Archaeology South-East

ASE

Archaeological Watching Brief Report
Casa Mia, Alverstone
Isle of Wight

NGR: 457756 885560

ASE Project No: 7112
Site Code: CMA15

ASE Report No: 2015186
OASIS id: archaeol6-212330

By Kristina Krawiec

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Abstract

In April 2015 Archaeology South-East were commissioned, on behalf of Clancy Docwra, to undertake a strip map and sample within the garden of Casa Mia, Alverstone, Isle of Wight. The works involved the excavation of a pit for the housing of a new pump as well as small service trenches to connect the pump to the house.

During the excavation of the pit a sequence of channel edge/floodplain deposits were recorded and sampled. The subsequent analyses demonstrated accumulation of sediment occurring in the mid-15th to mid-17th centuries AD. The environmental proxies assessed demonstrated a freshwater environment prevailed at the site with a mixed agricultural economy surrounding the sample location. The insect remains indicated the possible deposition of refuse, derived from stable or building waste. No further work is recommended for this sequence due to the variable preservation of environmental remains.

CONTENTS

1.0 INTRODUCTION

1.1 Site Background

1.1.1 Archaeology South-East (ASE) was commissioned by Clancy Docwra to undertake archaeological mitigation ahead of proposed flood alleviation works. The site, is located in the garden of the domestic residence Casa Mia and the works comprised the excavation of a pit to install a flood water pump (centred on NGR 457756 885560; Figures 1 and 2).

1.2 Geology and Topography

1.2.1 The proposed works were located in the rear garden of a domestic property, Casa Mia, in the village of Alverstone and on the edge of the floodplain of the River Yar (Figure 1). The garden was lawned with some planting and a flood bank to the east to protect the area from flooding. The site lies to the south of a diverted mill stream and the disused 'Newport Junction Railway' (now a footpath/bridleway), Casa Mia being the old station house.

1.2.2 The site is situated within the valley of the River Yar (Eastern), which forms the southern and western boundaries of the site. The river rises at St Catherine's Down near Niton closest to the southerly point of the island and drains into the sea in the vicinity of Bembridge.

1.2.3 The superficial geology of the site is mapped by the British Geological Survey as alluvium. These deposits have been demonstrated to contain significant peat deposits which have resulted in the Alverstone Marshes being designated as a SSSI (Natural England). These alluvial deposits cap ferringous sands of the Lower Greensand Group, which outcrop on the valley sides to the north and south of the river floodplain (Geology of Britain Viewer, accessed 06/03/2015).

1.2.4 An auger survey carried out by Rob Scaife in 2005 as part of the excavations to the south of the site, revealed a c. 7m deep sequence of Holocene peats and organic silts. The underlying sands were overlain by 6.60m of alternating silts and peats which were then sealed by c. 1m of alluvium. The preliminary assessment carried out on these sediments indicated poor diatom preservation but an excellent pollen assemblage. The pollen indicated that the surrounding environment was one of fen carr woodland with hazel dominated dryland woodland. Towards the top of the profile the woodland changed to a lime dominated environment suggesting a post-elm decline date for the sediment accumulation. The project was begun in 2005 and is only now undergoing applications for further work due to problems in funding. As such, no radiocarbon dating or other environmental proxy work has been carried out.

1.3 Planning Background

1.3.1 The site had clear archaeological potential for palaeoenvironmental remains of Neolithic and later prehistoric date, as demonstrated by previous work in close proximity to the site (Jane Corcoran- English Heritage and Rob Scaife *pers. comm*.) and as summarised in an *Archaeological Desk Based Assessment* (ASE 2012). To the south of the property lies the nationally important site of Alverstone, a 4m thick sequence of wooden and cobble-built causeways thought to date to at least the Anglo-Saxon and Saxo-Norman period with possible prehistoric remains underlying these (Mola timber assessment, provided by Jane Corcoran EH). The Alverstone site was also subject to an auger survey (Rob Scaife) with some limited

palaeoenvironmental assessment. This demonstrated the survival of up to 7m of Holocene sediments with good pollen preservation spanning the later prehistoric period to possibly the early medieval period.

1.3.2 A Design Report (Mott MacDonald 2014) recommended that due to the close proximity of a listed structure located 35m from the works (Alverstone Bridge) and archaeological interest within the local area, consultation with English Heritage and the local planning archaeologist should be sought. This consultation determined that mitigation measures were required during groundworks.

1.3.3 Clancy Docwra and ASE consulted the Isle of Wight Archaeologist who recommended a programme of controlled archaeological excavation within the footprint of the development be undertaken in advance of the construction works commencing. In the event of archaeological deposits being encountered and due to the limited possibility of redesign to allow preservation of such remains *in situ* a programme of hand excavation and recording was implemented so that preservation by record may be achieved as an appropriate form of mitigation.

1.4 Aims and Objectives

1.4.1 The general objective of this project was:

- To investigate and record any deposits of archaeological and palaeoenvironmental significance encountered during excavations within the footprint of the development

- To inform the IoW Archaeologist and the client during the course of fieldwork in the event that significant archaeological remains are encountered

- To make public the results of the work subject to any confidentiality restrictions

1.4.2 In addition, the proposed works have the potential to address a number of site specific research aims:

- Can the results of the recording define the dating of the sequences present; can the onset and cessation of peat formation on the site be established?

- Can the palaeoenvironmental sequence be further investigated? Post-fieldwork reporting of the fishing lake site to the south is yet to be completed and as such only a very broad understanding of site formation processes is known.

- Work carried out to date suggests that the wetland was being accessed from this area a long period of time. Are similar patterns of land use apparent on the current site and if so how does this activity relate to that observed to the south at the fishing lake site?

- Is there any evidence for earlier activity on the site? The fishing lake site is believed to be Anglo-Saxon in origin but are there earlier remains present at the development site?

- Can any cultural material be recovered and dated from the site to enable a better contextual framework of the activity recorded to the south?

1.5 Scope of Report

1.5.1 This document reports on the fieldwork carried out by Kristina Krawiec (Senior Archaeologist) in April 2015 and the subsequent palaeoenvironmental assessment of deposits encountered.

2.0 ARCHAEOLOGICAL BACKGROUND

2.1 Introduction

2.1.1 The following summary is reproduced from the *Archaeological Desk Based Assessment* of the site with due acknowledgement (ASE 2012).

2.1.2 Evidence for prehistoric activity on the Isle of Wight is varied. Palaeolithic remains are recognised through findspots of artefacts, including several from the north-eastern coastline. Handaxes have been found within Ryde, and a large site at Priory Bay has revealed the largest assemblage from the island, over 1000 artefacts, some of which were found *in situ* (Wenban-Smith &Loader 2007). Mesolithic activity is confined to much the same types of evidence; however, recent surveys including the Wootton-Quarr project and the Isle of Wight Coastal Audit have added significantly to the number of findspots along the north-east coastline, including more than 100 picks and flint axes.

2.1.3 The Neolithic period is better represented on the island with monuments including long barrows, lithic working sites and others which have been dated scientifically to this period by the Wootton-Quarr project (Loader 2007). While evidence for settlement activity is sparse in the Neolithic, the concentration of material appears to be located around the river valleys, around the mouths of the northern estuaries and along the south coast (Waller 2007a). Three groups of Bronze Age barrows are located across the island, including one between Ashley Down and Brading Down, to the north of Alverstone. These monuments form the main evidence for Bronze Age activity and suggest areas of occupation, however, it is now thought that the coastal areas were much more densely occupied than previously thought (Waller 2007b).

2.1.4 The Iron Age on the Isle of Wight is represented by a wider range of archaeological monuments than seen in previous periods such as field systems, burial evidence, coinage and settlement sites including two hillforts at Brading Haven and Chillerton Down (Waller 2007b). In the Newchurch and Sandown areas the earliest evidence of settlement comprises an enclosed Late Iron Age farmstead at Knighton.

2.1.5 The excavations immediately to the south of Casa Mia identified a sequence of wooden causeways and other structures. Post-excavation analysis has yet to be completed but preliminary analysis has suggested up to seven phases of construction may be present and that one of these may be of Iron Age date (MOLA timber assessment), it should however be noted that no absolute dating has been carried out and preliminary analysis of timbers has suggested that most of the worked wood is of Anglo-Saxon date and is based on toolmark evidence. However the possibility exists for prehistoric remains predating the later use of the site.

2.1.6 The Roman period on the island is characterised by a continuation of trade from the Late Pre-Roman Iron Age, including evidence for a significant amount of wine importation prior to Caesar's invasion in the last century BC (Waller 2007c). However the majority of the available evidence suggests a largely local economy. The most significant remains of this period comprise substantial farmsteads or villas such as that at Brading, to the north east of Alverstone, which was built on the site of a Late Iron Age settlement (IOW Heritage Service 2008). In general, despite the no-doubt brutal conquest of the island by Vespasian's legions, evidence for the Roman military in the Isle of Wight is lacking. However the excavations at the fishing lake to the south of the site did recover a number of Roman artefacts which hint at a military presence, such as spear tips. Artefacts from this represent the only Roman remains

within the wider study area. Similarly there is little evidence for Roman roads on the island suggesting earlier tracks were used. (http://www.britarch.ac.uk/caf/wikka.php?wakka=AlverstoneFinds).

