

Geoarchaeological investigations at Jaywick Market, Brooklands, Jaywick, Essex, CO15 2JE

August 2021



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**commissioned by Stephen Day
on behalf of Tendring District Council**

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CAT Report 1758
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Fig 1 Site location.

Fig 2 Results.

1 Summary

Geoarchaeological investigations were carried out at Jaywick Market, Brooklands, Jaywick, Essex in advance of several market improvement plans. The site is within a mapped area of the Clacton Channel Deposits associated with the foreshore in an area in which many Clactonian artefacts have been found. No Pleistocene deposits were identified, only Holocene marine clay and London Clay bedrock.

2 Introduction (Fig 1)

This is the report for geoarchaeological investigations carried out by Colchester Archaeological Trust (CAT) at Jaywick Market, Brooklands, Jaywick, Essex from the 5th August 2021. The work was commissioned by Stephen Day on behalf of Tendring District Council prior to the construction of business units, a covered market, community garden, public WCs and associated public realm.

In response to consultation with Essex County Council Place Services (ECCPS), Historic Environment Advisor Teresa O'Connor advised that in order to establish the archaeological implications of this application, the applicant should be required to commission a scheme of archaeological investigation in accordance with the *National Planning Policy Framework* (MHCLG 2019).

All archaeological work was carried out in accordance with a *Brief for Geoarchaeological Investigations at the proposed Jaywick Market site*, detailing the required archaeological work, written by Teresa O'Connor (ECCPS 2021), and a written scheme of investigation (WSI) prepared by CAT in response to the brief and agreed with ECCPS (CAT 2021).

In addition to the brief and WSI, all fieldwork and reporting was done in accordance with *Management of Research Projects in the Historic Environment (MoRPHE)* (Historic England 2016), and with *Standards for field archaeology in the East of England* (EAA 14 and 24). This report mirrors standards and practices contained in the Institute for Archaeologists' *Standard and guidance for archaeological field excavation* (ClfA 2014a) and *Standard and guidance for the collection, documentation, conservation and research of archaeological materials* (ClfA 2014b).

3 Archaeological background

The following archaeological background draws on the Brief and the Essex Historic Environment Record (EHER) held at Essex County Council, County Hall, Chelmsford, Essex (accessible to the public via <http://www.heritagegateway.org.uk>)

A Desk Based Assessment for the site has been completed (CAT Report 1644) which concludes:

The Jaywick Market site lies within the complex of Clacton Channel interglacial deposits associated with the foreshore in an area from which many Clactonian artefacts have been found and the 'Clacton spear', dating back to around 420,000 years ago. The basal part of the channel sequence is the context in which the internationally important Clactonian Industry occurs. The area is regarded collectively as one of the most important interglacial sites in Britain.

Borehole investigations have recorded 1.2m to 1.9m of made ground across the site underlain by up to 5m of sediment identified as interglacial deposits some of which includes shelly material and fibrous peat. The nature and origin of these deposits has not been fully established and the date of these deposits is unknown.

The area is one of high archaeological potential however nearly all of the archaeological evidence in the vicinity comprise surface finds from the foreshore at Lion Point, immediately to the south, and along the seafront to the east and west whose provenance is unknown. This

includes Clactonian worked flints, Mesolithic and Neolithic remains. Along the seafront, pits, hearths and cooking holes have been recorded which may be associated with a Mesolithic/Neolithic buried land surface known as the Lyonesse surface which lies above the London Clay and outcrops in places on the stretch of coast between Jaywick and Dovercourt. In addition, the coastal areas is known for the survival of red hills which represent salt making sites and date from the Iron Age/Roman period.

4 Aims

Archaeological monitoring was undertaken to excavate and record any archaeological and geoarchaeological deposits.

5 Results (Fig 2)

A trench measuring 1.86m by 4.63m was mechanically excavated under the supervision of a CAT archaeologist. The trench was excavated through a layer of tarmac and builders sand (L1, c 0.15-0.17m thick), a layer of modern make-up (L2, c 0.49-0.54m thick, concrete, stones and builders sand), and a layer of redeposited clay (L3, c 0.43-0.46m thick, firm, moist, grey/blue clay) onto a layer of concrete (L4, thickness not recorded).



Photograph 1 Representative section – view west

No archaeological finds or features were uncovered in the trench, only modern layers were encountered.

A borehole was excavated roughly in the centre of the trench to a depth of 6m below the top of L4. The borehole was excavated using a mechanical corer for the first 2m and an open gouge sampler for the remainder of the depth.

The core was sampled at 8cm intervals (where possible) giving 42 samples for testing. One cm³ samples were washed using Hydrogen peroxide (30%), centrifuged and the pellets removed and suspended in distilled water. This process was repeated three times for each sample. A

random sample was transferred to a coverslip and left to dry overnight. The samples were then scanned for diatoms. For a full methodology see Appendix 1.



Photograph 2 Working shot – view south-west



Photograph 3 Trench shot – view north-west

Diatom preservation was poor in most of the samples tested. The majority of the species identified were marine to brackish forms, although usually found on or near the ocean floor these diatoms can be carried higher into the plankton by water currents. Only one indicator of freshwater diatoms was observed. For the full results see Appendix 1.

6 Finds

There were no archaeological finds.

7 Conclusion

Although the site lies within the mapped extent of the Clacton Channel Deposits nothing of significance was identified. No Pleistocene sediments were observed, rather Holocene marine clay was found to overlie London Clay bedrock directly. It is likely that these results represent the fill of a Holocene tidal inlet in a pre-existing channel. For the full geoarchaeological report see Appendix 1.

8 Acknowledgements

CAT thanks Stephen day and Tendring District Council for commissioning and funding the work. The project was managed by C Lister and A Wightman, fieldwork was carried out by R Mathieson. Figures are by S Veasey. The project was monitored for ECCPS by Teresa O'Connor.

