

GREATER THAMES ESTUARY
ESSEX ZONE
ARCHAEOLOGICAL ASSESSMENT REPORT
AND UPDATED PROJECT DESIGN
REVISION 0



Essex County Council
Planning

MARCH 2001

GREATER THAMES ESTUARY

ESSEX ZONE

**ARCHAEOLOGICAL ASSESSMENT REPORT
AND UPDATED PROJECT DESIGN**

REVISION 0

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March 2001

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Front cover shows Mersea Island from the air summer 2000. Inset shows the survey team in Sampsons Creek

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ESSEX ZONE SURVEY**

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**GREATER THAMES ESTUARY SURVEY,
ESSEX ZONE**

ARCHAEOLOGICAL ASSESSMENT REPORT

SUMMARY

Field survey of selected areas of the Essex Coast was carried out during the summer of 2000, funded by English Heritage and part of the Interreg IIc Planarch project. The survey work was designed to investigate areas not included in the Hullbridge Survey, which examined a large part of the Essex coast in the 1980s. The three areas covered by the 2000 survey included the Strood and Pyefleet Channels at Mersea, Benfleet and Hole Haven creeks at Canvey, and the creeks around the southern end of Foulness. A total of 250 sites and deposits were recorded these comprised a wide range of features including timber structures, red hills, earthworks and wrecks, 96% had not previously been recorded on the EHCR. The project provided an opportunity to work closely with local groups and individuals; their contribution was vital to the successful completion of the project. The survey has extended the archaeological record, which will enable appropriate archaeological responses to be formulated in the areas investigated which are likely to be under significant pressure from natural forces and/or development proposals. More detailed work on selected sites recorded by the survey will be undertaken as part of Planarch.

1.0 PROJECT BACKGROUND

This assessment report describes the results of survey work carried out in the Essex zone of the Greater Thames Estuary. The survey consisted of a desk based assessment, followed by ground based survey.

The coastal zone of England contains an important legacy of historic assets, of widely ranging dates and types. These remains are fragile and irreplaceable. They are vulnerable to a wide range of threats, such as dredging and development as well as natural erosive processes. Such natural processes are now thought to be accelerating as a result of global warming and changes in sea level. As the Greater Thames Estuary lies within an area subject to intensive pressures resulting from both natural forces and development proposals it has been identified as a priority area for coastal zone studies (Fulford et al 1997). A Regional Research Framework for the Greater Thames has recently been prepared (Williams and Brown 1999), which defines the Greater Thames Estuary as a zone running from Clacton in Essex to Whitstable in Kent, and upstream to Tower Bridge. The preparation of the Research Framework has provided the impetus for the present Project.

The Framework describes the long history of research in the area; therefore only a brief summary is provided here. Antiquarian collecting in the estuary focused largely, but not entirely, on Roman remains. By the late nineteenth and early twentieth centuries more systematic research was undertaken, notably by Spurrell (1885; 1889) and Warren (1911; 1936). In the late 1980s the Hullbridge Survey (Wilkinson and Murphy 1995) investigated much of the intertidal zone of the Essex coast. This work not only revealed the enormous potential of the intertidal zone, but also the need to integrate this evidence with that from the adjacent 'dryland' areas (Murphy and Brown 1999). It was instrumental in indicating the general importance of the archaeology of the Greater Thames Estuary at a national level (Fulford *et al.* 1997). A preliminary monitoring survey the Hullbridge sites in the Blackwater Estuary in 1995-6 was undertaken and recommendations made as part of the Blackwater Estuary Management Plan (Strachan, 1999). Recent aerial photographic survey along the coast has extended the range of sites and structures recorded, most notably perhaps, with regard to the distribution of red hills, and large timber fish traps in the Blackwater estuary (Strachan 1995, 1998). The Essex Mapping Project, part of the National Mapping Programme (NMP), has completed its work on the Essex coast. This has greatly facilitated the incorporation of aerial photographic evidence into studies of the coastal zone.

In 1999 a project design was submitted to English Heritage by Essex County Council (ECC) Heritage, Advice, Management and Promotion (HAMP), this aimed to extend both geographically and chronologically the work of the Hullbridge Survey. This earlier work was targeted largely, but not entirely, on the prehistoric land surface and associated deposits in the intertidal zone. The new survey was designed to examine areas not included in the Hullbridge Survey and likely to contain later deposits and remains (Fig. 1). These were

- The creeks around the southern end of Foulness and adjacent islands
- The Strood and Pyefleet Channels at Mersea
- Benfleet Creek and associated creeks around Canvey

The fieldwork was carried out by ECC Field Archaeology Unit (FAU) with valuable assistance by local volunteers in each of the three areas, and on Mersea by Colchester Archaeological Trust. The project was funded by English Heritage and was undertaken as part of PLANARCH, a European Union Intereg IIc project. The work was carried out in the spring and summer of 2000.

2.0 AIMS AND OBJECTIVES

The general purpose of the project was to take forward the work carried out on the Hullbridge Survey, to begin to address the research priorities outlined in "An Archaeological Research Framework for the Greater Thames Estuary" (Williams and Brown 1999) and "England's Coastal Heritage; a survey for English Heritage and the RCHME" (Fulford *et al.*, 1997), and to further the aims of the PLANARCH project.

The primary objective was to:

PO1. Survey selected areas not covered by the Hullbridge Survey, relating results where appropriate to areas immediately inland of the sea-wall.

This aimed to:

A1. Enhance assessments of the degree and nature of threat to coastal historic assets with regards to the forecasts of coastal change provided by the Essex Shoreline Management Plan and Essex Coastal Strategy (1994)

A2 Provide a sound basis for developing management and research priorities with respect of specific sites and areas of potential, including;

A2.1 The identification of areas or sites meriting more detailed survey, evaluation or recording

A2.2 The identification of areas or sites requiring positive management action

A3 To increase understanding of the physical evolution of the Essex coast and associated environmental and climatic change, together with their inter-relationship with human activity

A4 To contribute to developing an understanding of the exploitation of the estuarine zone including trading and other maritime contacts and as a major artery of communication between England and continental Europe

A5 Provide an enhanced Essex Heritage Record and NMR record for Essex's coastal heritage, in order to provide an improved curatorial response to strategic coastal planning or management initiatives at a regional or national level, or to individual development works or proposals at a local level

A6 Enhance public understanding and enjoyment of the coastal heritage, through appropriate talks, media presentation and reports.

3.0 ARCHAEOLOGICAL BACKGROUND

The following section describes the historical and archaeological background of the three survey areas, based on information contained in the desk top assessment (Medlycott 1999), and the Greater Thames Research Framework.

3.1 Foulness Archipelago

The Foulness archipelago, which now consists of six islands, has a complex geomorphological history (eg. Smith 1970, Murphy and Brown 1999). As a result of the sinking of the landmass so that shell ridges of Neolithic date which, when formed would have been just above high tide level, now lie buried by alluvium at depths of -5.5 to -8.3m OD. There are no references to the prehistoric era in the Essex Heritage and Conservation Record (EHCR), there are many records of red hills and other Roman sites, and throughout the medieval, and earlier post medieval periods the marshland provided very valuable grazing and was a centre of fishing (eg Smith 1970).

As a result of the position of the islands at the mouth of the Thames estuary and the presence of sheltered creeks there are many references to maritime activity in the area. Although there are no major ports, documentary and cartographic evidence shows that each farmstead on the islands would have had either a hard or a jetty, there was no road access until 1922. Another form of access was provided by The Broomway, a trackway, which is located around ¼ mile from the southern shoreline, running across the Maplin Sands from Wakering Stairs to Fisherman's Point. A number of tracks run off the Broomway to link it to the islands. Prior to the construction of the road bridge in 1922 this was one of the main routes on and off the island. Although the date of this feature is unknown it has been suggested that it may be Roman in origin, routes across the sands are likely to have been used since the earliest occupation of the island. During the extensive flooding of 1953 The Broomway was used to evacuate livestock from the island. In addition to the transport of goods and livestock it was necessary to transport water to the islands (Smith 1970, Emmison 1976), as there was no freshwater supply until 1829 (eg. Emmison 1976).

Havengore Creek was particularly important for shipping, this large sheltered creek links the Thames and the Roach. In the nineteenth century barges used this creek to transfer bricks from the Wakering Brickfields to London and would then return filled with rubbish, at this time the barges would tie up at Mill Head. Havengore Creek is used today by recreational yachtsmen.

Fishing was an important part of the economy of the islands. The Foulness and Maplin Sands house a large inshore fishery. Documentary sources would show that this area has been in use by fishermen since at least the medieval period. Medieval documents also refer to fishermen's workshops, located on the sea walls, and an analysis of Tudor documents has indicated the extent of the fishing industry in the earlier post medieval period and the existence of many fish traps or kiddles on the island (Emmison 1976).

There was also an oyster industry in the area and excavations at North Shoebury, 5km to the south west have indicated consumption of cultivated oysters in the Roman period (Murphy 1995, 142-145). In the post medieval period this was concentrated in the sheltered creeks, which were suitable for oyster layings.

Cartographic sources indicate the presence of such layings since at least 1614. The pits associated with this industry would have been cut into the adjacent marshland. There are references in the EHCR to a number of such features. Documentary sources would suggest that the majority of the later post-medieval oyster industry was controlled by three mainland families.

