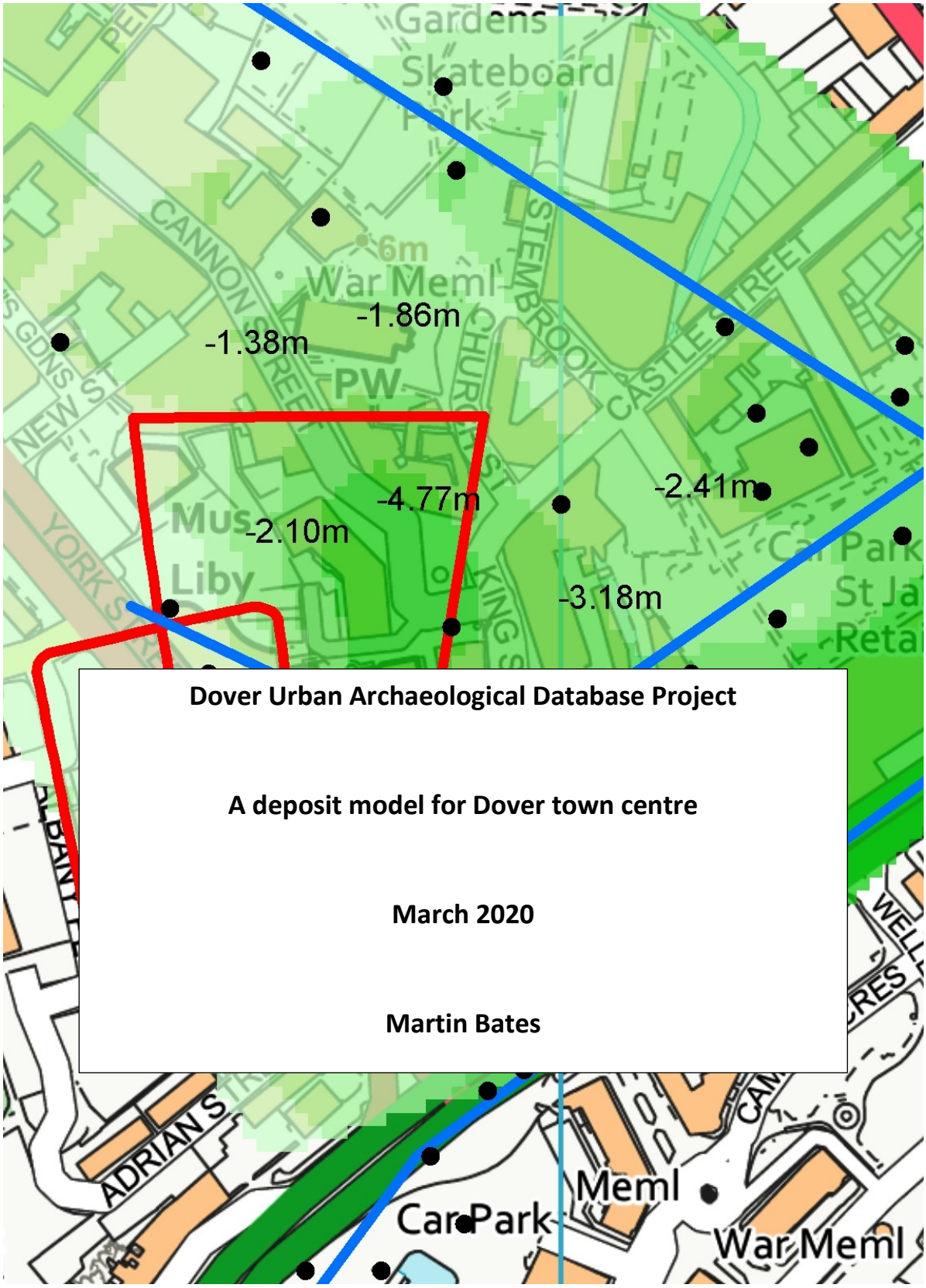

Dover Urban Archaeological Database Project

A deposit model for Dover town centre

March 2020

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Historic England

DOVER DISTRICT COUNCIL

Kent County Council kent.gov.uk

Contents

1 Introduction

Investigation of the buried sedimentary sequences in the Dover town centre area focused on a series of boreholes, test pit and archaeological excavation records (see Appendix 1 for full listing of records, see Figure 1 for their distribution) that were summarised in a database and subsequently classified into a series of categories based on commonly occurring groups of sediments that were broadly chronological and recognised by the author (MRB) and Keith Parfitt of the Canterbury Archaeological Trust (Table 1).

Stratigraphic unit	**Number of recorded appearances**	**Description**	**Age**	**Equivalence**
Modern	129	Recent fill horizons	Modern	Beach Gravels
Post Medieval Fill	107	Mixed archaeological horizons within archaeological sites	Post Medieval	Beach Gravels
Medieval Fill	17	Mixed archaeological horizons within archaeological sites	Medieval	Beach Gravels
Beach Gravels	72	Well-rounded flint gravels with clear bedding and occasional sand horizons. Along Townwall Street and towards the coast	Roman to modern	Modern Post Medieval Fill Medieval Fill Roman/Saxon Sands
Roman Saxon Sands	19	Laminated sands with rounded gravel horizons (water lain) or grey clay-silts with cultural material (wind-blown). Valley base and base of slopes	Roman/Saxon	Roman Harbour Fill Roman Fill
Roman Fill	20	Mixed archaeological horizons within archaeological sites	Roman	Roman Harbour Fill Roman/Saxon Sands
Roman Harbour Fill	35	Organic rich clay and silts. Valley floor and within old harbour of town centre.	Roman	Roman Fill Roman/Saxon Sands
Tufa and Peat	39	Well humified peats, tufa gravels and silts. Hard tufa. Valley floor and valley edge	Early Holocene until Bronze Age	Prehistoric Colluvium

Late Prehistoric Harbour Fill	2	Silts and sands, well laminated. Valley bottom in town centre	Bronze Age to Iron Age	
Prehistoric Colluvium	15	Poorly sorted gravels, silts and clays with possible intercalated palaeosols. Valley sides and base of slope	Early Holocene	Tufa and peat in places
Solifluction	13	Poorly sorted chalky gravels, fine grained silts, palaeosols. Located on valley sides	Late Pleistocene	Late Pleistocene Gravels
Late Pleistocene Gravels	68	Poorly sorted, sub-angular flint gravels with varying chalk content. Located in valley bottom	Late Pleistocene	Solifluction

Table 1. Stratigraphic units recognised and used in the project.