9 References

Note: all CAT reports, except for DBAs, are available online in PDF format at <http://cat.essex.ac.uk>

- | | | |
|--------------------------|-------|---|
| Brown, N & Glazebrook, J | 2000 | <i>Research and Archaeology: A Framework for the Eastern Counties 2. Research agenda and strategy.</i> East Anglian Archaeology Occasional Paper 8 (EAA 8) |
| CAT | 2021 | <i>Written Scheme of Investigation (WSI) for geoarchaeological investigation at land adjacent to Lotus Way and Brooklands, Jaywick, Essex, CO15 2JE</i>
By C Lister |
| CAT Report 1644 | 2018 | <i>Archaeological Desk-Based Assessment, Jaywick Market, Jaywick Sands, Essex: April 2021</i> by Dr pip Parmenter |
| CIfA | 2014a | <i>Standard and Guidance for archaeological evaluation</i> |
| CIfA | 2014b | <i>Standard and guidance for the collection, documentation, conservation and research of archaeological materials</i> |
| ECCPS | 2020 | <i>Brief for geoarchaeological investigation at the proposed Jaywick Market site.</i> By T O'Connor |
| Gurney, D | 2003 | <i>Standards for field archaeology in the East of England.</i> East Anglian Archaeology Occasional Papers 14 (EAA 14). |
| Historic England | 2016 | <i>Management of Research Projects in the Historic Environment (MoRPHE)</i> |
| Medlycott, M | 2011 | <i>Research and archaeology revisited: A revised framework for the East of England.</i> East Anglian Archaeology Occasional Papers 24 (EAA 24) |
| MHCLG | 2019 | <i>National Planning Policy Framework.</i> Ministry of Housing, Communities and Local Government. |

10 Abbreviations and glossary

CAT	Colchester Archaeological Trust
CIfA	Chartered Institute for Archaeologists
context	a single unit of excavation, which is often referred to numerically, and can be any feature, layer or find.
Clactonian	the name given to an industry of flint tool manufacture in the Lower Palaeolithic period
ECC	Essex County Council
ECCHEA	Essex County Council Historic Environment Advisor
ECCPS	Essex County Council Place Services
EHHER	Essex Historic Environment Record

feature (F)	an identifiable thing like a pit, a wall, a drain: can contain 'contexts'
Holocene	the current geological epoch which began approximately 11,700 years ago
Iron Age	period from 700 BC to Roman invasion of AD 43
layer (L)	distinct or distinguishable deposit (layer) of material
Mesolithic	period from c 10,000 – 4000BC
modern	period from c AD 1800 to the present
natural	geological deposit undisturbed by human activity
Neolithic	period from c 4000 – 2500 BC
NGR	National Grid Reference
OASIS	Online Access to the Index of Archaeological Investigations, http://oasis.ac.uk/pages/wiki/Main
Palaeolithic	period c 800,000 BC to c 10,000BC
Pleistocene	Geological epoch which lasted from about 2,580,000 to 11,700 years ago, spanning the world's most recent period of repeated glaciations.
Roman	the period from AD 43 to c AD 410
section	(abbreviation sx or Sx) vertical slice through feature/s or layer/s
wsi	written scheme of investigation

11 Contents of archive

Finds: n/a

Paper record

One A4 document wallet containing:

The report (CAT Report 1758)

Original site records (notes and section drawing)

Photographic thumbnails and log

Inked sections

Digital record

The report (CAT Report 1758)

Photographs, photographic thumbnails and log

Graphics files

Survey data

12 Archive deposition

The paper and digital archive is currently held by the Colchester Archaeological Trust at Roman Circus House, Roman Circus Walk, Colchester, Essex CO2 7GZ, but will be permanently deposited with Colchester Museum under EHER code CLSW21.

Distribution list:

Tendring District Council
ECC Place Services Historic Environment Advisor
Essex Historic Environment Record, Essex County Council