Saltworking was also an important industry on the islands in the late Iron Age and earlier Roman periods. Red Hills have been located on Foulness, Havengore and Rushley Islands; as well as on the mainland in the immediate vicinity (Fawn *et al* 1990).

Documentary references in the Charter Rolls suggest that parts of Foulness was embanked by 1271. Foulness Island consisted of a series of marshes, separated by guts, which would have filled at high tide. Each of these marsh areas was embanked so that if one area flooded the rest would remain protected. By 1348 the majority of the island lay below mean high water. New land take continued, in 1420 New Wick was 'inned' and between 1424-86 Arundel marsh was also reclaimed. Excavation on one of the sea walls on Foulness has revealed a very substantial timber sub structure dated by dendrochronology to 1484-9AD (Crump 1981). By the end of the medieval period the manorial economy was breaking down and the land was let to tenant farmers to farm themselves. This economic change is reflected in the pace of land reclamation, no more took place on Foulness until the seventeenth century. Presumably tenant farmers could not afford the cost of initial construction of further sea walls.

'Inning' began again in the seventeenth century. In 1687-8 areas around Nase Wick, Monkton Barns, Rugwood, Priestwood, East Wick and New House were reclaimed. By this date it was recognised that 'inned' land was highly fertile, especially that 'inned' from saltings and thus there was a corresponding shift from a pastoral to arable economy. By the mid eighteenth century there was more arable than pasture for the first time. In 1802 East and West Newlands were 'inned' and in 1833 the remaining saltings along the south shore were reclaimed.

Rushley Island was embanked in 1781. However it has been subject to regular flooding and as such it is thought that some of the island may have been lost.

Settlement on Foulness Island comprised dispersed farms and homesteads with two foci at Churchend and Courtsend, both of which consist mainly of post-medieval buildings. Excavation of an abandoned post medieval farmhouse has revealed traces of a medieval settlement at the same location (Crump, pers comm). The population grew in the seventeenth century, probably as a result of the shift from pastoral to arable farming. The population peaked in the 1870s but has been declining since then.

Since 1918 most of Foulness and the surrounding islands has been owned by the Ministry of Defence (MoD). Military interest in the area first began in 1849 when land at South Shoebury was purchased to build a firing range. With the advances in weaponry it became clear that further land was needed and that the Maplin Sands would be ideal, as they would allow for over water recovery to take place. To this end further land was acquired until 1918 when most of the area was in the MoDs hands. In 1922 the military constructed the Havengore Bridge, and dammed New England and Shelford Creeks, allowing easy road access to the mainland for the first time. The site has been active as a proof and experimental establishment from this time.

The transport infrastructure on the islands is limited. Prior to the construction of the bridge in 1922 the islands could only be accessed by The Broomway or by boat. Ferries ran from Wallasea Island, Burnham-on-Crouch and Potton Island. In addition each farm had a landing point at which supplies could be dropped off and produce exported, primarily to the London Markets.

3.2 Mersea Island

Mersea Island lies at the junction of the Colne and the Blackwater Estuaries and its seaward eastern shoreline was examined during the Hullbridge survey in the 1980s. During this survey evidence of prehistoric activity was located at Hullbridge site 17 and Blackwater site 15. There is considerable evidence of activity dating to the Palaeolithic, Mesolithic, Bronze Age and late Iron Age on or around Mersea.

The dominant archaeological features in the Mersea area are red hills, relicts of the late Iron Age and Roman salt working industry. There are 22 red hill sites on the Essex Heritage and Conservation Record in West Mersea parish alone. The Hullbridge Survey identified scatter of Roman finds in the intertidal zone (Blackwater site 15), in the Salcott Channel. Wooden hurdles have been found in the intertidal zone at Hullbridge site 17, on the southern shore of the island.

The Blackwater is well known for its fishing industry. Through field and aerial survey a number of large timber fish traps have been located, two examples exist on the Mersea foreshore. Four of these structures have been dated by radio-carbon to the Middle Saxon period (Strachan 1998). The location of such fish traps suggests that the coastline in this period was not significantly different to that of the modern day. However, in the case of the two Mersea examples, one is now at the very edge of the intertidal zone and the other is virtually sub tidal, indicating that there has been some rise in sea level. Important estates are known to have existed on Mersea in the Saxon period and the timber foundations of the Strood causeway have been dated to the middle Saxon period (Crummy, N 1982; Crummy, P *et al* 1982).

The West Mersea oyster grounds have been active since 1046, when Edward the Confessor granted them to the Priory of St. Ouen (Benham 1993). The post-medieval period saw the rapid growth of the Mersea oyster industry. By 1811 there were 130 vessels working in the industry in the area, and there were packing sheds along the sides of the creeks. By 1846 there were 350-400 smacks operating in the Blackwater and the Colne (Crossley, Dunn and Heard 1999). The industry began to decline by the end of World War I. A decline in general cultivation began after 1962 (Benham 1993, 73). Only one boat is in operation in the area today (Crossley, Dunn and Heard 1999). The pits associated with this industry are visible on much of the salt marsh in the area, along with associated structures such as landing points, walkways, layings and sluice gates.

There are a number of known hulks and wrecks within the survey area, mainly associated with the Oyster industry, which is extensive in this area. Although there are no major ports in the area, a number of landings/jetties are likely to have been present. As with the Foulness area the back creeks would have allowed for sheltered moorings. The area is now a recreational yachting centre.

The sea walls on Mersea Island are thought to date to the late eighteenth and early nineteenth centuries. The height of the island meant that it was not necessary to embank to protect it. Thus sea walls were constructed to 'inn' marshland for agricultural purposes. At the present time the sea wall to the east of The Strood has been breached and the counter wall used as the sea defence.

In common with much of east Essex settlement on Mersea and the adjacent mainland was largely dispersed, with church hall complexes acting as focal points. To a large extent this pattern survives today however on Mersea a small town has developed at West Mersea which is a major recreational boating centre.

There are a number of military sites in the area. Henry VIII constructed an artillery position at East Mersea in 1547, which was refurbished on a number of occasions but was derelict by 1710, its remains can still be seen as an earthwork on the saltmarsh at Cudmore Country Park (Priddy 1992). Extensive defences, including the mining of the beach and the construction of a number of pillboxes, were put in place in the area during World War II. Industrial sites were also present, including a tidal mill and lime kiln on the mainland side of The Strood.

3.3 Canvey Island

Canvey Island is located towards the mouth of the Thames estuary, just west of the modern town of Southend. The island is separated from the mainland by Holehaven Creek, East Haven Creek, Benfleet Creek and Hadleigh Ray. The importance of the archaeological finds and deposits on southern and eastern Canvey, particularly at Thorny Bay and Leigh Beck, have led to the island being identified as of the highest

priority for further investigation (Fulford *et al* 1997, 231-234). The small historic port of South Benfleet is located to the north of the island. Fobbing Creek links Holehaven Creek to Fobbing village, another small medieval port.

Salt working was a major industry in the Canvey area in the late Iron Age and earlier Roman periods. There are a large number of known red hill sites on the island, especially along the southern shore. Examples have been excavated at Leigh Beck, and elsewhere on the island. Large amounts of pottery and many other Roman finds have been recovered from Leigh Beck and the southern foreshore of Canvey indicating the importance of the islands location and resources in the Roman period. A remarkable range of Saxon finds are also known from Canvey (Crowe 1996).

The position of Canvey on the Thames means that it has a long maritime history. Roman, Saxon and perhaps medieval finds from the island may indicate its use as a trans-shipment site/ port facility. The protected waters of the Benfleet Creek were used during the mid-Saxon period. The Anglo Saxon chronicle records the use of Benfleet as a base by the Danes and the destruction of many ships after their defeat in battle in 893AD. In the medieval period South Benfleet was a small port and fishery. In addition there was probably a small port associated with Hadleigh Castle. Canvey itself and Fobbing marshes were important grazing grounds (Ward 1987).

The sea walls and flood defences around Canvey are now a dominant feature of the landscape. In the medieval period Canvey consisted of five separate islands, by the sixteenth century this had been reduced to three. Attempts had been made to defend the important pasture on the island from at least the fourteenth century. By the sixteenth century these had apparently been abandoned and flooding was common. Documentary sources indicate the island was profitably used as saltmarsh pasture for sheep and that it was commonplace for the livestock to retreat to numerous small areas of raised ground, possibly the remains of the red hills. Excavation of one of the red hills on Canvey has produced a sequence of medieval hearth sites indicative of its repeated re-use as a campsite for shepherds (Wymer and Brown 1995). In 1622 Sir Henry Appleton and Joas Croppenburg reached an agreement to build a sea wall and reclaim the marshland. After the initial phase of reclamation further innings took place in the seventeenth to nineteenth centuries. As the island grew the original sea walls became counterwalls. The flood of 1953 severely effected the Canvey area, resulting in the loss of 58 lives. After this event the sea defences of the area were greatly improved; sea walls were raised in height and flood barriers added in Benfleet Creek, Vange Creek and at Fobbing Horse. In the Fobbing area enclosure of the marshland had begun to take place by the sixteenth century. Documentary evidence suggests that by the 1560s at least one of the marshland farms was enclosed. This enclosure continued within the seventeenth century. The creek itself was embanked on either side to protect the surrounding marshland. After the 1953 floods the whole area was protected by a flood barrier and the creek was dammed.