At the outset it should be noted that the different categories of identified sediments vary considerably in their distribution and also their frequency (as recorded in the assignment of deposits to stratigraphic groups) (Figure 2). Figure 2 clearly demonstrates that only four stratigraphic groups occurred in more than 50 of the records with Modern (129 occurrences) and Post-Medieval (107 occurrences) sequences dominant. Of the remainder Beach gravels (72 occurrences) and Late Pleistocene gravels (68 occurrences) were also common groups present. Sequences containing Late Prehistoric Harbour Fills were restricted to just two locations. Many of the sediments are also potentially of similar dates (at least in part). For example tufa and peat deposits are likely to overlap in time with elements of the Prehistoric colluvium and late Prehistoric harbour fills where deposition of units is likely to be defined by geomorphological position rather than time. Consequently for the purpose of discussion a series of maps and surfaces have been provided that create a narrative for the sequence development in the town centre area. These are supplemented by two cross sections through the town centre area showing the main stratigraphic units (Figures 3 and 4). The text firstly discusses the nature of the individual recognised units we then follow this by discussion of the modelled surfaces.

2 Stratigraphic units (Figures 3 and 4)

2.1 Late Pleistocene Gravels.

Late Pleistocene gravels (Figures 3-5) have been recovered from along the valley axis of the Dour Valley along Snargate Street and beneath the Western Docks. They consist of poorly sorted flint gravels with varying quantities of chalk. Locally they have produced mammoth teeth (e.g. in the Market Square area) and are considered to be of Late Pleistocene age. They are likely to date from around the last glacial maximum up to the very end of the Pleistocene. Lateral equivalents are the Solifluction deposits of the valley sides (see below). A topographic map of the surface of the Pleistocene deposits (as represented by the dashed black line in Figures 3 and 4) and the distribution of boreholes containing Pleistocene sediments is shown in Figure 6. This surface represents the topography of the valley in the earliest Holocene, i.e. the topographic template on which Holocene sedimentation occurred. The map is considered to be a good approximation for this surface for the area of the town centre on the western side of the valley although data points for the eastern part of the valley are more limited and consequently the surface may be less reliable in this part of the town centre area.

2.2 Solifluction.

Solifluction deposits (Figure 3) include a range of sediment types that include both poorly sorted coarse flint gravels with clay-silt matrix to fine grained silts (probably derived from loess) within which buried soils of late Pleistocene age may be found (Figure 7). Typically, these deposits are found on the valley sides, towards the valley base, at places such as the Museum/beneath the Classis Britannica fort or beneath Archcliffe Fort (Figure 7). They are likely to date from around the last glacial maximum up to the very end of the Pleistocene. Lateral equivalents are the Late Pleistocene Gravels of the valley floor (see above). A topographic map of the surface of the Pleistocene deposits and the distribution of boreholes containing Pleistocene sediments is shown in Figure 6. This surface represents the topography of the valley in the earliest Holocene, i.e. the topographic template on which Holocene sedimentation occurred. The map is considered to be a good approximation for this surface for the area of the town centre on the western side of the valley although data points for the eastern part of the valley are more limited and consequently the surface may be less reliable in this part of the town centre area.

2.3 Tufa and Peat.

Tufa and peat (Figure 10) are widely distributed (Figure 9) across the town centre area and upstream as far as Crabble Mill. The distribution of these deposits are shown in Figure 9 and although 39 locations have produced these sediments they remain difficult to map as a discrete body across the landscape. They consist of a variety of different forms ranging from coarse, rounded clasts (oncoids) of tufa to fine grained tufaceous silt. Hard cemented tufa is also likely to be present locally as tufa has been used extensively in Roman architecture but at present no sources of such tufa have been reported from the area. Peats range from a few

centimetres in thickness to up to 0.5m in thickness and may be interbedded with the tufa (Figure 10).

2.4 Prehistoric Colluvium.

Prehistoric colluvium is only found 15 locations and the distribution of data points is insufficient to adequately model the thickness and distribution of these sediments. Colluvial deposits have been found at the Royal Victoria Hospital site (Figure 10B). Typically these sediments are found on the valley sides, in coombe valleys and at the base of slope. Usually such sediments consist of fine grained silt/clay matrix with angular clasts of flint. Some elements of the colluvium are likely to post-date the Prehistoric period.

2.5 Late Prehistoric Harbour Fill.

The Late Prehistoric Harbour Fill is only recognised in two locations. The best recorded (but un-analysed) sequence is present in the trench in which the Dover boat was recovered (Figure 10) and consists of laminated silts. It is likely, but presently unreported, that similar sediments may occur in many locations in the town centre area of Dover but these remains to be documented.