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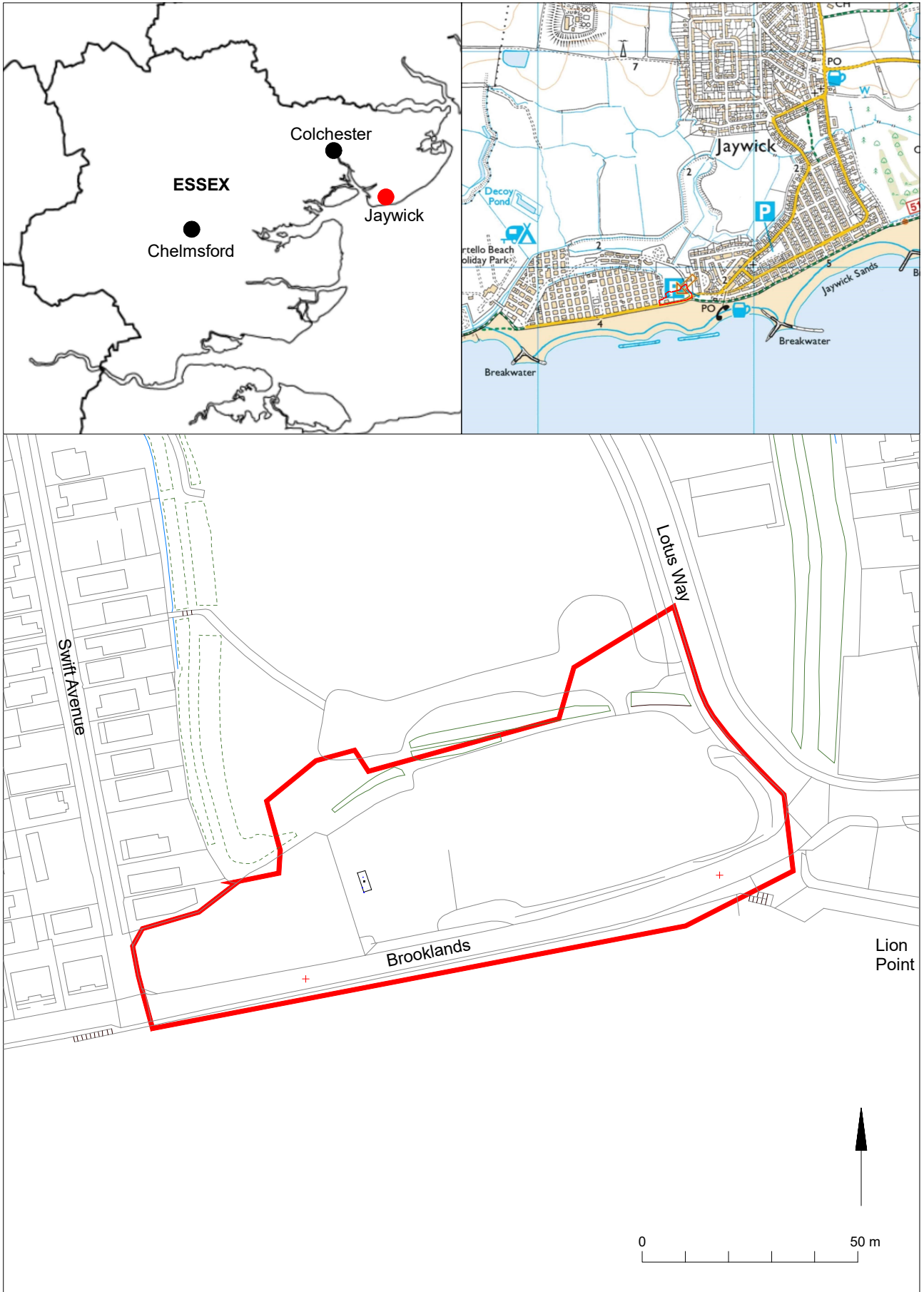


Fig 1 Site location.



Fig 2 Results.

**Diatom assessment and particle size analysis from Jaywick Market
(TM 14645 12870)
Essex**

Site Visit: 5 August 2021

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1. Introduction

Prior to the proposed redevelopment of the Jaywick Market site adjacent to Lion Point (TM 14645 12870), Momentum Consulting Engineers Ltd undertook a ground investigation which resulted in three rotary auger boreholes being completed (BH01 to BH03) in March 2021 (Fig. 1). The site is approximately 145m (E-W) by 40m (N-S) and the ground surface altitude varies between 2.75 and 3.5m OD.

The stratigraphy comprises London Clay which was proved to a depth of -11.90m OD in BH02 overlain unconformably by Holocene marine and estuarine silts and clays. The erosive upper contact of the London Clay rises towards the east from -3.10 to -1.74m OD and, as a consequence, the thickness of the Holocene deposits declines from 5m to 3.65m (Fig. 2). The Holocene deposits are overlain by made ground between 0.85 and 1.90m bgl. Two of the boreholes, BH02 and BH03, recorded pockets of fibrous peat at 0.35 and 0.75m OD respectively, whilst BH01 had a layer of orange-brown clay at approximately the same level, which might suggest oxidation under subaerial conditions. Seven samples were obtained from these cores for preliminary investigation including diatom and particle size analysis.

It was subsequently decided to take a new core for further assessment near to BH01 where the Holocene sequence was thickest. GeoArcheol Borehole JM1A was completed in August 2021 using a Cobra piston corer for the upper 2m and open gouge sampler for the remainder down to 6m depth (Figs 1 and 2). A description of the stratigraphy is given in Table 1. The core was sampled at 8cm intervals, where possible, and 43 samples were prepared and systematically scanned for diatoms.

The site lies within the mapped limits of the Clacton Channel Deposits, considered to be Hoxnian (Marine Isotope Stage 11) in age and the type locality for the Clactonian Palaeolithic Industry (Fig.3).

2. Methodology

Diatoms. About 20 ml Hydrogen peroxide (30%) was added to 1cm³ of fresh sediment in a polypropylene centrifuge tube and left in a fume cupboard at room temperature, topped up with Hydrogen peroxide, if necessary, until all the organic material had been oxidised (~1

week). The samples were then centrifuged at 2500 rpm for 3 minutes, the supernatant liquid decanted, and the sample pellet resuspended with fresh distilled water. This washing process was repeated three times. A random sample was transferred using a pipette to a coverslip and allowed to settle and dry at room temperature overnight. The coverslip was then fixed onto a microscope slide using Naphrax diatom mountant. Diatoms were scanned using an Olympus BX40 microscope under oil immersion at a magnification of 1000x. Identifications were made with reference to Cleve-Euler (1951-55), Hendey (1964), Hartley (1996), van der Werff and Huls (1957-64) and the ADIAC website (<https://websites.rbge.org.uk/ADIAC/index.html>). Nomenclature follows current usage on the Algaebase website (<https://www.algaebase.org/>).

The salinity preferences of diatoms were classified using the halobian groupings of Hustedt (1953) as reported in Denys (1991/2). These can be broadly summarised as:

Polyhalobous: >30 g l⁻¹ – fully marine.

Mesohalobous: 0.2-30 g l⁻¹ – brackish.

Oligohalobous - halophilous: optimum in slightly brackish water.

Oligohalobous- indifferent: optimum in freshwater but tolerant of slightly brackish water.