2.1.7 The Anglo-Saxon period on the Isle of Wight is somewhat confused for two reasons. Firstly the two main texts that refer to the island during this period, the Anglo-Saxon Chronicle and Bede's Ecclesiastical History of the English People, contradict one another over who conquered the island. The Chronicle indicates that it was 'Cerdic and Cynric' of the West Saxons in 530 AD (Swanton 1996), while Bede specifies the Jutes. Secondly the archaeological evidence of this period is fairly scarce, with burial sites being the most common, and therefore little evidence to support either of the two texts (Waller 2007c). Evidence for settlement sites stems from locations listed within the Domesday Book and the locations of pre-existing churches. Recent analysis has also suggested that the agricultural legacy of the Roman period, including the field systems and boundaries continues through the early medieval period (Waller 2007c).

2.1.8 The archaeological works at the fishing lake were undertaken in 2005 by Neil Phillips and Kevin Trott but post-excavation has not been completed with the exception of the timber assessment undertaken by MOLA. Accordingly the summary provided below has been compiled from information on the HER and various website and in consultation with English Heritage Science Advisor Jane Corcoran. The archaeological remains on site comprised the following:

- Timber alignments and associated planking representing four causeways
- Two major timber alignments post-dating the above. These supported a brushwood base overlain by rammed gravels
- Semi-circle of upright timbers and interwoven hurdles which may be the remains of a fish trap
- Timber 'platforms'
- Overlying brushwood and peat layers
- Sand bars on the eastern side of the causeway

2.1.9 Reference to available plans suggests general alignments of east to west (which would perhaps be parallel to the river course) and north to south (crossing the river). Photos taken during the excavation show that the latter alignment is heading towards the western side of the Station House (Casa Mia), between it and the greenhouse. Whilst it is difficult to provide definitive interpretations of the site given the relative absence of post-excavation analysis these remains illustrate the importance of Alverstone as a crossing point of the River Yar and the importance of the wetland as a resource, particularly with regard to fishing.

2.1.10 Assuming this was a crossing it would suggest that this was perhaps the tidal head and that the river was not navigable for larger vessels beyond this point. Access would have been possible via Bembridge Harbour (prior to medieval and later reclamation) and the Brading Gap. At this time those parts of the IoW east of the Yar were almost an island (e.g. John Speed map of 1611). The historical evidence also suggests that some settlement was established at Alverstone by the Anglo-Saxon period; the place name may be of Saxon origin (Gale 2014). It is variously documented as Alvrestone, Alfrichesto, Alureson, Alvrestone and Auverstone (Page 1912). Following the Norman Conquest the Isle of Wight came under the lordship of William FitzOsbern, an important and close ally of William the Conqueror. FitzOsbern shortly after founded Carisbrooke Priory, near Newport and fortified Carisbrooke

Castle, the site of the earlier Anglo-Saxon burgh. All of this suggests the importance placed on the island in terms of military significance (Basford 2007). The island was kept under a Lordship until the 13th century when the rights reverted back to the crown after the Lord died without leaving an heir.

2.1.11 The post-medieval development of Alverstone through to the present largely carries on the traditions of the earlier eras, with the area remaining largely rural in character. The later part of the 19th century and the 20th century saw the further development of the village, its transport links and tourism.

3.0 ARCHAEOLOGICAL METHODOLOGY

3.1 Fieldwork Methodology

3.1.1 The footprints of all intrusive works were excavated by machine or by hand as appropriate and were carried out under the supervision of a qualified environmental/wetland archaeologist. The excavation was then examined for archaeological remains and sampled for palaeoenvironmental analysis.

3.1.2 The excavation comprised a pit 2.34m x 2.27m and was excavated using a mini digger fitted with a toothless ditching bucket. All deposits were recorded using standard context sheets as well as being described using the Troels-Smith system of sediment classification (1955). The scheme breaks down a sediment sample into four main components and allows the inclusion of extra components that are also present, but that are not dominant. Key physical properties of the sediment layers are also identified according to darkness (Da), stratification (St), elasticity (El), dryness of the sediment (Dr) and the sharpness of the upper sediment boundary (UB). A summary of the sedimentary and physical properties classified by Troels-Smith (1955) and a stratigraphic breakdown of the deposits are provided in the Appendices.

3.1.3 A full digital photographic record was maintained throughout the excavation. The deposits were also hand drawn at a scale of 1.20. Deposits were recovered using a Russian hand auger and bulk 10l samples at measured intervals. The location of the excavation were recorded using an RTK GPS to link the site to Ordnance Datum.

3.1.4 Recovered material was assessed for multiple environmental proxies in order to establish its potential for providing information relating to past environment and human activity. Bulk samples collected from site were wet sieved through nested sieves and stored in wet, cool conditions. Specialist samples were taken from waterlogged contexts. Such samples targeted the recovery of pollen, ostracods, foraminifera, insects and waterlogged plants.

3.1.5 All finds were cleaned, labelled, sorted and analysed in accordance with the practices and standards outlined in the United Kingdom Institute for Conservation's *Conservation Guidelines No.2: Guidelines for the Preparation of Excavation Archives for Long Term Storage.* The site archive comprising paper, photographic and drawn records as well as finds will be kept in a secure location at all stages of the project. Permission will be sought from the landowner to deposit the finds and paper archive in an appropriate local museum. All necessary arrangements will be made and all procedures and requirements for the acceptance of finds and archive by the museum will be followed prior to their deposition. The site archive will be quantified, indexed and cross-referenced and checked prior to deposition.

3.1.6 In the event that the landowner wishes to retain the finds archive a sample of the finds will be deposited with the museum and the museum will be informed of the location and contact details for the rest of the archive. The landowner will be made aware of their responsibilities and the cost thereof, for retaining and conserving the site archive.

3.1.7 The full site archive (including finds) will be prepared in accordance with the *General Standards for the Preparation of* Archaeological *Archives Deposited with the Museum of London* (Museum of London, 1999).

3.2 Fieldwork Constraints

3.2.1 The restricted size of the excavation led to the use of a Russian auger in order to recover a full sediment sequence from the site.

3.3 The Site Archive

3.3.1 The site archive is currently held at the offices of ASE and will be deposited at a suitable museum in due course. The contents of the archive are tabulated below (Table 1).

Number of Contexts	10
No. of files/paper record	40
Plan and sections sheets	1
Digital photos	94
Permatrace sheets	1

Table 1: Quantification of site archive

4.0 RESULTS

4.1 Pump Trench

4.1.1 The final excavated size of the pump trench was 2.34m x 2.37m and was 2.20m in depth (Figure 3). The underlying geology was not reached although the Russian auger encountered sand at the base of the sequence.

4.1.2 This sand deposit was overlain by an organic black brown silt with woody fragments [008] this trended into a soft grey brown organic silt [007] 0.40m thick which in turn was overlain by a grey green silt clay [006]. These deposits were truncated by a large pit [009] which was infilled by chalk rubble [010] overlain by brick rubble within a black silt matrix [005], from which a small amount of 19th-20th century pottery and metalwork was recovered.

4.1.3 This pit was overlain by a blue grey silt clay [004] alluvial deposit which became more oxidised towards the top of the profile [003]. This was then overlain by a layer of clinker [002] which in turn was sealed by a loose rubbly made ground deposit [001]. No archaeological remains were recorded within the trench.

Context	Type	Description	Max. Length m	Max. Width m	Deposit Thickness m
001	Layer	Made ground, loose sandy silt clay, brisk rubble	Trench	Trench	0.30
002	Layer	Black brown clinker in silt clay matrix	Trench	Trench	0.10
003	Layer	Yellow orange mottled clay, coal and chalk	Trench	Trench	0.50
004	Layer	Blue grey silt clay	Trench	Trench	0.20
005	Fill	Black organic silt whole bricks	Trench	Trench	0.25
006	Layer	Soft grey green silt clay	Trench	Trench	0.44
007	Layer	Soft brown grey organic silt	Trench	Trench	0.40
008	Layer	Black brown organic silt	Trench	Trench	0.3-0.40
009	Cut	Possible pit	Trench	0.2	0.40
010	Fill	Chalk rubble fill of pit 009	Trench	0.2	0.40

Table 2: Recorded contexts

5.0 THE FINDS

5.1 Summary

5.1.1 A small assemblage of finds was recovered during the archaeological work at Casa Mia, Alverstone. All finds were washed and dried or air dried as appropriate. They were subsequently quantified by count and weight and were bagged by material and context (Table 3). All finds have been packed and stored following CIfA guidelines (2014). No further conservation is required.

Context	Pottery	Wt(g)	Fe	Wt(g)
[009] (010)			1	6
[005]	2	10		
Total	**2**	**10**	**1**	**6**

Table 3: Quantification of the finds

5.2 The Post-Roman Pottery *by Luke Barber*

5.2.1 The only post-Roman pottery from the archaeological work was recovered from context [005]. This produced two conjoining sherds from a refined whiteware tea cup with moulded twisted fluting and a green floral transfer-printed design (10g). A date in the second half of the 19th or early 20th century is likely.

5.3 The Ironwork *by Elke Raemen*

5.3.1 A circular-sectioned wire fragment (diam. 2.42mm) was recovered from possible pit [009] (fill [010]). The fragment is straight, perhaps from a skewer, and measured 202mm+ long. Although it is undiagnostic of date, it is unlikely to predate the 19th century.