2.6 Roman Harbour Fill/Roman Fill/Roman Saxon Sands.

These three groups of sediments are discussed together as they form a coherent whole that can be modelled with a degree of accuracy. The base of the combined sequence has been modelled (Figure 12) showing the distribution of the three units across this topographic surface. Roman harbour fills (Figure 13) are particularly well developed along Bench Street where dark grey muds are present. These are overlain by sands (Roman/Saxon Sands) (Figure 13) which are probably of water lain derivation in Bench Street but are probably wind-blown to the west against the Classis Britannica Roman fort walls. The thickness of Roman deposits in the town centre area is modelled in Figure 14. Given the total number of locations in which Roman Harbour Fill (35), Roman Fill (20) and Roman/Saxon Sands (19) have been recorded both the modelled base of Roman deposits and the thickness of Roman sediments are likely to be accurate.

2.7 Beach Gravels.

Beach gravels (72 find spots) (Figures 4 and 14) are primarily located along the front of the town running parallel to Townwall Street. These deposits probably range in age from Roman to the modern.

2.8 Medieval Fill/Post Medieval Fill/Modern.

These units have been modelled together (Figure 16) as insufficient data (17 data points) exist to model the Medieval sequences. Given the number of Post Medieval (107) and Modern (129) data points Figure 15 is deemed to be a good representation of the extant situation.

3 Modelled surfaces

In order to provide meaningful data sets elements of the stratigraphic sequence identified were grouped together in some cases to provide broadly coherent surfaces. These have been modelled and provide a base line data set for consideration.

3.1 Late Pleistocene/early Holocene (Figure 6).

The surface of the Pleistocene deposits represents the topographic template that defines the surface in the Dour valley at the beginning of the Holocene period and on top which all later Prehistoric and Historic sediments accumulate. It was created by grouping the top surface data from the Late Pleistocene gravels and the Solifluction deposits to create a modelled surface (red dashed line in Figures 3 and 4). The distribution of data points on which this surface is created is biased towards the town centre area from the Museum across towards St. James. The surface clearly shows topographic highs extending eastwards from the museum area that forms the centre of urban development in Roman times. Up valley fewer data points make meaningful conclusions difficult to draw. Important sequences of cold climate deposits underlie this surface in the museum area. Outside the modelled area important Late Glacial sediments are present at Archcliffe Fort (Figure 7). The modelled thickness of both sets of Pleistocene deposits has also been created (Figure 8).

3.2 Base of Roman deposits (Figure 12).

This surface was created by combining the Late Pleistocene surface with the upper surface of the combined sequences broadly dated to the Prehistoric period (Tufa/Peat, Late Prehistoric Harbour Fills, Prehistoric Colluvium). The surface is represented in Figures 3 and 4. A model of the combined thickness of all Roman deposits has also been produced by merging the data from the Roman harbour fills, Roman fills and Roman/Saxon Sands. This is shown in Figure 14.

3.3 Thickness of Post Roman deposits (Figure 15).

All post Roman sediments have been grouped into a single layer. This combines the Beach gravels and Medieval/post-Medieval fills. Beach gravels are located primarily along Snargate Street and Townwall Street (Figures 4 and 16).

4 Discussion

Creation of the database for the Dover town centre area has demonstrated that useful sets of data can be generated for key stratigraphic units and horizons. These provide useful baseline datasets for development control purposes. However, a number of limitations have been encountered in the study:

1. *Ascription of lithology to stratigraphic units*. This has proved problematic in many cases where suitable levels of information have been absent. Future field projects should be encouraged to attempt to classify data from investigations in a form suitable for integration into the system developed in this study.
2. *Updating of models*. Periodic updating of the modelled surfaces and transects should be considered. This may usefully be undertaken on the basis of the number of incoming site investigations to the HER record, perhaps following every 10 site depositions to the HER?

Figures

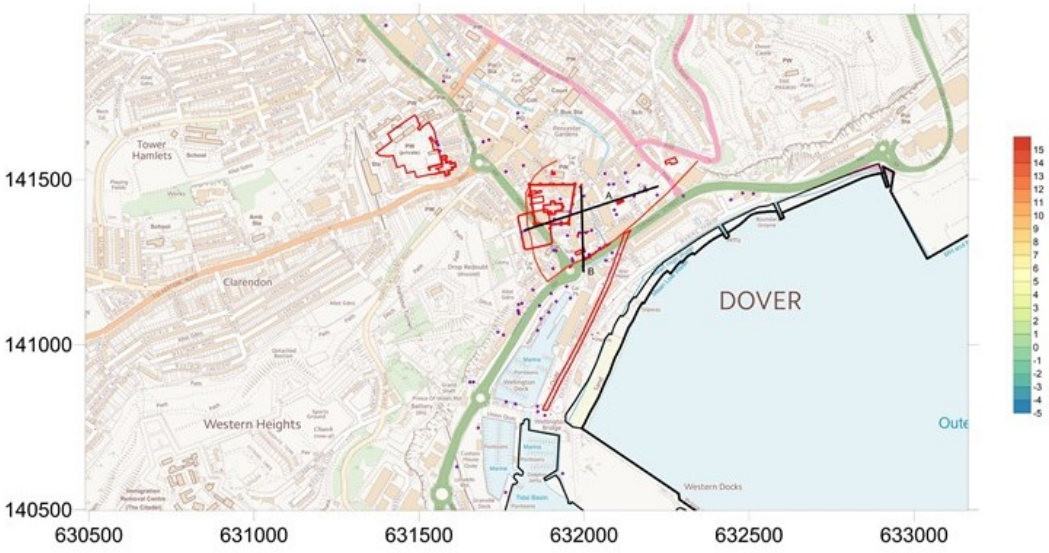


Figure 1. Base map showing all data points used in this study (including transect lines A and B).