Particle size analysis. A subsample of the material prepared for diatom analysis on the 7 Momentum core samples was used to measure the particle size distribution using laser diffraction on a Malvern Mastersizer 2000 particle size analyser. The data generated were then entered into GRADISTAT, an Excel-based package for calculating grain size distributions and statistics in unconsolidated sediments (Blott and Pye, 2001; Blott *et al.*, 2004)

3. Results

Diatoms. Diatom preservation was variable through the silty clays in the Momentum boreholes but there is confirmation of marine conditions, with *Paralia sulcata*, *Podosira stelligera* and *Metascolioneis tumida* present at -2.8m OD in borehole, BH01. There is a suggestion of a change to less saline conditions, as shown by abundant *Navicula peregrina*, a common salt-marsh form, together with *Pinnularia* sp., which suggests a freshwater input, at 0.73m OD in the easternmost borehole, BH03, at the approximate level of the pocket of fibrous peat noted in the borehole description.

Diatom preservation was poor in most of the GeoArcheol JM1A samples. Table 2 gives information on the presence or absence of diatoms, together with a subjective assessment of their quality of preservation, concentration, species diversity and potential for percentage counting to publication standard. Siliceous sponge spicules are often abundant in marine sediments, tend to be more robust than diatom valves and can inform on post-depositional dissolution of diatom silica.

The majority of diatom species identified are marine to brackish forms (Table 3) including *Paralia sulcata*, a tychopelagic form normally found in the marine benthos but which can be carried higher into the plankton by water currents, together with *Podosira stelligera*, *Actinoptychus senarius* and *Metascolioneis tumida*. The only freshwater indicator is *Pinnularia* sp. at -0.31m OD where it occurs together with *Diploneis interrupta*, a common brackish species.

Particle size analysis. Table 4 contains a summary of the particle size analysis results for the 7 Momentum samples, showing 10th, 50th and 90th percentiles in microns and a description of each sample. There is little difference between the samples, most comprising poorly sorted medium and fine silt suggesting a low energy environment.

4. Interpretation

The Jaywick Market site lies within the mapped extent of the Clacton Channel Deposits, specifically Channel (V) of Warren (1955; Fig. 4). However, no Pleistocene sediments were observed, instead Holocene marine clay was found to overlie London Clay bedrock directly.

This confirms the results from the nearby borehole in Lotus Way (LW1, Fig. 1). Here the ground surface was at 1.7 m OD, the London Clay surface was reached at -2.45m OD and was overlain by a 2 cm layer of coarse sand, perhaps representing a lag deposit, and then by 3.68 m of dark grey to dark greyish brown silty clay and 0.45m of made ground. Diatoms from the silty clay were analysed between -2.15 and -1.15m OD by (Hibbert, 2020). Marine and brackish forms predominated, notably *Paralia sulcata*, *Rhaphoneis amphiceros* and *Metascolioneis tumida*. Also present was *Diploneis smithii*, which is suggestive of less saline

conditions. Above this level, diatoms were largely absent, presumably due to post-depositional dissolution.

At Jaywick Market the Momentum and GeoArcheol boreholes showed the erosive contact at the top of the London Clay rises towards the east from -3.31 to -1.74m OD. Above in JM1A was a mixed deposit of gravel, sand, silt and clay with common fragments of *Ostrea edulis* (oyster), perhaps representing a lag deposit. Diatom preservation was variable in the overlying silts but sufficient to confirm marine and brackish conditions.

It is likely that both sites represent the fill of a Holocene tidal inlet, up to about 2m OD, occupying a pre-existing channel cut into London Clay, probably corresponding to that described and illustrated from foreshore and cliff exposures by Warren (1933). Figure 4 is a redrafted version of Warren's foreshore section at Lion Point. In the Momentum and JM1A borehole the tidal silts lie directly above London Clay perhaps because they occupy a mid-channel position and the Clacton deposits (Bed G) do not occur within the bottom of the channel.

5. Recommendation

The sediments in the JM1A borehole represent a channel fill with Holocene marine and estuarine deposits directly overlying London Clay. There is nothing remarkable in the sediments examined, the diatom abundance and preservation was poor and consequently there is no need for any second stage work.

Acknowledgements

Thanks to Weibang Li of The University of Greenwich for diatom sample preparation, Chris Lister of Colchester Archaeological trust for supplying the location map and Chris Orton from The University of Durham for the Clacton Channel map.

