FRITTENDEN CHURCH OF ENGLAND PRIMARY SCHOOL, THE STREET, FRITTENDEN

Kent, TN17 2DD

An Archaeological Watching Brief and Historic Building Survey

November 2011

COMPASS ARCHAEOLOGY

FRITTENDEN CHURCH OF ENGLAND PRIMARY SCHOOL, THE STREET, FRITTENDEN, KENT, TN17 2DD

AN ARCHAEOLOGICAL WATCHING BRIEF AND HISTORIC BUILDING SURVEY

SITE CODE: FPS 11
NGR: TQ 81382 40965

Planning Application Reference: TW/10/884

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Abstract

An archaeological watching brief and historic building survey (of the air raid shelter) were undertaken at Frittenden Church of England Primary School, Kent, in July and October 2011. The historic building survey was undertaken before the demolition of the existing buildings on site (the air-raid shelter), with the watching brief undertaken during the ground-reduction phase of work before the construction of a new school building.

No archaeologically significant finds or features were observed during the watching brief of the stripping of the area. c.0.3m of topsoil was observed over natural deposits – a friable clayey-sandy-silt over compact clay deposits in most of the site, but heavily disturbed in the area of the previous Nursery building. The only structural feature observed was the base of the stone wall that had previously run along the northern side of the footpath to the church.

The historic building survey recorded a number of features associated and contemporary with the structure when it was in use as an air raid shelter. This structure would have originally measured approximately 13.09m (north-south), by 3.62m (east-west), and was approximately 2.42m in height. It was brick-built, with a concrete roof which sloped down slightly to the west (to enable water to drain off it). Two vents, one at either end of the structure, existed for ventilation. Inside, the shelter consisted of one large room, with the entrance in the same position as the present northern door on the eastern wall. At the entrance to the shelter, a series of 'blast-walls' and gas curtains existed. A partitioned 'chamber', at the far northern end of the structure, was used for two chemical toilets, screened by curtains. Inside the main room of the shelter, benches were probably attached to the eastern and western walls.

Later modifications to this structure were also observed and recorded. This particularly included the main change which took place at some point in the 1950s and which included the southwards extension of the structure, alongside the insertion of partition walls, addition of toilets, and insertion of further vents and windows. The structure then remained broadly the same from this date, apart from the extension of the main school building to join up with the air raid shelter structure (1997-98), which impacted upon the central exterior section of the eastern wall of the shelter.

Following the completion of this historic building survey and watching brief, it was agreed with Kent County Council that no further archaeological work on this site was necessary.

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List of figures

Front cover – Photograph of the school and air raid shelter, looking south-west.

PART I: THE WATCHING BRIEF:

1. Introduction

1.1 The first part of this report details the results of an archaeological watching brief conducted during groundworks for the construction of a new school building (part two storey and part one storey, including a hall, kitchen, nursery, IT suite, library, WCs, and storage facilities) at Frittenden Church of England Primary School, Kent. The site is centred at NGR: TQ 81382 40965.

1.2 Fieldwork was carried out by Compass Archaeology on the 11th October 2011.

1.3 Prior to development, the site consisted of a former air-raid shelter (used as school toilets and a gym store), a nursery building, the footpath to the church, and a small area of the grounds of Frittenden House. All of the pre-existing buildings on the site were demolished.

1.4 Archaeological monitoring was undertaken during contractors' groundworks, further to a planning condition (Application No: TW/10/884) and in response to a recommendation made by Kent County Council for an archaeological watching brief. The fieldwork was also carried out in accordance with a Written Specification produced by the Heritage Conservation Group, Kent County Council (2011).

1.5 This part of the project was commissioned by Trevor Barnes, of GML Construction, and advice was given by Adam Single and Wendy Rogers at Kent County Council. Further thanks to Clare Gregory (Burnsguthrie) for her help in providing 19th Century documents concerning the foundation of the school.

2 Site Location and Geology

2.1 The site is located in the village of Frittenden (*c.*3.5km south-east of Staphlehurst). The school is situated on the north-west side of The Street, next to St Mary's Church, in the centre of the village. The area under investigation during this watching brief was to the rear (north-west) of the school, encompassing the previous air-raid shelter building, nursery building, footpath to the church, and a small section of the grounds of Frittenden House (to the north).

The site sits at approximately +44mOD. The village of Frittenden itself stands on a narrow east-west running ridge that overlooks the Low Weald to the north. It is located on an area of Weald Clay.

Fig. 1: Site location, with site marked in red.

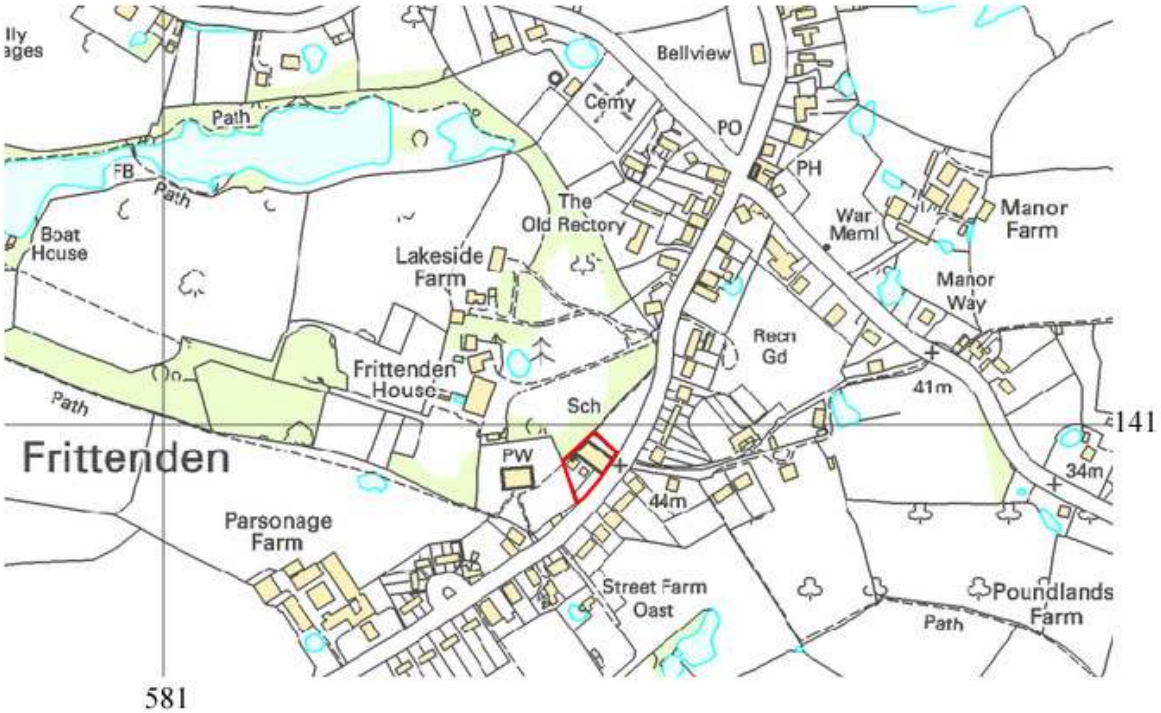

Fig. 2: Close-up of site location, with school outline marked in red.

3 Archaeological and historical background

3.1 HER Search:

A search of the online Kent Historic Environment Records database, for 'Frittenden' and using the map-search for an area of *c.*500m around the site, uncovered the following results. With the exception of the church and school, only the 'archaeological' results (and not those for listed buildings) have been included.

A discussion of the following results, combined with further research about the history of Frittenden, is included below.

SMR no.	Description and record type	Location
TQ 84 SW 212	Church of St Mary – grade II* listed building. 15th Century church and tower, Roman material in foundations. Present church constructed 1846-48.	The Street, Frittenden, TQ 81318 40953.
TQ 84 SW 227	Frittenden School – grade II listed building. Constructed 1845.	The Street, Frittenden, TQ 8139 4096.
TQ 84 SW 102	Archaeological watching brief undertaken by Network Archaeology on the Hadlow to High Halden Natural Gas Pipeline (2001). Uncovered a post hole / small pit with charcoal and heat-reddened clay; two other post holes; and other inter-cutting oval pits. Finds included Early Medieval Local wares, Limpsfield type wares, Saxo-Norman Local wares (11th – 12th Century), Roman building material (brick, tile, pottery), and two sherds of prehistoric pottery and worked flint. Organic fills of pits included wheat, oats, charcoal (radio-carbon date of charcoal AD1020-1170).	Ayleswade, Frittenden, TQ 83660 41251.
TQ 84 SW 3	Two Roman urns (black earthenware, late 1st – early 2nd Century) reportedly found in a deep shaft in 1858. Pit also contained evidence for decayed vegetable matter and timberwork – possible ritual use of the pit?	Leggs Wood (?), Frittenden, TQ 8034 4039.
TQ 84 SW 100	Archaeological watching brief undertaken by Network Archaeology on the Hadlow to High Halden Natural Gas Pipeline (2001). Medieval iron smelting site. Several shallow slag-filled features, with sherds of Limpsfield ware vessels (mid-12th – mid-13th Century).	Frittenden, TQ 80870 41820.

TQ 84 SW 101	Archaeological watching brief undertaken by Network Archaeology on the Hadlow to High Halden Natural Gas Pipeline (2001). Uncovered a circular feature, with Iron Age / Roman pottery sherds, and a Roman roof tile fragment. Upper fill was mainly orange clay, overlying a charcoal-rich fill with slag (possibly used for iron-working?).	Bubhurst, Frittenden, TQ 83500 41240.
TQ 84 SW 104	Archaeological watching brief undertaken by Network Archaeology on the Hadlow to High Halden Natural Gas Pipeline (2001). Uncovered a linear feature, with charcoal (radio-carbon date of AD120 – 160) and Iron Age / Roman pottery.	Lashenden, Frittenden, TQ 84400 41070.
TQ 84 SW 27	Observation of ridge and furrow marks in Frittenden (Nicola Bannister, personal observations, 2000).	Frittenden, TQ 8118 4145.
TQ 84 SW 103	Archaeological watching brief undertaken by Network Archaeology on the Hadlow to High Halden Natural Gas Pipeline (2001). 51 pieces of flint, probably Neolithic or Bronze Age in date, recovered from the subsoil.	Iborden, Frittenden, TQ 84060 41190.

3.2 Summary of Historical and Archaeological Background of Frittenden:

The above HER entries therefore indicate that there was some prehistoric activity in the Frittenden area. This is mainly through the findings of prehistoric flint and pottery (TQ 84 SW 102; TQ 84 SW 101; TQ 84 SW 103) during Network Archaeology's 2001 watching brief of the gas pipeline through this area. The location / topography of the area, with the village standing on a ridge above the floodplain, also makes it likely that this was an area suitable for prehistoric settlement or activity.

Roman activity is also known in this area. The main archaeological evidence for this takes the form of the two Roman urns found about a mile to the south-west of the site at Leggs Wood (TQ 84 SW 3), and the Roman concrete found in the church foundations of St Mary's Church during rebuilding in the 1840s (TQ 84 SW 212). Other archaeological evidence for Roman activity includes the Roman pottery, brick and tile uncovered by Network Archaeology (TQ 84 SW 104; TQ 84 SW 101; TQ 84 SW 102), This suggests that there was some Roman activity / settlement in this area – possibly in association with the Roman route from Rochester to Hastings, which passed through Knoxbridge (just to the west of Frittenden). The fact that Roman concrete was found in the foundations of the church suggests that Roman activity may have been centred in this area – possibly with the existence of a large Roman house, etc.

Frittenden itself is first mentioned in documentary evidence in a Saxon charter of 804. It was also mentioned in the Anglo-Saxon Chronicles (839), when it was recorded that King Ethelwulf of Wessex gave the village land to St

Augustine's in Canterbury (to whom it continued to belong to). The 'den' part of the name indicates that it was an area providing temporary pasture annually for swine driven down from North Kent, and is linked to the fact that this village lay on an old Jutish track, along which people drove their pigs. It is possible that the 'Fritt' part refers to the man who used / owned the 'den' – possibly a 'Frith'?