Fishing was a very important industry in the survey area. The Domesday Book refers to fisheries in both Fobbing and South Benfleet. Litigation papers, dating to the sixteenth century, refer to disputes over mussel beds in the creeks. The importance of the oyster industry in the area is reflected in place names. Archaeological evidence would suggest that fish processing was carried out at Leigh Beck during the medieval period, and possibly the Roman period.

In the post medieval period these centres continued in use and additional jetties/ wharves were constructed along the creeks, especially by the Salvation Army south of Hadleigh Castle to serve their major 'farm colony'. In the modern period the area around Canvey and Coryton has become a centre for the petroleum industry. Berths for tankers are present along the Thames-side shoreline. Benfleet Creek is now largely used for recreational boating.

As with the majority of the other survey areas settlement on Canvey Island itself is likely to have been limited to isolated farmsteads until the post medieval period. In the seventeenth century Dutch engineers were employed to drain the marshes and construct new sea walls. They settled on the island, and had their own pastor and church. In 1851 the population of the island was still only 111. Plans were mooted to turn the area into a resort for Londoners in 1901, some construction work took place but upon the bankruptcy of the contractors the plans were abandoned. The mono-rail horse drawn tramway and the Winter Gardens, which had been constructed as part of this scheme, were dismantled. However the population of the island continued to expand, reaching c. 5000 by the 1950s and c.36,000 by the 1990s. Residential accommodation is concentrated on the eastern half of the island.

Fobbing is a small village situated at the head of Fobbing Creek. The village was a thriving medieval port and played a major part in the Peasants Revolt of 1381 (eg Ward 1987). There were six main holdings on the marshlands to the south of the village. Each of these was served by a farm, situated on small hillocks. In 1897 the construction of an explosives factory on the marshes at Kynochtown led to some expansion of settlement in the area.

South Benfleet was a thriving small port throughout the medieval and post medieval periods but expanded rapidly in size after the arrival of the railway in 1888. Hadleigh village was located on the top of an escarpment overlooking Canvey and Hadleigh Ray. The area has evidence of settlement dating to the prehistoric, Roman and Saxon periods. The placename is Saxon in origin. The castle was constructed c.1230 and the surrounding area emparked. In 1881 the Salvation Army took over this and it became a Home Farm colony, the establishment of which provided an impetus for growth in the area.

There are a number of historic defence sites within the study area. Hadleigh, as well as being the site of a medieval castle, was the site of a late Iron Age/ Roman fort. In addition to these features there are a large number of site in the area associated with World War II, these include pillboxes, anti-aircraft batteries, gun emplacements and anti-glider ditches. In addition bomb craters are visible both on the ground and on aerial photographs.

Industrial sites are well represented around Canvey. The Kynochtown explosives factory, established in 1897, was one of at least three in the area, the others been situated on Pitsea marshes (now Wat Tyler Country Park), and at Curry Marsh (on the northern bank of the river, towards Stanford-le-Hope). The dominant features in the modern landscape are those associated with the petroleum industry. A petroleum storage depot was established at Shell Haven in the late nineteenth century. This was established because by this date ships carrying flammable/explosive cargoes were not allowed to travel further up river than this point due to the number of accidents which had occurred. Therefore such cargoes had to be transferred to covered barges. By the 1920s Oil refining had begun in the area. The London and Thames Oil Company (LTOC) purchased land around Thames Haven and Shell purchased land around Shell Haven. The LTOC plant briefly closed in 1969 but reopened the following year when the company was bought out by Shell. The western end of Canvey was also used by the petroleum industry, being the site of the Occidental Oil Works.

Transport links have been of great importance in the development of the area. The construction of the London, Tilbury and Southend (LTS) Railway in the late nineteenth century led to a rapid expansion of settlement along the route. Seabourne transport has remained of importance, especially to the petroleum industry. A deep water channel runs along the south side of Canvey it was ideal, when combined with the isolated nature of the marshland, for the establishment of petroleum storage facilities, and later refineries. When refining began in the area oil would have been brought in barrels for transfer to covered barges but this has long since been replaced by the use of pipelines from bulk tankers.

4.0 Aerial Photographs

Four flights were undertaken as part of this survey project, one on the 6th of June, one on the 27th July and two in October (17th and 18th). The June flight concentrated on Mersea at the mouth of the Blackwater estuary and recorded a number of areas of salt marsh including Tollesbury Wick Marshes; archaeological features recorded included decoy ponds at Lauriston and Rolls farms and oyster pits on a number of islands including those on Pewet Island.

The July flight surveyed the north Thames coastlands targeting possible archaeological earthworks and World War II defences particularly on Canvey Island and Fobbing marshes.

The two October flights surveyed The Dengie peninsula; Tollesbury Marshes and Mersea Island. These two flights recorded numerous salt working sites (red hills) showing both as soilmarks and extant earthworks; these were particularly abundant on Mersea Island and adjacent parishes with one particularly well-preserved example at West Mersea NGR TM 024 155). Other archaeological features previously unrecorded included timbers adjacent to Maydays Marsh (NGR TM 028 157) and earthworks associated with the site of a limekiln adjacent to The Strood, West Mersea (TM 015146).



Extant red hill and earthworks (probably stock enclosures), can be seen in the centre of the photograph, south of the creek, on Mersea. Langenhoe Marsh is in the background.

Photograph by Sue Tyler, summer 2000

5.0 METHODOLOGY

The field survey was carried out by a two person team from Essex County Council Field Archaeology Unit. This team was joined by members of local societies and other interested parties, whose local knowledge was invaluable to the successful completion of the project. For the Mersea area of the survey the team was also joined by a member of the Colchester Archaeology Trust staff.

A continuous walk was carried out along the sea wall and/or salt marsh edge and/or high tide line (as appropriate). Due to the nature of the survey area prime consideration was given to health and safety.

The survey team was usually spaced out, with one person on secure dry land at any given time. Given the nature of the salt marsh it sometimes proved either difficult or impossible to walk along the edge. If this was

the case one member of the survey team would get as close to the edge as possible and observe the marsh edge from this spot. With narrower creeks the salt marsh edge should sometimes be seen more clearly from the opposite bank. This meant that on occasions it was not possible to get accurate grid co-ordinates for identified features. In cases where this occurred a co-ordinate was taken as close possible to the site and a note made that the position was not accurate.

The field survey targeted:-

- Selected previously recorded sites or features
- Features located by aerial photography or desk top survey
- Wooden structures, peat shelves and other organic deposits

A GIS (ArcView 3.1) plan was prepared showing the identified sites and areas of archaeological interest.

A site record was generated for each site or deposit located or mapped, including a unique identifier, and a text record.

Sites were located horizontally to a 12 figure national grid reference using a DGPS system. This system was also used to create basic plans of sites where appropriate.

6.0 Factual Data

6.1 Landscape

6.1.1 Foulness Archipelago

The Foulness archipelago is located at the confluence of the Thames, Roach and Crouch rivers (Fig. 2). The group consists of six islands, Foulness, New England, Havengore, Rushley (all of which lay within the study area) Potton and Wallasea (which lie to the north and east of the study area). These low lying marshland islands are each surrounded by substantial sea walls. The enclosed land is now lower than the extant saltings outside the sea wall.

Foulness Island is the largest of the group. The island is predominantly agricultural, farmed by tenants. There are two focal points, Churchend and Courtsend within a dispersed settlement pattern. Although the MoD have owned and controlled the island since the early twentieth century little has been done to change the character of the island, and in fact the military presence has protected it from intensive development. Consequently relict features, such as old counterwalls and sea walls, are readily identifiable in the landscape,. The major change carried out by the MoD was the damming of part of Shelford Creek, the

former route of the creek is however still clearly visible. New England Creek was also dammed at both ends and is therefore no longer intertidal. As a result of this New England and Havengore Islands now form one landmass, to the south west of Foulness itself. This group of islands is connected to the mainland by a lifting bridge.

Rushley Island is the smallest and the most isolated of the group. A ford, accessible only at low tide, links the island to the mainland. The island is now completely agricultural, and the only building is a modern barn.

The Crouch-Roach Estuary, in which the Foulness Archipelago lies, is characterised by relatively deep narrow channels flanked by narrow intertidal areas. The narrowness of these channels results in an increased tidal velocity, and therefore increased erosion. The Foulness and Maplin sands lie to the south and east of the archipelago and form the largest continuous intertidal area in Britain. There is up to 6km between high and low water in places. A remarkably well preserved Roman large lead cinery urn container has recently been recovered by a fishing trawler from sand banks some miles north east of the island.

The continuous seawalls and the nature of the channels in much of this area have restricted the growth of salt marsh. There are areas of marsh, usually located at the head of creeks and in the mouths of the dammed up channels, and also around Rushley Island. This marsh is characterised by narrow but deep rills.

6.1.2 Mersea Island

Mersea Island is located at the confluence of the Colne and Blackwater rivers, separated from the mainland by Pyefleet Creek and the Strood Channel (Fig. 19). The island is now linked to the mainland by a causeway, known as The Strood. Mersea Island is oval in shape and rises to a height of 70ft. The survey was carried out along the northern edge of the island. There are areas of salt marsh on this side of the island, characterised by wide rills crossing the marshland.