6.0 THE ENVIRONMENTAL SAMPLES

6.1 Pollen *by Rob Scaife*

Methodology

6.1.1 Standard techniques for pollen concentration of the sub-fossil pollen and spores were used on six sediment sub-samples of 1.5 ml. volume (Moore and Webb 1978; Moore *et al*. 1992). Pollen counts of up to 150 grains per level were made counted for each level. Numbers obtained depended on pollen preservation in the different sediments types, being typically lowest in the mineral sediment. A pollen diagram (Figure 4) was produced using Tilia and Tilia Graph with percentages calculated as follows:

Sum =	% total dry land pollen (incl. *Alnus*)
Marsh/aquatic herbs =	% tdlp + sum of marsh/aquatics
Spores =	% tdlp + sum of spores
Misc. =	% tdlp + sum of misc. taxa.

6.1.2 Taxonomy in general follows that of Moore and Webb (1978) modified according to Bennett *et al.* (1994) for pollen types and Stace (1991) for plant descriptions. These procedures were carried out in the Palaeoecology Laboratory of the School of Geography and Environment, University of Southampton.

Results

6.1.3 The pollen assemblages are dominated by herbs with lesser proportions of trees and shrubs. Of the trees, *Alnus* (alder) is most important but derives from wetland habitats in the near region. Overall, the pollen profile shows little change throughout the 60cm of sediment with the exception of some increase in Lactucoideae (dandelion types) and fern spores in the upper sample at 1.62m. This is due to a change to more minerogenic sediment, poorer preserving conditions and changing taphonomy. Because of the general homogeneity throughout, no local pollen assemblage zones have been recognised and the basic plant groups are described.

6.1.4 *Trees and shrubs: Alnus* is most important (to 35%) with only small numbers of *Betula* (to 6%), *Quercus* (7%) and occasional *Fraxinus*. *Corylus avellana* type is the main shrub with values to 15% in the basal sample but less important above (5-7%). There are occasional *Salix* and *Calluna*. *Alnus* and *Salix* can be regarded as wetland/fen elements.

6.1.5 *Herbs:* Herbs are dominant throughout (av. 70-80% of total pollen). Poaceae (peak to 60 % and av. 30-40%) are dominant. Cereal pollen is present throughout with small numbers. Lactucoideae which attains highest values in the upper sample level (31%) and at 1.35m (20%) with an average of *c.* 10%. Other herbs comprise *Plantago lanceolata* (to 7%) and a range of taxa with occur in small numbers or only sporadically. These include *Ranunculus* type, Brassicaceae, Fabaceae, Chenopodiaceae, *Rumex* and Asteraceae types.

6.1.6 *Wetland/marsh herbs:* Cyperaceae are dominant (to 16% in the middle of the profile). There are few other taxa with individual occurrences of *Alisma* type, *Potamogeton* type and *Typha angustifolia* type.

6.1.7 *Ferns:* Pteridophyte spores comprise largely monolete *Dryopteris* type which are most important in the basal and upper levels (to 15%) with absence in the central part

of the profile. *Pteridium aquilinum* peaks in the middle of the profile (10%) but with otherwise small values (2-3%). There are occasional *Osmunda regalis* and *Polypodium*.

6.1.8 *Miscellaneous microfossils:* There are small numbers of reworked pre-Quaternary palynomorphs in the uppermost sample corresponding with changing stratigraphy, poorer preserving conditions and the consequent higher values of differentially preserved Lactucoideae and Pteropsida spores.

6.1.9 *The on-site vegetation*: The topographical position of the site on the floodplain of the Eastern Yar River is reflected in the pollen flora obtained. *Alnus* (alder) is consistent, being the principal tree recorded and this undoubtedly comes from growth in nearby carr woodland along the valley bottom or from more occasional growth proximal to the sampled site. Earlier analyses from Alverstone demonstrate the importance of the former along the Eastern Yar valley (Scaife 1980, 1987, 2003a, 2003b). Alder produces copious quantities of anemophilous pollen, which results in its over representation in pollen assemblages (Janssen 1969). By contrast, is *Salix* (willow) which is present in the upper half of the profile. This is usually poorly represented in pollen assemblages and it is possible that it was growing on the fringes of the river in proximity to the site. However, as with all of the pollen in this depositional environment, it is possible that there may have been fluvial as well as airborne transport.

6.1.10 The floodplain at the sample site was probably a grass sedge fen. Although a proportion of the grasses (Poaceae) will have come from the terrestrial zone, it is likely that a substantial proportion of this component comes from the wetland site. Cyperaceae (sedges), *Alisma plantago-aquatica* (water-plantain) and *Typha angustifolia*/*Sparganium* (reedmace and/or bur-reed) were also constituents. *Potamogeton* type (pondweed) may be indicative of slow flowing or standing water, although this taxon also includes arrow grass (freshwater) and may have been part of a wet herb fen.

6.1.11 There is little change throughout the profile and it is probable that sediment accretion occurred through overbank deposition. The uppermost sample has higher values of derived pre-Quaternary microfossils, which implies reworking of older sediment or more probably a change in sediment source with erosion of local bedrock.

6.1.12 *The dry-land habitat:* There are few trees and shrubs and there is a dominance of herbs which suggests that the local environment was largely open. It is realised that there may be an under representation of this component due to the dominance of autochthonous, especially grass, pollen.

6.1.13 Alder, noted as having highest arboreal pollen values was a constituent of the damper valley floodplains. *Quercus (*oak) and *Corylus* (hazel) were the principal remaining woodland trees. However, numbers are low and it is unlikely that there was any substantial growth in proximity to the site. Birch (*Betula*) and (*Pinus*) are similarly higher pollen producers and were of no local significance. Exceptions are lime (*Tilia*) and ash (*Fraxinus*) which are generally under-represented in pollen spectra (Andersen 1970, 1973). Here, there are only individual pollen occurrences and only occasional local growth is suggested. Earlier pollen data from the Eastern Yar valley and its tributaries (Scaife 1980, 1987, 1988, 2003a, 2003b, 2003c; Smith 1996) have shown dominance of woodland with lime until the middle Bronze Age and as such, this suggests that this profile is of historic age. This has been confirmed by radiocarbon measurements of Cal AD 1890-1905 (Beta-412-325) at 1.40 to1.50m

and Cal AD1450-2640 (Beta-412326) at 2.10 to 2.20m) (60+/-30BP and 390+/-30 BP respectively).

6.1.14 Overall, the pollen spectra are dominated by herbs of which pastoral taxa predominate with pollen of grasses (Poaceae), ribwort plantain (*Plantago lanceolata*) and other herbs. These suggest that a pastoral habitat prevailed in the region, and it is possible that a proportion of the pollen comes from the chalk downland which lies in relative proximity to the north of the site. There are also small numbers of cereal pollen throughout the profile with possible segetals including charlock (*Sinapis* type), Chenopodiaceae (goosefoot and orache) and knotweed (Polygonaceae). This clearly shows arable activity in proximity to the site and as such, a mixed arable-pastoral economy prevailed. No other evidence of cultigens was found.

6.1.15 As noted, the absence of trees and shrub pollen seen in the upper levels of other long pollen profiles from the nearby region and also at Alverstone suggested an historic age for the sediment. The paucity of lime (*Tilia*) pollen when compared with existing longer temporal sequences certainly implies a post middle Bronze Age date (i.e. post *c.* 3,500BP). Overall, the openness of the environment, at least local to the site, suggests a Saxon-medieval age or later date. This is in accord with the radiocarbon dates obtained of Cal AD 1890-1905 (Beta-412-325) at 1.40 to1.50m and Cal AD1450-2640 (Beta-412326) at 2.10 to 2.20m) (60+/-30BP and 390+/-30 BP respectively) see below.

6.2 Diatoms *by Tom Hill*

6.2.1 A total of six samples were submitted for diatom assessment from a sediment core at depths 1.61m. 1.73m. 1.85m, 1.96m, 2.09m and 2.23m. Full stratigraphic information is provided within the associated archaeology report, only brief descriptions will be provided here when attempting to contextualise the diatom results.

Methodology

6.2.2 0.5g of sediment was required for the diatom assessment preparation. Due to the relative silt and clay content of most samples, all samples chosen for assessment were first treated with sodium hexametaphosphate and left overnight, to assist in minerogenic deflocculation. Samples were then treated with hydrogen peroxide (30% solution) and/or weak ammonia (1% solution) depending on organic and/or calcium carbonate content, respectively. Samples were finally sieved using a 10µm mesh to remove fine minerogenic sediments. The residue was transferred to a plastic vial, from which a slide was prepared for subsequent assessment.

6.2.3 During preparation, visible inspections were undertaken at each stage. Samples from 1.61m and 1.73m were noted as containing high levels of iron mottling. In addition, organic material visibly increased with depth, with the basal two samples (2.09m and 2.23m) containing the highest organic content.

6.2.4 Where possible, a minimum of 100 diatoms were identified for each sample depth. Diatom species were identified with reference to van der Werff and Huls (1958-74), Hendy (1964) and Krammer & Lange-Bertalot (1986-1991). Ecological classifications for the observed taxa were then achieved with reference to Van Dam *et al*., (1994), Denys (1991-92; 1994) and Round *et al*. (2007). In a number of cases however, preservation was found to be too poor to enable complete counts to be achieved. In these instances, a complete slide would be traversed in an attempt to extract the diatom data available from the sample under assessment.

Results

6.2.5 A summary of the diatom results for the three samples is provided in Table 4. Overall, diatom abundance was very low, with the three uppermost samples (1.61m, 1.73m, 1.85m) found to be barren of diatoms. The remaining three samples from the bottom of the core did contain diatoms, although in relatively restricted abundance and diversity (increasing in abundance with depth).

