Archaeological Field Survey Report

SALT WORKING SITES, HARTY MARSHES, ISLE OF SHEPPEY, KENT

By Jane Kenney

ROYAL COMMISSION ON THE HISTORICAL MONUMENTS OF ENGLAND

RCHM
ENGLAND

SALT WORKING MOUNDS IN THE HARTY MARSHES ISLE OF SHEPPEY KENT

NMR INDEX No: TR 06 NW 13

NGR: TR 038 678

Report by: Jane Kenney
Survey by: Jane Kenney and Paul Struth
Drawings by: Jane Kenney

Cambridge Office: Brooklands, 24 Brooklands Avenue, Cambridge. CB2 2BU
Tel: 01223 324010 *Fax*: 01223 311203 *e-mail*: cambridge@rchme.gov.uk

Headquarters: National Monuments Record Centre, Great Western Village, Kemble Drive, Swindon. SN2 2GZ
Tel: 01793 414700 *Fax*: 01793 414707 *e-mail*: info@rchme.gov.uk *Internet*: http://www.rchme.gov.uk

SALT WORKING MOUNDS IN THE HARTY MARSHES, ISLE OF SHEPPEY
NMR No TR 06 NW 13
A SURVEY BY THE ROYAL COMMISSION ON THE HISTORICAL MONUMENTS OF ENGLAND

INTRODUCTION

Much of the southern half of the Isle of Sheppey is saltmarsh, cut by numerous creeks carrying salt water a considerable distance inland. This landscape is ideal for small scale salt production. The salt water creeks allow salt working sites to be located well inland, at the limits of floods and closer to settlements and fuel sources (Thompson 1956, 44). The importance of both creeks and access to higher land can be seen in the distribution of Sheppey salt mounds; none are over 100m from a drainage channel, and 85% are 500m or less from the 5m contour line. Ninety-nine individual salt mounds are known from Sheppey and others will have been destroyed or remain to be found, yet very little work has been done on the island compared to the better known sites of the Essex marshes (de Brisay 1975, Rodwell 1979).

In the past the area of saltmarsh was larger but programmes of drainage and flood control have extended the farmland into the marshes, inevitably leading to the destruction of numerous salt working mounds. This is particularly noticeable towards the eastern end of Sheppey around the Isle of Harty, an island of higher ground originally surrounded by marsh. An extensive area of saltmarsh easily accessible from Harty made it a convenient location from which to work salt, and there are a large number of known sites. However, the land has been extensively drained, so that the remaining areas of marshland fringe the coast (salt mounds on the reclaimed land have been ploughed level). Salt mounds appear to be difficult to eradicate entirely, and most of the ploughed examples survive either as low rises in the fields or as soil marks visible on aerial photographs. All the surface detail, original height and shape, however, are lost, and well preserved examples are needed if these sites are to be understood. Fortunately the creation of a bird reserve, now run by English Nature, has ensured the preservation of some of the marshland, and with it a number of salt mounds.

There are three known groups of salt mounds in the area of the Swale Bird Reserve, comprising a total of 12 mounds (NMR Nos TR 06 NW 13, 14, 15); another mound lies just outside the reserve boundaries (NMR No TR 06 NW 20). Almost all of these appear to be undisturbed by later activity, except for the burrowing of rabbits, which in places has caused considerable damage. Most of the mounds are large, up to 100m by

90m and 4.5m high, and have a range of surface features on and around them. The largest group (NMR No TR 06 NW 13), containing six mounds, was chosen for large scale survey because it preserves all features seen variously on other mounds, and there was potential for exploring the relationships between the mounds and surrounding drainage channels. The survey was conducted by staff of RCHME Cambridge field office, during July 1994, as part of the East Thames Corridor Project.

DESCRIPTION

The salt mounds (NMR No TR 06 NW 13) are situated just beyond the south-eastern edge of a spur of higher ground that extends north-east from the Isle of Harty, about 1km inland from the present shoreline. They form a linear group aligned roughly east to west, alongside a major drainage channel which is linked to the sea by a broader drain. There are four large mounds, two small ones, and a pond, which seems to be related to the complex. In addition to the major drainage channel there are other channels around the mounds, some still carry water, and others are dry. Although there must have been some alteration to the drainage system over time the sinuous nature of these channels suggest an origin as natural creeks within the saltmarsh. This would also seem to apply to channels associated with other salt mounds elsewhere in the Harty Marshes and on Sheppey, and was noted by Thompson (1956) at Seasalter.

