

Land at Toddington Lane (AP4)
Littlehampton
West Sussex

Written Scheme of Investigation:
Archaeological Mitigation

November 2016

AH Project Ref. AH464
Planning Ref. LU/47/11



Land at Toddington Lane (Archaeological Phase 4)
Littlehampton
West Sussex

Written Scheme of Investigation:
Archaeological Mitigation

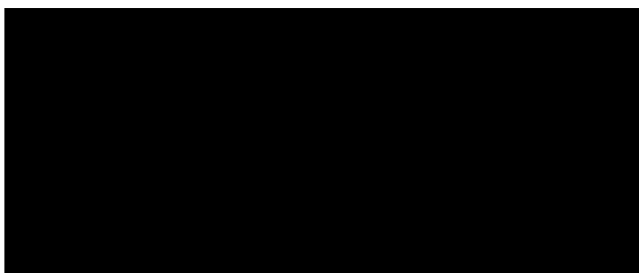
AH Project Ref. AH464
Planning Ref. LU/47/11

Prepared by	Sue Farr
Date	November 2016
Issue no.	01
Checked	Rob Armour Chelu 15-11-2016

Armour Heritage Limited accepts no responsibility or liability to any third party to whom this report, or any part of it, is made known. Any such party relies upon this report entirely at their own risk. No part of this report may be reproduced by any means without permission.

© Armour Heritage Limited 2016

Greystone Cottage
Trudoxhill
Frome
Somerset BA11 5DP



CONTENTS

1. INTRODUCTION	3
2. ARCHAEOLOGICAL AND HISTORICAL BACKGROUND	5
3. METHODOLOGY	7
4. FINDS AND ENVIRONMENTAL SAMPLING	10
5. POST-EXCAVATION	12
6. ARCHIVE PREPARATION AND DEPOSITION	14
7. QUALITY STANDARDS	14
8. INSURANCES AND HEALTH AND SAFETY	15
9. REFERENCES	16

Figures

- Fig. 1 Site location showing zones of archaeological potential
Fig. 2 Proposed foundation strategy in AP4 area
Fig. 3 Proposed archaeological mitigation in AP4 area

PROJECT SUMMARY

Project Name:	Land at Toddington Lane (AP4)
Location:	Littlehampton, West Sussex
NGR:	503351,104203 (centre)
Type:	Archaeological Mitigation

Armour Heritage Ltd has been commissioned to complete a written scheme of investigation (WSI) with regard to the archaeological mitigation proposed ahead of development in the AP4 area of land at Toddington Lane, Littlehampton, West Sussex, centred on National Grid Reference 503351, 104203, hereafter referred to as 'the Site'.

Outline planning consent (LU/47/11) has been granted by Arun District Council for a mixed-use development on condition (Conditions 40 and 41) that a programme of archaeological work is undertaken.

This mitigation forms part of a staged approach to the assessment of the Site's archaeological potential, and follows the completion of a cultural heritage chapter in the Environmental Statement (WYG 2011), and four Archaeological Phases (AP1-AP4) of trial trenching. Subsequent archaeological mitigation (Wallis 2014, 2015, 2016a, 2016b) within AP2 and AP3 has been completed to the west and south of the AP4 area respectively.

Of the 66 trenches excavated during evaluation in the AP4 area, 11 contained archaeological features of prehistoric, Romano-British or medieval date. This enabled four zones of archaeological potential to be established.

A preliminary foundation strategy proposed a combination of traditional strip foundations in the southern half of the AP4 area, and a piled foundation solution in the northern part of the Site. Two zones of archaeological potential lie fully or partly within the proposed strip foundation area.

This WSI has been produced in response to the requirement for further intrusive archaeological investigation by the Archaeological Officer at Chichester District Council (CDC), advisers to the Local Planning Authority. The mitigation proposes archaeological excavation in the both areas where strip foundations are proposed. Area A in the southeast corner measures 0.41ha and Area B totals 0.19ha. Initial hand excavation and recording will focus on the line of a proposed road which lies partially within the Area A excavation, to limit delays to the wider groundworks programme.

All works will be conducted in compliance with the Chartered Institute for Archaeologists' *Standard and Guidance for Archaeological Excavation* (CIfA 2014), and *Sussex Archaeological Standards* (ESCC 2015).

Archaeological fieldwork will be carried out by AH's nominated fieldwork sub-contractor, Archaeology South-East.