Evidence for medieval settlement in Frittenden includes St Mary's Church itself, which is first recorded in the White Book of St Augustine's (*c.*1200), and is medieval in origin (with a surviving 15th Century tower base and 14th Century moulded brickwork) (TQ 84 SW 212). Many of the listed buildings in Frittenden village are dated to the 14th Century, including Cole Farm (*c.*1400) – reflecting the medieval development of the village. This settlement was probably concentrated around the church (on the ridge above the floodplain). It seems likely that any earlier settlement (Saxon, etc) would have been centred in the same sort of area, around the church.

Further archaeological evidence for medieval settlement takes the form of medieval pottery (Early Medieval Local wares, Limpsfield type wares, Saxo-Norman Local wares (11th – 12th Century), and charcoal (radio-carbon dated to AD1020-1170), uncovered during Network Archaeology's watching brief (TQ 84 SW 102). A possible medieval iron-smelting site was also uncovered (TQ 84 SW 100). Possible ridge and furrow marks have also been noted in the fields surrounding Frittenden (TQ 84 SW 27).

It is possible that a medieval manor house of some description may have existed in Frittenden. This is mentioned by Halsted in 1798, who mentions the Webbe family (around from the time of Edward II (late 13th – early 14th Century) to the end of the 17th Century) – and that their mansion "has been some time pulled down". There is no indication as to where this may have stood – although it is possible that it stood close to the church, etc.

Halsted, in 1798, described the parish as "very narrow from east to west, and contains about seventy houses", but as also having an "unpleasant and forlorn aspect", because of its poor soils, impassable roads, and obscure location. By 1884-85, however, W.T. Pike describes it as having a "general air of pleasantness enhanced by firm and well kept roads."

This change in description may reflect the mid-19th Century changes to the village. This included the rebuilding of the church (rebuilt by Reverend Edward Moore in 1848, following a fire in 1790 after the steeple was struck by lightening). Revd. Moore also constructed Frittenden Primary School and introduced a penny bank, etc. This appears to have accompanied a population expansion in the village (551 in 1801, up to 974 in 1891), and the emergence of new shops and industries (carpenter, shoemaker, corn factor, blacksmith, beer retailer, butcher, miller and wheelwright, etc).

Although the listed building description states that Frittenden School was constructed in 1845, documents from the National Society Archive show that it was constructed by the end of 1842. Revd. Moore made an application to

the National Society for aid in October 1841, stating that a school was urgently needed as more than 100 children needed to be schooled and the rooms that they were currently in were not in a fit state to be used, particularly in winter. A letter dated 4th January 1843, from Revd. Moore, states that the school was "completed and opened for use more than 3 months" – thereby showing that it must have been constructed by at least the beginning of October 1842. A further certification, dated 29th July 1843 and signed by Revd. Moore and two churchwardens, states that the new school house was completed in "a satisfactory and workmanlike manner" and "according to the statement forwarded to the Society" (who granted £30 for its construction); and that the site of the school house had been obtained with a good legal tenure which meant that the building was secured forever in "the purpose of education children…according to the principles of the National Society". Frittenden School was, therefore, constructed by October 1842, using a grant from the National Society, and spearheaded by Revd. Edward Moore.[1]

Farming was important in Frittenden in the later medieval – post medieval period – both a mix of arable and pastural farming, and particularly hops. For example, 57% of the entries in the 1855 directory of Gentry and Traders in Frittenden were described as farmers, going up to 71% in 1867, and back down to 55% in 1911.

The most recent history of Frittenden includes the rumours of Frittenden treacle mines. These were started by locals in the 1930s, at the expense of gullible Londoners who would travel to Frittenden from London in the hope of seeing these treacle mines.

[1] Documentary sources provided by Clare Gregory, Burnsguthrie, from the National Society Archive.

3.3 Cartographic Evidence:

The below maps provide an indication of the development of Frittenden village from the late 18th Century.

3.3.1 Halsted, 1778:

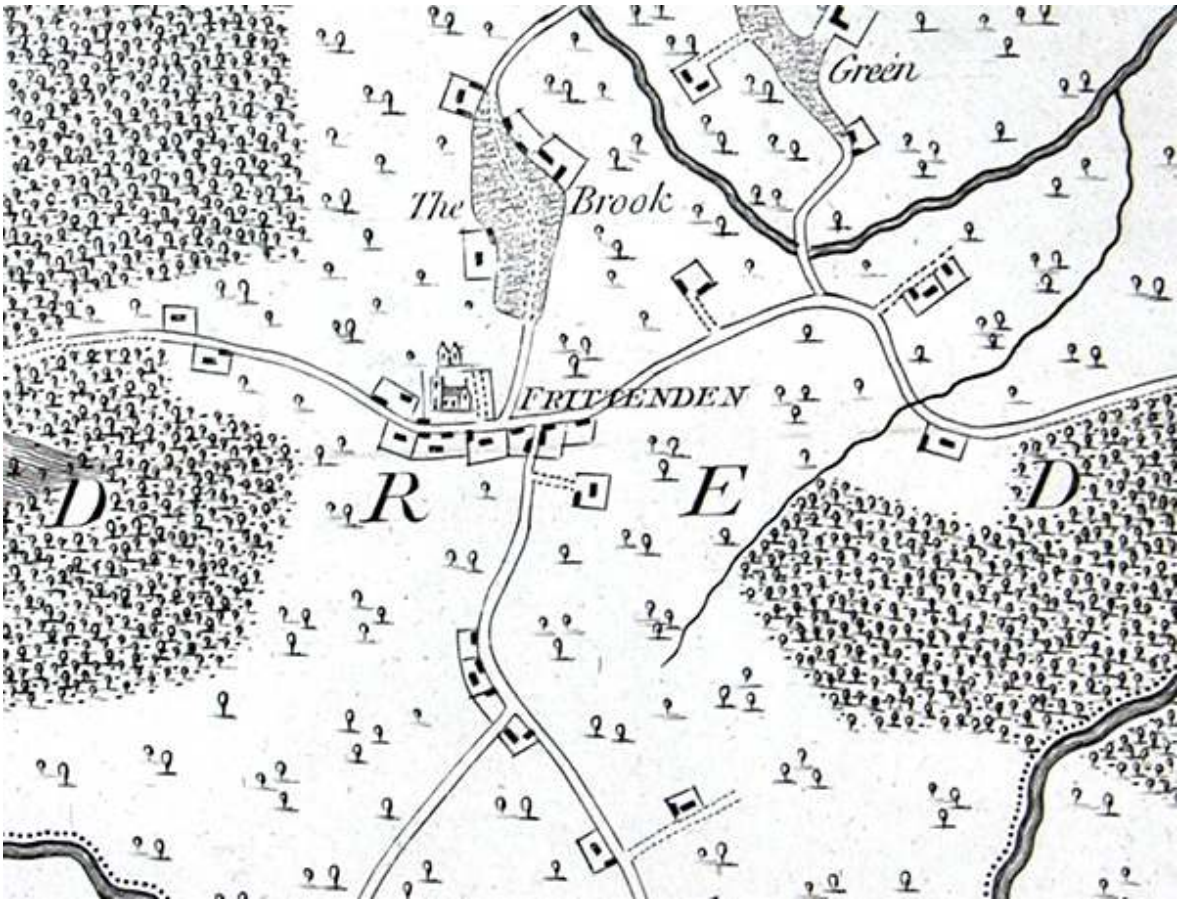

Fig. 3: Extract from Halsted's 1778 Map. From Kent County Council, 'Here's History: Kent' – http://www.hereshistorykent.org.uk/displayArticle.cfm?type=Map&genID=1&placeID=176&placename=Frittenden&categoryID=23

This map clearly depicts the basic layout of Frittenden, as it remains today, with the church and churchyard clearly depicted in the centre of the village, and buildings / ribbon development along both sides of the road. Development is clearly focused around the church.

The church depicted on this map would have been the earlier church (before it suffered a fire in 1790 and before it was rebuilt in 1848). It appears to be orientated east-west, with a graveyard to the east of it. Some form of house – a two-gabled structure – is depicted to the rear (north) of the church. No buildings are depicted to the east of it (where the school, and our site, currently stands) – although it is possible that the graveyard encompasses this area.

3.3.2 1801 OS Map:

Fig. 4: Extract from the 1801 OS Map. From 'The County of Kent in 1801'.

This map depicts the church (marked by a cross) in the centre of the village of Frittenden (still the earlier church), with buildings around it and along the road. Interestingly, however, there are more buildings depicted on the northern side of the road on this map, whereas Halsted's 1778 map depicts more on the southern side of the road. Of greater interest is the fact a building of some kind is depicted to the east of the church, in the approximate location of the present school (and the site). This is not depicted on Halsted's map. A building was, therefore, apparently constructed on this site in the late 18th Century.

3.3.3 Greenwood, 1821:

Fig. 5: Extract from Greenwood's 1821 Map. From Kent County Council, 'Here's History: Kent' – http://www.hereshistorykent.org.uk/displayArticle.cfm?type=Map&genID=1&placeID=176&placename=Frittenden&categoryID=23

This map also depicts the church (marked by a cross – still the earlier church), with ribbon development along both sides of the main road through Frittenden (The Street). Two buildings are depicted to the east of the church – in the approximate area of the school and site. Earlier buildings did, therefore, exist on the site before the mid-19th Century construction of the school.

3.3.4 1881 OS Map:

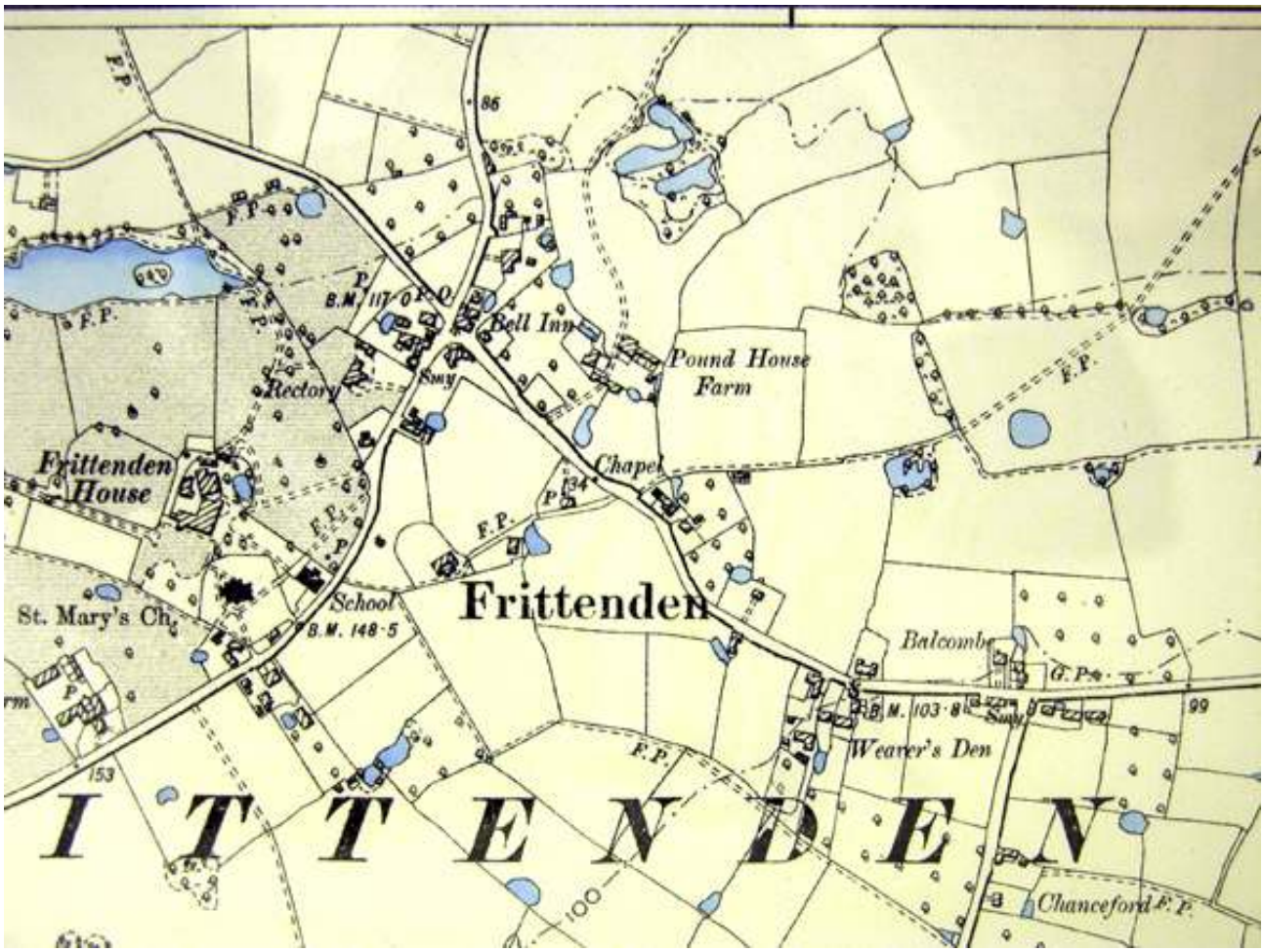

Fig. 6: Extract from the 1881 OS Map. From Kent County Council, 'Here's History: Kent' – http://www.hereshistorykent.org.uk/displayArticle.cfm?type=Map&genID=1&placeID=176&placename=Frittenden&categoryID=23