6.2.6 Taxa were often identifiable to species level, but in some instances, identifications were only undertaken to genera level. This was often the case when only fragments of diatom frustules were encountered, providing insufficient morphological characteristics to enable successful identifications. When diatoms were encountered in sufficient abundance, Table 4 highlights the dominant species (>10% Total Diatom Valves; TDV) for each sample depth. In addition, a selection of key subordinate taxa (<10%TDV) are also highlighted. To assist in the subsequent assessment of palaeoenvironmental potential, simplified ecological and lifeform classifications for each species are also provided. In brackets next to each species name, capital letters refer to salinity preference (M = marine; B = brackish; F = fresh; BM = brackish-marine etc.). In contrast, the lowercase letters refer to lifeform (p = planktonic; b = benthic). Planktonic taxa live floating within the water column, whereas benthic taxa are those that live either attached to or within the substrate. Additional lifeform classifications can also be applied to diatom species (epiphytic, epipelic, epipsammic, aerophilous etc), but for the purposes of an assessment level study, these will only be referred to if/when relevant in subsequent discussions. A qualitative assessment of species abundance and diversity is also provided. If abundance is stated to be low, this infers that it was not possible to count 100 diatom frustules during the assessment. Similarly, if diversity is high, over 15 taxa were encountered during assessment; medium = 5-15 taxa; low = <5 taxa.

Depth	Dominant species	Other (minor) species	Abundance	Diversity
1.61m				
1.73m				
1.85m				
1.96m [007]	*Pinnularia spp.*	*Cocconeis placentula (F,b)* *Stephanodiscus spp.*	Low	Low
2.09m [007]	*Pinnularia spp.* *Cocconeis placentula (F,b)* *Anomeoneis sphaerophora (F-FB, b)*	*Cymbella spp.* *Eunotia spp.* *Navicula cuspidata (F,b)* *Mavicula cincta (F,b)* *Hantzshia amphioxys (FB, b)*	Medium	Medium
2.23m [008]	*Cocconeis placentula (F,b)* *Melosira spp.* *Pinnularia spp.*	*Cocconeis pediculus (F,b)* *Staureoneis acuta (F,b)* *Staureoneis anceps (F,b)* *Synedra spp.* *Navicula cincta (F,b)*	Medium	Medium

Table 4: Diatom assessment results

6.2.7 An absence of diatoms from the upper three samples means no palaeoenvironmental interpretations were possible for these sample depth. Diatom abundance and diversity was however found to increase with depth. The sample 1.96m depth contained limited diatoms, and a count of 100 was not possible despite traversing the entire slide. In contrast, diatoms were more abundant within 2.09m and 2.23m

6.2.8 *1.96m* – Only occasional frustules of the diatoms *Pinnularia* spp., *Stephanodiscus* spp. and *Cocconeis placentula* were encountered, with fragments of *Pinnularia* spp. being the most abundant. The inability to identify the *Pinnularia* and *Stephanidoscus* taxa to species level restricts any realistic chance of providing a reliable palaeoenvironmental interpretation, although these genera are more typical of freshwater habitats. In addition, *Cocconeis placentula* is a common freshwater benthic taxa, most often encountered in circumneutral or alkaline freshwaters. However its distribution can also extend into brackish settings (see Discussion for further details). Additional microfossils encountered during the assessment included the presence of abundant pollen and testate amoebae, with the testate amoebae *Centropyxis platysoma* typically encountered, in addition to smaller unidentifiable taxa (possibly *Difflugia* or *Cryptodifflugia* spp.)

6.2.9 *2.09m* – Fragments of *Pinnularia* spp. were once again common, whilst *Cocconeis placentula* was present in greater abundance than that found in the overlying sample. *Anomeoneis sphaerophora* was also often encountered. Subordinate taxa included N. *cuspidata*, N. *cincta* and *Hantzschia amphioxys*, in addition to fragments of *Cymbella* spp. and *Eunotia* spp. Whilst the fragmented nature of some of the diatoms once again meant many could not be identified to species level, the complete frustules are diatoms that are most often affiliated with freshwater environments, with *Cocconeis placentula*, *N. cuspidata* and *N. cincta* typifying this ecological niche. However, as highlighted above, *C. placentula* can sometimes be encountered in brackish settings and, whilst both *Anomeoneis sphaerophora* and *Hantzschia amphioxys* are also commonly associated with freshwater environments, they can also tolerate saline settings, often being encountered towards the top of the tidal frame. During the diatom assessment, testate amoebae were often encountered. Of particular note was the abundance of the testate amoebae *Centropyxis platysoma* and *Cyclopyxis arcelloides*.

6.2.10 *2.23m* – The final sample contains a broadly comparable assemblage to the one above, with fragments of *Pinnularia* spp. and *Cocconeis placentula* being some of the most typical diatoms, in addition to the presence of the planktonic genera *Melorisa*. Subordinate taxa once again include *Navicula cincta*, but *Cocconeis pediculus*, *Staurenoeis anceps* and *Staureoneis acuta* are also encountered. A freshwater setting at this sedimentary depth remains the most likely interpretation based on these findings. Abundant pollen, testate amoebae and occasional sphagnum leaves were encountered during the diatom assessment. *Centropyxis platysoma* was a typical testate amoebae found in relative abundance

6.3 Ostracods and Forams *by Jon Whittaker*

6.3.1 A total of four samples were assessed for otracods and forams. The unpublished results of the fishing lake site to the south of the site demonstrated no positive evidence (Whittaker, 2015) but the environment did appear to be freshwater.

Methodology

Sample depth	Weight processed
1.74-1.78m	50g
1.89-1.93m	50g
1.93-1.98m	50g
2.19-2.24m (base)	25g

6.3.2 The samples, once dried in the oven, were processed in the normal way using hot water, with sodium carbonate added to deflocculate any clay. The sieve size was 75 microns. Because of the high organic content of many of the samples, they had to be processed twice to achieve a good breakdown. Once this was achieved the samples were dried and stored in labelled plastic bags, before examination under the binocular microscope.

Results

1.74-1.78m Contains plant debris,?charcoal, iron mineral, ?algal cysts

1.89-1.93m Contains plant debris and seeds, insect remains,?algal cysts, valves of cladocera

1.93-1.98m Contains plant debris and seeds, insect remains,?algal cysts, valves of cladocera

2.19-2.24m Contains plant debris and seeds, iron mineral, coal/slag, testate amoebae

6.3.3 All the samples seemed to be of a decidedly freshwater nature. In spite of a careful search, no agglutinating foraminifera, which would indicate brackish saltmarsh, were found. These have an organic test, on which mineral grains are attached by organic cement and survive (if present) in the most inhospitable of environments. Nothing of a calcareous nature was found in any of the samples which does suggest decalcification and/or weathering – as also indicated by the presence of the iron (?manganese) mineral.

6.3.4 Plant debris and seeds were commonplace. Other finds – cladocera (water-fleas), ?algal cysts and testae amobae (in the basal sample) all indicate a freshwater environment prevailed throughout the sequence of deposition. Indeed, of some interest were the testate amoebae in the basal sample. They are the freshwater relatives of the foraminifera (protists with filose pseudopodia, rather than reticulose pseudopodia, as in foraminifera), which in this case probably belong to a species of *Difflugia.* They have an elongate, flask-like shell made of agglutinated mineral grains (silica) cemented together with organic cement, and a rounded aperture at one end. They live in all manner of moist and freshwater habitats from moss, soil, peat, to standing water (Ogden & Hedley, 1980).

6.4 Plant macrofossils *by Lucy Allott*

6.4.1 A total of 8 bulk samples were taken from waterlogged deposits to recover environmental material such as charred plant macrofossils, wood charcoal, fauna and mollusca and finds recovery as well as to select material suitable for C14 dating. The following assesses the contents of the excavation samples and the potential of the environmental remains to provide information regarding the local vegetation environment, fuel use and selection and the agricultural economy or other plant use.

Methodology

6.4.2 Four samples were selected for processing and since they all came from waterlogged deposits, they were wet-sieved. Sub-samples of 2 litres were washed through a stack of geological sieves ranging from 4mm to 250µm, and each fraction was retained wet. The wet sieved fractions were scanned under a stereozoom microscope at 7-45x magnifications and their contents recorded (Table 5). Identifications of macrobotanical remains have been made through comparison with published reference atlases (Cappers *et al*. 2006, Jacomet 2006, NIAB 2004), and nomenclature used follows Stace (1997).

Results

6.4.3 The samples contained a small amount of wood fragments, mostly from round wood. They were generally well preserved and did not present a 'spongy' texture. Large plant macrofossils were missing and only a few seeds of knotgrasses (*Polygonum* sp.) and a member of the daisy family (indeterminate Asteraceae) were seen in one of the samples. This same sample also contained a few insect shell fragments, but again in very low quantity. Given the lack of large plant macrofossils and charcoal, wood fragments had to be selected for identification and potential C14 dating.