Ray Island is located on the northern side of the Strood Channel and to the west of The Strood causeway. It is a long narrow tapering area of marshland, which is not enclosed by sea walls. It is made up of saltings rising into rough grassland, then woodland, because of the nature of the topography it proved impossible to reach the south western tip of the island on foot. The salt marsh on Ray Island is characterised by large wide rills with irregular shaped pans in between them, producing a complex, highly dissected, pattern.



Ray Island, showing the intricate pattern of the mudflats and saltmarsh, and the gradual grading of the vegetation, with dryland scrub on the highest part of the island.

Photograph by Sue Tyler, summer 2000

In addition to the above areas a section of the mainland was also walked, from Feldy Marsh saltmarsh to the Strood. Feldy Marsh shared the same characteristics as that on Ray Island and as such proved impossible to walk, observations were taken from the sea wall. Other areas of salt marsh were located at Sampsons Creek and immediately adjacent to The Strood, around the Ray Channel.

6.1.3 Canvey Island

Canvey Island is located on the north bank of the River Thames. The island is separated from the mainland by Holehaven Creek, East Haven Creek, Benfleet Creek and Hadleigh Ray (Fig. 32). Canvey Island itself consists of around 4000 acres of reclaimed marshland, and lies almost entirely below the modern high water mark. It is linked to the mainland by a bridge at South Benfleet, and another at Bowers Marsh.

The survey covered the north and west sides of the island. The first section, from Newlands to the A130 crossing, was characterised by a wide expanse of salt marsh, crossed by wide creeks and rills. As such access to the marsh edge was difficult in this area and observations had to be made from the sea wall. Benfleet Creek is used by a number of yacht clubs and features associated with this are common in the mud flats.

Survey was carried out along the eastern bank of East Haven Creek, down to the Fobbing flood barrier. This creek was narrow and relatively deep. A series of wooden/stone groynes were present along this creek, presumably to protect against erosion, there were also isolated patches of salt marsh.

A section of the eastern bank of Holehaven Creek was also walked, from the Fobbing barrier to a jetty opposite Lower Horse Island. There were only small isolated stretches of salt marsh in this area.

In addition to the areas mentioned above the former route of Fobbing Creek was surveyed. This creek has now been dammed and is therefore no longer intertidal, however its former route is clear, marked by relict sea walls.

6.2 The Sites

The following section summarises the sites located during the field survey. A gazetteer has been included for each area (appendix 1-3). A total of 250 sites of potential archaeological interest were located during the survey, only nine of which were previously listed in the EHCR.

6.2.1 Foulness Archipelago

A total of 144 sites of potential archaeological interest were identified during the field survey of the Foulness area. These ranged from single isolated timbers to oyster industry complexes.

A total of ten boat hulks/wrecks were identified during the field survey in this area (Fig. 7). Only one of these was listed on the EHCR, a small vessel lying on the mud flats on the eastern side of Quay Reach (EHCR 14937, Site Ref. 133). Of the other nine vessels three were only tentatively identified as boats as the remains were so fragmentary, or they were inaccessible and therefore visibility was poor (54, 76, 139). Four of the other vessels identified were only small, probably used by individuals for crossing between the islands or providing access to larger vessels moored in the channels (1,3,143, 147). Only two large vessels were identified; 148 was the wreck of a motorised barge, with the ballast still present, and 153 was the wreck of a trawler, 'The Florence'. The vessels are located around the creeks and on the Maplin Sands, with a notable concentration in Quay Reach.

A total of eight possible landing points were identified during the survey (Fig. 8), none of which had previously been recorded on the EHCR (83, 8, 51, 39, 33b, 21, 151, 136). Of these landing points four were identified on the 1st Edition Ordnance Survey, 8, 33b, 39 and 21. A number of these landing points can potentially be linked to specific farms on the islands. For example site 8, which consisted of two rows of wooden pilings, is likely to be the remains of Whitehouse Farm loading. A variety of different types of landing points have been located during the survey. Five of the sites consist of large timber posts, forming piers out into the channels (83,8,39, 33b, 151). Sites 89 and 39 were particularly well preserved, with the 'L' shaped plan of the piers being clearly visible. Site 136, Clarkes Hard, is a hard reinforced by two rows of

square cut timbers. Landing steps and a large post for tying up barges are also represented, at sites 21 and 51 respectively.

Three sections of trackway were identified in the intertidal zone (Fig. 10). Each of these were located on the southern shoreline of the islands. Sites 145 and 146 were located at Havengore Head and are marked as a trackway/hard crossing the salt marsh on the 1st Edition Ordnance Survey. 145 consists of nineteenth century brick rubble and other hardcore material. This however overlies 146, which consists of an earlier trackway, constructed using sections of wattlework, the use of such material in this location appears unlikely after the early post medieval period and the wattlework could be of some antiquity. Site 150 was located along the trackway which links Wakering Stairs to The Broomway. Again this trackway consists of sections of wattling, fixed to upright posts on which possible carpentry marks are visible. The timber used appears to be birch.

The remains of two footbridges were identified during the course of the survey (Fig. 11). One of these, 56, was located in Shelford Creek and possibly pre dates the damming of the creek in the 1920s. However the presence of metal poles would suggest that this feature is relatively modern in date. The other bridge was located in Havengore Creek (site 140). Neither of these sites are marked on the 1st Edition Ordnance Survey.

A number of features relating to the oyster industry were located during field survey (Fig. 12). Two large complexes of oyster pits were located on the saltmarsh around New England Island. Site 89 (EHCR 14942) was located on the western bank of Shelford Creek. In addition to a number of individual oyster pits various associated features were identified within this complex. These included a possible sluice at the entrance to one of the pits (site 91), consisting of two upright timbers and a board. A series of timbers located around the edge of the marsh (site 92) possibly represent the remains of a walkway around the edge of the pits, allowing easy access for cleaning etc. A platform at the northern limit of this complex was of particular interest. This earthwork platform was rectangular in shape, possibly the foundation for a packing shed. At the eastern end of this there was a wooden structure, consisting of a semi-circle of timber uprights. These were linked to a central point by horizontal timbers, held in place by substantial iron brackets. It would seem possible that this timber feature may be the base for a hoist for loading/unloading.

The second oyster complex, 102 (EHCR 14941), was located on the saltings at the northern end of New England Island. A large number of timbers associated with this complex were identified. Again there appears to have been a walkway around the edge of the complex. In addition timbers were located in the entrances to some of the pits, possibly the remains of sluices or dams. Of particular interest was 120. This was a substantial timber, lying in the entrance to a pit. The timber had been split in two and hollowed out to form a pipe. An iron chain was attached to one end of this, probably to allow it to be raised and lowered.

This timber was held in place by vertical posts. This feature matches the description of a 'hoove', an early type of sluice, which were later replaced by metal sewage pipes (Benham 1993).

It would seem likely that a number of the other timbers located in the creeks may be associated with the oyster industry. In total 74 timbers were located which had no readily apparent purpose (Fig. 13). An examination of the distribution of these timbers shows a clear concentration along Shelford Creek. It is therefore possible that some of these are 'metes', posts which mark out the limits of oyster layings. It is known from documentary sources that there were oyster layings within these creeks (eg. Benham 1993). In addition some of the posts could have been used for tying up lighters and skiffs which served the layings.

Documentary sources show that The Middleway, Shelford Creek and New England Creek have been used for oyster layings since the seventeenth century. A map of 1614 (ERO T/M 353), shows New England Island and associated creeks. On this the area immediately adjacent to complex 89 is marked with the text "Here is a leave of oysters". Further maps of the area also mention layings. A plan, dating to 1814, showing the lands of Sir John Tyrell shows all of the creeks utilised for layings, and also shows the watchboats which would have protected them (ERO D/Dm P5a).

A total of nine findspots which included post medieval pottery were identified (Fig. 9). The majority of the findspots appear to be associated with landing points; 9 is located close to Whitehouse loading, 14 and 18 lie close to Smallgains Point. Each of these findspots consists of areas of potsherds, glass, tile and brick (some of which are burr bricks). The positioning and nature of these deposits would suggest that they may be general debris dumped from vessels tying up at the landing points. The presence of burr bricks in some of the deposits would suggest that they may be associated with the Wakering brickfields. Similar deposits of dumped material were located at sites 44 and 85. Single post medieval potsherds were located at sites 37 and 39, which lie close to loading 39.

A metal brazier, containing traces of pitch was located in the main channel of Narrow Guts, close to the site of a sluice (126). However the position of this find, in the main channel would suggest that it is more likely to be associated with a vessel than the sluice. Findspot 144 comprised sections of a wooden box, located on the mudflats at the entrance to Havengore Creek.

A total of nineteen features associated with earlier sea walls and flood defences of the area were identified during the course of the survey (Fig. 14). There is a distinct distribution to these features. Sites 4, 5, 7, 10, and 20-29 were all located in on the eastern bank of the River Roach, on the scour edge of the outside bank, the point at which lateral erosion would be at its greatest. The majority of these sites consisted of rows of parallel timbers, some with associated boards. In some cases, such as sites 4, 5 and 7, the gaps between these rows of timbers had been infilled with gravel, shell fragments, and some chalk. The other identified sea

wall/ flood defence features were located along Shelford Creek, again largely on what would have been the eroding outside edge prior to the damming of the creek.