1. INTRODUCTION

Outline

- 1.1. Armour Heritage Ltd (AH, 'the Consultant') has been commissioned to complete a written scheme of investigation (WSI) with regard to the proposed mitigation on land at Toddington Lane, Littlehampton, West Sussex, centred on National Grid Reference 503351,104203, hereafter referred to as 'the Site' (Fig. 1).
- 1.2. Outline planning consent (LU/47/11) has been granted by Arun District Council for a mixed use development comprising demolition of existing buildings and structures, up to 1,260 residential dwellings, up to 13,000 sq.m. of B1 employment floorspace, up to 3,500 sq.m. of Class A local facilities, a 100 bed hotel, a 60 bed care home, a new primary school, a community centre, youth and leisure facilities, a combined heat and power plant, an extension to the existing household recycling centre, landscaping, replacement and additional allotments, sports pitches, open space, play areas, vehicular access from a new access from the A259 with additional access from Mill Lane and Toddington Lane. The outline consent has been granted on condition (conditions 40 & 41) that a programme of archaeological work is undertaken. The conditions state:
 - "(40) Archaeological investigations of the site shall be carried out for each phase or sub phase of the development at the expense of the developer in accordance with a specification to be submitted to and agreed by the Local Planning Authority in writing. The archaeological investigations shall be carried out following the demolition of existing buildings and before the commencement of new building works in each phase or sub phase of the development. This shall include (as necessary): - Geophysical surveys, test pits and trenches in the areas currently occupied by existing structures, and, - Borehole surveys conducted within the grazing marshes to the south of the Black Ditch and to the north of the development area. Reason: In order to ensure that archaeological features on the site will be properly recorded before development".
 - "(41) The Local Planning Authority shall be informed in writing immediately of any items of archaeological interest unearthed during the building operation and given a reasonable opportunity for an examination of the artefact and the site where it was found. Reason: To enable items of archaeological interest to be recorded in accordance with the policy AREA 17 of the Arun District Local Plan".
- 1.3. This mitigation forms part of a staged approach to the assessment of the Site's archaeological potential, and follows the completion of a cultural heritage chapter in the Environmental Statement (WYG 2011), and four Archaeological Phases (AP1-AP4) of trial trenching. Subsequent archaeological mitigation (Wallis 2014, 2015, 2016a, 2016b) within AP2 and AP3 has been completed to the west and south of the AP4 area respectively.
- 1.4. This WSI has been produced in response to a requirement for further intrusive archaeological investigation by the Archaeological Officer at Chichester District Council (CDC), advisers to the Local Planning Authority (LPA). The mitigation proposes archaeological excavation in two areas where strip foundations are proposed. Area A in the southeast corner measures 0.41ha and Area B totals 0.19ha (Figs 2 & 3). Initial hand excavation and recording will focus on the line of a proposed road which lies partially within the Area A excavation, to limit delays to the wider groundworks programme.
- 1.5. Archaeological fieldwork will be carried out by AH's nominated fieldwork sub-contractor, Archaeology South-East (ASE, 'the Sub-contractor').

- 1.6. The archaeological excavation will be undertaken following the methodologies and standards set out in the written scheme of investigation (WSI, this document), submitted to and approved by the Archaeological Officer at CDC in advance of commencement of any works on the Site.

Site location and landscape context

- 1.7. The Site is located in north Littlehampton, between Bognor Regis to the west and Worthing to the east, on the flat and low-lying coastal plain in West Sussex (Fig 1). The River Arun borders the town to the west, and to the north lies the South Downs National Park.
- 1.8. The Site itself is situated off Toddington Lane, to the north of the main south coast railway line, and extends from recent housing development along Mill Lane to the west. The Black Ditch, a tributary of the River Arun forms the northern boundary to the Site.
- 1.9. The Site comprises a sub-rectangular parcel of land measuring approximately 85ha in total, with the Phase 4 area totalling 8.5ha. Until recently it had been occupied by large nurseries, with associated packaging, storage and administration buildings, the majority of which were covered by large greenhouses with other buildings, roads, hard surfacing and outdoor growing/storage areas. Previous mitigation within the Site has been completed in AP1-3, located to the south and west of the AP4 area.
- 1.10. The evaluation confirmed the Site is situated on predominantly flat ground with a c. 1m high terrace situated just west of the centre of the Site, running from north to south. Ground levels of c. 4.73m-5.61m aOD were recorded in the west of the Site, on the upper level of the terrace, with heights of c. 3.40m-4.32m aOD in the east of the Site on the lower level of the terrace.
- 1.11. In the north of the Phase 4 area, the underlying geology of the Site is described by the British Geological Survey (BGS) as Lewes Nodular Chalk Formation, Seaford Chalk Formation, Newhaven Chalk Formation, Culver Chalk Formation; sedimentary bedrock formed approximately 71 to 94 million years BP. Superficial geological deposits are recorded as Raised Beach Deposits: Sand and Gravel, and were formed up to 3 million years BP.
- 1.12. To the south of the area the BGS describes the area as comprising New Pit Chalk Formation: Chalk, a sedimentary bedrock formed approximately 89 to 94 million years BP. Superficial geological deposits are recorded as undifferentiated River Terrace Deposits: Sand, Silt and Clay. The superficial deposits were formed up to 3 million years BP.

Scope of WSI

- 1.13. This document sets out the strategy and methodology by which the Contractor will implement the archaeological mitigation. In format and content it conforms with current best practice and to the guidance outlined in *Management of Research Projects in the Historic Environment* (MoRPHE, English Heritage 2006), *Sussex Archaeological Standards* (ESCC 2015) and the Chartered Institute for Archaeologists' *Standard and guidance for archaeological excavation* (CIfA 2014).
- 1.14. This WSI will be submitted to the Archaeological Officer at CDC for approval in advance of commencement of any works on the Site.

Project aims

- 1.15. The aims of the archaeological mitigation are to:

- determine the presence or absence of archaeological remains, and should remains be present, to ensure their preservation by record to the highest possible standard;
- confirm the approximate date or date range of the remains, by means of artefactual or other evidence;
- determine or confirm the approximate extent of any remains;
- determine the condition and state of preservation of the remains;
- determine the degree of complexity of the horizontal and/or vertical stratigraphy present;
- prepare an assessment report on the results of the fieldwork;
- relate the archaeological results to their local, county and regional context; and
- prepare and deposit a site archive with the local museum.

Research aims

1.16. Following the trial trenching in the AP4 area, research aims for the required mitigation work will be in line with research aims discussed in the South East Research Framework (SERF 2008) as outlined below:

- With the Sites proximity to the south coast and the River Arun, can cultural or social links be made with the continent, especially with relation to pottery forms and production? (Couldrey 2008, 7).
- There is an apparent hiatus between the Late Bronze Age and Early Iron Age. With evidence uncovered of possible Late Bronze Age activity relating to Early Iron Age activity, can the Site go some way to explaining the shift that occurred in settlement and land division at this time? (Hamilton 2008, 13; Champion 2008, 10).
- Given the relatively large assemblage of Early Iron Age pottery and the general understanding that Iron Age pottery production was undertaken at a local scale, is there is any much needed evidence of pottery production for this period, and can well sealed contexts provide us with a more precise dating for ceramic chronology in the area? (Couldrey 2008, 6).
- With relation to the late 13th and early 14th century quarry pits in the north of the AP4 area, it has been highlighted that much work needs to be done to understand what other activities were occurring on the hinterlands of industrial areas, for example where and how people lived while undertaking some of these industrial tasks (Weeks 2008, 7). To what extent can this site improve our understanding of these activities?.