By this date, the new school and church had been constructed. These are depicted on this map – just to the left of the word 'Frittenden'. The school constructed at this date is broadly the same as remains today, with the main school building, and footpath to the church to the rear (north) of it. Frittenden House, behind the school, is also clearly depicted on this map – although this does not appear to be depicted on any of the earlier maps.

4 Archaeological research questions

The objectives of this archaeological watching brief included contributing to knowledge of the archaeology of the area through the recording of any remains exposed as a result of excavations in connection with the groundworks. Particular attention was made to the character, height below ground level, condition, date and significance of the deposits. The fieldwork

presented an opportunity to address the following general and specific research questions:

- Is there any evidence for prehistoric activity (flints, pottery, etc), and what is the nature of this?
- Is there any evidence for Roman activity or settlement in this area, either in the form of Roman finds (pottery, etc), or evidence for a possible Roman settlement / house?
- Is there any evidence for Saxon / medieval activity or settlement in the area, presumably focused around this central area? What is the nature of this, and what form did it take?
- Is there any evidence for the possible manor house of Frittenden, which may have stood in this area (close to the church)?
- What evidence is there for post-medieval activity in the area?
- Is there any evidence for earlier buildings which may have stood on the site, particularly the two buildings which appear to be depicted on the earlier maps?
- At what level do natural deposits survive at this location?
- Can the watching brief contribute to research objectives for Kent archaeology?

5 Methodology

5.1 Standards

The fieldwork was carried out in accordance with current English Heritage guidelines (in particular, *Standards and Practice in Archaeological Fieldwork, Guidance Paper 3)* and to the standards of the Institute of Field Archaeologists *(Standard and Guidance for Archaeological Watching Briefs).* Overall management of the project was undertaken by a full member of the Institute.

5.2 Fieldwork

The archaeological watching brief took place during contractors' groundworks, and involved two archaeologists on site as required to monitor works and to investigate and record any archaeological remains. Groundworks were undertaken by a 360° machine fitted with a toothless grading bucket to enable archaeological remains to be cleanly recorded prior to further disturbance.

Following the demolition of the previous buildings on the site, the archaeological monitoring began. The groundworks involved the stripping of the south-western part of the site (see fig. 7), down to a formation level of *c.*43.85mOD (*c.*0.85m beneath the present ground surface at the south-western end of the site; *c.*0.25m beneath the present ground surface towards the centre of the stripped area; and *c.*0.15m towards the northern end). This area was then cleaned, investigated, and recorded by archaeologists.

It was not proposed, however, to strip the center and north-eastern part of the site (see fig. 7), because the natural slope of the land down towards the north-east meant that it was not necessary to remove any spoil to reach the formation level of *c.*43.85mOD in this area. This also meant that less spoil was removed from the northern part of the stripped area, because of the natural slope of the land.

The next stage in the groundworks involved the digging of deeper foundation trenches, for the footings, across the site. Because of the lack of archaeological finds or features observed in the south-western part of the site, and the high level of natural deposits in this area, it was decided to dig a small (*c.*2m^2) test pit in the north-western part of the site (where the stripping had not been undertaken) to gain an idea as to whether any finds or features might be present in this area of the site. This proved archaeologically sterile, with the natural deposits observed at a high level, such that, following consultation with Kent County Council, it was decided that it was not necessary to archaeologically monitor the digging of the footing trenches.

The recording system followed the procedures set out in the Museum of London recording manual. By agreement with MoLA the recording and drawing sheets used were directly compatible with those developed by the Museum.

Archaeological deposits and features were investigated and recorded in stratigraphic sequence, and where appropriate finds and other dating evidence recovered. Archaeological deposits and features were recorded as appropriate on *proforma* trench sheets, and drawn in plan with measured sketches taken of sample sections. The investigations were recorded on a general site plan and related to the Ordnance Survey grid. The fieldwork record was supplemented as appropriate by digital photography and 35mm monochrome prints.

Close liaison was maintained with the groundworks team to ensure a presence on site as and when necessary. The Client and the representatives of Kent County Council were kept advised of the progress of the fieldwork.

6 Post-excavation work

The fieldwork was followed by off-site assessment and compilation of a report, and by ordering of the site archive.

6.1 Finds and samples

Finds were treated in accordance with the appropriate guidelines, including the Museum of London's *'Standards for the Preparation of Finds'*. Finds and artefacts were retained and bagged with unique numbers related to the context record. Assessment was undertaken by appropriately qualified staff.

6.2 Report procedure

Copies of this report will be supplied to the Client, Kent County Council Heritage Conservation Group, the local studies library, and Frittenden Church of England Primary School.

A short summary of the fieldwork has been appended to this report using the Kent County Council SMR Summary Form, an OASIS Form, and in paragraph form suitable for publication within the 'excavation round-up' of *Archaeologia Cantiana.*

7 The site archive

The records from the archaeological project (written notes, plans, levels, and samples) will be ordered in line with MoL *Guidelines for the Preparation of Archaeological Archives* and will be deposited in Tunbridge Wells Museum.

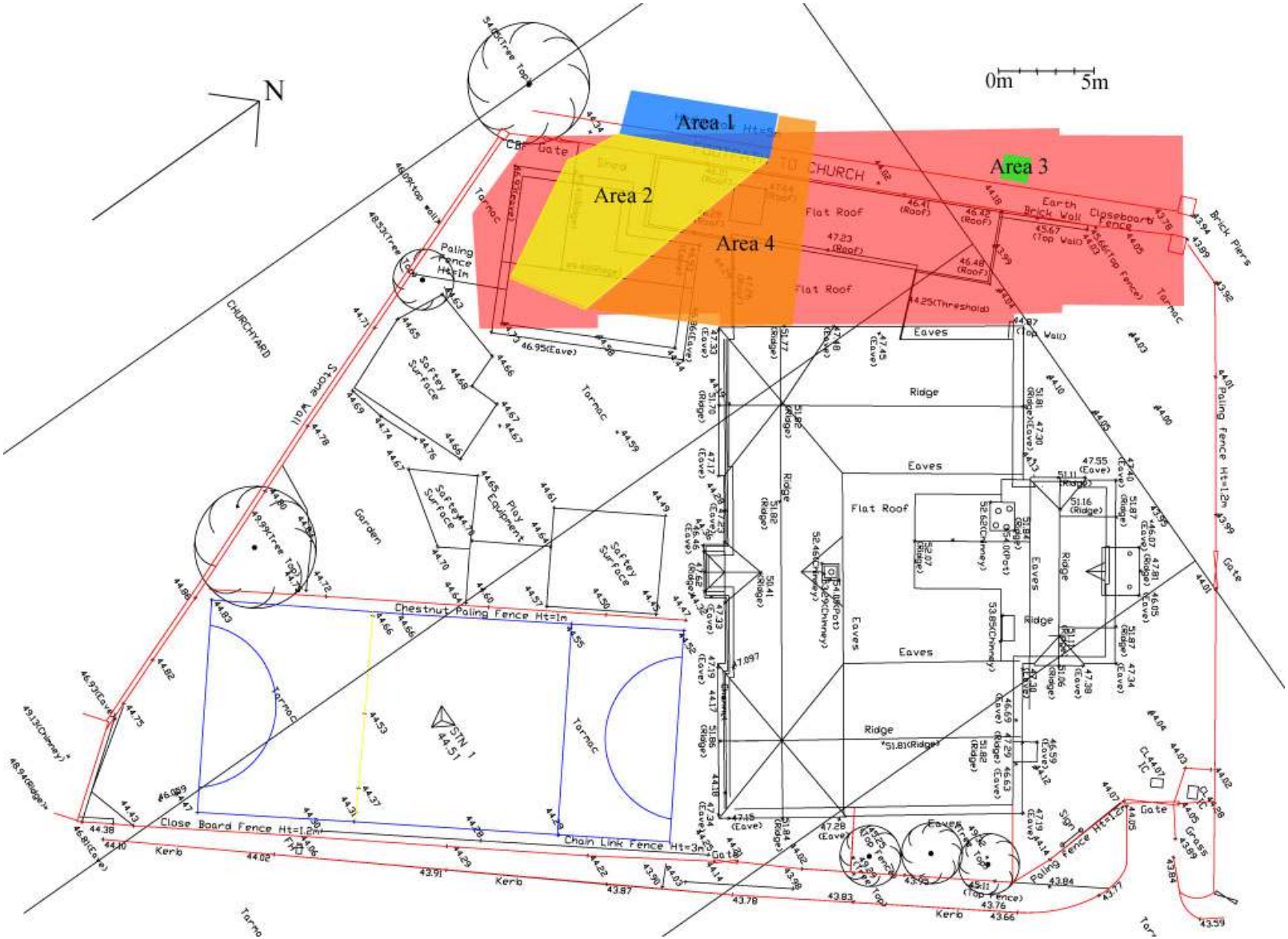

Fig. 7: Site outline plan, and area locations. The area of demolition and new build is highlighted red, with the different areas of archaeological monitoring highlighted in different colours.

8. Results

No significant archaeological finds or features were observed during this watching brief. Instead, a relatively thin deposit of topsoil or thicker layer of modern disturbed ground was generally observed overlying natural deposits (a friable silty-sandy-clay over a more compact sterile clay deposit). Each of the different areas will be discussed in turn.

8.1 Area 1

The first area of stripping (in the north-western part of the site, coloured blue on fig. 7; 7.25m X 3.5m) revealed no major features of archaeological significance.

*c.*0.3m of topsoil was observed – a loose dark-brown garden soil, with frequent pebbles and roots, etc.

The only structural feature observed in this area was the base of the stone wall which once ran along the northern side of the footpath to the church (it stood before the structures in this area were demolished). The base of this wall was observed at *c.*43.67mOD (*c.*0.6m beneath the present ground-surface), and ran north-east to south-west across the whole of this area. This wall base appears to have been made of stone (and very occasional bricks), with some large stone blocks visible. One piece of moulded stone was taken from this (see figs. 11 and 12) – possibly already reused, and measuring *c.*383mm X 199mm X 91mm. This was oolitic limestone, with a finely worked moulded face at one end and a rough chamfer on the adjacent long side. The stone wall base was built into the natural, and lay directly above the natural clay deposits. One piece of clay pipe stem (see appendix IV) was recovered from the northern side of the wall-base (possibly in association with the wall's construction). It is possible that this wall was contemporary with the construction of the school (1842) and rebuild of the church (1846-48) – particularly because this footpath is depicted on the 1881 OS Map. It may have been part of the general mid-19th Century development of this area.