Table 5: Waterlogged sample data (* = 1-10, ** = 11-50, *** = 51-250, **** = >250)

Sample Number	Context	Sample Depth	Sample Volume	Sub-sample processed	Sieves used	Sub-sample scanned	Macrobotanical Remains	Identification and preservation notes	Wood	Notes on Preservation of Wood	Wood Identifications
2	006	1.4-1.4m	10	2	4,2,1 mm-500,250µm	7ml per fraction			*	small roundwood fragments, as well as thinner flakes of wood. Well preserved (hard, not spongy in texture).	*Salix/ Populus* sp.
4	006	1.60-1.70m	10	2	4,2,1 mm-500,250µm	7ml per fraction					
7	007	1.90-2.00m	10	2	4,2,1 mm-500,250µm	7ml per fraction			*	very tiny twigs, well preserved (hard, not spongy in texture).	
9	008	2.10-2.20m	10	2	4,2,1 mm-500,250µm	7ml per fraction	*	*Polygonum* sp., Asteraceae	**	small roundwood fragments, as well as thinner flakes of wood. Well preserved (hard, not spongy in texture).	*Salix/ Populus* sp.

6.5 Insects *by Enid Allison*

Methodology

6.5.1 The samples each had a volume of ~6 litres. Since the sediment did not appear to be highly organic, all the sediment was processed for extraction of insect remains by paraffin flotation following the methods of Kenward *et al*. (1980). The recovered paraffin flots were scanned in industrial methylated spirits (IMS) for the presence of insects and other invertebrates using a low-power stereoscopic zoom microscope (x10 – x45). Abundances of beetles (Coleoptera) and bugs (Hemiptera) and their state of preservation were recorded, and the potential to provide detailed environmental data was assessed. Taxa have been categorized into broad ecological groups following Kenward *et al*. (1986) and Kenward (1997), see Table 6. Nomenclature for Coleoptera follows Duff (2012).

6.5.2 A provisional list of insect species represented in the samples is shown in Table 6, and details of individual samples in Table 7.

Results

Context 006, sample <*2*> Depth 1.40 – 1.50m

6.5.3 The few beetle and bug remains were either very fragmentary and eroded or excellently preserved. The well-preserved material comprised several sclerites of a ceutorhynchine weevil and the complete contrast in preservation raises the possibility that this might be a recent specimen, perhaps introduced during sampling. The rest of the material is not closely identifiable.

Context 006, sample <*4*> Depth 1.60 - 1.70m

6.5.4 Highly fragmented and reddened beetle sclerites probably from seven individuals were recovered. Three species of weevil were represented but none of the sclerites were closely identifiable.

Context 007, sample <*7*> Depth 1.90 - 2.00m

6.5.5 A good-sized assemblage of beetles and bugs was recovered. Preservation was reasonably good, particularly by comparison with the two samples from deposit [006], although fragmentation of sclerites was fairly high. At least eight species of water beetles were noted and they included several *Pomatinus substriatus* and the riffle beetle *Oulimnius*, both characteristic of clean clear running water. Plant-associated taxa included *Conomelus anceps*, a tiny planthopper common on rushes (*Juncus*), *Hydrothassa* which is associated with Ranunculaceae, often in wetlands, and *Phratora vulgatissima* found on willows (*Salix*). Three species of scarabaeid dung beetles (*Aphodius contaminatus*, *Aphodius* sp., and ?*Onthophagus*) suggest that grazing animals may have been present in the local area.

Context 008, sample <*9*> Depth 2.10 - 2.20m

6.5.6 This sample produced the largest and best preserved beetle and bug assemblage (estimated >200 individuals). Water beetles included two species of riffle beetle characteristic of clean, clear running water (*Elmis aenea* and *Oulimnius*). Some other taxa were indicative of wet waterside mud and moss (*Dryops*, *Chaetarthria, Platysthethus cornutus* group). Plant-

associated insects included several donaciine leaf beetles found on emergent and waterside vegetation, *Chaetocnema conncinna*/*picipes* found on knotweeds (*Polygnum*) and other Polygonaceae, *Meligethes* and *Ceutorhynchus* associated with wild and cultivated Brassicaceae, and *Oxystoma* found on vetches (*Lathyrus* and *Vicia*).

6.5.7 Although some among the relatively small group of decomposer beetles could have lived among moist waterside litter, a few of the taxa recorded are typically found in association with human activity and accumulations of organic refuse. A further indication of human influence was from a grain weevil (*Sitophilus granarius*), a primary pest of stored grain and a particularly strong synanthrope. It only lives in stored grain, not on grain growing in the field. In archaeological contexts the species can occur in stable waste, litter from buildings, and also in the dung of corn-fed domestic animals, as well as in some cases indicating the storage of grain. Two beetles with wood-boring larvae were also represented, one being the common woodworm beetle (*Anobium punctatum*) which is typical of structural timber although it can also be found in dead wood in the wild. Although this group of beetles forms a relatively small part of the assemblage, their occurrence together hints either at occupation or waste disposal close to the point of sampling.

ANNELIDA: **OLIGOCHAETA** (earthworms)	Oligochaeta sp. egg capsules	
CRUSTACEA:	OSTRACODA (ostracods) Ostracoda sp(p) carapaces	
INSECTA:	HEMIPTERA (bugs) Heteroptera Lygaeidae sp. [oa-p] Anthocoridae sp. [u] Saldidae sp(p). [oa-d] Heteroptera sp(p). [u] Homoptera *Conomelus anceps* Germar [oa-p] Delphacidae sp. [oa-p] Auchenorhyncha spp. [oa-p]	
	DIPTERA (flies) Diptera spp. (puparia)	
	HYMENOPTERA (bees, wasps and ants) Parasitica spp. (parasitic wasps)	
	COLEOPTERA (beetles) Carabidae (ground beetles) *Clivina* sp. [oa] *Trechoblemus micros* (Herbst) [u] *Bembidion* spp. [oa] *Agonum* sp [oa] Carabidae spp. and sp. indet.[ob] Helophoridae (grooved water scavengers) *Helophorus grandis* Illiger [oa-w] *Helophorus* sp(p). [oa-w] Hydrophilidae (water scavengers and allies) *Chaetarthria* sp. [oa-d] *Laccobius* sp. [oa-w] Hydrophilinae sp(p). [oa-w] *Cercyon* sp. [u] *Cryptopleurum minutum* (Fabricius) [rf-st] Hydraenidae (moss water beetles) *Hydraena* sp. [oa-w] *Ochthebius* sp(p). [oa-w] Ptiliidae (featherwing beetles) *Acrotrichis* sp. [rt]	Elmidae (riffle beetles) *Elmis aenea* (P W J Müller) [oa-w] *Oulimnius* sp. [oa-w] Dryopidae (long-toed water beetles) *Pomatinus substriatus* (P W J Müller) [oa-w] *Dryops* sp. [oa-d] Elateridae (click beetles) Elateridae sp(p). [ob] Ptinidae (spider and woodworm beetles) *Anobium punctatum* (De Geer) [l] Ptinidae sp. (woodboring type) [l] Nitidulidae (sap or pollen beetles) *Meligethes* sp. [oa-p] Cryptophagidae (silken fungus beetles) Cryptophagidae sp. [u] Corylophidae (minute fungus beetles) Corylophidae sp. [rt] Latridiidae (minute brown scavenger beetles) *Latridius* or *Enicmus* sp. [rd-sf]

	Silphidae (carrion beetles) Silphidae sp. [u] Staphylinidae (rove beetles) *Lesteva* sp(p). [oa-d] *Megarthrus* sp. [rt] Aleocharíinae spp. [u] *Anotylus nitidulus* (Gravenhorst) [rt-d] *Anotylus rugosus* (Fabricius) [rt] *Anotylus sculpturatus* group [rt] *Platystethus cornutus* group [oa-d] *Stenus* spp. [u] *Lathrobium* sp. [u] *Gyrohypnus* sp. [rt] Xantholininae sp. indet. [u] Staphylininae spp. [u] Scarabaeidae (dung beetles and chafers) *Aphodius contaminatus* (Herbst) [oa-rf] *Aphodius* sp(p). [ob-rf] ?*Onthophagus* sp. [oa-rf]	Chrysomelidae (seed and leaf beetles) *Donacia* or *Plateumaris* spp. [oa-p-d] *Hydrothassa* sp. [oa-p-d] *Phratora vulgatissima* (Linnaeus) [oa-p] *Chaetocnema concinna* or *picipes* [oa-p] Alticini sp(p). [oa-p] Chrysomelidae spp. [oa-p] Apionidae (apionid weevils) *Oxystoma* sp. [oa-p] Apionidae sp. [oa-p] Dryphthoridae (dryphthorid weevils) *Sitophilus granarius* (Linnaeus) [g-ss] Curculionidae (curculionid weevils) *Ceutorhynchus* sp. [oa-p] Ceutorhynchinae sp(p). [oa-p] Curculionidae spp. [oa-p] Coleoptera spp. and spp. Indet. [u] Insecta spp. larval fragments
ARACHNIDA	Acarina spp. (mites	

Table 6: Insects and other invertebrate taxa noted during scanning the paraffin flots. Identification has not been pressed to species level in many cases, and the list should be regarded as provisional. Ecological codes shown in square brackets for Coleoptera (beetles) and Hemiptera (bugs) are as follows: d – damp ground/waterside, g – grain pest, l – wood-associated, oa – outdoor taxa, ob – probable outdoor taxa, p – plant-associated taxa, rd – dry decomposers, rf – foul decomposers, rt – eurytopic decomposers, sf – facultative synanthropes, ss – strong synanthropes, st – typical synanthropes, u – uncoded, w – aquatics. Some taxa are uncoded pending closer identification. Nomenclature for Coleoptera follows Duff (2012)

