

### 3. PLANARCH PILOT STUDIES

E Heppell

#### 3.1 THE STUMBLE, ESSEX

##### **The Essex Coast**

The Essex coast is some 480km in length; running along the Thames at Purfleet to the Stour estuary in the north. The coast is indented by a series of long tidal estuaries; the Roach, Crouch, the Blackwater and the Colne. These estuaries are tidal for a considerable distance inland, so much so that

“...no point [in Essex] lies more than thirty four miles from tidal water.” (Grieve 1959)

The topography of the modern Essex coastline is the result of both natural processes and human intervention. The coastline is low lying, below 5m OD. Much of this low lying land comprises former salt and grazing marsh; embanked from the sea from the medieval to modern periods. The majority of the Essex coast is therefore protected by sea walls. For around 60% of their length these walls in turn are protected by salt marsh. Seaward are extensive tidal flats, sand and shingle banks.

To the rear of the sea walls traces of the former wetland can be identified both above and below ground; in some areas relict salt marsh creeks which have silted up can be seen as cropmarks meandering across grazing marsh. Former creek and river channels, also silted up or deliberately infilled, can also be identified. Thus the area to the rear of the wall can be defined as ‘former wetland’. Much of this former wetland was used for grazing, of sheep and later cattle, up until the late 19th and 20th centuries. Much is now arable land. Some areas, particularly along the Thames, have been developed for housing and industry.

The Essex coast is considered one of the most significant in the country for nature conservation, hence much is designated under the RAMSAR convention as being of international importance. Parts of the coastline are recognised as Special Conservation Areas (Flora and Fauna) and Special Protection Areas (Birds) both of which are European designations. National designations include National Nature Reserves and Sites of Special Scientific Interest. These designations apply to the intertidal area and dryland. Much of the coast remains undeveloped and is designated as a Special Landscape Area in recognition of this.

#### **Coastal Archaeology in Essex**

##### ***Introduction***

There has been a long history of archaeological research along the Essex coast from the late 19<sup>th</sup> century onwards, primarily on the intertidal zone but also inland (eg. Spurrell 1885, 1889). In the early 20<sup>th</sup> century FW Reader and Hazzeldine Warren published work on an intertidal Mesolithic site at Hullbridge, on the Crouch (Reader 1911 and Warren 1911). Warren went on to carry out extensive studies of the pre-transgression land surface, with associated Mesolithic and Beaker sites, at Walton, Clacton, Jaywick and Dovercourt (Warren *et al* 1936).

A number of local archaeologists have also provided valuable studies on intertidal archaeology. Of particular note is the work of Vincent and George (1980) on prehistoric sites, of de Brisay and the Colchester Archaeology Group on the ‘red hills’ (Fawn *et al* 1990) and the recognition of extensive fish trap complexes by Ron Hall, Kevin Bruce and Barry Pierce (eg Strachan 1998). Aerial photographic survey and analysis also provided valuable information particularly relating to the post-medieval and modern periods such as decoy ponds, World War II defences and hulks.

##### ***The Hullbridge Survey***

*“In recent decades the archaeology of the Essex coast has not received the attention it deserves, which is unfortunate considering the abundance of information that is to be found along the open coast and within its long ria-like estuaries”* (Wilkinson and Murphy 1995, 1).

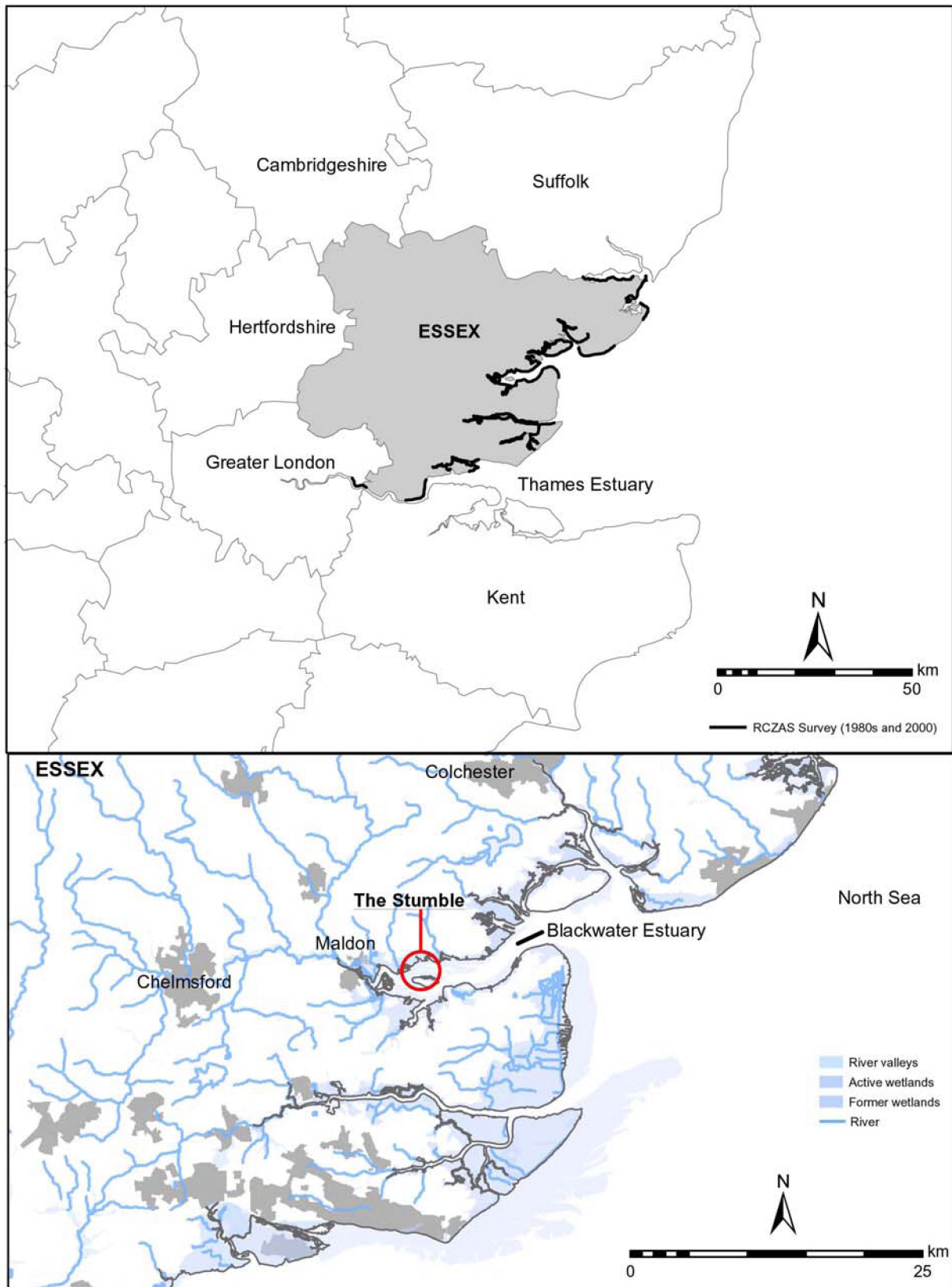


Fig 3.1.1 Location of The Stumble

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In 1982 Wilkinson and Murphy began work on a limited area around Hullbridge, to provide further stratigraphic, environmental and dating information about the existing sites, and to identify new sites. The results of the first season of the project were so promising that it was progressively extended. By 1987 some 200km of the coast had been surveyed (Fig 3.1.1). In general this survey comprised reconnaissance and more detailed survey in selected areas. It is this work, which became known as the 'Hullbridge Survey' which identified the Neolithic site at The Stumble where extensive areas of old land surface and associated artefact scatters were located. The area was selected for more intensive survey in 1986, 87 and 1988.