The natural deposits – a yellow-brown friable clean and sterile clayey-sandy-silt was observed across the whole area, at *c.*43.97mOD (*c.*0.3m beneath the present ground-surface). This had been disturbed by roots, etc, but had no obvious inclusions.

This overlay a more compact yellow-brown clay deposit, observed beneath the wall and in section. This was observed at *c.*43.76mOD (*c.*0.5m beneath the present ground-surface).

Fig. 8: Photograph of area 1, looking east, with existing school building in the background. The natural friable clayey-sandy-silt deposits can be seen across the whole trench, with the base of the stone wall running north-east to south-west across the area.

Fig. 9: Photograph of area 1, looking south (towards the church). The line of the stone wall base can clearly be seen.

Fig. 10: Photograph of the stone wall base in section. The gateposts to the church can be seen in the background (which the stone wall once joined up to). The thin (c.0.3m) deposit of topsoil can be seen overlying the natural deposits, in the section either side of the wall base.

Fig. 11: Photograph of moulded stone from the stone wall-base, clearly showing the moulded section.

Fig. 12: Photograph of moulded stone from the stone wall-base, clearly showing the more roughly worked chamfered edge.

8.2 Area 2

Further stripping was then monitored to the south of area 1 (coloured yellow on fig. 7; *c.*12m X 5m). No finds or features of archaeological significance were observed in this area.

The southern part of this area had been heavily disturbed by the Nursery building that previously stood there. Large concrete foundations had been pulled out of this area before the stripping commenced.

In the southern part of this area, the natural compact yellow-brown clean clay deposits were directly observed beneath the recent made ground (at a level of *c.*44.26mOD, *c.*0.34m beneath the present ground-surface). These clay deposits appeared heavily disturbed, because of the overlying concrete foundations. Furthermore, the overlying friable clayey-sandy-silt deposits (seen elsewhere over the site) had been truncated in this specific area by the Nursery building.

The northern part of this area (where the Nursery building had not previously stood), was less disturbed, and had a similar stratigraphy to that observed in area 1 (topsoil, over friable clayey-sandy-silt (*c.*44.10mOD), over compact clay deposits (*c.*43.82mOD)).

One small extruded land-drain was also observed in the northern part of this area, running north-east to south-west (just to the south-east of the path and on more or less the same alignment). Samples were taken of this and dated to *c.*1830 – 1950 (see appendix IV). It was, therefore, probably contemporary with the construction of the school in the 1840s.

Fig. 13: Photograph of area 2, looking east (with the school building in the background). The truncated natural clay deposits can be seen in the south-eastern part of this area (truncated by the previous Nursery building), and the friable clayey-sandy-silt natural deposits in the north-western part.

Fig. 14: Photograph of area 2, looking south-west (towards the church, seen in the background). The truncated natural clay deposits, and friable clayey-sandy-silt deposits, can both be seen.

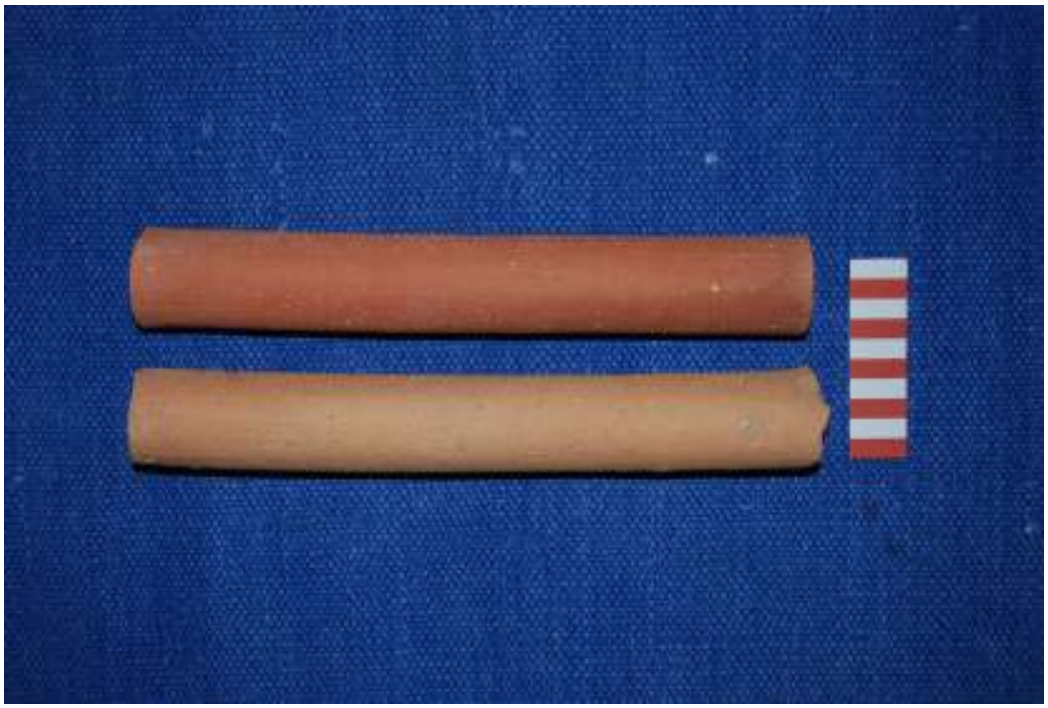

Fig. 15: Photograph of parts of the pipe drain, from above.

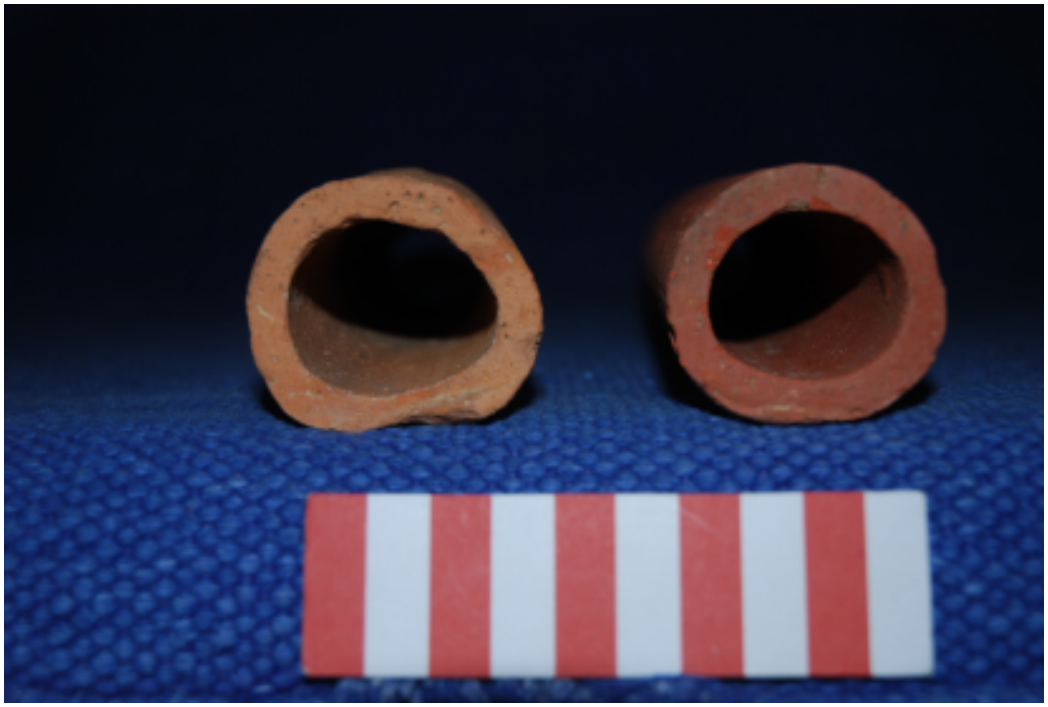

Fig. 16: Photograph of the interior of parts of the pipe drain.

8.3 Area 3

A small (2m^2) trial pit was dug in the north-eastern part of the site (coloured green on fig. 7). This was dug in a lower-lying area where stripping down to *c.*43.85mOD would not be carried out, in order to ascertain whether it was necessary to monitor the deeper digging of foundations for the footings in this area.

Topsoil (a loose dark-brown garden soil) was observed overlying the natural deposits. This was the yellow-brown friable clean and sterile clayey-sandy-silt, observed elsewhere across the site, and it was observed across the whole of this trial pit, at *c.*43.7mOD (*c.*0.27m beneath the present ground-surface). No archaeological finds or features were observed.

Because nothing of archaeological significance was noted in this trial pit, and because the natural deposits were observed at such a high level, it was decided (in consultation with Kent County Council) that it was not necessary to monitor the further deeper digging of foundations.

Fig. 17: Photograph of trial pit (area 3), looking south-east (towards the school building). The thin deposit of topsoil overlying the natural friable deposit can clearly be seen.

8.4 Area 4

One last area of stripping was observed to the east of areas 1 and 2 (coloured orange on fig. 7). No finds or features of archaeological significance were observed.

This revealed similar deposits as in area 2 – disturbed natural clay deposits in the areas under the previous Nursery building and school buildings; and natural friable clayey-sandy-silt elsewhere. It should also be noted that natural clay deposits were observed directly under the foundations of the north-western end of the school, showing how the school was built into natural deposits.

Fig. 18: Photograph of further stripping being carried out in area 4, looking north-east (towards the school). Further truncated natural clay deposits, and natural friable clayey-sandy-silt deposits, can be seen. The slightly darker line of the land drain (see 8.2) is arrowed.

9. Conclusions

Observations undertaken during groundworks (primarily stripping) at Frittenden Church of England Primary School revealed no finds or features of archaeological significance.

Natural deposits were observed in all areas monitored, at an uppermost level of *c.*44.10mOD (or truncated at 44.26mOD), and a lowermost level of *c.*43.7mOD. The variations in levels at which these natural deposits were observed is because of the natural topography of the site – sloping down towards the north – such that natural deposits, where not truncated, were observed beneath approximately 0.3m of topsoil. These deposits generally took the form of friable clayey-sandy-silt; over more compact yellow-brown clay deposits (around *c.*43.8mOD, in area 1).

The previous buildings on the site had clearly been constructed into these natural deposits – as was seen in the foundations of the existing school building, and the fact that the natural deposits had been truncated in the area where the Nursery building had previously stood.

The only structural feature observed during this monitoring was the stone wall base of the stone wall which had run along the northern side of the footpath to the church. This was, however, standing before demolition of the buildings and structures in this area, so is not archaeologically significant, although probably of mid-19th Century date.

A small land drain was also observed during monitoring of the stripping in area 2, however this is deemed of little or no archaeological significance.

Unfortunately, no evidence of prehistoric, Roman, Saxon, or medieval activity was recovered during this watching brief, despite the site's location in roughly the centre of the original settlement. Furthermore, no evidence of post-medieval activity, particularly concerning the previous buildings that may have stood on this site, was recovered.

It is not, therefore, proposed that any further archaeological work / monitoring is required on this site.

PART II: THE HISTORIC BUILDING SURVEY OF THE AIR RAID SHELTER:

10. Introduction

10.1 This section of the report details the results of an historic building survey conducted on an air raid shelter at Frittenden Church of England Primary School, before the demolition of this structure for the construction of the new school building (detailed above). The structure was previously used as a storage facility for gym equipment and school toilets.

10.2 This part of the fieldwork was carried out by Compass Archaeology on the 26th July 2011.

10.3 Archaeological monitoring was undertaken further to a planning condition (Application No: TW/10/884) and in response to a recommendation made by Kent County Council for an historic building survey, because of the growing public interest in Kent's wartime past and the recognised importance of military structures no longer in original use. The fieldwork was also carried out in accordance with a Written Specification produced by the Heritage Conservation Group, Kent County Council (2011).