Context	Sample	Depth bgl	Sample volume (litres)	Est MNI beetles and bugs	Principal taxa recorded during scanning	Condition of insect remains
006	<2>	1.40-1.50m	6	4	Heteroptera sp. [u], Ceutorhynchinae sp. [oa-p], Curculionidae sp. indet [oa-p], indeterminate beetle fragment, mite	POOR TO EXCELLENT (suspicion that better-preserved remains may be modern)
006	<4>	1.60-1.70m	6	7	Earthworm egg capsules +, Staphylininae sp. [u], ?Apionidae sp. [oa-p], Ceutorhynchinae sp. [oa-p], Curculionidae sp.. [oa-p], indeterminate beetle fragments	POOR: all sclerites fragmentary and with significant erosion
007	<7>	1.90-2.00m	6	75-100	Earthworm egg capsules, ostracod carapaces, Anthocoridae sp. [u], Saldidae sp. [oa-d], Heteroptera sp(p). [u], *Conomelus anceps* [oa-p], Delphacidae sp. [oa-p], Auchenorhyncha spp. [oa-p], Diptera sp(p) puparia, Hymenoptera Parasitica, *Clivina* [oa], *Trechus micros [*u], *Bembidion* spp. [oa], *Agonum* [oa], Carabidae spp. [ob], *Helophorus* spp. [oa-w], Hydrophilinae [oa-w], *Cercyon* [u], *Hydraena* [oa-w], *Ochthebius* sp(p). [oa-w], *Acrotrichis* [rt], Silphidae [u], *Lesteva* [oa-d], *Megarthrus* [rt], Aleocharinae spp. [u], *Anotylus sculpturatus* group [rt], *Stenus* spp. [u], *Lathrobium* [u], *Gyrohypnus* [rt], Staphylininae spp. [u], *Aphodius contaminatus* [oa-rf], *Aphodius* sp. [ob-rf], ?*Onthophagus* [oa-rf], *Cyphon* [oa-d], *Oulimnius* [oa-w], *Pomatinus substriatus* [oa-w], Elateridae [ob], Corylophidae [rt], *Hydrothassa* [oa-p-d], *Phratora vulgatissima* [oa-p], Chrysomelidae spp. [oa-p], Apionidae [oa-p], Curculionidae spp., Coleoptera sp and spp. indet., insect larval fragments, mites	MODERATE TO GOOD: fragmentation quite high, erosion low
008	<9>	2.10-2.20m	6	200+	Earthworm egg capsules common, ostracod carapaces, Lygaeidae [oa-p], Anthocoridae sp. [u], Saldidae sp. [oa-d], Heteroptera sp(p). [u], Auchenorhyncha spp. [oa-p], Aphidoidea [oa-p], Diptera sp(p) puparia fairly common, *Clivina* [oa], *Bembidion* spp. [oa], Carabidae spp. [ob], *Helophorus grandis* [oa-w], *Helophorus* spp. [oa-w], *Chaetarthria* [oa-d], *Laccobius* [oa-w], Hydrophilinae [oa-w], *Cercyon* [u], *Cryptopleurum minutum* [rf-st], *Hydraena* [oa-w], *Ochthebius* [oa-w], *Lesteva* [oa-d], Aleocharinae spp. [u], *Anotylus nitidulus* [rt-d], *Anotylus rugosus* [rt], *Platystethus cornutus* group [oa-d], *Stenus* spp. [u], Xantholininae [u], Staphylininae spp. [u], *Aphodius* [ob-rf], *Cyphon* [oa-d], *Elmis aenea* [oa-w], *Oulimnius* [oa-w], *Dryops*, Elateridae [ob], *Anobium punctatum* [l], wood-boring Ptinidae sp. [l], *Meligethes* [oa-p], Cryptophagidae [u], *Latridius/Enicmus* [rd-sf], *Donacia/Plateumaris* spp. [oa-p-d], *Chaetocnema concinna/picipes* [oa-p], Aticini [oa-p], Chrysomelidae spp. oa-p], *Oxystoma* [oa-p], Apionidae [oa-p], *Sitophilus granarius* [g-ss], *Ceutorhynchus* [oa-p], Curculionidae spp., Coleoptera sp and spp. indet., insect larval fragments, mites common	GOOD TO VERY GOOD although fragmentation quite high

Table 7: Insects recovered per sample
See Table 6 for ecological codes shown in square brackets

6.6 Radiocarbon dating

6.6.1 Two samples were submitted for AMS radiocarbon dating by Beta Analytic, Ltd. A sample of *Salix/Populus* roundwood was recovered from 1.40m-1.50m bgl which returned an age determination of Cal AD 1890 to 1905 and Post AD 1950 (Beta-412325; 30±30BP, 95% confidence). A second sample of *Salix/Populus* roundwood was recovered from 2.10-2.10m bgl which returned an age determination of Cal AD 1450 to1640 (Beta-412326; 350±30BP, 95% confidence).

Lab code	**ASE code**	**Material**	**d13C** o/oo	**Conventional radiocarbon age BP**	**Calibrated result 95% probability**
Beta-412325	ASE_DS_00342	*Salix/ Populus*	-27.0	30±30BP	Cal AD 1890 to 1905 and Post AD 1950
Beta-412326	ASE_DS_00343	*Salix/ Populus*	-27.3	350±30BP	Cal AD 1450 to1640

Table 8: Radiocarbon results

7.0 DISCUSSION

7.1 The deposits encountered at Casa Mia, Alverstone are indicative of accumulation within a channel edge/floodplain environment. The onset of accumulation at the sample site has been dated from the mid-15th to mid-17th century AD. The deposits recorded were highly organic as the base of the profile and displayed variable preservation of environmental remains. The highly humified nature of the deposits was evident in the plant macrofossil record where only the hardier, woody macrofossils survived. However, the insect, diatom and pollen assemblages showed a reasonable degree of preservation.

7.2 The high silt content of the deposits indicated sedimentation occurring via processes of overbank sedimentation within a floodplain wetland or within a channel edge setting. The pollen and insect assemblages suggest the presence of standing or slow flowing water within a grass sedge fen. The presence of pre-Quaternary palynomorphs also indicates a degree of reworking within the depositional environment which is probably related to fluvial erosion of bedrock sediments. Using the diatom assemblages available, it is concluded that deposition at the base of the sequence (1.96-2.23m) was in a freshwater environment, likely a floodplain or channel margin. One of the most abundant identifiable species, *Cocconeis placentula*, is very common in benthic habitats, where it attaches to rocks, macrophytes and algae. It is a fast-growing, pioneer species that is able to colonise bare substrates quickly and is often encountered within river settings. Depending on the diatom ecological classification scheme applied to the species encountered however, contrasting interpretations can be obtained. For example, whilst *Cocconeis placentula* is interpreted as a freshwater taxa by Kelly et al (2005), van Dam et al (1994) suggests this is a fresh-brackish taxa and hence able to tolerate saline waters within the coastal zone. This is the same for other species including *Hantzschia amphioxys*, whilst a number of the taxa that were only identified to genus level could also have included saline tolerant taxa (*Pinnularia* spp., *Melosira*, spp., *Cymbella* spp.). Caution is needed, as the 'fresh-brackish' class includes many taxa that can thrive in hard water (i.e. where conductivity is derived from calcium and magnesium, rather than sodium and potassium salts). As the Alverstone region is located on the Lower Greensand, hard water conditions are likely and hence freshwater interpretations seem more likely. Further support for a freshwater setting is provided by the relative abundance of testate amoebae which, although occasionally found in estuarine settings, are most abundant within waterlogged conditions often associated with floodplains environments and peatlands. Therefore, based on an assessment level study of these diatom assemblages, it is suggested that a freshwater environment prevailed during the late medieval to early post-medieval period.

7.3 The preservation of environmental remains was variable with the upper part of the sequence suffering from post-depositional desiccation. The absence of diatoms in the upper part of the sequence is likely to be a result of the iron which have been shown to be responsible for the dissolution of biogenic silica, resulting in diatom preservation often being poor in such contexts (Mayer et al., 1991).This may be due to drainage of the floodplain for cultivation. The pollen assemblage is dominated by herbs which are strongly indicative of a pastoral environment with some evidence for cereal cultivation.

The insect assemblage also recorded instances of dung beetle which further supports the presence of agrarian activity. The presence of both cereal and grassland species indicated there was a mixed agricultural economy in close proximity to the site.

7.4 There were few trees and shrub pollen excepting for alder with willow which was growing along the wetter river floodplain of the valley bottom. Due to the prolific amount of pollen produced by alder it is suggested that this was not growing at the sample location. The site was characterised by a more open, grass-sedge fen or floodplain community, with fringing willow as suggested by both the pollen and insect assemblages.

7.5 The insect assemblage also contained syanthropic indicator species which suggest that human-derived refuse may have been deposited at the site. The presence of woodworm and grain weevils, which are usually found within archaeological contexts, are indicative of either stable waste, litter from buildings or the dung of corn-fed animals.

Recommendations

7.6 Due to the variable level of preservation of environmental remains and a lack of archaeological features, it is suggested that no further work is undertaken on this sequence. Despite this, the study has provided comparative data which adds to the existing records of past vegetation and environment on the island.