Thus by the 1990s there was an extensive body of knowledge relating to the archaeology of the Essex coast, although it is acknowledged that it is not complete or exhaustive.

### ***The Stumble: Archaeological Background***

The Stumble is an active wetland site, being covered by water each high tide. It is an area of around 40ha of intertidal mudflats located in the Blackwater Estuary, between Osea Island and the mainland, to the north of the main river channel. The area is the site of a multi-period complex comprising a Neolithic habitation site and later wooden structures, first located during the 1985 season of the Hullbridge survey. Trial excavation commenced in 1986 (Wilkinson and Murphy, 1995, 76-81 and 150). To the north of the site lay salt marsh with deposits up to 2m deep. These deposits overlay thick layers of estuarine clays. These in turn overlay grey estuarine clay containing some organic remains and a lower peat deposit, of early Bronze Age date. This overlaid a leached silty sandy soil, an old land surface, formed on a silty or sandy clay head deposit.

The initial survey identified an earlier Neolithic site (areas A, B, C and E: Fig 3.1.2). This was initially recognised by a dense concentration of early Neolithic pottery and flint, eroding out of the side of a narrow channel cutting into the old land surface. Further survey showed that this scatter had clearly defined limits. Excavation in this area identified post holes and other shallow irregular features. Remarkably well preserved charred plant remains were recovered from samples and pollen analysis of preserved soils here and at other sites in the Blackwater estuary has provided good evidence for the environmental setting and economy of the site. The Stumble represents one of the most significant Neolithic settlement sites in the Eastern Counties (eg Murphy 1996, Brown and Murphy 2000, Brown *et al* 2000). When occupied the site would have been on dry land, around 2-3m above high water. As a rough indicator the early Neolithic High Water mark may be considered to be around the contemporary low water mark. Osea Island would have formed a low hill connected to the mainland.

The later Neolithic settlement (Area D and contexts 99,117, 118, and 124; Fig 3.1.2) was also identified by finds scatters, although noticeably less dense than the earlier site. Artefacts recovered comprised Grooved Ware, flintwork and concentrations of burnt flint. By this period sea level rise must have meant that the sites were very close indeed to the high tide mark. By the early Bronze Age, the lower peat had been deposited and Osea may have become an island.

The Hullbridge Survey at the Stumble identified a number of wooden structures mainly located to the north-west of the Neolithic settlement areas, closer to the edge of the salt marsh. They were gradually being eroded out of the estuarine clay layers. As this process related to the plan and not the section they were without a good stratigraphic context.

In 2001, as part of the Greater Thames Estuary Essex Zone Monitoring Survey (Heppell 2004), the site was revisited in order to assess the changes which had taken place over the intervening years. Given that the Hullbridge Survey had located the site through the density of finds in the area the initial task was to establish if such finds scatters were still present. Finds scatters were located in the vicinity of the Neolithic site excavated in the 1980s. The scatters, however, also extended a considerable distance west of those previously noted.