Mound 1

The western mound has an irregular, sub-rectangular shape, measuring c.105m by 65m, and reaches 4m in height. It is located along the north-western side of the major drain, separated by a narrow berm, 3m wide. A low bank (**a**), 0.3m high, runs along the western side of the drain, and may be material from dredging the channel. It merges with, and in places overlies, the lower margin of the salt mound.

The mound is composed of multiple heaps of deposit which overlie one another and merge into an irregular, undulating surface. The mound has a general slope down from east to west while the eastern, northern and southern margins are steep and the western side is more gradual. A broad gully (**b**) runs up the western slope, branching into two as it reaches a plateau in the centre of the mound. Also in the western part of the mound is an oval hollow (**c**), measuring 23m by 15m and 1.5m in depth, with a narrower gully leading from its western end off the mound into a dry channel, which connects with the major drain. The floor of this hollow is dry and eroded by cattle seeking shelter, probably also creating the shallow gully running towards the hollow from the west. A heap of material along the southern side of the hollow may be the spoil from its excavation. The general impression is that the creation of hollow **c** was one of many

episodes in the formation of the mound during its main period of use, rather than a later insertion, although clear relationships are not visible on the surface.
Rabbit burrowing is evident over most of the mound and in places it has revealed artefacts and other debris: oyster shells immediately north of hollow **c**, a stack of tiles, a piece of granite and a fragment of salt-glazed briquetage; in the centre of the northern side a layer of dark soil containing oyster shells, bone, sherds of briquetage and post-medieval pottery. This deposit overlies the redder brown material of the body of the mound, and may represent a later phase of use (the artefacts have been sent to the Kent SMR).

Mound 2
A smaller mound on the western bank of a drainage channel, with a tower hide constructed on top of it. It is an elongated oval, 38m by 23m and c.1m high, overlain by a bank (**d**), up to 0.5m high, presumably the result of dredging the drain. The mound is highest and steepest at the southern end but both bank and hide have obscured any original features with the possible exception of a slight hollow in the north-western side.

Mound 3
On the opposite side of the drain to mound 2 is another large sub-circular mound, with a diameter of c.70m and a maximum height of 3.5m. The south-eastern side is highest and in common with mound 1 it has an irregular summit although in general it is more regular and less complex. There is a broad central gully (**e**) aligned north-west to south-east, and in the lower, north-western end an oval hollow (**f**), 17m by 10m and c.1m deep, with a channel running north-west from it. From the rabbit burrows on the mound only fragments of oyster shells were observed.

The area around Mound 3 has been disturbed recently to provide ponds for the birds, modern counter walls have been built against it and the channels to the north and east have been altered. However, the OS 1:10,000 map (OS (a)) shows that the channel to the east existed before these alterations.

Mound 4
Mound 4, on the northern side of the main drain, has an irregular shape, measuring c.65m by 60m, and its higher south-eastern side reaches 3m in height. This high end forms a discrete oval mound with a lower plateau to the north-west. In one side of the plateau is a depression (**g**), with a gully running to the north and although less clearly defined this arrangement is reminiscent of hollows **c** in mound 1 and the slighter hollow in mound 2. A steep sided indentation in the southern side of the mound appears to be a small quarry. In the recent past Essex salt mounds were quarried for their earth,

which was spread on the fields (Fawn *et al* 1990, 5), but this, and a smaller indentation in the eastern side of mound 1, is the only possible evidence of the practice on this site. The modern counter wall has been built up against mound 4 along its eastern side. The flooded area to the west of the mound is a recent creation, but a nearly dry channel to the north is original.

Mound 5

The eastern most of the large mounds is almost square, 50m by 45m and up to 4m high. Its higher western side slopes steeply but on the east it is a gradual series of steps. Unlike the other mounds there are few traces of heaps or hollows. The western slope is severely eroded by rabbits, although this has not exposed any stratigraphy or artefacts but a burrow on the top of the mound revealed some oyster shells. A dry channel lies to the north and the large channel just to the south (not shown on the plan).

The 'Pond' and Mound 6

East of mound 5 are two features not previously recorded, an oval hollow (**h**) and the very small mound 6. The hollow, 22m by 10m and c.1m deep, holds water and is flanked by two low banks, 0.5m high, presumably composed of spoil dug from the hollow. Slight gullies run into each end of the hollow, and although these may be cattle paths, the one leading to the north can be seen continuing as a vegetation mark. There is no evidence that the hollow is recent.