2. ARCHAEOLOGICAL AND HISTORICAL BACKGROUND

Introduction

Introduction

The archaeological potential of the Site was detailed in the cultural heritage chapter of the Environmental Statement (WYG 2011), and indicated the potential for prehistoric, Romano-British, Saxon and medieval activity within the Site. Subsequent phased evaluations and mitigation within the AP4 area (ASE 2016), and areas to the south and west of the Site (Wallis 2014, 2015, 2016a, 2016b), have confirmed extensive prehistoric and Romano-British activity within the area.

Previous archaeological work at the Site

Archaeological evaluation (Phase 1)

- 2.1. An archaeological evaluation was completed by Thames Valley Archaeological Services (TVAS) in the AP1 area in December 2015 (Wallis 2015), and comprised the excavation of 50 trenches, the majority measuring 25m x 1.8m. The AP1 area is positioned in the southwest corner of the Site, between AP2 to the north and west, and AP3 to the east.
- 2.2. Disturbance caused by former buildings on the Site was minimal, and the evaluation results confirmed the demolished nursery buildings had been constructed on made ground deposits overlying the earlier topsoil, which had provided a buffer serving to inadvertently protect the extensive archaeological features recorded.
- 2.3. Broadly the results indicated a shift in settlement and related activity across the area, with features recorded in the north dating from the Middle to Late Bronze Age or Early Iron Age, and features recorded elsewhere in AP1 broadly dating from the Late Iron Age to Romano-British periods. Features of Romano-British date were concentrated in the south west corner, and indicated continuous occupation from the Late Iron Age until the 2nd century AD.
- 2.4. The Romano-British activity indicated pits, postholes and ditches containing pottery, fired clay, burnt flint and residual worked flint in Trenches 1-8 in the southwest corner, and represented an area of intensive occupation close to the present Toddington Lane. Elsewhere ditches were recorded further to the south in Trenches 17-20 and the truncated remains of a single, probable urned cremation burial was recorded in Trench 33 in the east of the area. Iron Age features were more widely distributed across the area, with linear ditches and/or gullies recorded in Trenches 8, 9, 16, 23, 29, 39, 41 and 50. An assemblage of sixty struck flints were also recovered from the Site, the majority representing broad flakes, although a retouched thumbnail scraper, a hollow scraper and possible broken hammerstone were also recorded. Although not chronologically distinctive, they were thought to date to the Neolithic or Bronze Age.
- 2.5. It was agreed further mitigation would comprise the excavation of 1.06ha across the area of Romano-British activity, along with further investigations to the east. The mitigation work is ongoing, and the results have not yet been disseminated.

Archaeological evaluation (Phase 2)

- 2.6. The AP2 area was located immediately to the south and east of AP1 and proposed the excavation of 36 trenches of the same dimensions as the AP1 area (Wallis 2016a).
- 2.7. The results similarly confirmed that the former nursery buildings had not impacted heavily on the buried archaeology, which had been in part protected by made ground deposits overlying the original soil horizons.
- 2.8. Overall the results indicated a reduction in the activity across the area, with only 12 of the 36 trenches containing archaeological features. Nevertheless, evidence of Bronze Age occupation was more widespread, and confirmed in the northeastern, central and southeastern parts of the AP2 area. Abraded sherds of Bronze Age pottery and worked flint in a number of the ditches, gullies and pits excavated, followed a pattern of loosely clustered or isolated areas of Bronze Age activity seen more widely across the extensive South Coast Plain landscape.

- 2.9. The results also confirmed a notable reduction in the later prehistoric and Romano-British activity at the Site. Indeed, only two ditches were confirmed to date to this period and were broadly located in the east of the AP2 area.
- 2.10. Mitigation in this area proposed the excavation of four separate areas covering a total of c. 5,580 sq.m. The works are ongoing, and the results have not yet been issued.

Archaeological evaluation (Phase 3)

- 2.11. Seventeen trenches were investigated in the AP3 area, of which ten positioned along the northern and eastern half of the area contained archaeological features.
- 2.12. The results confirmed the area had been subject to significant ground levelling to provide a level surface for the greenhouses formerly on the Site. This resulted in deep made ground deposits in the north and eastern parts of the area preserving the archaeology. By contrast, in the southeast corner of the AP3 area, significant truncation was noted, effectively removing any archaeology during the landscaping operation.
- 2.13. Despite the presence of services preventing full excavation of features in Trench 89, extensive archaeology was recorded. Postholes, one containing worked flint and Late Bronze Age or Early Iron Age pottery sherds were recorded, along with a number of further ditches containing quantities of Late Bronze Age or Early Iron Age pottery. Similarly dated features comprising gullies, pits and ditches were investigated in Trenches 90, 91, 92, 94, 95, 97 and 102. A further feature containing Roman pottery was also recorded in Trench 90.