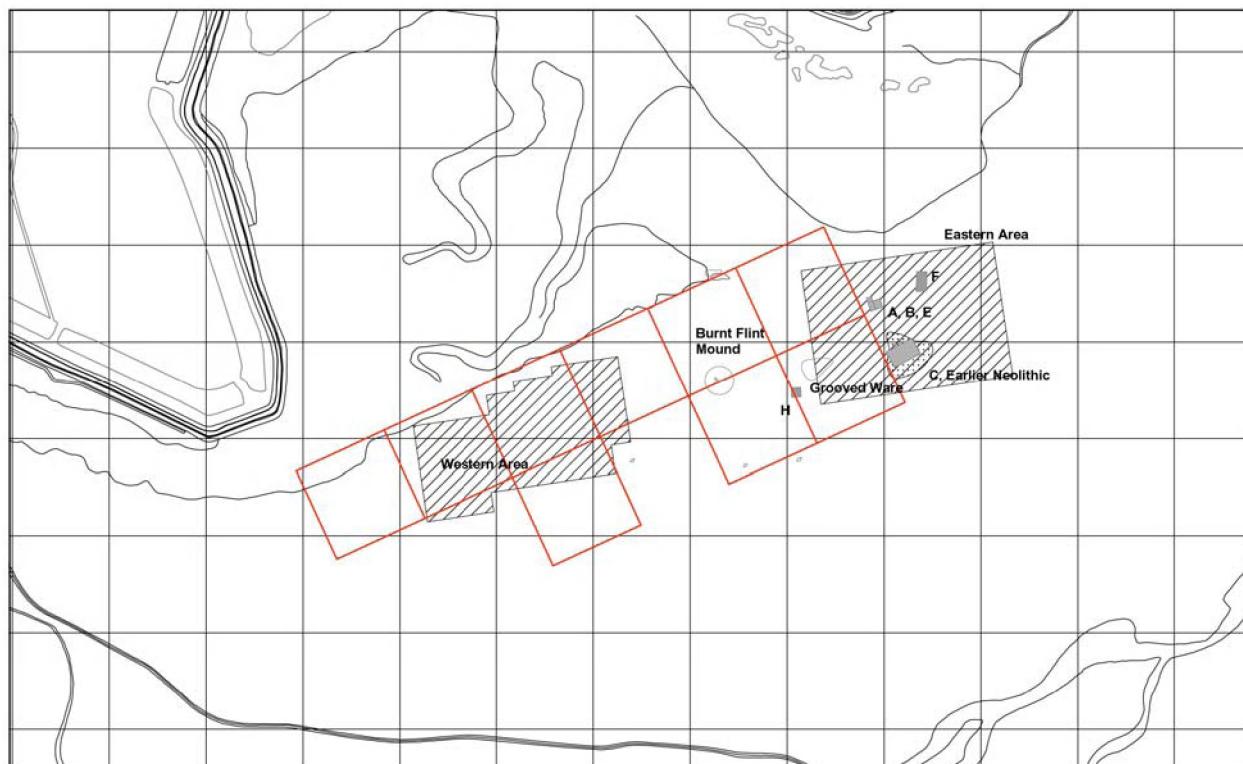


Fig 3.1.2 The 1980s survey results

Excavated Area

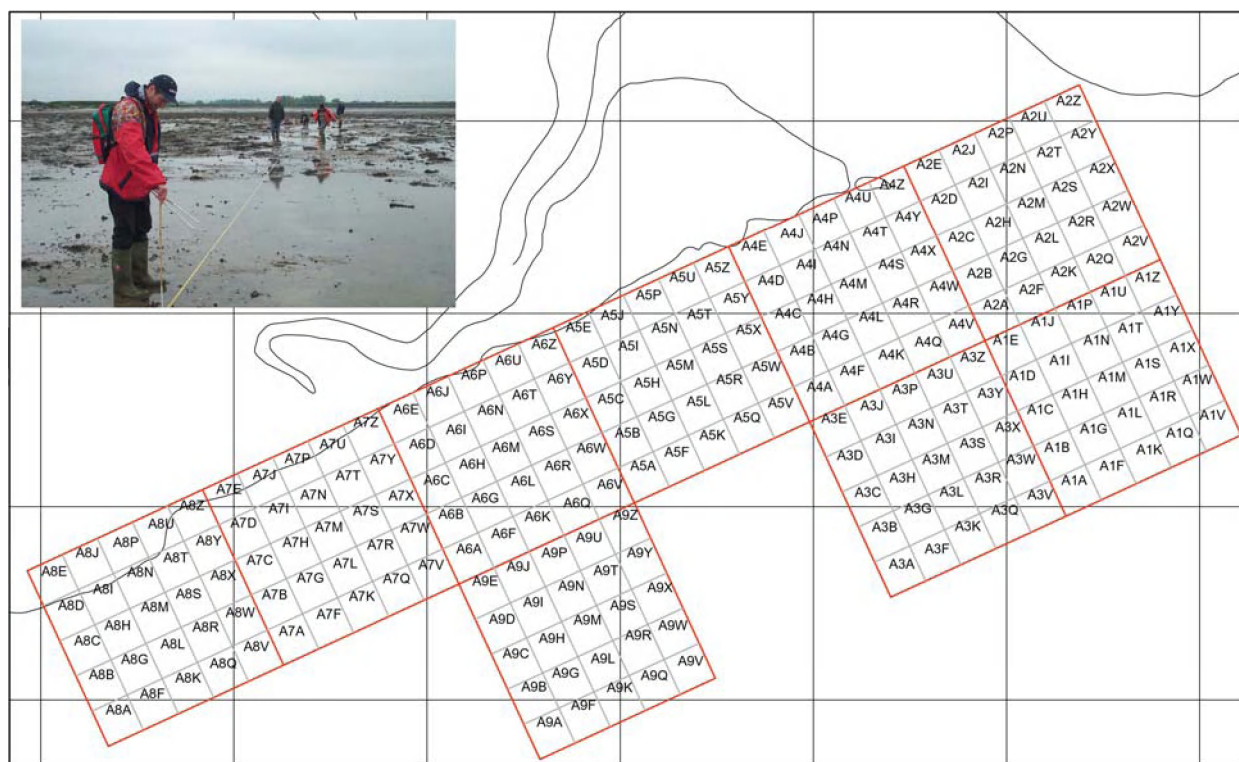
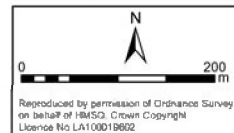
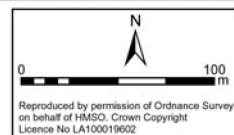


Fig 3.1.3 The Fieldwalking Grid (showing the unique ID of each 20m square)



The monitoring also identified a number of areas of active erosion, such as vertical erosion of the flats (ie a reduction in height) exposing a greater area of the old land surface. The salt marsh to the north was also retreating, some 10m in places since the Ordnance Survey was last updated.

A combination of factors - significance of the archaeological remains, the poor definition of their extents, difficulty in evaluation and demonstrable threat; meant that when the opportunity arose to develop techniques to evaluate wetland as part of the Planarch 2 programme The Stumble was an ideal candidate for further work.

## **The Planarch 2 Pilot Studies: Methodology**

### ***Introduction***

Evaluation techniques on dry land have evolved over the years, particularly with the development and increasing availability of new technologies. The suite of methodologies available offers a range of intrusive and non-intrusive techniques to provide sufficient information to formulate strategies to manage the resource.

Wetland evaluation has similarly evolved, although there are a number of additional factors that need to be considered when choosing an evaluation method for use on intertidal sites. Some of these are discussed below.

### ***Health and Safety***

Health and Safety is an issue which needs to be addressed at the conception of any project. There are, however, increased risks working on an intertidal site like that at The Stumble. In short is it safe to carry out evaluation? A risk assessment was carried out as a first step. A method statement was then prepared detailing measures to control those risks.

### ***Access***

Physical access to The Stumble has a significant effect on the type of fieldwork that can be carried out. The nearest dryland access is via the causeway to the island, which is a private road. Any equipment has to be carried across the mudflats, negotiating water or silt filled channels and soft spots. Equipment has to be kept to a minimum, and work days planned to minimise the amount of equipment to be carried and the most effective use of time.

As the site is intertidal there is also a limited amount of time available for working. The site can generally be accessed for 2 hours either side of low tide, although this can vary depending on weather conditions.

### ***Nature Conservation***

The Stumble, and indeed the wider Blackwater Estuary, is a special site in terms of nature conservation. It is designated as a:

- Site of Special Scientific Interest
- Special Protection Area
- Special Area of Conservation
- RAMSAR site

Work on designated sites has to be agreed with English Nature, the national body who advises, monitors and protects these. Permissions typically have to be in writing. EN may restrict the type of work that can be carried out, or specify methodologies to be applied.

Evaluation techniques at The Stumble therefore need to be tailored to take the above factors into account. The key factors are safety and speed.



## **Fieldwalking**

Fieldwalking is a non-intrusive method of archaeological survey that has been used for many years to assess areas of archaeological potential. It is particularly suited to large areas due to its rapidity. It can provide information as to presence or absence, and better define areas of archaeological interest through the use of statistical and spatial analysis. There are acknowledged weaknesses to fieldwalking techniques; it is usually dependent on the proximity of archaeological remains to the surface, a presence of durable artefacts and the depth of overburden/colluvium/alluvium. It does, however, provide information on general location, presence and date. It is considered effective, particularly when applied in conjunction with other techniques (Medlycott and Germany, M. 1994, Medlycott 2005).

Fieldwalking was chosen as the first technique to be utilised at The Stumble in order to evaluate as much of the area as possible and to enable a comparison with fieldwalking data from the 1980s. It also aimed to consider whether it was practical and effective in an intertidal environment.

In Essex a standardised technique has been applied to all fieldwalking projects since the mid 1990s. This policy was adopted in the post PPG 16 environment of competitive tendering to ensure that the results of any survey, regardless of the organisation carrying it out, would be directly comparable.

Permanent reference points for sites and finds are guaranteed by relating each fieldwalking survey to the Ordnance Survey National Grid. A grid of collection units is established by dividing OS kilometre squares into 100m and 20m squares respectively. The kilometre and 20m squares are labelled from A to Z (excluding O) and the 100m hectare squares from 1 to 100.