Mound 6 reaches 0.5m in height, and is oval in shape, measuring 20m by 15m. Its eastern end is higher and steeper than the western, which is poorly defined.

DISCUSSION

Mounds of this type on the Isle of Sheppey are traditionally recorded as medieval salt mounds. Although it is likely that this is a correct intepretation the discovery of oyster shells in mounds 1, 3 and 5 is of some interest. In this case their presence cannot be explained because of the casual nature of the sample but it should be kept in mind for further work. The assumption of a medieval date should bear some scrutiny. This site is typical of many others in the Harty Marshes, which cluster round drainage channels in areas that are, or were, saltmarshes. The location alone makes salt working one of the most likely explanations. Research elsewhere, in Essex and Lincolnshire, has identified similar mounds linked to salt working (Fawn *et al* 1990, 7), and documentary evidence further supports the interpretation (Rudkin 1975, Owen 1975). The recovery of briquetage and a fragment of salt glazing from mound 1 provides additional evidence.

Post-medieval pottery from the same mound dates some activity on the site, but it is clearly later than the bulk of the mound, and may be of little help in dating the salt working industry.

Salt mounds excavated in Essex have proved to be of both Iron Age and Roman date (de Brisay 1975, 1978). Most of the salt working sites located by artefact scatters in North Kent are Romano-British (Miles 1975), as are two sites excavated at Funton Creek, near Iwade (Detsicas 1984). However, others excavated at Seasalter, Whitstable, were found to date to the twelfth and thirteenth centuries AD (Thompson 1956). With salt works of both periods in the area the question must be whether it is possible to distinguish between them from surface evidence alone. Thompson (1956, 44) noted that the medieval mounds at Seasalter, up to 4.5m in height, were taller than most Red Hills, which generally rise between 0.4m to 1.8m above their surroundings (Riehm 1961, 181). The sites excavated at Osea Road and Peldon (de Brisay 1975, 1978) were barely recognisable as mounds, but the lack of height above present ground level was due to the accumulation of deposits around the mounds; up to 4m in depth was revealed at Osea Road (de Brisay 1975, 6). It seems likely that the low height of the earlier mounds is largely due to erosion, ploughing and, especially on the coast, burial by colluvium (Fawn *et al* 1990, 1).

The area of the mounds varies considerably, but it appears that both early and late examples can be large; the largest Iron Age saltern in the Lincolnshire fenlands is 64m in diameter (Simmons 1975, 35), the Essex Red Hills vary from the equivalent of 16m in diameter to 112m (Fawn *et al* 1990, 6), whereas the medieval Seasalter mounds measured up to 76m in length (Thompson 1956, 47).

As many sites both early and late are levelled by ploughing, or otherwise eroded, height comparisons are often meaningless, and areas are too variable to be a useful indicator of date. However, there is another difference which might be significant. The Essex mounds are known as Red Hills because they are composed largely of burnt earth (Rodwell 1979, 133, Fawn *et al* 1990, 1); artefactual evidence suggests that Red Hills are almost exclusively Iron Age and Roman in date (Rodwell 1979, 154-7). In contrast, medieval mounds appear to be made largely of clay or silt with little burnt material (Fawn *et al* 1990, 16), eg Seasalter, Kent (Thompson 1956, 44, 47), medieval salt mounds in Lincolnshire (Rudkin 1975, 37, Healey 1975), and a medieval mound near Hullbridge, Essex (Fawn *et al* 1990, 2). It is possible, therefore, that different processes were used in the two periods resulting in different deposits, allowing mounds to be provisionally dated by their constituent materials.

While the mounds of the present survey are composed of reddish brown earth, comparison with deposits recently dug up from the natural clays of the marsh shows that the mounds are made of unburnt local clays. When other salt mounds in the Harty Marshes have been levelled by ploughing, burnt areas have been noticed by local farmers, but these are described as discrete hearths, rather than extensive red hill-type deposits (D Smith pers. comm.).

Considering the considerable changes in sea level that have occurred in the area since the Roman period (de Brisay 1978, 33), the existence of sites well inland and clearly associated with existing channels might imply they are of a later date. Roman sites in Essex and the North Kent marshes are frequently, though not always, on the present shoreline and buried under later deposits. The mounds in the Swale Bird Reserve are presently on saltmarsh protected from regular inundation only by the recent sea walls. If of Roman date they should have been largely buried by the accumulation of marine silts. As this is clearly not the case it seems probable that they were built at a later date when the sea level was much the same as at present. It is likely, therefore, that these mounds and most others on Sheppey are indeed medieval, as claimed.