Archaeological evaluation (Phase 4)

- 2.14. Sixty-six trenches were excavated across the AP4 area, and the results confirmed 11 (Trenches 134, 135, 137, 147, 154, 162, 163, 164, 165, 172 and 174) contained archaeological features of prehistoric, Romano-British or medieval date (ASE 2016).
- 2.15. Prehistoric pottery was recorded from a ditch and gully in Trench 164. Late Bronze Age sherds were retrieved from the basal ditch fill, but Iron Age pottery was collected from its upper fill, and may indicate the finds are residual, or that the upper fill represented an Iron Age recut of an earlier Bronze Age ditch. In total, 13 features were Iron Age in date, and comprised eight ditches, a ditch terminus, gully, two pits and a pit/posthole, and were principally located in the southeast corner of the AP4 area. The curvilinear form of the ditches recorded in three of the trenches (Trenches 154, 165 and 174) suggested they are likely to have formed part of an enclosure relating to settlement activity, and likely represent a continuation of the activity recorded during excavation in the northeast corner of the AP3 area. Only one ditch was securely dated to the Romano-British period (recorded in Trench 164), although its alignment suggested it represented a continuation of an Iron Age ditch recorded in Trench 154. Medieval quarry pits were recorded in the east of the Site in Trenches 162, 163 and 172.

3. METHODOLOGY

Introduction

- 3.1. The results of the archaeological trenching established four zones of archaeological potential within the AP4 area (Fig. 1). The preliminary foundation strategy proposes traditional strip foundations in the southern half of the area, and a piled foundation solution in the northern part of the Site (Fig. 2).

- 3.2. Where traditional strip foundations are coincident with zones of archaeological activity, archaeological excavation is proposed (Fig. 3). Elsewhere across the AP4 area, when more specific details on the piling foundation design have been circulated, the archaeological mitigation will be further discussed to establish the impact on the archaeological zones, with the broad aim of preserving *in situ* archaeology within each zone where possible.
- 3.3. Two zones of archaeological potential fall fully or partly within the proposed strip foundation area. Area A in the southeast corner measures 0.41ha and Area B totals 0.19ha (Fig. 3).
- 3.4. Construction works required for a proposed B3/B5 road are imminent, and positioned partially within the Area A excavation area (Fig. 3). Hand excavation and recording will focus on completing all works in this area initially.
- 3.5. The methodology is proposed in order to meet the aims and objectives of the fieldwork. All works will be conducted in compliance with the Chartered Institute for Archaeologists' *standard and guidance for archaeological excavation* (CIfA 2014), excepting where they are superseded by statements made below.
- 3.6. The Sub-contractor will submit the following documentation for approval to Armour Heritage (the Consultant) prior to commencement of fieldwork;
 - Health & Safety Risk Assessment;
 - Insurance documentation.
- 3.7. Armour Heritage will take responsibility for consultation and/or document approval with the Archaeological Officer at CDC and any other key stakeholders.

Zones of archaeological potential

- 3.8. Five zones of archaeological potential have been established within the AP4 area.

Areas	Ha.	ASE trenches	Archaeological summary
A	0.41ha	154, 163, 164, 165 & 174	Iron Age ditches, including a possible enclosure ditch, gullies, pits and/or postholes
B	0.19ha	134 & 135	Iron Age and Romano-British pits and ditches
C	0.48ha	162	Possible medieval quarry pits
D	0.11ha	172	Possible medieval quarry pits
E	0.10ha	147	Undated pit and possible ditch terminus

Method Statement

- 3.9. The excavation areas will be laid out using GPS/TST in general accordance with the pattern given in Figure 31. Each area location will be tied into the Ordnance Survey.
- 3.10. The excavation areas will be excavated using a 360⁰ excavator (or equivalent), using a toothless bucket and under constant archaeological supervision. Spoil will be stockpiled on site and weathered to prevent it becoming sodden.
- 3.11. Where appropriate, the base of each area and the upper surface of any archaeological remains surviving within them will be hand cleaned and surveyed to produce a plan of the arrangement of archaeological features.
- 3.12. Appropriate sampling and recording of all archaeological features identified will be carried out by hand in accordance with Sussex Archaeological Standards (ECC 2015) and will include:

- Complete excavation of structural remains and other areas of significant and specific activity (domestic, industrial, religious, hearths, 'special'/patterned deposits etc);
- Excavation by hand of sections across all junctions or intersections of cut features;
- All burial/funerary/ritual deposits and associated and domestic/industrial activity such as walls, middens, hearths, ring gullies) will be fully excavated;
- Sampling of linear features such as ditches and gullies relating to settlement activity (i.e. rich deposits) will be a minimum of 25%. Other linear features such as field boundaries will be sampled at a minimum of 10%. The linear features will be excavated in 1-3m. wide slots. All termini and intersections will be examined. Sampling of large features such as quarry pits will be by machine excavation following consultation with the Archaeological Officer at CDC;
- Full excavation of isolated, discrete datable and significant cut features of less than two sq. m. in plan, and discrete features rich in artefacts and/or palaeoenvironmental remains will be undertaken where necessary following half-sectioning and recording.

3.13. The sampling excavation strategy will be reviewed continuously throughout the course of fieldwork and, if necessary, amended in order to take account of changing circumstances and understanding. Any changes or amendments will be agreed in advance of implementation with the Archaeological Officer at CDC.

3.14. No backfilling will be undertaken.

Depth of Excavation

3.15. The general depth of the excavation is likely to exceed 1.2m in Area A and trench sides will be stepped or battered as appropriate.

Monitoring of Development

3.16. Sufficient notice of works commencing will be provided to all parties and a Site monitoring meeting arranged if appropriate.

Health and Safety

3.17. Health and Safety considerations will be of paramount importance in conducting all fieldwork. Safe working practices will override archaeological considerations at all times.

3.18. All work will be carried out in accordance with the *Health and Safety at Work etc. Act 1974* and the *Management of Health and Safety Regulations 1992*, and all other relevant Health and Safety legislation, regulations and codes of practice in force at the time.

3.19. The Sub-contractor will supply a copy of their Health and Safety Policy and a Risk Assessment to the AH before the commencement of any fieldwork. The Risk Assessment will have been read and understood by all staff attending the Site before any groundwork commences.