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HER Summary

Site Code	CMA15					
Identification Name and Address	Casa Mia, Alverstone, Isle of Wight					
County, District &/or Borough	Yarmouth					
OS Grid Refs.	457756 885560					
Geology	Lower Greensand; Alluvium					
Arch. South-East Project Number	7112					
Type of Fieldwork			Watching Brief			
Type of Site	Green Field					
Dates of Fieldwork						
Sponsor/Client	Mott Macdonald, Clancy Docwra					
Project Manager	Neil Griffin					
Project Supervisor	K.Krawiec					
Period Summary						
		MED	PM			

Summary

In April 2015 ASE undertook an archaeological watching brief during the excavation of a pit for a floodwater pump in the garden of Casa Mia, Alverstone, IoW. A sequence of channel edge, floodplain deposits were recorded and sampled. The subsequent analyses demonstrated accumulation of sediment occurring in the mid-15th to mid-17th centuries AD. The environmental proxies assessed demonstrated a freshwater environment prevailed at the site with a mixed agricultural economy surrounding the sample location. The insect remains indicated the possible deposition of refuse, derived from stable or building waste. No further work is recommended for this sequence due to the variable preservation of environmental remains.

OASIS Form

OASIS ID: archaeol6-224810

Project details

Project name	An archaeological watching brief at Casa Mia, Alverstone
Short description of the project	In April 2015 ASE undertook an archaeological watching brief during the excavation of a pit for a floodwater pump in the garden of Casa Mia, Alverstone, IoW. A sequence of channel edge, floodplain deposits were recorded and sampled. The subsequent analyses demonstrated accumulation of sediment occurring in the mid-15th to mid-17th centuries AD. The environmental proxies assessed demonstrated a freshwater environment prevailed at the site with a mixed agricultural economy surrounding the sample location. The insect remains indicated the possible deposition of refuse, derived from stable or building waste. No further work is recommended for this sequence due to the variable preservation of environmental remains.
Project dates	Start: 01-04-2015 End: 30-10-2015
Previous/future work	No / Not known
Type of project	Recording project
Current Land use	Other 5 - Garden
Investigation type	"Watching Brief"
Prompt	National Planning Policy Framework - NPPF

Project location

Country	England
Site location	ISLE OF WIGHT ISLE OF WIGHT YARMOUTH casa mia,alverstone
Postcode	PO360EZ
Site coordinates	SZ 57756 85560 50.666261285369 -1.18267352843 50 39 58 N 001 10 57 W Point

Project creators

Name of Organisation	Archaeology South-East
Project brief originator	Archaeology South-East
Project design originator	Mott MacDonald
Project director/manager	Neil Griffin

Project supervisor	Kristina Krawiec
Type of sponsor/funding body	Southern Water
Name of sponsor/funding body	southern water

Project archives

Physical Archive recipient	Isle of Wight Museums Service
Physical Contents	"Ceramics","Environmental","Metal"
Digital Contents	"Environmental"
Digital Media available	"Database","Images raster / digital photography","Survey","Text"
Paper Archive recipient	Isle of Wight Museums Service
Paper Media available	"Context sheet","Plan","Report","Section","Survey "

Project bibliography 1

Publication type	Grey literature (unpublished document/manuscript)
Title	An archaeological watching brief at casa mia, alverstone, IOW
Author(s)/Editor(s)	K.krawiec
Other bibliographic details	2015186
Date	2015
Issuer or publisher	Archaeology south east

Entered by	kristina (k.krawiec@ucl.ac.uk)
Entered on	28 September 2015

Appendix 1: Physical and sedimentary properties of deposits according to Troels-Smith (1955)

Darkness	
nig.4	black
nig.3	
nig.2	
nig.1	
nig.0	white

Degree of Stratification	
strf.4	well stratified
strf.3	
strf.2	
strf.1	
strf.0	no stratification

Degree of Elasticity	
elas.4	very elastic
elas.3	
elas.2	
elas.1	
elas.0	no elasticity

Degree of Dryness	
sicc.4	very dry
sicc.3	
sicc.2	
sicc.1	
sicc.0	water

	Sharpness of Upper Boundary
lim.4	< 0.5mm
lim.3	< 1.0 & > 0.5mm
lim.2	< 2.0 & > 1.0mm
lim.1	< 10.0 & > 2.0mm
lim.0	> 10.0mm

	Sh	*Substantia humosa*	Humous substance, homogeneous microscopic structure
I Turfa	*Tb*	*T. bryophytica*	Mosses +/- humous substance
	Tl	*T. lignosa*	Stumps, roots, intertwined rootlets, of ligneous plants
	Th	*T. herbacea*	Roots, intertwined rootlets, rhizomes of herbaceous plants
II Detritus	*Dl*	*D. lignosus*	Fragments of ligneous plants >2mm
	Dh	*D. herbosus*	Fragments of herbaceous plants >2mm
	Dg	*D. granosus*	Fragments of ligneous and herbaceous plants <2mm >0.1mm
III Limus	*Lf*	*L. ferrugineus*	Rust, non-hardened. Particles <0.1mm
IV Argilla	*As*	*A.steatodes*	Particles of clay
	Ag	*A. granosa*	Particles of silt
V Grana	*Ga*	*G. arenosa*	Mineral particles 0.6 to 0.2mm
	Gs	*G. saburralia*	Mineral particles 2.0 to 0.6mm
	Gg(min)	*G. glareosa minora*	Mineral particles 6.0 to 2.0mm
	Gg(maj)	*G. glareosa majora*	Mineral particles 20.0 to 6.0mm
	Ptm	*Particulae testae molloscorum*	Fragments of calcareous shells

Appendix 2: Russian Auger sample

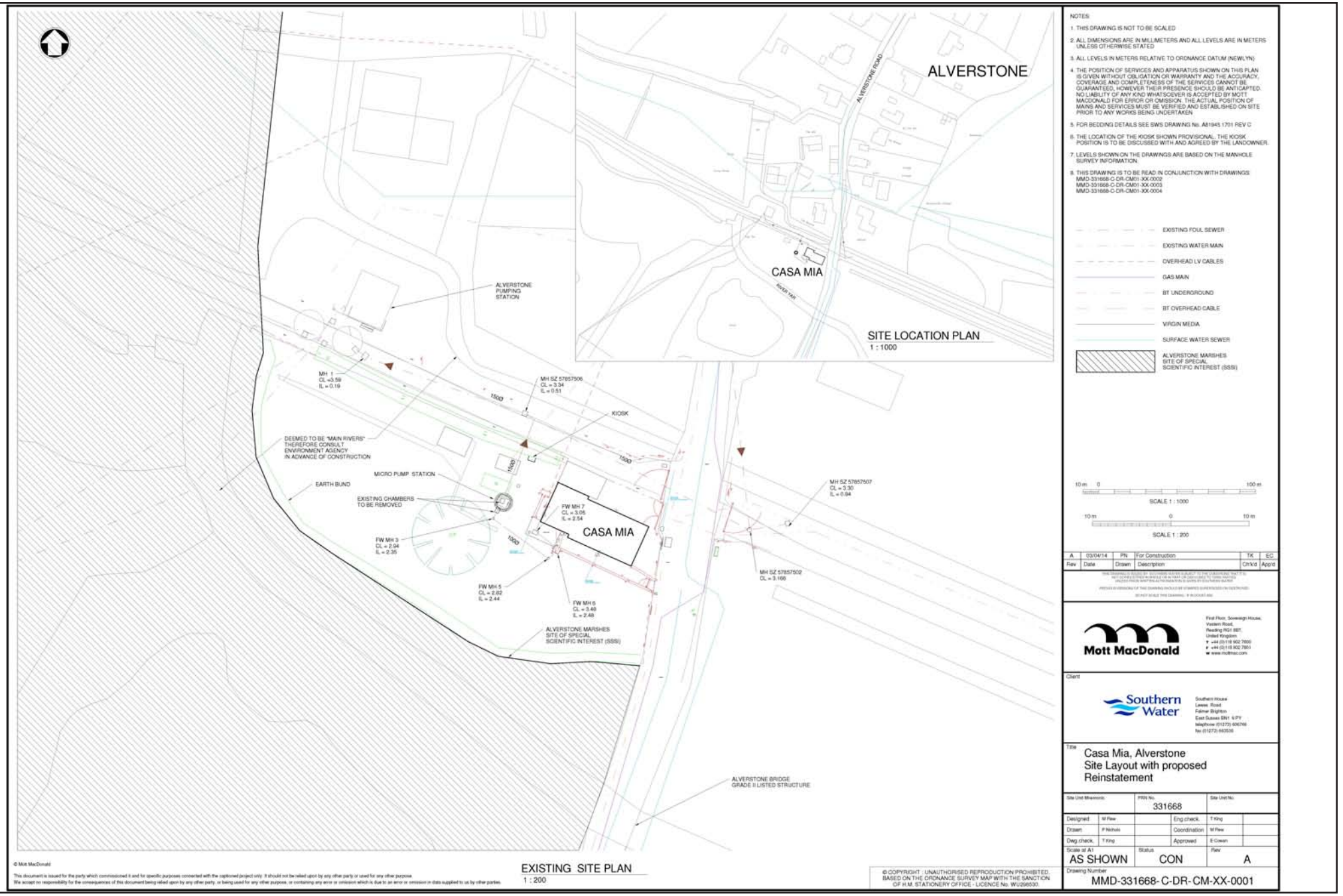
<1> 1.40-2.24m

1.40-1.94m	DA	ST	EL	SICC	UB	[006]
	3	0	0	3	0	
	Ag3 As1 Sh++					
	Blue grey silt clay, well humified organics, occ organic flecks					
1.94-2.16m	DA	ST	EL	SICC	UB	[007]
	3	0	0	3	2	
	Ag3 Sh1 As+					
	Brown well humified organic silt, black flecks					
2.16-2.24m	DA	ST	EL	SICC	UB	[008]
	4	0	0	3	3	
	As2 Sh1 Dh1 Tl+					
	Organic brown silt, occ twigs, vivianite flecks					