Out in the field, the corners of the 20m squares are marked out. A c. 10% sample of surface finds is then obtained by fieldwalking a c. 2m wide transect along the west side of each 20m box in turn. As each square is walked, the finds from that square are placed into a pre-labelled bag, which clearly records the project name and year, and the kilometre, hectare and 20m square (e.g. SOWF97 A14P - **S**outhend, **W**ick Farm, **1997** season, kilometre square **A**, hectare **14**, 20m run **P**).

A fieldwalking record sheet is filled in for each hectare. This records which 20m runs were walked, who walked them, the conditions of the surface and crop (if any), the weather, and the topography of the field. These sheets were utilised in this survey but amended slightly for the intertidal environment.

The finds are washed and marked with their identifying code before being sorted by date and type into the following classes:

Prehistoric pottery	medieval pottery
worked flint	post-medieval pottery
burnt flint	medieval/ post-medieval tile
Roman pottery	daub
Roman tile	brick
Saxon pottery	slag

The finds record sheets capture the number of individual items and their combined weight for each find type by 20m transect. This information is typed into a computer spreadsheet to aid statistical analysis. The weight of each find type is plotted on the grid according to its Standard Deviation from the mean weight for that find type across the whole survey area, with the exception of flintwork which is plotted individually. A record of the statistics for all fieldwalking projects is also available. This allows additional comparisons to be made; for example sites in the same vicinity or of the same period.

A concentration of material is defined as a deviation from the norm for the survey area and the find type. Thus the relative density required fluctuates widely from period to period, and from one

survey area to another. For example, in an area producing very few Saxon finds, two Saxon sherds in adjacent runs could be interpreted as a possible site. A post-medieval site, in contrast, would probably be indicated by a dense cluster of runs with more than two Standard Deviations of post-medieval pottery and tile, standing out against a background scatter of similar material. This definition of a site is an essentially statistical one, backed up by professional judgement as to just what kind of past activity may have been responsible for this deviation.

## ***Fieldwalking Results***

### *Introduction*

The field survey at The Stumble was carried out using the above technique with some minor variations. The grid was established along the site on a northeast southwest baseline in order to maximise the area covered and minimise time setting out (Fig 3.1.3). It was generally not possible to walk the 20m strip adjacent to the landward edge of the grid due to masking by sands and silts. The 20m adjacent to the low water line was also not walked due to depth of water; although the water was not too deep to walk through doing so stirred up sand and silts, reducing visibility. The survey area therefore covered an area 600m long and 40-80m wide.

DGPS was used to establish an NGR for each corner of a 100m square to ensure the survey related to the OS. This will enable any feature survey work to be compared and enable re-location of concentrations of material in landscape with few points of reference.

### *Artefact Analysis: Prehistoric Pottery*

A total of 107 sherds of prehistoric pottery were recovered during fieldwalking at The Stumble. Statistical analysis shows a significant variation from the countywide statistics and data was therefore treated independently. The pottery has been analysed by Nick Lavender, an independent specialist. The following is summarised from his more detailed report. Although it was not possible to utilise the countywide statistics in the main analysis it has clearly demonstrated the significance of the assemblage from The Stumble

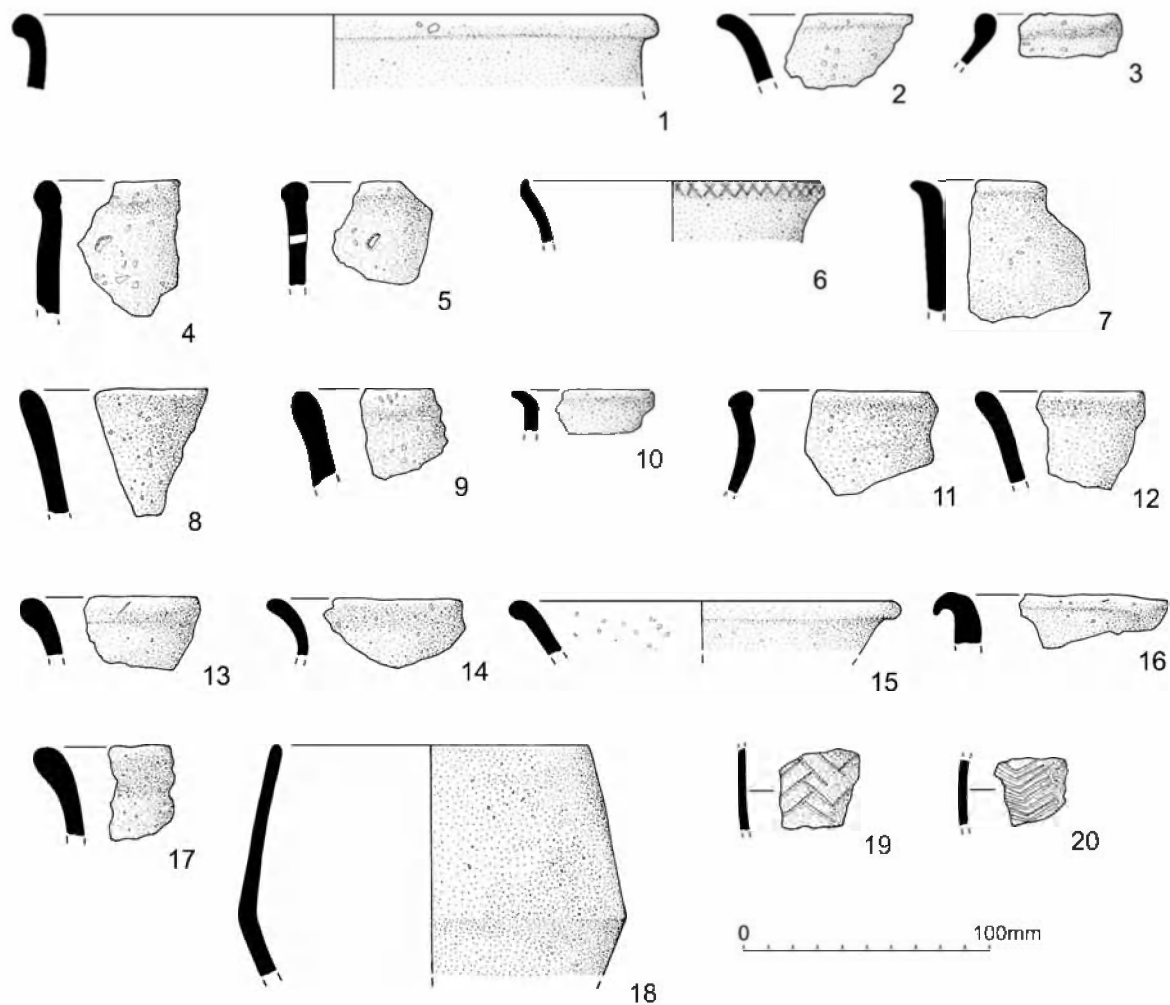
The majority of the assemblage was of early Neolithic date, of the Mildenhall style (Longworth 1960) which corresponds well with the 1980s assemblages (Fig 3.1.4). Much of the material was abraded and, unsurprisingly, covered with barnacles. There were, however, some sherds where decoration could be identified. One sherd also had evidence of vegetable wiping,

Later periods were less well represented. A small quantity of Grooved Ware, dating to the late Neolithic period was recovered. A single middle Bronze Age sherd was identified, still with some blackened residue on the interior.