Service location

3.20. The Client will provide information regarding the presence of any below/above ground services. Before excavation commences, the Site will be walked over and inspected to visually identify, where possible, the location of above and below ground services.

3.21. All area excavation locations will be scanned before and during excavation with a Cable Avoidance Tool (CAT) in order to verify the absence of any live underground services.

Recording

- 3.22. All exposed archaeological deposits will be recorded using the established the Sub-contractor's *pro forma* recording system. A further more general record of the work comprising a description and discussion of the archaeology is to be maintained as appropriate. Context sheets will be primarily filled in by the archaeologist excavating the feature or deposit.
- 3.23. Where appropriate, significant artefacts will be 3D recorded and detailed plans made of any deposits regarded as 'special' or deliberately placed.
- 3.24. A digital photographic record will be maintained. The photographic record will illustrate both the detail and the general context of the principal features, finds excavated, and the Site as a whole.
- 3.25. A complete drawn record of archaeological features and deposits will be compiled. This will include both plans and sections, drawn to appropriate scales (in general, 1:20 for plans, 1:10 for sections), and with reference to a site grid tied to the Ordnance Survey National Grid.
- 3.26. The Ordnance Datum (OD) height of all principal features and levels will be calculated and plans/sections will be annotated with OD heights. All plans and sections will be drawn on polyester based drafting film and clearly labelled.
- 3.27. The Sub-contractor will ensure that the complete site archive including finds and environmental samples are kept in a secure place throughout the period of excavation and post-excavation works.
- 3.28. Variations to the WSI will be agreed in advance with representatives of the Client and the Archaeological Officer at CDC.

4. FINDS AND ENVIRONMENTAL SAMPLING

Finds

- 4.1. Appropriate strategies for the recovery of artefacts and environmental samples will be devised and implemented by the Sub-contractor's Finds and Environmental Specialists.
- 4.2. All artefacts from excavated contexts will be retained, except those from features or deposits of obviously modern date. In such circumstances, sufficient artefacts will be retained in order to elucidate the date and/or function of the feature or deposit.
- 4.3. Excavated spoil will be visually scanned for artefacts. Where appropriate, a suitable metal detector will be used to enhance artefact recovery. Excavated areas and spoil heaps from excavation will be examined and scanned with a metal detector.
- 4.4. All retained artefacts will, as a minimum, be washed, weighed, counted and identified. Any artefacts requiring conservation or specific storage conditions will be dealt with immediately in line with *First Aid for Finds* (Watkinson & Neal 2001). Ironwork from stratified contexts will be X-rayed and stored in a stable environment along with other fragile and delicate material. Suitable material, primarily the pottery, worked flint and non-ferrous metalwork, will be scanned to assess the date range of the relevant assemblages.
- 4.5. All artefacts recovered during the excavations on the Site are the property of the landowner. They are to be suitably bagged and boxed in accordance with the *United Kingdom Institute for*

Conservation, Conservation Guidelines no. 2 and, on completion of the archaeological post-excavation programme, will be deposited with the local museum.

- 4.6. The finds retrieval policies of Littlehampton Museum will be adopted and all identified finds and artefacts will be retained unless the Museum policy states otherwise

Environmental Sampling

- 4.7. Bulk environmental soil samples for plant macro fossils, small animal bones and other small artefacts will be taken from appropriate well-sealed and dated/datable archaeological contexts. Samples of between 20-60 litres will be taken or 100% of smaller contexts. Samples will not be taken from the intersection of features.
- 4.8. Provision has been made for micromorphological analysis of soil samples of any suitable contexts as appropriate. Provision for the application of scientific dating techniques such as radiocarbon, dendrochronology, archaeomagnetic dating, OSL and thermoluminescence dating has also been included as a contingency.
- 4.9. The residues and sieved fractions of the bulk environmental soil samples will be recorded and retained with the project archive.
- 4.10. Samples for charred plant remains (charcoal and charred seeds etc.) will be taken from well dated and sealed deposits to define presence, preservation and to enable comments on any further sampling strategy to be made.
- 4.11. Environmental samples from dry deposits will normally be processed by flotation following the fieldwork and the residues will be sorted to retrieve small bones, small finds and charcoal that has not floated.
- 4.12. Where appropriate the guidance in the following English Heritage (now Historic England) papers will be followed:
- Guidelines on the recording, sampling, conservation, and curation of waterlogged wood 2010;
 - Dendrochronology – guidelines on producing and interpreting dendrochronological dates 2004;
 - Archaeometallurgy 2001;
 - Environmental Archaeology: A guide to the theory and practice of methods, from sampling and recovery to post-excavation 2011;
 - Human bones from Archaeological Sites: Guidelines for Producing Assessment Documents and Analytical Reports 2004;
 - Geoarchaeology: using earth sciences to understand the archaeological record 2007;
 - Waterlogged Organic Artefacts 2012; and
 - Guidelines on the X-radiography of archaeological metalwork 2006.

Human remains

- 4.13. In the event of discovery of any human remains, it is proposed that these will be left *in situ*, covered and protected until the client and the Archaeological Officer at CDC have been informed. Where excavation/removal of remains is undertaken, they will be fully recorded, excavated and removed from the Site subject to compliance with the relevant Ministry of Justice Licence which will be obtained by the Sub-contractor or Armour Heritage in advance of any disturbance.

- 4.14. All excavation and post-excavation will be in accordance with the standards set out in IFA Technical Paper 13 *Excavation and post-excavation treatment of cremated and inhumed remains*. The final deposition of human remains will follow the requirements of the Ministry of Justice.
- 4.15. Should human remains be excavated, all excavation and post-excavation will be in accordance with the standards set out in IFA Technical Paper 13 *Excavation and post-excavation treatment of cremated and inhumed remains*. Where necessary, specialist guidance/site visits will be undertaken by a suitably qualified osteologist. The final placing of human remains following analysis will be subject to the requirements of the Ministry of Justice Licence.