6. References

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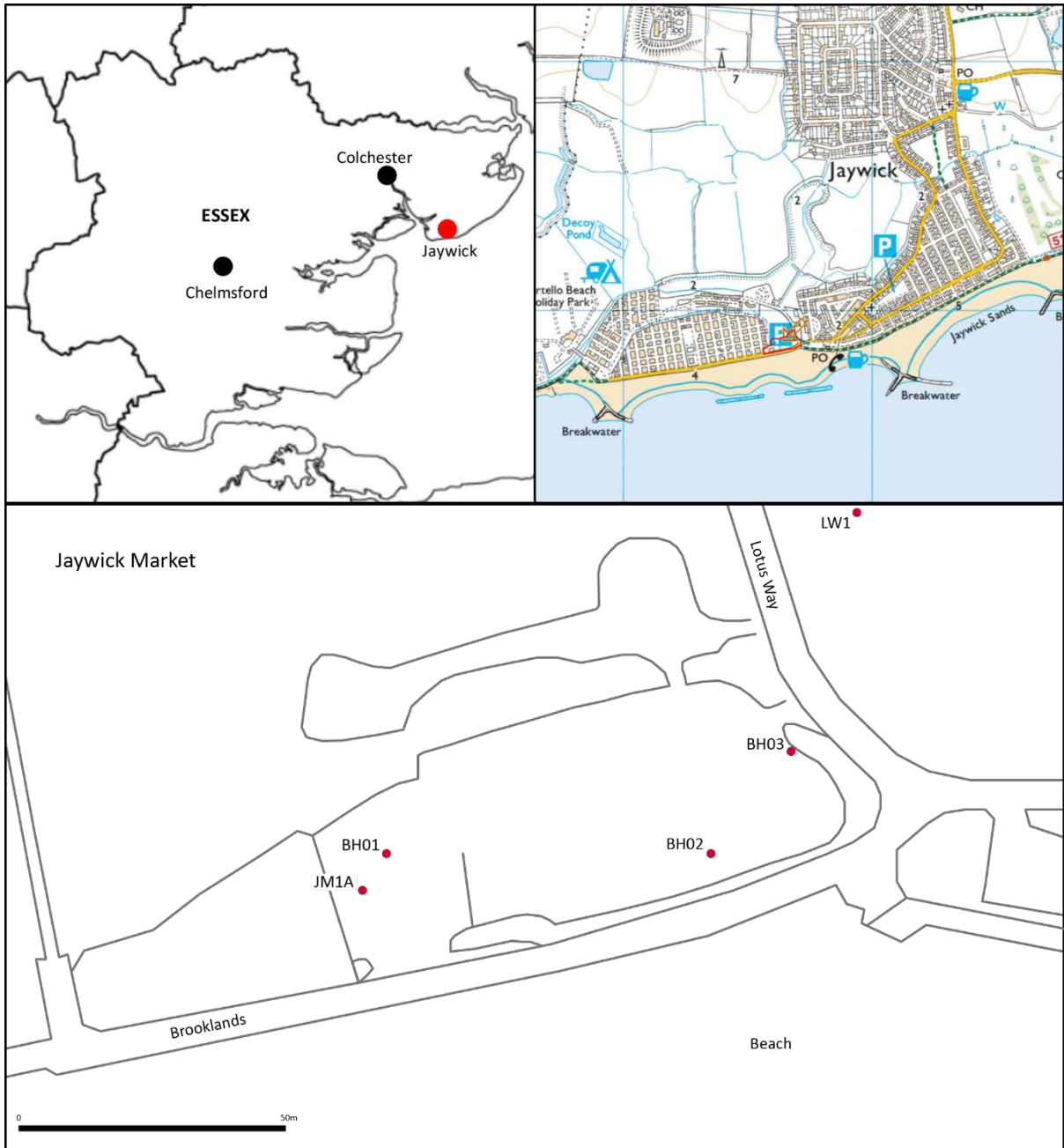