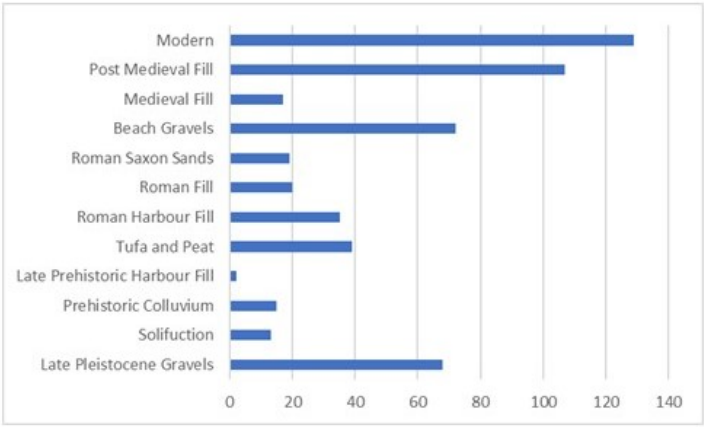


Figure 2. Frequency of defined stratigraphic types in Dover.

Transect A

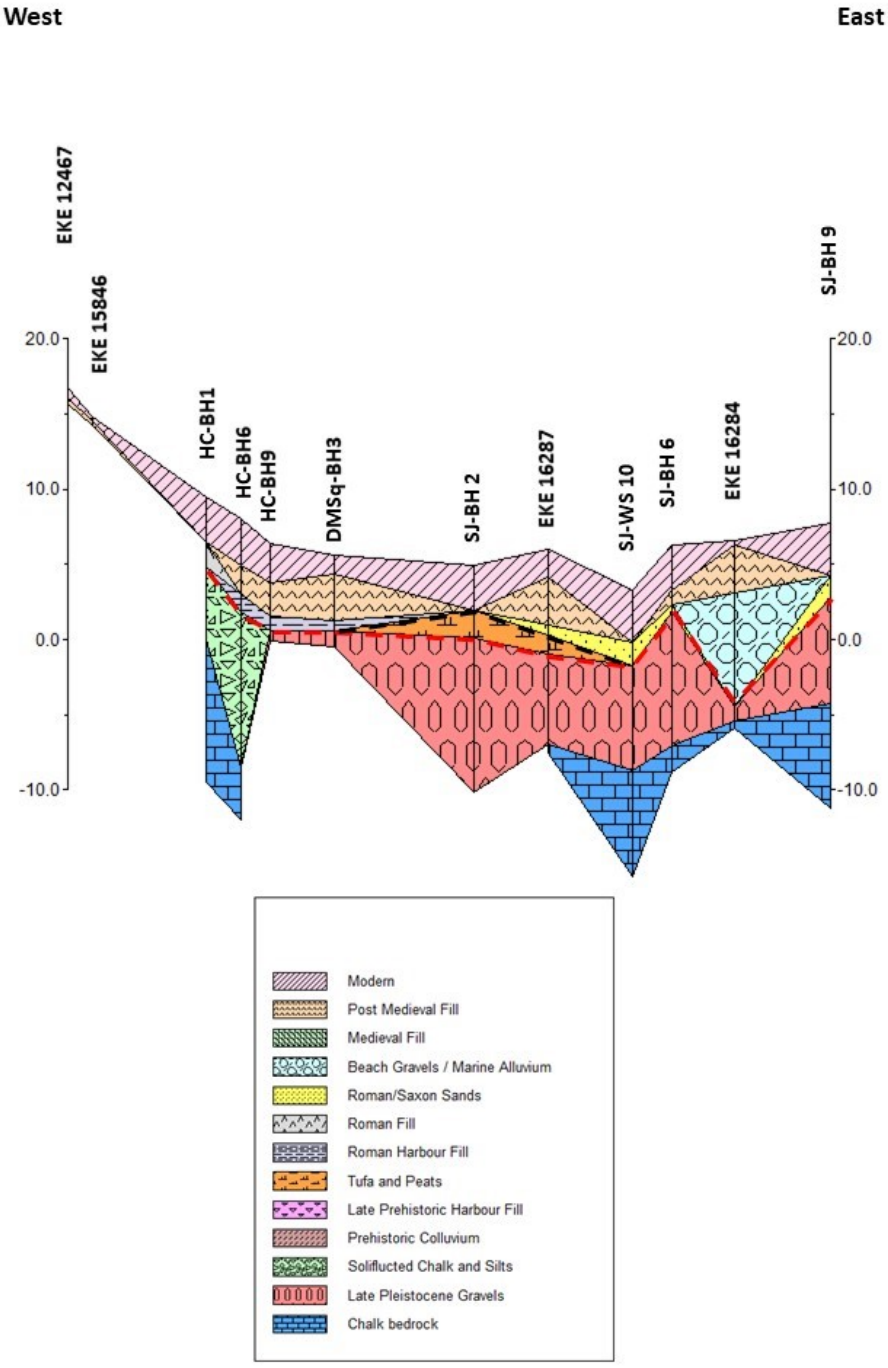


Figure 3. Stratigraphic profile through town centre area from west to east. Red dotted line is the modelled surface of Pleistocene deposits, black dotted line is the base of Roman harbour deposits.