10.4 This part of the project was commissioned by Clare Gregory, of Burnsguthrie and Partners, and advice was given by Adam Single and Wendy Rogers at Kent County Council.

11 Site Location and Geology

11.1 A description of the site's general location and geology is included above (see section 2). The air-raid shelter itself was located to the rear (north-west) of the main school building – partially connected to it through an extension to the school (see fig. 19).

Fig. 19: Plan of Frittenden Church of England Primary School, with air raid shelter structure outlined in red.
In the description below, the long axis of the shelter is taken to be running north-south.

12. Archaeological and historical background of air-raid shelters:

12.1 History of air raid shelters

Air raid shelters were specifically built during World War II to protect the population against enemy air raids.

In September 1935 Stanley Baldwin (British Prime Minister) published 'Air Raid Precautions' – a circular inviting local authorities to make plans to protect their populations in case of war. Some towns began to make public air raid shelters, however some ignored this advice, such that in April 1937 the government created an 'Air Raid Precautions Act' to provide shelter and anti-gas precautions for the civil population, and the 'Air Raid Warden's Service' to attempt to encourage this further. In August 1938, with the threat of war greater, the 'Air Raid Precautions Act' was revised and Neville Chamberlain (Prime Minister) ordered that Air Raid Precautions volunteers to be mobilized – requisitioning cellars and basements for air raid shelters, etc.

Some air raid shelters were located in individual homes. For example, in late 1938 Anderson Shelters (small cheap shelters, designed to hold up to six people, and which could be half-buried in people's gardens) were designed. These were distributed to people living in areas expected to be bombed, given free to the poor, and could be bought for £7 by men who earned more than £5 a week. By the time of the Blitz 2.25million families had these shelters in their gardens. In March 1941, furthermore, the government began issuing Morrison Shelters – essentially steel cages that could be placed under tables, etc, within houses.

Other air raid shelters, or, at least, places to shelter during air raids, were more communal in nature. In March 1940 the government began to build such communal shelters, made of brick and concrete. Some people also used underground stations, railway arches (such as Tilbury Arches in Stepney), or left London every night (and spent the night in the caves in Chislehurst, Kent, for example). Other communal shelters were essentially trenches, covered with steel, etc. Eight large shelters were, eventually, built below ground in central London – although these fulfilled no real practical purpose as were not constructed until after the Blitz was over.

12.2 Air raid shelters in schools

Some air raid shelters were constructed in schools – such as this one at Frittenden Primary School. Schools within London were not allowed to re-open (following their closure when most children of school age were evacuated (September 1939)) until they had an adequate air raid shelter. Many of these, however, were not established structural shelters, but just reinforced rooms or basements.

12.2.1 'Air Raid Precautions in Schools' circular:

The 1939 'Air Raid Precautions in Schools' circular stipulated a number of requirements for air raid shelters within schools, following the re-opening of schools after children had returned from evacuation because of the absence of air raids. This included the fact that "In times of danger children should not be assembled in groups of more than 50 in any one protected room" – such that air raid shelters in schools had a limited capacity. It was also recommended that the shelters should be constructed away from, but within easy reach of, school buildings; and that they should have secure roofs (to protect against machine guns, splinters, anti-aircraft shell fragments etc). It was also suggested that shelters should have sloping floors with a sump at one end (with provision for pumping or bailing out this sump if it flooded); floorboards made of wooden duckboards or cinder or ballast; and seating along the walls on wooden benches (with each child allowed 28 inches of space). Gangways were recommended to be a minimum of 24 inches for a double row of seating, and 18inches for a single row. The shelter had to be at least 72inches tall; and every shelter had to have a gas curtain over its entrance. There were not, however, any guidelines regarding the method of construction or materials to be used for such shelters.

The guidelines proposed in this circular are useful when looking at air raid shelters in schools – the features noted in the Frittenden shelter will be compared with those mentioned in this circular.

12.2.2 Accounts of air raid shelters in schools:

Accounts from school children who used such shelters survive, and provide an interesting social history aspect. For example, Dilys (from St Luke's Church, St Albans) has a French letter from a friend of hers who was living in London during the war, and who describes her experiences in a school air raid shelter. She describes how long banks of seats were positioned in the centre of the shelter; that three classes went into each air raid shelter; and that they carried out their schoolwork whilst in the shelter ("while the lot on one side recited their Latin verbs and the other sang in French, we tried to listen to poetry that we had to learn by heart").

Another account, from a Mrs Tessa Smith who went to Edgware Junior School, recalls how games and songs featured in school air raid shelters: "We chanted our tables, we did our spellings, we played hangman…we took books to read and we sang patriotic songs, so we could have filled an hour reasonably cheerfully".

The below photograph (fig. 20), from Manchester Libraries, provides a further indication as to what air raid shelters in schools were like – with the two benches down the side and children arranged along them.

Fig. 20: Photograph of children in air raid shelter in Manchester.

12.2.3 Archaeological work on air raid shelters in schools:

Previous archaeological work has been carried out on school air raid shelters – such as those at Edgware Junior School investigated by archaeologists from UCL and Hendon and District Archaeological Society in 2006. This uncovered an air raid structure located below ground, approximately 15m in length, made of concrete, and with artefacts from the period remaining it (an inkwell, hurricane lamp, heater, etc). Grafitti – both of a sailing ship and maths problems – was also recorded on the walls.

Another historic building survey was carried out by Archaeology South East of an air raid shelter at Minster in Sheppey Primary School in 2008. This structure was rectangular in plan, had a concrete roof and two traverse entry doorways (with in situ doorways and traces of a further diagonally set doorway within the passage intended to offer extra protection against blast damage). It was constructed of yellow brick, in an English bond, with several small ventilation openings, and the interior of the structure had two separate chambers.

Further archaeological work has been carried out on the air raid shelter at Beechwood School, in Luton (Archaeological Solutions Ltd, 2010). This structure was E-shaped (consisting of three ranges), with a central entrance and flanking tunnels. Although most of the fixtures and fitting of the air-raid shelter were lost, traces of benches lining the walls, partitioned areas for storage or WCs, and frames for two staggered doorways at the entrance, were observed.

The findings of such archaeological work will be considered, compared, and referred to, throughout this study.

12.2.4 School air raid shelters in Kent:

There were other school air raid shelters within Kent – such as that at Slade Primary School in Tonbridge (considered vulnerable as it was close to the town centre and on the route of German bombers flying to London); and at Sutton Valence Primary School, near Maidstone.

Such air raid shelters were probably constructed in schools in Kent because of the general fear of being bombed that existed during the war. The location of Kent, on the way to and from London from the continent, meant that it may have been considered more vulnerable in terms of bombing – particularly with the possibility of bombers dropping their bombs on their way back from London. This may explain why an air raid shelter is found in the essentially rural location of Frittenden.

12.3 The Frittenden air raid shelter

Unfortunately, very little is known specifically about the air raid shelter at Frittenden Primary School. No records have been found that refer to its construction, etc, and no social accounts of life within it, etc.

It is presumed that the shelter was constructed during the general period of construction of such shelters – possibly 1939 – for the use of the school. Nothing further is gained concerning the date of construction from cartographic evidence as, for obvious reasons, it is not depicted on the pre-war maps and yet is on the post-war maps!

Further information is known about the later history of the structure. For example, it remained a separate structure (separate from the main school building), until 1997-98 – when the part connecting the school to the shelter was built.

Fig. 21: Painting of Frittenden School, with air raid shelter visible in far right of the image. Unknown date, on display in the school.

13. Objectives and scope of the historic building survey

13.1 The objective of the project was described within the Kent County Council 'Specification' (2011): "to preserve, by record, evidence of the construction, development and function of the buildings and seeks to study and interpret such evidence."

This will include a photographic survey and written survey.

14. Methodology

14.1 In line with the 'Specification' the structure and its immediate setting were inspected, and a thorough photographic survey undertaken. This included the exterior as well as all interior rooms. The photography comprised a mixture of general shots, more formal scaled views, and detailed studies of particular areas and features.

14.2 The photographic record was related as appropriate to the floor plans, which were provided by Burnsguthrie Architects.

14.3 In conjunction with the on-site survey reference was also made to any documentary sources, particularly the 1939 'Air Raid Precautions in Schools' circular, and other air raid shelters in schools.

14.4 The site archive

The records from the archaeological project (written notes and photographs) will be ordered in line with MoL *Guidelines for the Preparation of Archaeological Archives* and will be deposited in Tunbridge Wells Museum.

15 The Historic Building Survey

The following section will cover all features observed in the air raid shelter building – both external and internal – and discuss their possible function / purpose, date, significance, and similarities to other school air raid shelters and the 1939 'Air Raid Precautions in Schools' circular. The later modifications to the structure will also be discussed.

15.1 The Exterior:

15.1.1 Dimensions:

The dimensions of the exterior of the building were as follows: 3.62m width (northern wall, plus 100mm to include the roof) – 3.64m width (southern wall, plus 107mm to include roof) X 18.36m length (western wall).

This building was, however, significantly longer than the original air raid shelter was, having been extended to the south (by *c.*5.27m) (see below). The exterior length of the original air-raid shelter (western wall) was *c.*13.09m. The dimensions of the original air raid shelter was therefore 3.62m in width (north-south) X 13.09m in length (east-west).

The total height of the original structure was *c.*2.42m (observed along the northern wall, where a sondage was dug down to the foundation slab). This foundation slab was a concrete footing, which projected out for 130mm from the main wall. The wall was brick-built, in an English bond, and *c.*30 courses in height. The differences in height noted around the structure (e.g. 2.02m at the south-western corner of the structure, 1.87m at the south-eastern corner, etc), is because of the different build-up of land, rather than different heights of the actual structure.

Fig. 22: Photograph of the concrete base of the air raid shelter, northern wall.

15.1.2 Later southwards extension:

The original air raid shelter structure had clearly been extended to the south at a later date. This extension was for a length of *c.*5.27m, extending the total length of the structure to *c.*18.36m. It seems likely that many of the other later modifications to the structure (internal partitions, addition of toilets, insertion of windows and vents, etc) took place at the same time – probably in the 1950s.

The divide between the original structure and later extension was clearly visible to the naked eye, particularly on the western wall. Here, a sharp divide between the older and newer parts of the structure was visible – with different types of brickwork and mortar (see discussion below). The later southern extension was keyed into the original air-raid shelter structure. Three courses were built straight onto abutting the original structure, then the original structure was cut away for two / three / four courses to insert the new build.

Fig. 23: Photograph of the western wall, looking north. The more recent southern extension is visible in the foreground, with the original air raid shelter wall in the background.

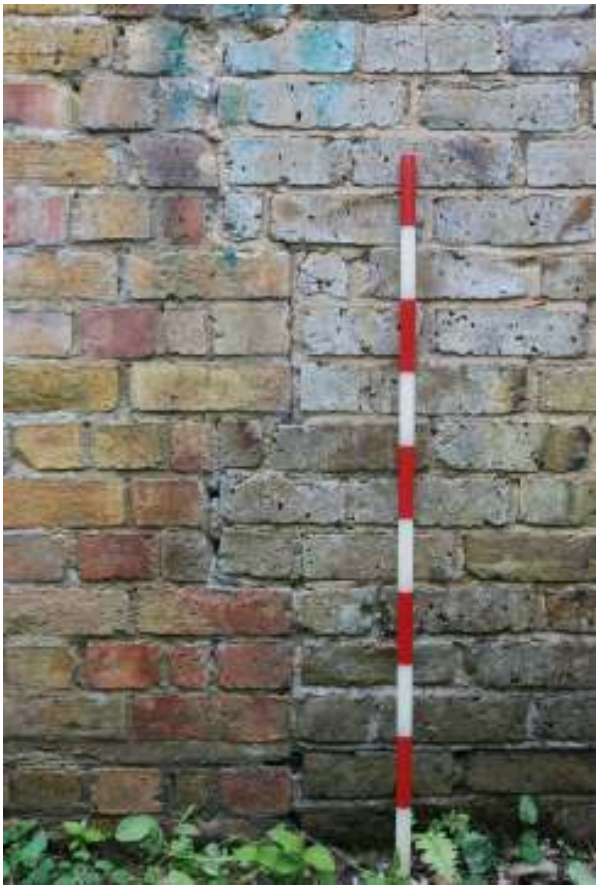

Fig. 24: Photograph of the line between the original air raid shelter wall (left hand side of the image) and the southern extension (right hand side of the image) - western wall. The different brickwork and mortars can clearly be seen. The way in which the more modern wall is 'keyed in' to the original wall is also visible.

