB,MTP,PHAL,TTH-13 PIECES-FEM-PN,TIB-DN,MTP-DJ,PHAL-PJ-LARGE DOG	4
SUSC22	116	CAN	ULN	1	R	PF	123						PROX END AND SEMILUNARIS-BIGGER THAN FOX	4
SUSC22	116	CSZ	LBF	1	F								INDET SHAFT FRAGMENT	4
SUSC22	116	CSZ	RIB	1	L	PN	1	CH					PROX END-SHAFT CHOPPED-POSS LARGE PIG??	4
SUSC22	116	EQU	HUM	1	L	DF	67890				SD-34.6 BT-72.5 HT-52.8		DISTAL AND AND SHAFT- 2 PIECES	4
SUSC22	116	EQU	HUM	1	R	DF	67890		DG		SD-25.7 BT-60		DISTAL END AND SHAFT-PROX END CHEWED-PONY//MULE?	4
SUSC22	116	EQU	INN	1	L	EF	23579				SH-34.8 SB-22		ILIAL AND ISCHIAL SHAFT, SCAR AND PART ACETAB-PAIR OF ABOVE	4
SUSC22	116	EQU	INN	1	R	EF	357				SH-34 SB-21		ISCHIAL AND ILIAL SHAFT WITH PART ACETAB	4
SUSC22	116	EQU	INN	1	R	EF	57						ISCHIAL SHAFT WITH PART ACETAB	4
SUSC22	116	EQU	LML	1	W		1						COMPLETE	4
SUSC22	116	EQU	LMV	1	F	CFAF	12345						ANT THORACIC-CENTRUM, ARCH AND BASE SPINE	4
SUSC22	116	EQU	LMV	1	F	CFAF	234						CENTRUM	4
SUSC22	116	EQU	MAX	1	L					fgF3G3			LOOSE DP2 AND 3 WITH UNERUPTED PREMOLARS BENEATH- 5 PIECES	4
SUSC22	116	EQU	MTC	1	L	DF	12345				GL-214 Bp-48.6 Dp-32.1 SD-30.1 Bd-47.4 Dd-35.2		COMPLETE	4
SUSC22	116	EQU	MTC	1	R	DF	12345				GL-188 Bp-43.4 Dp-25.4 SD-26.8 Bd-39.5 Dd-29		COMPLETE-PONY/MULE? +MPLX2 BIT MORE ROBUST THAN REF DONKEY	4
SUSC22	116	EQU	MTT	1	L	DF	12345				GL-250 Bp-47.3 Dp-38.6 SD-28.8 Bd-45.8 Dd-36.4		COMPLETE	4
SUSC22	116	EQU	PH1	1	W	PF	12				GL-83 Bp-52.3 Bd-43.8 Dp-34.5		COMPLETE	4
SUSC22	116	EQU	RAD	1	F	DN							ANT DISTAL SHAFT FRAGMENT-EPI	4

site	context	species	bone	no.	side	fusion	zone	butchery	gnawing	toothwear	measurement	path.	comment	preserv-ation
													UNFUSED-IMM- 2 PIECES	
SUSC22	116	EQU	RAD	1	L	DF	456				Bd-66.7 Dd-42.4		DISTAL HALF - 4 PIECES	4
SUSC22	116	EQU	TIB	1	L						SD-41.5		MID 2 THIRDS OF SHAFT	4
SUSC22	116	EQU	ULN	1	L		23		DG				SEMILUNARIS FRAG-TOP OLECRANON CHEWED OFF	4
SUSC22	116	FEL	SKEL	1	P	PFDF					TIB-GL-101.2 FEM-GL-94 HUM-GL-86.8 RAD-GL-63		PARTIAL SKELY-ALL FUSED-TIB,FEM,HUM,INN,SAC,MTP-SCP-CAL,ETC-22 BONES,ULN,RAD	4
SUSC22	116	OYS	UV	1	W								UPPER VALVE – 4g	4
SUSC22	116	OYS	LV	2	W								LOWER VALVES – 26g	4
SUSC22	116	UNI	FEM	1	F	DN							DITAL SHAFT- 2 PIECES-UNFUSED-	4
SUSC22	118	EQU	MAN	1	L		5						FRAG ASC RAMUS WITH CONDYLE	5
SUSC22	118	OVCA	MAN	1	L		2345678			I11J9K2			SYMPHYSIS LOST AND DEC TEETH-OTHERWISE COMPLETE	4
SUSC22	120	ORC	TIB	1	R	PFDF	1234567				GL-94		COMPLETE	4
SUSC22	127	SSZ	TRV	1	F								POST BASAL PART SPINE-SL POROUS-IMM?	4
SUSC22	132	CHIK	FEM	1	L								SPLIT SHAFT-WITH SOME CALCIUM FILLING-EGGLAYING!	4
SUSC22	132	FISH	UNI	1	F								LARGE FISH-NOT IDENTIFIED	4
SUSC22	132	OVCA	MAN	1	L		123			abcfgh16 I11J7K2			HORI RAMUS WITH DP2-M2 – INCISORS- 4 PIECES	4
SUSC22	132	OVCA	SKL	1	L		09			fgh13 I11J4			MAXILLA WITH DP2-M2-SAME HEAD AS ABOVE-SKULL & MANDIBLE!	3
SUSC22	144	BOS	RIB	1	F			CH					DISTAL MIDSHAFT FRAGMENT-DISTAL END CHOPPED	4
SUSC22	144	BOS	RIB	1	R								MOST OF SHAFT-BOTH ENDS BROKEN	4
SUSC22	147	BOS	AST	1	L		1	CH	DG		L1-59 L2-53.8 Bp-40.4 Bd-37.9 Dd-27.3		COMPLETE-DISTAL CHEWED AND CHOPPED MEDIO-LATERALY	4
SUSC22	147	EQU	ULN	1	R		23	CH	DG				SEMILUNARIS AND PART OLECRANON- PROX END CHEWED-CHOPPED AT ARTIC	4
SUSC22	147	OVI	MTT	1	L	DF	12345				GL-128 Bp-19.3 Dp-19.8 SD-11.4 Bd-23.3 Dd-14.8		COMPLETE-GRACILE-HIGH WAIST	4