Other features associated with sea walls/ flood defences were located during the survey. Earthworks along the eastern bank of Narrow Guts (125 and 131), may be the remains of earlier sea walls. A sluice (126) was located at the southern end of earthwork 125 (Fig. 15), and was probably associated with it.

A substantial sluice was located on the eastern side of Rushley Island (Fig. 15). This sluice, 162, was a substantial structure, located at the head of a channel cutting through the salt marsh. The sides of this channel had been reinforced by the insertion of boards, held in place by vertical posts. A modern concrete sluice unit has been inserted, destroying part of the wooden structure. Given the size of this feature it would not seem unreasonable to suggest that it may be one of the main outlets for the drainage of Rushley.

In addition to the features described above, a further five sections of earthworks were identified during the course of the survey (Fig. 14). Earthwork 31, crossing the salt marsh located at the head of The Middleway where it meets the Roach, is possibly the remains of an old parish boundary between Shopland and Rochford. This feature is however not shown on the 1st Edition Ordnance Survey. It does roughly follow the line of a relict creek crossing the marsh. What is thought to be a boundary marker stone (32, Fig. 17) was found in the mud flats, on line with this earthwork. Again this feature is in a different position to that shown on the 1st Edition Ordnance survey. Given the constantly evolving nature of the channels within saltmarshes, which would have an effect on where it would be feasible to establish boundaries, it would seem reasonable to suggest that these features may be the remnants of earlier boundaries, either between parishes or farms. A further earthwork, 33, was identified crossing the same area of saltings. There is no readily apparent purpose to this earthwork. It is not marked on any cartographic sources examined as part of the desk top study, and is in an area which is not known to have been inned. It is possibly a 'pettygynes', an earthwork bank constructed to allow easier escape for livestock from the marshes.

Earthwork 113 lay within oyster complex 102. It ran along one of the wider creeks which cross the salt marsh, separating two areas of oyster complexes. It is possible that this feature was built to protect the oyster pits or that it acted as a land boundary between the pits of two separate owners.

A pair of two parallel linear earthworks were located at site 129. These banks were perpendicular to the edge of the Narrow Guts. Although the banks are not shown on the 1st Edition Ordnance Survey a channel is marked cutting through the saltings, possibly man made. The banks lie at either side of this channel. They may either have been constructed to protect it, or be the upcast from its excavation.

In addition a rectangular earthwork, 164, was located on the saltings at the southern end of Rushley Island.

Two sites connected to the World War II defences of the island were located during the survey. These were sites 141, which consisted of two lines of substantial timbers crossing Havengore Creek, and site 142, a gun emplacement protecting the entrance to the same creek.

A large number of timbers, a total of 74 (Fig. 13), were located during the survey. The majority of these had no readily apparent purpose. As noted earlier it is likely that a number of them may be 'metes', posts positioned at the edges of creeks to mark out oyster layings. This is most likely to be the case in Shelford Creek and The Middleway where there are known to have been layings. Timbers located on the edges of channels could be 'withys', stakes or branches which were used to mark out the altering edges of channels. They could also be tying up points for small vessels. Timbers located on the edge of and within the salt marsh could be fishing spots, the remains of fence lines dividing up the valuable marsh grazing land, or the remains of small bridges to provide easier access for people and livestock.

6.2.2 Mersea Island

A total of 74 sites of potential archaeological interest were located during the field survey of the Mersea area. A wide range of site types was identified, including boats, relics of the oyster industry, red hills (salterns) and earthworks.

The maritime activity in the area was well represented in the sites located during field survey (Fig. 24). A total of seven boats were identified, only two of which, 174 and 216, had previously been noted on the EHCR. None of the boats were shown on the 1st Edition Ordnance Survey. All of the boats are thought to be post-medieval in date, and most were associated with the oyster industry. 201, 203 and 241 were small dingys/ skiffs. These were probably used as tenders for larger vessels which were too deep beamed to access the shallow creeks or the oyster beds cut into the edges of the salt marsh. Two vessels, 176 and 218 have been identified as lighters. These vessels were used to transfer material to and from larger vessels. Again these vessels were probably utilised by the oyster industry in the area. The final two vessels identified were barges. 214 was located at the head of Sampsons Creek, and is clearly visible on aerial photographs. This barge is thought to be 'The Unity' (R. Hall, pers comm). The hull of the vessel appears to be largely intact, although access across the creek is difficult. Vessel 231 was located in a creek bed adjacent to The Strood. This is the abandoned hulk of the sailing barge 'The Victa'. Parts from the barge have been removed since it has been abandoned to repair other vessels. Only the top and stern of the boat is now visible as it is gradually being enveloped by the growing saltmarsh.

A total of seven landing points were identified during the survey, none of which were on the EHCR or the 1st Edition Ordnance Survey (Fig. 24). 199, a small jetty on the edge of the saltings, was associated with the

oyster pit complex on Feldy Marshes. 239 and 244 were also associated with a complex of oyster pits. 230 was located adjacent to The Strood, and consisted of a quay of timber and iron construction. The final three landing points, 205, 213 and 281 were all located on the eastern bank of Sampsons Creek. This distribution is similar to that of the boats, which were also concentrated in the Strood Channel to the west of the causeway. This area was that closest to the main oyster pit complexes and the settlement at West Mersea. As with the boats none of these features are thought to pre date the post-medieval period.

No trackways, like that found at Blackwater site 17 on the south of the island, were located during field survey. This may be because it would have been impractical to cross the Strood Channel using such trackways due to its depth. Only two features were provisionally identified as pathways, 222 that consisted of timbers re-enforcing a path crossing the marshes, and 200, a small footbridge crossing a rill, again within the marshes (Fig. 25).

No relics of the fishing industry, such as fish traps, kiddles and weirs, were located during field survey. It is however possible that some of the 14 unidentified timbers located were associated with this industry, either as fishing points or tying up points for small fishing vessels (Fig. 29).

The majority of the boats and landings identified were associated with the oyster industry. In addition a numbers of complexes of pits have been identified (Fig. 24). Five sets of pits, largely consisting of one or two linked pits cut into the edge of the saltings, were located on the northern edge of Ray Island. It is likely that these features post-date the late nineteenth century. The layings along this channel were not granted to the Tollesbury and Mersea Co. until this date (Benham 1993, 73). This is likely to be because at the time of the granting of layings in 1667 this channel was nothing more than a wider rill crossing the extensive marshland. It is in fact shown as this on the Chapman and Andre map of 1777. The channel is likely to have been formed after the inwalling of Feldy Marshes from Sampsons Creek to Tollesbury Creek, in the late eighteenth century. A further complex of oyster pits was located in Feldy Marshes. Again this is likely to have been fairly late in date. The final complex was located to the north of West Mersea, on the south bank of the Strood Channel.

The distribution of these features matches that of the known oyster layings in the area. Records of the Protection Association, dating to 1807, detailed these. In addition this document mentions 16 marshes, possibly the locations of the pit complexes (Benham 1993, 750). There were also known layings in the Strood Channel.

As with the Foulness area a number of features were visible within these complexes. Landing points and boats have already been mentioned but there were also sluices and timbers re-enforcing the sides of the pits (177, 227).

The Mersea and Peldon area is also well known for the occurrence of numerous Red Hills. There are some 22 of these monuments recorded in the EHCR in West Mersea parish alone and their density around Peldon is astonishing (Murphy and Brown 1999, Fig. 12). During the course of field survey a further three red hill sites were identified (Fig. 26), two of which are thought to be hitherto unrecorded. 241 and 243 lie in the salt marsh, immediately adjacent to The Strood. Although both the EHCR and the Colchester Archaeology Group volume show two adjacent red hills in this area there is a serious discrepancy in the grid references and it is uncertain whether the two sites recorded by the current survey are the same as those noted in the earlier records. Both of these features are suffering from erosion by a creek crossing the salt marsh.

The third red hill, 243, is a particularly interesting feature (Fig. 31). This is an upstanding monument, located within a roughly rectangular earthwork. Aerial photographs show that it appears to be linked to the dryland by a linear earthwork. This red hill was excavated in the late nineteenth century and is mentioned in both the EHCR and by Fawn *et al* 1990. The enclosure and red hill itself are both suffering from erosion. The northern side of the enclosure, shown on the 1st Edition Ordnance Survey, is now completely eroded away and part of the red hill is also being eroded.

Given the large numbers of these monuments known to exist within the area it would have been reasonable to expect a greater number to have been identified during field survey. However there are practical reasons as to why such features were not identified. The majority of these sites are now located inland of the sea wall and have now been ploughed out. These are only identifiable as soil marks, which are best identified from the air (Strachan 1996).

The present sea defences around Mersea Island were established between 1795-1805, although earlier sea wall construction had taken place during the sixteenth and seventeenth centuries. Features associated with the sea defences of the island were identified during field survey. A total of eight sections of earlier/breached sea wall were identified (Fig. 27), of these two were clearly identifiable on the 1st Edition Ordnance Survey. Four of these sections were located to the east of The Strood, on a section of sea wall which has now been breached. On the outer edge of this feature, inaccessible by foot, timbers were visible. Detailed aerial photographs show at least four rows of upright timbers running around this section. These are probably the remains of the sea wall which dates to between 1777 and 1881 (not on Chapman and André but on 1st edition Ordnance Survey). A further section of relict sea wall was located on the eastern bank of Sampsons Creek. This feature is likely to date to the late eighteenth century when this section of the coastline was embanked. A sluice, 217, located on the internal side of this embankment, is likely to be associated with these sea defences.