Transect B

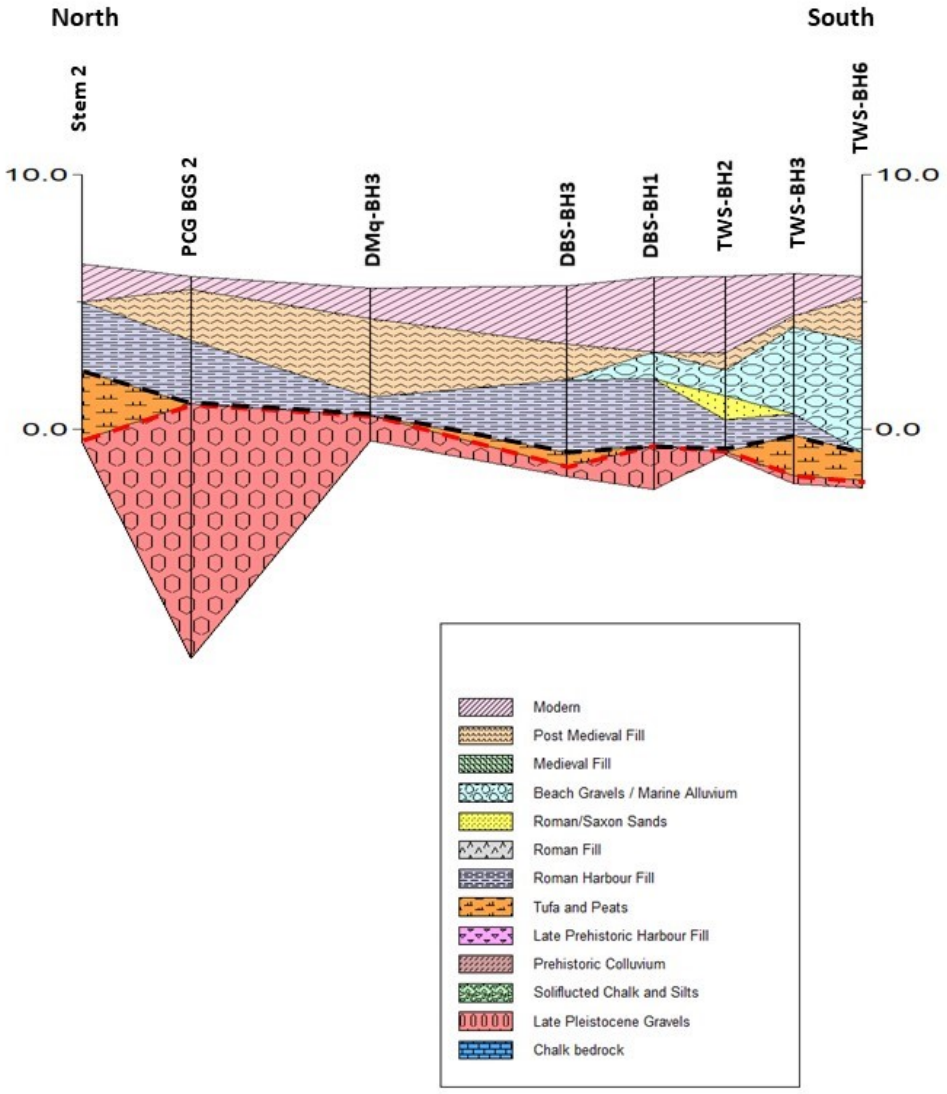


Figure 4. Stratigraphic profile through town centre area from north to south. Red dotted line is the modelled surface of Pleistocene deposits, black dotted line is the base of Roman harbour deposits.

Figure 5. Flint gravels overlying chalk , Snargate Street, Dover.

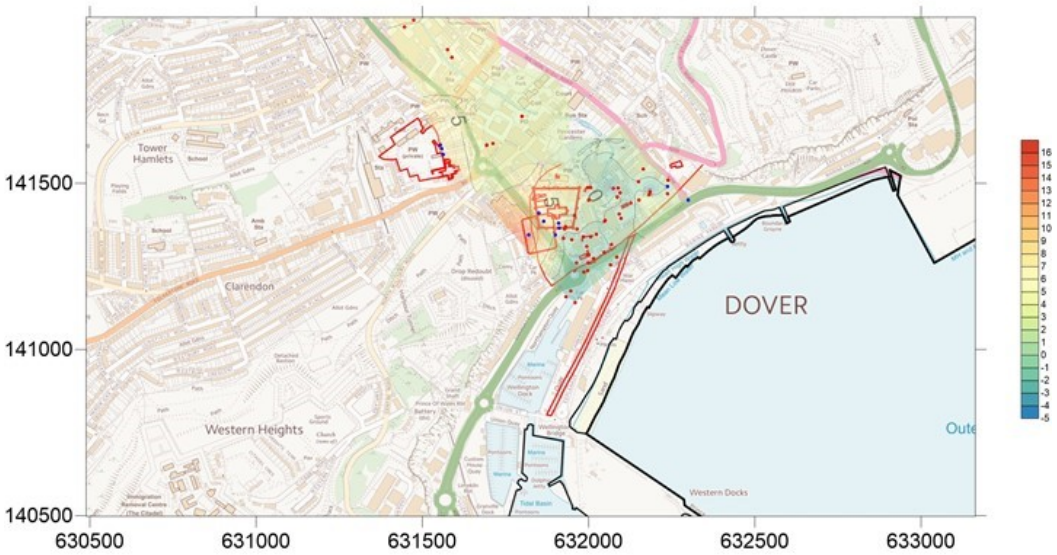


Figure 6. Surface of Pleistocene sediments (red rots indicate presences of Late Pleistocene gravels, blue dots indicate solifluction deposits). Scale in metres OD

Figure 7. Slopewash and buried soils of Late Pleistocene age at Archcliffe Fort, Dover.