If Roman and medieval mounds can be identified without excavation then their relative distributions can be studied. Current knowledge suggests spatial differences between the two salt working periods, with earlier sites concentrated in Essex and parts of the north Kent marshes where there are few recognised later sites (Miles 1975, 30). The lack of characteristic red hill earth on Sheppey sites suggests that many of the mounds on the island are medieval. There seems to be no temporal continuity between Roman and medieval salt works, the former apparently ceasing in the first or second centuries AD in many areas (Miles 1975, Bradley 1975, Rodwell 1979, 165), and the latter beginning anew many centuries later. This apparent spatial separation in the two periods, and the reasons for it, cannot be fully discussed until more research has been undertaken, especially on the secure identification of medieval salt working sites.

There is some disagreement over the details of the processes which took place on the salt mounds (de Brisay 1978, Rodwell 1979). However, if different techniques were used in the Roman and medieval periods evidence from mounds of one period cannot necessarily be applied to those of the other. In Essex and North Kent the majority of excavated mounds have been Iron Age or Roman in date, the exceptions including Seasalter (Thompson 1956) and Hullbridge (Fawn *et al* 1990, 2). A small number of the medieval mounds in Lincolnshire have been excavated, but techniques may vary across the country. All the excavations have, however, confirmed that the mounds are the accumulation of waste materials from salt processing, and that they grew in a haphazard

manner with successive phases of activity. A large Roman mound excavated at Cooling doubled its width due to continued occupation and dumping of salt making debris (Miles 1975, 29), and at Osea Road new working floors were constructed on the remains of old ones (de Brisay 1975, 6). This implies that the size of a mound is proportional to its longevity and frequency of use.

At Seasalter two of several wicker lined pits were excavated. These were covered by timbers, forming lids, and one was full of organic material including a medieval boot. Footpaths of twigs and hurdle platforms had been laid on the mud to provide working surfaces. These features had been laid over and cut into the original surface of the mud flat, but as the top of the mound had been removed prior to excavation, it is unknown whether there were similar features higher in the mound (Thompson 1956).

Broad gullies similar to features **b** and **e** are seen on other large, rather amorphous mounds on Sheppey (eg NMR Nos TR 06 NW 15, TQ 97 SW 5), and it is possible that these provided access routes onto the tops of the mounds. These may have carried footpaths like those at Seasalter.

A seventeenth-century description of salt working (Thompson 1956, 54) showed that wicker lined cisterns 8ft deep were used to store brine, and this may have been the function of the Seasalter pits. The oval hollows in the Sheppey mounds are generally larger and shallower, but may have had a similar function. Oval hollows, usually with a gully running from them, are relatively common in salt mounds on Sheppey; of thirty two mounds inspected nine had hollows generally of a similar size, shape and location to those on the present site. Even more common is a sloping profile, found on twenty six of the sites examined on Sheppey. It is impossible to know without excavation if any of these mounds have infilled hollows within the lower part of the mound.

It seems reasonable to suggest that these hollows may have been ponds or tanks related to salt production. The closeness to a salt water channel must have been important, though these 'ponds' are all located on the mound with a gully flowing out. It may be possible that the 'ponds' were low enough to be filled with salt water at spring tide, but high enough that they could avoid flooding for the rest of the year as the sea water was allowed to evaporate before the salt impregnated mud was scraped out for processing (Thompson 1961).

Excavated sites have not yet produced parallels for these hollows. Evaporating tanks have been found on several sites, often in groups of three, but these are rarely over 3m long, but can be up to 1m deep (de Brisay 1975, 6; Rodwell 1979, 136). Gullies

terminating in rounded basins have also been found, but these are also too small to be comparable (de Brisay 1975, 6, 8, Miles 1975, 29). This lack of parallels might be expected from such early sites but medieval mounds also lack exact parallels. The closest comparisons are the pits at Seasalter and saucer-shaped pans of puddled clay, about 6m in diameter, on top of some Lincolnshire mounds (Rudkin 1975, 37). Even modern small scale salt production, for example in parts of Africa, uses small, shallow basins for storage, settling and evaporation, rather than larger ponds (Gouletquer 1975).