Appendix 4

SITE MATRIX



Appendix 5

GLOSSARY

Context An archaeological context represents a distinct archaeological event or process. For example, the action of digging a pit creates a context (the cut) as does the process of its subsequent backfill (the fill). Each context encountered during an archaeological investigation is allocated a unique number by the archaeologist and a record sheet detailing the description and interpretation of the context (the context sheet) is created and placed in the site archive. Context numbers are identified within the report text by brackets, *e.g.* [004].

Cut A cut refers to the physical action of digging a posthole, pit, ditch, foundation trench, *etc*. Once the fills of these features are removed during an archaeological investigation the original 'cut' is therefore exposed and subsequently recorded.

Fill Once a feature has been dug it begins to silt up (either slowly or rapidly) or it can be back-filled manually. The soil(s) that become contained by the 'cut' are referred to as its fill(s).

Intrusive Artefacts of later date found in deposits that must pre-date them are said to be intrusive. Such intrusive artefacts will usually be small and have worked down in the soil through cracks, or by root, worm or rodent action. Intrusive artefacts will generally be isolated and be distinctively later than a larger assemblage of earlier artefacts, for example, a single 19th century pottery fragment found in a large collection of medieval ceramics in a refuse pit.

Layer A layer is an accumulation of soil or other material that is not contained within a cut

Medieval The Middle Ages, dating from approximately AD 1066-1500.

Natural Undisturbed deposit(s) of soil or rock which have accumulated without the influence of human activity

Post-medieval The period following the Middle Ages, dating from approximately AD 1500-1800.

Romano-British Pertaining to the period dating from AD 43-410 when the Romans occupied Britain.

Saltern Salt making site where salt is obtained from sea water through evaporation.

Saxo-Norman Pertaining to the period either side of the Norman Conquest of 1066, dating from about 1000-1100 AD.

Appendix 6

THE ARCHIVE

The archive consists of:

2 Trench sheets
152 Context record sheets
43 Sheets of scale drawings (17 sections, 10 Trench A and 10 Trench B sections, 6 plans)
8 Context register sheets
2 Photographic record sheets
2 Section record sheets
1 Plan record sheet
1 Small finds record sheet
52 Daily record sheets

All primary records are currently kept at:

Archaeological Project Services
The Old School
Cameron Street
Heckington
Sleaford
Lincolnshire
NG34 9RW

The ultimate destination of the project archive is:

Lincolnshire City and County Museum
The Collection
Danes Terrace
Lincoln
LN2 1LP

Accession Number: LCNCC: 2022.1

Archaeological Project Services Site Code: SUSC22

OASIS Record No: Archaeol1-510997

The discussion and comments provided in this report are based on the archaeology revealed during the site investigations. Other archaeological finds and features may exist on the development site but away from the areas exposed during the course of this fieldwork. *Archaeological Project Services* cannot confirm that those areas unexposed are free from archaeology nor that any archaeology present there is of a similar character to that revealed during the current investigation.

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Summary for archaeol1-510997

OASIS ID (UID)	archaeol1-510997
Project Name	Archaeological Investigation of Land off Sunnydale Close, Surfleet, Lincolnshire, United Kingdom
Sitename	Sunnydale Close, Surfleet CP, Lincolnshire, United Kingdom
Activity type	Open Area Excavation
Project Identifier(s)	Archaeological Investigation of Land off Surfleet Sunnydale Close
Planning Id	H17-1187-21
Reason For Investigation	Planning: Between application and determination
Organisation Responsible for work	Archaeological Project Services
Project Dates	08-Feb-2022 - 13-May-2022
Location	Sunnydale Close, Surfleet CP, Lincolnshire, United Kingdom NGR : TF 25137 27835 LL : 52.833514939523, -0.143898501992226 12 Fig : 525137,327835
Administrative Areas	Country : England County : Lincolnshire District : South Holland Parish : Surfleet
Project Methodology	"Strip, map and sample" investigation.
Project Results	The excavation revealed a 13th-14th century, large waste mound associated with salt-production activities, assuming further remains such as filtration units and hearths to be discovered in close proximity. Archaeological features surrounding the mound were identified as waste pits and a possible freshwater ditch. The recovered finds consist of domestic pottery sherds of predominantly 10th-14th century date and substantial amount of animal bone fragments of large-size species.
Keywords	Saltern - MEDIEVAL - FISH Thesaurus of Monument Types
Funder	
HER	Lincolnshire HER - unRev - STANDARD
Person Responsible for work	Peter, Tovizi
HER Identifiers	
Archives	Physical Archive, Documentary Archive, Digital Archive - to be deposited with The Collection: Art and Archaeology in Lincolnshire;