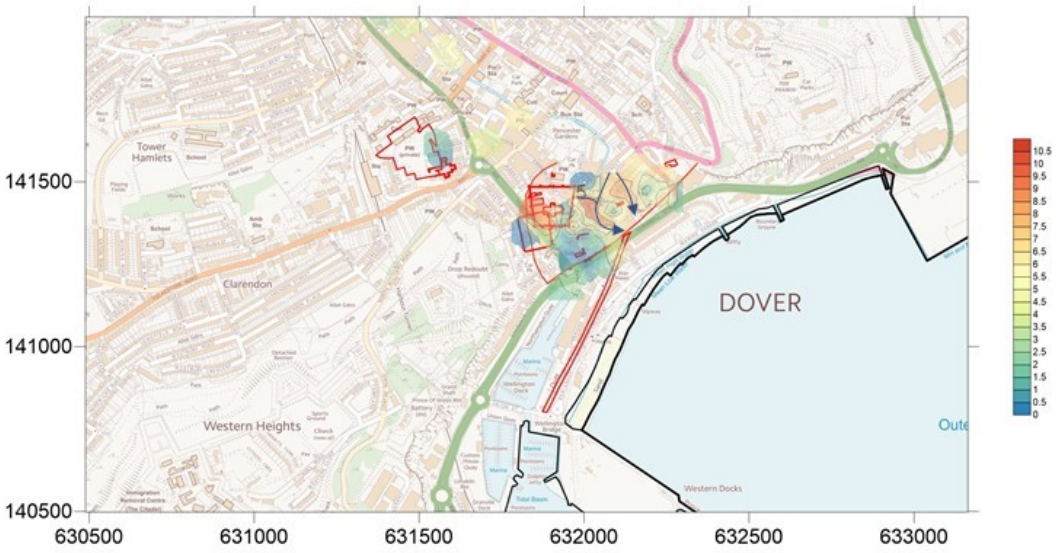


Figure 8. Thickness of Pleistocene sediments in Dover town centre area. Blue arrows indicate possible location of Late Pleistocene channels. Scale in metres.

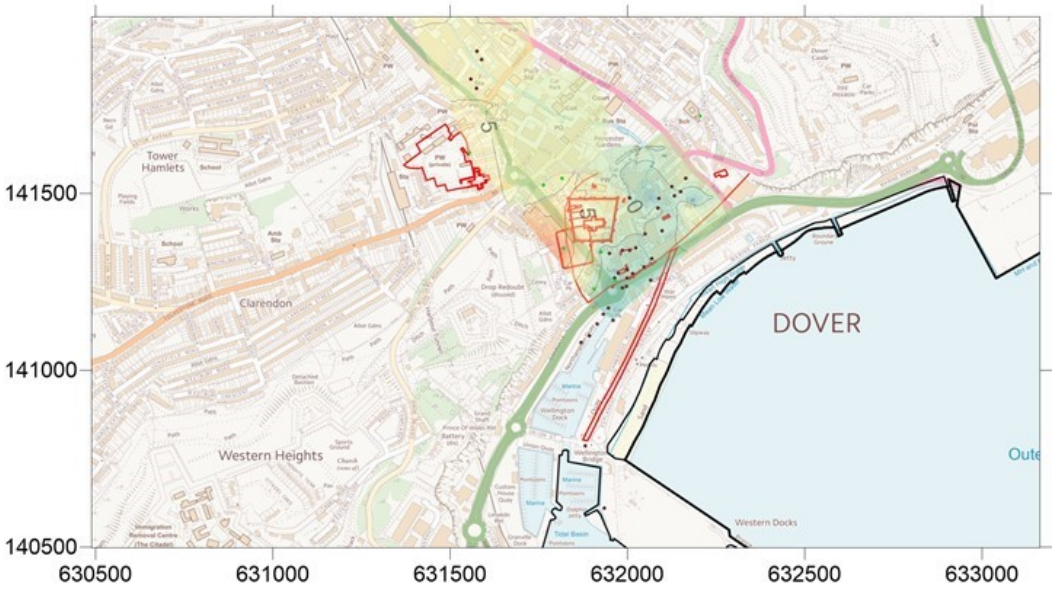
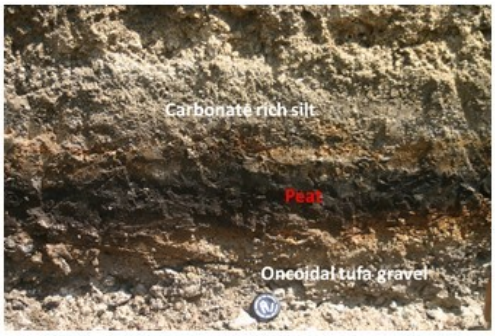


Figure 9. Surface of Pleistocene and distribution of tufa and peats (brown dots) and colluvium (red dots).



A

B

Figure 10. **A:** Tufa deposits at the B and Q site, Dover. **B:** Tufa (including oncoidal tufa) and peat below colluvium at Royal Victoria Hospital site (Keith Parfitt, Canterbury Archaeological Trust).

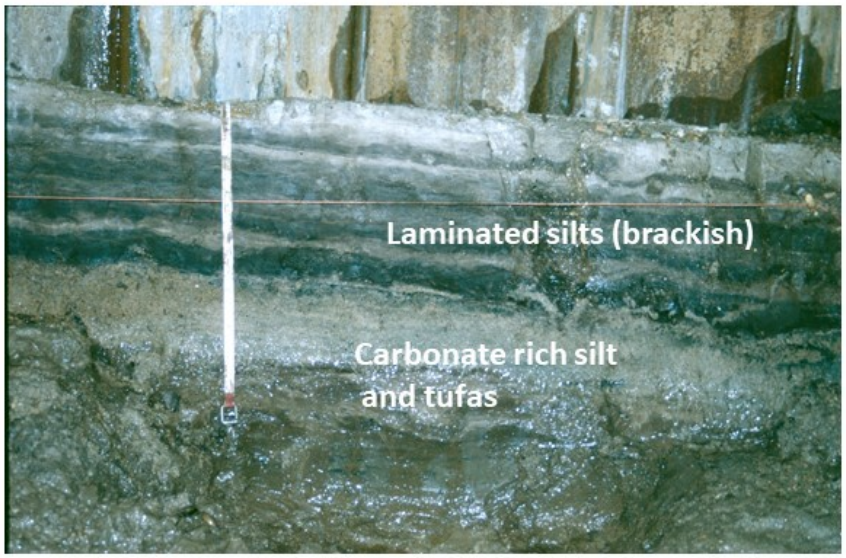


Figure 11. Late Prehistoric harbour sediments above tufa and peat, Dover Boat trench, Dover.