### *Flint*

Flintwork is particularly difficult to identify on the surface of The Stumble. Additional difficulties arise when trying to assess whether a piece has been worked due encrustation of barnacles. It was also known from previous studies that debitage was present. These factors meant that when carrying out field survey all flint which may have been worked was collected. The material was processed and then examined by a flint specialist, Hazel Martingell and only at this stage were those flints deemed to be natural discarded.

A total of 234 flints were recovered during the fieldwalking exercise: 78 tools, 24 blocks or cores and 132 flakes. The early Neolithic flintwork comprised blades, including microdenticulates (saw edged pieces) that would have been hafted onto handles. These were used to cut cereal crops, evidence of which can be seen as 'sickle gloss' on the blades. The Middle to Later Neolithic was better represented in the flintwork assemblage; this included scrapers, the butt of a polished axe (possibly re-used as a scraper), and an oblique arrowhead (Fig 3.1.5). The later Neolithic to early Bronze Age assemblage included an exceptionally fine bifacial knife, and a spearhead or sickle. A majority of the artefacts are indicative of agricultural activity such as harvesting rather than stock rearing.



#### Early Neolithic Pottery

Fig No.	Context No.	Rim Form	Comments	Fabric
1	A1T	2	Smoothed surfaces, partly abraded.	D
2	A1T	2	Abraded exterior	D
3	A2V	3	Rim from a closed bowl with an unusual short upright neck. Slight traces of heavier abrasion on the rim may result from the use of a lid or being placed upside down.	D
4	A3C	2	Wiped interior. Slightly abraded exterior. Oval or crescent-shaped preforming perforation does not fully penetrate to the inside.	D
5	A3C	2	Probably the same vessel as above, although interior does not seem to be wiped.	D
6	U/SE	5	Fine turned rim decorated with incised cross-hatching	C
7	U/SE	2	Rim from straight-sided vessel.	D
8	U/SE	3	Rim from a flared(?) open bowl	D
9	U/SE	3	Slightly abraded	D
10	U/SE	2	Rim from an open bowl.	D
11	U/SE	4	Rim from S-profiled vessel.	D
12	U/SE	4	Similar to above, but finer and possibly originally burnished.	C
13	U/SE	3	Rim from an open bowl.	D
14	U/SE	4	Rim from an open bowl. Slight traces of heavier abrasion on the rim may result from the use of a lid or being placed upside down.	D
15	U/SE	2	Abraded on exterior	D
16	U/SW	2	Heavily abraded	D
17	U/SW	3	Heavily abraded	D

#### Middle Bronze Age Pottery

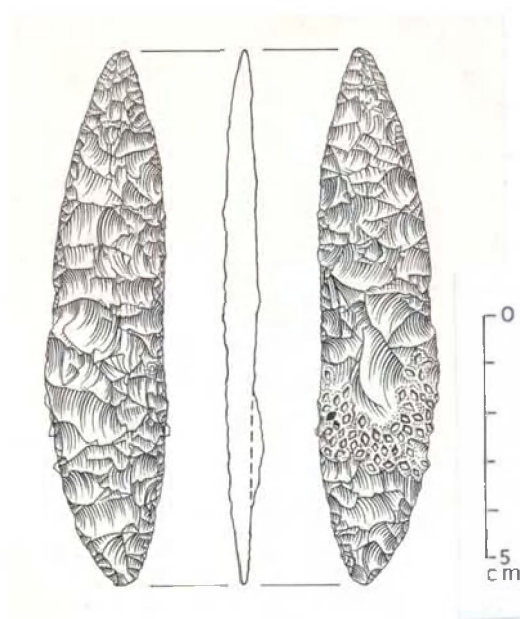
Fig No.	Context No.	Comments	Fabric
18	U/SW	Rim and shoulder of globular urn. Patch of abrasion on exterior, sooting on interior.	A

#### Middle Iron Age Pottery

Fig No.	Context No.	Comments	Fabric
19	U/SE	Incised herringbone pattern decoration	J
20	U/SE	Similar to above, but with finer and more intense decoration	J

Fig 3.1.4 Prehistoric Pottery





*Late Neolithic: Bifacial knife, spearhead or sickle.*

*Early Neolithic: Scraper on the distal end of a blade*



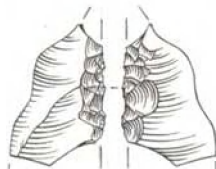
A5A

*Middle to Late Neolithic: Scraper*



A1L

*Late Neolithic: Oblique arrowhead*



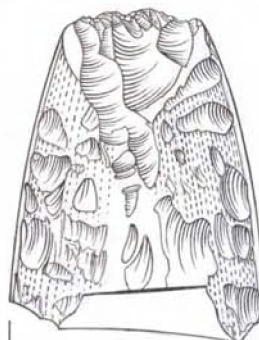
A5H

*Late Neolithic-Early Bronze Age: Bilaterally re-touched blade (probably a sickle piece)*