Treasure

- 4.16. AH will notify the Archaeological Officer at CDC immediately if material is recovered considered to be covered by the Treasure Act 1996. All necessary information required by the Treasure Act (i.e. finder, location, material, date, associated items etc.) will be reported to the County Coroner within 24 hours.

5. POST-EXCAVATION

Reporting

- 5.1. Within 10 days of completion of fieldwork, a brief written summary of the findings of the fieldwork, including a plan showing the location of the excavation and archaeological features and deposits will be completed.
- 5.2. Within three months of the completion of the archaeological fieldwork, an assessment report setting out the results will be produced and forwarded to the client for approval. This will include proposals for publication in a recognised archaeological journal as appropriate (although it is assumed publication will only be undertaken when all phases of archaeological fieldwork in relation to the North Littlehampton development have been completed). Once agreed, the report will be sent to the Archaeological Officer at CDC for approval.
- 5.3. Emphasis in the report will be given to placing the results into the context of the archaeology of the Littlehampton area.
- 5.4. As a minimum, the report will include:
- a summary of the project background;
 - description and illustration of the Site and its location;
 - a methodology of the works undertaken;
 - plans and reports of all documentary and other research undertaken;
 - a description of the project's results;
 - an interpretation of the results in the appropriate context;
 - a summary of the contents of the project archive and its location (including summary catalogues of finds and samples);
 - a site location plan at an appropriate scale on an Ordnance Survey, or equivalent, base map;
 - a plan showing the location of the excavated area;
 - detailed plans of areas in which archaeological features are recognised along with adequate Ordnance Datum (OD) spot height information. These will be at an appropriate scale to allow the nature of the features exposed to be shown and understood. Plans will show the Site, the excavation areas and features/deposits in relation to north;

- section drawings of deposits and features, with OD heights, at scales appropriate to the stratigraphic detail will be shown and will show the orientation of the drawing in relation to north/south/east/west. Archaeologically sterile areas may not be illustrated unless they can provide information on the development of the Site stratigraphy or show palaeoenvironmental deposits that have influenced the site stratigraphy;
- site matrices if/where appropriate;
- photographs showing the general site layout and exposed significant features and deposits that are referred to in the text. All photographs will contain appropriate scales, the size of which will be noted in the illustration's caption;
- a consideration of the evidence within its wider context;
- a summary table and descriptive text showing the features, classes and numbers of artefacts recovered and soil profiles with interpretation;
- specialist assessment or analysis reports where undertaken;
- an evaluation of the methodology employed and the results obtained (i.e. a confidence rating).

5.5. The preparation of the report may involve the following elements:

- the conservation of appropriate material, including the x-raying of ironwork;
- spot-dating of all pottery from excavated contexts. Spot-dating will be corroborated by scanning of other categories of material, where possible;
- preparation of a preliminary phased site matrix with supporting lists of contexts by type (ditch fill, pit fill etc.), by spot-dated phase (Bronze Age, Iron Age, Romano-British etc.), by structural grouping (e.g. contexts by pit, by building etc.), supported by preliminary phase plans, where appropriate;
- a statement on each category of material, including reference to quantity, provenance, range and variety, condition and existence of other primary sources;
- the selection and prioritisation of bulk soil samples taken for environmental and artefactual data in the light of preliminary phasing. Sieving, processing and scanning of selected soil samples will be undertaken and an assessment statement on charred food and plant remains, including references as for the categories of material; and
- a statement of potential for each material category and for the data collection as a whole will be prepared, including specific questions that can be answered and the potential value of the data to local, regional and national investigation priorities.

5.6. A draft copy of the report will be submitted to the Archaeological Officer at CDC for comment prior to its formal submission to the Local Planning Authority.

5.7. On completion of the final report, in addition to copies required by the Client, hard copies of the report will be supplied to the Historic Environment Adviser at West Sussex HER and the West Sussex Records Office.

OASIS

5.8. The Sub-contractor will ensure details of the Site are submitted online to the OASIS (Online Access to the Index of Archaeological Investigations) database.

Publication

5.9. Following the completion of all phases of fieldwork, the results will be published, at least to summary level within one year of completion in an appropriate local or national journal.

6. ARCHIVE PREPARATION AND DEPOSITION

Preparation of archive

- 6.1. A complete project archive will be prepared in accordance with *Guidelines for the preparation of excavation archives for long-term storage* (UKIC 1990). On completion of the project, the archive will be deposited with Littlehampton Museum or similar repository. Such an arrangement will be confirmed prior to the commencement of fieldwork by the Sub-contractor to ensure that the curator's requirements for archive preparation, storage and conservation have been fully met, and in general following nationally recommended guidelines (SMA 1995; ClfA 2014; Brown 2011; ADS 2013).

- 6.2. All archive elements will be marked with the Site code, and a full index will be prepared.

Discard policy

- 6.3. Any discard will follow the guidelines set out in *Selection, Retention and Dispersal* (Society of Museum Archaeologists 1993), which allows for the discard of selected artefact and ecofact categories which are not considered to warrant any future analysis. Any discard of artefacts will be fully documented in the project archive.
- 6.4. The discard of environmental remains and samples follows nationally recommended guidelines (SMA 1993; 1995; English Heritage 2002).

Security copy

- 6.5. In line with current best practice (*e.g.* Brown 2011), on completion of the project a security copy of the written records will be prepared, in the form of a digital PDF/A file. PDF/A is an ISO-standardised version of the Portable Document Format (PDF) designed for the digital preservation of electronic documents through omission of features ill-suited to long-term archiving.