Figure 1. Location of the Jaywick Market boreholes

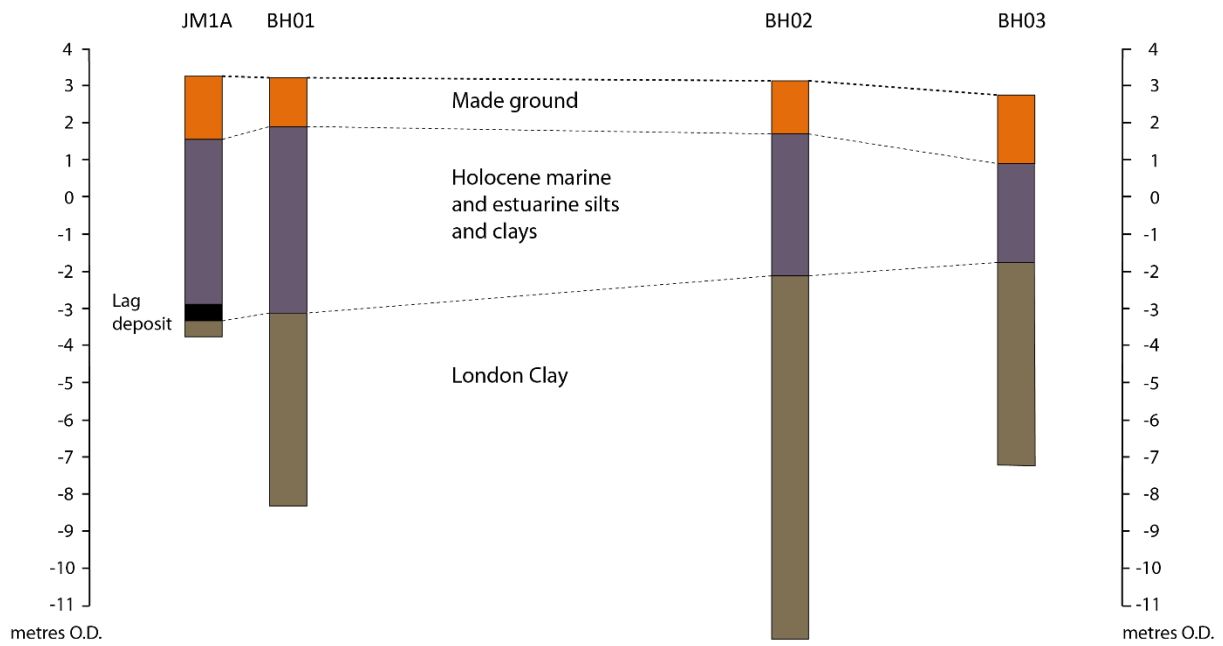


Figure 2. Generalised cross section of the Momentum and GeoArcheol boreholes

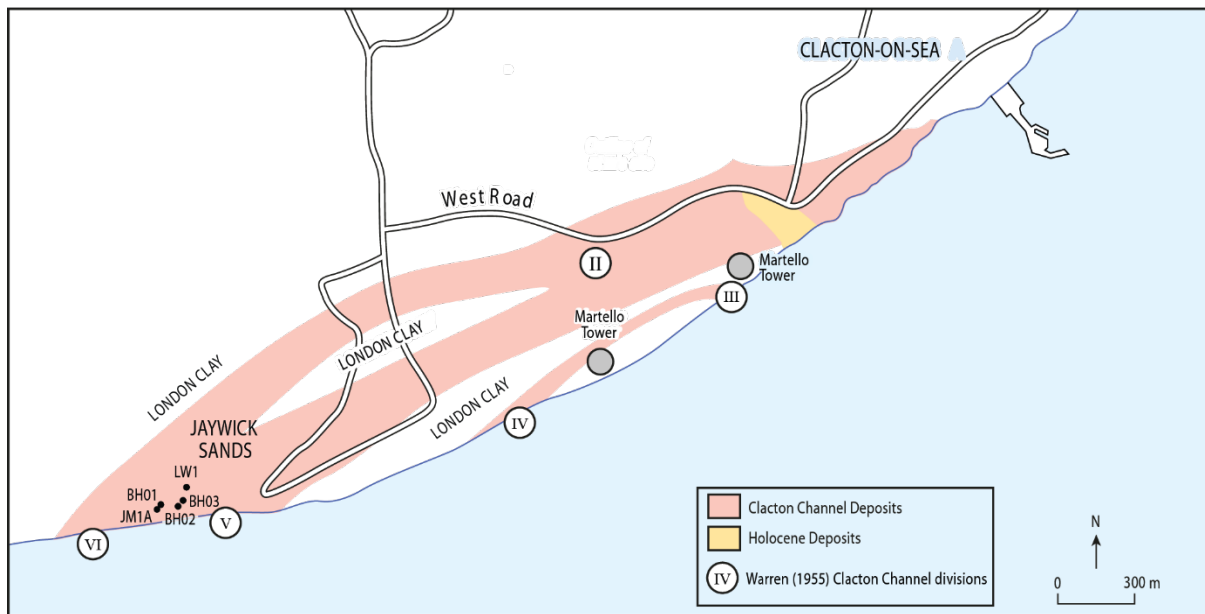


Figure 3. Clacton Channel deposits and the Jaywick Market and Lotus Way borehole locations

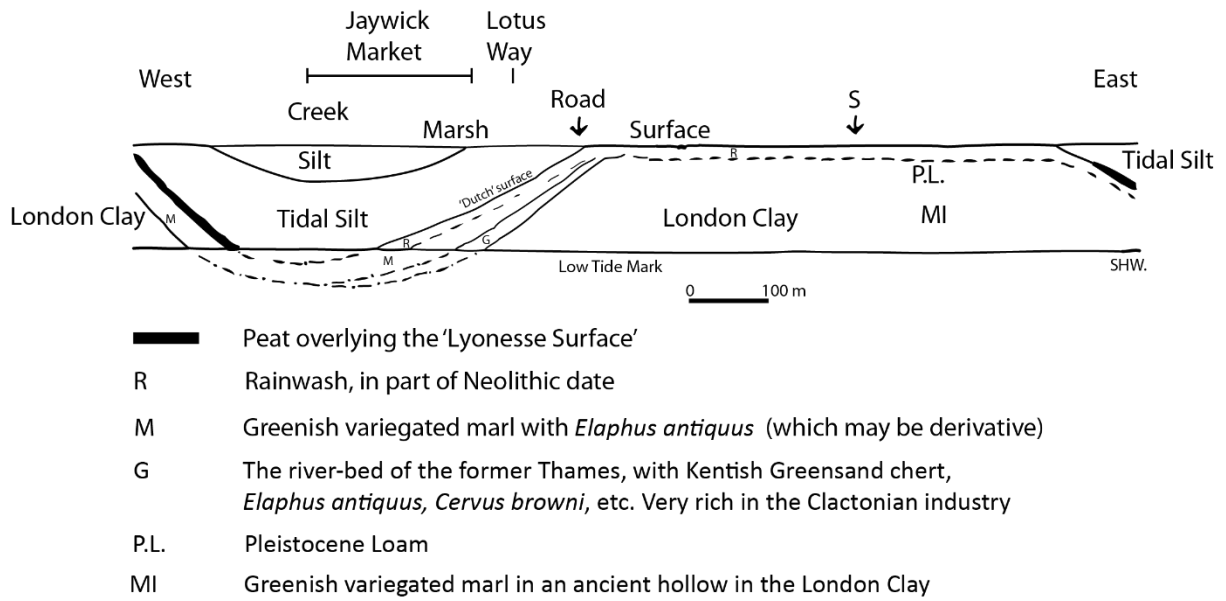


Figure 4. Warren's (1933) diagram of the foreshore deposits at Lion Point showing the location of Jaywick Market and Lotus Way

Table 1. Borehole JM 1A (TQ 54379 18068) stratigraphy

Depth (cm)		Altitude (m OD)		Description
		3.26	2.19	Made ground
		2.19	2.09	Made Ground: Concrete
0	2	2.09	2.07	Made Ground: Dark yellowish brown medium sand
2	6	2.07	2.03	Made Ground: Strong brown medium sand
6	26	2.03	1.83	Made Ground: Bluish black medium sand with mottles of strong brown medium sand in the upper 2 cm
26	35	1.83	1.74	Made Ground: Very dark greenish grey medium sand, slightly finer than above
35	39	1.74	1.70	Made ground: Greenish black silt
39	50	1.70	1.59	Made Ground: Bluish black medium sand
50	62	1.59	1.47	Dark grey silt. Upper boundary sharp.
62	73	1.47	1.36	Dark olive grey silt
73	100	1.36	1.09	Not sampled
100	120	1.09	0.89	Dark greenish brown silt
120	128	0.89	0.81	Very dark greenish grey silt
128	142	0.81	0.67	Very dark greyish brown silt
142	155	0.67	0.54	Brown silt
155	200	0.54	0.09	Not sampled
200	220	0.09	-0.11	Dark greyish brown silt
200	258	-0.11	-0.49	Very dark greyish brown clay
258	271	-0.49	-0.62	Black silt
271	300	-0.62	-0.91	Not sampled
300	320	-0.91	-1.11	Dark greyish brown clay
320	331	-1.11	-1.22	Dark grey clay
331	370	-1.22	-1.61	Bluish black clay
370	389	-1.61	-1.80	Very dark grey silt
389	400	-1.80	-1.91	Not sampled
400	487	-1.91	-2.78	Very dark bluish grey clay
487	491	-2.78	-2.82	Dark greyish brown silt
491	500	-2.82	-2.91	Not sampled
500	540	-2.91	-3.31	Black silt with gravel and shell fragments. <i>Ostrea edulis</i> shell fragments between 501-505cm. Subrounded flint fine gravel clast 4x4x2cm at 540cm
540	600	-3.31	-3.91	Very dark grayish brown clay. London Clay. Upper boundary sharp.