A number of earthworks were also identified during field survey (Fig. 28). Of these 229 and 234 are possibly associated with old sea defences or counterwalls.

The only possible settlement site located during the course of the survey was located on Ray Island (Fig. 28 and 30). This consisted of a large, three sided rectangular earthwork on the north of the island, subdivided by further earthworks (165, 181, 189, 209, 280). There were also a number of ditches associated with this enclosure (167,168, 180, 183, 184, 188, 191, 192). There were two rows of timbers crossing the Ray Channel which lined up with these features (182 and 194).

Within this enclosure there was a roughly circular ditch, only sections of which were visible (186, 191 and 192), due to the amount of undergrowth in the area. Positioned roughly centrally was a well (185). There was also what appeared to be a midden within this enclosure (187). This contained general debris, including bird bones and oyster shell. This feature is positioned in the same place as a mark on the 1st Edition Ordnance Survey. There were also other features on the island, such as a pond (193).

Further earthworks located at the southern end of the Ray Island complex. These features consisted of parallel banks which were around 0.30m high. The purpose of these features is unclear. It is possible that they may represent the remains of agricultural activity on the dryland area of the island.

The dating of this complex is, at the present time, unclear. It has been speculated that this enclosure complex may be the site which provided the inspiration for one of the major settings featured in Sabine Baring-Gould's 1880 novel "Mehalah". As discussed previously Ray Island does not appear to have been formed until the late eighteenth century. The Chapman and André map of 1777 shows the area as largely uninterrupted salt marsh. By the time of the Tithe award in 1841 Ray Island was clearly separated from the mainland to the north. The award indicates that the whole island was used as pasture. No enclosures are marked. The earliest cartographic source showing these enclosures on the island is the 1st Edition Ordnance Survey, dating to 1881. It would seem likely that these are the features which are visible in the modern landscape as they match when the plans are overlaid. It is possible that some of the features may be older. The EHCR has references to spot finds of Roman date being present in the area of these enclosures.

Further earthworks were located in Maydays Marsh (Fig. 28 and 31). These earthworks consisted of linear and curvilinear features and a rectangular enclosure (220). When overlaid on the 1st Edition Ordnance Survey these features are located on a higher section of the marsh, which is marked as grassland. They are likely to be associated with the use of the marshland as pasture, and could be raised trackways to allow easier access for livestock onto the marsh and the enclosure could be a coral. These features are similar to possible enclosures shown on the 1st Edition Ordnance Survey to the east.

Some comments can be made as to the general distribution of features located during field survey. The majority of the features were located to the west of the Strood. This is the area in which settlement and the oyster industry were concentrated. It is noticeable that there were few features along the Strood Channel itself. This is likely to be the result of a number of factors. Firstly this area was subject to recent land reclamation, certainly post 1881. Thus any features which would have been located along the edge of the channel or within the marsh itself are now located within farmland. Secondly it is known that the barge loads of chalk were placed on the edge of the channel by Elijh Cooke in the 1880s to improve his layings in the channel (Benham 1993, 73). This activity may have damaged or masked any archaeological remains in the area.

6.2.3 Canvey Island

A total of 32 sites of potential archaeological interest were located during the field survey of the Canvey area. A wide range of site types was identified, ranging from a possible old land surface to a World War II pillbox which was located on the north of Benfleet Creek (Fig. 43).

A potential outcrop of a possible former land surface was located on the northern shoreline of Canvey Island, on the edge of the salt marsh by Sunken Marsh (Fig. 37). This land surface (261) was inaccessible by foot and was only visible from the opposite shore. This surface appeared as a dark line at a depth of approximately 1m on the cliff of the salt marsh.

The long maritime history of the area is reflected in the number of sites associated with boats and water based transport. Three boats were identified, 245, 252 and 253 (Fig. 38). All of these were only small vessels and are thought to be post-medieval in date. One of these, 253, appears to be located adjacent to a landing point marked on the 1st Edition Ordnance Survey. However this feature was not identified during field survey.

A total of six landing points were identified during field survey, 247, 257, 262, 278, and 281 (Fig. 39). Two of these, 262 and 281 were marked on the 1st Edition Ordnance Survey. As with the Foulness area a number of these landings appear to be associated with individual farms, for example 281 appears to be associated with Old House Farm, 278 with Fobbing Hall, and 258 with Tree Farm. The single findspot located in the Canvey area, 260, also appears to be associated with a landing or hard. This feature consisted of a scatter of gravel, shell, and bone. It may have been dumped to re-enforce a hard. The last site considered here which might be related to some kind of landing point was located immediately to the south of Hadleigh Castle, and consisted of a series earthworks on the grazing marsh. These features are clearly visible on the 1st Edition Ordnance Survey and are also mentioned in the EHCR. This last source identifies these features as fishponds. There is a small inlet/ landing marked in this position on the Chapman and André map of 1777.

Few relicts relating to the oyster industry were located during field survey (Fig. 40). Only two sets of possible oyster pits were identified, 249 and 263. This may reflect the fact that by 1872 many of the layings in the area had either been abandoned or given over to winkles and mussels as a result of health scares relating to the dumping of effluent (Benham 1993, 80). As such the industry never developed in the late nineteenth century to the same extent that it did in the Foulness and Mersea areas. In addition the re-enforcement of the sea walls after the 1953 floods may have damaged or destroyed such remains. The two sets of oyster pits were located on either side of Hadleigh Ray, an area in which there are known to have been layings (Benham 1993, 80).

The importance of salt working is also reflected in the historical and archaeological record. A total of three individual structures were located during the survey, all at Leigh Beck (271, 272, 273), which lay within an extensive area of red material, similar to the material which derives from red hills (Fig. 41). These features are part of an extensive complex of archaeological sites and deposits in the intertidal zone at Leigh Beck which have been subject to casual collection for decades and areas of which has been subject to formal recording by the Hullbridge survey and more recently by the Rochford Hundred Field Archaeology Group.

Two earthworks possibly associated with settlement were identified during the course of the survey (Fig. 42). 274 was an earthwork platform located on the inland side of the sea wall. This platform is the site of Tree Farm which is marked on the Chapman and André map of 1777, and on the 1st Edition Ordnance Survey. More problematical are a set of earthworks on the Upper Horse, 275. This feature could only be observed from a distance, as it is inaccessible by foot but has been recorded from aerial photographs as part of NMP. The earthwork at present appears to be three sides of a rectangular enclosure, the eastern side having been eroded away. On the 1st Edition Ordnance Survey, this enclosure is shown as a square, with a smaller enclosure and a small building in the south west corner. This may be a small bothy to shelter a shepherd. There were also timbers located at the southern tip of the Lower Horse but their purpose is also unknown.

The sea defences of the Canvey area are of great importance as much of the island lies below modern mean high water. After the 1953 floods, in which 58 people lost their lives, these defences were re-enforced and are now massive features. These are likely to have damaged or destroyed earlier features. Only two sections of earthworks were located which may represent earlier sea defences (251 and 279). The first of these was located on the northern side of the island and the second to the south of Fobbing Creek (Fig. 42). Modern defensive features, consisting of rock banks were located in East Haven Creek.

Earthworks were observed within the modern petroleum complex at Coryton which are thought to be the relicts of the earthwork traverses which would have protected the buildings which formed part of the Kynochtown explosives factory (Fig. 42).

In addition to the potential archaeological sites described above a total of 8 groups of timbers were located (Fig. 44). 267, 268, 269 and 270 were located at Leigh Beck these are probably associated with either relict sea or possibly with the salterns present in this area. Timber group 276 was located on the southern tip of Lower Horse Island and may be the remnants of earlier sea defences. The final three groups of timbers, 246, 248 and 256 are unidentified.

7.0 STATEMENT OF POTENTIAL

Survey of the selected areas, creek systems not previously examined by the Hullbridge Survey, extended the coverage of the earlier work. In general terms, and in a number of specific instances, through a combination of field observation and documentary/cartographic research, it has been possible to relate sites recorded to features inland of the sea wall (PO1). This is perhaps most strikingly demonstrated by the connection between the landing points in the survey area and individual farms (above pg. 14 Foulness; Pg 22 Canvey)

The range of features recorded, incorporated into the EHCR (A5), will enable appropriate archaeological responses to be developed to threats arising from natural forces and development proposals (A1). The availability of accurately recorded data relating to the historic environment in these locations is likely to be of considerable importance. The areas surveyed may be affected by development proposals arising from the extension of the Thames Gateway, the proposed port development at Shellhaven and/or schemes for managed realignment of coastal defences. More detailed work will be carried out at a number of sites (see Updated Project Design below), to enhance understanding and prospects for longterm management (A2). The complementary Greater Thames:Essex Zone Monitoring Project will also assist with this.