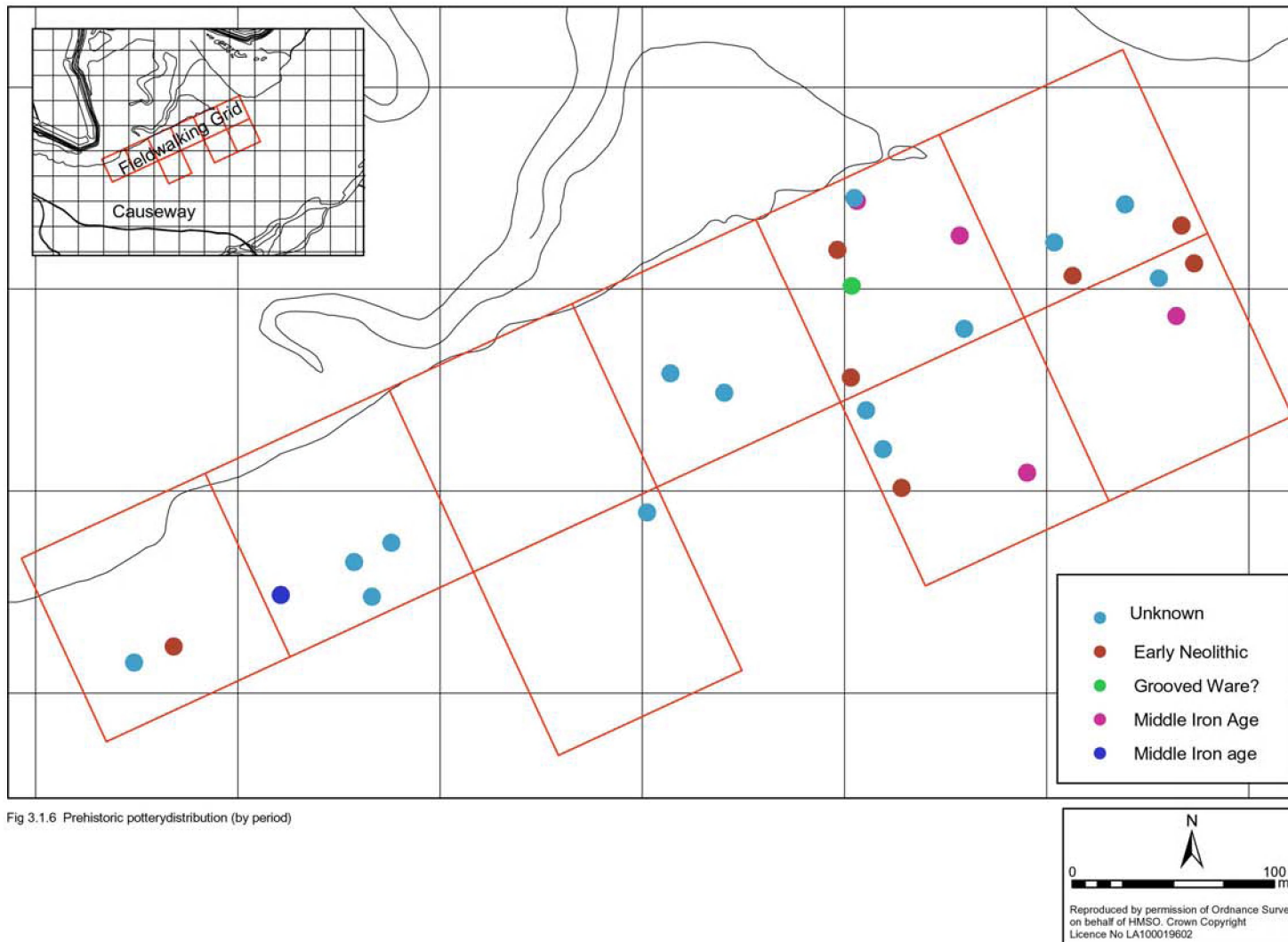
A9R

*Middle to Late Neolithic: Partially polished axe with bevelled sides*



A9W

Fig 3.1.5 Flint



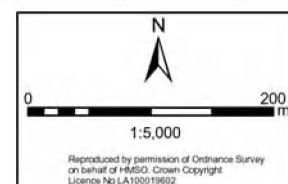
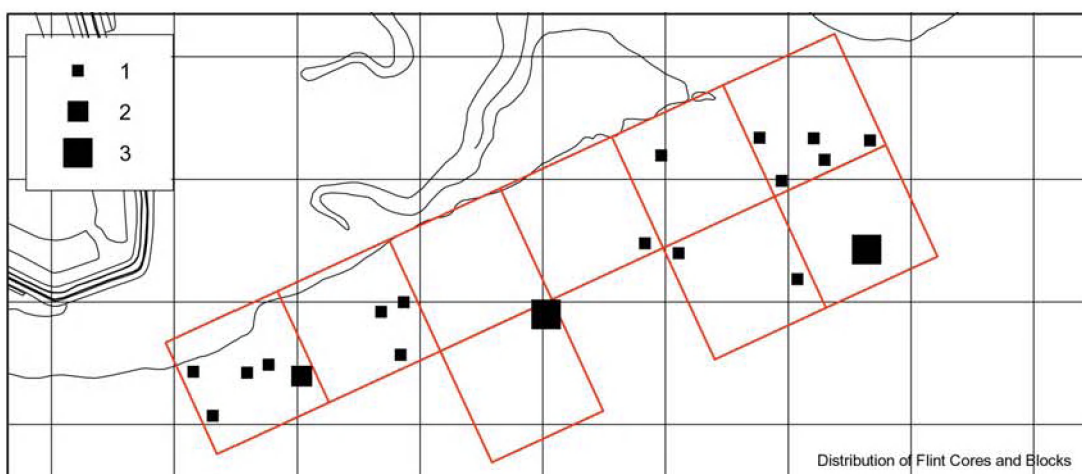
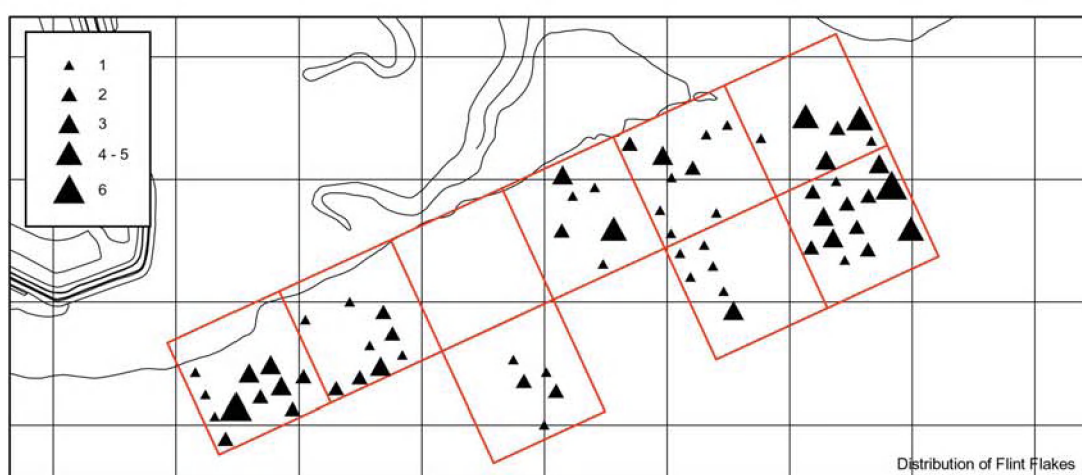
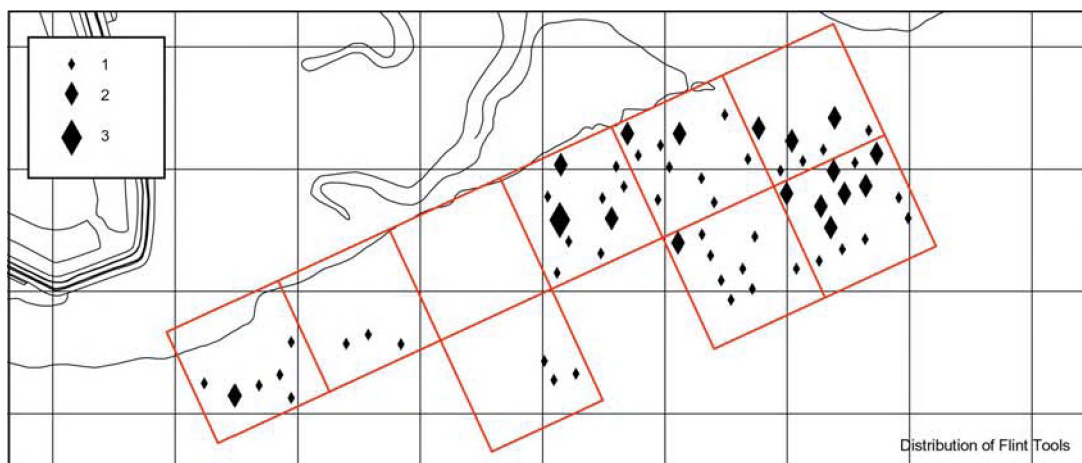


Fig 3.1.7 Flint distribution

### *Distribution*

Prehistoric pottery was concentrated at the eastern end of the fieldwalked area (Fig 3.1.6). This area lay immediately to the west of the main excavation areas from the Hullbridge Survey and had been fieldwalked before. A comparison of the 1980s data and archive drawings from the 1980s survey shows that no concentrations had been previously noted in this area. This would suggest that the erosion in this area has reduced the depth of overburden and exposed parts of the old land surface, and thus the artefacts.