The join between the original and later parts of the structure was not so obvious on the eastern wall. A line in the whitewashing was, however, observed (along with the different types of brickwork, mortar, coursing, etc).

Fig. 25: Photograph of the line between the original air raid shelter wall (right hand side of image) and the southern extension (left hand side of image) – eastern wall. The line between them is clear.

15.1.3 The Structure:

The original air raid structure was brick built. This consisted of mainly yellow-stock bricks (with the occasional red brick), set in a very coarse yellow-mortar and in a regular English bond. Five courses, from the base foundation slab, were visible underlying a damp course, formed of two layers of slate. It should be noted that this damp course was not visible in the later southern extension of the building.

Fig. 26: Photograph of the northern wall of the air raid shelter. This is an original wall.

The later southern extension of the structure was also brick built. This consisted of grey-yellow bricks, set within a yellow mortar, and in a stretcher bond (stretchers over stretchers).

Fig. 27: Photograph of the western wall of the structure, looking north. The more recent extension can be seen in the foreground.

The thickness of the walls was 0.36m (northern and eastern walls) in the original air-raid shelter structure. This was different from the thickness of the walls in the southern extension – *c.*0.29m. Interestingly, the walls in the southern (extension) part of the structure were cavity walls – so the wall was constructed of two 110mm-wide bricks, with a 70mm cavity between them. This is further evidence that this southern extension must have been constructed after the structure ceased to be used as an air raid shelter, as having cavity walls in an air raid shelter would have been very unwise.

15.1.4 The Roof:

The roof of the original structure was made of concrete, and covered, probably at a later date, by felt roofing. This 'overhung' the brick structure by 100mm (the concrete), and an extra 75mm for the later felt covering. The same type of roof was observed over both the original and later parts of the structure.

The roof slab was *c.*195mm in thickness at the north-eastern corner of the air-raid structure; and *c.*195mm at the south-eastern corner of the whole structure.. Interestingly, it was only 155mm thick at the north-western corner, and 150mm at the junction between the original and later structure along the western wall. It was, therefore, thinner towards the western end. The roof, therefore, sloped down towards the west. This may have been deliberately constructed as such, in order to enable water to be drained off the roof.

The square upstand, observed towards the southern end of the original air raid shelter structure, was presumably added to the roof at a later date (as most air raid shelters had flat roofs, with no additions, etc). It was positioned over the toilets, and may be a water-tank of some description, presumably added at the same time as the toilets (1950s).

Fig. 28: Photograph of the roof of the structure, looking south.

Fig. 29: Photograph of the roof of the structure, looking south-west, with the church in the background.

15.1.5 Vents:

A number of vents were observed in the exterior of the structure, one of which may have been contemporary to the original air-raid shelter, but most of which were probably added at a later date.

The vent observed in the middle of the northern wall, *c.*135mm beneath the top of the brickwork, was probably original to the air-raid shelter, as it would have been necessary to ventilate the structure, appears different from the other (later) vents, and appears to 'fit' in with the surrounding wall. It measured 310mm (width) X 245mm (height), and went through the whole thickness of the wall (for 360mm). There was a layer of slate on the top of the vent, and it was rendered on the other three sides. There would, presumably, have been some form of metal or ceramic grill, etc, over the front of it. This could have been closed to protect against gas. Another matching vent was observed in the original southern wall of the air raid shelter (see 15.2.23).

Fig. 30: Photograph of the vent in the northern wall of the air raid shelter – probably original.

Three more vents, of similar sizes and types of construction, were observed in the northern part of the western wall, i.e. in the original air raid shelter part of the building. These, however, appear to have been knocked through the wall at a later date. This is because parts of brickwork have been cut away by the insertion of the vents, and because they are mortared in with a different (greyer) type of mortar. They all measure 230mm X 230mm, and retain terracotta grills, though with no sign of being closeable.

Fig. 31: Photograph of a later vent in the western wall of the structure.

Fig. 32: Photograph of a later vent in the western wall of the structure.

Two more vents (of similar size and type) were also observed in the northern part of the eastern wall (within the area of the original structure). These were, presumably, constructed at the same time as the rest of the vents, i.e. a later date / post-war.

These vents were of a similar size and construction type to the two vents observed in the southern part of the western wall, and the two vents in the southern part of the eastern wall (within the later southern extension to the structure). These appear to have been inserted at the same time as this (the southern extension) was built, as fit in with the surrounding brickwork (measuring one brick's length and three bricks' height, to fit in nicely), and use the same grey mortar. It therefore seems likely that the extra vents in the

original air raid shelter part of the structure were inserted at the same time as these vents, and therefore at the same time as the southwards extension of the structure.

15.1.6 Windows:

Five later windows were observed in the western wall, within the area of the original air-raid shelter, but clearly inserted at a later date.

The first three of the windows were located approximately 4.98m south of the northern end of the structure, for a distance of *c.*3.42m. The next two windows were located *c.*9.91m south of the northern end of the structure, for a distance of *c.*2.21m.

The total height of the window openings, including lintels, was *c.*1.22m, and the width of each window opening *c.*0.99m. The actual windows themselves measured approximately 0.975mm in height, by *c.*0.98m in width.

It is clear that these windows were inserted at a later date. This is because of the brickwork surrounding the windows – more yellow-grey bricks within a grayer mortar - clearly contrasted with the brickwork in the original air raid shelter structure. The original brickwork was clearly cut out, the windows inserted, and new brickwork put in, in all of the area surrounding the windows. Pointing scores were also seen in the mortar of the new brickwork, reflecting where this was cut out for the insertion of the windows. It should also be pointed out that it would have been unwise (!) to have windows in an air raid shelter, clearly they were later additions.

Fig. 33: Photograph of the windows in the western wall, clearly inserted at a later date.

Fig. 34: Photograph of a window in the western wall. This clearly shows how the brickwork surrounding the windows was cut out, the windows inserted, and new brickwork put back in.

One further window was observed in the eastern wall – just north of the original southern end of the air-raid shelter (see fig. 49). This measured 0.99m in width, by 0.5m in height, and was clearly inserted at a later date (possibly in association with the southwards extension of the structure).

It seems likely that the windows were inserted at the same time as the vents, and the later southern extension of the structure. This is because of the similar type of brickwork and mortar, etc. One vent, in particular, was immediately adjacent to / south of the southern-most window insertion in the western wall, and these features appeared to be all of one build. Furthermore, it seems sensible and probable that such modifications would have been carried out at the same time. The style of the windows, in general, appears to date from the 1950s – such that it is suggested that this phase of modification took place during the 1950s.

15.1.7 Doorways:

A number of doorways were observed in the eastern wall. Most of these appear to be later additions or inserted when the structure was sub-divided into separate rooms, however the northern-most door is probably the original entrance into the air-raid shelter.

Two doorways were observed in the southern part of the eastern wall – a single door to the south, and a double door to the north of this. These were both located within the area of the later extension of the structure, and were therefore presumably constructed alongside this later building phase – to enable access to the rooms this extension provided.

Fig. 35: Photograph of the doorways in the southern part of the eastern wall (later in date than the original air raid shelter).

A single large entrance, splitting into two openings, was observed in the central part of the eastern wall – enabling access into the school toilets. A concrete lintel was observed above this opening, but beneath the original air raid shelter roof. This opening has clearly been cut through the original air-raid shelter structure, presumably in the 1950s extension.

One further doorway was observed in the northern part of the eastern wall. Although the present door is probably a later insert (with a concrete lintel over the top and a wooden doorframe, etc), it seems likely that this stood in the same location as the original doorway. This is partly because of the internal evidence for the original entrance into the air raid shelter (see section 15.2.5), and because the brickwork surrounding this doorway does not appear to have been cut away, etc.

Fig. 36: Photograph of the northern doorway, in the eastern wall. Although probably a later door and frame, this was probably the location of the original entrance into the air raid shelter.

15.1.8 Later changes to exterior eastern wall:

The central part of the original exterior of the eastern wall had been heavily modified by later (1990s) changes to the school.

The southern part of the eastern wall ran for a distance of *c.*6.73m outside, before 'going inside' and being connected with the school building itself (for a distance of approximately 7.24m). Here, the brickwork and concrete roof was plastered over, such that little of the original air raid shelter structure was visible. The eastern wall, itself, had been boarded and plastered over such that it was *c.*0.415m thick. Walls had also been built off the air raid shelter, running to the east, to form the connection with the main school. This connection was constructed in 1997-98, and clearly had an impact on the exterior eastern wall of the air-raid shelter. The northern part of the eastern wall then ran outside for a distance of *c.*3.79m.

Fig. 37: Photograph of the central part of the eastern wall, looking south. This is now enclosed, because of the 1997-98 connection to the school.

15.2 The Interior:

The interior of the structure will now be discussed. Each room will be considered in turn, starting with the southern-most room (labelled room 1), and working northwards. The rooms will be considered in relation to the features observed within them, particularly those which may have been associated with the air-raid shelter itself.

15.2.1 Room 1 (the southern room):

The first room recorded was that at the southern-most end of the structure, in the part of the structure that was clearly built after the air-raid shelter ceased to function as such, apparently in the 1950s.

15.2.1.1 This room measured approximately 2.44m in width (north-south), by 3.06m (east-west), and to a height of 1.95m. The room had a concrete ceiling (now plastered over), whitewashed walls (over the bricks), and a smooth concrete floor with a concrete skirting board (*c*.130mm high) around the whole room.

Fig. 38: Photograph of room 1, looking west.

15.2.1.2 The door was a typical wooden door, wooden framed, and with a concrete lintel over the top. It seems likely that this was not the original door into this room, as there was a gap of nearly 10mm between the existing doorframe and the concrete skirting (so it seems likely that the original door was wider).

Fig. 39: Photograph of the door in room 1.

Fig. 40: Photograph of the gap between the present doorframe and skirting, suggesting that the original frame was wider.

15.2.1.3 An indication that there may once have been an extractor fan in this room was gained, through the hole in the western end of the southern wall. This hole was circular (120mm diameter), and pipe-fixings were observed. This suggests that a pipe once went through it at one point, although it had been blocked up by concrete. The condensation lines observed underneath it support this interpretation.

Fig. 41: Photograph of the hole (possibly associated with an extractor fan) in the south-eastern corner of room 1.

Fig. 42: Photograph of the hole (possible extractor fan) in room 1.

15.2.1.4 The interiors of the vents, observed on the outside, were also observed. These were slate-lined, on the inside, and measured approximately 225mm X 230mm.

Fig. 43: Photograph of the inside of a vent.

15.2.2 Room 2:

15.2.2.1 This room measured approximately 2.44m in width (north-south), by 3.06m (east-west), and had a height of 2.00m (at its southern end) and 2.01m (at its northern end). This reflects the lower ground surface towards the north, such that the height of the room is greater. The room was broadly similar to room 1 – with a concrete ceiling, whitewashed walls, and a smooth concrete floor with a concrete skirting board.

Fig. 44: Photograph of room 2, looking north-west.

Fig. 45: Photograph of room 2, looking south-east.