7. QUALITY STANDARDS

Quality and Code of Practice

- 7.1. Both the Consultant and the Sub-contractor are archaeological organisations registered with the Chartered Institute for Archaeologists, and both endorse the *Code of Practice* and the *Code of Approved Practice for the Regulation of Contractual Arrangements in Field Archaeology* of ClfA.

Project Management arrangements, specialists and specialist sub-contractors

- 7.2. All core staff will be employed in line with The Chartered Institute for Archaeologists Codes of Practice and be members of the Chartered Institute for Archaeologists or be appropriately qualified.
- 7.3. The fieldwork will be directed and supervised by an experienced archaeological team supplied by the Sub-contractor, who will attend the Site at all times for the duration of the archaeological fieldwork. Overall responsibility for the conduct and management of the project will be held by Sue Farr BA, MCIfA, of Armour Heritage (the Consultant).
- 7.4. Specialists who will be invited to advise and report on specific aspects of the project as necessary:

Prehistoric and Roman pottery	Louise Rayner & Anna Doherty (ASE)
Post-Roman pottery	Luke Barber (external: Sussex, Kent and London)
Post-Roman pottery (Essex)	Helen Walker (external: Essex)
CBM	Isa Benedetti-Whitton (ASE)
Fired Clay	Elke Raemen and Trista Clifford (ASE)
Clay Tobacco Pipe	Elke Raemen (ASE)
Glass	Elke Raemen (ASE)
Slag	Luke Barber (external); Trista Clifford (ASE)
Metalwork	Trista Clifford (ASE)
Worked Flint	Karine Le Hégarat, Dr Ed Blinkhorn (ASE)
Geological material & worked stone	Luke Barber (external)
Human bone incl. cremated bone	Lucy Sibun & Dr Paola Ponce (ASE)
Animal bone incl. fish	Gemma Ayton (ASE)
Marine shell	Elke Raemen (ASE); David Dunkin (external)
Registered Finds	Elke Raemen & Trista Clifford (ASE)
Coins	Trista Clifford (ASE)
Treasure administration	Trista Clifford (ASE)
Conservation	Dr Elena Baldi (ASE)
Geoarchaeology (incl. wetland env.)	Dr Matt Pope, Dr Ed Blinkhorn, Kristina Krawiec (ASE)
Macro-plant remains	Dr Lucy Allott & Angela Vitolo (ASE)
Charcoal & Waterlogged wood	Dr Lucy Allott & Angela Vitolo (ASE)

- 7.5. Depending upon the nature of the deposits and artefacts encountered it may be necessary to consult other external specialists (regional, environmental, and scientific dating) not listed here.

Copyright, Designs and Patents Act 1988

- 7.6. The Sub-contractor shall retain full copyright of any written report or other associated material under the *Copyright, Designs and Patents Act 1988* with all rights reserved. The Client will be provided an exclusive licence for the use of the report in all matters directly relating to the project as described in the written scheme of investigation. Any document produced to meet planning requirements may be copied for planning purposes by the Local Planning Authority.
- 7.7. This document, the subsequent report and the completed site archive may contain material that is under separate copyright (e.g. Ordnance Survey, British Geological Survey, Crown Copyright), or the intellectual property of third parties, which AH are able to provide for limited reproduction under the terms of our own copyright licences, but for which copyright itself is non-transferable by AH. All parties remain bound by the conditions of the *Copyright, Designs and Patents Act 1988* with regard to multiple copying and electronic dissemination of this document and subsequent report.

8. INSURANCES AND HEALTH AND SAFETY

- 8.1. Health and safety considerations will be of paramount importance in the undertaking of all archaeological fieldwork. Safe working practice will override archaeological considerations at all times.
- 8.2. All work will be carried out in accordance with the *Health and Safety at Work etc. Act 1974* and the *Management of Health and Safety Regulations 1992*, and all other relevant Health and Safety legislation, regulations and codes of practice in force at the time.

- 8.3. Armour Heritage will supply a copy of their Health and Safety Risk Assessment to the client before the commencement of any fieldwork. The Risk Assessment will have been read and understood by all staff attending the site before commencement of any groundworks.
- 8.4. Armour Heritage carries both public liability (£5,000,000) and professional indemnity insurance (£1,000,000). Copies of policies are available on request.
- 8.5. Armour Heritage will ensure that all archaeological fieldwork is undertaken within the strictures of the *Health and Safety at Work etc. Act 1974* and the *Management of Health and Safety Regulations 1992*.

9. REFERENCES

ADS 2013. *Caring for Digital Data in Archaeology: a guide to good practice* (Archaeology Data Service & Digital Antiquity Guides to Good Practice)

ASE 2016. *Archaeological Evaluation Report Land at Toddington Lane (Phase 4) Littlehampton, West Sussex*

Brown, D.H., 2011. *Archaeological archives; a guide to best practice in creation, compilation, transfer and curation* (Archaeological Archives Forum (revised edition))

Champion, T. 2008. *The evolution of later and prehistoric settlement in Kent and Surrey* (SERF 2008)

Chartered Institute for Archaeologists 2014. *Standard and Guidance for Archaeological Excavation*

Chartered Institute for Archaeologists 2014. *Standard and Guidance for the creation, compilation, transfer and deposition of archaeological archives*

Couldrey, P. 2008. Iron Age Pottery from Kent, ca. 600-100BC, SERF 2008

Department for Communities and Local Government 2012. *National Planning Policy Framework*

English Heritage 2002. *Environmental Archaeology; a guide to theory and practice of methods, from sampling and recovery to post-excavation* (Swindon Centre for Archaeology Guidelines)

English Heritage 2006. *Management of Research Projects in the Historic Environment (MoRPHE)*

ESCC 2015. *Sussex Archaeological Standards guidance document* (East Sussex County Council, Lewes)