The area defined in the 1980s as Context 124, comprising a scatter of early and later Neolithic material, was blank. This could perhaps be accounted for by a combination of natural erosive processes and perhaps the archaeologists, who had a 100% sampling strategy in this area during the 1980s work. The type of material recovered during the current survey around the periphery of this context contrasted with that of the 1980s, which had been dominated by burnt flint. The recent survey recovered little material of this type.

There is a clear break in the distribution of both flint and pottery at The Stumble (Fig 3.1.8). This is thought to represent the route of a large creek which had been identified in the auger survey. To the west of this channel, towards the causeway, further pottery and flint were recovered. This was the most interesting result of the recent work as prehistoric artefacts had not been identified in this area previously. It was not possible to refine further the distribution patterns of the pottery as much was undiagnostic (although probably Early Neolithic).

The densest concentrations of flint were found to the east of the postulated channel (Fig 3.1.7), and include the material of earlier date. To the west material tends to be later, and contains a higher proportion of blades and cores.

### **Auger Survey**

Hand auger survey was also carried out at The Stumble. This had two main aims:

- To establish depths of later estuarine silts and clays sealing the old land surface
- To establish a soil profile across the flats to compare with the earlier data

The initial project outline had aimed to carry out the auger survey, in those areas with concentrations of finds, as a precursor to the excavation of test pits. Analysis of the artefact distribution, discussed above, did not however identify any particular concentrations, but rather a general background scatter. Following discussions with the Planarch partners during exchange visits, it was decided that, within the limited resources available, the most useful information could be obtained by profiles across the flats, one running south-west to north-east (parallel to the shoreline) and two profiles running from the shoreline to the waterline (Fig 3.1.9). Auger samples were taken every 10m.

Ideally this survey data needed to be related to Ordnance Datum, to allow comparison with other datasets. This proved, however, to be the most difficult element of the survey due to the absence of benchmarks in the vicinity. Instead an estimated height was transferred from the top of the sea wall, across the salt marsh then down onto the flats.

The auger survey provided simple profiles across the flats and confirmed that the gap in the fieldwalking artefact distribution was indeed a channel which had been filled by soft sands and silts (Fig 3.1.9). Comparison of auger data along the grid's baseline to artefact density along the same line showed that the distribution of surface artefacts coincided with those areas where the old land surface was closer to the present surface. Interestingly gaps occurred in more elevated areas where no masking alluvial material was present, and where artefacts had been recovered in the 1980s. This is thought to be the result of the erosion of the artefact-bearing strata.

The data obtained through this auger survey proved useful in the interpretation of the fieldwalking results. It also provided information on strata and topography. It was, however, not detailed

enough to provide sufficient information to position the proposed test-pits. This was largely due to the complex pattern of erosion and deposition in the dynamic tidal environment. Discussion with the Planarch partners, particularly the participants from ROB who routinely use augering as a technique, has established that more data would be required to carry out modelling of this type.

### ***Excavation of Test Pits***

The excavation of test pits in any intertidal environment presents a number of challenges:

- All equipment has to be carried to site
- Limited time available on site within tidal windows
- Excavated areas fill with water, seeping through loose upper deposits even at low tide
- Any test pit left open will fill at high tide and need to be bailed out before work can be continued

In the 1980s the Hullbridge Survey team were housed on nearby Osea Island, and were working both tidal windows. Larger equipment such as shovels and buckets was stored in a wire cage, tables, chairs and a hatstand pushed into the mud. Other equipment was carried in either on foot or using a light dingy. The test pitting was carried out using sawn-off oil drums that were driven into the foreshore acting as mini 'coffer dams'.

The Planarch work had to take a slightly different approach as a result of a number of considerations. The use of a boat was considered but not used in the end as T.J. Wilkinson had noted that their use 'considerably extended the working day' (Wilkinson nd). This would have had implications for the cost effectiveness of the limited work proposed as part of Planarch 2. Thus a method of excluding water from excavated areas that was more lightweight than an oil drum was devised. Sheets of perspex were cut that could be driven into the foreshore using a rubber mallet. These flat sheets were lightweight and could be carried flat in a rucksack.