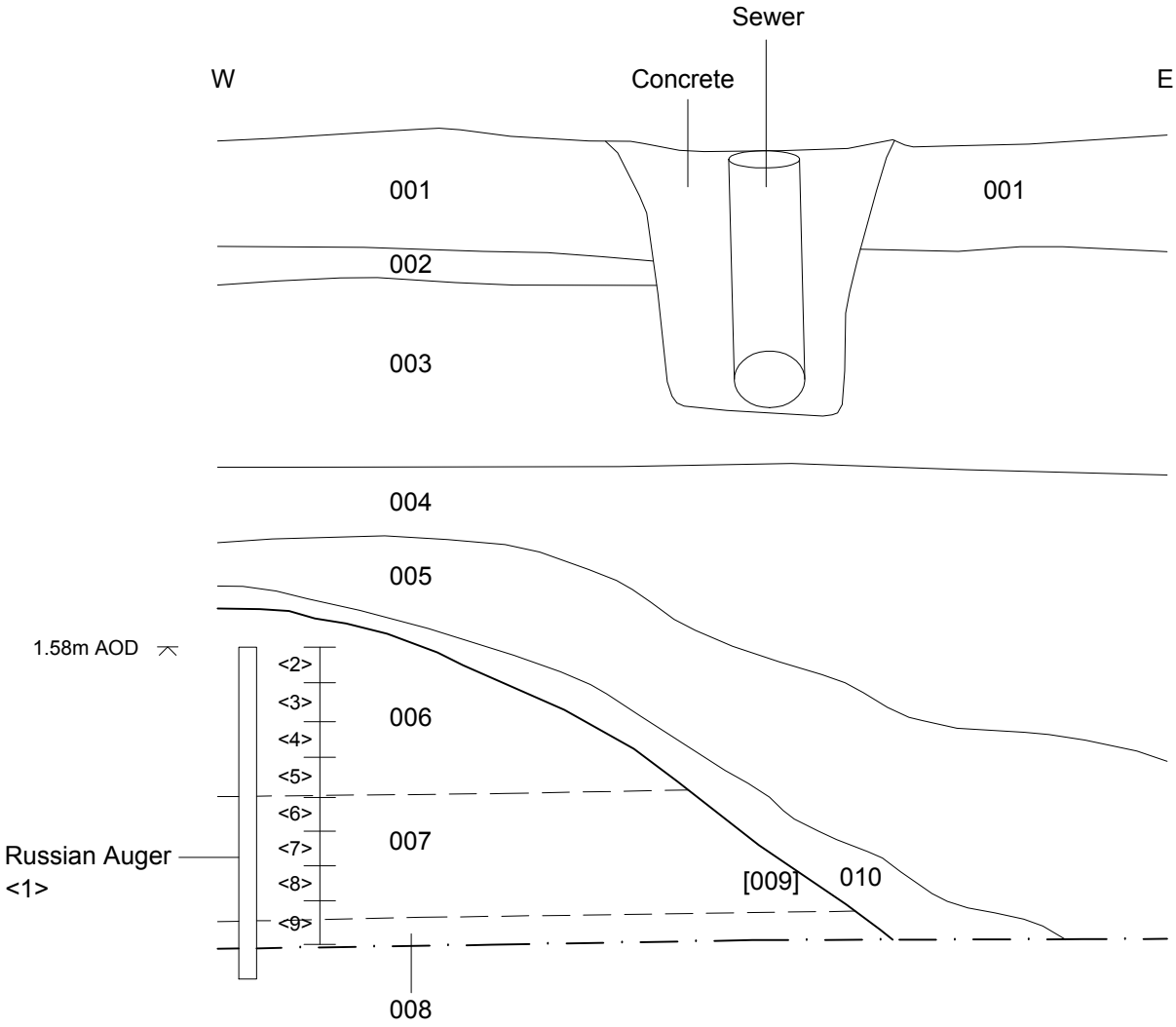
Bulk samples

<2> 006 1.40-1.50m
<3> 006 1.50-1.60m
<4> 006 1.60-1.70m
<5> 007 1.70-1.80m
<6> 007 1.80-1.90m
<7> 007 1.90-2.00m
<8> 007 2.00-2.10m
<9> 008 2.10-2.

© **Archaeology South-East**		Station House (Casa Mia), Alverstone, Isle of Wight	Fig. 1
Project Ref: 7112	August 2015	Site location, designated heritage assets and palaeoenvironmental sites	
Report Ref: 2015186	Drawn by: RHC		

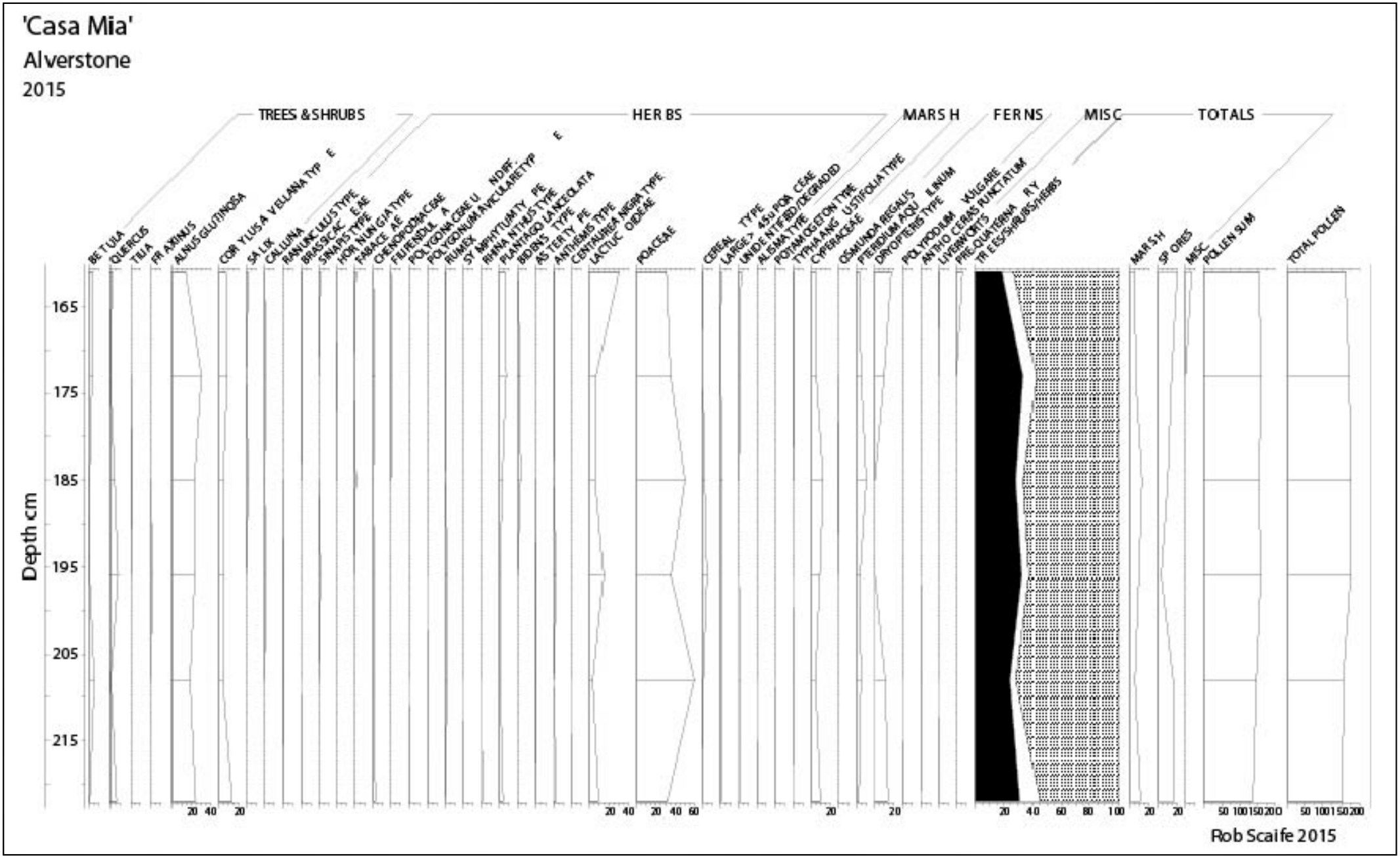


© **Archaeology South-East**		Station House (Casa Mia), Alverstone, Isle of Wight	Fig. 2
Project Ref: 7112	August 2015	Existing site layout	
Report Ref: 2015186	Drawn by: RHC		



Pump trench looking south

© **Archaeology South-East**		Station House (Casa Mia), Alverstone, Isle of Wight	Fig. 3
Project Ref: 7112	August 2015	Section and photograph of pump trench	
Report Ref: 2015186	Drawn by: DJH		



© Archaeology South-East		Casa Mia, Alverstone	Fig. 4
Project Ref: 7112	September 2015	Pollen Diagram	
Report Ref: 2015186	Drawn by: LG		

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