The 'pond' to the east of mound 5 is intriguing. It cannot be proved from surface remains that this 'pond' is related to salt production, but its proximity to the larger mound to the west and small mound to the east, and its similarity in size and shape to the hollows on the remaining mounds, makes it highly probable. This 'pond' may be an atypical feature of little relevance to the mounds, or it is possible that all the large mounds originated as a pond cut into the ground surface with a small mound beside it. These are questions which are clearly impossible to answer without excavation, but the survey has illustrated the overall structure of these mounds and allows such questions to be raised.

SURVEY METHOD

The survey was conducted by Paul Struth and Jane Kenney, staff of RCHME Cambridge field office, during July 1994. A Wild TC1610 Electronic Theodolite with integral EDM was used to survey the whole site, the electronically captured data subsequently transferred to a PC to obtain a 1:1000 scale plot. The report was researched and written by Jane Kenney and edited by Paul Pattison. The site archive has been deposited in the National Monuments Record in Swindon (NMR No. TR 06 NW 13).

REFERENCES

Bradley R 1975 — Salt and settlement in the Hampshire Sussex borderland, in de Brisay and Evans eds, 20-25.

De Brisay KW 1975 — The red hills of Essex, in de Brisay and Evans eds, 5-11.

De Brisay KW 1978 — The excavation of a red hill at Peldon, Essex, with notes on some other sites, Antiquaries Journal LVIII, part 1, 31-60.

De Brisay KW and Evans KA eds 1975 — Salt: the study of an ancient industry, Colchester Archaeological Group.

Detsicas AP 1984 — A salt-panning site at Funton Creek, Archaeologia Cantiana 101, 165-168.

Fawn AJ, Evans KA, McMaster I and Davies GMR 1990 — The Red Hills of Essex, Colchester Archaeological Group.

Gouletquer PL 1975 — Niger, country of salt, in de Brisay and Evans eds, 47-51.

Healey RH 1975 — A medieval salt making site in Bicker Haven, Lincolnshire, in de Brisay and Evans eds, 36.

Miles A 1975 — Salt-panning in Romano-British Kent, in de Brisay and Evans eds, 26-30.

OS (a) 1970 — Sheet TR 06 NW, 1:10,000 scale.

Owen AEB 1975 — Medieval salt making and the coastline in Cambridgeshire and north-west Norfolk, in de Brisay and Evans eds, 42-44.

Riehm K 1961 — Prehistoric salt-boiling, Antiquity XXXV, 181-191.

Rodwell W 1979 — Iron Age and Roman salt-winning on the Essex coast, Invasion and Response: the case of Roman Britain, BAR 73, ed Burnham BC and Johnson HB, 133-175.

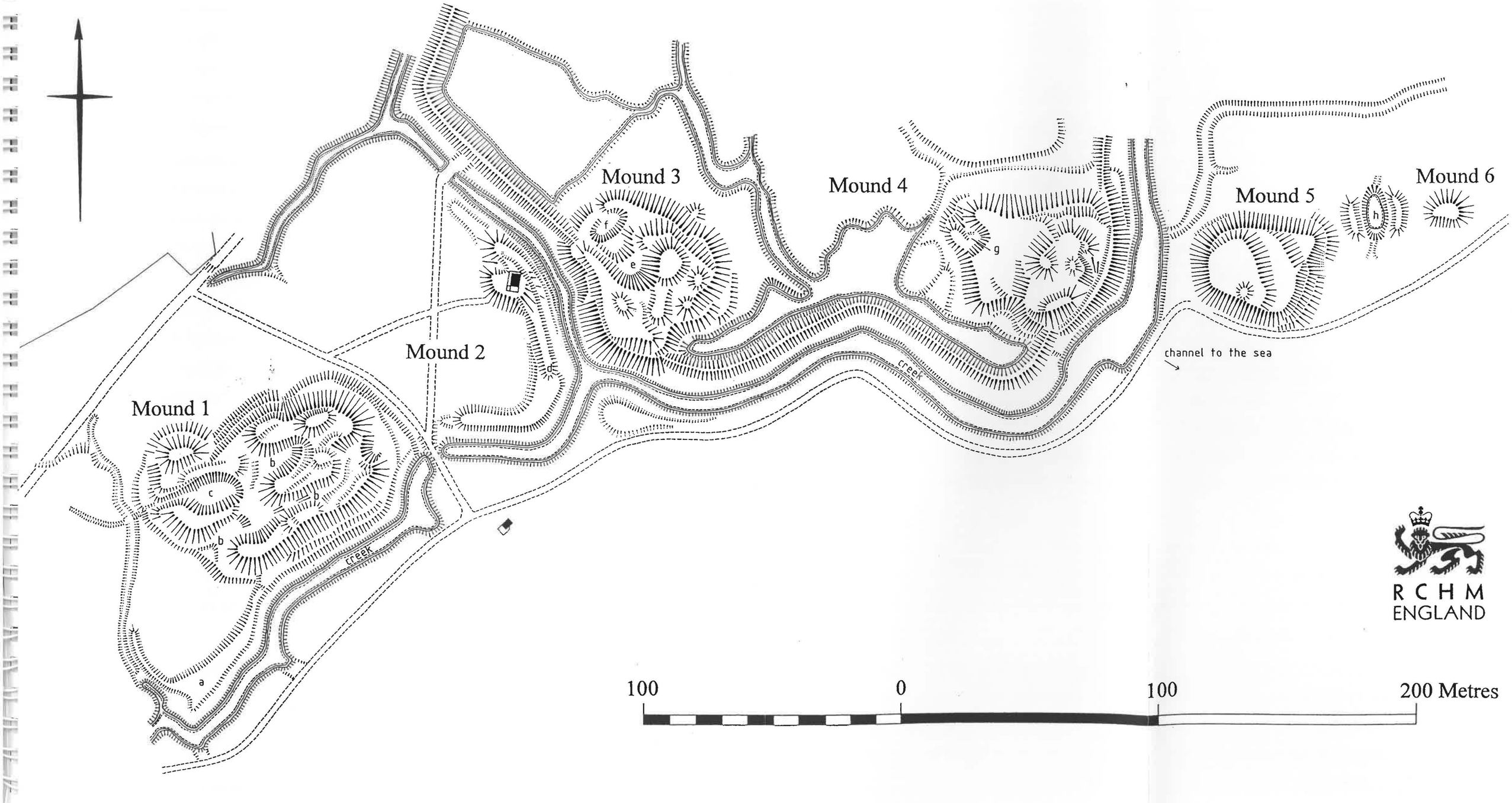
Rudkin EH 1975 — Medieval salt making in Lincolnshire, in de Brisay and Evans eds, 37-40.