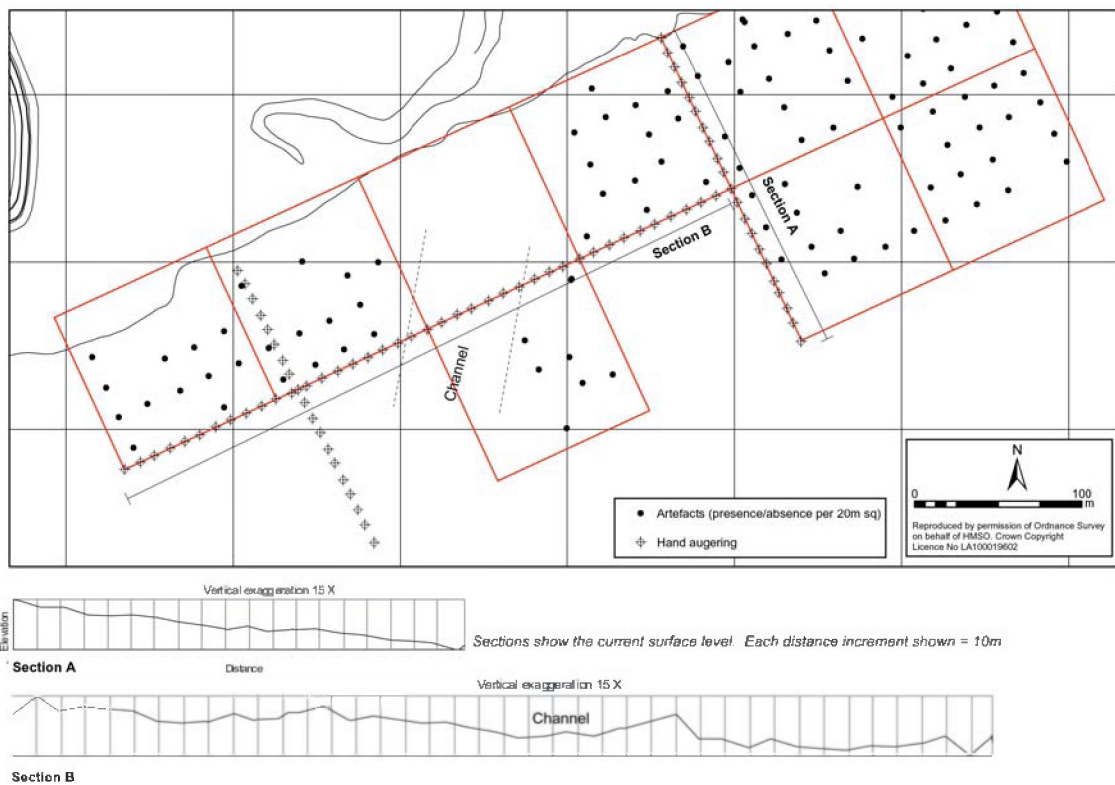
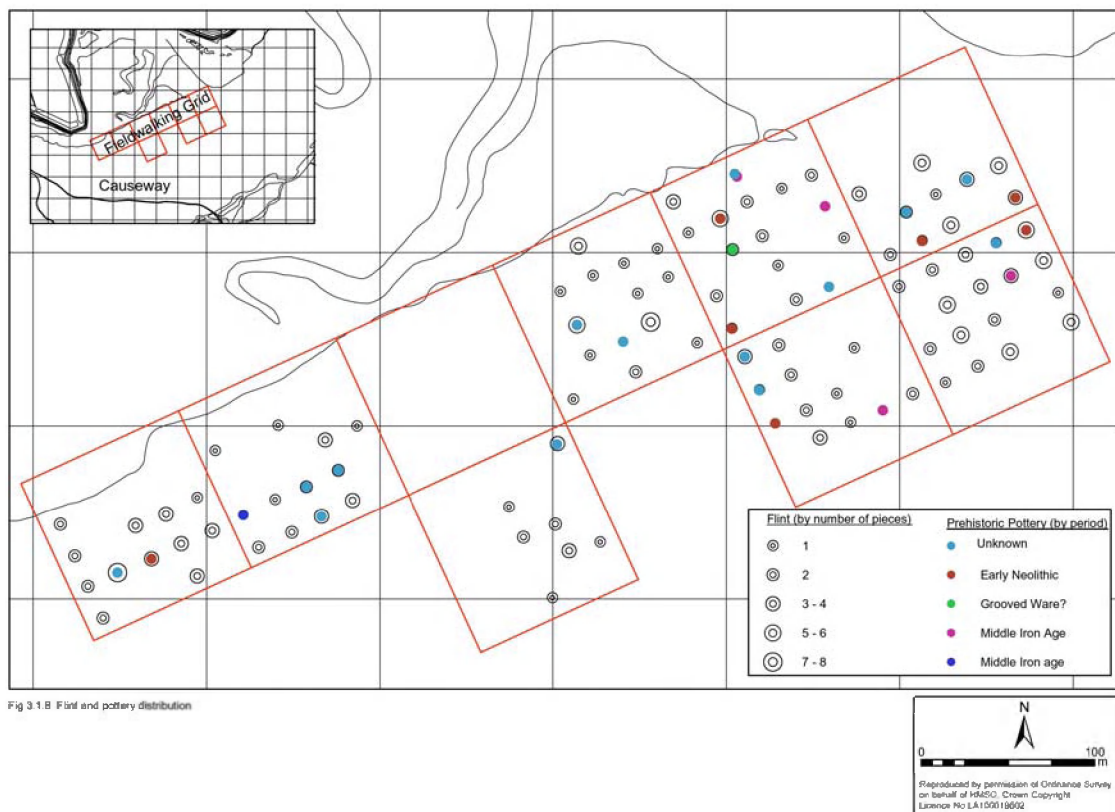
The preliminary project outline had aimed to excavate test pits, using the bin sampling method, in those areas where the fieldwalking and auger survey had indicated that there were areas of significant archaeological potential. The auger survey data was, however, as discussed above, not dense enough for this to be feasible. It was therefore decided that it would be most appropriate to test the technique in the best understood area, that is the area close to the original excavation.

A total of eight test pits were excavated using the technique described above. Water seepage into the excavated pits did occur, but could be minimised by taping the corners. Excavation within the pits was practical, although the thinner (6mm) perspex sheets did begin to crack and bend when used more than once. Although the test pits excavated were small, larger areas could have been excavated using multiple sheets.

The archaeological results of the test pits were limited by their positioning. The excavations showed that a number were within what is thought to have been a small channel that had not been identified during the auger survey. In one test pit a sub-surface feature, possibly the edge of a pit or post hole, was identified.

It was considered that the technique was practical. It was, however, not particularly rapid, which may have implications in other intertidal environments with a shorter working window. The targeting of the test pits was also a problem, though it is considered that this could be improved by more intensive auger survey.







## ***Discussion***

The ECC team was joined by representatives from KCC, Wessex Archaeology (on behalf of KCC), VIOE and ROB. The participants took part in a number of discussion periods through the course of a week long exchange programme. At these discussions a number of detailed points relating to the techniques were raised.

### *Refining the fieldwalking grid:*

The possibility of utilising a 10m grid rather than a 20m grid was raised. In the case of the Stumble it was considered that this might be appropriate given the considerable amount of artefacts and background information available. The remainder of the survey was carried out on the 20m grid to allow statistical 'like for like' analysis to be undertaken.

Should further survey work be proposed a selected area will be surveyed on a more refined grid so that results can be compared.

The Flemish general walkover technique, where a parcel is walked by a team of archaeologists spaced at around 3m intervals and material assigned to that parcel, would not have been an appropriate method of survey at The Stumble. This method is best utilised to provide data on presence/absence and this was already known at the Stumble. If, however, a new area of flats were surveyed it could be an appropriate technique for preliminary survey but collection units would have to be defined, given the absence of any defined boundaries.

### *Use of Volunteers and Local Societies:*

ECC is in general keen to encourage local societies and volunteer work. It is participating in a number of Local Heritage Initiative and Heritage Lottery Fund projects. Volunteers were also encouraged to take part in the Essex RCZAS survey (Heppell 2001). Consideration has been given to the use of volunteers for monitoring in a more formal fashion than at present. Complications can, however, arise as a result of the health and safety considerations and insurance.

It is considered that all of the techniques applied during the Essex pilot studies were successful.

Fieldwalking did establish that the general distribution of material was wider than previously noted in the 1980s. It also showed that it was possible to use the results to identify underlying features, in this case a channel crossing the site. The results proved to be limited in establishing better defined areas of activity. This, however, is the result of the sheer volume of material to be found at The Stumble. Distinguishing a significant concentration from that of a general background scatter of prehistoric pottery proved impossible.

Auger survey proved both useful and practical. In the long term this is likely to be a technique which will be applied more often on intertidal sites. Transfer of Ordnance Datums to provide a comparison with landward data is likely to be the main practical problem at the present time. The further development of survey equipment, particularly DGPS, may in the longer term provide a solution to this.



Fig 3.1.10 Excavating the Test Pits; the perspex sheets prevent the pits being filled by surface water and seepage from the surrounding estuarine muds