The economy of the Essex coast has for centuries been founded on grazing, fishing/shellfish and salt production, with the intricate network of creeks and estuaries providing major arteries for transport and trade until well into the 20th century. The great majority of sites recorded by the survey reflect this and, relate to salt production (redhills) grazing marsh management (seawalls, earthwork enclosures), fishing (oyster pits, wrecks), (A4).

The survey has helped to bring into focus the changing configuration of marshland in Strood channel, where major alterations have taken place in a little over 200 years (see Fig. 19, 20 and 21). It has also highlighted the variability of sea level rise within a single estuarine complex (see pg. 6), and the marked variation in patterns of erosion which can be found within a single creek system, as exemplified by erosion patterns in the Roach at Foulness (A3).

The survey work carried out during 2000 has created considerable public interest. This has been, and will continue to be addressed, through a series of talks and lectures, and articles to a wide variety of audiences. Presentations include Tollesbury Sailing Club, Maldon Town Society, Planarch seminar, Greater Thames Estuary Annual Conference, in addition articles have appeared in *Talk of the Thames*, *Blackwater Matters*, *Essex Past and Present* (A6). A full formal summary will be published in *Essex Archaeology and History*.

ACKNOWLEDGEMENTS

This project could not have been completed without the help and co-operation of a great number of people. The project was funded and monitored by English Heritage. The project was carried out by ECC FAU and ECC HAMP as a contribution to the Planarch Interreg IIc Project. Thanks are due to H. Cooper-Reade, P. Allen, R. Clarke, and F. van Keulen of the FAU for their help, advice and support throughout the project. Technical support on the surveying side of the project was provided by M. Darracott of Survey Supplies.

The field survey was carried out by E. Heppell and P. Sprenger of ECCFAU, the desk top study and project co-ordination were provided by M. Medlycott and N. Brown of ECC HAMP. Aerial photographic survey was undertaken by S. Tyler of ECC HAMP.

The field team were assisted by a great number of people. Volunteers from the Foulness Archaeology Group and the Rochford Hundred Field Archaeology Group assisted in the survey of their respective areas. K. Orr, of the Colchester Archaeological Trust, N. Spur, the Blackwater Project Officer, D. Nicholls and R. Hall joined the survey team in the Mersea area.

Many thanks are due to the Ministry of Defence, and the farmers and landowners for allowing access. Thanks are also due to English Nature, Environment Agency, Benfleet Yacht Club, and Hadleigh Country Park

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**GREATER THAMES ESTUARY SURVEY
ESSEX ZONE**

UPDATED PROJECT DESIGN

1.0 BACKGROUND

Field survey of selected areas of the Essex Coast, funded by English Heritage, was carried out by Essex County Council Heritage Conservation during the summer of 2000, as part of the Interreg IIc Planarch project. The survey work was designed to investigate areas not included in the Hullbridge Survey, which had examined a large part of the Essex coast in the 1980s. The three areas covered by the 2000 survey included the Strood and Pyefleet Channels at Mersea, Benfleet and Hole Haven creeks at Canvey, and the creeks around the southern end of Foulness. A total of 250 sites and deposits were recorded these comprised a wide range of features including timber structures, red hills, earthworks and wrecks, 96% had not previously been recorded on the EHCR. The survey provided an opportunity to work closely with local groups and individuals; their contribution was vital to the successful completion of the project. The work has extended the archaeological record, which will enable appropriate archaeological responses to be formulated for areas likely to be under significant pressure from natural forces and/or development proposals.

Within this large range of identified sites a number have been selected for further study, as part of the Planarch Interreg IIc project. In addition the Greater Thames Estuary: Essex zone monitoring project, will compliment and extend the survey work carried out in 2000 (Brown, Medlycott and Murphy 2001). This work will be carried out in close co-operation with the Greater Thames Archaeological Steering Committee, Thames Partnership, and will forward the aims of the Blackwater Management Plan (Strachan 1999).

2.0 AIMS AND OBJECTIVES

The general purpose of the 2000 field survey project was to take forward the work carried out on the Hullbridge survey and to begin to address the research priorities outlined in "An Archaeological Research Framework for the Greater Thames Estuary" (Williams and Brown 1999) and "England's Coastal Heritage; a survey for English Heritage and the RCHME" (Fulford et al, 1997), and to further the aims of the PLANARCH project.

The primary objective was to:

PO1. Survey selected areas not covered by the Hullbridge Survey, relating results where appropriate to areas immediately inland of the sea-wall.

This aimed to:

A1. Enhance assessments of the degree and nature of threat to coastal historic assets with regards to the forecasts of coastal change provided by the Essex Shoreline Management Plan and Essex Coastal Strategy (1994)

A2 Provide a sound basis for developing management and research priorities with respect of specific sites and areas of potential, including;

A2.1 The identification of areas or sites meriting more detailed survey, evaluation or recording

A2.2 The identification of areas or sites requiring positive management action

A3 To increase understanding of the physical evolution of the Essex coast and associated environmental and climatic change, together with their inter-relationship with human activity

A4 To contribute to developing an understanding of the exploitation of the estuarine zone including trading and other maritime contacts and as a major artery of communication between England and continental Europe

A5 Provide an enhanced Essex Heritage Record and NMR record for Essex's coastal heritage, in order to provide an improved curatorial response to strategic coastal planning or management initiatives at a regional or national level, or to individual development works or proposals at a local level

A6 Enhance public understanding and enjoyment of the coastal heritage, through appropriate talks, media presentation and reports.

The proposals put forward in this Updated Project Design will probably contribute to all the aims outlined above but will principally address A2 and A6. It will particularly aim to further understanding of the archaeology of the Greater Thames, to enhance both public appreciation, and the ability of the appropriate agencies to take informed decisions regarding appropriate strategies for preserving and recording the complex archaeology of the coastal zone.

3.0 METHODS STATEMENT

As a result of field survey a number of sites were selected for further survey/assessment. These were chosen for their suitability for advancing the research aims of the project, practical considerations, such as accessibility and Health and Safety.

3.1 Survey of earthworks, Hadleigh

During field survey a group of earthworks were identified at NGR 580200, 185500, these were inland of the sea wall, below the site of Hadleigh Castle. These earthworks consist of parallel, slightly curving earthworks, along with hollows. They are shown on both Chapman and André map of 1777 and the 1st Edition Ordnance Survey, 1881. This is one of the few sites identified during the survey which is already mentioned on the EHCR (9798), which identifies it as fishponds, and banks which may be associated with flood defences.

Further survey work is required on this site in order to elucidate the purpose of these earthworks and place them within their historical context. Field survey and targeted cartographic/documentary research may help to better understand these earthworks (A2.1). The information obtained from this could support a management plan for this site (A2.2). These earthworks lie within Hadleigh Country Park, information obtained will be used in publicity material for the park, thus informing the public about the coastal heritage. Most importantly the survey results will inform the Country Parks Management Plan so that measures for the long term management/ preservation of the earthworks can be implemented (A6).

Tasks (numbers in brackets cross refer to the Task List below):

- Site set up and Risk Assessment (1-3)
- Field survey of the earthworks using DGPS or EDM as appropriate (5)
- Data processing/ enhancement and preparation of digital maps (6)
- Targeted desk top assessment. This will concentrate on cartographic sources but documentary sources will be examined if it is thought they may elucidate the nature of the earthworks (7)
- Digitising of cartographic sources as appropriate so a ready comparison can be made with field survey data (8).
- Report preparation. This will include a section on background, methodology, results and conclusions along with the maps produced above (9).
- Preparation of publication material. This will include a shorter note for *Essex Archaeology and History* and a summary for *Essex Past and Present*. Maps and information will also be prepared to enhance Hadleigh Country Park Management Plan (10).

3.2 Sampling of Timbers in Quay Reach, Foulness

During field survey sections of relict sea wall were identified along eastern bank of Quay Reach, Foulness. These monuments were all similar in type, consisting of rows of upright timbers, with the occasional more substantial posts. In some cases the gaps in between rows of timbers had been infilled with gravel and/or

chalk (eg. Sites 5 and 7). These sites are now exposed and are located in the 'scour' zone of the river. As such they are suffering from erosion.

These sites merit more detailed survey (A2.1). Sea walls and flood defences have been identified in the Greater Thames Research Framework as the dominant features in the coastal landscape and of great economic importance, but one which has received little study to date (Williams and Brown 1999). Further field survey and sampling for radio carbon dating. Preliminary examination suggests that the timbers may be too small for dendrochronological dates to be obtained. However if closer examination during sampling for radio carbon suggests suitable timbers may be present consideration will be given to dendrochronological dating subject to the radio carbon dates. Dating of the sea walls in Quay Reach would help develop an understanding of sea wall construction and contribute to establishing a chronological framework for the development of sea defences (Williams and Brown 1999). This will be particularly useful on Foulness where documentary and cartographic work has indicated the broad outline of chronological development of the sea defences (Smith 1970). In addition excavation on one of the counter walls on Foulness has revealed a very substantial timber sub structure dated by dendrochronology to 1484-9AD (Crump 1981).

Tasks (numbers in brackets cross refer to the Task List below):

- Site set up and Risk Assessment (1-3)
- Field survey, this will include a basic plan of those structures sampled (11)
- Sampling of the wooden structures (12)
- Dating and analysis of the samples (13)
- Report preparation, incorporating the plans and sample analysis detailed above (14)
- Preparation of publication material. This will include a short note for *Essex Archaeology and History* and a summary for *Essex Past and Present* and material for display in Foulness Conservation Group's new visitors centre (15).