Flatman, J. 2008. *Some thoughts on the medieval South-East* (SERF 2008)

Hamilton, S. 2008. *Sussex later prehistory: a research framework* (SERF 2008)

Society of Museum Archaeologists 1993. *Selection, Retention and Dispersal of Archaeological Collections*

Society of Museum Archaeologists 1995. *Towards an Accessible Archaeological Archive*

Wallis, S. 2014. *Land at Toddington Lane, Littlehampton, West Sussex – an archaeological evaluation* (Thames Valley Archaeological Services unpublished report 13/23b)

Wallis, S. 2015. *Land at Toddington Lane (Archaeological Phase 1), Littlehampton, West Sussex – an archaeological evaluation* (Thames Valley Archaeological Services unpublished report 15/192)

Wallis, S. 2016a. *Land at Toddington Lane, (Archaeological Phase 2), Littlehampton, West Sussex – an archaeological evaluation* (Thames Valley Archaeological Services unpublished report 15/192b)

Wallis, S. 2016b. *Land at Toddington Lane, (Archaeological Phase 3), Littlehampton, West Sussex – an archaeological evaluation* (Thames Valley Archaeological Services unpublished report 15/192c)

Wallis, S. in prep. *Late Bronze Age and Roman occupation at Toddington Lane, Littlehampton, West Sussex* (Thames Valley Archaeological Services)

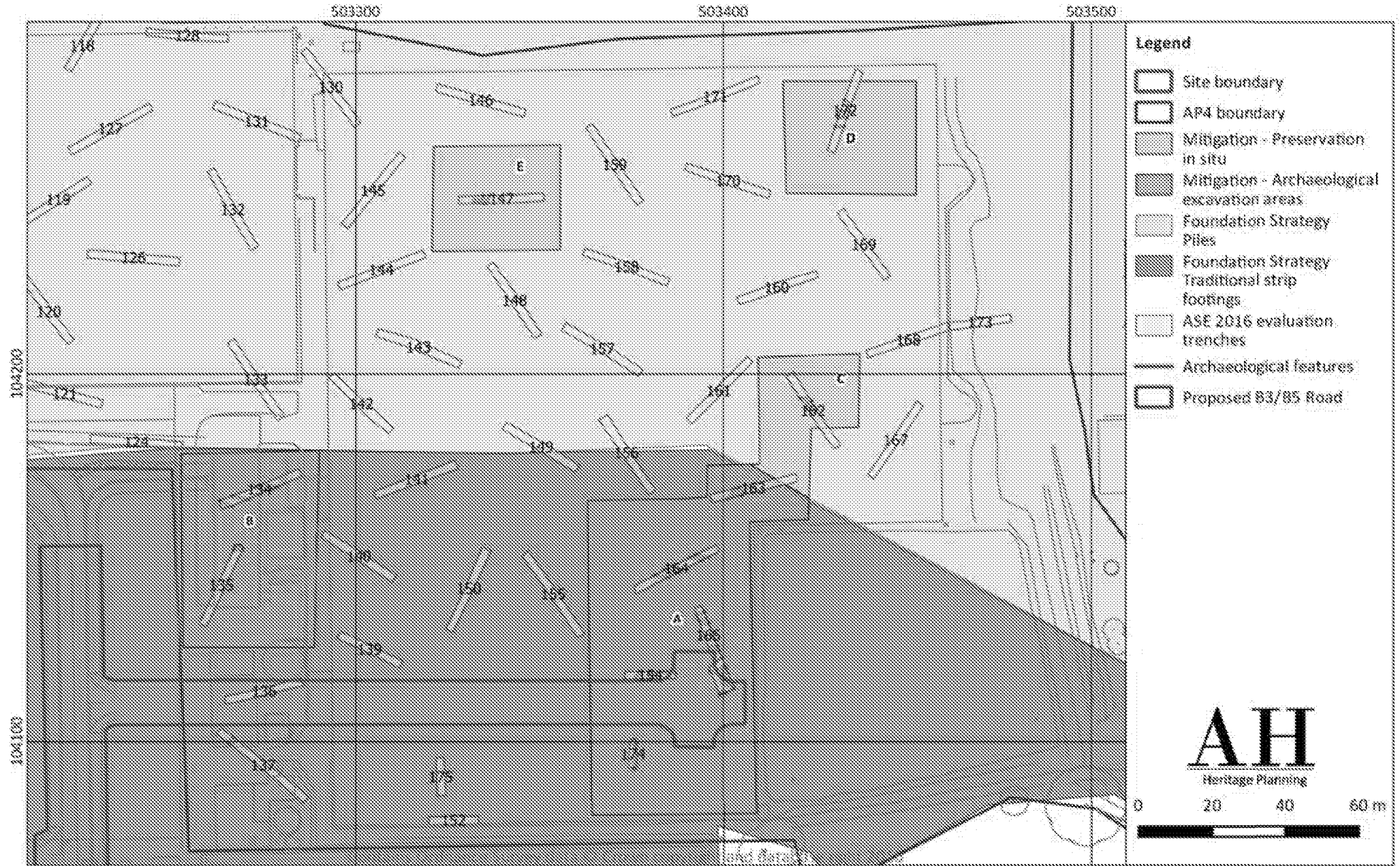
White Young Green 2011. *North Littlehampton Environmental Statement Volume 1*

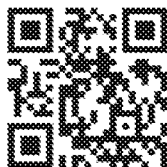


Fig. 1 Site location plan showing zones of archaeological potential in the AP4 area



Fig. 2 Proposed foundation strategy in AP4 area





© Armour Heritage Limited 2016. All Rights Reserved.
Registered Address: Greystone Cottage, Trudoxhill, Frome, Somerset BA11 5DP.