15.2.2.2 The inside of the vents were seen in a similar way to room 1, and the double-door in this room was also probably a later door set within an earlier and wider doorframe.

15.2.2.3 The most interesting feature in this room, however, was the northern wall. This is the southern wall of the original air raid shelter structure, as fits exactly with the line of this observed on the exterior walls. This wall consisted of yellow stock bricks (and the occasional red brick), set in a grey-yellow mortar, and coursed in a regular English bond (the same as the original northern wall of the air-raid shelter). Twenty-four courses of this wall were visible, with a concrete skirting (later addition) covering the base of the wall.

Fig. 46: Photograph of northern wall of room 2 (original southern wall of the air raid shelter).

One blocked-up vent was visible in the centre of this wall. This measured 290mm (width) X 220mm (height). This was probably an original vent, matching that observed open in the northern wall (see 15.1.5), which was blocked up when the structure was extended.

Fig. 47: Photograph of blocked-up vent in original southern wall of air raid shelter (room 2).

The new wall was visible butting-up against the original southern wall of the air raid shelter. On the eastern side, it was keyed-in.

Fig. 48: Photograph of original southern wall of air raid shelter (right hand side of image) abutted by later southern extension (left hand side of image) – room 2.

15.2.3 Room 3 (Boys' toilets):

15.2.3.1 The next room (the boys' toilets) has been completed re-developed, and contains no features original to the air-raid shelter (despite lying within the original area of the shelter). It was being used as a boys' toilets, including urinals, toilets, sinks, pipes, drains, etc.

Fig. 49: Photograph of the boys' toilets, looking east. The window can also be seen in the background.

15.2.3.2 This room measured 3.77m (north-south), by 2.89m (east-west), by a height of 2.02m (up to the panels, with an extra *c.*30mm for the ceiling tiles and supporting frame / cavity, to reach the height of the concrete).

15.2.3.3 Parts of this room had tiled walls (including the southern wall and southern half of the eastern and western walls), with plastered walls elsewhere (the northern wall and northern half of the eastern and western walls). Painted plasterboard panels were observed over the ceiling, with the rough concrete ceiling visible under the panels. The room had a linoleum floor (with a concrete skirting and black bituminous paint covering over the base).

15.2.3.4 The interior of the windows, both in the western and eastern walls, were visible. As discussed above, these were clearly new constructions, inserted alongside the southern extension of the building.

Fig. 50: Photograph of archaeologist recording the boys' toilets, looking north. The windows, tiled and plastered walls, and linoleum floor can all be seen.

15.2.4 Room 4 (Girls' toilets):

15.2.4.1 This room was broadly similar to room 3 (the boys' toilets), in that it had been completely redone, with no features original to the air raid shelter surviving. Instead, the room consisted of toilets, sinks, drains, pipes, a water-heater, and a water-fountain.

Fig. 51: Photograph of the girls' toilets, looking south. The panelled ceiling, plastered walls, and linoleum floor can all be clearly seen.

Fig. 52: Photograph of the girls' toilets, looking north.

15.2.4.2 The room measured 4.13m (north-south), by 2.89m (east-west), with a height of 2.07m (up to the concrete slab).

15.2.4.3 This room also had a tiled north wall, and plastered brickwork on the east, west, and southern walls. The ceiling was made up of plasterboard panels, and the room had a linoleum floor and concrete skirting. The inside of the three windows inserted at a later date were also seen.

15.2.4.4 Of particular interest in this room was the high-level cistern observed running along on top of the toilets. This basically consisted of a row of individual cisterns, standing within an overall water-filled trough (of some description). These are relatively old-fashioned systems, which generally went out of use in the 1950s. It therefore seems likely that these toilets were inserted at some point in the 1950s. This provides further evidence, along with the stylistic dating of the windows, for the date of this phase of modification.

Fig. 53: Photograph of the high-level cistern in the girls toilets.

15.2.5 Room 5:

15.2.5.1 This room is arguably the most interesting in relation to the air raid shelter, as features relating to this survived.

15.2.5.2 The room measured a maximum of 4.23m (north-south), by *c*.2.92m (east-west), by a height of 2.11m (at its southern end) to 2.12m (at its northern end).

15.2.5.3 The small 'chamber' in the northern part of this room was probably where the chemical toilets stood (whilst the structure was in use as a shelter). This

chamber measured 0.92m (north-south) X 2.91m (east-west – the whole width of the structure). A 0.75m opening was constructed between two walls (both measuring *c.*1.08m out from the main eastern and western walls of the structure), through which access could be gained into this chamber.

Two curtain rails, with curtain rings still attached, were observed running north-south either side of the entrance to this chamber. These would have held curtains, behind which the chemical toilets (essentially buckets) would have been situated. It is possible that the presence of two different areas for the toilets reflects the use as one for girls and one for boys.

The presence of toilets of some kind in an air-raid shelter within a school seems like a necessity. This is reflected in the fact that such toilets are found in a number of other air-raid shelters in schools, such as at Ellington Girls School (Ramsgate, Kent), Edgware Junior School, etc.

Fig. 54: Photograph of the 'toilet chamber' in the far northern part of the air raid shelter, looking north.

Fig. 55: Photograph of the curtain rails in the toilets at the far northern end of the air raid shelter, looking east.

Fig. 56: Photograph of the 'toilet' chamber' in the far northern part of the air raid shelter, looking east. The original ventilator opening is also visible to the left of the frame, between the curtain rails.

Fig. 57: Close-up photograph of the curtain-rail in the toilets, with curtain rings still visible. A curtain would have hung from this, to screen the toilets.

15.2.5.4 A number of small vertical parallel holes were observed on both the eastern and western walls, and it is possible that these formed the fixtures / fittings onto which benches were attached. Three of these holes were observed on the eastern wall (each 80mm high and 25mm wide), with 0.695m between the northern-most hole and central hole, and 0.92m between the central and southern-most hole. Two holes were observed on the western wall – approximately 70mm by 30mm – and with 0.9m between them. The base of these holes was *c.*0.725m above the floor.

It cannot be definitely assumed that these holes were for benches – particularly because of their irregular spacing, and the fact that they were at such a height above the floor. If they were for benches, it seems more likely that they held some form of upright backings to such benches, rather than the seats themselves.

Such benches were positioned in all air-raid shelters in schools (see fig. 20 for a pictorial representation of this). Furthermore, the 1939 'Air raid precautions in schools' circular stated that all air raid shelters within schools had to have wooden benches (with each child allowed 28inches of space).

Fig. 58: Photograph of the small vertical holes in the eastern wall, possibly used to hold the fixtures for benches.

15.2.5.5 The entranceway had a type of blast–wall layout, to prevent against direct blasts from bombs, etc. On entering the structure, there were walls running west on both the left and right sides, forming a passageway between them (width of passageway = 0.92m). The wall on the right side stopped after *c.*1.08m for the opening into the toilet chamber discussed above. The wall on the left side ran for a distance of 2.05m (and was 0.35m wide). This wall did not survive, however the imprint of it was seen in the floor and up the adjacent eastern wall. At the end of this wall, a small opening (*c.*0.9m wide) led into the main chamber (to the south). The other side of this small opening was flanked by another wall projecting out of the western wall for a distance of 0.32m (0.36m wide).

This layout was almost-certainly part of the original entrance to the structure, through which the school children would pass in order to gain access. This therefore leads to the conclusion that, although the doorway appears to be a later addition / modification, the original entrance into the structure would have been in this same location.

Such 'blast walls' existed in other air raid shelters within schools, such as that at Minster in Sheppey Primary School.

Fig. 59: Photograph showing part of the 'blast-wall' layout (looking north-east). The present doorway is visible (where the original doorway would have been). The remnants of the wall on the left-hand side of the entrance are also visible, in the floor.

Fig. 60: Photograph of another part of the 'blast-wall' layout, looking north-west. The small section of east-west projecting wall, which formed one side of the second 'entranceway' into the shelter, is visible in the left-hand side of the image.

15.2.5.6 Associated with this blast-wall entrance layout, were two angled timber and concrete features, positioned in the passageways / entrances.

On the right-hand wall, on entering the structure, was one of these. This consisted of a 150mm wide rendered concrete panel (sticking out of the wall and running at an angle up it), besides a 100mm wide timber beam (on the same alignment and sticking out of the concrete), and then another 150mm rendered concrete panel. The timber projected out from the wall-line by approximately 75mm, and it was held in place (to the wall) by three recessed bolts. At the top of this, there was a tenon, and it was morticed into the top beam by a pegged joint. The timber and rendered concrete appeared to continue across the ceiling (to the south), for a maximum of 0.76m. It clearly once continued the whole way across the top of the passagway, to join a similar thing on the other side. The imprint of where the upright angled timber would have projected out of the wall could be seen in the floor directly opposite the surviving timber.

Another one of these features was observed on the right-hand side of the 'second entranceway', i.e. where one turns left to enter the main chamber. The timber beam and rendered concrete panels were observed in much the same way as before, although in this instance the concrete rendering covered the vertical stub end of the wall. The structure also clearly spread across the whole width of the passageway (as the imprint of the timber on the floor on the other side can clearly be seen).

These features held gas curtains of some description. A 'curtain rail' would have run across between the angled timber beams on either side of the passageways, onto which leather straps were attached and a gas curtain held in place. This would have acted as further protection for the children within the air-raid shelter, particularly from the fear of gas (a fear which was prevalent during the Second World War).

A similar feature was observed at the air raid shelter at Beechwood Primary School, and in the Ramsgate Flour Mill air raid tunnels. In this example, the rails and parts of the leather straps still survived (see figs. 65 and 66). This feature would have ensured that the air raid structure met the requirements set out in the 1939 circular 'Air raid precautions in schools' that stated that all air raid shelters in schools had to have a gas curtain.

Fig. 61: Photograph of one of the angled timber / concrete features. This is the one that is located on the wall to the right of the entrance.

Fig. 62: Photograph of one of the angled timber / concrete features. This is the one that is located on the small projecting wall positioned adjacent to the 'second entranceway'.

Fig. 63: Photograph of the top section of the first angled feature, showing how it was morticed in and stretched across the ceiling.

Fig. 64: Photograph of the floor adjacent to the first angled feature, looking towards the door. The 'cut-out' on the opposite side to the angled feature, where the opposing timber beam would have stood, is visible just beneath the right-hand side of the scale.

Fig. 65: Photograph of the angled features in the Ramsgate flour mill air raid tunnels.

Fig. 66: Close-up photograph of the beam running across between the two angled features in the Ramsgate Flour Mill air raid tunnels. The leather straps, off which a gas curtain would have hung, are clearly visible.

15.2.5.7 The ceiling of this room was made up of steel strips (three of which appeared to form a single corrugated panel, 260mm wide), lying underneath the concrete roof. It is possible that there were originally boards below this. This is more representative of what the original ceiling in the air raid shelter would have been like, rather than in the other rooms! The floor in this room was also concrete – as it would have been when the structure was in use as an air raid shelter, although it may have been covered with floorboards, as suggested in the 1939 'Air Raid Precautions in Schools' circular.

15.2.5.8 There were, however, some features in this room which were clearly of later date, undertaken after the air raid shelter ceased to function as such. This included the whitewashing of the walls (which presumably would not have been undertaken whilst the shelter was acting as a shelter, because such structures were essentially utilitarian), and the insertion of the vents in the eastern and western walls.

Fig. 67: Photograph of one of the later vents, clearly showing how it has been bashed through at a later date. The later whitewashing of the walls is also visible.

15.2.5.9 Furthermore, the southern wall of this room was clearly a later addition, presumably inserted when the toilets, etc, were added. This can clearly be seen by the way in which this southern wall was essentially keyed into the original north-south running walls. The original air raid shelter would not have had these dividing walls but, instead, have consisted of one single large room.

Fig. 68: Photograph of the southern wall of room 1 (scale up against this wall). This is clearly a later insertion.

Fig. 69: Photograph of the join between the eastern and southern walls of room 1. This clearly shows how the southern wall has been inserted in / bashed through the eastern wall, at a later date.