Table 2. Borehole JM1A Diatom assessment

Depth (cm)	Altitude (m OD)	Diatoms present	Sponge spicules present	Quality of Preservation	Valve Concentration	Species Diversity	Potential for Percentage Counts
52	1.57	-	+	-	-	-	none
60	1.49	-	-	-	-	-	none
68	1.41	-	+	-	-	-	none
108	1.01	-	+	-	-	-	none
116	0.93	-	+	-	-	-	none
124	0.85	+	+	moderate	low	low	poor
132	0.77	-	+	-	-	-	none
140	0.69	-	+	-	-	-	none
148	0.61	-	-	-	-	-	none
208	0.01	-	-	-	-	-	none
216	-0.07	-	-	-	-	-	none
224	-0.15	-	+	-	-	-	none
232	-0.23	-	+	-	-	-	none
240	-0.31	+	+	moderate	low	low	poor
248	-0.39	+	+	moderate	low	moderate	poor
256	-0.47	+	+	moderate	low	moderate	poor
264	-0.55	+	+	moderate	low	low	poor
308	-0.99	-	-	-	-	-	none
316	-1.07	-	-	-	-	-	none
324	-1.15	-	+	-	-	-	none
332	-1.23	+	+	moderate	low	low	poor
340	-1.31	+	+	moderate	low	low	poor
348	-1.39	+	+	moderate	low	low	poor
356	-1.47	+	+	moderate	low	moderate	poor
364	-1.55	+	+	moderate	low	low	poor
372	-1.63	+	+	good	low	low	poor
380	-1.71	-	+	-	-	-	none
388	-1.79	+	+	good	low	low	poor
408	-1.99	+	+	moderate	low	low	poor
416	-2.07	+	+	good	medium	moderate	fair(needs concentrating)
424	-2.15	+	+	moderate	low	low	poor
432	-2.23	+		good	medium	moderate	fair(needs concentrating)
440	-2.31	+	+	good	low	low	poor
448	-2.39	+	+	good	medium	moderate	fair(needs concentrating)
456	-2.47	+	+	good	medium	moderate	fair(needs concentrating)
464	-2.55	+	+	moderate	low	moderate	poor
472	-2.63	+	+	good	low	moderate	poor
480	-2.71	+	+	moderate	low	moderate	poor
488	-2.79	-	+	-	-	-	none
508	-2.99	+	+	moderate	low	moderate	poor
516	-3.07	+	+	moderate	low	low	poor
522	-3.13	-	+	-	-	-	none
532	-3.23	-	+	-	-	-	none

Table 3. Borehole JM1A Diatom assessment. Species: + present; ++ common; +++abundant

Sample Depth (cm)	372	364	356	348	340	332	264	256	248	240	224	124
Sample Altitude (m) OD	-1.63	-1.55	-1.47	-1.39	-1.31	-1.23	-0.55	-0.47	-0.39	-0.31	-0.15	0.85
Diatoms and Salinity Group												
Polyhalobous												
<i>Delphineis surirella</i>												
<i>Eupyxidicula turris</i>												
<i>Fallacia forcipata</i>												
<i>Odontella aurita</i>									+			
<i>Odontella rhombus</i>												
<i>Grammatophora oceanica</i>									+			
<i>Paralia sulcata</i>			+	+	+		+					
<i>Plagiogramma staurophorum</i>								+				
<i>Podosira stelligera</i>						+	+					
<i>Psammodiscus nitidus</i>												
<i>Rhabdonema arcuatum</i>							+	+	+			
<i>Rhaphoneis amphicerus</i>					+		+					
<i>Thalassiosira sp.</i>												+
<i>Triceratium sp.</i>												+
<i>Zygoceros ehrenbergii</i>				+								
Polyhalobous to Mesohalobous												
<i>Actinoptychus senarius</i>	+		+	+		+		+				
<i>Cocconeis scutellum</i>					+			+				
<i>Diplones smithii</i>									+			+
<i>Metascolioneis tumida</i>	+		+					+	+			
<i>Surirella fastuosa</i>	+											
Mesohalobous												
<i>Diploneis didyma</i>		+						+				+
<i>Diploneis interrupta</i>										+		
<i>Gyrosigma balticum</i>												
<i>Navicula digitoradiata</i>												
<i>Tryblionella acuminata</i>						+						
<i>Tryblionella navicularis</i>												
<i>Tryblionella punctata</i>		+										
Oligohalobous indifferent												
<i>Epithemia adnata</i>			+									
Unattributed												
<i>Opephora sp.</i>												
<i>Gyrosigma sp.</i>				+		+						
<i>Pinnularia sp.</i>										+		
<i>Plagiotropis sp.?</i>			+			+						
<i>Nitzschia sp.</i>			+									

Table 3 (continued) Diatom assessment. Species: + present; ++ common; +++abundant