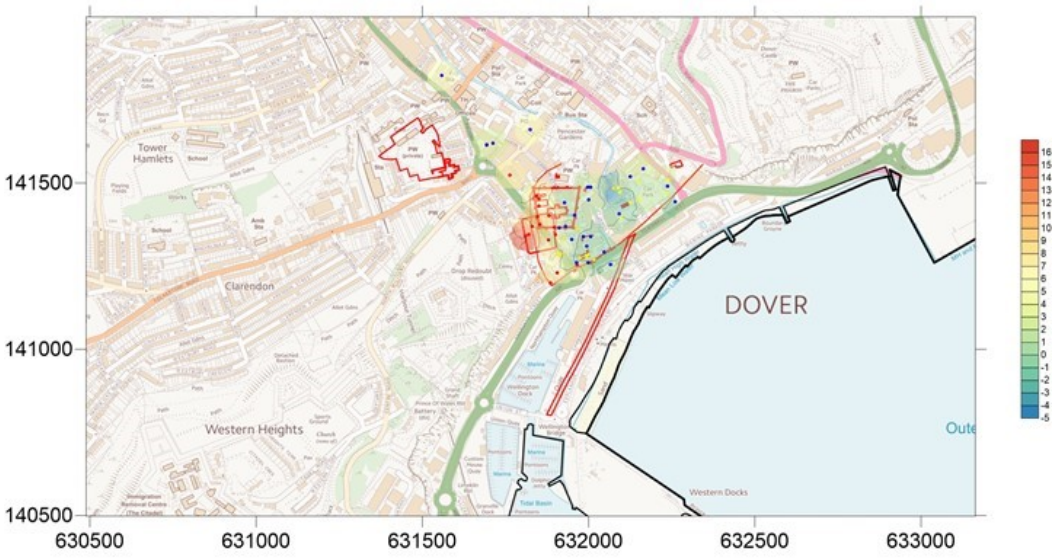


Figure 12. Base of Roman deposits and the distribution of Roman fill (red dots), Roman harbour fill (blue dots) and Roman/Saxon sands (yellow dots). Scale in metres OD.

Figure 13. Organic Roman harbour fill sediments below Roman/Saxon water lain sands, Bench Street, Dover.

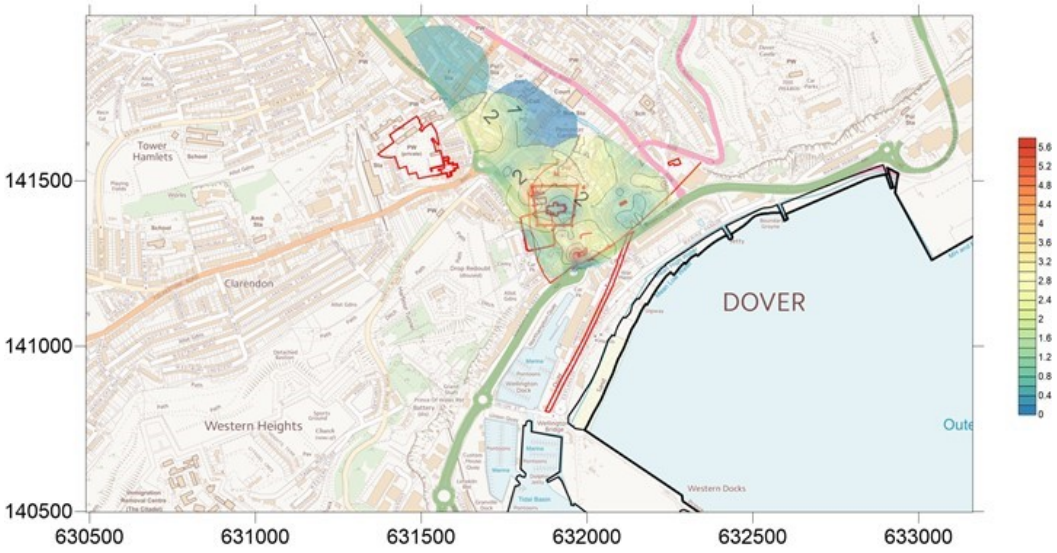


Figure 14. Thickness of Roman deposits in Dover town centre. Scale in metres.

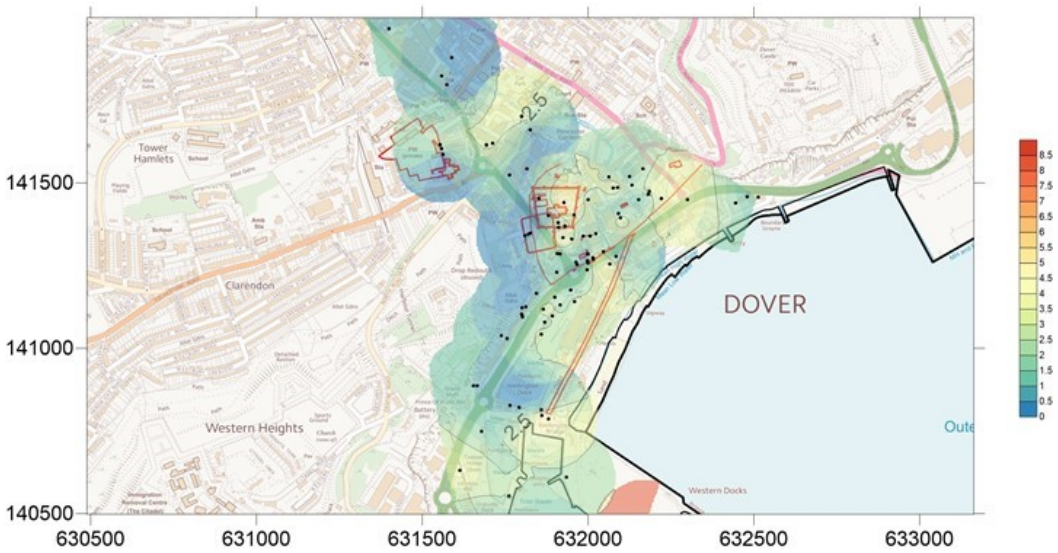


Figure 15. Thickness of Post Roman deposits and distribution of data points

Figure 16. Beach gravels, Townwall Street, Dover.