15.3 Location of the shelter

The 1939 circular 'Air raid precautions in schools' stated that air raid shelters in schools should be located close enough to school buildings that they could be reached easily in the event of an attack, but away from the actual school buildings themselves.

The Frittenden air raid shelter does appear to be located close to the school buildings – definitely close enough that it could be reached in the event of an emergency. It could, however, be argued that it was located a little too close to the buildings, although it must be remembered that Frittenden is a small school so there is little room or space for such structures to be constructed.

Fig. 70: Photograph of the school and air raid shelter, looking south-west. The air raid shelter is visible in the right-hand side of the image.

16. Conclusions

This historic building survey has observed and recorded a number of features associated and contemporary with the structure when it was in use as an air raid shelter (some of which can be compared with other school air raid shelters and fit with the guidelines found in the 1939 circular 'Air raid precautions in schools'). It has also observed and recorded the later modifications that the structure underwent – most noticeably the southwards extension of the structure in the 1950s (and associated insertion of windows, vents, partition walls, and toilets); and the 1997-98 connection of the structure to the main school building.

The original air raid shelter would have measured approximately 13.09m (in length, north-south) by 3.62m (in width). It was approximately 2.42m in height, on a concrete base. It was brick-built, with a concrete roof which sloped down slightly to the west (to enable water to drain off the structure). Two vents, one at either end of the structure, existed. Internally, the shelter consisted of one large room. The entrance was through a door located in the same position as the present northern door on the eastern wall. On entering the shelter, a series of 'blast-walls' and gas curtains would greet you, before entering the main shelter itself. A partitioned 'chamber', at the far northern end of the shelter, was used for two chemical toilets, separated by curtains. Inside the main room in the shelter, benches were probably attached to the eastern and western walls.

The modifications undertaken to the rest of the structure (see below) mean that it was not possible to gain a complete view of what the air raid shelter may have been like. For example, it is possible that there was another entrance to the shelter at the southern end, as the shelter at Minster in Sheppey Primary School had, but that this disappeared with the later modifications to the southern part of the structure. It is also possible that other features once existed in the shelter – maybe graffiti drawn by the children whilst they were in the shelter, or evidence for the lighting which was used.

Later modifications to this structure have rendered some parts of it unrecognisable as an air raid shelter (particularly the toilets). The majority of these modifications probably took place at the same time – probably, based on the high level cistern system observed in the girls' toilets and style of windows, at some point during the 1950s. These modifications involved the southwards extension of the structure, insertion of partition walls, addition of toilets, and insertion of windows and vents.

What is particularly interesting, or surprising, about this phase of modification is the fact that they continued to essentially use the air raid structure that existed, and just added onto it. For example, they extended the roof, in the same style and design as it was, to create two storerooms. To use a wartime utilitarian structure in such a way, rather than creating a new one or building separate sheds, etc, is surprising.

The structure remained broadly the same from this date onwards (until demolition in 2011). This is with the exception of the expansion of the main school building, to the west, to join up with the air raid shelter structure. This took place in 1997-98, and impacted upon the central exterior section of the eastern wall of this structure.

17. Bibliography

Air Raid Shelters - http://en.wikipedia.org/wiki/Air-raid_shelter

Archaeological Solutions Ltd, *Proposed Extension, Beechwood Primary School, Luton Road, Luton, Bedfordshire – Archaeological Observation, Investigation, Building Recording, Analysis and Publication* (2010).

Archaeology South East, *The Air Raid Shelter at Minster in Sheppey Primary School, Brecon Close, Minster – Historic Building Record* (2008).

British History Online, *Frittenden* - http://www.british-history.ac.uk/report.aspx?compid=63397

Frittenden - http://en.wikipedia.org/wiki/Frittenden

Frittenden: The Search for the Treacle Mines - http://www.villagenet.co.uk/highweald/villages/frittenden.php

Frittenden Historical Society, *Brief History of Frittenden* - http://www.frittendenhistoricalsociety.co.uk/frittenden/file/history.php

Frittenden Parish Council, *A Guide to the Village of Frittenden* - http://www.frittendenpc.kentparishes.gov.uk/UserFiles/file/frittenden_guide_160811.pdf

Frittenden Parish Council, *A Short History of Frittenden* - http://www.frittendenpc.kentparishes.gov.uk/default.cfm?pid=763

Kent County Council, *Historic Environment Record* - http://www.kent.gov.uk/ExploringKentsPast/

Kent County Council, *Kent Landscape Information System* - http://www.kent.gov.uk/klis/home.htm

Kent Past, *History of Frittenden* - http://kentpast.co.uk/Frittenden.html

Moshenska, G, 'Unearthing an air-raid shelter at Edgware Junior School', *Historical Archaeology* (2007).

National Society Archive (held by Church of England Archive) – *1840s documents and letters relating to the foundation of Frittenden School* – provided by Clare Gregory, Burnsguthrie.

St Luke's Church, St Albans, *Sharing Stories: Air Raid Shelters* - http://www.saint-lukes.co.uk/sharing_stories_shelters.php

Subterranea Britannica, *Tonbridge – Slade School Air Raid Shelter* - http://www.subbrit.org.uk/sb-sites/sites/t/tonbridge_slade_school/index.shtml

Thanet Underground, *Ramsgate Flour Mill Air-Raid Tunnel* - http://thanetunderground.blogspot.com/2007/01/ramsgate-flour-mill-rank-hovis-air.html

Cartographic Sources:

Kent County Council Centre for Kentish Studies, *Here's History: Kent* - http://www.hereshistorykent.org.uk/displayArticle.cfm?type=Map&genID=1&placeID=176&placename=Frittenden&categoryID=23

The County of Kent in 1801 – A Reproduction of the First Published Ordnance Survey Map of Great Britain (1990).

APPENDIX I: Kent County Council SMR Summary Form

Site Name: Frittenden Church of England Primary School	
Site Address: Frittenden Church of England Primary School, The Street, Frittenden, Kent, TN17 2DD	
Summary: Archaeological watching brief during groundworks before the construction of a new school building uncovered no archaeological finds or features. The historic building survey of the air raid shelter recorded a number of features associated with the structure's use as an air raid shelter, and evidence for its later modifications.	
District/Unitary: Tunbridge Wells	**Parish:** Frittenden
Period(s): Modern (20th Century)	
NGR: TQ 81382 40965	
Type of archaeological work Watching Brief and Historic Building Recording	
Date of Recording: 26.7.2011 (Historic Building Recording); 11.10.2011 (Watching Brief)	
Unit undertaking recording: Compass Archaeology Ltd	
Geology: Weald Clay	
Title and author of accompanying report: Frittenden Church of England Primary School - An Archaeological Watching Brief and Historic Building Survey**.** Jeffery, E.	
Summary of fieldwork results (begin with earliest period first, add NGRs where appropriate) An archaeological watching was carried out during groundworks before the construction of a new school building. No archaeological finds or features were recorded during this, with the natural clay deposits observed at a high level (c.0.3m beneath modern ground-surface). An historic building survey was carried out on the World War II air raid shelter. This recorded a number of features associated with the use of the structure as an air raid shelter (gas curtains, blast walls, toilets, etc), as well as evidence for the later modifications of the structure (most noticeably the southwards extension of it and its division into separate rooms).	
Location of archive/finds: Compass Archaeology Ltd	
Contact at Unit: Geoff Potter	**Date:** 21st October 2011

APPENDIX II: Archaeologia Cantiana Summary

A watching brief and historic building survey was undertaken at Frittenden Primary School, Frittenden (TQ 81382 40965) in July and October 2011, prior to the demolition of the existing buildings and construction of a new school building.

No finds or features of archaeological significance were uncovered during the watching brief, undertaken during the stripping of the area before the construction of the new building. The natural clay deposits were observed at a high level, *c.*0.3m beneath the modern ground-surface.

The historic building survey investigated the World War II air raid shelter. This recorded a number of features associated with the use of the structure as an air raid shelter, including evidence for gas curtains, blast walls, and toilets; as well as evidence for the later modifications of the structure, particularly the southwards extension of it and its division into separate rooms.

APPENDIX III: OASIS Form

OASIS ID: compassa1-112341

Project details

Project name	Frittenden Church of England Primary School - watching brief and historic building survey
Short description of the project	A watching brief and historic building survey was undertaken at Frittenden Primary School, Frittenden (TQ 81382 40965) in July and October 2011 (respectively), prior to the demolition of the existing buildings and construction of a new school building. No finds or features of archaeological significance were uncovered during the watching brief, undertaken during the stripping of the area before the construction of the new building. The natural clay deposits were observed at a high level, c.0.35m beneath the modern ground-surface. The historic building survey investigated the World War II air raid shelter. This recorded a number of features associated with the use of the structure as an air raid shelter, including evidence for gas curtains, blast walls, and toilets; as well as evidence for the later modifications of the structure, particularly the southwards extension of it and its division into separate rooms.
Project dates	Start: 26-07-2011 End: 11-10-2011
Previous/future work	No / No
Type of project	Recording project
Current Land use	Community Service 1 - Community Buildings
Monument type	AIR RAID SHELTER Modern
Monument type	WALL Post Medieval
Significant Finds	CLAY PIPE Post Medieval
Significant Finds	DRAIN PIPE Post Medieval
Significant Finds	STONE Post Medieval
Prompt	Planning condition

Project location

Country	England
Site location	KENT TUNBRIDGE WELLS FRITTENDEN Frittenden Church of England Primary School
Postcode	TN17 2DD
Study area	200.00 Square metres
Site coordinates	TQ 81382 40965 51.1386027394 0.593081386222 51 08 18 N 000 35 35 E Point
Height OD / Depth	Min: 43.70m Max: 44.26m

Project creators

Name of Organisation	Compass Archaeology
Project brief originator	Heritage Conservation Group, Kent County Council
Project design originator	Kent County Council

Project director/manager	Geoff Potter
Project supervisor	Emma Jeffery
Type of sponsor/funding body	Developer
Name of sponsor/funding body	Burnsguthrie and Partners, Architects

Project archives

Physical Archive recipient	Tunbridge Wells Museum
Physical Contents	'Worked stone/lithics'
Digital Archive recipient	Tunbridge Wells Museum
Digital Contents	'Worked stone/lithics'
Digital Media available	'Images raster / digital photography','Survey','Text'
Paper Archive recipient	Tunbridge Wells Museum
Paper Contents	'Worked stone/lithics'
Paper Media available	'Context sheet','Correspondence','Map','Photograph','Plan','Report','Unpublished Text'

Project bibliography 1

Publication type	Grey literature (unpublished document/manuscript)
Title	Frittenden Church of England Primary School - An Archaeological Watching Brief and Historic Building Survey.
Author(s)/Editor(s)	Jeffery, E
Date	2011
Issuer or publisher	Compass Archaeology
Place of issue or publication	5-7 Southwark Street, London, SE1 1RQ
Description	Report covering both the watching brief and historic building survey (of the air raid shelter) undertaken before the construction of a new school building at Frittenden Church of England Primary School. This includes written description of findings, photographs, plans, levels, finds analysis, and reference to historical / archaeological evidence.

Entered by	Emma Jeffery (emma@compassarchaeology.co.uk)
Entered on	26 October 2011

APPENDIX IV: Finds report

Clay pipe – 1 fragment of a stem *(c.*30mm long) recovered from the southern side of the stone wall base in area 1.

Worked stone – oolitic limestone, moulded face and chamfered face, measures *c.*383mm X 199mm X 91mm.

Land drain samples (Sue Pringle, CBM specialist) – three parts sampled (measured *c.*320mm X 46 – 48mm X 8mm). Complete extruded land drain. Pipe section is oval, internal diameter range is *c.*30-35mm. Fabric is fine, orange-red, with moderate red to black clay inclusions and calcium carbonate. Calcium carbonate voids suggest high-fired. *c.*1830 – 1950.