Sample Depth (cm)	516	508	480	472	464	456	448	440	432	424	416	408	388
Sample Altitude (m) OD	-3.07	-2.99	-2.71	-2.63	-2.55	-2.47	-2.39	-2.31	-2.23	-2.15	-2.07	-1.99	-1.79
Diatoms and Salinity Group													
Polyhalobous													
<i>Delphineis surirella</i>							+						
<i>Eupyxidicula turris</i>		+											
<i>Fallacia forcipata</i>											+		
<i>Odontella aurita</i>				+							+		
<i>Odontella rhombus</i>													
<i>Grammatophora oceanica</i>							+						
<i>Paralia sulcata</i>				+				+	+		+		
<i>Plagiogramma staurophorum</i>									+				
<i>Podosira stelligera</i>	+					+							
<i>Psammodiscus nitidus</i>													+
<i>Rhabdonema arcuatum</i>													
<i>Rhaphoneis ampiceros</i>		+	+										
<i>Thalassiosira sp.</i>							+						
<i>Triceratium sp.</i>													
<i>Zygoceros ehrenbergii</i>													
Polyhalobous to Mesohalobous											+	+	
<i>Actinoptychus senarius</i>		+				+	+	+	+	+		+	
<i>Cocconeis scutellum</i>	+												
<i>Diploneis smithii</i>											+	+	
<i>Metascalioneis tumida</i>				+	+								
<i>Surirella fastuosa</i>													
Mesohalobous													
<i>Diploneis didyma</i>	+		+						+	+			
<i>Gyrosigma balticum</i>		+											
<i>Diploneis interrupta</i>													
<i>Navicula digitoradiata</i>						+							
<i>Tryblionella acuminata</i>								+			+		+
<i>Tryblionella navicularis</i>		+							+		+		
<i>Tryblionella punctata</i>						+							
Oligohalobous indifferent													
<i>Epithemia adnata</i>													
Unattributed													
<i>Opephora sp.</i>											+		
<i>Gyrosigma sp.</i>													
<i>Pinnularia sp.</i>													
<i>Plagiotropis sp.?</i>													
<i>Nitzschia sp.</i>													

Table 4. Summary of the particle size analysis results for the Momentum boreholes, showing 10th 50th and 90th percentiles in microns and a description of each sample.

Sample	BH01 275cm	BH01 304cm	BH01 600cm	BH02 275cm	BH02 475cm	BH03 203cm	BH03 375cm
Altitude (m OD)	0.45	0.16	-2.80	0.35	-1.65	0.72	-1.00
Description	Poorly sorted	Poorly sorted	Very poorly sorted	Poorly sorted	Poorly sorted	Poorly sorted	Poorly sorted
	Fine silt	Fine silt	Fine silt	Medium silt	Medium silt	Fine silt	Medium silt
Arithmetic Mean	12.1	14.7	25.1	21.8	19.1	19.2	17.6
d (0.1) (µm)	1.2	1.4	1.1	1.6	1.6	1.3	1.6
d (0.5) (µm)	6.5	7.4	6.3	10.8	10.7	6.8	8.9
d (0.9) (µm)	30.8	37.9	54.4	47.5	48.3	43.2	45.7
Coarse sand %	0.0	0.0	0.5	0.0	0.0	0.0	0.0
Medium sand %	0.0	0.0	1.3	0.9	0.0	0.7	0.0
Fine sand %	0.0	0.1	1.6	0.7	0.2	2.0	0.2
Very fine sand %	1.3	2.7	5.1	4.2	5.0	3.4	4.5
Very coarse silt %	8.4	11.1	9.2	13.6	16.1	8.7	13.9
Coarse silt %	16.7	17.4	11.9	20.1	19.5	14.2	17.3
Medium silt %	18.8	17.4	14.8	19.2	16.5	17.3	17.7
Fine silt %	18.1	17.3	19.1	16.2	16.0	18.6	18.6
Very fine silt %	17.1	17.4	17.6	12.7	13.8	17.6	15.0
Clay %	19.6	16.5	18.9	12.4	12.9	17.4	12.8

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18th November 2021

Summary for colchest3-426317

OASIS ID (UID)	colchest3-426317
Project Name	Geoarchaeological investigation at Jaywick Market, Brooklands, Jaywick, Essex CO15 2JE.
Activity type	ENVIRONMENTAL SAMPLING
Project Identifier(s)	21/07a
Planning Id	21/00871/FUL
Reason For Investigation	Planning: Pre application
Organisation Responsible for work	Colchester Archaeological Trust
Project Dates	05-Aug-2021 - 05-Aug-2021
Location	Jaywick Market, Brooklands, Jaywick NGR : TM 14649 12870 LL : 51.7733243979681, 1.10986499186917 12 Fig : 614649,212870
Administrative Areas	Country : England County : Essex District : Tendring Parish : Tendring, unparished area
Project Methodology	A trench measuring 1.86m by 4.63m was mechanically excavated under the supervision of a CAT archaeologist. A borehole was excavated roughly in the centre of trench to a depth of 6m below the top of L4. The borehole was excavated using a mechanical corer for the first 2m and an open gouge sampler for the remainder of the depth.
Project Results	Geoarchaeological investigations were carried out at Jaywick Market, Brooklands, Jaywick, Essex in advance of several market improvement plans. The site is within a mapped area of the Clacton Channel Deposits associated with the foreshore in an area which many Clactonian artefacts have been found. No Pleistocene deposits were identified, only Holocene marine clay and London Clay bedrock.
Keywords	
HER	Essex HER - unRev - STANDARD
HER Identifiers	CSLW21
Archives	Documentary Archive, Digital Archive - to be deposited with Colchester & Ipswich Museum Service (Colchester Collection)