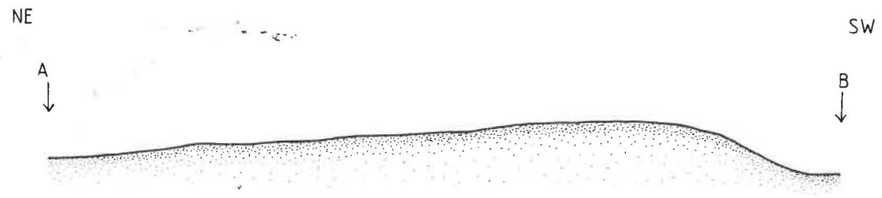
Simmons BB 1975 — Salt making sites in the silt fens of Lincolnshire in the Iron Age and Roman periods, in de Brisay and Evans eds, 33-35.

Smith D pers. comm. — Farm worker at Elliotts Farm, Isle of Harty, Sheppey.

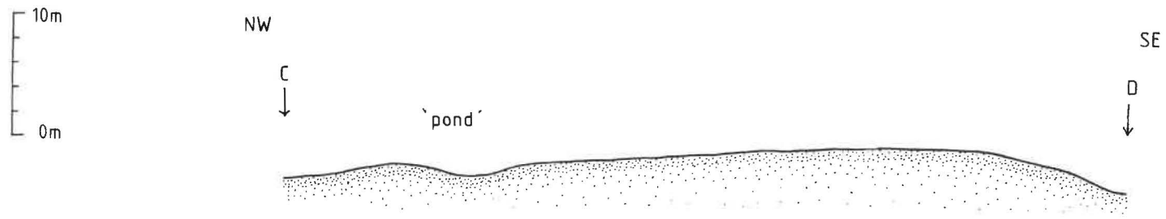
Thompson MW 1956 — A group of mounds on Seasalter Level, near Whitstable, and medieval embanking in this area, Archaeologia Cantiana 70, 44-67.

Thompson MW 1961 — Review of 'Lincolnshire Architectural and Archaeological Society, Reports and Papers n.s. VIII ed Owen DM', Medieval Archaeology 5, 346-8.


Mound 1
Mound 2
Mound 3
Mound 4
Mound 5
Mound 6
a
b
c
d
e
f
g
h
creek
creek
channel to the sea
RCHM
ENGLAND
100
0
100
200 Metres



Profile of mound 5



Profile of mound 3

E-W and N-S profiles of mound 1

0 METRES 30