3.3 Survey and Sampling of the Trackways, Foulness

During the field survey two sections of wattle trackway were identified on the southern side of the island, crossing the Maplin Sands and leading to The Broomway. Prior to the early twentieth century one of the principal means of access to the Foulness Archipelago had been across the Maplin Sands at low tide, such routes will certainly have been in use since the medieval period and probably much earlier. The first trackway, 147, was located at Havengore Head and was overlain by a more modern track, consisting of nineteenth century brick rubble. The second was located at Waking Stairs, this consisted of what appeared to be birch wattlework, fixed to upright posts.

These trackways merit more detailed survey (A2.1). The use of wattlework in this location appears unlikely after the early post medieval period and these tracks could therefore be of some antiquity. Further survey and sampling for dating purposes could contribute to our understanding of trackway construction and maintenance.

Tasks (numbers in brackets cross refer to the Task List below):

- Site set up and Risk Assessment (1-3)
- Field survey, this will include a basic plan of those structures sampled (16)

- Sampling of the wooden structures (17)
- Dating and analysis of the samples (18)
- Report preparation, incorporating the plans and sample analysis detailed above (19)
- Preparation of publication material. This will include a short note for *Essex Archaeology and History* and a summary for *Essex Past and Present* and material for display in Foulness Conservation Group's new visitors centre (20)

3.4 Recording of 'The Unity', Mersea

Field survey in the Mersea area located the hulk of an abandoned barge, identified as 'The Unity' (R. Hall pers comm), located at the head of Sampsons Creek. This vessel is recorded on the EHCR, 16711, and is clearly visible in aerial photographs.

Further survey and research relating to this vessel could be used to develop methodologies for the recording of vessels in the intertidal zone. The Greater Thames Research Framework has highlighted the need to develop an understanding of the socio-economic role of sea borne trade, both within and beyond the estuary (Williams and Brown 1999, 29). Documentary research relating to this vessel may elucidate such trade links and help assess the quality of the documentary sources, and the feasibility of such research. This work will directly contribute to a survey organised as part of the implementation of the Blackwater Management Plan which will use local societies and individuals to enhance records of wrecks, wharves and landing stages around the Blackwater.

Tasks (numbers in brackets cross refer to the Task List below):

- Site set up and Risk Assessment (1-3)
- Field survey, this will include a photographic, and written record (21)
- Desk top assessment (22).
- Report preparation, incorporating the results of the field survey and desk top assessment (23)
- Preparation of publication material. This will include a short note for *Essex Archaeology and History* and articles for *Essex Past and Present* and *Blackwater Matters*(24)

4.0 RESOURCES AND PROGRAMING

NB. No funding is sought for this work from English Heritage, the following is for information only.

4.1 Staffing and Equipment

4.1.1 Staff

The majority of the work will be carried out by Essex County Council, although the dating of the timber samples from the Foulness sites will be carried out by external labs. A breakdown of the staffing and responsibilities is given in Table 1 below.

Project co-ordination will be carried out by Nigel Brown of ECC HAMP. This role will involve arranging access to the sites, informing landowners, co-ordination of any specialist visits which may be required, and to contribute to, co-ordinate and edit the reports produced.

Hester Cooper-Reade, FAU Unit Manager will be responsible for the preparation of the Risk Assessment and FAU management (provision of vehicles and equipment), this role will be carried out in conjunction with the Project Officer, Ellen Heppell.

The field survey will be carried out by the Project Officer and a Site Assistant from FAU. Where appropriate this team will be supplemented by local volunteers and/or other interested parties.

The Project Officer will be responsible for the preparation of digital and hand-drawn illustrations, and desk top research, along with the appropriate reports. These reports will be edited by the Project Co-ordinator prior to submission to outside bodies.

Name/ Organisation	Position	Responsibilities
Essex CC Staff		
Nigel Brown	Project Co-ordinator	To arrange access, inform ;landowners, co-ordinate specialist's visits, assist with the co-ordination of Health and Safety, contribute to and co-ordinate report preparation, internal editing of reports prior to submission to outside bodies.
Hester Cooper-Reade	FAU Manager	Preparation of Risk Assessment and FAU Management in conjunction with the Project Officer
Ellen Heppell	Project Officer	Day to day organisation of the project. Contribute to the preparation of the Risk Assessment. Carry out field survey and desk top research. Prepare the reports, and illustrations.
A.N Other	Site Assistant	Carry out field survey under the direction of the Project Officer.
Specialist Staff:		
P. Murphy	Scientific Advisor	To assist/advise on sampling procedures.
External Lab		To undertake the laboratory work on the wood samples, date samples and contribute a report on the results

Table 1: Staff working on the project

4.1.2 Health and Safety

Health and Safety considerations will be paramount within the project. Full Risk Assessments will be carried out prior to the commencement of any fieldwork. In particular the following hazards have been identified:-

- The high tide line/ salt marsh- becoming lost or trapped, risk of heat exhaustion/dehydration/exposure, twisting ankles etc on the uneven terrain
- The intertidal zone- being cut off by the tide, becoming trapped in the mud, risk of heat exhaustion/ dehydration/ exposure

The fieldwork team and any visitors inspecting the site will observe the following requirements:-

- A minimum survey team of two people
- A mobile phone, whistles and distress flares will be carried at all times
- Protocols will be established for signing on and off with the appropriate authorities
- The Heritage Conservation Group will also have a daily record of the location of the field team, names of those on site, and telephone numbers
- Safety equipment, including gloves, a weighted rope, and high visibility waistcoats will be provided
- Protocols will be established with regard to biohazards and water provided for the washing of hands prior to meals

4.1.3 Equipment

Health and Safety equipment will need to be purchased along with other consumables.

4.1.4 Task List

Task No	Task	Name(s)	Days	
1	Project Co-ordination	NB	10	
2	FAU Management	HCR	2	
3	Set up and mobilisation	HCR/EH	1	
4	Risk Assessment	HCR	1	
	<i>Survey of Hadleigh Earthworks</i>			
5	Field Survey	EH/ANO	2	
6	Data enhancement/ Digital mapping	EH	1	
7	Desk top research	EH	1.5	
8	Digitising of cartographic sources	EH	0.5	
9	Report preparation	EH	2	
10	Publication Reports	EH/ NB	1	

	Sampling of timbers in Quay Reach, Foulness			
11	Field survey	EH/ANO	0.5	
12	Sampling	EH/ANO	0.5	
13	Dating and analysis	Specialist	fee	
14	Report Preparation	EH	2	
15	Publication Reports	EH/NB	1	
	Survey and sampling of the trackways, Foulness			
16	Field Survey	EH/ ANO	0.5	
17	Sampling	EH/ANO	0.5	
18	Dating and analysis	Specialist	fee	
19	Report Preparation	EH	2	
20	Publication Reports	EH/NB	1	
	Recording of 'The Unity', Mersea			
21	Field Survey	EH/ ANO	2	
22	Desk top research	EH	2	
23	Report preparation	EH	2	
24	Publication Reports	EH/NB	1	

Table 2: List of tasks, staff, days worked and costs

4.1.5 Timetable

The Work will be carried out during the summer and autumn of 2001 (subject to the lifting of Foot and Mouth access restrictions) and will be co-ordinated with the Greater Thames Estuary: Essex Zone Monitoring Project, so that clashes and multiple journeys are avoided.

4.1.6 Breakdown of Costs

Year: 2001					
Staff Costs	Name(s)	Grade	Days		
Project Co-ordination	NB	SO1	10		
FAU Management	HCR	PO1	2		
Set up and mobilisation	HCR	PO1	1		
Risk Assessment	HCR	PO1	1		
	Total				
Survey of Hadleigh Earthworks					
Field Survey	EH/ANO	S5/S3	2		
Data enhancement/ Digital mapping	EH	S5	1		
Desk top research	EH	S5	1.5		
Digitising of cartographic sources	EH	S5	0.5		
Report preparation	EH	S5	2		
Publication Reports	EH/ NB	S5/SO1	1		
	Total				

Sampling of timbers in Quay Reach, Foulness					
Field survey	EH/ANO	S5/S3	0.5		
Sampling	EH/ANO	S5	0.5		
Dating and analysis	Specialist		Fees		
Report Preparation	EH	S5	2		
Publication Reports	EH/NB	S5/SO1	1		
	Total				
Survey and sampling of the trackways, Foulness					
Field Survey	EH/ ANO	S5/S3	0.5		
Sampling	EH/ANO	S5/S3	0.5		
Dating and analysis	Specialist		Fees		
Report Preparation	EH	S5	2		
Publication Reports	EH/NB	S5/SO1	1		
	Total				
Recording of 'The Unity', Mersea					
Field Survey	EH/ ANO	S5/S3	2		
Desk top research	EH	S5	2		
Report preparation	EH	S5	2		
Publication Reports	EH/NB	S5/SO1	1		
	Total				
Staff Costs					
Overheads @ 25%					
Total Staff Costs					
Dating and Analysis					
TOTAL					
Non Staff Costs					
Transport Costs		£30	14		
Equipment and other consumables					
Photographic		£10	8		
Transport of samples		£50	2		
Total non staff costs					
TOTAL COST					

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