Appendix 1. Full list of records used in this study.

Bore	Easting	Northing	Elevation
A20-BH1	631972	141225	6.367
A20-BH3	631850	141115	5.194
A20-BH340	632600	141450	0.17
A20-BH341	632732	141488	0.89
A20-BH342	632877	141550	1.72
A20-BH4	631828	141043	4.84
A20-BH5	631799	141006	4.6
A20-BH6	631739	140907	4.35
APD-EV-08-Tr2A	631820	141345	14.92
BCDV-WB-08	631376	142010	8.5
BSPO BH 1	631710	141675	6.5
BSPO BH 5	631738	141658	6.5
CG-BH1	631500	142150	7.9
CG-BH10	631388	142069	8
CG-BH11	631467	141991	7.5
CG-BH2	631400	142101	8
CG-BH3	631410	142072	8
CG-BH4	631471	142111	7
CG-BH6	631400	142004	7.5
CG-BH7	631431	142010	8
CG-BH8	631450	141970	7.5
CG-BH9	631500	142008	7.7
CSD-98 BS1	632063	141518	6
CSLP-TT2/3	632031	142088	36.29
DBS BH1	632000	141275	6.02
DBS-BH2	631998	141285	6.01
DBS-BH3	631995	141310	5.81
DBS-BH4	631985	141339	5.64
DF 71	631574	140383	5.39
DL-BH1	632095	141472	1.72
DL-BH2	632075	141485	1.8
DL-BH3	632077	141455	2.3
DMSq BH 3	631958	141403	5.56
DQS-BH1	631925	141335	6.79
DQS-BH2	631950	141330	6.765
DSC-BH1	631974	141275	4.805
DSC-BH2	631964	141260	5.334
DSC-BH3	631995	141275	3.4
DSC-BH4	631993	141283	3.4
DSE-BH1	632085	141278	5.422
DSE-BH2	632066	141255	6.72
DSI BH1	632023	141346	4.261
DSI BH2	632006	141339	4.74
DTE-BHA	631908	141560	5.97

DTE-BHB	631960	141578	5.61
GSF-13	631614	140630	8.78
HC-BH1	631900	141345	9.5
HC-BH10	631965	141362	6.4
HC-BH2	631865	141385	9.3
HC-BH3	631850	141410	9.4
HC-BH5	631910	141380	8.4
HC-BH6	631912	141365	8
HC-BH8	631927	141362	6.4
HC-BH9	631930	141370	6.35
HSD - 20	631574	141797	8.19
HSD-00-BS3	631400	141966	7.2
MC-99 BH1	632445	141439	6.8
MC-99 BH2	632480	141459	6.8
MC-99 BH3	632513	141457	6.8
NQ-98 BH1	631963	141174	4.71
NQ-98 BH2	631931	141156	4.3
NQ-98 BH3	631902	141156	4.77
NQ-98 BH4	631914	141134	3.94
NQ-98 BH5	631866	141117	4.85
NQ-98 BH6	631893	141099	4.12
NQ-98 BH7	631965	141142	4.38
NQ-98 BH8	631864	141073	4.3
NQ-98 BH9	631833	141032	4.18
PCG BGS 1	632000	141450	5.5
PCG BGS 2	631800	141700	5.7
PCG-BH1	631885	141620	6.36
PCG-BH3	631955	141610	6.03
PPCR-06	631820	141665	6
PRD-BHA	631894	141731	6
QG 16 Tr B	631808	141512	11.9
QGD-01-Tr4	631758	141520	9.17
RMS-MD-Tp1.2	631590	142045	7.08
RS-BH1	632132	141511	4.7
RS-BH2	632162	141490	4.7
RS-BH3	632184	141470	4.7
RS-BH4	632160	141434	4.7
RS-BH5	632220	141455	4.7
RVH-92-Tr1	631558	141838	7.1
SJ BH 10	632148	141505	6.25
SJ BH 2	632050	141385	4.9
SJ BH 6	632150	141450	6.24
SJ BH 8A	632235	141465	6.8
SJ BH 9	632220	141510	7.77
SJ-WS10	632131	141438	3.27
SJ-WS15	632130	141491	5.67

SJ-WS6	632083	141406	1.88
SS-137	631760	141022	6.32
SS-149/156-Tr1	631811	141110	5.62
St Mart1	631900	141500	7.52
St Mart2	631920	141500	6.32
Stem 1	631990	141500	6.1
Stem 2	632010	141500	6.1
StMPS-F1	632134	141776	19.6
TR34SW13A	631799	141701	5.7
TR34SW42	631576	141902	6.25
TR34SW43	631589	141878	6.3
TR34SW88	632000	141450	6
TWS-BH1	631998	141265	6.096
TWS-BH2	631999	141265	6.096
TWS-BH3	631997	141262	6.115
TWS-BH4	632054	141297	5.025
TWS-BH5	632018	141272	5.827
TWS-BH6	632010	141244	6
TWS-BH7	631986	141233	6.05
TWS-BH9	632290	141455	7.398
York Street Roundabout	631949	141255	8.31
YSS-92	631950	141200	6.3
YSUC-CAT-S1/2	631900	141280	8.2